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SURFACE WATER SUPPLY *of the* UNITED STATES

1929

PART VIII

WESTERN GULF OF MEXICO BASINS

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Prepared in cooperation with the
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ILLUSTRATION

FIGURE 1. Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car- 3

SURFACE WATER SUPPLY OF WESTERN GULF OF MEXICO BASINS, 1929

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting records of measurements of flow made on streams in the United States during the year ending September 30, 1929.

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

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

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

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

Annual appropriations for the fiscal years ending June 30, 1895–1930

1895	$12,500.00	1919	$148,244.10
1896	24,500.00	1920	175,000.00
1897–1899	50,000.00	1921–1923	180,000.00
1900	70,000.00	1924–1925	170,000.00
1901–1902	100,000.00	1926	165,000.00
1903–1906	200,000.00	1927	151,000.00
1907	150,000.00	1928	147,000.00
1908–1910	100,000.00	1929	270,500.00
1911–1917	150,000.00	1930	275,000.00
1918	175,000.00		

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

Measurements of stream flow have been made at about 5,830 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1929, 2,240 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements were made at other points. In connection with this work data were also col-

lected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

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

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

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

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

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

The following terms not in common use are here defined:

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

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

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1928, and ending September 30, 1929. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as underground water, and this stored water passes off in the streams during the spring breakup. At the

end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to

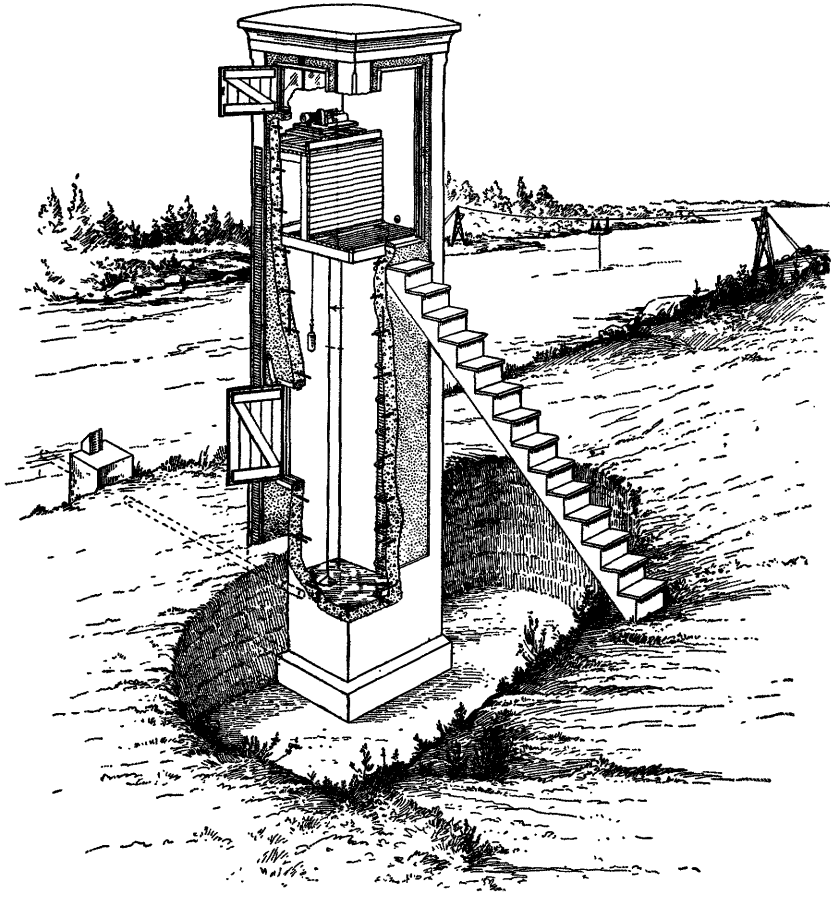

FIGURE 1.—Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter, by the general methods outlined in standard textbooks on the measurement of river discharge. A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

From the discharge measurements rating tables are prepared that give the discharge for any stage. The application of the daily gage height to these rating tables gives the discharge from which the monthly and yearly mean discharge is determined.

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

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records. The maximum discharge given under "Extremes" represents the crest discharge determined from records of stage by water-stage recorders or, where nonrecording gages are installed, from flood marks or from graphs based on gage readings made once daily or oftener.

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

The station description gives a statement in regard to the general accuracy of the records. "Excellent" indicates that records are accurate within 5 per cent; "good," within 10 per cent; "fair," within 15 per cent; and "poor," 20 per cent or more.

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

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

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

PUBLICATIONS

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

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

PART I. North Atlantic slope basins (St. John River to York River).
II. South Atlantic slope and eastern Gulf of Mexico Basins (James River to the Mississippi).
III. Ohio River Basin.
IV. St. Lawrence River Basin.
V. Hudson Bay and upper Mississippi River Basins.
VI. Missouri River Basin.
VII. Lower Mississippi River Basin.
VIII. Western Gulf of Mexico Basins.

IX. Colorado River Basin.
X. The Great Basin.
XI. Pacific slope basins in California.
XII. North Pacific slope drainage basins, in three parts:
A, Pacific slope basins in Washington and upper Columbia River Basin.
B, Snake River Basin.
C, Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

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

Augusta, Me., Statehouse.
Boston, Mass., 2500 Customhouse.
Hartford, Conn., 60 Washington Street.
Albany, N. Y., 506 Broadway-Arcade Building.
Trenton, N. J., 710 Trenton Trust Building.
Harrisburg, Pa., 366 Claster Building.
Charlottesville, Va., Brookes Museum, University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Asheville, N. C., 220 Post Office Building.
Columbia, S. C., 801 National Loan & Exchange Bank Building.
Ocala, Fla., Post Office Building.
Chattanooga, Tenn., 630 Power Building.
Tuscaloosa, Ala., Post Office Building.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Chicago, Ill., 1503 Consumers Building.
Indianapolis, Ind., 319 Federal Building.
Madison, Wis., 337N State Capitol.
St. Paul. Minn., 202 Old State Capitol.
Topeka, Kans., 23 Federal Building.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Austin, Tex., State Capitol.
Santa Fe, N. Mex., State Capitol.
Tucson, Ariz., 210 Post Office Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Helena, Mont., 416 Power Block.
Tacoma, Wash., 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 751 South Figueroa Street, room 510.
Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 5,830 points in the United States, and the data obtained have been published in the reports tabulated below.

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

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

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to Sept., 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907–8.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919–20.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.
W 621 to 634	do	1926.
W 641 to 654	do	1927.
W 661 to 674	do	1928.
W 681 to 694	do	1929.

The records at most of the stations discussed in these reports extend over a series of years. Miscellaneous measurements at many points other than regular gaging stations have been made each year

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

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1929. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part III are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899–1929

[For basins included see p. 5]

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII-A	XII-B	XII-C
1899 [a]	35	[b] 35, 36	36	36	36	[c] 36, 37	37	37	[d] 37, 38	38, [e] 39	38, [f] 39	38	38	38
1900 [g]	47, [h] 48	48	48, [i] 49	49	49	49, [j] 50	50	50	50	51	51	15	51	51
1901	65, 75	65, 75	65, 75	65, 75	[k] 65, 66, 75	66, 75	[h] 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	[b] 82, 83	83	[l] 82, 83	[k] 83, 85	84	[k] 83, 84	84	85	85	85	85	85	85
1903	97	[b] 97, 98	98	97	[k] 98, 99, [m] 100	99	[k] 98, 99	99	100	100	100	100	100	100
1904	[n] 124, [o] 125 [p] 126	[p] 126, 127	128	129	[k] 128, 130	130, [q] 131	[k] 128, 131	132	133	133, [r] 134	134	135	135	135
1905	[n] 165, [o] 166 [p] 167	[p] 167, 168	169	170	171	172	[k] 169, 173	174	175, [s] 177	176, [r] 177	177	178	178	[t] 177, 178
1906	[n] 201, [o] 202 [p] 203	[p] 203, 204	205	206	207	208	[k] 205, 209	210	211, [s] 213	212, [r] 213	213	214	214	214
1907–8	241	242	243	244	245	246	247	248	249	250, [r] 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, [r] 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919–20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929	681	682	683	684	685	686	687	688	689	690	691	692	693	694

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

COOPERATION

The work in Texas was carried on in cooperation with the State through the board of water engineers, John A. Norris, chairman, to whom special acknowledgments are due for the efficient and cordial manner in which the members of the board represented the State in the investigations.

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DIVISION OF WORK

Data for stations in Texas and New Mexico were collected and prepared for publication under the direction of C. E. Ellsworth, district engineer, who was assisted by Trigg Twichell, H. C. Prichett, Seth D. Breeding, Tate Dalrymple, W. C. Dodd, G. W. King, C. B. Tooley, A. C. Cook, G. E. Ferguson, N. C. Magnuson, Kate Casparis, A. B. Goodwin, C. A. Young, B. M. Pember, B. S. Odom, V. W. Rupp, V. L. Austin, S. H. Crowell, F. C. Ames, P. H. Holland, J. M. Terry, R. W. Yarborough, jr., W. M. Littlefield, A. A. Fishback, and E. B. Rice.

The records were reviewed and the manuscript assembled by F. F. Schrader.

GAGING-STATION RECORDS

SABINE RIVER BASIN

SABINE RIVER NEAR LONGVIEW, TEX.

LOCATION.—Staff gage just below International-Great Northern Railroad bridge 3 miles southwest of Longview, Gregg County.

DRAINAGE AREA.—3,010 square miles.

RECORDS AVAILABLE.—January, 1904, to December, 1906, and October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, about 22,300 second-feet Dec. 26 (gage height, 29.95 feet); minimum, 15 second-feet Aug. 27 to Sept. 7 (gage height, 2.00 feet).

1904–1906, 1923–1929: Maximum discharge, that of Dec. 26, 1928; minimum, 14 second-feet Aug. 29–31, 1925 (gage height, 1.10 feet).

REMARKS.—Monthly records fair. Daily records not sufficiently accurate for publication. No sizable diversions. Slight regulation at extremely low stages caused by pumping just above gage.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	206	40	147	9,040
November	3,050	310	1,020	60,700
December	21,600	310	6,440	396,000
January	9,960	2,140	5,750	354,000
February	8,060	1,710	3,760	209,000
March	5,810	1,000	3,600	221,000
April	4,620	929	1,970	117,000
May	15,800	836	6,230	383,000
June	11,600	233	5,340	318,000
July	1,420	77	351	21,600
August	77	15	40.4	2,480
September	1,220	15	359	21,400
The year	21,600	15	2,920	2,110,000

SABINE RIVER AT LOGANSPORT, LA.

LOCATION.—Chain gage on highway bridge 200 feet above Houston East & West Texas Railway bridge and a quarter of a mile west of railway station in Logansport, De Soto Parish. Zero of gage, 147.5 feet above mean sea level.

DRAINAGE AREA.—4,860 square miles.

RECORDS AVAILABLE.—July, 1903, to December, 1906, and October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year not determined; minimum, 47 second-feet Sept. 3–7 (gage height, −0.7 foot).

1903–1906, 1923–1929: Maximum discharge not determined (gage height, 35.8 feet May 26, 1905); minimum discharge, probably less than 27 second-feet September, 1925.

Maximum stage known, 39.4 feet reached during 1884.

REMARKS.—Monthly records fair. Records of daily discharge not sufficiently accurate for publication. No diversions. Gage-height record furnished by United States Weather Bureau.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	305		190	11,700
November	3,960	128	1,450	86,300
December	8,580	1,020	4,670	287,000
January			* 9,420	579,000
February	8,840	3,260	5,870	326,000
March	6,660	2,780	5,440	334,000
April	3,660	2,060	2,840	169,000
May		1,290	4,990	307,000
June		470	7,470	444,000
July	1,050	159	573	35,200
August		51	* 80.0	4,920
September	1,170	47	338	20,100
The year		47	3,600	2,600,000

* Estimated.

SABINE RIVER NEAR BON WIER, TEX.

LOCATION.—Chain gage on Gulf, Colorado & Santa Fe Railway bridge 1¼ miles east of Bon Wier, Newton County. Zero of gage, 45.4 feet above mean sea level.

DRAINAGE AREA.—8,390 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 41,400 second-feet Mar. 26 (gage height, 20.3 feet); minimum, 440 second-feet Oct. 6–13 (gage height, 0.88 foot).

1923–1929: Maximum discharge, about 45,600 second-feet Apr. 21, 1927 (gage height, 2.06 feet); minimum, 185 second-feet Sept. 11, 22, and 24, 1925 (gage height, 0.50 foot).

REMARKS.—Monthly records fair. Records of daily discharge not sufficiently accurate for publication. No diversions. Gage-height record furnished by United States Weather Bureau.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	770	440	564	34,700
November	3,320	575	1,540	91,600
December	9,370	930	4,540	279,000
January	16,500	7,940	12,000	738,000
February	15,100	7,160	11,500	639,000
March	40,000	7,550	16,800	1,030,000
April	12,800	4,040	6,810	405,000
May	29,000	6,020	13,900	855,000
June	40,000	3,320	17,200	1,020,000
July	3,620	1,150	1,940	119,000
August	1,550	610	934	57,400
September	1,200	540	861	51,200
The year	40,000	440	7,360	5,320,000

SABINE RIVER NEAR RULIFF, TEX.

LOCATION.—Staff gage on Kansas City Southern Railway bridge, 1½ miles east of Ruliff, Newton County, and 5 miles below the mouth of Cypress Creek. Zero of gage, 4.7 feet above mean sea level.

DRAINAGE AREA.—9,450 square miles.

RECORDS AVAILABLE.—October, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 61,200 second-feet June 1 (gage height, 14.4 feet); minimum, 476 second-feet Oct. 3 and 7–11 (gage height, 1.80 feet).

1924–1929: Maximum discharge, that of June 1, 1929; minimum, 372 second-feet Sept. 11, 1925 (gage height, 1.10 feet).

The river reached a stage of 15.5 feet Apr. 15, 1923.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	505	622	1,160	9,580	11,100	11,100	25,200	7,450	61,200	7,050	1,360	714
2	505	652	1,160	9,580	11,100	11,800	21,800	7,680	52,200	4,850	1,310	683
3	476	652	1,160	9,580	11,100	13,000	17,100	7,900	38,700	3,650	1,310	683
4	505	652	1,200	9,300	11,400	13,500	15,100	8,350	34,200	2,960	1,310	683
5	505	683	1,240	9,850	11,800	14,000	13,000	8,800	29,700	2,700	1,270	683
6	505	809	1,310	9,850	12,600	13,500	11,100	8,800	27,400	2,550	1,240	683
7	476	910	1,500	10,400	13,500	12,600	8,800	8,350	25,200	2,480	1,200	652
8	476	1,020	1,610	10,800	13,500	11,800	7,450	7,900	21,800	2,480	1,160	652
9	476	1,160	1,840	11,100	14,000	11,100	6,460	7,050	19,200	2,700	1,090	652
10	476	1,610	1,900	12,200	14,000	11,100	5,600	6,650	19,200	2,780	1,020	745
11	476	2,400	1,840	12,200	14,000	10,400	6,080	6,460	17,100	2,780	945	1,050
12	505	2,870	1,780	12,200	13,500	9,850	7,050	6,260	15,700	2,700	945	1,120
13	534	2,960	1,720	12,600	12,600	9,300	8,350	6,260	14,500	2,550	910	1,020
14	534	2,870	2,100	12,600	12,600	8,800	9,300	6,650	13,500	2,550	945	945
15	534	2,700	2,550	13,000	13,000	8,350	9,580	6,650	13,500	2,400	910	945
16	563	2,550	2,780	13,500	13,000	7,900	9,300	7,450	12,600	2,250	945	945
17	622	2,400	2,870	14,000	13,000	8,800	8,350	9,300	12,600	2,040	1,090	945
18	683	2,320	3,350	14,500	13,500	9,850	7,450	11,800	12,200	1,970	1,120	980
19	745	2,250	3,900	15,700	13,500	11,800	7,050	14,000	12,600	2,100	1,050	945
20	809	2,100	4,560	15,700	13,500	13,500	6,650	14,500	13,000	2,250	980	1,020
21	876	1,840	5,450	16,400	14,000	14,500	6,460	17,100	13,000	2,250	945	1,160
22	876	1,670	6,260	15,700	14,000	15,700	6,260	19,200	12,600	2,180	876	1,310
23	842	1,500	6,650	15,700	13,500	19,200	6,260	20,500	12,600	1,970	809	1,360
24	809	1,310	7,450	15,100	12,600	21,800	6,080	20,500	12,600	1,780	809	1,400
25	714	1,240	7,900	14,500	11,800	29,700	5,910	19,200	12,200	1,610	745	1,400
26	683	1,160	8,120	13,500	11,100	38,700	5,760	19,200	12,200	1,560	745	1,360
27	683	1,120	8,350	12,600	11,100	38,700	5,600	18,200	11,800	1,450	745	1,270
28	683	1,120	8,580	11,800	10,800	36,400	5,450	17,100	11,400	1,360	745	1,160
29	652	1,160	8,800	11,400	-------	34,200	6,260	18,200	11,100	1,310	777	1,120
30	622	1,160	9,050	11,100	-------	29,700	7,050	23,500	9,580	1,310	745	1,050
31	622	-------	9,300	11,100	-------	27,400	-------	43,200	-------	1,310	714	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	876	476	612	37,600
November	2,960	622	1,580	94,000
December	9,300	1,160	4,110	253,000
January	16,400	9,300	12,500	769,000
February	14,000	10,800	12,700	705,000
March	38,700	7,900	17,000	1,050,000
April	25,200	5,450	9,060	539,000
May	43,200	6,260	13,000	799,000
June	61,200	9,580	19,500	1,160,000
July	7,050	1,310	2,450	151,000
August	1,360	714	992	61,000
September	1,400	652	978	58,200
The year	61,200	476	7,840	5,680,000

NECHES RIVER BASIN

NECHES RIVER NEAR ROCKLAND, TEX.

LOCATION.—Staff gage half a mile above Texas & New Orleans Railroad bridge 1 mile north of Rockland, Tyler County. Zero of gage, 95.50 feet above mean sea level.

DRAINAGE AREA.—3,540 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 34,200 second-feet June 1 (gage height, 26.80 feet); minimum, 21 second-feet Oct. 3–5 (gage height, −0.80 foot).

1923–1929: Maximum discharge, that of June 1, 1929; minimum, 7.0 second-feet Aug. 23 and 24, 1925 (gage height, −1.2 feet).

Highest stage recorded, 28.9 feet by United States Weather Bureau, Apr 2, 1922 (discharge, about 45,800 second-feet).

REMARKS.—Records fair. No diversions above gage. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	40	275	1,270	2,400	2,160	3,150	1,640	34,200	726	201	50
2	30	136	350	1,350	2,890	1,980	2,830	1,680	33,100	576	201	50
3	21	119	350	1,390	3,490	1,850	2,680	1,720	28,200	576	182	40
4	21	74	378	1,470	3,430	1,850	2,540	1,760	21,800	1,190	182	40
5	21	74	378	2,120	3,370	2,260	2,440	1,760	16,900	1,680	163	40
6	30	74	350	2,260	4,160	1,850	2,400	1,760	14,500	2,120	163	40
7	30	74	350	2,210	4,030	1,720	2,260	1,720	13,300	1,850	136	40
8	30	191	378	2,210	3,900	1,640	2,120	1,590	12,000	1,720	136	50
9	30	378	378	2,300	3,780	1,550	2,780	1,390	10,900	1,590	119	50
10	30	438	407	2,730	3,550	1,470	2,780	1,110	9,830	1,190	119	40
11	40	470	438	2,830	3,200	1,420	2,350	1,110	8,850	957	103	50
12	40	504	470	2,780	2,990	1,420	2,080	1,270	7,940	726	88	50
13	40	504	879	2,730	2,730	2,830	1,760	3,110	7,100	650	88	40
14	40	540	1,150	2,680	2,440	3,780	1,980	9,900	7,100	576	74	191
15	40	540	1,150	2,680	2,350	3,490	2,080	12,100	7,660	504	74	154
16	40	540	840	2,730	2,490	3,150	2,080	14,300	6,820	438	74	136
17	50	540	764	2,540	2,490	2,940	2,120	14,500	5,710	378	74	232
18	61	540	688	2,300	2,400	2,780	2,080	14,000	4,690	378	61	211
19	50	540	650	2,260	2,300	2,640	1,900	17,200	3,780	378	61	136
20	50	540	650	2,210	2,210	2,540	1,640	13,700	3,310	310	61	88
21	50	504	688	2,160	2,120	2,440	1,550	13,600	2,990	286	61	74
22	50	470	764	2,120	1,980	3,310	1,470	13,000	2,780	264	61	61
23	50	407	802	2,080	1,940	4,320	1,470	12,300	2,590	264	50	74
24	50	350	879	2,080	1,900	4,960	1,420	11,500	2,490	264	50	119
25	50	323	918	2,120	1,850	5,230	1,350	10,700	2,300	222	50	136
26	50	298	957	2,160	2,640	5,500	1,270	9,690	2,120	201	61	154
27	50	253	996	2,210	2,540	5,230	1,270	8,920	2,030	201	61	136
28	40	253	1,040	2,210	2,350	4,960	1,230	14,000	1,640	182	50	136
29	40	253	1,070	2,260	------	4,550	1,230	24,100	1,420	182	50	119
30	40	253	1,150	2,300	------	4,160	1,350	27,100	957	182	50	103
31	40	------	1,230	2,350	------	3,550	------	30,900	------	201	50	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	61	21	39.8	2,450
November	540	40	341	20,300
December	1,230	275	702	43,200
January	2,830	1,270	2,230	137,000
February	4,160	1,850	2,780	154,000
March	5,500	1,420	3,030	186,000
April	3,150	1,230	1,990	118,000
May	30,900	1,110	9,460	582,000
June	34,200	957	9,300	553,000
July	2,120	182	676	41,600
August	201	50	95.3	5,860
September	232	40	94.7	5,640
The year	34,200	21	2,560	1,850,000

NECHES RIVER AT EVADALE, TEX.

LOCATION.—Staff gage at Gulf, Colorado & Santa Fe Railway bridge at Evadale, Casper County. Zero of gage, 7.20 feet above mean sea level.

DRAINAGE AREA.—7,910 square miles.

RECORDS AVAILABLE.—July, 1904, to December, 1906, and October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 67,600 second-feet June 1 (gage height, 22.20 feet); minimum, 255 second-feet Oct. 9 (gage height, —0.04 foot).

1904–1906, 1923–1929: Maximum discharge, that of June 1, 1929; minimum, about 148 second-feet Sept. 10, 1925.

Maximum stage known, 33.4 feet in 1884 from records of Gulf, Colorado & Santa Fe Railway.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	267	319	797	3,460	6,100	7,750	14,400	4,290	67,600	4,050	1,460	471
2	267	348	797	3,390	6,100	8,070	12,500	4,290	66,000	3,600	1,570	471
3	267	333	826	3,460	6,100	7,750	10,800	4,620	64,400	2,730	1,460	451
4	279	348	884	3,530	6,590	7,130	9,180	4,920	62,000	2,510	1,220	451
5	267	414	1,040	4,130	7,430	6,590	7,750	5,120	59,600	2,400	1,080	432
6	255	432	1,380	4,720	8,400	6,590	6,990	5,120	61,200	2,460	1,010	432
7	255	432	1,500	5,740	8,770	7,130	6,220	5,020	55,600	3,100	914	432
8	255	414	1,460	6,460	9,180	7,280	5,740	4,920	51,600	4,370	884	432
9	255	513	1,380	6,850	9,600	6,850	5,620	4,820	48,400	5,220	855	432
10	267	633	1,260	6,850	9,810	5,980	5,740	4,540	43,600	5,320	826	414
11	267	633	1,150	6,720	9,810	5,320	6,850	4,050	38,900	5,220	797	414
12	267	713	1,110	6,850	9,390	4,820	7,910	3,320	35,800	4,820	768	432
13	255	797	1,260	7,130	8,970	4,720	8,400	3,010	31,900	4,210	740	492
14	267	884	1,340	7,130	8,400	5,120	7,750	3,840	28,700	3,530	713	659
15	267	977	1,530	7,130	8,400	6,460	6,850	6,640	26,400	2,900	686	797
16	279	1,080	2,110	7,130	8,070	7,910	5,980	10,500	23,500	2,460	659	855
17	292	1,220	2,730	7,130	8,070	9,180	5,520	14,900	21,400	2,200	633	884
18	279	1,300	3,060	7,280	8,070	9,600	5,220	20,600	19,200	2,060	633	945
19	292	1,420	3,260	7,280	7,910	9,600	5,120	24,200	17,900	1,970	607	1,010
20	333	1,420	3,260	6,850	7,590	8,770	5,020	26,400	14,900	1,830	607	1,080
21	380	1,380	3,060	6,460	7,130	8,400	4,820	28,000	12,500	1,650	558	884
22	364	1,340	2,950	6,100	6,720	9,600	4,620	30,300	11,600	1,610	558	768
23	348	1,300	2,900	5,980	6,460	10,300	4,370	31,900	10,800	1,530	558	713
24	333	1,260	2,900	5,860	6,220	11,800	4,130	32,600	9,390	1,460	558	659
25	348	1,190	2,900	5,740	6,100	14,000	3,960	31,900	8,230	1,460	558	607
26	364	1,080	3,010	5,620	5,860	15,400	3,800	31,900	7,590	1,420	535	582
27	364	977	3,060	5,740	6,100	16,600	3,660	31,100	6,590	1,260	535	558
28	333	914	3,190	5,860	6,990	17,200	3,730	31,900	5,740	1,190	513	558
29	333	826	3,320	5,860	-------	17,200	4,130	36,500	5,020	1,150	513	558
30	333	826	3,390	6,100	-------	16,600	4,370	48,400	4,540	1,190	492	558
31	333	-------	3,460	6,220	-------	16,000	-------	63,600	-------	1,300	492	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	380	255	299	18,400
November	1,420	319	857	51,000
December	3,460	797	2,140	132,000
January	7,280	3,390	5,960	366,000
February	9,810	5,860	7,650	425,000
March	17,200	4,720	9,540	587,000
April	14,400	3,660	6,370	379,000
May	63,600	3,010	18,200	1,120,000
June	67,600	4,540	30,700	1,830,000
July	5,320	1,150	2,650	163,000
August	1,570	492	774	47,600
September	1,080	414	614	36,500
The year	67,600	255	7,110	5,160,000

ANGELINA RIVER NEAR LUFKIN, TEX.

LOCATION.—Chain gage on highway bridge, 1 mile above Houston East & West Texas Railway bridge, and 8 miles north of Lufkin, Angelina County.

DRAINAGE AREA.—1,580 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 8,160 second-feet May 31 (gage height, 13.06 feet); minimum, 10 second-feet Oct. 2 and 3 (gage height, 1.72 feet).

1923–1929: Maximum discharge, about 30,200 second-feet Nov. 19–21, 1925 (gage height, 15.99 feet from gage on railroad bridge 1 mile downstream); minimum, that of Oct. 2 and 3, 1928.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	41	330	2,860	2,200	1,400	1,040	1,720	6,880	242	77	17
2	10	56	300	2,300	2,400	1,340	930	1,520	5,450	224	86	16
3	10	90	290	1,860	2,400	1,340	830	1,100	4,260	391	90	15
4	11	118	290	1,400	2,400	1,340	780	830	3,640	640	68	15
5	11	197	300	1,340	2,300	1,340	680	680	3,460	730	54	15
6	12	310	310	1,340	2,300	1,340	640	520	3,840	640	50	15
7	12	385	320	1,340	2,100	1,340	600	415	4,480	450	46	15
8	13	485	330	1,400	1,940	1,220	560	350	4,710	350	42	16
9	14	520	340	1,460	1,940	1,160	560	385	4,950	340	38	16
10	15	560	365	1,580	1,790	1,160	640	600	4,710	365	34	16
11	22	560	415	1,650	1,860	1,220	780	640	4,260	365	32	18
12	32	600	520	1,720	1,790	1,340	880	560	3,840	365	29	16
13	36	640	730	1,860	1,720	1,720	980	1,160	3,460	350	28	15
14	34	640	780	2,020	1,650	2,020	1,100	2,200	3,140	330	28	28
15	34	640	680	2,200	1,650	2,100	1,220	2,100	2,730	290	28	148
16	32	600	640	2,400	1,650	2,020	1,280	1,940	2,400	242	26	197
17	38	520	680	2,500	1,650	1,860	1,220	1,790	2,100	206	26	172
18	56	365	980	2,600	1,650	1,790	1,100	1,790	1,790	172	28	125
19	58	300	1,160	2,600	1,650	1,720	980	2,200	1,400	156	24	97
20	46	242	1,280	2,500	1,650	1,790	930	2,400	930	140	22	90
21	41	215	1,340	2,300	1,580	2,100	880	2,500	600	125	20	90
22	40	197	1,400	2,100	1,520	2,400	830	2,200	415	111	18	80
23	38	188	1,520	1,940	1,400	2,400	730	1,790	365	97	18	68
24	40	188	1,720	1,790	1,340	2,400	730	1,580	340	83	19	56
25	36	188	2,100	1,940	1,280	2,300	930	1,460	320	77	23	46
26	34	197	2,300	1,940	1,340	2,200	1,040	1,720	300	74	24	40
27	29	206	2,730	2,020	1,460	2,020	1,160	2,020	290	68	23	35
28	28	206	3,290	2,100	1,520	1,860	1,220	2,020	270	64	22	32
29	29	206	3,640	2,100	-------	1,720	1,040	3,520	260	58	23	29
30	34	340	3,640	2,200	-------	1,460	1,220	6,000	251	56	22	28
31	35	-------	3,290	2,200	-------	1,280	-------	8,160	-------	64	19	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	58	10	28.7	1,760
November	640	41	333	19,800
December	3,640	290	1,230	75,600
January	2,860	1,340	1,990	122,000
February	2,400	1,280	1,790	99,400
March	2,400	1,160	1,700	105,000
April	1,280	560	917	54,600
May	8,160	350	1,870	115,000
June	6,880	251	2,530	151,000
July	730	56	254	15,600
August	90	18	35.1	2,160
September	197	15	52.2	3,110
The year	8,160	10	1,050	765,000

ANGELINA RIVER AT HORGER, TEX.

LOCATION.—Chain gage on Zavalla-Jasper highway bridge one-fourth mile east of Horger, Jasper County, and about 20 miles above mouth.

DRAINAGE AREA.—3,440 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 33,300 second-feet May 30 (gage height, 34.50 feet); minimum, 46 second-feet Oct. 4 (gage height, 1.28 feet).

1928–29.—Maximum discharge, that of May 30, 1929; minimum, 46 second-feet Sept. 9, 15, 20, and Oct. 4, 1928.

Maximum stage known, about 39.50 feet in August, 1914.

REMARKS.—Records fair. No diversions above station. May be backwater at times from Neches River, 20 miles below.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	83	322	2,060	3,530	4,110	3,630	2,810	29,800	906	396	72
2	49	96	365	2,290	4,400	3,440	3,240	2,810	27,600	834	307	67
3	48	89	427	3,000	4,600	3,050	2,910	2,760	25,500	834	267	65
4	48	89	620	3,240	4,500	3,580	2,670	2,670	23,300	906	254	65
5	53	110	1,010	3,530	4,500	3,960	2,570	2,570	21,400	1,830	254	62
6	52	380	978	3,580	4,650	3,580	2,290	2,520	19,500	2,480	254	59
7	49	427	942	3,630	4,900	2,860	1,830	2,380	17,700	2,860	242	55
8	54	380	906	3,530	4,650	2,570	1,740	1,880	15,900	2,760	254	54
9	58	336	554	3,580	4,300	2,290	2,860	1,740	14,200	2,570	242	52
10	58	294	490	3,630	4,110	2,100	3,960	1,300	12,200	2,200	198	55
11	55	230	522	3,680	3,960	1,970	3,720	1,050	10,600	1,780	177	89
12	53	396	490	3,290	3,770	2,570	2,480	1,220	9,000	1,300	141	280
13	52	490	587	3,050	3,680	3,820	2,010	5,800	7,520	1,130	141	427
14	50	522	798	3,000	3,480	5,050	1,700	8,370	6,770	1,050	149	280
15	52	554	1,740	2,810	3,530	5,450	1,740	10,200	6,540	942	149	254
16	55	587	2,200	2,620	3,770	4,600	1,920	12,300	6,110	870	149	254
17	89	620	2,200	2,620	3,630	4,110	2,060	11,900	5,600	762	96	230
18	158	620	2,060	2,570	3,440	3,870	1,920	12,000	5,000	726	77	208
19	117	620	1,880	2,520	3,150	3,720	1,830	12,600	4,700	620	77	208
20	102	620	1,780	2,570	3,150	4,200	1,780	12,900	4,400	554	77	198
21	117	620	1,880	2,670	2,960	5,100	1,740	13,500	3,820	522	83	198
22	187	587	1,920	2,760	3,050	5,700	1,740	13,100	3,440	490	125	208
23	187	554	1,970	2,760	3,340	8,280	1,740	12,500	3,000	458	117	198
24	133	490	2,010	2,720	3,480	10,100	1,650	10,600	2,480	427	110	187
25	125	380	2,100	2,860	3,630	10,600	1,470	9,090	1,920	427	110	267
26	117	336	2,150	3,200	4,110	8,910	1,700	8,280	1,470	365	102	149
27	125	336	2,200	3,340	4,650	7,200	2,670	9,460	1,300	350	102	141
28	110	365	2,240	3,390	4,550	5,900	2,670	18,600	1,180	380	96	125
29	102	280	2,240	3,290	-------	5,050	2,290	27,000	1,050	396	89	110
30	89	294	2,150	3,150	-------	4,450	2,150	33,300	978	380	89	102
31	83	-------	2,100	3,050	-------	4,060	-------	32,000	-------	380	89	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	187	48	86.4	5,310
November	620	83	393	23,400
December	2,240	322	1,410	86,700
January	3,680	2,060	3,030	186,000
February	4,900	2,960	3,910	217,000
March	10,600	1,970	4,720	290,000
April	3,960	1,470	2,290	136,000
May	33,300	1,050	9,650	593,000
June	29,800	978	9,800	583,000
July	2,860	350	1,050	64,600
August	396	77	162	9,960
September	427	52	157	9,340
The year	33,300	48	3,050	2,200,000

TRINITY RIVER BASIN

WEST FORK OF TRINITY RIVER AT BRIDGEPORT, TEX.

LOCATION.—Staff gage at Chicago, Rock Island & Gulf Railway Co.'s pumping plant half a mile southwest of Bridgeport, Wise County.

DRAINAGE AREA.—1,010 square miles.

RECORDS AVAILABLE.—October, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,550 second-feet May 16 (gage height, 19.80 feet); no flow during several periods.

1914–1929: Maximum discharge not determined (gage height, 28.9 feet June 8, 1915); no flow during several periods.

REMARKS.—Records fair. Small amount of water diverted above station for water supply of Bridgeport.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	695	5.8	6.4	9.0	13	7.1	23	1,260	1.4	1.2	0
2	0	642	4.5	5.2	11	11	6.4	9.7	962	2.9	.2	0
3	0	591	4.5	4.5	13	12	5.8	7.8	319	11	.1	0
4	0	319	4.5	31	11	11	5.8	5.2	105	5.2	0	0
5	0	84	4.2	902	10	10	4.5	3.7	164	4.0	0	0
6	0	43	4.0	840	11	9.7	4.2	3.7	455	2.9	0	0
7	0	16	4.2	630	12	9.0	4.2	2.9	902	2.1	0	0
8	0	16	1.8	144	12	9.0	6.4	2.6	779	2.6	0	291
9	0	10	1.4	77	9.7	8.4	91	2.6	616	2.3	0	269
10	0	8.4	1.3	52	8.4	8.4	11	10	285	1.7	0	156
11	0	7.1	2.9	32	5.8	9.0	5.2	3.2	91	1.3	0	520
12	0	4.5	44	22	6.4	50	4.0	77	48	.1	0	1,020
13	0	4.0	131	19	13	45	3.4	3,510	28	.2	0	1,170
14	0	4.2	68	17	13	229	3.4	3,680	23	.2	0	1,020
15	0	59	72	15	12	198	11	3,260	17	0	0	580
16	0	285	70	10	10	91	8.4	4,810	10	0	0	81
17	0	201	228	10	9.0	52	7.1	2,390	8.4	0	0	23
18	0	136	74	9.7	9.0	34	4.5	2,340	5.8	0	0	11
19	0	136	61	10	8.4	28	4.2	1,690	5.8	0	0	6.4
20	0	81	50	9.0	8.4	19	8.4	434	5.8	38	0	4.5
21	0	39	39	8.4	9.0	18	3.7	515	4.2	6.4	0	3.2
22	0	23	30	8.4	10	17	3.2	189	4.2	1.3	0	1.8
23	0	18	23	13	9.0	16	27	110	2.9	136	0	1.7
24	0	16	18	115	8.4	11	11	100	2.9	70	0	1.6
25	0	13	13	45	7.8	8.4	7.1	239	2.3	17	0	1.2
26	0	11	11	18	17	8.4	8.2	81	2.3	9.0	0	.8
27	0	11	11	16	11	7.1	384	70	2.3	3.7	0	.5
28	266	9.7	10	15	13	7.8	616	52	1.6	2.1	0	.2
29	337	8.4	9.7	11	-------	8.4	282	34	1.4	2.3	0	.1
30	779	7.1	8.4	10	-------	7.8	54	2,070	1.7	2.3	0	0
31	520	-------	7.1	9.7	-------	7.8	-------	2,890	---------	1.8	0	---------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	779	0	61.4	3,780
November	695	4.0	117	6,960
December	228	1.3	32.8	2,020
January	902	4.5	100	6,150
February	17	5.8	10.3	572
March	229	7.1	31.4	1,930
April	616	3.2	53.4	3,180
May	4,810	2.6	923	56,800
June	1,260	1.4	204	12,100
July	136	0	10.6	652
August	1.2	0	.05	3.1
September	1,170	0	172	10,200
The year	4,810	0	144	104,000

WEST FORK OF TRINITY RIVER AT LAKE WORTH DAM, ABOVE FORT WORTH, TEX.

LOCATION.—Water-stage recorder just above Lake Worth Dam, 4½ miles northwest of Tarrant County courthouse in Fort Worth.

DRAINAGE AREA.—1,870 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,120 second-feet May 17 (gage height, 2.13 feet); no flow during several periods.

1923–1929: Maximum discharge, 7,600 second-feet Nov. 18, 1923 (gage height, 2.25 feet); no flow during several periods.

REMARKS.—Records fair. Diversions for municipal use only; amount not known.

Daily and monthly discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Sept.
1	2.8	14	14	78	e 110	22	451	1,420	0
2	113	14	3.2	70	78	17	190	1,990	0
3	339	9.2	2.4	70	94	17	70	2,400	0
4	475	9.2	6.8	70	94	14.0	46	2,720	0
5	513	2.4	30	70	54	9.2	27	2,580	0
6	494	.8	12	62	54	3.2	30	1,460	0
7	318	.8	231	62	46	9.2	22	884	0
8	202	0	735	70	38	53	20	759	0
9	144	0	1,080	54	54	950	17	884	0
10	102	1.6	664	54	27	976	9.2	972	0
11	78	6.6	349	46	30	494	6.6	944	0
12	70	20	214	54	144	318	19	664	0
13	46	46	179	54	190	225	420	418	0
14	54	122	133	54	202	202	1,560	272	0
15	54	214	133	70	190	168	1,920	190	0
16	54	579	94	46	202	110	2,820	144	0
17	86	1,120	78	38	240	102	5,500	122	.7
18	86	617	94	54	225	94	5,590	110	22
19	122	513	54	62	190	86	6,410	102	38
20	122	334	46	54	168	110	6,410	102	30
21	110	214	27	70	144	94	5,110	86	25
22	102	156	30	70	133	70	4,080	46	20
23	78	122	152	62	102	38	3,320	12	14
24	70	102	402		62	78	2,080	17	6.6
25	54	86	437		78	78	e 1,030	17	2.4
26	30	86	437	e 165	70	38	e 759	12	0
27	38	70	399		54	30	688	4.0	0
28	30	54	225		62	38	513	2.4	0
29	38	38	156	-------	38	70	418	0	0
30	25	22	133	-------	25	240	724	0	0
31	-------	27	110	-------	30	-------	1,260	---------	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	513	2.8	135	8,030
December	1,120	0	148	9,100
January	1,080	2.4	215	13,200
February	----------	----------	79.2	4,400
March	240	25	104	6,400
April	976	3.2	158	9,400
May	6,410	6.6	1,660	102,000
June	2,720	0	641	38,100
September	38	0	5.29	315
The year	6,410	0	264	191,000

e Estimated.

NOTE.—No flow during October, July, and August.

WEST FORK OF TRINITY RIVER AT FORT WORTH, TEX.

LOCATION.—Water-stage recorder in old pump house of Fort Worth Power & Light Co.'s plant in Fort Worth, Tarrant County, and 150 feet above Paddock viaduct. Zero of gage, 519.26 feet above mean sea level.

DRAINAGE AREA.—2,430 square miles.

RECORDS AVAILABLE.—October, 1920, to September, 1929.

EXTREMES.—Maximum discharge during year, 10,800 second-feet Feb. 25 (gage height, 11.80 feet, determined from floodmarks); no flow during several periods.

1920–1929: Maximum discharge, determined by slope-area method, 85,000 second-feet Apr. 25, 1922 (gage height, 23.95 feet); no flow during several periods.

REMARKS.—Monthly records fair. Daily discharge not sufficiently accurate for publication. About 15 second-feet diverted by city of Fort Worth for municipal use. Flow partly regulated at Lake Worth.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	25	0	1.45	89
November	558	35	146	8,690
December	3,590	7.0	299	18,400
January			308	18,900
February	4,510		354	19,700
March			304	18,700
April	1,960		305	18,100
May			1,910	117,000
June	2,740	18	707	42,100
July	30	3.3	8.66	532
August	3.3	0	.64	39
September	24	0	3.61	215
The year		0	363	262,000

WEST FORK OF TRINITY RIVER AT GRAND PRAIRIE, TEX.

LOCATION.—Chain gage on highway bridge on Grand Prairie-Sowers-Irving road 1 mile northeast of Grand Prairie, Dallas County. Zero of gage, 412.99 feet above mean sea level.

DRAINAGE AREA.—2,890 square miles.

RECORDS AVAILABLE.—March, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 10,000 second-feet Dec. 17 (gage height, 25.30 feet); minimum, 12 second-feet Aug. 31 (gage height, 2.10 feet).

1925–1929: Maximum discharge, that of Dec. 17, 1928; minimum, 3.2 second-feet June 6, 1925.

During April, 1922, a stage of about 29 feet was reached.

REMARKS.—Records fair. Discharge interpolated Oct. 4 and 5. Numerous small diversions above gage; amount not known. Largest diversion of about 15 second-feet is made by city of Fort Worth. Flow partly regulated by storage at Lake Worth.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	65	73	103	276	771	165	232	3,840	43	23	15
2	19	109	66	121	191	581	178	405	2,290	44	25	16
3	21	139	48	91	232	473	139	356	2,110	57	26	14
4	22	315	36	80	232	422	158	152	2,440	62	23	14
5	24	456	35	158	232	405	146	109	2,770	51	22	22
6	25	545	34	324	218	356	133	109	2,830	47	19	31
7	19	509	36	218	218	308	127	91	1,760	19	20	31
8	18	324	30	191	218	276	158	103	1,160	50	20	418
9	20	246	33	858	232	261	886	103	1,020	53	20	280
10	21	178	71	1,220	178	246	2,060	97	1,080	41	19	42
11	20	133	65	923	165	246	1,330	176	1,120	41	18	31
12	18	83	231	563	218	574	714	91	1,060	38	18	21
13	19	68	847	356	246	2,030	473	228	828	34	16	22
14	20	90	372	246	246	923	372	1,190	581	36	18	149
15	20	694	232	204	204	657	292	1,910	372	33	18	38
16	17	386	178	204	204	581	324	2,210	232	29	18	22
17	17	121	6,920	152	204	509	204	3,100	178	29	18	15
18	18	127	7,780	127	158	527	165	4,330	139	25	18	16
19	19	97	2,180	127	165	509	178	5,220	121	34	15	15
20	20	146	885	127	191	456	915	5,440	115	36	14	18
21	17	152	676	103	261	439	834	5,910	91	33	14	20
22	23	152	456	103	388	473	261	5,710	97	32	15	40
23	39	139	372	103	388	388	158	4,470	91	25	15	41
24	42	115	276	1,430	276	340	158	3,350	80	29	13	30
25	44	97	232	1,320	3,040	246	962	2,380	75	20	15	30
26	48	85	191	847	6,890	232	356	1,710	75	22	19	23
27	68	67	165	676	2,160	246	178	1,300	69	32	14	20
28	75	75	139	600	885	218	139	980	66	28	14	18
29	91	77	133	422	------	232	127	904	59	29	14	18
30	62	57	121	308	------	204	127	1,450	35	24	15	18
31	62	------	103	292	------	178	------	3,350	------	21	12	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	91	17	31.4	1,930
November	694	57	195	11,600
December	7,780	30	742	45,600
January	1,430	80	406	25,000
February	6,890	158	661	36,700
March	2,030	178	462	28,400
April	2,060	127	414	24,600
May	5,910	91	1,840	113,000
June	3,840	35	893	53,100
July	62	19	35.4	2,180
August	26	12	17.7	1,090
September	418	14	49.6	2,950
The year	7,780	12	479	346,000

TRINITY RIVER AT DALLAS, TEX.

LOCATION.—Chain gage on Commerce Street viaduct in Dallas, Dallas County. Zero of gage, 368.05 feet above mean sea level.

DRAINAGE AREA.—6,000 square miles.

RECORDS AVAILABLE.—October, 1898, to December, 1899; July, 1903, to December, 1906; and October, 1920, to September, 1929.

EXTREMES.—Maximum discharge during year, 34,800 second-feet Dec. 18 (gage height, 37.20 feet); minimum, 17 second-feet Oct. 1 (gage height, 4.69 feet).

1898–99, 1903–1906, 1920–1929: Maximum discharge, 75,100 second-feet Apr. 27, 1922 (gage height, 42.35 feet); minimum, 6.8 second-feet Sept. 11, 1924 (gage height, 4.27 feet).

Maximum flood, from United States Weather Bureau records, 52.6 feet May 26, 1908. During 1917–18 the discharge was practically zero.

REMARKS.—Records fair. Only known diversions are for municipal uses. Low-water flow partly regulated by dams upstream. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	339	107	152	557	1,990	503	467	11,400	132	19	82
2	20	797	88	246	431	1,190	503	597	10,200	132	26	74
3	58	246	107	302	413	1,020	467	777	8,450	142	252	82
4	47	183	99	272	503	675	347	503	6,900	162	400	118
5	24	449	85	1,440	521	347	449	395	6,460	172	40	183
6	34	557	92	1,370	413	677	449	287	6,900	142	40	115
7	26	577	85	757	207	657	449	272	6,680	152	34	123
8	22	503	85	521	449	597	637	272	6,180	123	34	298
9	18	377	78	1,270	413	521	2,560	1,350	3,170	123	44	982
10	18	272	71	1,870	431	521	5,200	1,570	1,420	207	34	235
11	20	194	123	1,390	332	677	3,150	1,040	1,390	88	40	123
12	20	162	272	949	332	1,590	1,600	822	1,420	44	40	107
13	20	132	3,630	697	449	5,300	1,020	4,470	1,900	40	40	228
14	172	172	2,270	503	449	3,720	797	8,080	2,050	40	30	697
15	123	400	617	449	485	1,960	757	10,800	1,930	27	26	467
16	115	1,810	1,150	395	485	1,360	697	15,000	930	27	30	220
17	115	363	19,800	431	395	1,120	637	19,200	521	27	30	183
18	107	194	32,800	377	377	1,060	503	18,600	431	19	34	246
19	107	183	18,100	317	272	1,020	485	16,800	413	31	40	377
20	107	142	7,140	377	317	1,040	2,970	16,500	362	23	40	395
21	107	233	3,310	332	485	1,220	5,580	15,500	272	31	50	395
22	132	194	1,220	259	797	1,160	1,450	14,500	259	34	44	317
23	115	183	697	408	861	971	637	12,700	233	34	55	413
24	107	172	557	5,570	657	797	597	9,800	207	27	44	395
25	132	142	485	7,020	2,840	737	3,050	7,260	162	27	44	377
26	132	142	395	4,400	10,700	647	3,640	6,460	152	27	44	377
27	123	142	347	2,020	11,000	697	829	7,250	162	27	61	377
28	172	123	302	1,190	4,570	617	521	5,500	142	34	74	259
29	449	123	259	927	-------	597	503	6,570	132	34	74	233
30	362	115	259	737	-------	577	503	6,570	132	31	74	467
31	183	-------	233	597	-------	503	-------	9,810	--------	23	74	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	449	17	103	6,330
November	1,810	115	321	19,100
December	32,800	71	3,060	188,000
January	7,020	152	1,210	74,400
February	11,000	207	1,430	79,400
March	5,300	347	1,150	70,700
April	5,580	347	1,380	82,100
May	19,200	272	7,090	436,000
June	11,400	132	2,700	161,000
July	207	19	70.4	4,330
August	400	19	61.6	3,790
September	982	74	298	17,700
The year	32,800	17	1,580	1,140,000

TRINITY RIVER NEAR OAKWOOD, TEX.

LOCATION.—Chain gage on International-Great Northern Railroad bridge 4 miles northeast of Oakwood, Anderson County.

DRAINAGE AREA.—12,800 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 68,000 second-feet June 3 (gage height, 45.18 feet); minimum, 62 second-feet Oct. 2 and 3 (gage height, 3.5 feet).

1923–1929: Maximum discharge, that of June 3, 1929; minimum, probably less than 28 second-feet in August, 1925.

On June 4, 1908, river reached stage of about 53.5 feet.

REMARKS.—Monthly records fair. Daily-discharge record not sufficiently accurate for publication. No diversions above station. Gage-height record furnished by United States Weather Bureau.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	198	62	105	6,460
November	1,630	310	763	45,400
December	20,300		7,590	467,000
January	15,300	1,440	6,960	428,000
February	12,000	1,580	3,120	173,000
March	11,300	1,800	5,810	357,000
April	10,900	1,210	4,820	287,000
May	46,500	962	13,800	848,000
June	68,000	820	22,700	1,350,000
July	1,950	146	530	32,600
August	265	92	124	7,620
September	3,490	105	643	38,300
The year	68,000	62	5,580	4,040,000

TRINITY RIVER AT RIVERSIDE, TEX.

LOCATION.—Chain gage on International-Great Northern Railroad bridge at Riverside, Walker County. Zero of gage, 93.7 feet above mean sea level.

DRAINAGE AREA.—15,500 square miles.

RECORDS AVAILABLE.—January, 1903, to December, 1906; October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 76,100 second-feet June 1 (gage height, 46.10 feet); minimum, 85 second-feet Oct. 8, 9, 27–29 (gage height, 0.10 foot).

1903–1906, 1923–1929: Maximum discharge, that of June 1, 1929; minimum, 70 second-feet Aug. 20–26 and Sept. 8–13, 1925 (gage height, 0.2 foot).

United States Weather Bureau records show a stage of 49.7 feet (present datum) June 11, 1908.

REMARKS.—Monthly records fair. Daily-discharge record not sufficiently accurate for publication. No sizable diversions. Gage-height record furnished by United States Weather Bureau.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	130	85	106	6,520
November	2,090	115	762	45,300
December	16,400	350	6,790	418,000
January		2,090	9,360	576,000
February	13,100	975	4,460	248,000
March	11,600	3,080	7,100	437,000
April	15,600	1,880	6,430	383,000
May	73,000	2,240	22,600	1,390,000
June	75,800	1,130	36,200	2,150,000
July	10,500	312	2,110	130,000
August	505	210	256	15,700
September	3,480	190	729	43,400
The year	75,800	85	8,070	5,840,000

TRINITY RIVER AT ROMAYOR, TEX.

LOCATION.—Chain gage on Gulf, Colorado & Santa Fe Railway bridge one-fourth mile west of Romayor, Liberty County. Gage reading indicates distance from base of rail to water surface. Zero of gage, 89.00 feet above mean sea level.

DRAINAGE AREA.—17,200 square miles

RECORDS AVAILABLE.—May, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 81,100 second-feet May 31 (gage height, −16.30 feet); minimum not determined.

1924–1929: Maximum discharge, that of May 31, 1929; minimum, 132 second-feet Aug. 21 and 22, 1925 (gage height, −53.46 feet).

REMARKS.—Records fair. No large diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	250				10,900	5,350	3,530	12,100	64,700	1,990	330	400
2	250				12,400	5,150	3,210	14,400	61,400	1,870	910	400
3	250				14,200	6,170	3,130	15,200	59,800	1,870	870	400
4	250				14,200	7,350	3,130	14,400	59,300	2,380	710	400
5	250				13,900	8,450	2,980	11,900	57,700	4,570	520	400
6	250				13,700	9,660	2,770	8,450	55,100	8,340	490	400
7	250				11,800	10,400	2,630	4,780	54,200	10,500	490	400
8	250		918		8,890	10,900	2,490	3,210	52,800	10,400	490	400
9	250				7,020	11,100	3,530	2,490	52,000	8,120	520	400
10	262				5,860	10,100	4,390	3,640	50,600	5,650	520	400
				14,300								
11	262				5,150	8,450	5,150	3,560	49,800	4,210	460	400
12	275				4,950	6,060	5,960	15,200	49,500	3,450	460	400
13	275				4,300	6,990	7,130	19,700	49,500	2,840	490	400
14	275				3,770	11,400	13,200	41,300	49,500	2,420	490	400
15	275				3,610	12,600	16,800	51,100	49,100	1,930	490	400
		918										
16	275				3,850	12,800	16,900	53,700	48,800	1,650	490	2,610
17	275				3,530	12,400	15,900	52,800	47,700	1,350	490	3,530
18	262				3,210	12,200	14,200	49,500	46,600	1,250	400	2,630
19	262				3,130	12,500	12,000	46,600	45,000	1,250	400	2,230
20	262				3,130	12,800	9,550	44,700	41,800	1,250	400	1,650
21	262				2,980	13,000	8,010	42,200	31,800	1,300	400	1,500
22	262				2,910	17,700	6,800	40,900	19,000	1,300	400	1,350
23	262				2,980	19,200	5,150	36,700	11,200	830	400	950
24				14,300	3,050	15,600	3,850	31,700	5,960	830	400	950
25				4,570	3,050	10,500	3,130	26,100	4,390	830	400	950
26					3,450	8,120	4,740	24,700	3,530	630	400	910
27	260				4,660	6,280	7,680	25,500	3,130	555	400	1,070
28					5,250	5,350	9,330	45,600	2,910	555	400	750
29				6,060		4,850	9,440	57,700	2,490	555	400	710
30				7,680		4,480	9,220	54,200	2,110	555	400	670
31				9,660		3,940		66,800		670	400	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October			261	16,000
November			918	54,600
December			7,820	481,000
January			10,800	664,000
February	14,200	2,910	6,420	357,000
March	19,200	3,940	9,740	599,000
April	16,900	2,490	7,200	428,000
May	66,800	2,490	29,700	1,830,000
June	64,700	2,110	37,700	2,240,000
July	10,500	555	2,770	170,000
August	910	400	494	30,400
September	3,530	400	949	56,500
The year	66,800		9,570	6,930,000

CLEAR FORK OF TRINITY RIVER AT FORT WORTH, TEX.

LOCATION.—Water-stage recorder on old masonry pier 300 feet downstream from Texas & Pacific Railway bridge, 3 miles southwest of Tarrant County courthouse in Fort Worth. Zero of gage, 532.8 feet above mean sea level.
DRAINAGE AREA.—522 square miles.
RECORDS AVAILABLE.—March, 1924, to September, 1929.
EXTREMES.—Maximum discharge during year not determined (gage height, 14.90 feet Feb. 25); no flow during several periods.
1924–1929: Maximum discharge not determined (gage height 19.83 feet, Apr. 3, 1928); no flow for several periods.
REMARKS.—Monthly records fair. Practically all low flow diverted 800 feet below gage by Texas & Pacific Railway; amount not known. Low flow regulated by dam just above gage.

Daily and monthly discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.4	18	46	245	66	52	721	15	1.4	0
2	12	.5	16	66	221	66	42	255	11	1.4	0
3	10	.4	18	72	185	69	36	181	9.5	1.3	0
4	5.7	.4	22	72	165	72	36	146	18	1.3	0
5	6.5	.3	57	69	139	69	34	239	16	1.1	0
6	5.7	.2	96	69	139	66	32	149	11	1.1	0
7	6.5	.2	36	57	124	63	25	124	9.5	1.0	0
8	3.5	.1	29	63	117	142	29	100	7.5	0	0
9	2.6	.1	34	49	107	1,470	34	87	5.7	0	0
10	1.2	0	39	60	104	299	36	78	4.0	0	0
11	1.3	1.3	32	66	117	124	34	69	5.2	0	0
12	1.4	14	29	84	1,130	97	39	57	2.4	0	.1
13	1.4	68	27	81	436	104	470	46	1.8	0	.4
14	1.0	60	29	72	231	100	516	42	1.5	0	0
15	3.6	15	29	66	198	139	100	39	1.4	0	.2
16	18	1,640	25	63	169	84	132	34	1.4	0	.2
17	8.0	2,260	29	60	157	75	84	32	1.4	0	.1
18	2.1	208	34	49	161	69	165	27	1.4	0	0
19	.7	72	34	49	157	176	245	24	1.4	0	0
20	.5	46	32	60	139	266	100	22	1.3	0	0
21	.6	39	27	114	173	97	54	18	4.8	0	0
22	.6	32	32	124	153	72	46	18	5.2	0	0
23	.4	27	164	100	128	66	44	13	2.0	0	0
24	.5	25	353	97	104	276	59	15	2.2	0	0
25	.3	25	273	4,560	97	132	135	11	1.7	0	0
26	.2	25	107	462	94	69	269	10	2.8	0	0
27	.4	24	84	334	97	63	130	10	1.4	0	0
28	.2	25	75	318	94	66	69	10	1.4	0	0
29	.4	25	69	------	87	60	75	9.5	1.5	0	0
30	.4	22	63	------	87	60	1,450	10	1.4	0	0
31	------	20	57	------	78	------	2,500	------	1.4	0	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	18	0	3.19	190
December	2,260	0	151	9,280
January	353	16	63.5	3,900
February	4,560	46	264	14,700
March	1,130	78	182	11,200
April	1,470	60	153	9,100
May	2,500	25	228	14,000
June	721	9.5	86.5	5,150
July	18	1.3	4.91	302
August	1.4	0	.28	17
September	.4	0	.03	1.8
The year	4,560	0	93.6	67,800

NOTE.—No flow during October.

VILLAGE CREEK NEAR HANDLEY, TEX.

LOCATION.—Staff gage at Fort Worth-Webb road crossing 3½ miles south of Handley, Tarrant County.
DRAINAGE AREA.—130 square miles.
RECORDS AVAILABLE.—June, 1925, to September, 1929.
EXTREMES.—Maximum discharge during year not determined (gage height, 17.90 feet Dec. 17); no flow during several periods.
1925–1929: Maximum discharge not determined (gage height, that of Dec. 17, 1928); no flow during several periods.
REMARKS.—Monthly records fair. Daily-discharge record not sufficiently accurate for publication. No diversions above station.

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	1.8	0	0.13	7.7
December	6,050	0	246	15,100
January	111	6.5	16.0	984
February	4,300	7.5	179	9,940
March	564	7.5	38.2	2,350
April	1,050	3.9	99.9	5,940
May	466	6.9	42.9	2,640
June	98	.7	10.3	613
July	.7	0	.16	9.8
September	434	0	20.7	1,230
The year	6,050	0	53.7	38,800

NOTE.—No flow during October and August.

MOUNTAIN CREEK NEAR GRAND PRAIRIE, TEX.

LOCATION.—Water-stage recorder at Grand Prairie-Duncanville highway bridge 3½ miles southeast of Grand Prairie, Dallas County.
DRAINAGE AREA.—267 square miles.
RECORDS AVAILABLE.—March, 1925, to September, 1929.
EXTREMES.—Maximum discharge during year, determined by slope-area method, about 35,900 second-feet Dec. 17 (gage height, 21.40 feet), includes about 2,680 second-feet that is discharged through a break in levee about half a mile above gage; no flow during several periods.
1925–1929; Maximum discharge, that of Dec. 17, 1928; no flow during several periods.
REMARKS.—Low-stage records fair; high-stage records poor. Daily records not sufficiently accurate for publication. Records include flow through break in levee half a mile above gage. No diversions above station.

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	0.4	0	.04	2.4
December	13,800	0	529	32,500
January	1,110	5.6	97.8	6,010
February	869	11	83.8	4,650
March	1,100	14	106	6,520
April	3,520	5.5	286	17,000
May	1,700	13	275	16,900
June	190		28.5	1,700
July		0	.60	37
September	385	0	19.7	1,170
The year	13,800	0	120	86,500

NOTE.—No flow during October and August.

ELM FORK OF TRINITY RIVER NEAR CARROLLTON, TEX.

LOCATION.—Staff gage just above Carrollton Dam, 40 feet below Dallas-Denton highway bridge, and 1½ miles west of Carrollton, Dallas County.

DRAINAGE AREA.—2,540 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 19,000 second-feet May 15 (gage height, 9.40 feet); minimum not determined.

1923–1929: Maximum discharge not determined (gage height, 12.75 feet Dec. 14, 1923); no flow during several periods.

REMARKS.—Records fair. No diversions. Garza Dam, 20 miles upstream, regulates flow at low stages and partly regulates flow at high stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		572	90	129	190	231	236	236	4,990	65	8.0	58
2		153	90	137	152	218	236	227	4,080	72	9.4	58
3		72	90	133	182	165	231	208	3,460	110	149	58
4		65	90	133	190	149	231	149	2,500	114	34	58
5		62	90	402	190	137	227	141	2,900	100	34	72
6		62	93	245	186	125	227	141	2,900	100	34	62
7		62	96	273	174	118	227	141	2,450	100	32	62
8		62	96	199	165	118	236	141	506	100	32	72
9		62	96	250	141	125	2,860	740	303	170	32	72
10		62	118	222	114	231	1,620	962	227	96	30	65
11		62	118	195	118	245	447	447	190	27	30	79
12		62	302	174	133	960	308	1,250	708	19	32	86
13	250	62	1,490	165	141	1,200	282	6,370	995	15	30	396
14	157	90	386	153	141	638	250	12,100	1,420	15	30	539
15	153	1,080	178	149	149	418	259	17,600	1,420	15	32	236
16	149	208	1,050	145	141	362	236	16,200	460	14	32	157
17	145	100	8,940	141	129	324	231	12,100	227	11	32	153
18	149	86	2,220	141	118	303	227	9,500	227	11	32	335
19	153	79	418	157	114	293	222	9,800	218	11	34	346
20	149	76	222	149	110	287	227	7,850	104	12	49	330
21	153	68	141	137	153	293	241	5,990	104	14	49	330
22	182	68	118	133	199	293	231	3,460	104	14	49	324
23	182	68	104	333	170	282	213	2,760	104	14	43	330
24	182	72	90	2,800	157	273	215	2,130	96	14	43	330
25	178	79	76	3,040	3,880	254	222	1,580	96	14	43	330
26	178	82	68	1,250	1,940	245	208	3,400	96	72	43	330
27	178	90	58	555	447	245	208	3,880	96	208	68	330
28	418	82	55	298	298	241	208	1,800	90	25	76	145
29	213	86	49	250	-------	254	218	2,630	90	9.4	62	383
30	145	90	49	218	-------	250	218	3,110	90	8.0	62	383
31	139	-------	46	204	-------	245	-------	6,190	-------	8.0	62	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	418	----------	118	7,260
November	1,080	62	131	7,800
December	8,940	46	552	33,900
January	3,040	129	416	25,600
February	3,880	110	366	20,300
March	1,200	118	307	18,900
April	2,860	208	373	22,200
May	17,600	141	4,300	264,000
June	4,990	90	1,040	61,900
July	208	8.0	50.9	3,130
August	149	8.0	42.8	2,630
September	539	58	217	12,900
The year	17,600	----------	664	481,000

EAST FORK OF TRINITY RIVER NEAR ROCKWALL, TEX.

LOCATION.—Chain gage on Dallas-Rockwall highway bridge 3 miles southwest of Rockwall, Rockwall County.

DRAINAGE AREA.—831 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 23,000 second-feet May 14 (gage height, 19.4 feet); no flow during several periods.

1923–1929: Maximum discharge, 23,000 second-feet July 14, 1926, and May 14, 1929; maximum gage height, 19.4 feet May 14, 1929; no flow during several periods.

The highest flood known, about 25 feet in spring of 1922.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1923–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	34	13	104	300	1,260	190	83	4,000	36	4.9	0
2	0	104	13	97	270	596	166	71	2,600	36	3.5	0
3	0	150	12	90	280	435	150	62	1,070	36	2.3	0
4	0	66	12	202	300	391	142	56	521	52	1.8	0
5	0	26	10	1,060	290	340	150	50	360	118	1.1	0
6	0	14	9.8	2,070	280	402	142	53	469	250	.5	.4
7	0	7.8	8.8	2,070	270	270	134	53	1,030	132	.4	.6
8	0	5.9	7.2	1,240	250	250	283	50	1,170	48	.2	16
9	0	4.4	7.2	413	198	222	967	574	799	200	0	2.0
10	0	4.0	7.2	380	134	222	1,460	3,540	300	68	0	.2
11	0	3.4	8.2	340	182	230	3,490	8,950	240	40	0	0
12	0	3.0	9.2	240	222	581	2,920	5,140	206	32	0	0
13	0	2.2	160	198	300	1,870	635	2,450	174	24	0	0
14	0	1.9	424	190	340	2,900	360	10,500	158	21	0	0
15	0	133	320	182	350	2,300	340	12,400	142	19	0	9.6
16	0	458	484	166	340	1,040	260	5,400	126	17	0	11
17	0	272	7,080	158	300	657	240	3,080	111	16	0	3.7
18	0	97	10,400	166	260	402	222	3,080	104	14	0	1.9
19	0	46	10,800	190	222	380	198	5,050	97	12	0	.9
20	0	28	3,920	206	222	360	182	7,550	86	11	0	.5
21	0	19	1,120	174	270	424	166	3,410	80	9.5	0	.2
22	0	16	330	142	458	446	150	1,010	71	8.4	0	0
23	0	14	240	214	518	370	126	470	62	7.4	0	0
24	0	11	206	2,290	402	310	118	370	56	6.6	0	0
25	0	9.5	182	4,660	741	260	118	320	50	6.5	0	0
26	0	9.2	166	5,400	3,170	222	111	350	48	9.0	0	0
27	0	9.2	150	3,240	6,270	214	111	402	62	6.3	0	0
28	0	9.2	142	958	4,220	206	97	447	48	6.3	0	0
29	0	12	126	482	-------	222	97	2,390	43	12	0	0
30	8.0	13	118	446	-------	230	97	4,440	38	7.8	0	0
31	13	-------	111	370	-------	214	-------	5,980	-------	6.3	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	13	0	.68	42
November	458	1.9	52.8	3,140
December	10,800	7.2	1,180	72,600
January	5,400	90	908	55,800
February	6,270	134	763	42,400
March	2,900	206	589	36,200
April	8,490	97	461	27,400
May	12,400	50	2,830	174,000
June	4,000	38	477	28,400
July	250	6.3	40.9	2,510
August	4.9	0	.47	29
September	16	0	1.57	93
The year	12,400	0	612	443,000

SAN JACINTO RIVER BASIN

SAN JACINTO RIVER NEAR HUMBLE, TEX.

LOCATION.—Chain gage at bridge crossing on State highway No. 35, 900 feet below Houston East & West Texas Railway bridge 2½ miles north of Humble, Harris County.

DRAINAGE AREA.—1,810 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during period, about 111,000 second-feet May 31 (gage height, 32.25 feet); minimum, 39 second-feet Oct. 26 (gage height, 1.34 feet).

A stage of about 35 feet was reached in 1920.

REMARKS.—Records fair. No diversions above station

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	41	54	74	294	264	426	320	85,500	284	178	72
2	------	47	66	77		234	403	451	39,100	266	164	69
3	------	52	68	77	315	195	403	380	18,600	284	218	63
4	------	80	68	81	605	195	359	380	9,920	266	168	63
5	------	74	63	970	690	455	320	302	6,880	563	145	60
6	------	64	63	1,840	780	690	284	249	7,780	1,570	136	60
7	------	62	58	4,280	1,130	505	249	204	6,600	2,850	124	60
8	------	60	56	4,680	930	298	249	191	3,290	4,190	105	60
9	------	62	56	3,510	780	247	670	178	2,000	6,320	108	60
10	------	62	58	2,640	720	195	670	178	1,240	5,200	105	60
11	------	55	96	1,750	530	182	1,100	159	798	3,180	105	57
12	------	53	109	1,130	410	208	2,000	145	584	1,380	99	78
13	------	50	170	810	332	491	6,370	191	528	640	94	150
14	------	50	410	720	280	2,060	14,600	191	403	451	91	120
15	------	55	505	630	264	3,790	22,000	1,530	640	426	91	94
16	------	48	332	870	234	4,190	21,500	2,850	830	403	88	98
17	------	46	247	870	220	3,510	14,200	4,310	528	359	81	232
18	------	46	220	1,060	220	2,630	8,720	6,460	451	284	78	150
19	------	46	315	1,060	208	1,280	5,480	17,100	451	266	78	112
20	------	50	390	930	208	690	3,290	20,200	359	232	78	94
21	------	53	195	870	195	630	1,800	13,800	320	218	78	84
22	------	53	182	690	195	1,770	1,330	13,200	266	204	78	66
23	41	53	170	505	195	4,070	900	7,480	266	191	78	63
24	41	53	170	410	195	5,200	640	4,550	284	178	75	55
25	40	53	126	370	195	6,040	528	2,520	476	168	75	55
26	39	57	119	332	195	5,070	380	1,800	451	164	75	55
27	40	53	102		234	3,070	359	2,100	403	159	75	52
28	41	53	77		247	1,360	320	4,360	302	159	75	49
29	41	53	53	294	------	798	302	10,300	284	164	75	52
30	41	60	53		------	584	284	34,700	302	204	72	52
31	41	------	53		------	476	------	94,900	------	178	72	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October 23–31	41	39	40.5	720
November	80	41	54.8	3,260
December	505	53	152	9,350
January	4,680	74	1,060	65,200
February	1,130	195	396	22,000
March	6,040	182	1,660	102,000
April	22,000	249	3,670	218,000
May	94,900	145	7,930	488,000
June	85,500	266	6,330	377,000
July	6,320	159	1,010	62,100
August	218	72	102	6,270
September	232	49	79.8	4,750
The period				1,360,000

BRAZOS RIVER BASIN

DOUBLE MOUNTAIN FORK OF BRAZOS RIVER NEAR ASPERMONT, TEX.

LOCATION.—Chain gage on Aspermont-Hamlin highway bridge in southeast corner of sec. 134, 11 miles south of Aspermont, Stonewall County.

DRAINAGE AREA.—7,980 square miles, a large part of which is probably noncontributing.

RECORDS AVAILABLE.—December, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, about 14,700 second-feet May 17 (gage height, 9.80 feet); no flow during several periods.

1923–1929: Maximum discharge, determined by slope-area method, about 45,800 second-feet Oct. 15, 1926 (gage height, 18.14 feet, from floodmarks); no flow during several periods.

REMARKS.—Monthly records poor. Records of daily discharge not sufficiently accurate for publication. No diversions above station.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	107	0	3.78	232
November	102	.7	9.16	545
December	3.0		1.20	74
January	1.4		.41	25
February	26	0	1.27	71
March	150	0	10.8	664
April	100	0	18.0	1,070
May	3,090	0	385	23,700
June	3,260	0	321	19,100
July	2,180	0	205	12,600
August			* .10	6.1
September	6,300	.1	921	54,800
The year	6,300	0	156	113,000

* Estimated.

BRAZOS RIVER AT SEYMOUR, TEX.

LOCATION.—Chain gage on Wichita Valley highway bridge three-fourths of a mile above Wichita Valley Railway bridge and 1 mile southwest of courthouse in Seymour, Baylor County.

DRAINAGE AREA.—14,500 square miles, a large part of which is probably noncontributing.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 29,000 second-feet Sept. 9 (gage height, 11.00 feet); no flow during several periods.

1923–1929: Maximum discharge, 52,100 second-feet Oct. 16, 1926 (gage height, 15.16 feet, from floodmarks); no flow during several periods.

From local information a stage of about 20.0 feet occurred in 1916.

REMARKS.—Records poor. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	9.0	0	1.4	140	12	101	0	7.8	.0
2	19	5.1	0	9.6	88	7.2	70	16	4.8	0
3	26	2.6	0	15	62	2.0	112	4,030	2.4	.0
4	14	1.4	0	26	29	0	151	1,450	.5	0
5	7.8	1.8	0	13	46	0	129	350	0	3,110
6	4.2	3.6	0	9.6	27	0	5,560	244	0	2,930
7	3.0	3.0	0	13	24	0	5,160	98	0	692
8	7.2	1.4	0	9.9	22	0	2,430	33	0	3,370
9	9.6	.4	0	6.6	12	0	1,000	26	0	24,000
10	6.6	.8	17	14	4.2	0	1,720	24	0	9,030
11	3.6	1.4	26	25	2.0	0	830	31	0	6,120
12	1.4	1.2	23	47	0	22	162	34	0	3,450
13	3.0	1.8	17	147	0	655	125	28	0	1,840
14	8.4	3.3	12	83	0	1,220	88	17	0	1,460
15	8.4	2.8	9.6	81	0	463	34	10	0	1,250
16	5.4	.7	6.9	57	0	2,250	22	7.8	0	920
17	52	1.8	4.2	37	0	3,320	18	3.0	0	546
18	41	4.2	4.2	22	0	2,560	2.0	0	0	320
19	29	6.6	9.0	14	0	1,500	6.9	3,010	0	499
20	22	7.2	8.4	9.6	0	890	.3	2,680	0	570
21	17	3.6	6.6	13	0	534	0	630	0	284
22	12	2.2	4.2	11	0	260	0	228	0	174
23	8.4	.9	2.6	9.0	0	109	0	845	0	132
24	4.8	.2	1.4	11	0	67	0	488	0	90
25	4.2	.4	4.2	16	197	67	62	125	0	67
26	1.4	.1	6.6	26	168	268	27	129	0	52
27	4.2	.5	4.5	37	106	582	15	47	0	32
28	7.8	0	2.8	103	57	466	14	42	0	29
29	14	0	-------	168	35	268	13	25	0	28
30	13	0	-------	90	21	147	12	20	0	39
31	-------	0	-------	54	-------	120	---------	14	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	52	0	11.9	708
December	9.0	0	2.19	135
February	26	0	6.08	338
March	168	1.4	38.0	2,340
April	197	0	34.7	2,060
May	3,320	0	509	31,300
June	5,560	0	595	35,400
July	4,030	0	474	29,100
August	7.8	0	.50	31
September	24,000	0	2,030	121,000
The year	24,000	0	307	222,000

NOTE.—No flow during October and January.

BRAZOS RIVER NEAR MINERAL WELLS, TEX.

LOCATION.—Chain gage on Mineral Wells-Palo Pinto highway bridge 4 miles west of Mineral Wells, Palo Pinto County.

DRAINAGE AREA.—23,100 square miles, a large part of which is probably non-contributing.

RECORDS AVAILABLE.—January, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 66,200 second-feet Sept. 10 (gage height, 17.00 feet, determined from graph drawn from daily gage readings); no flow Aug. 17 to Sept. 7.

1924–1929: Maximum discharge not determined (gage height, 17.35 feet Oct 18, 1926); no flow for several periods.

REMARKS.—Records poor. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	455	41	13	16	34	47	319	2,520	18	160	0
2	12	398	35	12	18	34	55	191	2,920	677	126	0
3	12	1,280	30	12	18	31	160	147	1,520	1,280	103	0
4	12	902	25	57	20	27	119	133	902	1,840	81	0
5	12	585	22	2,860	17	24	84	112	626	1,780	71	0
6	12	426	21	626	18	22	68	89	477	1,980	53	0
7	12	319	19	412	18	20	61	66	391	1,340	28	0
8	10	262	19	289	17	18	106	51	7,360	804	15	2,150
9	10	210	21	398	18	17	126	43	3,840	626	10	1,650
10	9.5	173	24	272	16	16	109	40	2,720	850	6.0	29,100
11	9.5	147	24	137	16	14	78	35	1,780	530		50,200
12	9.2	119	28	103	14	40	68	244	1,520	1,010		31,500
13	9.0	100	33	89	14	84	128	8,600	1,840	1,720		13,700
14	8.2	89	34	74	13	129	155	9,780	1,120	902	1.0	9,780
15	8.0	95	31	55	13	112	112	4,080	758	492		7,600
16	7.8	78	40	45	16	191	95	4,320	569	338		4,080
17	7.5	71	126	37	16	272	78	4,700	440	256	0	2,720
18	7.0	76	147	33	15	306	59	11,300	350	177	0	2,260
19	6.8	173	112	30	14	419	74	23,000	245	129	0	1,460
20	6.2	106	84	27	14	294	86	10,900	182	112	0	1,060
21	6.0	95	59	24	16	278	66	8,640	137	84	0	850
22	8.0	81	59	22	19	225	258	4,610	103	752	0	1,060
23	7.8	57	137	22	18	186	507	2,920	76	1,520	0	955
24	7.0	51	112	28	17	155	363	2,520	61	955	0	1,120
25	5.5	43	84	25	26	137	294	1,650	51	577	0	712
26	4.1	41	59	21	22	92	344	1,340	37	1,180	0	515
27	3.5	68	43	24	21	74	1,520	955	30	804	0	391
28	2.8	71	26	22	35	81	1,340	*804	27	554	0	319
29	4.7	55	21	21	-------	86	850	1,010	23	440	0	256
30	46	47	18	19	-------	68	500	6,110	21	319	0	220
31	106	-------	16	18	-------	57	-------	4,080	-------	240	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	106	2.8	12.7	781
November	1,280	41	222	13,200
December	147	16	50.0	3,070
January	2,860	12	188	11,600
February	35	13	17.7	983
March	419	14	114	7,010
April	1,520	47	264	15,700
May	23,000	35	3,640	224,000
June	7,360	21	1,090	64,900
July	1,980	18	783	48,100
August	160	0	21.3	1,310
September	50,200	0	5,460	325,000
The year	50,200	0	987	716,000

BRAZOS RIVER NEAR GLEN ROSE, TEX.

LOCATION.—Staff gage a quarter of a mile above Glen Rose-Cleburne highway bridge and 4 miles northeast of Glen Rose, Somervell County.

DRAINAGE AREA.—24,800 square miles, a large part of which is probably noncontributing.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 38,400 second-feet Sept. 12 (gage height, 13.42 feet); minimum, 0.8 second-foot Sept. 3–7.

1923–1929: Maximum discharge, about 45,700 second-feet May 8, 1925 (gage height, 15.10 feet); no flow Sept. 7–9, 1924.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	113	103	108	98	506	145	1,560	5,630	98	427	0.9
2	48	78	93	93	113	326	123	1,000	4,070	88	350	.8
3	88	123	83	78	113	262	123	655	4,070	78	290	.8
4	98	162	78	88	108	216	113	456	4,070	118	235	.8
5	66	235	75	824	103	190	103	350	2,880	98	190	.8
6	46	385	75	6,450	103	156	83	276	1,960	1,070	150	.8
7	41	928	69	1,960	98	134	134	222	1,500	1,960	123	.8
8	37	688	66	1,500	93	123	203	197	1,120	1,690	108	1,360
9	30	456	63	1,120	93	113	2,650	210	3,730	1,690	78	940
10	27	390	72	744	113	108	1,980	184	5,630	1,300	66	1,740
11	25	350	98	526	93	108	1,000	156	4,540	860	54	32,100
12	22	304	113	382	103	250	622	162	3,850	600	44	37,200
13	20	262	128	342	103	798	382	156	2,550	688	41	23,300
14	21	276	150	311	88	871	304	4,710	1,820	655	34	12,500
15	24	255	173	255	83	1,030	446	9,840	2,240	991	29	9,840
16	18	229	475	216	75	849	382	5,330	1,960	1,820	25	8,030
17	16	197	2,280	178	75	374	248	3,640	1,300	1,040	22	6,830
18	15	167	4,300	162	63	297	235	4,070	906	558	17	5,330
19	14	150	5,630	145	63	276	2,840	8,480	699	390	15	4,790
20	12	139	3,590	123	72	248	2,600	21,900	722	304	14	4,070
21	8.5	128	1,180	103	103	390	1,000	11,300	476	262	11	3,440
22	4.4	118	382	103	113	374	688	8,030	366	197	11	1,960
23	2.9	134	304	108	108	466	342	5,050	304	235	10	1,690
24	1.9	156	235	145	103	398	611	3,640	262	167	8.0	1,620
25	1.5	167	203	684	2,840	326	951	3,250	222	139	5.0	
26	1.1	156	173	506	1,470	283	408	3,850	197	853	4.4	
27	.8	145	173	446	894	255	456	2,550	173	1,120	3.8	1,380
28	10	134	162	290	814	216	655	1,820	150	666	2.6	
29	30	123	162	203	-------	203	548	1,560	128	1,060	2.0	
30	48	113	145	145	-------	190	1,980	4,760	118	894	1.4	
31	78	-------	123	113	-------	167	-------	9,230	-------	558	1.0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	98	0.8	29.1	1,790
November	928	78	242	14,400
December	5,630	63	676	41,600
January	6,450	78	595	36,600
February	2,840	63	296	16,400
March	1,030	108	339	20,800
April	2,840	83	745	44,300
May	21,900	156	3,830	236,000
June	5,630	118	1,920	114,000
July	1,960	78	718	44,100
August	427	1.0	76.5	4,700
September	37,200	.8	5,500	327,000
The year	37,200	.8	1,250	902,000

BRAZOS RIVER AT WACO, TEX.

LOCATION.—Water-stage recorder at Texas Electric Co.'s bridge in Waco, McLennan County. Zero of gage, 356.99 feet above mean sea level.

DRAINAGE AREA.—28,500 square miles, a large part of which is probably non-contributing.

RECORDS AVAILABLE.—September, 1898, to December, 1911, and October, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 47,400 second-feet Sept. 13 (gage height, 20.66 feet); minimum, 3.7 second-feet Sept. 5.

1898–1929: Maximum discharge not determined (gage height, 29.7 feet Dec. 3, 1913); no flow Aug. 20 and 21, 1918, and probably for several days in August, 1923.

REMARKS.—Records poor. The numerous small diversions above station do not appreciably affect flow except during low stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		66		253	303	1,240	394	1,180	11,900	201	1,100	9.8
2		89		239	323	1,100	376	1,580	7,270	187	715	8.2
3		115		222	295	895	358	1,800	5,680	187	536	7.0
4		84		264	270	663	348	1,420	4,900	187	440	6.4
5		84		2,380	260	530	340	1,100	5,260	303	358	6.1
6		71		1,220	250	460	335	865	4,270	184	295	122
7		78	35	2,740	239	402	335	702	3,700	184	264	309
8		86		2,200	228	353	340	585	2,800	359		8,080
9		458		1,740	207	315	953	585	2,320	1,470		15,400
10		536		1,580	184	299	3,010	519	2,950	1,860		3,420
11	98	440		1,250	201	299	3,150	852	5,680	1,960		3,150
12		348		962	198	778	1,910	592	4,900	1,380		36,100
13		292	253	722	184	2,260	2,360	932	4,180	970		45,700
14		253	307	574	190	2,720	4,870	955	3,550	715		21,500
15		274	165	508	207	1,690	2,080	4,410	2,880	656		11,800
16		228	195	465	210	1,370	1,740	6,960	2,320	696	80	9,320
17		246	4,160	402	204	1,120	1,690	5,260	2,800	630		7,770
18		239	4,740	362	187	1,000	1,690	8,330	2,320	1,470		6,100
19		213	3,780	323	176	775	1,640	8,160		1,160		4,810
20			2,740	288	179	1,070	16,000	16,300		696		3,850
21			1,580	264	207	850	4,200	21,100		497		3,700
22	23		1,120	250	239	745	2,580	8,390		389		3,190
23	22		790	246	246	730	2,020	7,520		315		2,260
24	19		604	250	292	715	1,690	6,100	810	270	15	1,910
25	18	73	508	213	288	722	6,080	5,470		344	17	1,740
26	17		416	480	2,460	682	2,880	8,540		323	12	1,280
27	18		362	552	2,540	604	1,960	7,610		232	10	1,180
28	19		323	656	1,690	541	1,260	7,940		358	11	1,180
29	203		284	611	-------	502	985	7,960		1,140	10	1,180
30	104		253	486	-------	465	2,030	16,900		828	8.2	1,100
31	91	-------	253	366	-------	430	-------	21,400	-------	828	8.6	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	----------	----------	83.6	5,140
November	536	----------	167	9,940
December	4,740	----------	750	46,100
January	2,740	213	744	45,700
February	2,540	176	445	24,700
March	2,720	299	849	52,200
April	16,000	335	2,320	138,000
May	21,400	519	5,870	361,000
June	11,900	----------	2,980	177,000
July	1,960	184	677	41,600
August	1,100	8.2	164	10,100
September	45,700	6.1	6,540	389,000
The year	45,700	6.1	1,800	1,300,000

BRAZOS RIVER NEAR BRYAN, TEX.

LOCATION.—Chain gage on Pitts Bridge on State highway between Bryan and Caldwell, 9 miles southwest of Bryan, Brazos County.

DRAINAGE AREA.—38,400 square miles, part of which is probably noncontributing.

RECORDS AVAILABLE.—September, 1925, to September, 1929. February, 1918, to September, 1925, record obtained 7½ miles downstream; discharge practically the same.

EXTREMES.—Maximum discharge during year not determined (gage height, 44.4 feet May 30); minimum, 113 second-feet Oct. 20 (gage height, 3.22 feet).

1925–1929: Maximum discharge not determined; minimum, that of Oct. 20, 1928.

Maximum stage of about 55.00 feet (present gage datum) occurred December, 1913.

REMARKS.—Records fair. The numerous small diversions above gage do not appreciably affect flow, except during low stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	412	192	412	670	928	1,460	928	5,350	100,000	1,540	928	165
2	406	263	300	530	1,200	1,730	778	5,650		1,460	928	165
3	394	180	272	346	1,820	1,540	705	4,380	36,700	1,640	928	169
4	400	325	295	436	2,440	1,460	705	3,260	19,500	1,820	965	169
5	400	300	258	1,460	1,920	1,280	705	3,020	13,300	2,440	1,040	167
6	228	300	238	4,000	1,460	1,120	705	2,540	9,940	2,780	890	157
7	194	300	238	5,500	565	965	635	2,220	8,440	2,220	778	15
8	167	290	222	4,000	890	928	740	2,120	7,429	1,730	670	212
9	123	276	190	3,880	815	852	3,770	1,730	6,340	1,370	635	4,950
10	119	254	215	3,020	670	778	15,600	1,460	5,350	1,120	495	17,000
11	123	242	315	2,780	495	705	13,200	1,370	5,200	1,370	460	10,800
12	190	320	370	2,780	412	928	7,600	1,640	6,340	2,120	442	7,210
13	183	600	600	2,220	382	2,660	7,350	2,330	6,160	2,330	412	24,000
14	172	815	495	2,220	382	6,340	12,600	2,900	5,500	2,120	376	31,100
15	176	740	448	2,020	382	6,700	13,100	5,350	5,050	1,730	352	21,800
16	194	670	1,730	1,640	382	3,750	10,700	6,520	4,640	1,460	330	13,800
17	212	600	3,880	1,370	382	3,260	6,340	10,400	4,510	1,200	300	9,940
18	235	565	7,190	1,200	382	2,660	4,000	10,400	4,250	1,200	290	7,240
19	167	454	16,200	1,040	382	2,540	3,620	15,300	4,000	1,200	272	6,340
20	113	394	8,530	890	382	2,020	6,000	14,500	3,620	1,200	245	5,200
21	119	394	2,400	778	382	2,540	17,300	17,900	3,260	1,280	238	4,640
22	142	418	1,040	740	382	3,020	9,280	18,100	3,020	1,460	225	4,120
23	194	364	1,370	705	382	2,540	4,510	9,070	2,660	1,540	225	3,750
24	190	330	1,730	600	382	2,540	3,260	8,230	2,330	1,040	212	3,140
25	161	281	1,540	565	430	2,120	3,140	8,650	2,220	815	202	2,780
26	138	238	1,370	495	394	1,640	3,500	13,300	2,120	852	200	2,330
27	147	238	1,370	635	382	1,370	3,620	23,400	1,920	890	200	1,920
28	155	414	1,200	1,040	2,520	1,280	3,260	39,100	1,820	890	200	1,820
29	172	1,540	1,120	965	------	1,280	3,260	100,000	1,730	852	197	1,730
30	174	1,370	890	815	------	1,120	3,620		1,540	852	190	1,730
31	178	------	670	815	------	1,040	------	------	------	852	178	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	412	113	206	12,700
November	1,540	180	456	27,100
December	16,200	190	1,840	113,000
January	5,500	346	1,620	99,600
February	2,520	382	783	43,500
March	6,700	705	2,070	127,000
April	17,300	635	5,480	326,000
May	------	1,370	17,400	1,070,000
June	------	1,540	12,600	750,000
July	2,780	815	1,460	89,800
August	1,040	178	452	27,800
September	31,100	155	6,290	374,000
The year	------	113	4,230	3,060,000

BRAZOS RIVER AT ROSENBERG, TEX.

LOCATION.—Chain gage on Rosenberg-Richmond highway bridge at Rosenberg, Fort Bend County.

DRAINAGE AREA.—44,000 square miles.

RECORDS AVAILABLE.—October, 1922, to September, 1929.

EXTREMES.—Maximum discharge during year, 123,000 second-feet June 6 (gage height, 46.2 feet); minimum, 250 second-feet Sept. 2 (gage height, 0.2 foot).

1922–1929: Maximum discharge, that of June 6, 1929; minimum, that of Sept. 2, 1929.

The flood of Dec. 9, 1913, reached a stage of 55.5 feet (from floodmarks).

REMARKS.—Records poor. No diversions. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	760	520	592	4,240	1,480	2,560	2,520	9,450	83,900	3,090	1,730	303
2	808	556	632	3,280	1,540	3,840	2,220	7,350	90,000	3,180	1,480	250
3	760	556	716	3,380	1,600	4,100	2,220	5,780	95,400	3,380	916	808
4	632	592	808	4,900	1,670	4,240	1,930	7,650	117,000	5,130	1,310	556
5	760	592	972	11,800	1,800	3,970	1,600	6,900	117,000	7,360	1,480	520
6	672	592	1,200	13,100	1,800	3,000	1,540	6,340	123,000	11,700	1,420	556
7	592	632	1,030	8,850	1,930	3,000	1,360	5,500	118,000	14,800	1,540	556
8	592	632	972	8,250	2,220	2,840	1,540	5,220	101,000	16,600	1,540	486
9	556	672	860	8,100	2,370	2,760	4,420	4,380	69,800	16,000	1,480	520
10	556	672	2,040	7,500	2,600	2,600	11,800	3,600	44,100	10,400	1,250	556
11	556	760	3,600	7,200	2,600	2,220	13,500	2,300	31,400	9,600	916	716
12	556	760	4,100	6,340	2,370	2,080	15,300	2,680	24,100	9,450	916	12,100
13	592	760	4,380	5,780	2,300	1,670	17,800	3,090	20,800	7,350	916	10,700
14	592	760	4,380	5,920	2,220	1,540	37,700	3,970	18,200	5,360	916	11,000
15	592	760	5,780	7,350	2,000	1,640	43,100	4,800	18,000	5,080	860	25,400
16	592	760	5,360	6,900	1,800	4,140	30,900	6,900	15,200	4,240	808	24,000
17	672	760	4,380	6,060	1,730	8,550	25,100	15,200	16,100	3,840	716	14,800
18	672	760	3,600	6,060	1,670	8,250		26,400	14,000	2,920	716	13,700
19	632	760	4,940	5,500	1,600	6,620		27,300	11,100	2,680	716	12,100
20	632	716	7,950	5,360	1,540	4,240		28,300	9,600	2,150	808	9,750
21	592	716	8,700	4,240	1,360	7,410	13,300	25,900	8,250	2,000	860	9,600
22	672	760	7,050	3,970	1,310	12,400		25,200	7,950	1,540	860	7,200
23	760	760	5,920	3,000	1,250	12,600		25,400	6,060	1,540	860	7,200
24	672	760	4,660	3,000	1,200	11,400		24,500	5,080	1,480	672	8,550
25	632	760	4,380	2,840	1,080	6,210		19,200	4,660	1,860	556	7,050
26	632	716	4,100	2,680	1,140	5,640	7,350	18,200	4,100	1,730	556	5,780
27	486	672	4,520	2,520	1,140	5,080	6,900	20,600	3,970	1,730	592	5,220
28	520	632	4,800	2,220	1,250	4,520	7,200	28,700	3,970	1,730	452	2,370
29	331	632	4,660	2,080	-------	3,720	7,350	45,000	3,970	1,670	420	3,000
30	420	592	4,660	1,670	-------	3,380	6,760	72,600	4,100	1,480	360	2,520
31	486	-------	4,520	1,540	-------	2,840	-------	82,900	-------	1,360	360	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	808	331	612	37,600
November	760	520	686	40,800
December	8,700	592	3,750	231,000
January	13,100	1,540	5,340	328,000
February	2,600	1,080	1,730	96,100
March	12,600	1,540	4,810	296,000
April	43,100	1,360	11,900	708,000
May	82,900	2,300	18,400	1,130,000
June	123,000	3,970	39,700	2,360,000
July	16,600	1,360	5,240	322,000
August	1,730	360	935	57,500
September	25,400	250	6,600	393,000
The year	123,000	250	8,290	6,000,000

CLEAR FORK OF BRAZOS RIVER AT NUGENT, TEX.

LOCATION.—Staff gage at highway bridge at Nugent, Jones County.
DRAINAGE AREA.—2,220 square miles.
RECORDS AVAILABLE.—February, 1924, to September, 1929.
EXTREMES.—Maximum discharge during year, 5,420 second-feet Sept. 11 (gage height, 11.38 feet, determined from graph drawn from daily gage readings); no flow Aug. 31 to Sept. 5.
1924–1929: Maximum discharge, 11,500 second-feet May 20, 1928 (gage height, 18.0 feet); no flow during several periods.
REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	49	8.5	8.0	7.0	7.0	9.5	6.5	40	6.5	3.3	0
2	9.5	32	8.5	8.0	7.0	7.0	8.0	3.6	28	5.7	3.6	0
3	9.5	64	8.5	8.0	8.0	7.0	6.5	2.7	23	5.7	2.7	0
4	9.5	27	8.5	8.0	9.0	7.0	6.5	2.7	108	22	2.0	0
5	9.5	14	8.5	8.0	9.0	7.0	7.0	2.7	35	15	1.5	0
6	9.5	10	8.5	8.0	9.0	7.0	6.0	2.6	26	9.5	.7	52
7	9.5	9.5	8.5	7.5	9.0	7.0	5.1	2.2	20	676	1.3	518
8	9.0	8.5	8.5	7.0	9.0	7.0	5.1	2.6	18	1,920	2.0	697
9	8.0	8.5	8.5	8.0	9.0	7.0	5.1	165	15	1,580	1.5	1,620
10	7.5	8.5	8.5	8.0	9.0	7.0	5.1	860	15	357	.8	1,920
11	7.5	8.5	9.5	8.0	8.5	7.0	5.1	1,090	13	44	.4	4,280
12	7.5	7.5	9.5	8.0	7.0	498	5.1	386	13	18	.4	3,500
13	7.5	9.5	9.0	8.0	7.0	621	5.1	38	11	12	.3	1,600
14	7.5	80	9.0	8.0	7.0	133	8.5	149	11	10	.2	1,080
15	7.5	52	9.0	7.5	7.0	111	7.5	402	11	9.5	24	231
16	7.5	15	9.0	7.0	7.0	72	7.0	440	10	9.0	30	91
17	7.5	10	9.0	7.0	7.0	23	5.4	459	9.5	9.0	5.7	655
18	6.5	8.5	9.0	7.0	7.0	12	5.1	1,030	9.5	9.0	4.2	831
19	6.5	8.5	9.0	7.0	7.0	9.0	381	666	9.0	7.0	2.9	690
20	6.5	8.5	9.0	7.0	8.0	7.5	50	1,410	8.5	9.5	2.3	540
21	6.5	8.5	9.0	7.0	8.0	7.5	9.5	496	8.5	28	2.0	87
22	6.5	7.5	9.0	7.0	8.0	8.0	6.5	68	8.0	18	1.6	62
23	6.5	7.5	9.0	7.0	8.0	7.5	4.8	49	8.0	5.7	1.0	47
24	6.5	7.5	9.0	7.0	8.0	7.5	4.5	56	8.0	5.4	.6	37
25	6.5	7.5	8.0	7.0	8.0	7.0	3.3	510	7.0	5.4	.4	37
26	6.5	8.5	8.0	7.0	8.0	6.5	2.9	2,130	6.0	4.8	.3	34
27	6.5	9.5	8.0	7.0	9.0	6.0	2.7	1,920	5.7	102	.2	32
28	6.5	10	8.0	7.0	8.0	10	12	498	6.5	22	.1	31
29	6.5	9.5	8.0	7.0	-------	19	8.5	108	6.5	10	.1	28
30	6.5	9.5	7.0	7.0	-------	31	7.0	60	6.5	6.5	.1	25
31	53	-------	7.0	7.0	-------	12	-------	72	-------	4.2	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	53	6.5	9.06	557
November	80	7.5	17.5	1,040
December	9.5	7.0	8.58	528
January	8.0	7.0	7.42	456
February	9.0	7.0	7.95	442
March	621	6.0	54.4	3,340
April	381	2.7	20.2	1,200
May	2,130	2.2	422	25,900
June	108	5.7	16.8	1,000
July	1,920	4.2	160	9,840
August	30	0	3.10	191
September	4,280	0	644	38,300
The year	4,280	0	114	82,800

CLEAR FORK OF BRAZOS RIVER AT FORT GRIFFIN, TEX.

LOCATION.—Chain gage on Fort Griffin-Throckmorton highway bridge half a mile east of Fort Griffin, Shackleford County.

DRAINAGE AREA.—3,970 square miles.

RECORDS AVAILABLE.—December, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,710 second-feet Sept. 13 (gage height, 16.43 feet); no flow during several periods.

1923–1929: Maximum discharge, about 12,500 second-feet June 21, 1926 (gage height, 27.0 feet); no flow for several periods.

REMARKS.—Records fair. Small diversions for municipal use; amount not known. Possibly some regulation at low stages by power plant at Stamford.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	197	8.1	9.8	4.6	16	19	9.0	213	1.7	11	0
2	2.8	200	8.1	9.8	4.6	16	19	6.6	177	1.9	7.2	0
3	2.8	103	8.7	11	5.0	18	17	6.0	164	3.4	5.6	0
4	2.4	69	8.7	12	5.0	19	15	5.6	307	47	*3.6	0
5	1.5	50	9.4	12	5.4	19	13	4.4	187	58	1.5	0
6	*1.6	56	11	11	5.4	16	14	3.2	90	28	1.3	432
7	*1.7	62	11	13	6.3	14	14	2.8	81	14	.5	567
8	*1.8	43	9.8	14	7.5	14	16	3.2	88	81	.2	257
9	1.9	32	9.8	16	12	16	22	3.2	111	1,840	*.1	1,030
10	*2.2	29	11	17	13	15	19	5.6	107	1,940	0	3,150
11	*2.5	28	11	15	13	14	16	5.8	64	522	0	5,010
12	2.8	26	11	14	13	16	16	999	49	170	0	5,370
13	2.4	26	12	14	11	17	14	2,310	13	77	0	4,760
14	2.4	23	12	11	11	394	14	2,240	9.0	64	0	2,140
15	2.8	18	11	10	10	329	11	1,270	9.4	55	0	1,940
16	2.8	17	10	10	10	124	11	2,410	8.1	46	0	667
17	1.6	14	10	10	9.4	64	10	2,940	*7.0	28	0	105
18	1.2	13	9.4	8.7	7.5	38	11	3,960	5.8	23	0	200
19	1.2	13	9.4	7.5	10	24	147	3,540	*5.5	20	0	449
20	.3	13	8.1	8.1	16	17	732	1,700	5.2	16	0	510
21	.3	13	8.7	8.1	22	18	377	1,450	5.0	86	0	787
22	0	11	8.1	8.1	20	19	182	926	5.0	16	0	187
23	0	9.0	9.4	8.7	20	18	51	200	5.2	21	0	77
24	0	9.8	8.1	8.1	18	22	575	95	4.8	36	0	66
25	0	9.0	7.5	7.5	18	22	1,420	70	3.8	22	0	56
26	0	9.8	7.2	6.9	16	22	359	69	2.6	9.8	0	33
27	0	9.8	7.8	5.8	16	24	67	2,690	2.6	14	0	28
28	0	9.8	7.2	5.8	16	51	28	3,460	3.0	13	0	22
29	0	9.0	6.6	5.8	-------	44	16	1,470	1.9	*16	0	25
30	5.0	7.8	7.2	5.4	-------	24	12	323	1.9	18	0	25
31	11	-------	7.8	5.0	-------	23	-------	200	-------	11	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	11	0	1.91	117
November	200	7.8	37.7	2,240
December	12	6.6	9.20	566
January	17	5	9.97	613
February	22	4.6	11.6	644
March	394	14	48.0	2,950
April	1,420	10	141	8,390
May	3,960	2.8	1,040	64,000
June	307	1.9	57.9	3,450
July	1,940	1.7	171	10,500
August	11	0	1.00	61
September	5,370	0	930	55,300
The year	5,370	0	206	149,000

* Estimated.

CLEAR FORK OF BRAZOS RIVER AT CRYSTAL FALLS, TEX.

LOCATION.—Staff gage at Walker-Caldwell Water Co.'s pumping plant a quarter of a mile north of Crystal Falls, Stephens County.

DRAINAGE AREA.—4,320 square miles.

RECORDS AVAILABLE.—November, 1921, to February, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during period of current year, 730 second-feet Nov. 1 (gage height, 1.95 feet, determined from gage-height graph drawn from daily gage readings); no flow during several periods.

1921–1929: Maximum discharge not determined (gage height, 18.25 feet Apr. 30, 1922); no flow during several periods.

REMARKS.—Records for low stages good, for high stages poor. Large part of ordinary flow diverted for municipal use and mining. Low-water flow partly regulated by dam above gage.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Day	Oct.	Nov.	Dec.	Jan.	Feb.
1	1.2	598	14	8.0	0	16	0	19	22	6.0	4.4
2	.4	278	16	8.0	.8	17	0	32	16	5.2	3.6
3	0	139	16	5.2	1.2	18	0	10	12	5.2	2.8
4	0	82	14	5.2	1.2	19	0	5.2	12	5.2	2.0
5	0	40	12	3.6	.8	20	0	5.2	12	4.4	2.0
6	0	62	12	3.6	1.2	21	0	18	12	2.8	5.2
7	0	40	14	2.0	1.2	22	0	16	16	2.8	5.2
8	0	32	14	5.2	.8	23	0	10	12	2.0	5.2
9	0	32	14	8.0	.4	24	0	8.0	10	2.0	5.2
10	0	22	12	5.2	0	25	0	8.0	10	2.0	5.2
11	0	16	16	5.2	0	26	0	8.0	10	2.0	5.2
12	0	14	16	8.0	0	27	0	12	10	1.6	5.2
13	0	14	29	5.2	0	28	0	12	10	1.2	5.2
14	0	198	22	8.0	0	29	3.6	12	10	.8	------
15	0	65	22	6.0	8.0	30	3.6	12	8.0	.4	------
						31	150	------	8.0	.4	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	150	0	5.12	315
November	598	5.2	60.6	3,610
December	29	8.0	14.0	861
January	8.0	.4	4.21	259
February	8.0	0	2.57	143
The period				5,190

CLEAR FORK OF BRAZOS RIVER NEAR CRYSTAL FALLS, TEX.

LOCATION.—Staff gage at Humble Oil & Refining Co.'s pumping plant 4 miles northeast of Crystal Falls, Stephens County, and 5 miles below mouth of Hubbard Creek.

DRAINAGE AREA.—5,690 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 11,100 second-feet May 18 (gage height, 17.7 feet); no flow for several periods.

1928–29: Maximum discharge, 21,500 second-feet July 27, 1928 (gage height, 29.6 feet); no flow during several periods.

River reached about a 38.0-foot stage during 1900.

REMARKS.—Records good. Large part of ordinary flow diverted for municipal use and mining. Low-water flow partly regulated by dams above gage.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	586	14	14	3.7	26	20	24	476	0	5.8	0
2	2.4	223	e16	10	4.4	26	18	16	e252	740	5.1	0
3	1.8	171	18	9.3	e5.1	e22	26	9.3	164	98	4.4	0
4	1.2	e124	14	12	5.8	18	22	7.9	112	18	e10	0
5	.6	78	10	171	5.8	16	22	e6.2	407	7.9	16	0
6	.6	71	10	e37	4.4	14	18	4.4	979	40	5.1	0
7	0	61	14	33	4.4	14	e57	3.0	187	e194	1.8	0
8	0	50	14	26	5.1	14	105	3.0	109	145	0	0
9	0	40	e14	22	7.2	10	112	4.4	e85	510	0	1,630
10	0	28	14	37	e7.9	e9.3	28	5.1	61	1,830	0	3,170
11	2.4	e24	16	24	8.6	8.6	26	3.0	37	1,310	0	6,640
12	3.0	20	22	22	7.2	381	16	e14	28	386	0	4,990
13	5.8	16	24	e22	5.8	672	14	e6,250	20	152	0	5,260
14	e6.5	64	26	22	4.4	148	e24	2,300	14	e81	0	4,270
15	7.2	81	26	22	3.0	289	33	2,100	10	57	0	e2,440
16	5.8	28	e28	18	2.7	138	14	2,320	e8.2	33	0	1,620
17	5.8	22	30	18	e2.2	e118	10	3,190	6.5	22	0	980
18	4.4	e17	252	18	1.8	98	8.6	9,220	3.7	12	0	434
19	4.4	12	187	14	2.4	105	770	e4,910	2.7	8.6	0	586
20	4.4	8.6	78	e14	22	91	807	3,240	1.5	30	0	790
21	e3.7	33	30	14	26	50	e730	1,340	.6	183	0	760
22	3.0	24	26	10	28	18	376	1,550	0	95	0	e468
23	2.7	20	e22	10	30	18	183	542	0	646	0	175
24	1.2	16	18	10	e30	e16	91	202	0	267	0	95
25	.6	e13	e15	10	30	14	910	141	0	71	0	67
26	0	10	12	8.6	28	12	850	e149	0	50	0	57
27	0	10	9.3	e7.9	28	14	293	817	0	26	0	47
28	0	12	8.6	7.2	30	64	e120	3,180	0	e22	0	40
29	0	10	8.6	5.8	-------	167	64	2,810	0	18	0	e34
30	0	14	e11	4.4	-------	74	37	1,200	0	14	0	28
31	135	-------	14	3.0	-------	e47	-------	1,690	-------	7.2	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	135	0	6.63	408
November	586	8.6	62.9	3,740
December	252	8.6	32.3	1,990
January	171	3.0	21.2	1,300
February	30	1.8	12.3	683
March	672	8.6	87.5	5,380
April	910	8.6	193	11,500
May	9,220	3.0	1,520	93,500
June	979	0	98.8	5,880
July	1,830	0	228	14,000
August	16	0	1.55	95
September	6,640	0	1,150	68,400
The year	9,220	0	286	207,000

e Estimated.

NORTH BOSQUE RIVER NEAR CLIFTON, TEX.

LOCATION.—Staff gage one-fourth mile above Gulf, Colorado & Santa Fe Railway bridge and 1⅞ miles northwest of Clifton, Bosque County.
DRAINAGE AREA.—974 square miles.
RECORDS AVAILABLE.—November, 1923, to September, 1929.
EXTREMES.—Maximum discharge during year, about 26,500 second-feet Sept. (gage height, 16.8 feet); no flow for several periods.
1923–1929: Maximum discharge, that of Sept. 8, 1929; no flow during several periods.
REMARKS.—Records fair for low stages and poor for high stages. Railroad pumps about 100,000 gallons a day above dam and below gage.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	0.7	0.5	1.9	3.2	8.5	29	6.7	85	391	0.3	0
2	.7	.8	1.8	3.2	10	20	5.0	41	197	.2	0
3	.6	.9	1.8	3.2	8.5	12	5.0	27	127	.2	0
4	.6	1.0	1.8	4.1	9.4	12	4.1	20	85	.1	0
5	.6	1.0	1.8	6.7	8.5	11	3.2	16	71	2.4	0
6	.6	1.0	1.8	5.0	16	10	3.2	12	57	16	346
7	.4	1.1	1.9	16	6.7	10	3.2	10	49	12	127
8	.4	1.2	2.0	11	9.4	10	6.7	9.4	49	5.0	15,500
9	.4	1.2	2.0	9.4	5.0	6.7	1,080	10	36	2.8	706
10	.3	1.2	2.5	6.7	3.2	5.8	243	221	27	2.2	78
11	.3	1.2	6.7	6.7	3.2	6.7	78	78	22	1.8	20
12	.2	1.3	5.0	5.0	3.2	10	41	47	20	1.4	3.2
13	.2	1.3	5.0	3.2	3.2	594	3,850	146	12	1.1	2.7
14	.2	1.3	4.1	3.2	3.2	146	466	146	10	.8	1.9
15	.2	1.5	4.1	3.1	4.1	64	156	114	8.5	.4	1.7
16	.1	1.6	20	3.0	4.1	41	136	47	6.7	.3	1.6
17	.1	1.6	602	3.1	3.2	31	64	301	5.0	.2	1.4
18	0	1.8	305	3.2	3.1	23	41	269	3.2	.1	1.3
19	0	1.7	82	3.2	3.0	20	139	68	2.8	.1	1.2
20	0	1.7	39	3.1	3.0	18	2,650	71	2.5	0	1.1
21	0	1.7	23	3.2	3.2	16	136	39	2.2	0	1.0
22	0	1.8	16	3.1	3.2	27	64	23	1.9	0	1.0
23	0	1.8	12	3.2	3.2	20	41	14	1.7	0	.9
24	0	1.8	12	46	3.2	16	1,110	12	1.5	0	.8
25	0	1.8	10	145	74	14	1,360	557	1.4	0	.7
26	0	1.8	8.5	47	750	12	156	5,870	1.2	0	.7
27	0	1.8	8.5	27	114	10	78	518	1.0	0	.6
28	0	1.8	8.5	16	49	10	52	294	.7	0	.6
29	0	1.8	6.7	12	-------	8.5	68	262	.6	0	.6
30	.3	1.8	5.8	10	-------	8.5	92	371	.4	0	.5
31	.2	-------	5.0	8.5	-------	7.6	---------	980	-------	0	---------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	0.7	0	0.23	14
November	1.8	.5	1.43	85
December	602	1.8	39.0	2,400
January	145	3.0	13.8	848
February	750	3.0	39.9	2,220
March	594	5.8	39.7	2,440
April	3,850	3.2	405	24,100
May	5,870	9.4	344	21,200
June	391	.4	39.8	2,370
July	16	0	1.53	94
September	15,500	0	560	33,300
The year	15,500	0	123	89,100

NOTE.—No flow during August.

SOUTH BOSQUE RIVER NEAR SPEEGLEVILLE, TEX.

LOCATION.—Chain gage on highway bridge 2 miles south of Speegleville, McLennan County.

DRAINAGE AREA.—388 square miles.

RECORDS AVAILABLE.—March, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 5,480 second-feet May 28 (gage height, 11.10 feet); no flow during several periods.

1924–1929: Maximum discharge, determined by slope-area method, 54,500 second-feet June 14, 1927 (gage height, 29.37 feet, from floodmarks); no flow during several periods.

REMARKS.—Records fair for low and intermediate stages and poor for high stages. No diversions above station. No record Dec. 1 to Jan. 11 and Jan. 13 to Feb. 7.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.5	-------	-------	a 6.2	44	56	642	15	1.0	0
2	0	.8	-------	-------	7.0	44	32	273	15	1.0	0
3	0	.3	-------	-------	6.0	36	10	236	13	.6	0
4	0	0	-------	-------	7.0	30	16	493	15	.8	0
5	0	0	-------	-------	7.0	19	28	236	26	.6	0
6	0	0	-------	-------	6.0	23	21	172	25	.6	47
7	0	0	-------	-------	5.0	25	14	202	19	.4	19
8	0	0	-------	7.0	10	36	11	183	13	.2	1,050
9	0	0	-------	5.0	7.0	70	17	157	10	.6	36
10	0	0	-------	5.0	8.0	96	19	127	8.0	.5	9.0
11	0	0	-------	7.0	13	16	13	106	7.0	.8	2.0
12	0	0	3.0	5.0	9.0	14	13	99	5.5	.7	1.9
13	0	0	-------	3.5	154	207	202	86	5.0	.5	1.3
14	0	.1	-------	3.0	93	58	39	77	5.0	.3	1.4
15	.2	0	-------	4.0	74	50	25	70	4.0	.2	.9
16	.4	0	-------	3.0	56	26	12	a 66	3.0	.1	1.2
17	0	0	-------	7.0	36	28	365	a 62	2.0	.1	1.0
18	0	0	-------	5.0	44	113	106	a 57	1.8	.2	.9
19	0	0	-------	6.0	424	83	67	53	1.8	.1	.8
20	0	0	-------	6.0	67	215	39	42	1.6	.1	1.1
21	0	0	-------	5.5	194	53	25	42	1.6	0	.9
22	0	0	-------	5.5	77	28	25	36	1.1	0	.7
23	.4	.5	-------	7.0	61	34	23	36	0	0	.8
24	0	7.0	-------	7.0	58	39	308	34	0	0	.7
25	0	12	-------	7.0	58	34	96	42	0	0	.9
26	.1	70	-------	6.0	44	44	265	32	0	0	.9
27	.7	58	-------	4.5	58	28	99	25	0	0	.9
28	.3	70	-------	a 5.4	50	21	2,240	25	0	0	.7
29	0	103	-------	-------	154	90	960	23	.8	0	.6
30	0	157	-------	-------	50	202	216	19	1.2	0	.8
31	.1	-------	-------	-------	a 47	-------	493	-------	1.2	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	0.7	0	0.07	4.3
November	157	0	16.0	952
February 8–28	7.0	3.0	5.45	227
March	424	5.0	61.0	3,750
April	215	14	60.2	3,580
May	2,240	10	189	11,600
June	642	19	125	7,440
July	26	0	6.50	400
August	1.0	0	.30	18
September	1,050	0	39.4	2,340

a Estimated.

LEON RIVER NEAR HAMILTON, TEX.

LOCATION.—Chain gage on St. Louis Southwestern Railway bridge 6 miles north of Hamilton, Hamilton County.
DRAINAGE AREA.—1,900 square miles.
RECORDS AVAILABLE.—January, 1925, to September, 1929.
EXTREMES.—Maximum discharge during year, 4,480 second-feet Sept. 8 (gage height, 17.20 feet); no flow during several periods.
1925–1929: Maximum discharge, that of Sept. 8, 1929; no flow during several periods.
A stage of 29.8 feet occurred in May, 1908.
REMARKS.—Records fair. No large diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	0.7	0.7	17	38	59	249	40	182	1,050	2.0	0
2	.6	3.3	17	28	59	192	40	97	1,050	2.0	0
3	.5	2.9	17	28	51	92	40	71	1,020	1.8	0
4	.4	2.3	17	28	43	92	36	58	930	1.8	0
5	.3	2.2	17	28	43	84	33	42	411	1.8	0
6	.1	1.7	15	57	43	67	33	38	296	1.8	0
7	0	1.4	15	878	43	60	33	32	136	9.2	0
8	1.3	1.0	15	1,050	39	52	74	29	111	3.5	2,910
9	5.2	.9	21	1,160	39	44	497	31	79	2.2	2,150
10	25	.7	22	548	36	33	500	29	57	1.7	796
11	14	.5	45	232	36	29	411	31	43	1.1	170
12	11	.4	49	158	36	52	221	43	32	1.0	106
13	3.8	.2	58	121	32	81	664	71	24	.9	45
14	2.8	.2	67	92	32	352	2,050	32	18	.9	22
15	2.0	.2	58	75	32	296	2,450	124	12	.4	7.0
16	1.8	.2	54	63	32	208	1,380	208	11	0	5.2
17	1.6	.2	228	51	32	147	543	88	9.6	0	3.2
18	1.0	.1	872	51	28	116	208	136	6.2	0	2.4
19	.9	.1	901	51	28	88	136	208	4.8	0	1.8
20	.7	.1	705	47	28	75	126	182	4.8	0	1.4
21	.6	.1	449	39	28	71	102	116	4.3	0	105
22	.4	.4	235	36	28	67	71	84	3.9	30	31
23	0	24	182	32	39	63	55	53	3.4	7.0	6.5
24	0	28	136	66	39	63	67	41	3.2	5.2	5.0
25	0	28	111	390	48	63	299	431	2.5	3.9	3.5
26	0	26	102	332	210	60	846	3,190	2.8	2.6	2.3
27	0	28	84	171	296	60	959	2,840	3.0	2.6	1.2
28	0	28	67	106	279	48	506	918	2.8	2.2	.8
29	0	28	47	75	-------	40	264	350	2.5	1.4	.7
30	0	20	44	63	-------	40	235	360	2.3	.1	.6
31	0	-------	39	63	-------	40	-------	988	---------	0	---------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	25	0	2.41	148
November	28	.1	7.66	456
December	901	15	152	9,350
January	1,160	28	199	12,200
February	296	28	62.1	3,450
March	352	29	97.5	6,000
April	2,450	33	431	25,600
May	3,190	29	358	22,000
June	1,050	2.3	178	10,600
July	30	0	2.81	173
September	2,910	0	213	12,700
The year	3,190	0	142	103,000

NOTE.—No flow during August.

LEON RIVER NEAR BELTON, TEX.

LOCATION.—Staff gage a quarter of a mile above Temple-Belton highway bridge 2 miles east of Belton, Bell County.

DRAINAGE AREA.—3,550 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 11,400 second-feet May 29 (gage height, 9.32 feet); no flow Aug. 23 to Sept. 5.

1923–1929: Maximum discharge, about 27,100 second-feet Oct. 2, 1927 (gage height, 15.05 feet); no flow during several periods.

Highest known stages, 21.0 feet September, 1921, and about 25 feet December, 1913.

REMARKS.—Monthly records fair. Records of daily discharge not sufficiently accurate for publication. Several small pumping plants above gage; amount of water diverted not known.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	18	1.0	7.06	434
November	17	1.2	7.15	425
December	646	10	93.3	5,740
January	935	42	183	11,300
February	147	42	64.8	3,600
March	610	70	231	14,200
April	3,220	70	584	34,800
May	7,200	70	1,200	73,800
June	1,870	42	488	29,000
July	40	12	21.5	1,320
August	10	0	3.20	197
September	4,160	0	568	33,800
The year	7,200	0	288	209,000

LITTLE RIVER NEAR LITTLE RIVER, TEX.

LOCATION.—Chain gage on Missouri-Kansas-Texas Railroad bridge 2 miles south of Little River, Bell County. Zero of gage, 400.32 feet above mean sea level.

DRAINAGE AREA.—5,250 square miles.

RECORDS AVAILABLE.—October, 1923, to May, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during period of current year, 9,120 second-feet May 27 (gage height, 33.40 feet); minimum, 20 second-feet Oct. 26 (gage height, 3.08 feet).

1923–1929: Maximum discharge, 28,400 second-feet Oct. 2, 1927 (gage height, 43.3 feet); minimum, 8.9 second-feet Aug. 12, 1925 (gage height, 3.26 feet).

River reached a stage of 50.85 feet September, 1921.

REMARKS.—Records fair. Several small diversions above station; amount diverted not known. Waterworks on Leon River may regulate flow at extremely low stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	51	24	38	80	208	86	188	635
2	47	23	38	74	197	86	180	585
3	43	23	37	64	172	111	172	1,180
4	42	25	36	69	172	263	163	920
5	40	26	35	69	154	263	172	263
6	38	29	34	64	139	230	163	241
7	36	29	37	200	125	180	188	219
8	34	30	36	154	118	154	1,040	188
9	31	31	38	118	111	132	1,820	188
10	31	31	60	111	104	118	548	188
11	28	34	51	630	98	180	263	188
12	28	33	43	894	91	332	263	219
13	26	33	41	1,080	91	1,000	1,790	1,260
14	26	28	37	555	91	782	2,180	*760
15	26	30	36	311	91	535	965	263
16	26	33	317	230	91	485	790	208
17	27	36	156	197	86	*400	842	241
18	26	30	86	172	86		972	1,270
19	23	28	64	146	86		2,520	492
20	22	26	56	139	86	219	532	263
21	22	29	56	118	98	219	275	230
22	22	32	51	111	91	163	252	208
23	21	31	221	98	91		323	230
24	20	31	660	91	86		230	712
25	20	30	560	86	86	*200	208	660
26	20	31	485	86	91		188	1,940
27	22	43	385	80	91	219	172	5,950
28	22	45	299	74	91	219	208	------
29	22	40	172	168	------	197	312	------
30	23	38	111	323	------	188	1,360	------
31	24	------	104	219	------	197	------	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	51	20	28.7	1,760
November	45	23	31.1	1,850
December	660	34	141	8,670
January	1,080	64	220	13,500
February	208	86	112	6,220
March	1,000	86	276	17,000
April	2,520	163	643	38,300
May 1-27	5,950	188	730	39,100
The period				126,000

* Estimated.

LITTLE RIVER AT CAMERON, TEX.

LOCATION.—Chain gage on highway bridge three-fourths mile above Gulf, Colorado & Santa Fe Railway bridge and 2 miles southeast of Cameron, Milam County.

DRAINAGE AREA.—7,030 square miles.

RECORDS AVAILABLE.—November, 1916, to September, 1929.

EXTREMES.—Maximum discharge during year, about 137,900 second-feet May 29 (gage height, 40.70 feet); minimum, 32 second-feet Oct. 25–31.

1916–1929: Maximum discharge, by slope-area method, 647,000 second-feet Sept. 10, 1921 (gage height, about 53.8 feet present datum, and 49.5 feet on staff gage half a mile upstream in use during 1921); minimum, 2.6 second-feet Sept. 3, 5, and 7, 1918.

REMARKS.—Records fair. Numerous small diversions for irrigation and municipal uses affect flow at station only during extremely low stages. About 2,500 acres irrigated above station. Slight regulation by pumping above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	37	53		373	144	214	2,060	16,300	422	236	e 94
2	90	35	e 48		602	135	e 209	2,530	e11,100	422	204	91
3	77	33	42		e 572	e 140	204	1,730	e 5,130	822	193	89
4	77	e 35	42	e 300	e 422	144	193	790	3,880	e 854	e 178	90
5	71	37	52		296	236	183	e 542	5,520	694	163	87
6	60	46	52		259	334	183	452	3,600	632	153	87
7	e 60	46	52		225	308	173	334	3,250		153	87
8	60	44	47	308	e 215	283	625	308	2,950		153	2,800
9	60	46	e 47	e 278	e 204	248	10,400	259	e 2,320		144	5,340
10	54	46	47	248	e 193	e 254	14,800	236	1,690		144	5,900
11	54	e 44	75	214	183	259	4,970	225	1,390		e 144	2,080
12	54	41	57	183	163	236	1,350	e 214	1,220		144	1,280
13	49	41	69	e 526	163	2,460	3,160	204	1,110		135	2,320
14	e 46	40	75	950	163	2,440	e 5,960	2,460	982		130	2,440
15	44	41	75	726	163	1,330	6,980	1,810	950	e 450	127	e 984
16	44	41	77	452	153	822	5,070	662	e 918		125	602
17	44	41	538	348	e 148	e 542	e 2,230	482	886		125	422
18	39	e 41	775	296	144	422	1,480	1,720	758		e 123	334
19	39	41	359	259	144	422	2,190	e 2,900	694		121	283
20	37	41	e 193	e 242	e 140	542	2,780	2,840	662		118	236
21	e 37	40	144	225	135	632	e 1,690	632	632		113	225
22	37	40	119	193	129	886	1,110	512	602	283	113	e 199
23	35	40	118	173	144	982	e 918	407	e 572	248	113	173
24	33	40	e 154	163	e 148	e 662	790	1,240	542	225	109	144
25	32	e 40	e 662	153	153	452	726	6,160	512	204	e 104	135
26	32	41	542	153	153	362	e 662	8,570	572	259	98	144
27	32	41	377	e 141	135	321	e 602	13,200	632	225	106	135
28	e 32	43	308	129	144	283	e 542	29,600	482	e 308	103	130
29	32	43		129	-------	283	e 452	122,000	482	392	101	e 124
30	32	43	e 275	129	-------	259	482	61,800	e 452	283	98	119
31	32	-------		173	-------	e 236	-------	31,700	-------	248	98	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	119	32	49.8	3,060
November	46	33	40.9	2,430
December	775	42	194	11,900
January	950	129	287	17,600
February	602	129	217	12,100
March	2,460	135	550	33,800
April	14,800	173	2,380	142,000
May	122,000	204	9,630	592,000
June	16,300	452	2,360	140,000
July	854	204	428	26,300
August	236	98	134	8,240
September	5,900	87	906	53,900
The year	122,000	32	1,440	1,040,000

e Estimated.

LAMPASAS RIVER AT YOUNGSPORT, TEX.

LOCATION.—Staff gage half a mile northeast of Youngsport, Bell County.
DRAINAGE AREA.—1,240 square miles.
RECORDS AVAILABLE.—February, 1924, to September, 1929.
EXTREMES.—Maximum discharge during year not determined (gage height, 14.00 feet Sept. 7); minimum, 0.7 second-foot Aug. 23–28 and Sept. 1–5 (gage height, 2.58 feet).

1924–1929: Maximum discharge not determined (gage height, 23.70 feet Oct. 2, 1927); no flow July 17 to Aug. 18, 1925.

REMARKS.—Records fair. Daily discharge not sufficiently accurate for publication. Small amount of water diverted for municipal uses.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	19	6.0	8.75	538
November	33	13	19.8	1,180
December	33	20	26.0	1,600
January	174	10	27.3	1,680
February	23	12	15.4	855
March	499	10	58.2	3,580
April	1,540	17	117	6,960
May	2,230	15	266	16,400
June	530	19	118	7,020
July	270	5.1	28.2	1,730
August	5.6	.7	1.96	120
September	7,410	.7	514	30,600
The year	7,410	.7	99.8	72,300

SAN GABRIEL RIVER AT CIRCLEVILLE, TEX.

LOCATION.—Chain gage on highway bridge half a mile southeast of Circleville, Williamson County, and half a mile above Missouri-Kansas-Texas Railroad bridge.

DRAINAGE AREA.—602 square miles.

RECORDS AVAILABLE.—February, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 53,400 second-feet May 29 (gage height, 34.20 feet); minimum, 4.4 second-feet Oct. 20, 21, 23, 25, 26, and 28.

1924–1929: Maximum discharge, that of May 29, 1929; no flow Sept. 5, 6, 8, and 11, 1924.

The river reached a stage of about 40.6 feet September, 1921.

REMARKS.—Records fair. Several small diversions for municipal uses above station; amount diverted not known.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	6.0	16	14	23	16	20	27	620	*90	38	13
2	6.0	7.0	14	*13	51	16	20	26	459	88	38	16
3	6.0	4.6	14	12	25	16	20	24	370	90	38	16
4	6.5	5.5	14	14	18	18	20	24	328	98	36	13
5	6.5	8.5	14	47	18	15	20	19	308	95	36	11
6	6.5	15	*15	22	15	15	20	19	268	85*	31	11
7	*6.8	11	16	22	14	15	19	19	258	88	*30	13
8	7.0	9.0	14	23	15	15	1,180	*22	238	83	30	13
9	7.0	9.0	15	21	11	15	343	24	228	78	30	13
10	7.0	9.0	21	19	12	15	208	24	208	73	31	11
11	7.0	8.0	24	23	14	39	98	24	190	71	27	11
12	6.0	9.0	23	19	14	61	62	26	173	69	27	12
13	7.5	9.0	20	16	15	57	1,010	768	156	69	25	14
14	*7.5	9.0	14	16	15	45	741	96	164	69	*22	28
15	7.5	10	14	14	14	*38	150	45	156	64	20	17
16	9.5	10	48	15	14	31	61	45	148	62	19	16
17	14	13	31	16	12	27	49	36	140	62	19	14
18	7.5	11	20	15	14	29	45	342	133	*58	19	13
19	4.6	10	21	16	15	31	43	79	126	54	19	11
20	4.4	*10	15	15	14	438	43	40	119	126	19	11
21	4.4	11	15	16	14	55	38	30	119	73	19	11
22	4.8	10	14	16	15	36	36	28	119	64	18	10
23	4.4	11	14	16	15	31	34	33	*112	55	18	11
24	4.8	11	13	15	15	22	36	456	105	53	18	10
25	4.4	11	13	15	18	23	*35	4,080	98	51	16	10
26	4.4	11	13	14	15	*22	34	2,840	105	54	*16	10
27	4.8	16	11	*14	15	22	31	156	98	*59	15	10
28	4.4	15	11	14	15	22	31	491	93	64	16	11
29	6.0	16	12	15	------	25	31	24,600	95	47	16	10
30	7.0	14	14	14	------	23	31	4,120	93	49	16	9.5
31	6.0	------	14	14	------	11	------	1,940	------	41	16	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	14	4.4	6.33	389
November	16	4.6	10.3	613
December	48	11	17.0	1,050
January	47	12	17.3	1,060
February	51	11	16.6	922
March	438	11	40.1	2,470
April	1,180	19	150	8,930
May	24,600	19	1,310	80,600
June	620	93	194	11,500
July	126	41	70.4	4,330
August	38	15	23.8	1,460
September	28	9.5	12.6	750
The year	24,600	4.4	157	114,000

* Estimated.

YEGUA CREEK NEAR SOMERVILLE, TEX.

LOCATION.—Chain gage on Gulf, Colorado & Santa Fe Railway bridge 2 miles south of Somerville, Burleson County. Gage reading gives distance from base of rail to water surface.

DRAINAGE AREA.—990 square miles.

RECORDS AVAILABLE.—May, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 33,600 second-feet May 30 (gage height, −17.02 feet); no flow during several periods.

1924–1929: Maximum discharge, that of May 30, 1929; no flow during several periods.

REMARKS.—Monthly records fair. Records of daily discharge not sufficiently accurate for publication. No diversions above station. Flow partly regulated by swamp upstream.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	166	0	6.91	411
December	2,180	1.1	354	21,800
January	286	2.3	31.6	1,940
February	14	1.6	4.88	271
March	330	1.0	57.4	3,530
April	6,050	4.8	844	50,200
May	29,500	9.9	2,430	149,000
June	11,200	7.6	1,100	65,500
July	899	4.5	144	8,850
August	6.2	0	1.56	96
The year	29,500	0	418	302,000

NOTE.—No flow during October and September.

NAVASOTA RIVER NEAR EASTERLY, TEX.

LOCATION.—Inverted staff gage at International-Great Northern Railroad bridge 6 miles northeast of Easterly, Robertson County. Zero of gage, 301.24 feet above mean sea level. Gage readings show distance from base of rail to water surface.

DRAINAGE AREA.—949 square miles.

RECORDS AVAILABLE.—March, 1924, to September, 1929.

EXTREMES.—Maximum and minimum discharge during year not determined.

1924–1929: Maximum discharge not determined (gage height, —5.5 feet May 30, 1929); no flow during several periods.

REMARKS.—Records poor. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	166	112	e46	582	e112	59	1,160	12,800	59	32	e0.3
2	2.8	239	81	44	562	e112	112	1,120	10,800	44		.3
3	2.8	188	54	44	e486	e112	89	503	9,740	44		.3
4	2.8	104	28	44	411	112	74	157	5,390	84		.3
5	2.8	69	19	44	301	112	64	69	2,090	124		.3
6	2.8	59	16	e44	248	106	64	59	1,180	163		.3
7	e2.8	44	16	76	198	94	e88	49	708	e140		.3
8	2.8	25	14	1,030	163	89	112	44	373	118		.3
9	2.8	19	e16	2,160	136	69	142	368	184	84		.3
10	2.8	16	19	1,900	e118	e64	184	1,100	136	79		.3
11	2.8	e14	25	1,240	100	59	348	770	118	64	e8.0	.3
12	2.8	12	75	748	74	113	396	682	106	44		.3
13	2.8	9.6	465	403	74	746	738	2,250	106	36		.3
14	e3.2	9.6	428	214	69	1,040	2,120	4,860	100	e32		.3
15	e3.7	9.6	469	149	64	1,040	2,700	5,120	257	28		e.8
16	e4.1	8.0	1,890	112	59	1,130	2,260	3,800	e224	25		1.2
17	e4.6	8.0	5,930	94	e52	668	1,580	3,060	191	25		5.0
18	5.0	e8.0	5,390	94	64	311	1,160	2,800	136	22		3.8
19	5.0	8.0	4,430	94	69	170	731	2,800	100	22		3.8
20	5.0	8.0	2,930	e132	74	130	362	2,800	89	19		2.8
21	e4.4	8.0	1,880	170	89	149	147	2,450	69	e18	.3	2.0
22	3.8	8.0	954	156	106	163	79	1,830	59	16	e.3	e2.0
23	3.8	8.0	582	112	112	124	64	906	e54	16	e.3	2.0
24	2.8	8.0	502	94	e112	e118	59	905	49	14	.3	2.0
25	2.8	e14	311	124	112	112	59	1,400	49	14	e.3	2.0
26	2.8	19	141	156	112	79	59	682	69	11	.3	1.2
27	2.8	25	64	395	e112	69	59	726	100	32	.3	1.2
28	e2.8	53	59	920	e112	64	e56	2,330	124	e46	.3	1.2
29	2.8	100	54	770	-------	64	54	15,900	79	59	.3	e1.2
30	3.8	112	e52	662	-------	59	163	21,300	e69	106	.3	1.2
31	33	-------	49	602	-------	e59	-------	16,900	-------	54	.3	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	33	2.8	4.31	265
November	239	8.0	46.0	2,740
December	5,930	14	873	53,700
January	2,160	44	415	25,500
February	582	52	170	9,440
March	1,130	59	240	14,800
April	2,700	54	473	28,100
May	21,300	44	3,190	196,000
June	12,800	49	1,520	90,400
July	163	11	53.0	3,260
August	-------	-------	6.04	371
September	5.0	.3	1.25	74
The year	21,300	.3	587	425,000

e Estimated.

COLORADO RIVER BASIN

COLORADO RIVER AT BALLINGER, TEX.

LOCATION.—Staff gage two-thirds of a mile below Gulf, Colorado & Santa Fe Railway bridge at Ballinger, Runnels County.

DRAINAGE AREA.—16,800 square miles, large part of which is probably noncontributing.

RECORDS AVAILABLE.—December, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 26,300 second-feet May 26 (gage height, 23.80 feet); minimum, 0.8 second-foot Sept. 1–4.

1915–1929: Maximum discharge, 29,300 second-feet July 27, 1928 (gage height, 25.3 feet); no flow during several periods.

REMARKS.—Records fair for low and medium stages and poor for high stages. During periods of heavy local rains, backwater from small creek below gage may affect records for short periods. About 6,900 acres has been declared irrigated above station; during low stages the diversions are a large part of the total flow.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	124	12	9.0	9.0	24	27	59	202	4.0	33	0.8
2	21	83	11	9.0	9.0	22	28	40	156	6.5	22	.8
3	21	28	10	9.0	9.0	16	68	27	338	3.0	18	.8
4	20	26	10	9.0	9.0	14	55	22	270	2.8	13	.8
5	18	59	8.0	9.0	10	13	44	18	492	169	9.0	.9
6	18	49	9.0	9.0	10	11	38	12	270	278	3.5	47
7	16	37	10	9.0	10	11	38	10	164	3,370	2.6	56
8	15	33	10	8.0	12	11	47	7.0	118	745	2.0	90
9	14	27	9.0	12	15	11	35	823	96	261	1.4	32
10	12	21	11	18	15	9.0	35	1,980	75	146	1.0	2,050
11	12	20	13	35	12	11	27	926	66	75	1.0	3,800
12	10	18	12	24	9.0	1,110	24	340	64	53	1.0	8,360
13	10	17	12	17	10	1,650	30	281	80	40	1.0	2,000
14	11	980	12	14	9.0	228	26	144	47	32	1.0	713
15	10	290	12	14	9.0	291	24	80	42	26	1.0	386
16	8.0	54	37	13	9.0	228	17	470	44	35	1.0	245
17	7.0	24	18	13	9.0	102	13	401	30	27	1.0	240
18	7.0	15	64	15	9.0	47	12	2,900	28	32	1.0	156
19	7.0	12	*43	16	9.0	42	10	3,760	26	20	1.0	311
20	6.5	12	22	16	13	46	7.5	1,160	21	118	1.0	295
21	7.0	14	17	14	16	203	6.0	582	16	35	1.0	186
22	7.0	11	13	13	16	321	6.0	361	13	14	.9	140
23	6.5	9.0	13	14	15	338	5.5	253	10	8.0	.9	104
24	6.5	11	12	14	15	190	699	2,350	7.5	126	.9	75
25	6.5	10	12	12	18	104	209	5,290	6.5	361	.9	73
26	6.0	12	12	11	42	66	49	21,100	6.5	382	.9	51
27	6.5	14	11	10	26	47	32	9,730	4.5	244	.9	46
28	6.0	14	10	10	20	47	158	1,080	4.0	88	1.0	40
29	6.0	13	10	10	-------	40	113	582	4.0	47	.9	35
30	12	12	11	10	-------	33	91	386	4.5	57	.8	28
31	32	-------	11	10	-------	30	-------	266	-------	*45	.8	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	32	6.0	11.9	732
November	980	9.0	68.3	4,060
December	64	8.0	15.4	947
January	35	8.0	13.1	806
February	42	9.0	13.4	744
March	1,650	9.0	171	10,500
April	699	5.5	65.8	3,920
May	21,100	7.0	1,790	110,000
June	492	4.0	90.2	5,370
July	3,370	2.8	221	13,600
August	33	.8	4.05	249
September	8,360	.8	652	38,800
The year	21,100	.8	262	190,000

* Estimated.

COLORADO RIVER NEAR MILBURN, TEX.

LOCATION.—Combination staff and chain gage at steel highway bridge 1½ miles northwest of Milburn, McCullough County.

DRAINAGE AREA.—24,600 square miles, large part of which is probably non-contributing.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, about 28,400 second-feet May 26 (gage height, 31.2 feet); no flow Aug. 8–10 and Sept. 1–5.

1923–1929: Maximum discharge, about 35,100 second-feet Apr. 23, 1926 (gage height, 36.1 feet); no flow Aug. 8–10 and Sept. 1–5, 1929.

REMARKS.—Records fair. About 18,000 acres has been declared irrigated above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	236	60				172	129	*1,220	1,080	13	41	0
2	175	85				127	120	456		13	21	0
3	137	122			*52	96	108	361		2,320	13	0
4	108	219				78	96	269		1,350	8.2	0
5	92	158				70	92	236		236	5.2	0
6	74	122			52	66	83	189		150	2.7	1,110
7	65	98			50	63	137	110		89	.5	3,330
8	63	78			51	57	2,640	92		4,040	0	4,880
9	57	115			51	48	3,380	352		1,440	0	1,920
10	57	98			52	50	2,060	2,390		580	0	527
11	55	89			51	46	1,000	1,740		322	6.4	158
12	51	79			55	47	342	1,000	*100	920	6.7	3,580
13	50	72			54	45	252	720		555	6.5	3,990
14	44	66			54	2,120	207	515		252	6.2	1,810
15	42	111			60	404	371	322		186	6.0	957
16	41	863	*76	*60	62	322	355	1,040		139	5.7	650
17	35	342			58	322	124	1,450		110	5.4	486
18	33	195			57	269	105	1,470		76	5.2	361
19	33	145			55	178	96	4,030		46	4.9	342
20	33	108			65	178	87	3,740		28	4.7	322
21	33	94			62	252	78	1,520		17	4.4	322
22	31	83			62	236	72	790		13	4.0	304
23	31	78			63	404	68	486	28	11	3.6	286
24	31	66			60	456	66	361	26	10	3.1	286
25	27	62			54	456	124	6,780	23	9.4	2.6	269
26	26	60			52	361	279	24,900	22	8.2	2.1	252
27	30	65			534	252	269	27,500	20	7.0	1.8	236
28	28	66			269	198	201	11,600	19	13	1.4	219
29	28	65			-------	*180	*183	3,870	16	209	.9	213
30	39	62			-------	*163	*6,930	3,520	14	142	.5	201
31	40	-------			-------	145	-------	3,100	-------	96	.1	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	236	26	58.9	3,620
November	863	60	131	7,800
December	-------	-------	76	4,670
January	-------	-------	60	3,690
February	534	-------	80.1	4,450
March	2,120	45	254	15,600
April	6,930	66	668	39,700
May	27,500	92	3,420	210,000
June	1,080	14	112	6,660
July	4,040	7.0	432	26,600
August	41	0	5.61	345
September	4,880	0	900	53,600
The year	27,500	0	521	377,000

* Estimated.

COLORADO RIVER NEAR TOW, TEX.

LOCATION.—Water-stage recorder at highway bridge 1¼ miles northeast of Tow, Llano County.

DRAINAGE AREA.—31,100 square miles, large part of which is probably noncontributing.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 35,000 second-feet May 29 (gage height, 17.40 feet); minimum, 34 second-feet Sept. 4–5 (gage height, 5.15 feet).

1923–1929: Maximum discharge, that of May 29, 1929; minimum, 24 second-feet Jan. 10, 1925 (gage height, 5.00 feet).

Highest known stage, 28.4 feet (on present gage) April, 1900.

REMARKS.—Records good except those for estimated periods, which are fair. Numerous small diversions above station; amount diverted not known.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,440	225	163	139	171	814	277	7,040	10,400	94	299	36
2	1,010	229	167	129	179	611	250	2,710	4,220	86	205	36
3	788	293	171	126	175	456	229	1,560	1,840	88	175	36
4	497	277	179	239	167	368	205	921	e 1,580	92	144	35
5	504	225	175	322	175	304	187	641	e 1,850	610	115	36
6	560	220	175	239	179	250	175	490	2,780	696	103	2,770
7	424	310	183	810	171	225	171	368	1,840	393	90	8,800
8	350	316	187	523	163	201	159	310		271	81	6,110
9	310	271	187	350	167	171	570	293		965	72	8,560
10	282	239	205	277	163	159	5,200	266	e 922	2,700	64	4,160
11	255	215	225	229	159	159	3,130	654		1,170	60	1,720
12	234	191	234	225	151	187	1,830	2,340		704	58	987
13	210	191	244	229	148	205	3,040	2,300		490	57	2,320
14	201	201	250	225	151	201	1,450	1,470	437	374	57	8,060
15	183	196	282	215	163	1,450	2,940	930	380	310	56	4,180
16	183	179	234	196	163	1,430	878	776	327	250	52	1,520
17	163	247	250	179	167	713	552	1,040	282	205	69	987
18	171	1,020	229	191	159	504	456	1,320	250	167	69	696
19	167	657	1,640	187	151	418	456	3,200	234	139	56	696
20	163	470	686	191	148	418	327	3,080	205	115	52	746
21	155	362	374	179	163	463	288	4,310	188	106	48	476
22	151	288	293	171	191	1,290	244	2,440	159	113	45	399
23	148	250	293	175	183	1,370	220	1,470	144	98	42	356
24	142	210	244	171	167	1,180	215	1,670	129	101	40	430
25	136	191	225	159	179	1,230	215	2,150	123	98	39	356
26	136	179	215	319	175	866	420	7,360	123	90	39	
27	126	171	187	399	175	688	1,110	18,600	115	90	38	
28	120	151	171	282	590	531	596	25,100	110	142	40	e 235
29	120	148	163	215	------	424	641	32,300	103	142	40	
30	129	155	148	187	------	350	4,460	21,700	101	115	39	
31	155	------	142	179	------	310	------	14,300	------	338	37	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,440	120	310	19,100
November	1,020	148	276	16,400
December	1,640	142	275	16,900
January	810	126	247	15,200
February	590	148	182	10,100
March	1,450	159	579	35,600
April	5,200	159	1,030	61,300
May	32,300	266	5,240	322,000
June	10,400	101	1,110	66,000
July	2,700	86	366	22,500
August	299	37	76.8	4,720
September	8,800	35	1,860	111,000
The year	32,300	35	968	701,000

e Estimated.

COLORADO RIVER AT AUSTIN, TEX.

LOCATION.—Water-stage recorder at Congress Avenue viaduct in Austin, Travis County. Zero of gage, 431.77 feet above mean sea level.

DRAINAGE AREA.—38,200 square miles, part of which is probably noncontributing.

RECORDS AVAILABLE.—February, 1898, to September, 1929.

EXTREMES.—Maximum discharge during year, 132,000 second-feet May 29 (gage height, 27.35 feet); minimum, 86 second-feet some time during period Aug. 30 to Sept. 7.

1898–1929: Maximum discharge, about 236,000 second-feet a few minutes after failure of Austin Dam Apr. 7, 1900 (gage height, 33.5 feet). At time of failure practically at crest of flood, depth of water over dam was 11.07 feet (computed discharge, 151,000 second-feet). Minimum discharge, 13 second-feet Aug. 18, 1918.

REMARKS.—Records good. About 36,000 acres has been declared irrigated above station. Flow at low stages affected by diversions of the city of Austin pumping plant.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,220	250	332	360	374	313	702	840	22,300	290	236	
2	3,120	235	346	307	367	240	550	4,560	16,900	285	224	
3	2,080	203	339	339	367	395	510	6,000	11,000	347	232	
4	1,520	235	353	404	367	900	446	3,070	6,820	673	249	
5	1,180	289	307	668	360	825	404	2,140	4,840	1,880	307	a 97
6	885	353	353	404	353	679	360	1,520	4,280	1,610	267	
7	714	429	346	1,310	325	591	381	1,040	4,000	3,860	236	
8	613	446	339	994	374	472	525	798	4,560	2,400	200	a 8,730
9	657	381	346	762	307	446	1,840	690	3,860	1,560	182	11,500
10	624	360	395	960	260	339	702	530	3,300	1,010	168	9,560
11	463	429	367	855	283	404	480	560	a 2,900	772	150	8,580
12	446	429	388	657	277	412	4,190	530	a 2,450	2,840	140	4,700
13	420	360	412	540	307	395	3,960	762	a 1,990	2,310	134	3,100
14	360	374	412	446	283	463	3,220	1,560	1,690	1,580	128	2,090
15	325	325	420	446	307	454	4,520	2,930	1,510	1,120	119	3,260
16	346	360	463	367	240	446	2,900	2,280	1,270	852	114	7,940
17	353	388	520	374	250	480	3,490	1,730	1,120	684	114	4,420
18	295	353	480	429	260	1,690	2,050	1,690	972	548	112	2,720
19	a 283	353	510	360	307	1,460	1,220	1,750	820	516	109	1,880
20	a 271	346	412	367	250	1,150	960	1,540	712	461	109	1,360
21	a 325	840	520	307	255	1,080	900	2,980	600	642	106	972
22	a 313	774	1,350	313	307	885	1,150	3,460	537	548	105	936
23	240	657	960	307	271	798	750	4,480	486	340	103	852
24	250	540	714	353	313	945	646	4,940	452	285	102	628
25	235	480	580	313	374	1,670	657	4,770	396	272	102	478
26	235	404	560	289	307	1,670	529	7,320	354	375	101	410
27	250	367	500	339	325	1,710	438	5,230	334	1,050	101	427
28	240	353	463	289	301	1,460	429	62,900	340	1,030	99	403
29	245	374	463	289	------	1,200	429	96,400	285	526	a 97	354
30	230	367	404	381	------	930	930	51,200	312	382	a 97	312
31	199	------	429	490	------	810	------	45,700	------	290		------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	5,220	199	740	45,500
November	840	203	402	23,900
December	1,350	307	477	29,300
January	1,310	289	484	29,800
February	374	240	310	17,200
March	1,710	240	829	51,000
April	4,520	360	1,340	79,700
May	96,400	530	10,500	646,000
June	22,300	285	3,380	201,000
July	3,860	272	1,010	62,100
August	307	------	150	9,220
September	11,500	------	2,540	151,000
The year	96,400	------	1,860	1,350,000

a Estimated.

EVAPORATION NEAR AUSTIN, TEX.

LOCATION.—At reservoir on Hill ranch, 5 miles southeast of Austin, Travis County. Elevation, 475 feet above sea level.

RECORDS AVAILABLE.—April, 1916, to September, 1929.

EQUIPMENT.—Two evaporation pans—one pan floating on surface of reservoir and the other on land 30 feet from reservoir. Auxiliary equipment consists of hook gage, rain gage, anemometer, maximum and minimum thermometers, and psychrometer.

REMARKS.—Reservoir is 250 feet long and 30 feet wide. Moss and weed growth in reservoir may at times affect results. Records from land pan more accurate than those from floating pan. Observations made daily at 8 a. m. Computations made by United States Weather Bureau.

Evaporation near Austin, Tex., 1928–29

Month	Temperature (° F.)					Mean relative humidity (per cent)[a]	Wind		Rainfall, inches	Evaporation (inches)	
	Air			Water			Average velocity (miles an hour)	Prevailing direction		Floating pan	Land pan
	Mean maximum	Mean minimum	Mean	Floating pan (mean)	Land pan (mean)						
October	85.6	58.2	71.9	69.2	66.7	89	1.2	S.	0.36	4.128	5.259
November	67.5	44.7	56.1	54.8	52.2	82	2.1	N.	2.23	[b] 2.432	[b] 2.877
December	61.4	36.3	48.8	46.8	44.7	81	2.5	N.	3.06	[b] 1.639	[b] 2.150
January	61.2	35.9	48.6	45.9	48.5	86	2.8	S.	2.85	1.829	[b] 2.549
February	56.2b	32.8a	44.5a	47.1e	44.0f	88	4.3	N.	.47	1.563	2.130
March	73.5	49.4	61.4	60.6	56.7	83	2.5	SE.	4.26	[b] 4.102	[b] 4.708
April	80.4	58.6	69.5	69.4a	65.1	82	1.3	N.	3.70	[b] 4.088	[b] 4.960
May	84.2	62.2	73.2	72.2a	69.5	86	1.3	S.	14.26	[b] 5.234	[b] 6.474
June	92.1	68.7	80.4	78.9	75.5	86	.8	S.	1.45	[b] 6.055	[b] 7.752
July	91.7	70.4	81.0	80.1	76.8	89	.7	S.	3.19	5.464	7.199
August	97.2	69.6	83.4	79.9	75.8	81	.6	S.	.04	7.071	9.005
September	91.6	64.0	77.8	74.9	70.1	84	1.0	S.	1.18	[b] 5.199	[b] 6.807
The year	78.6	54.2	66.4	65.0	62.2	------	1.8	S.	37.05	48.804	61.870

[a] Relative humidity figures given are for United States Weather Bureau, Austin, Tex.
[b] Estimated.

NOTE.—Letters following figures indicate number of days of missing record: a, 1 day; b, 2 days; c 3 days; etc.

COLORADO RIVER AT COLUMBUS, TEX.

LOCATION.—Water-stage recorder at county highway bridge in eastern edge of Columbus, Colorado County, and 400 feet below Galveston, Harrisburg & San Antonio Railway bridge.

DRAINAGE AREA.—40,800 square miles, large part of which is probably non-contributing.

RECORDS AVAILABLE.—January, 1903, to December, 1911, and May, 1916, to September, 1929.

EXTREMES.—Maximum discharge during year, 110,000 second-feet June 1 (gage height, 38.00 feet); minimum, 344 second-feet Nov. 5.

1903–1911, 1916–1929: Maximum discharge, that of June 1, 1929; minimum, 10 second-feet Sept. 9 and 10, 1910.

Stage of 44.6 feet was reached in 1869 and Dec. 6, 1913, when river divided into two channels and Columbus was left on an island.

REMARKS.—Records fair. About 36,000 acres has been declared irrigated above Austin.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,820	376	570	630	480	420	1,360	1,360	101,000	1,210	1,060	447
2	1,450	370	e 550	630	480	420	1,210	1,000	70,000	1,150	880	432
3	1,910	362	534	630	492	e 382	1,060	970	37,500	1,150	730	429
4	3,440	360	526	1,400	590	e 368	1,000	1,180	20,800	1,090	655	429
5	2,480	346	514	3,210	590	e 441	910	4,140	15,100	2,380	610	426
6	1,890	459	522	1,610	542	393	805	3,940	11,500	4,180	526	426
7	1,540	1,100	530	2,030	526	378	755	2,880	7,320	2,480	447	423
8	1,300	1,030	514	1,510	510	570	705	2,240	6,100	2,240	432	432
9	1,120	590	522	1,150	510	680	3,420	1,820	5,500	2,100	388	432
10	940	495	534	1,060	510	610	5,260	1,480	5,620	2,880	462	963
11	855	483	1,250	1,270	495	610	3,940	1,450	5,030	2,320	e 655	7,380
12	e 755	489	1,670	1,090	486	630	2,400	1,240	4,260	1,890	630	7,380
13	e 755	480	3,480	1,000	492	1,060	24,000	3,090	3,840	1,540	e 610	7,250
14		465	1,780	1,000	465	1,650	23,300	3,840	3,440	e 1,640	570	5,140
15		462	1,000	940	435	2,200	9,730	2,560	2,960	e 1,640	510	3,640
16	607	498	780	830	435	1,270	6,340	2,480	2,800	e 2,030	504	2,880
17		480	1,610	730	435	910	4,810	5,010	2,560	1,720	477	2,240
18		477	2,030	705	435	705	3,840	11,000	2,400	1,480	471	5,050
19		465	1,180	680	438	630	3,440	7,390	2,170	e 1,330	462	5,140
20	e 459	450	1,120	e 655	438	630	3,240	4,150	e 2,030	e 1,210	e 462	3,240
21	e 450	468	970	e 610	438	4,170	e 2,560	2,720	1,890	1,120	453	2,400
22	e 438	465	780	e 590	435	5,280	2,100	2,100	1,820	1,060	447	e 1,960
23	e 423	459	730	e 570	435	2,880	1,820	1,890		1,030	444	1,680
24	e 414	453	680	e 534	435	2,170	1,610	3,220		1,030	444	1,450
25	e 408	610	780	e 504	435	1,540	1,640	7,570		1,030	e 441	1,330
26	e 396	730	1,120	483	429	1,240	1,480	8,760	e 1,480	1,000	e 441	1,300
27	e 386	680	940	480	429	1,090	1,270	8,960		1,000	e 441	e 1,180
28	370	630	830	483	432	1,450	1,240	13,600		1,030	e 447	e 1,120
29	366	610	730	518	-------	1,720	1,750	47,800		910	456	e 1,120
30	358	680	680	483	-------	1,680	1,420	84,000		855	441	1,090
31	352	-------	655	471	-------	1,610	-------	99,200	-------	1,120	441	-------

Month	Maximum	Miminum	Mean	Run-off in acre-feet
October	3,440	352	926	56,900
November	1,100	346	534	31,800
December	3,480	514	971	59,700
January	3,210	471	919	56,500
February	590	429	473	26,300
March	5,280	368	1,280	78,700
April	24,000	705	3,950	235,000
May	99,200	970	11,100	682,000
June	101,000	----------	10,900	649,000
July	4,180	855	1,580	97,200
August	1,060	388	530	32,600
September	7,380	423	2,290	136,000
The year	101,000	346	2,960	2,140,000

e Estimated.

CONCHO RIVER NEAR SAN ANGELO, TEX.

LOCATION.—Water-stage recorder half a mile below confluence of North Concho and South Concho Rivers and 1¾ miles southeast of San Angelo, Tom Green County.

DRAINAGE AREA.—4,490 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1929.

EXTREMES.—Maximum and minimum discharge for year not determined.

1915–1929: Maximum discharge, about 139,000 second-feet Apr. 26, 1922 (gage height, 36.8 feet); no flow Nov. 29, 1921.

REMARKS.—Records for low and medium stages good; for high stages fair. About 11,000 acres has been declared irrigated above station. Flow at low stages affected by diversions and storage above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45			40	25	36	51	180	46	1.7	1.8	
2	43			42	28	34	51	76	47	1.8	1.8	
3	44			41	33	26	53	51	52	1.8	1.7	e 1.7
4	44			43	32	31	52	40	44	1.7	1.8	
5	43			38	33	28	46	32	34	1.6	1.8	
6	42			39	33	28	45	28	28	1.6	2.0	
7	39			43		23	59	26	20	2.0	2.0	
8	36			45		20	1,380	25	16	1.8	1.8	
9	33			67		20	430	1,480	12	1.6	1.8	e270
10	32	e 53		54	e 36	20	198	373	10	1.7	1.8	
11	32			43		25	108	128	5.8	1.8	1.8	
12	32			44	41	44	80	80	3.6	1.8	1.7	
13	33			43	40	167	76	136	2.3	1.7	1.9	82
14	33		e 50	44	37	71	66	63	2.1	1.6	1.7	38
15	32			41	37	55	62	46	2.1	1.7	e 1.7	20
16	32			39	33	46	67	53	2.1	1.6		14
17	28			32	28	45	66	46	2.1	1.6		10
18	31			32	22	48	59	46	2.0	1.7		6.7
19	30	e 38		32	20	45	53	45	2.0	1.7		7.0
20	28	e 32		28	28	586	45	39	2.0	15		5.4
21	30			31	30	758	45	38	2.1	4.7		3.8
22	26			38	33	188	38	36	2.1	2.6		3.3
23	28			37	28	99	36	58	2.0	2.1		2.9
24	28			38	27	83	51	975	1.8	2.0	e 1.7	2.4
25	28			37	27	63	54	207	2.0	1.8		2.1
26	28	e 40	e 43	38	22	63	33	101	1.9	1.8		2.0
27	26		44	42	37	63	25	69	1.8	1.8		1.9
28	28		43	32	40	66	18	63	1.7	1.8		1.8
29	26		43	28	------	60	696	55	2.0	1.9		1.8
30	50		43	29	------	57	550	51	1.9	1.8		1.8
31			39	20	------	57	------	47	------	1.8		------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	------	26	34.2	2,100
November	------	------	47.5	2,830
December	------	------	48.5	2,980
January	67	20	38.7	2,380
February	------	20	31.9	1,770
March	758	20	95.3	5,860
April	1,380	18	153	9,100
May	1,480	25	151	9,280
June	52	1.7	11.8	702
July	15	1.6	2.31	142
August	------	------	1.75	108
September	------	------	79.1	4,710
The year	------	------	58.0	42,000

e Estimated.

CONCHO RIVER NEAR PAINT ROCK, TEX.

LOCATION.—Water-stage recorder at Concho, San Saba & Llano Valley Railroad bridge 2 miles northwest of Paint Rock, Concho County.

DRAINAGE AREA.—5,530 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,760 second-feet Sept. 6 (gage height, 8.55 feet); no flow July 19 and July 21 to Sept. 3.

1915–1929: Maximum discharge not determined (gage height, 27.5 feet Apr. 27, 1922); no flow during several periods.

REMARKS.—Records for low stages fair; high stages poor. About 11,000 acres has been declared irrigated, practically all above station. Flow during low stages materially affected by diversions and storage above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	59	84	52	40		34	57	445	59	0.1	0
2	52	103	52	38		37	54	181	55	.5	0
3	51	73	52	40		35	52	103	71	.4	0
4	49	59	55	41		34	52	75	59	.4	1.1
5	47	54	49	41		34	54	57	55	.3	43
6	47	52	47	1		33	51	47	46	.3	2,110
7	46	52	44	40	a 36	31	85	40	35	7.7	1,610
8	46	52	46	38		30	1,880	35	30	1.7	258
9	43	49	54	46		30	1,340	1,570	24	1.0	
10	40	49	54	51		25	387	808	19	.7	a 83
11	37	49	52	54		24	425	289	15	.6	
12	35	54	55	49		27	130	149	11	.4	23
13	35	57	55	46	a 43	28	98	103	8.2	.4	15
14	35	55	54	44	44	96	84	127	6.0	.3	9.8
15	35	54	52	44	43	91	73	86	3.6	.3	45
16	35	54	55	44	40	63	69	63	2.0	.2	35
17	34	52	140	41	38	54	69	79	1.3	.2	57
18	33	49	86	40	37	51	71	79	1.0	.1	38
19	31	49	61	35	33	52	69	61	.7	0	16
20	31	46	51	33	31	55	63	54	.6	.1	11
21	34	44	47	31	31	807	54	49	.6	0	6.9
22	33	40	46	31	30	630	47	46	.4	0	4.7
23	30	40	46	31	31	229	46	44	.4	0	3.6
24	30	41	44	33	33	133	44	842	.4	0	3.6
25	30	40	43	37	34	103	43	740	.3	0	3.2
26	33	40	44	34	31	84	55	293	.3	0	2.8
27	33	43	43	34	31	73	51	137	.3	0	2.2
28	34	52	43	35	34	73	38	93	.2	0	1.8
29	33	57	41	34	-------	69	511	82	.2	0	1.6
30	34	55	41	33	-------	67	1,760	75	.2	0	1.5
31	46	-------	41	a 30	-------	63	-------	67	-------	0	---------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	59	30	38.4	2,360
November	103	40	53.3	3,170
December	140	41	53.1	3,260
January	54	30	39.0	2,400
February	----------	----------	35.6	1,980
March	807	24	103	6,330
April	1,880	43	260	15,500
May	1,570	35	223	13,700
June	71	.2	16.9	1,010
July	7.7	0	.51	31
September	2,110	0	152	9,040
The year	2,110	0	81.2	58,800

a Estimated.

NOTE.—No flow during August.

NORTH CONCHO RIVER NEAR CARLSBAD, TEX.

LOCATION.—Water-stage recorder just above State Sanitorium Dam 2 miles above Carlsbad, Tom Green County.

DRAINAGE AREA.—1,530 square miles.

RECORDS AVAILABLE.—March, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 7,100 second-feet May 7 (gage height, 8.22 feet); no flow during several periods.

1924–1929: Maximum discharge, about 35,600 second-feet May 30, 1925 (gage height, 14.45 feet); no flow during several periods.

REMARKS.—Records for low stages fair and for high stages poor. At low stages flow affected by pumping; capacity of pumps 40 second-feet, but actual amount of water diverted not known. Low-water flow partly regulated by small reservoir above gage.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Sept.
1	3.2	3.2	5.1	5.8		8.9	10	7.9		0.1	0
2	3.2	2.5	5.1	5.8		8.9	11	5.8		.1	0
3	3.8	2.5	3.8	5.1		7.9	11	5.8		.1	0
4	3.8	3.2	3.8	3.2		7.9	11	4.5		.1	0
5	3.8	3.2	3.8	3.8	*7.4	7.9	11	4.5		.1	
6	3.8	3.2	4.5	4.5		7.9	11	4.5	*5.0	.1	
7	3.8	3.8	5.1	5.1		8.9	11	*728		.1	
8	1.7	5.1	5.8	5.8		7.9	13			.1	*150
9	1.5	5.8	6.8	*5.1	6.8	7.9	11			0	
10	1.5	5.8	7.9	*5.8	6.8	7.9	11			0	
11	1.5	7.9	10	*6.8	6.8	10	10			0	
12	1.2	7.9	10	*5.8	6.8	126	11	*34		0	
13	1.5	*7.2	8.9	*5.8	8.9	62	11			0	58
14	1.7	*6.5	7.9	*5.8	8.9	23	10			0	18
15	1.7	*5.8	7.9	*5.8	8.9	16	10		*2.0	0	7.9
16	1.2	*5.1	6.8	*5.8	8.9	13	10			0	7.9
17	.7	*4.4	7.9	*5.8	8.9	11	8.9			0	11
18	.6	3.8	7.9	*7.9	8.9	11	10			0	3.2
19	.7	5.8	7.9	*7.9	8.9	11	8.9				1.7
20	1.0	6.8	7.9	*8.9	8.9	379	8.9	*10	.2		1.7
21	1.7	6.8	7.9	*8.9	8.9	409	8.9		.2	*3.0	1.2
22	1.5	8.9	7.9	*7.9	8.9	39	8.9		.2		1.0
23	1.0	8.9	7.9	*7.9	8.9	19	8.9		.4		.8
24	1.2	8.9	7.9	*7.9	8.9	13	21	*215	.5		.4
25	1.7	7.9	7.9		8.9	11	10		.3		.3
26	1.5	5.8	7.9		8.9	10	8.9		.2	0	.1
27	1.7	5.8	7.9	*7.4	8.9	8.9	7.9		.2	0	0
28	2.0	5.8	8.9		8.9	8.9	8.9	*10	.1	0	0
29	2.0	6.8	7.9		-------	10	27		.1	0	0
30	1.7	5.8	6.8		-------	10	65		.1	0	0
31	2.2	-------	5.8		-------	8.9	-------		-------	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3.8	0.6	1.94	119
November	8.9	2.5	5.70	339
December	10	3.8	7.08	435
January	----------	----------	6.47	398
February	----------	----------	8.17	454
March	409	7.9	41.7	2,560
April	65	7.9	12.8	762
May	728	----------	59.1	3,630
June	----------	.1	2.35	140
July	----------	0	.70	43
September	----------	0	43.8	2,610
The year	728	0	15.9	11,500

* Estimated.

NOTE.—No flow during August.

NORTH CONCHO RIVER AT SAN ANGELO, TEX.

LOCATION.—Water-stage recorder at concrete viaduct in San Angelo, Tom Green County, 1 mile above confluence with South Concho River.

DRAINAGE AREA.—1,800 square miles.

RECORDS AVAILABLE.—October, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,300 second-feet May 9 (gage height, 5.05 feet); no flow during several periods.

1915–1929: Maximum discharge not determined (gage height, when backwater from Concho River probably existed, 19.3 feet Apr. 26, 1922); no flow during several periods.

REMARKS.—No record Oct. 1 to Feb. 11. Records fair for rest of year. About 600 acres has been declared irrigated above station.

Daily and monthly discharge, in second-feet, 1929

Day	Feb.	Mar.	Apr.	May	June	July	Sept.
1		9.1	10	41	12	0	0
2		6.2	10	15	11	0	0
3		6.0	10	6.2	14	0	0
4		6.2	10	5.5	6.2	0	0
5		6.2	9.8	4.0	5.0	0	
6		6.2	9.1	3.6	3.8	0	
7		5.8	13	3.4	3.2	.1	
8		5.5	18	13	3.8	0	190
9		5.0	10	1,200	2.3	0	
10		5.0	9.8	87	2.0	0	
11		5.5	7.2	36	2.0	0	
12	6.0	16	6.5	26	1.5	0	14
13	5.8	162	6.5	30	1.0	0	95
14	5.8	52	6.2	16	1.0	0	38
15	6.5	32	6.2	9.1	.8	0	17
16	6.0	24	6.0	6.2	.6	0	7.2
17	5.5	18	6.0	6.2	.6	0	4.0
18	5.8	18	5.8	8.4	.6	0	2.6
19	5.5	16	5.2	6.5	.6	5.4	3.6
20	6.5	35	5.2	5.0	.9	13	2.4
21	7.8	732	5.0	4.2	.8	2.6	1.5
22	7.2	120	4.5	6.0	.6	1.5	1.2
23	6.5	52	4.2	34	.4	1.1	.9
24	6.2		30	747	0	.8	.8
25	6.5		35	40	0	.7	.8
26	6.5	26	10	18	0	.5	.8
27	10		6.2	17	0	.3	.8
28	9.8		5.0	17	0	.1	.7
29			99	11	0	0	.6
30		14	83	7.8	0	0	.8
31		12		7.8		0	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
February 12-28	10	5.5	6.70	226
March	732	5.0	49.2	3,030
April	99	4.2	15.2	904
May	1,200	3.4	78.6	4,830
June	14	0	2.49	148
July	13	0	.84	52
September		0	50.8	3,020
The period				12,200

NOTE.—No flow during August.

PECAN BAYOU AT BROWNWOOD, TEX.

LOCATION.—Water-stage recorder at Fort Worth & Rio Grande Railway bridge 1 mile north of Brownwood, Brown County. Prior to July 11 gage-height record obtained from staff gage at city pumping plant one-fourth mile downstream. Present gage datum is one-tenth foot higher than that of old gage. Zero of gage, 1,319.26 feet above mean sea level.

DRAINAGE AREA.—1,610 square miles.

RECORDS AVAILABLE.—May, 1917, to June, 1918, and October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year not determined; no flow during several periods.

1917–18, 1923–1929: Maximum discharge, 22,600 second-feet May 20, 1928 (gage height, 14.30 feet); no flow during several periods.

REMARKS.—Records poor, Oct. 1 to July 10; good, July 11 to Sept. 30. 590 acres has been declared irrigated above station. Flow regulated during normal stages by storage reservoirs and pumping plants above station.

Daily discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Sept.
1	0				21				0
2	67					0			0
3	21		0						0
4	12								0
5	7.6								0
6	5.2			0					0
7	2.8						0		0
8	1.2								387
9	.2								58
10	0								9.2
11	0								4.4
12	0				*505				81
13	0				515				41
14	0				127				21
15	*345				74				14
16		*371			38				6.8
17		*2,460							462
18									155
19									35
20									14
21	10								8.4
22								0	4.4
23			*625						2.8
24			109						1.2
25									0
26				*866				*0	0
27				175					0
28				57					0
29									0
30									0
31									

* Estimated.

NOTE.—No flow during October, July, and August. No records during other periods of which no daily discharge is given. Total run-off for September, 2,590 acre-feet.

SAN SABA RIVER AT MENARD, TEX.

LOCATION.—Staff gage 1,000 feet above highway bridge in Menard, Menard County, and half a mile below mouth of Las Moras Creek.

DRAINAGE AREA.—1,150 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, about 1,090 second-feet Sept. 6 (gage height, 5.54 feet); no flow Aug. 21.

1915–1929: Maximum discharge, about 8,610 second-feet Sept. 16, 1915 (gage height, 13.6 feet); no flow during several periods in 1918 and 1928–29.

On July 5 and 6, 1899, the river reached a stage of 25.4 feet, present datum.

REMARKS.—Records fair. Flow at low stages during irrigation season regulated by diversions to Noyes Canal, which diverts 4 miles above Menard. About 4,300 acres above gage and about 7,700 acres below gage have been declared irrigated.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	16	16	29	18	33	12	5.8	25	3.4	3.2	3.3
2	44	16	36	29	18	33	12	5.1	24	4.0	3.2	3.3
3	41	16	42	27	18	33	12	5.1	24	25	3.2	3.3
4	40	16	42	27	18	32	12	4.9	23	7.2	2.8	3.3
5	40	16	36	27	18	32	12	4.9	23	5.6	3.0	3.4
6	40	15	33	26	27	31	12	5.1	23	4.5	2.2	482
7	38	16	34	24	32	29	12	5.1	21	3.8		167
8	36	16	36	28	33	29	12	5.1	9.8	3.4		21
9	36	23	34	32	33	34	12	13	8.7	2.8		20
10	36	34	35	32	32	32	11	18	7.2	2.8		16
											1.5	
11	36	34	35	30	32	34	9.8	8.7	6.1	3.0		7.2
12	36	34	35	29	32	34	9.8	7.8	5.1	2.8		7.5
13	34	33	36	29	32	34	9.4	10	4.7	2.8		7.0
14	34	15	36	31	32	32	11	27	4.7	2.7		6.1
15	32	11	32	30	32	24	11	225	4.5	2.7	3.2	5.4
16	30	11	32	29	32	21	10	58	4.5	2.7		7.5
17	43	11	32	30	32	10	8.7	36	4.0	2.6	1.5	7.8
18	35	11	30	29	32	8.7	8.1	27	3.2	2.4		7.8
19	18	11	31	29	32	8.7	8.7	25	3.2	2.4		7.8
20	17	10	29	29	33	139	9.8	25	2.8	2.2	1.9	7.8
21	16	10	29	29	34	49	8.7	23	2.8	2.2	0	8.1
22	16	11	29	29	31	19	8.1	8.1	2.6	7.8	2.6	8.1
23	16	10	29	29	31	13	8.1	7.5	2.6	20	3.0	7.5
24	15	10	29	29	31	13	8.1	11	2.6	20	3.0	7.0
25	15	11	28	28	30	13	7.5	11	2.6	19	3.0	7.0
26	14	11	28	27	34	13	7.0	16	2.4	19	3.0	7.0
27	16	16	28	24	34	13	6.4	11	2.4	20	3.3	7.5
28	16	16	30	19	33	16	6.4	13	2.4	20	3.3	7.8
29	16	16	30	20	-------	16	7.8	20	3.3	15	3.3	7.8
30	21	16	27	19	-------	16	7.8	28	3.6	3.3	3.3	7.8
31	21	-------	27	17	-------	15	-------	26	-------	3.0	3.3	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	48	14	28.9	1,780
November	34	10	16.4	976
December	42	16	31.8	1,960
January	32	17	27.3	1,680
February	34	18	29.5	1,640
March	139	8.7	27.7	1,700
April	12	6.4	9.71	578
May	225	4.9	22.5	1,380
June	25	2.4	8.63	514
July	25	2.2	7.68	472
August	----------	0	2.32	143
September	482	3.3	29.0	1,730
The year	482	0	20.1	14,600

SAN SABA RIVER NEAR SAN SABA, TEX.

LOCATION.—Staff gage 200 feet above Beveridge highway bridge and 2 miles northwest of San Saba, San Saba County.

DRAINAGE AREA.—3,040 square miles.

RECORDS AVAILABLE.—December, 1904, to December, 1906, and September, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,460 second-feet May 30 (gage height, 21.7 feet); minimum, 18 second-feet July 18 and 19 (gage height, 1.26 feet).

1904–1906, 1915–1929: Maximum discharge not determined (gage height, from floodmarks, about 37.0 feet Apr. 26 and 27, 1922); no flow Aug. 9 and 10, 1918.

REMARKS.—Records fair. Considerable water is diverted above gage. About 9,300 acres above and 2,700 acres below station have been declared irrigated. Flood waters from Brady Creek at Brady are partly stored for municipal uses; capacity of reservoir not known but probably small. Discharge estimated Aug. 25.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	293	100	78	60	54	72	83	45	846	32	31	35
2	220	85	80	58	54	64	78	40	424	33	31	35
3	178	83	80	58	54	62	80	28	314	33	30	35
4	148	78	76	64	53	70	75	28	358	45	36	34
5	132	78	73	67	52	72	67	28	358	49	32	32
6	118	82	72	67	61	70	61	31	240	54	27	1,600
7	111	82	83	66	55	70	58	28	188	58	28	1,090
8	107	76	85	64	55	66	61	28	148	53	29	4,690
9	100	75	87	68	52	61	70	117	118	44	29	1,190
10	96	75	88	76	52	60	75	53	120	32	32	336
11	90	72	90	76	60	64	148	35	111	32	33	209
12	90	68	98	72	66	76	117	41	98	32	33	158
13	88	68	93	72	70	87	94	37	87	29	32	122
14	87	68	83	72	68	73	105	38	76	32	33	87
15	83	73	83	70	64	66	88	37	70	28	35	82
16	88	82	82	68	64	61	90	44	66	26	33	75
17	83	85	85	68	64	58	75	42	64	27	34	70
18	78	83	88	70	61	60	66	188	58	19	35	70
19	76	70	87	68	61	68	66	111	52	18	35	64
20	76	64	78	67	61	120	60	80	45	34	34	61
21	76	55	76	67	72	924	54	64	37	38	32	58
22	75	62	73	67	70	866	52	61	32	35	35	54
23	70	66	73	67	72	446	49	55	42	33	35	50
24	64	66	73	64	73	262	45	52	42	31	35	53
25	61	66	73	62	75	178	43	1,330	35	32	35	53
26	61	64	70	66	73	146	38	499	29	35	35	49
27	61	73	68	66	73	115	35	358	28	37	35	45
28	67	76	68	64	73	105	37	402	28	36	35	43
29	67	78	67	64	------	98	37	2,810	32	35	35	43
30	78	78	64	60	------	94	57	3,610	37	32	35	42
31	87	------	61	58	------	92	------	4,190	------	30	35	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	293	61	100	6,150
November	100	55	74.4	4,430
December	98	61	78.5	4,830
January	76	58	66.3	4,080
February	75	52	62.9	3,490
March	924	58	152	9,350
April	148	35	68.8	4,090
May	4,190	28	468	28,800
June	846	28	139	8,270
July	58	18	35.0	2,150
August	36	27	33.0	2,030
September	4,690	32	352	20,900
The year	4,690	18	136	98,600

NOYES CANAL AT MENARD, TEX.

LOCATION.—Staff gage 1,000 feet above highway bridge in Menard, Menard County, and 4 miles below head gates.

RECORDS AVAILABLE.—March, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 30 second-feet Mar. 20 (gage height, 1.58 feet); no flow during several periods.

1924–1929: Maximum discharge, 55 second-feet May 12 and June 13, 1927; no flow during several periods.

REMARKS.—Records fair. Canal diverts from San Saba River 4 miles above Menard. Water used for irrigation near Menard; 10 acres irrigated above station. Flow regulated at head gates.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	20	22	7.6	12	0	21	21	0	20	16	16
2	0	20	0	7.6	12	0	21	21	0	20	16	16
3	0	20	0	7.6	12	0	21	20	0	22	16	16
4	0	20	0	7.6	12	0	21	21	0	22	16	16
5	0	20	0	7.6	12	0	20	21	0	20	16	16
6	0	20	6.5	7.5	4.4	0	20	20	0	20	15	21
7	0	20	6.5	5.8	0	0	21	20	3.6	20	14	21
8	2.0	20	6.5	6.1	0	0	21	21	17	20	15	18
9	2.4	8.0	6.5	5.4	0	0	21	22	15	18	15	16
10	3.0	0	6.5	5.2	0	0	20	24	17	20	15	16
11	3.0	0	6.5	5.2	0	0	20	21	17	20	16	16
12	3.0	0	6.5	5.6	0	0	21	20	17	20	16	16
13	3.0	0	6.3	6.5	0	0	21	21	17	20	15	16
14	3.0	20	6.5	7.2	0	4.6	21	0	17	20	15	16
15	3.0		7.8	5.4	0	12	20	0	20	18	16	17
16	2.0	22	7.8	4.9	0	20	20	0	20	18	16	21
17	0	22	11	4.3	0	24	20	0	20	18	15	24
18	0	24	12	4.3	0	25	20	0	20	20	15	22
19	15	22	12	5.8	0	24	21	0	17	20	15	22
20	20	22	12	5.8	0	30	21	0	17	17	18	22
21	21	24	12	5.4	0	28	21	8.6	17	17	18	24
22	20	24	13	4.2	0	28	21	20	17	0	21	22
23	20	24	13	4.0	0	26	21	20	16	0	16	17
24	18	25	12	4.3	0	24	21	20	16	0	16	16
25	18	24	12	4.3	0	22	21	22	16	0	17	16
26	18	24	11	4.0	0	22	21	22	17	0	18	16
27	20	24	7.6	7.6	0	22	22	22	17	0	16	16
28	20	24	7.4	13	0	22	22	11	17	9.8	16	16
29	20	24	7.6	13	------	20	22	0	17	16	16	16
30	20	24	7.6	13	------	20	21	0	20	16	16	16
31	20	------	7.6	12	------	20	------	0	------	16	16	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (22 days)	21	2.0	12.5	544
November (26 days)		8.0	21.6	1,110
December (27 days)	22	6.3	9.40	503
January	13	4.0	6.71	413
February (6 days)	12	4.4	10.7	128
March (18 days)	30	4.6	21.9	781
April	22	20	20.8	1,240
May (21 days)	24	8.6	19.9	830
June (24 days)	20	3.6	16.9	803
July (25 days)	22	9.8	18.7	928
August	21	14	16.0	984
September	24	16	18.0	1,070
The year				9,330

NORTH LLANO RIVER NEAR JUNCTION, TEX.

LOCATION.—Water-stage recorder 500 feet above remains of old Wilson Dam and 3 miles northwest of Junction, Kimble County.

DRAINAGE AREA.—914 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,530 second-feet May 24 (gage height, 4.12 feet); minimum, 0.1 second-foot Sept. 6 (gage height, 0.75 foot). 1915–1929: Maximum discharge, about 43,100 second-feet Apr. 24, 1923 (gage height, 23 feet); no flow during several periods.

REMARKS.—Records for low stages good and for high stages poor. Discharge estimated Sept. 8–10. About 1,200 acres has been declared irrigated by diversions above station. During low stages, diversions materially reduce flow at station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	18	22	17	15	13	14	9.2	17	0.3	0.5	0.3
2	32	17	23	16	15	12	14	8.2	15	.4	.5	.3
3	31	18	25	16	15	11	14	7.1	13	3.7	.5	.2
4	29	18	23	15	13	12	14	7.1	12	1.9	.5	.2
5	27	18	22	14	14	12	14	7.6	10	1.1	.5	.1
6	25	18	22	14	13	11	13	7.1	8.7	.9	.5	10
7	23	18	22	14	13	12	14	7.1	8.2	.9	.5	121
8	23	18	22	14	13	13	14	6.6	7.6	.9	.4	15
9	20	17	20	13	13	12	12	7.1	7.1	.9	.4	7.6
10	20	20	18	12	13	13	10	6.6	6.6	.9	.4	3.5
11	18	20	18	14	12	13	9.2	6.1	5.6	.9	.4	1.4
12	17	18	18	13	13	14	8.7	5.6	4.5	1.0	.4	1.3
13	17	17	18	12	13	14	8.7	5.0	4.0	.9	.4	1.3
14	17	17	18	12	13	14	10	4.5	3.7	.8	.7	1.3
15	16	17	17	12	13	14	8.7	4.0	3.2	.8	.5	1.2
16	16	17	18	14	12	13	8.7	3.7	2.7	.7	.4	1.2
17	15	17	20	14	12	13	8.7	3.7	2.2	.7	.4	1.4
18	16	16	20	14	13	13	8.2	4.0	1.9	.7	.4	1.3
19	15	16	20	14	12	12	7.6	4.0	1.9	.9	.4	1.4
20	15	16	20	14	13	12	85	3.5	1.7	3.5	.4	1.4
21	16	16	20	16	12	13	48	3.2	1.2	1.2	.4	1.9
22	17	16	20	17	13	14	27	3.0	.5	.9	.4	1.9
23	20	17	18	15	12	13	18	12	.4	.9	.4	1.9
24	18	17	16	15	12	13	16	314	.3	.7	.4	1.7
25	17	18	18	16	13	13	15	148	.8	.7	.3	1.9
26	17	18	18	16	12	13	14	102	.9	.7	.3	1.9
27	18	20	18	16	12	13	11	36	.5	.7	.3	1.9
28	17	20	18	16	12	14	10	27	.4	.6	.3	1.9
29	18	18	18	16	-------	14	10	23	1.0	.5	.3	1.9
30	18	20	18	16	-------	14	10	25	1.0	.5	.3	1.9
31	20	-------	18	15	-------	14	-------	31	-------	.5	.3	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	36	15	20.1	1,240
November	20	16	17.7	1,050
December	25	16	19.5	1,200
January	17	12	14.6	898
February	15	12	12.9	716
March	14	11	12.9	793
April	85	7.6	15.8	940
May	314	3.0	27.2	1,670
June	17	.3	4.79	285
July	3.7	.3	.99	61
August	.7	.3	.41	25
September	121	.1	6.34	377
The year	314	.1	12.8	9,260

LLANO RIVER NEAR JUNCTION, TEX.

LOCATION.—Water-stage recorder 100 feet north of Kerrville-Junction road, 3 miles below confluence of North Llano and South Llano Rivers, and 3½ miles east of Junction, Kimble County.

DRAINAGE AREA.—1,760 square miles.

RECORDS AVAILABLE.—September, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,100 second-feet May 28 (gage height, 3.77 feet); minimum, 33 second-feet Aug. 12, 18, 19, 22, and 25.

1915–1929: Maximum discharge, about 98,800 second-feet Sept. 16, 1915 (gage height, 26.3 feet); minimum, 13 second-feet Aug. 23–28, 1918 (gage height, 1.32 feet).

REMARKS.—Low-stage records good, high-stage records fair. About 2,500 acres above and 1,300 acres below station have been declared irrigated. Diversions slightly reduce flow at station during low stages. Slight regulation by water-power plant on South Llano River.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	69	77	77	72	63	63	52		55	44	37
2	84	69	74	77	69	66	63	52		55	42	37
3	84	69	74	77	69	63	63	52		55	42	37
4	80	74	72	77	66	60	63	52		55	42	37
5	77	74	72	77	69	63	63	52		55	42	37
6	74	74	74	77	69	60	60	52		52	39	116
7	74	74	77	77	66	60	63	52		52	37	330
8	72	72	77	77	66	63	63	48		52	37	63
9	72	74	77	77	66	63	63	50		50	35	52
10	69	77	77	77	66	63	60	48	*55	48	35	50
11	72	77	77	77	66	66	63	46		46	35	48
12	69	77	77	77	66	69	66	44		46	33	48
13	69	77	77	77	63	69	66	44		46	35	48
14	69	77	74	80	63	69	69	44		44	39	48
15	69	77	74	77	63	69	69	44		44	39	44
16	69	74	77	74	63	66	69	44		44	37	42
17	69	74	80	74	60	66	69	46		44	37	44
18	72	72	80	74	60	66	69	46	*50	44	33	44
19	72	74	80	74	63	66	66	46	48	51	33	46
20	72	72	80	74	63	66	107	46	48	62	35	44
21	72	72	80	74	63	69	105	48	48	46	35	44
22	69	72	77	72	63	72	84	48	48	44	33	44
23	69	74	80	74	63	69	74	53	50	44	35	44
24	69	72	77	74	63	69	72	364	50	44	35	46
25	69	74	77	72	63	69	66	156	50	48	33	44
26	69	74	77	72	66	66	66	216	50	48	35	44
27	69	74	80	72	66	66	63	112	48	48	35	46
28	69	77	80	72	66	66	60	271	48	48	35	46
29	69	77	80	72	------	66	58	283	50	50	37	46
30	69	77	77	72	-----	66	55	*75	52	48	37	46
31	69	------	77	72	------	66	------		------	46	37	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	87	69	72.2	4,440
November	77	69	74.0	4,400
December	80	72	77.1	4,740
January	80	72	75.0	4,610
February	72	60	65.0	3,610
March	72	60	65.8	4,050
April	107	55	68.0	4,050
May	364	44	85.8	5,280
June	----------	48	52.5	3,120
July	62	44	48.8	3,000
August	44	33	36.7	2,260
September	330	37	56.7	3,370
The year	364	33	64.8	46,900

* Estimated.

LLANO RIVER NEAR CASTELL, TEX.

LOCATION.—Staff gage 4 miles above mouth of Hickory Creek and 6 miles east of Castell, Llano County.

DRAINAGE AREA.—3,510 square miles.

RECORDS AVAILABLE.—November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 27,300 second-feet Sept. 7 (gage height, 12.90 feet); minimum, 16 second-feet Aug. 17, Sept. 4 and 5 (gage height, 0.59 foot).

1923–1929: Maximum discharge, about 59,500 second feet May 30, 1925 (gage height, 16.8 feet); minimum, that of Aug. 17, Sept. 4 and 5, 1929.

REMARKS.—Records good. Several small diversions above station; amount not known. Diversions slightly reduce flow at station during low stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	136	93	104	82	79	79	79	62	570	35	47	18
2	124	88	104	82	88	78	76	59	465	33	42	18
3	104	82	98	82	88	78	76	56	380	47	40	17
4	98	82	96	88	82	76	76	52	222	78	33	16
5	93	81	93	88	82	70	76	50	197	88	27	16
6	88	82	98	82	82	69	76	46	190	68	23	44
7	78	88	104	82	82	70	74	45	150	62	22	10,500
8	75	88	98	88	82	69	74	45	136	54	21	1,400
9	75	88	98	93	82	69	80	63	124	47	19	404
10	73	82	98	93	81	71	78	71	110	42	18	190
11	71	82	98	88	79	88	73	74	93	38	18	136
12	69	88	98	88	82	98	73	68	93	36	18	104
13	69	82	98	88	81	98	104	61	88	34	17	79
14	68	82	98	88	81	93	124	57	82	34	16	74
15	67	88	98	88	81	82	93	53	75	33	17	72
16	79	88	104	88	81	79	93	79	71	30	16	61
17	75	88	98	82	81	74	88	58	64	30	17	58
18	72	88	98	88	82	74	80	79	60	27	54	51
19	72	82	93	82	81	75	117	70	56	26	40	46
20	71	78	93	82	81	82	82	75	53	40	29	38
21	70	78	88	82	81	104	82	62	51	301	23	35
22	69	78	86	82	82	143	72	56	49	117	21	34
23	67	78	88	82	82	162	93	52	45	88	20	33
24	68	82	88	82	81	130	110	159	38	70	18	32
25	68	82	88	82	79	104	98	250	36	67	20	32
26	68	93	88	82	78	93	82	490	34	60	20	31
27	68	98	82	82	76	93	78	330	34	51	19	30
28	68	104	82	80	76	88	74	870	32	71	20	30
29	68	98	82	78	-------	88	74	2,540	28	61	20	29
30	80	104	82	80	-------	88	66	7,390	35	62	19	28
31	88	-------	88	80	-------	82	-------	1,370	-------	53	19	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	136	67	78.7	4,840
November	104	78	86.5	5,150
December	104	82	94.0	5,780
January	93	78	84.3	5,180
February	88	76	81.2	4,510
March	162	69	88.6	5,450
April	124	66	84.0	5,000
May	7,390	45	477	29,300
June	570	28	122	7,260
July	301	26	60.7	3,730
August	54	16	24.3	1,490
September	10,800	16	465	27,700
The year	10,800	16	146	105,000

PEDERNALES RIVER AT STONEWALL, TEX.

LOCATION.—Staff gage at Stonewall, Gillespie County, 2 miles below mouth of South Grape Creek.
DRAINAGE AREA.—647 square miles.
RECORDS AVAILABLE.—July, 1924, to September, 1929.
EXTREMES.—Maximum discharge during year, about 38,100 second-feet May 28, determined by slope-area method (gage height, 14.25 feet); minimum, 3.1 second-feet Oct. 20, 21, 25, and 26 (gage height, 0.41 foot).
1924–1929: Maximum discharge, that of May 28, 1929; minimum, 1.8 second-feet July 30 and 31, 1925 (gage height, 0.33 foot).
River reached stage of about 24.0 feet in 1900.
REMARKS.—Records good. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	3.7	10	4.3	5.2	6.0	6.0	6.8	251	10	7.5	3.5
2	4.1	3.7	7.5	4.3	6.0	6.0	5.2	6.0	165	9.0	6.0	3.5
3	4.1	3.7	6.8	4.3	6.0	5.2	5.2	4.5	123	403	5.2	3.5
4	3.7	3.7	6.8	187	6.0	6.0	5.2	4.5	97	67	4.5	3.5
5	3.7	4.5	6.8	410	5.2	6.0	5.2	4.5	85	2,270	4.5	3.3
6	3.7	6.0	7.5	28	5.2	5.3	5.2	4.3	72	785	4.5	3.5
7	3.7	4.1	8.2	16	6.0	5.2	5.2	4.3	62	49	4.3	3.7
8	3.5	4.3	7.5	11	6.8	5.2	50	4.1	55	34	4.1	3.5
9	3.5	4.3	7.5	10	6.0	4.5	72	4.5	46	25	4.1	3.5
10	3.3	4.3	8.2	9.8	5.2	4.5	21	32	42	21	4.1	3.3
11	3.3	4.1	9.0	8.2	5.2	6.0	11	10	37	18	4.1	3.3
12	3.3	4.1	9.0	7.5	5.2	10	9.8	30	34	18	4.1	3.5
13	3.3	4.3	9.0	6.8	5.2	27	450	39	30	16	4.1	3.9
14	3.3	4.3	7.5	6.0	5.2	24	388	9.8	27	15	4.1	3.9
15	3.3	4.5	7.5	6.0	5.2	13	37	6.8	24	13	3.9	3.5
16	3.3	4.5	60	6.0	5.2	9.8	16	5.2	21	11	3.7	5.2
17	3.5	4.5	24	6.0	5.2	9.8	11	4.5	20	11	3.7	4.3
18	3.3	4.5	11	6.0	5.2	8.2	9.8	42	18	9.8	3.9	3.9
19	3.3	4.3	7.5	5.2	6.0	8.2	9.8	9.8	17	9.8	3.9	3.5
20	3.1	4.5	6.0	5.2	6.8	9.0	36	6.0	16	93	3.7	3.5
21	3.3	4.5	5.2	4.5	6.8	9.8	255	4.3	13	18	3.7	3.5
22	3.5	4.5	5.2	6.0	6.0	8.2	51	3.9	11	11	3.7	3.5
23	3.3	4.5	5.2	6.0	6.0	7.5	15	3.6	10	9.8	3.7	3.3
24	3.3	4.5	5.2	5.2	6.0	6.8	10	1,520	9.8	8.2	3.7	3.3
25	3.3	4.5	5.2	5.2	6.0	6.8	10	72	9.8	126	3.7	3.3
26	3.3	4.5	4.5	5.2	6.0	6.8	8.2	37	9.8	62	3.7	3.3
27	3.3	6.0	4.5	5.2	6.8	6.8	7.5	20	8.2	28	3.7	3.5
28	3.3	6.0	4.5	5.2	6.0	6.8	7.5	21,700	8.2	27	3.7	3.5
29	3.5	7.5	4.5	5.2	------	6.8	7.5	2,760	22	15	3.7	3.5
30	3.5	9.0	4.5	5.2	------	6.8	7.5	2,820	20	10	3.7	3.3
31	3.7	------	4.5	5.2	------	6.0	------	625	------	9.0	3.7	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	4.5	3.1	3.49	215
November	9	3.7	4.71	280
December	60	4.5	9.04	556
January	410	4.3	26.0	1,600
February	6.8	5.2	5.77	320
March	27	4.5	8.32	512
April	450	5.2	51.3	3,050
May	21,700	3.6	961	59,100
June	251	8.2	45.5	2,710
July	2,270	8.2	136	8,360
August	7.5	3.7	4.15	255
September	5.2	3.3	3.58	213
The year	21,700	3.1	107	77,200

PEDERNALES RIVER NEAR SPICEWOOD, TEX.

LOCATION.—Staff gage 2½ miles below mouth of Fall Creek and 8 miles southeast of Spicewood, Burnet County.
DRAINAGE AREA.—1,290 square miles.
RECORDS AVAILABLE.—November, 1923, to September, 1929.
EXTREMES.—Maximum discharge during year, about 155,000 second-feet May 28, determined by slope-area method (gage height, 40.4 feet); minimum, 1.1 second-feet Sept. 3, 4, 5, and 24.
1923–1929: Maximum discharge, that of May 28, 1929; no flow during several periods.
REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	4.5	15	15	12	12	12	14	1,080	27	34	1.3
2	30	4.5	15	13	15	12	11	12	776	30	28	1.3
3	22	4.0	15	13	14	12	10	11	586	671	22	1.1
4	18	3.5	14	15	14	12	9.1	8.2	485	1,110	18	1.1
5	14	3.5	14	16	14	11	8.6	7.8	392	310	15	1.1
6	12	6.0	21	138	14	10	7.8	6.8	329	2,230	13	1.3
7	9.6	7.8	25	143	15	10	7.3	6.0	273	583	11	1.4
8	8.2	9.1	24	86	16	10	16	5.2	238	273	10	1.5
9	7.3	9.1	24	62	15	10	16	6.4	208	183	9.0	1.4
10	6.4	8.6	27	46	15	10	34	6.4	181	140	8.5	1.3
11	5.5	9.6	30	34	15	11	80	5.5	161	118	7.5	1.3
12	5.0	13	31	29	15	14	71	8.6	140	107	6.6	1.3
13	4.5	15	31	25	15	18	54	280	128	96	6.0	2.5
14	4.0	15	30	23	15	21	60	177	116	89	6.0	2.9
15	3.5	14	32	21	14	39	441	124	109	81	5.2	2.3
16	4.0	14	37	19	14	60	177	82	98	72	5.2	2.3
17	5.0	14	39	19	14	50	94	76	87	64	4.9	2.5
18	6.4	14	35	18	14	43	65	70	74	53	3.8	2.1
19	25	14	30	18	14	34	46	59	70	49	3.5	1.9
20	16	14	64	16	14	29	30	84	62	81	3.1	1.7
21	11	14	44	16	13	26	28	64	57	93	2.9	1.5
22	7.8	14	34	16	12	24	23	44	51	53	2.7	1.4
23	6.4	14	30	15	12	24	81	30	47	64	2.7	1.3
24	5.5	14	24	15	12	24	112	3,730	42	51	2.3	1.1
25	5.0	14	22	15	13	24	64	1,080	37	39	2.3	1.3
26	4.5	14	19	14	14	22	44	298	28	552	2.3	1.5
27	4.5	15	18	14	14	22	33	177	25	294	2.3	1.5
28	4.5	15	17	14	14	18	25	80,000	25	151	1.9	1.7
29	4.2	15	16	13	------	15	20	22,500	27	83	1.7	1.9
30	4.0	15	15	12	------	14	17	5,800	28	70	1.5	1.9
31	4.0	------	15	12	------	13	------	3,470	------	46	1.4	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	37	3.5	9.83	604
November	15	3.5	11.4	678
December	64	14	26.0	1,600
January	143	12	29.8	1,830
February	16	12	14.0	778
March	60	10	21.1	1,300
April	441	7.3	56.6	3,370
May	80,000	5.2	3,810	234,000
June	1,080	25	199	11,800
July	2,230	27	254	15,600
August	34	1.4	7.88	485
September	2.9	1.1	1.62	96
The year	80,000	1.1	377	272,000

ONION CREEK NEAR DEL VALLE, TEX.

LOCATION.—Staff gage at Del Valle-Creedmoor highway crossing 2 miles below mouth of Williamson Creek and 2½ miles southwest of Del Valle, Travis County.

DRAINAGE AREA.—337 square miles.

RECORDS AVAILABLE.—May, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 76,000 second-feet May 28 (gage height, 24.75 feet); no flow Oct. 1 to Nov. 10.

1924–1929: Maximum discharge, that of May 28, 1929; no flow during several periods.

REMARKS.—Monthly records fair. Record of daily discharge not sufficiently accurate for publication. No diversions above station.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	1.5	0	0.61	36
December	2.3	.6	1.45	89
January	54	1.3	5.55	341
February	2.3	1.9	2.07	115
March	16	1.9	3.78	232
April	154	1.9	15.6	928
May	30,500	1.3	1,770	109,000
June	1,280	85	353	21,000
July	440	43	130	7,990
August	36	5.0	13.9	855
September	9.0	3.5	4.89	291
The year	30,500	0	194	141,000

NOTE.—No flow during October.

GUADALUPE RIVER BASIN

GUADALUPE RIVER NEAR COMFORT, TEX.

LOCATION.—Staff gage at low-water bridge and dam on State highway No. 27, 2.6 miles west of Comfort, Kendall County.

DRAINAGE AREA.—916 square miles.

RECORDS AVAILABLE.—December, 1917, to September, 1929.

EXTREMES.—Maximum discharge during year not determined (gage height, 16.95 feet May 28); minimum, 16 second-feet Aug. 29 (gage height, 1.80 feet).

1918–1929: Maximum discharge not determined (gage height from flood-marks, about 41 feet Aug. 21, 1919); minimum, about 0.40 second-foot Aug. 2, 1918 (gage height, 0.80 foot).

REMARKS.—Records fair. About 400 acres has been declared irrigated above station. Several pumping plants 8 miles upstream. Regulation during low water caused by operation of water-power plants.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	44	51	41	43	38	34	24	282	66	34	21
2	41	41	48	41	48	41	34	22	225	43	31	22
3	37	38	47	41	51	46	36	22	182	1,150	30	20
4	34	36	48	41	48	37	36	23	159	1,400	29	18
5	30	40	46	55	42	38	35	22	137	922	28	17
6	28	36	46	46	42	41	36	18	118	92	23	52
7	28	41	47	41	40	42	36	17	106	59	22	82
8	30	41	41	43	41	36	64	18	90	50	22	66
9	30	38	42	50	41	34	46	21	77	43	22	46
10	29	41	46	53	42	36	43	56	77	41	19	36
11	28	38	46	53	38	43	41	51	70	35	18	31
12	28	40	46	48	38	53	42	943	70	38	18	30
13	28	40	47	53	38	59	38	460	63	37	18	30
14	31	41	42	51	43	59	43	64	53	38	18	234
15	30	42	41	41	43	51	43	56	58	41	17	318
16	118	43	61	51	46	43	36	46	56	31	17	59
17	36	42	63	44	44	43	34	43	48	30	17	48
18	40	38	50	46	41	42	37	77	41	30	17	43
19	38	40	46	41	40	44	41	48	41	27	18	41
20	41	36	43	46	40	48	34	47	46	29	18	36
21	36	36	38	46	41	48	31	37	42	22	18	31
22	36	36	38	52	43	46	38	34	42	24	17	31
23	36	36	38	44	46	41	36	30	42	26	17	30
24	36	38	36	46	43	51	31	498	36	25	17	28
25	31	38	38	46	46	46	30	115	36	25	17	28
26	34	36	37	46	44	46	31	279	29	28	18	28
27	37	38	38	43	43	42	30	142	30	120	17	30
28	36	43	38	38	43	43	24	8,640	34	71	17	28
29	33	48	40	41	------	43	28		92	51	17	28
30	36	48	43	38	------	38	28	1,040	66	44	17	28
31	44	------	41	41	------	41	------	430	------	36	18	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	118	28	37.0	2,280
November	48	36	39.8	2,370
December	63	36	44.3	2,720
January	55	38	45.4	2,790
February	51	38	42.8	2,380
March	59	34	43.8	2,690
April	64	24	36.5	2,170
May	------	17	708	43,500
June	282	29	81.6	4,860
July	1,400	22	151	9,280
August	34	17	20.2	1,240
September	318	17	51.3	3,050
The year	------	17	110	79,300

GUADALUPE RIVER NEAR SPRING BRANCH, TEX.

LOCATION.—Water-stage recorder at New Braunfels-Blanco highway bridge 4 miles southeast of Spring Branch, Comal County.

DRAINAGE AREA.—1,430 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1929.

EXTREMES.—Maximum discharge during year, 18,600 second-feet May 29 (gage height, 19.82 feet); minimum, 23 second-feet Oct. 10 and 11.

1922–1929: Maximum discharge, about 19,800 second-feet Apr. 21, 1926 (gage height, 20.70 feet); minimum, about 4.7 second-feet Aug. 18, 1923 (gage height, about 1.74 feet).

REMARKS.—Records fair. About 400 acres has been declared irrigated above station. Slight regulation caused by operation of water-power plant upstream, during low water.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	36	*41	36	44	48	*58	40	1,190	*365	100	30
2	45	33	*44	36	45	51		38	845		88	30
3	43	35	*43	37	47	51	50	35	671		82	29
4	38	38	*40	40	45	51	45	35	566	600	75	30
5	36	38	38	57	50	51	41	32	468	*3,310	65	31
6	33	43	44	45	51	53	43	32	399		75	32
7	33	41	48	45	50	51	43	35	340	935	73	32
8	31	37	45	50	48	51	424	35	290	516	69	64
9	27	36	43	47	51	51	359	29	256	394	62	75
10	27	36	43	45	48	51	113	30	226	327	59	61
11	25	35	44	45	47	56	91	29	201	294	57	53
12	24	35	41	47	44	59	69	343	172	263	56	44
13	24	36	44	48	44	57	73	1,070	151	234	53	40
14	25	33	47	45	44	62	134	781	134	219	51	41
15	25	36	47	45	44	64	154	229	122	201	50	37
16	27	44	47	45	44	65	84	144	110	183	48	99
17	227	45	51	44	47	62	64	100	98	165	47	82
18	80	43	64	45	47	57	57	105	91	151	44	62
19	45	38	53	51	45	54	51	194	88	144	44	56
20	35	38	48	47	47	59	51	119	93		41	45
21	32	35	43	45	47	64	51	88	86	*120	38	40
22	33	33	41	47	47	61	54	75	82		40	37
23	31	36	40	47	47	64	50	67	76		37	36
24	30	32	37	47	43	62	47	614	71		33	33
25	29	32	35	47	45		53	749	65	96	35	31
26	29	33	35	47	47		50	315	62	96	33	31
27	29	36	35	45	45	*58	45	286	59	98	33	30
28	30	36	36	45	45		44	5,340	56	125	32	29
29	32	*35	36	45	------		44	17,600	62	158	32	27
30	33	*37	33	44	------		41	6,140	*59	122	31	27
31	33	------	35	43	------		------	1,930	------	108	30	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	227	24	39.9	2,450
November	45	32	36.7	2,180
December	64	33	42.6	2,620
January	57	36	45.2	2,780
February	51	43	46.4	2,580
March	65	48	56.8	3,490
April	424	41	84.7	5,040
May	17,600	29	1,180	72,600
June	1,190	56	240	14,300
July	----------	96	443	27,200
August	100	30	52.0	3,200
September	99	27	43.1	2,560
The year	17,600	24	195	141,000

* Estimated.

GUADALUPE RIVER ABOVE COMAL RIVER, AT NEW BRAUNFELS, TEX.

LOCATION.—Water-stage recorder 1.1 miles above Comal River and 1.3 miles northeast from center of New Braunfels, Comal County. Zero of gage, 586.56 feet above mean sea level.

DRAINAGE AREA.—1,670 square miles.

RECORDS AVAILABLE.—December, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 19,700 second-feet May 30 (gage height, 15.10 feet); minimum, 25 second-feet Oct. 15.

1927–1929: Maximum discharge, that of May 30, 1929; minimum, 14 second-feet July 20, 1928 (gage height, 0.88 foot).

A stage of about 38 feet was reached in 1869 and December, 1913.

REMARKS.—Records good. Discharge estimated Sept. 27. About 400 acres has been declared irrigated above station. Slight regulation caused by operation of power plants upstream during low stages.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	32	45	49	58	50	54	65	2,440	155	194	61
2	47	32	46	47	56	49	50	56	1,710	164	180	59
3	46	31	45	49	58	50	49	52	1,350	180	170	58
4	44	26	49	361	58	54	50	50	1,070	843	161	58
5	40	38	49	370	59	50	49	47	850	912	150	54
6	37	70	52	150	59	50	49	46	760	8,290	145	54
7	36	63	55	117	58	49	49	43	656	2,610	138	54
8	32	56	52	93	61	49	74	41	583	1,180	126	52
9	32	50	52	90	60	49	655	39	512	784	122	54
10	31	46	67	90	58	44	424	38	470	624	116	66
11	30	43	68	84	58	59	221	49	431	545	107	105
12	28	40	61	80	58	109	176	56	387	503	102	93
13	27	38	63	77	55	75	168	429	355	455	96	90
14	26	40	60	75	56	68	171	906	330	423	93	90
15	25	40	59	78	56	64	242	534	301	400	86	78
16	29	40	60	77	55	61	229	229	278	374	82	92
17	27	39	78	75	52	63	186	173	268	349	82	100
18	51	39	72	74	54	65	153	158	242	324	84	148
19	135	43	67	72	55	68	132	136	231	301	82	112
20	80	40	80	68	56	67	118	150	218	295	80	93
21	55	39	68	68	55	81	107	141	206	273	75	84
22	43	37	64	67	46	90	102	105	190	252	74	75
23	35	37	59	65	52	84	96	96	183	242	74	71
24	29	37	56	67	52	77	92	141	177	226	72	68
25	28	36	55	67	54	74	86	668	170	222	74	64
26	28	39	52	63	54	74	77	870	161	214	72	68
27	28	39	51	61	54	70	71	402	152	202	68	65
28	28	39	50	60	54	65	72	6,740	145	198	67	58
29	27	40	50	59	------	60	70	15,200	174	198	64	58
30	27	43	50	59	------	60	68	13,700	170	236	61	56
31	27	------	50	59	------	58	------	4,010	------	214	61	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	135	25	38.8	2,390
November	70	26	41.1	2,450
December	80	45	57.6	3,540
January	370	47	92.6	5,690
February	61	52	56.1	3,120
March	109	44	64.1	3,940
April	655	49	138	8,210
May	15,200	38	1,460	89,800
June	2,440	145	506	30,100
July	8,290	155	716	44,000
August	194	61	102	6,270
September	148	52	74.6	4,440
The year	15,200	25	282	204,000

GUADALUPE RIVER BELOW CUERO, TEX.

LOCATION.—Water-stage recorder three-fourths mile upstream from Heards Bridge on Arneckville road and 2½ miles southeast of Cuero, De Witt County.

DRAINAGE AREA.—5,070 square miles.

RECORDS AVAILABLE.—August, 1916, to September, 1929. From December, 1902, to December, 1906, and August, 1915, to August, 1916, a station was maintained at Schleicher Bridge, 4 miles above this point. Discharge at two sites practically the same.

EXTREMES.—Maximum discharge during year, about 101,000 second-feet May 30 (gage height, 35.2 feet); minimum, 190 second-feet Sept. 11 (gage height, 0.92 foot).

1916–1929: Maximum discharge, that of May 30, 1929; minimum, about 80 second-feet Nov. 1, 1917 (gage height, 0.58 foot).

A stage of 37.6 feet was reached Nov. 4, 1913.

REMARKS.—Records fair. Flow is probably not materially affected by numerous small diversions above station. Flow partly regulated by operation of water-power plants upstream.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	504	444	488	545	569	545	569	593		2,220		677
2	476	405	454	449	510	504	557	599	50,000	2,540		647
3	400	476	557	569	504	482	510	605		1,640		623
4	476	422	504	1,460	504	533	510	527	21,700	1,730		617
5	438	749	454	6,220	515	498	515	551	11,400	7,630		551
6	388	3,500	617	3,580	527	444	521	545	4,420	11,600	900	623
7	449	4,700	527	3,500	527	527	488	498		5,630		587
8	388	2,580	533	1,920	539	488	1,080	471		5,620		605
9	444	1,100	551	728	498	493	6,800	488		7,180		858
10	438	641	780	766	504	460	10,100	498		6,210		593
11	432	545	1,520	593	527	449	12,400	482		3,420		454
12	383	521	2,120	521	498	510	13,100	545		2,580	825	356
13	405	515	1,980	605	527	728	3,940	1,060	2,100	2,200	858	617
14	361	527	922	521	493	2,730	3,690	2,200		2,050	747	533
15	454	557	623	557	510	4,320	6,240	2,280		1,900	786	629
16	394	510	858	545	515	1,580	5,660	3,100		1,900	754	677
17	410	498	1,490	539	432	647	2,790	2,650		1,900	754	858
18	416	521	1,130	545	563	575	1,560	6,050		1,520	689	990
19	498	545	792	515	510	476	1,240	7,260	1,560	1,450	714	1,410
20	405	482	1,600	541	482	515		8,160	1,490	1,490	740	728
21	449	545	1,820	567	476	1,650	890	3,880	1,410	1,410	702	653
22	482	498	1,130	593	521	9,230		1,100	1,380	1,750	702	641
23	460	460	683	530	488	12,100		922	1,300	1,600	702	702
24	410	488	605	587	515	9,840	545	792	1,270	1,380	714	551
25	405	533	504	575	482	2,350	665	3,050	1,240	1,490	671	708
26	471	563	557	539	527	1,100	708	8,250	1,240	2,200	721	581
27	400	482	545	533	504	922	635	9,990	1,200	2,200	721	587
28	394	488	533	569	533	740	659	11,400	1,160	1,750	671	563
29	488	466	444	569	------	653	545	18,000	1,600	1,410	683	593
30	394	575	476	504	------	617	623	50,000	1,580	1,270	665	557
31	427	------	504	527	------	605	------		------	1,130	635	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	504	361	430	26,400
November	4,700	405	845	50,300
December	2,120	444	848	52,100
January	6,220	449	1,010	62,100
February	569	432	511	28,400
March	12,100	444	1,850	114,000
April	13,100	488	2,670	159,000
May	----------	471	6,340	390,000
June	----------	1,160	7,640	455,000
July	11,600	1,130	2,900	178,000
August	----------	635	786	48,300
September	1,410	356	659	39,200
The year	----------	356	2,210	1,600,000

GUADALUPE RIVER SEEPAGE INVESTIGATION

During the investigation the river was at a constant stage and discharge represents the natural conditions.

Discharge measurements to determine seepage on Guadalupe River from Comfort to New Braunfels, Tex., in February, 1929

Date	Stream or diversion	Location	Approximate distance from initial point in miles	Discharge in second-feet			
				Main stream	Tributary	Gain or loss in section	Total seepage gain or loss
Feb. 18	Guadalupe River	Gaging station 2 miles above Comfort.	0	41.1			
Do	Cypress Creek	One-fourth mile above mouth at Comfort.	3.0		0.2		
Do	Holliday Creek	One-fourth mile above mouth below Comfort.	4.8		0		
Do	Guadalupe River	San Antonio & Aransas Pass Railway bridge near Comfort.	6.4	42.5		+1.2	+1.2
Do	do	Waring	12.2	36.4		−6.1	−4.9
Feb. 19	Joshua Creek	2 miles above mouth near Waring.	16.0		.7		
Do	Sister Creek	One-half mile above mouth, near Sisterdale.	19.7		.2		
Do	Guadalupe River	Just below mouth of creek at Sisterdale.	19.7	45.2		+7.9	+3.0
Do	Wasp Creek	Mouth, about 6 miles below Sisterdale.	29.5		0		
Do	Guadalupe River	Just above mouth of Sabino Creek at Ammans crossing.	31.0	40.7		−4.5	−1.5
Do	Sabino Creek	One-fourth mile above mouth 8 miles northeast of Boerne.	31.2		.3		
Do	Guadalupe River	Unknown crossing about 4 miles north of Oberlys crossing.	34.2	38.2		−2.8	−4.3
Feb. 20	do	Schillers crossing 4 miles northeast of Bergheim.	45.6	43.0		+4.8	+0.5
Do	Currys Creek	One-half mile above mouth, 4 miles above Spring Branch.	55.8		1.0		
Do	Guadalupe River	Specks crossing 2.5 miles southwest of Spring Branch.	57.5	47.7		+3.7	+4.2
Do	Spring Branch	1½ miles above mouth near Spring Branch.	59.0		.9		
Do	Guadalupe River	Gaging station near Spring Branch.	61.7	47.4		−1.2	+3.0
Feb. 21	do	In Demijohn Bend east of Spring Branch.	73.3	34.3		−13.1	−10.1
Do	Big Spring	Cranes Mill	78.5		2.9		
Do	Guadalupe River	Below Big Spring at Cranes Mill.	78.5	39.2		+2.0	−8.1
Do	do	5 miles northwest Sattlers store near Craasies gin.	86.2	48.8		+9.6	+1.5
Feb. 22	do	2 miles northeast of Sattlers store.	94.0	48.2		−.6	+.9
Do	Jacobs Creek	Mouth 2 miles below Sattlers store.	95.9		.1		
Do	Guadalupe River	4 miles below Sattlers store.	97.4	53.1		+4.8	+5.7
Do	Isaacs Creek	Mouth about 5½ miles above New Braunfels.	103.5		0		
Do	Guadalupe River	2 miles above confluence of Elm Creek, above New Braunfels.	104.1	53.0		−.1	+5.6
Do	Elm Creek	Mouth near New Braunfels	104.3		0		
Do	Guadalupe River	Above gaging station at New Braunfels.	108.7	*49.0		−4.0	+1.6

* Mean discharge for 24-hour period used because of fluctuation caused by Gode's small power plant.

COMAL RIVER AT NEW BRAUNFELS, TEX.

LOCATION.—Water-stage recorder 200 feet upstream from San Antonio Street viaduct in New Braunfels, Comal County. Zero of gage, 582.61 feet above mean sea level.

RECORDS AVAILABLE.—December, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year not determined (gage height, 12.13 feet May 30); minimum, 142 second-feet Dec. 11 (gage height, 2.12 feet).

1927–1929: Maximum discharge not determined (gage height, that of May 30, 1929); minimum, that of Dec. 11, 1928.

The flood of December, 1913, reached a stage of 35.8 feet (probably some backwater from Guadalupe River).

REMARKS.—Records for low stages fair, for medium and high stages poor. About 635 acres has been declared irrigated above station. Flow partly regulated by steam power plant half a mile upstream.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	280	280	275	278	278	272	283	280	379	297	322	302
2	280	275	278	275	282	272	270	280	331	297	322	300
3	280	275	278	278	278	272	264	280	325	300	322	300
4	278	272	278	300	275	283	264	275	319	302	322	300
5	275	289	278	335	278	278	262	272	316	-------	322	300
6	278	283	278	286	278	278	262	272	314	-------	319	
7		278	275	283	278	278	262	270	314	-------	319	
8		280	275	280	275	280	278	270	311	328	319	
9		278	275	280	278	278	288	270	311	322	319	
10		278	283	280	272	278	267	267	302	319	316	
11	[a] 282	278	267	278	275	278	270	267	302	319	316	[a] 302
12		280	286	278	275	388	280	270	294	316	316	
13		280	278	283	272	278	280	275	294	336	314	
14		280	286	280	278	267	300	272	297	319	314	
15		278	291	280	272	264	280	275	291	311	314	
16	[a] 300	275	283	280	275	259	280	275	291	319	305	[b] 305
17	286	275	289	286	275	264	283	283	289	325	305	302
18	283	275	283	278	272	259	280	302	294	325	302	302
19	283	275	286	278	272	259	280	272	297	325	302	300
20	289	275	286	278	275	264	280	278	297	322	302	297
21	286	272	289	280	270	272	280	275	302	325	302	297
22	283	275	289	280	270	270	278	280	294	325	308	294
23	283	272	286	278	272	267	280	278	294	319	305	294
24	283	275	278	278	272	262	280	322	294	322	302	294
25	282	275	278	280	272	262	280	372	294	322	305	294
26	289	278	278	278	272	264	280	-------	294	331	300	297
27	289	272	275	275	272	264	278	297	294	325	302	300
28	283	272	275	280	275	264	278	-------	297	325	300	297
29	283	272	278	278	-------	264	280	-------	354	325	302	297
30	280	278	280	280	-------	264	278	-------	308	322	300	297
31	280	-------	280	278	-------	267	-------	-------	-------	322	300	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	----------	----------	283	17,400
November	289	272	277	16,500
December	291	267	280	17,200
January	335	275	282	17,300
February	278	270	274	15,200
March	388	259	273	16,800
April	300	262	277	16,500
May	----------	267	----------	----------
June	379	289	306	18,200
July	----------	297	----------	----------
August	322	300	310	19,100
September	----------	----------	300	17,900

[a] Estimated.

NOTE.—Mean daily gage height beyond limits of rating curve May 26. Backwater effect May 28–31 and July 5–7; discharge not determined.

BLANCO RIVER AT WIMBERLEY, TEX.

LOCATION.—Water-stage recorder 800 feet below mouth of Cypress Creek and one-fourth mile south of Wimberley, Hays County.

DRAINAGE AREA.—378 square miles.

RECORDS AVAILABLE.—August, 1924, to September, 1926; and June, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 113,000 second-feet May 28, determined by slope-area method (gage height, 31.10 feet); minimum, 7.4 second-feet October 1–5, 9, 13–16, 18, 21, and 22 (gage height, 0.33 foot).

1924–1926, 1928–29: Maximum discharge, that of May 28, 1929; minimum, 4.0 second-feet Sept. 20, 1928 (gage height, 0.30 foot).

REMARKS.—Records fair. No diversions.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	*9.0	18	13	13	9.0	18	34	*1,220	114	92	37
2	7.4	9.0	18	13	13	9.0	18	33	*1,010	92	86	37
3	7.4	8.2	18	13	13	8.2	18	31	*791	481	81	35
4	7.4	8.2	17	179	14	9.0	17	29	*597	342	76	35
5	7.4	12	17	56	14	9.0	17	29	*480	434	74	33
6	8.2	17	21	27	14	9.0	16	29	*585	2,580	71	33
7	8.2	10	24	23	14	9.0	28	29	692	600	67	33
8	8.2	9.0	21	20	16	9.0	160	26	341	421	64	33
9	7.4	9.0	20	18	14	9.0	836	26	314	346	62	33
10	8.2	9.0	23	17	14	9.0	103	181	278	304	60	33
11	8.2	9.0	24	17	13	10	58	62	252	278	58	33
12	8.2	8.2	21	17	13	16	54	44	223	269	55	33
13	7.4	8.2	23	17	12	20	50	146	211	252	53	33
14	7.4	8.2	27	16	12	17	508	174	195	223	53	33
15	7.4	8.2	14	16	12	14	223	75	188	207	51	33
16	7.4	8.2	17	16	12	14	98	82	174	192		37
17	8.2	10	21	14	12	13	77	60	163	181		33
18	7.4	11	18	14	11	13	62	132	150	167		33
19	10	12	16	14	11	13	56	103	141	167	*47	33
20	9.0	12	16	14	10	14	56	56	134	153		33
21	7.4	12	16	13	10	18	50	42	128	147		31
22	7.4	12	14	13	9.0	18	54	34	119	141		30
23	9.0	12	13	13	9.0	18	58	29	114	131	43	30
24	8.2	12	13	13	9.0	17	52	676	108	128	43	30
25	8.2	13	13	13	10	17	44	176	102	122	43	28
26	8.2	14	13	12	10	17	40	431	97	119	43	27
27	9.0	18	13	13	10	17	38	120	92	116	43	27
28	*9.0	18	13	13	10	17	38	*29,200	92	125	41	27
29	*9.0	18	13	13	-------	18	34	*5,910	102	111	41	25
30	*9.0	18	13	13	-------	18	34	*2,560	134	102	39	25
31	*9.0	-------	13	13	-------	18	-------	*1,600	-------	97	37	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	10	7.4	8.10	498
November	18	8.2	11.4	678
December	27	13	17.5	1,070
January	179	12	21.8	1,340
February	16	9.0	11.9	661
March	20	8.2	13.7	842
April	836	16	97.2	5,780
May	29,200	26	1,360	83,600
June	1,330	92	311	18,500
July	2,580	92	295	18,100
August	92	37	55.0	3,380
September	37	25	31.9	1,900
The year	29,200	7.4	188	136,000

* Estimated.

SAN MARCOS RIVER AT OTTINE, TEX.

LOCATION.—Water-stage recorder at highway bridge one-fourth mile southwest of Ottine, Gonzales County.

DRAINAGE AREA.—1,250 square miles.

RECORDS AVAILABLE.—June, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, about 202,000 second-feet May 29 (gage height, 43.32 feet); minimum, 31 second-feet Oct. 10.

1915–1929: Maximum discharge, that of May 29, 1929; no flow July 29, 1923, Mar. 31, 1925, and June 24, 1926.

REMARKS.—Records fair except those for estimated periods, which are poor. Diversions above station for irrigation and municipal use are small. Flow regulated by operation of small cotton gin above gage. Most of normal flow from large springs near San Marcos.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	94	124	168	150	125		177	e4,870	396	323	223
2	133	104	129	154	130	122		160	e2,320	404	323	
3	121	101	105	156	140	123		152	e1,680	379	315	
4	96	96	128	220	141	145		159	e1,450	529	307	
5	102	143	120	655	124	148	e 157	161	e1,300	850	299	
6	88	434	121	489	161	133		152	e1,140	635	299	e 218
7	96	215	142	252	146	135		157	e1,020	2,220	283	
8	82	121	140	216	123	141	e 444	154	e 895	1,230	253	
9	97	120	127	185	145	128	7,940	148	835	775	253	
10	79	104	168	178	123	130	4,140	148	775	655	275	
11	72	104	371	154	135	146	483	146	715	615	275	e 202
12	78	111	223	168	119	467	339	216	675	557	268	209
13	90	110	167	157	137	3,910	3,000	307	635	540	268	209
14	90	113	155	152	133	691	3,960	405	595	523	245	230
15	82	106	198	151	125	258	1,680	614	615	489	252	223
16	111	113	127	154	134		599	387	595	472	252	326
17	170	137	166	139	119		347	1,660	540	446	252	749
18	94	115	164	157	134		283	3,640	506	438	275	234
19	101	92	184	161	123	e 174	245	1,520	489	421	252	216
20	110	120	164	178	137			299	472	719	245	209
21	81	103	161	128	124		e 195	252	455	580	238	202
22	76	116	156	146	133	e 265		e 209	446	430	230	199
23	90	113	148	151	123	e 250		e 177	430	404	230	187
24	97	111	175	154	118			8,610	412	412	238	189
25	90	103	151	154	137		202	8,770	404	741	230	194
26	96	99	163	141	124		198	3,310	396	768	230	194
27	115	94	160	135	137	e 157	184	4,430	421	493	230	192
28	97	116	164	146	125		184	7,700	396	421	230	185
29	90	120	164	140	-------		180	118,000	430	363	223	188
30	98	129	164	156	-------		181	20,400	412	355	223	180
31	102	-------	156	136	-------		-------	11,700	-------	339	223	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	170	72	96.9	5,960
November	434	92	125	7,440
December	371	105	161	9,900
January	655	128	188	11,600
February	161	118	132	7,330
March	3,910	122	310	19,100
April	7,940	----------	889	52,900
May	118,000	146	6,270	386,000
June	4,870	396	878	52,200
July	2,220	339	600	36,900
August	323	223	261	16,000
September	749	180	230	13,700
The year	118,000	72	854	619,000

e Estimated.

PLUM CREEK NEAR LOCKHART, TEX.

LOCATION.—Staff gage at steel highway bridge 700 feet below mouth of Dry Creek and 7 miles southeast of Lockhart, Caldwell County. Zero of gage, 371.39 feet above mean sea level.

DRAINAGE AREA.—184 square miles.

RECORDS AVAILABLE.—January, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, about 25,200 second-feet May 28 (gage height, 22.50 feet); no flow Aug. 30 to Sept. 2, Sept. 4 and 5.

1925–1929: Maximum discharge, about 26,000 second-feet Apr. 21, 1926 (gage height, 22.6 feet from floodmarks); no flow during several periods.

The flood of December, 1913, reached a stage of 26.8 feet, determined by levels to floodmarks.

REMARKS.—Records poor. Discharge estimated Feb. 8–11. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.5	1.0	0.8	1.5	1.3	0.8	1.7	303	2.7	1.0	0.0
2	.5	.4	.9	.8	1.6	1.3	.7	1.2	92	2.9	.8	0
3	.4	.5	1.0	.8	1.5	1.3	.8	1.0	43	78	.7	.1
4	.4	.5	1.0	17	1.5	4.0	.7	.8	43	176	.5	0
5	.5	2.4	1.0	33	1.5	2.8	.7	.7	38	51	.4	0
6	.5	59	1.9	14	1.4	1.4	.7	.7	34	13	.3	.1
7	.5	2.7	3.0	4.9	1.3	1.2	.7	.6	25	264	.3	.1
8	.5	1.1	2.4	2.7	1.2	1.3	2,070	.6	14	123	.3	.1
9	.4	1.0	1.3	2.5	1.1	1.5	2,700	.6	12	16	.2	.1
10	.4	.8	19	2.0	1.0	1.7	98	.5	12	12	.1	.1
11	.4	.8	38	1.4	.9	3.0	19	.5	11	12	.1	.1
12	.5	.7	2.6	1.3	1.1	499	26	9.7	8.4	.2	.1	
13	.5	.7	1.1	1.3	1.4	372	1,010	4.0	8.8	3.4	.3	.1
14	.5	.7	1.0	1.3	1.3	58	448	26	7.6	1.6	.3	.1
15	.5	.6	.9	1.4	1.3	15	196	43	20	1.5	.2	.2
16	.6	.6	1.6	1.4	1.3	5.2	20	48	14	1.2	.2	.4
17	.7	.6	8.9	1.4	1.2	3.8	11	614	6.7	1.0	.2	.3
18	.7	.6	5.6	1.4	1.2	3.2	5.9	712	5.9	.9	.1	.2
19	.6	.5	3.8	1.4	1.3	2.3	4.2	420	5.3	9.6	.1	.2
20	.6	.4	2.3	1.4	1.2	2.0	3.0	42	4.7	83	.2	.1
21	.5	.5	1.0	1.5	1.2	53	2.6	11	4.4	28	.3	.1
22	.5	.4	.7	1.4	1.2	111	2.4	4.6	4.0	13	.3	.1
23	.5	.4	.7	1.6	1.2	22	2.3	2.6	3.8	11	.3	.1
24	.5	.6	.7	1.4	1.2	7.9	2.3	815	3.8	9.5	.3	.1
25	.4	1.0	.7	1.2	1.3	2.8	1.8	284	3.1	8.2	.3	.2
26	.4	1.0	.8	1.2	1.4	1.9	1.6	1,370	2.8	17	.3	.3
27	.4	1.0	.7	1.1	1.4	1.6	1.5	352	2.5	69	.3	.2
28	.4	1.0	.8	1.0	1.3	1.3	1.5	12,500	2.4	11	.2	.3
29	.4	1.0	.7	1.2	-------	1.1	1.4	12,500	3.6	6.8	.1	.3
30	.5	1.0	.8	1.3	-------	1.0	1.4	2,040	3.0	3.8	0	.3
31	.5	-------	.5	1.5	-------	.9	---------	284	-------	1.6	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	0.7	0.4	0.49	30
November	59	.4	2.76	164
December	38	.5	3.43	211
January	33	.8	3.44	212
February	1.6	.9	1.29	72
March	499	.9	38.3	2,360
April	2,700	.7	221	13,200
May	12,500	.5	1,030	63,300
June	303	2.4	24.8	1,480
July	264	.9	33.6	2,070
August	1.0	0	.29	18
September	.4	0	.15	8.9
The year	12,500	0	115	83,100

SAN ANTONIO RIVER AT SAN ANTONIO, TEX.

LOCATION.—Water-stage recorder at South Alamo Street bridge in San Antonio, Bexar County. Zero of gage, 619.72 feet above mean sea level.

DRAINAGE AREA.—38 square miles.

RECORDS AVAILABLE.—January, 1915, to November, 1929; discontinued.

EXTREMES.—1915–1929: Maximum discharge by slope-area method, 15,300 second-feet Sept. 10, 1921 (gage height, 20.14 feet, from floodmarks); no flow during several periods owing to regulation.

REMARKS.—Records poor. Diversions above gage not known but believed to be small. Operation of mill just above gage causes sharp diurnal fluctuations. The normal flow of river comes from springs. Changes in mean daily stage during low flow are probably caused by pumping from wells for city water supply and for irrigation, thereby depleting underground reservoir.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	17		17	13	9.0		12	16	e32	19	7.0		22	35
2	18	e15	12	12	e10		13	13	24	19	14		26	41
3	25		12	14			13	16	27	24	16		25	43
4	12		12	104			13	13	26	25	16	e22	25	44
5	12	e100	9.0	22			14	14	30	29	10		22	42
6	19		67	11		e9.0	13	10	18	72	15		21	38
7	16	e15	16	13			13	13	24	24	17	29	25	37
8	15		e11	15			81	13	23	21	9.0	21	25	38
9	16			31			23	11	24	24	12	29	24	72
10	16	e16		16			23	15	23	25	15	34	35	30
11	16	15	e15	16			15	14	22	29		36	22	30
12	17	15		15		e20	13	22	26	28		24	29	33
13	17	17		15		25	15	37	14	33		27	23	31
14	16	15		17		10	32	15	22	22	e20	74	28	33
15	19	15	e8.0	19		10	16	15	23	26		27	43	30
16		14	11	17	e9.0	9.0	15	65	22	26		71	26	31
17			15	18		7.2	15	61	22	29	e20	24	30	------
18	e41		11	18		17	15	24	22	19	17	25	30	------
19			11	16		12	16	12	26	22	20	23	e29	------
20	e14	e14	10	14		22	17	15	17	21	20	23	e32	------
21	16		11	16		57	16	17	22	22	27	25	33	------
22	14		11	18		17	16	20	21	18	16	20	29	------
23	16		11	12		12	16	15	e18	18	20	21	31	------
24		e14	13	12		11	16	132	e16	21	28	19	33	------
25		12	13	10		12	15	46	18	11	20	18	34	------
26		13	14	10		12	13	e33	23	16	25	30	68	------
27	e15	14	13	8.6		12	15	e20	14	17	28	18	44	------
28		13	15	10		12	e16	59	31	15	28	20	38	------
29		12	16	10	------	12	17	41	72	12	19	17	34	------
30		11	15	10	------	12	16	17	14	16	21	22	36	------
31		------	9.0	8.0	------	11	------	e23	------	18	e20	------	50	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
1928–29				
October	----------	----------	19.2	1,180
November	----------	11	17.1	1,020
December	67	8.0	14.6	898
January	104	8.6	17.5	1,080
February	----------	----------	9.04	502
March	57	----------	13.6	836
April	81	12	18.1	1,080
May	132	10	27.0	1,660
June	72	14	23.9	1,420
July	72	11	23.3	1,430
August	----------	7.0	18.7	1,150
September	74	17	27.0	1,610
The year	132	7.0	19.1	13,900
1929				
October	68	21	31.4	1,930
November 1–16	72	30	38.0	1,210
The period	----------	----------	----------	3,140

e Estimated.

SAN ANTONIO RIVER NEAR FALLS CITY, TEX.

LOCATION.—Water-stage recorder at highway bridge half a mile above Scared Dog Creek and 3.4 miles southwest of Falls City, Karnes County.

DRAINAGE AREA.—2,070 square miles.

RECORDS AVAILABLE.—April, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 10,100 second-feet May 29 (gage height, 11.15 feet); minimum, 54 second-feet Apr. 3, 6, and 7.

1925–1929: Maximum discharge, that of May 29, 1929; minimum, 36 second-feet May 11 and 12, 1928 (gage height, 0.97 feet).

In 1913 river reached stage of 28.36 feet (from floodmarks).

REMARKS.—Records good except those for estimated periods, which are fair. For diversions see records of Medina Canal near Riomedina. Slight regulation caused by operation of Medina Dam.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	78	140	109	109	124	60	98	1,340		81	74
2	71	84	140	109	114	109	57	98	1,070		78	74
3	64	84	145	109	119	106	54	95	364		78	78
4	64	81	140	119	114	109	60	92	281		74	84
5	60	452	134	160	124	109	57	95	237	400	71	88
6	64	1,740	145	182	124	124	54	95	226		71	92
7	60	661	145	220	124	119	54	95	210		74	95
8	60	308	325	232	134	114	350	95	193		71	95
9	60		281	226	134	109	1,720	92	188	642	78	98
10	60		545	204	124	102	298	92	188	375	78	106
11	64		434	176	119	140	264	92	182	226	74	106
12	64		270	155	114	119	254	95	176	166	74	109
13	74		215	124	109	232	171	102	171	176	74	119
14	74		182	109	109	166	259	144	171	415	74	129
15	71		102	106	119	347	242	331	166	314	78	140
16	67		88	114	129	347	182	306	155	140	78	145
17	331		92	109	129	155	155	676	140	109	81	145
18	748		95	106	109	88	119	2,080	150	106	78	232
19	226		98	106	119	88	114	2,120	145	98	71	160
20	109	125	198	102	119	95	109	1,670	134	95	71	106
21	84		102	102	114	1,050	106	616	129	95	71	98
22	81		92	102	114	171	106	392	119	92	74	95
23	167		84	98	124	308	109	281	106	92	74	92
24	444		84	98	114	155	140	292	102	88	74	92
25	196		84	98	114	84	150	1,740	106	88	71	95
26	78		84	98	124	74	276	2,810	106	124	71	102
27	78		84	106	124	67	166	2,910	102	98	74	95
28	74		84	106	124	60	98	3,220	106	98	74	95
29	71		88	106	-------	60	98	8,080	102	92	74	95
30	78		88	102	-------	64	98	8,480	102	88	74	95
31	74	-------	92	109	-------	64	-------	3,710	-------	84	74	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	748	60	125	7,690
November	1,740	----------	208	12,400
December	545	84	157	9,650
January	232	98	129	7,930
February	134	109	120	6,660
March	1,050	60	163	10,000
April	1,720	54	199	11,800
May	8,480	92	1,330	81,800
June	1,340	102	232	13,800
July	----------	84	229	14,100
August	81	71	74.6	4,590
September	232	74	108	6,430
The year	8,480	54	258	187,000

SAN ANTONIO RIVER AT GOLIAD, TEX.

LOCATION.—Chain gage on Galveston, Harrisburg & San Antonio Railway bridge in Goliad County.

DRAINAGE AREA.—3,910 square miles.

RECORDS AVAILABLE.—June, 1924, to March, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during period, 13,100 second-feet Jan. 11 (gage height, 31.79 feet); minimum, 70 second-feet Oct. 10–15.

1924–1929: Maximum discharge, that of Jan. 11, 1929; minimum, 44 second-feet for several periods during 1927.

REMARKS.—Monthly records poor. Records of daily discharge not sufficiently accurate for publication. For diversions see record of Medina Canal near Riomedina.

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	274	70	136	8,360
November	8,100	92	764	45,500
December	1,240	104	289	17,800
January, 24–31	151	141	142	2,260
February	131	104	121	6,720
March	10,200	122	845	52,000

NOTE.—No record Jan. 1-23.

SAN PEDRO CREEK AT SAN ANTONIO, TEX.

LOCATION.—Water-stage recorder at Missouri-Kansas-Texas Railroad culvert, 200 feet south of Arsenal Street in San Antonio, Bexar County, 1 mile above mouth of Salsamora and Martinez Creeks, and 2½ miles above confluence with San Antonio River.

RECORDS AVAILABLE.—July, 1916, to November, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during year, 728 second-feet May 23 (gage height, 5.00 feet); minimum, 0.9 second-foot Dec. 13 and 14.

1916–1929: Maximum discharge not determined (gage height, 8.6 feet Sept. 9, 1921, when backwater from Alizan Creek existed); no flow Aug. 16, 1926, and May 23, 1928.

REMARKS.—Records fair. No diversions. Flow partly regulated at small swimming pool dam above station. Entire flow of San Pedro Creek, except during times of heavy precipitation, is furnished by San Pedro Springs 2 miles upstream and flow at this station is believed to be that which reaches San Antonio River. Martinez and Salsamora Creeks carry no water, except during heavy local rains, and have been known to be dry for several years at a time.

Daily and monthly discharge, in second-feet, of San Pedro Creek at San Antonio, Tex., 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1	1.9	3.1	3.1	3.7	2.5	2.5	3.7		4.0	3.8	5.3	4.0	3.1	2.8
2	1.9	2.5	2.8	5.9	e 3.7	e 3.4	3.7		4.8	4.0	2.5	5.0	4.7	3.7
3	2.2	1.3	2.5	3.7	3.7		4.4		5.6	2.8	4.0	3.7	2.8	3.7
4	3.4	2.2	2.5	35	3.7		3.4		3.1	5.8	4.4	3.4	3.1	3.1
5	3.1	24	2.5	5.6	3.7		4.4	e 3.5	4.4	6.3	5.6	5.5	3.4	3.1
6	2.8	4.0	19	4.8	6.0	e 3.7	3.4		5.5	16	2.9	3.2	3.4	2.8
7	2.8	5.8	5.6	4.8	4.0		2.2		3.1	4.8	4.0	2.5	3.7	4.9
8	3.1	3.4	3.1	5.2	3.4		21		4.4	6.8	5.6	3.7	3.4	4.0
9	2.8	2.2	2.2	11	2.5	e 3.1	4.8	3.2	4.4	3.1	3.1	5.2	4.5	16
10	2.5	3.1	15	6.4	3.1	3.7	6.2	4.2	5.5	4.4	3.1	2.9	1.9	3.7
11	2.5	3.1	3.7	4.0	3.4	19	6.0	1.9	2.5	10		3.4	2.5	3.7
12	2.8	3.1	5.9	5.2	3.7	5.3	e 3.4	6.2	3.4	4.4		5.4	4.0	4.4
13	2.8	3.1	2.2	5.2	5.6	11	3.7	15	4.5	8.3		2.7	3.1	3.7
14	3.1	3.1	1.1	5.2	3.7	5.2	8.8	4.8	1.9	5.6	e 5.0	7.2	3.4	3.7
15	2.8	4.8	2.8	5.6	2.2	4.0	e 4.8	4.8	2.5	6.6		4.3	5.3	3.7
16	26	2.4	3.1	8.9	3.4	4.4			2.8	4.8		20	3.4	3.7
17	6.8	2.8	5.2	4.8	3.4	4.4			3.6	5.6	e 3.4	3.7	3.4	
18	4.4	2.8	3.1	3.7	3.4	4.4			1.8	5.4	4.0	3.4	3.4	
19	3.1	2.8	5.1	4.0	3.7	4.4			2.8	4.0	5.8	3.4	3.7	
20	3.7	2.8	3.4	4.0	6.2	9.8			4.5	4.8	2.9	3.4	3.1	e 3.7
21	4.0	4.5	1.9	4.0	3.7	22			2.6	5.2	3.7	3.4	3.1	
22	3.7	3.1	3.1	3.7	2.5	4.0			e 3.1	5.9	5.7	3.4	3.4	
23	4.4	1.9	3.4	5.7	3.1	3.7	e 4.0	e 12	e 3.8	4.1	3.1	3.4	3.4	e 4.0
24	5.5	1.9	3.4	3.4	3.4	3.7			e 4.6	4.4	3.4	3.4	e 3.4	6.5
25	3.4	2.2	3.1	2.5	3.4	3.4			3.2	5.8	4.4	4.7	e 3.4	11
26	1.9	2.5	5.4	2.8	3.7	3.1			3.1	3.1	5.2	1.9	7.6	4.8
27	3.1	4.0	3.7		6.1	3.1			4.4	4.4	4.0	2.8	4.8	4.4
28	3.4	2.6	3.7		3.7	3.4			26	4.8	3.7	3.1	3.7	4.4
29	3.4	1.6	2.8	e 3.5	------	3.4			10	5.8	5.4	3.1	3.7	4.4
30	3.1	3.1	2.2		------	3.4			4.0	2.9	3.1	3.1	4.8	4.4
31	4.9	------	3.1		------	3.7	------		------	4.0	2.8	------	2.2	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
1928–29				
October	26	1.9	4.04	248
November	24	1.3	3.66	218
December	19	1.1	4.18	257
January	35	----------	5.69	350
February	6.2	2.2	3.74	208
March	22	----------	5.25	323
April	21	----------	4.80	286
May	----------	----------	8.39	516
June	26	1.8	4.66	277
July	16	2.8	5.41	333
August	----------	----------	4.23	260
September	20	1.9	4.28	255
The year	----------	1.1	4.88	3,530
1929				
October	7.6	1.9	3.64	224
November	16	----------	4.56	271
The period	----------	----------	----------	495

e Estimated.

MEDINA RIVER NEAR PIPE CREEK, TEX.

LOCATION.—Water-stage recorder 3½ miles above mouth of Pipe Creek and 4 miles southwest of Pipe Creek post office, Bandera County.
DRAINAGE AREA.—412 square miles.
RECORDS AVAILABLE.—December, 1922, to September, 1929.
EXTREMES.—Maximum discharge during year not determined (gage height, 18.25 feet May 13); minimum, 2.7 second-feet Oct. 1, 4–8, and 11–15.
1923–1929: Maximum discharge not determined (gage height, 19.8 feet Apr. 21, 1926); minimum, 2.2 second-feet Sept. 9, 1927.
The flood of 1919 reached a stage of about 42 feet.
REMARKS.—Records for low stages fair and for high stages poor. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	2.7	9.2	e 14	e 27	e 19	12	14	9.2	244	60	22	6.8
2	3.2	8.0	e 16	24	e 19	12	14	8.0	183	33	20	8.0
3	3.2	e 8.0	16	12	e 20	12	16	8.0	166	973	18	8.0
4	2.7	e 8.0	16	12	22	12	16	6.8	139	147	15	8.0
5	2.7	8.0	16	16	24	12	16	6.8	123	322	20	8.0
6	2.7	8.0	16	e 20	24	12	14	6.8	106	180	16	8.0
7	2.7	9.2	18	20	20	12	12	6.8	93	89	16	8.0
8	2.7	6.8	18	22	e 20	12	16	6.8	86	84	14	8.0
9	3.2	8.0	16	20	e 18	12	16	6.8	72	67	14	11
10	3.2	9.2	14	22	e 16	14	18	6.8	44	60	11	12
11	2.7	9.2	14	e 22	e 16	16	20	5.8	42	60	11	12
12	2.7	9.2	16	e 20	e 16	20	20	1,140	11	60	11	14
13	2.7		16	15	e 15	20	20	3,250	14	52	11	16
14	2.7		16	15	e 15	22	22	262	33	60	11	18
15	2.7	e 11	16	18	e 15	18	18	161	35	31	9.2	18
16	e 250		85	20	e 14	18	14	131	42	29	9.2	18
17	e 144		100	20	e 14	16	16	258	42	29	9.2	20
18	e 84	9.2	81	20	12	16	16	305	42	27	9.2	20
19	e 44	5.8	79	e 20	12	16	16	100	40	24	9.2	22
20	e 20	5.8	e 68	e 20	12	33	16	62	35	27	9.2	24
21	e 9.2	5.8	e 56	20	12	64	16	42	33	29	9.2	29
22	6.8	8.0	e 45	20	14	27	18	35	29	27	9.2	29
23	5.8	11	e 33	20	e 14	22	16	33	27	22	9.2	31
24	4.8		22	18	e 14	18	16	167	24	22	9.2	24
25	3.9		20	20	16	18	14	111	38	24	9.2	20
26	3.2		22	18	16	16	12	946	30	22	9.2	18
27	3.2	e 14	e 22	18	14	16	12	326	20	47	9.2	14
28	8.0		e 23	20	14	16	11	2,860	18	31	9.2	12
29	8.0		e 24	20	------	14	9.2	1,650	462	27	8.0	9.2
30	8.0		e 25	20	------	16	9.2	528	81	24	8.0	8.0
31	8.0	------	e 26	18	------	16	------	350	------	24	8.0	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	250	2.7	21.1	1,300
November	----------	5.8	9.98	594
December	100	14	31.3	1,920
January	27	12	19.5	1,200
February	24	12	16.3	905
March	64	12	18.1	1,110
April	22	9.2	15.4	916
May	3,250	5.8	413	25,400
June	462	11	78.5	4,670
July	973	22	87.5	5,380
August	22	8.0	11.8	726
September	31	6.8	15.4	916
The year	3,250	2.7	62.2	45,000

e Estimated.

MEDINA RIVER NEAR RIOMEDINA, TEX.

LOCATION.—Water-stage recorder just above Medina Valley Irrigation Co.'s diversion dam 6 miles northwest of Riomedina, Medina County.
DRAINAGE AREA.—606 square miles.
RECORDS AVAILABLE.—January, 1922, to September, 1929.
EXTREMES.—No flow over dam during year.
1922–1929: Maximum discharge, about 11,800 second-feet Apr. 21, 1926 (gage height, 5.17 feet); no flow over dam during several periods.
REMARKS.—Yearly record fair. Record of monthly seepage not sufficiently accurate for publication. Water to irrigate about 5,000 acres is diverted to Medina Canal above gage; see "Medina Canal near Riomedina." Flow regulated by main storage dam, 4 miles upstream, except when main reservoir is full and water flows over spillway. Medina Valley Irrigation Co. furnishes daily gage readings of lake level which are used to determine seepage.

Seepage past diversion dam, measured at Haby crossing, 1 mile downstream, was 16,900 acre-feet for year ending Sept. 30, 1929.

MEDINA CANAL NEAR RIOMEDINA, TEX.

LOCATION.—Water-stage recorder just above upper end of flume No. 1, one-third of a mile below head of canal and 6 miles north of Riomedina, Medina County.
RECORDS AVAILABLE.—March, 1922, to September, 1929.
EXTREMES.—Maximum discharge during year, 116 second-feet Aug. 13 (gage height, 2.05 feet); no flow during several periods.
1922–1929: Maximum discharge, 128 second-feet June 26, 1923, and June 5 and 6, 1925; no flow during several periods.
REMARKS.—Records fair. Station is above all diversions from canal. Flow controlled by head gates. Canal diverts from Medina River for irrigation near Lacoste and Natalia.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	17		18	14	16	8.4	24	0.9	16	32	42
2	14	17		18	13	16	5.6	27	.2	23	32	41
3	19	17		18	14	16	5.7	42	.1	18	33	42
4		17		18	15	14	4.4	40	3.2	14	34	40
5		17	*19	18	15	17	9.2	52	10	12	38	36
6		17		17	15	16	22	58	15	2.0	52	40
7		17		17	15	16	25	62	14	2.0	54	54
8		17		16	10	16	28	72	14	2.3	61	54
9		17	*19	19	7.2	15	26	72	20	2.1	80	54
10		17	19	20	7.0	16	28	78	21	1.2	70	52
11		17	12	20	6.7	19	24	84	27	.1	39	49
12		19	5.6	19	6.7	16	29	63	28	1.7	72	52
13		20	3.4	19	8.2	16	28	26	35	5.6	108	52
14		17	3.3	18	12	15	14	18	46	20	95	47
15		15	3.1	19	17	16	5.8	15	60	20	87	52
16	*21	15	2.8	19	15	16	4.7	15	90	20	91	26
17		17	3.3	19	15	16	13	15	84	22	90	14
18		17	3.6	18	15	12	18	15	79	25	88	18
19		*19	2.8	17	15	12	18	1.8	102	25	87	20
20			0	17	15	12	18	9.2	94	23	86	20
21			0	17	16	13	13	14	88	22	86	20
22			0	17	15	17	3.3	15	88	21	73	32
23			0	15	15	17	3.1	15	87	25	66	37
24			0	6.7	15	16	3.0	12	88	31	57	37
25			*19	0	6.3	16	16	2.8	5.9	74	43	52	38
26			8.9	6.5	16	16	15	2.4	60	49	50	39
27			19	12	15	17	18	0	64	48	51	39
28			26	15	16	16	18	0	66	49	48	39
29			19	13	-------	16	17	.1	16	44	58	38
30	*19		17	14	-------	15	17	.1	15	32	48	38
31	19	-------	17	14	-------	15	-------	.8	-------	32	42	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	----------	----------	20.4	1,250
November	----------	15	17.8	1,060
December (25 days)	26	2.8	13.5	668
January	20	6.3	16.1	990
February	17	6.7	13.4	744
March	19	12	15.5	953
April	29	2.8	14.8	881
May (29 days)	84	.1	29.5	1,690
June	102	.1	46.3	2,760
July	49	.1	21.0	1,290
August	108	32	63.2	3,890
September	54	14	38.7	2,300
The year	----------	----------	----------	18,500

* Estimated.

CIBOLO CREEK AT SUTHERLAND SPRINGS, TEX.

LOCATION.—Staff gage at highway bridge in Sutherland Springs, Wilson County, 5½ miles below mouth of Elm Creek.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—June, 1924, to April, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during year, about 3,060 second-feet Apr. 8 (gage height, 10.90 feet); minimum, 4.4 second-feet Nov. 11 and 12 (gage height, 2.06 feet).

1924–1929: Maximum discharge by slope-area method, 23,800 second-feet Apr. 21, 1926 (gage height, 28.5 feet); minimum, that of Nov. 11 and 12, 1928.

REMARKS.—Records for low and intermediate stages fair and for high stages poor. No diversions above station. Discharge estimated Apr. 28–30.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1	9.2	8.4	19	5.4	11	13	6.4
2	9.2	8.4	18	4.9	12	13	6.1
3	9.6	8.4	17	5.4	11	14	5.8
4	9.6	8.4	18	6.1	11	14	6.1
5	9.6	491	19	292	10	14	6.4
6	9.2	1,160	23	54	12	13	5.8
7	9.2	214	17	22	12	14	6.1
8	9.2	20	20	14	12	12	1,020
9	8.8	10	14	12	11	12	1,270
10	9.6	6.4	22	10	11	14	182
11	9.2	4.6	372	8.4	11	22	58
12	9.6	4.4	108	8.4	13	14	14
13	10	5.8	22	8.4	13	16	12
14	10	6.8	12	9.2	13	18	70
15	10	7.4	10	8.4	12	18	12
16	10	7.7	8.8	8.4	12	17	13
17	105	8.1	9.6	12	12	16	12
18	45	7.7	9.6	10	13	15	13
19	16	9.6	6.1	8.4	13	11	14
20	12	11	5.8	10	12	9.6	13
21	9.6	11	6.1	8.4	13	22	14
22	22	11	10	9.2	12	95	13
23	8.1	12	9.2	10	13	20	12
24	9.6	12	4.9	12	12	18	13
25	8.8	13	6.1	12	12	14	13
26	9.2	15	8.8	12	12	10	14
27	9.6	15	5.4	12	12	8.4	12
28	11	15	4.9	13	13	8.4	13
29	12	16	4.9	11	-------	7.4	13
30	7.7	18	5.4	12	-------	8.4	13
31	8.1	---------	6.1	11	-------	7.4	---------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	105	7.7	14.4	885
November	1,160	4.4	71.5	4,250
December	372	4.9	26.5	1,630
January	292	4.9	20.6	1,270
February	13	10	12.0	666
March	95	7.4	16.4	1,010
April	1,270	5.8	95.9	5,710
The period	----------	----------	----------	15,400

NUECES RIVER BASIN

NUECES RIVER AT LAGUNA, TEX.

LOCATION.—Water-stage recorder 1 mile northwest of Laguna, Uvalde County.
DRAINAGE AREA.—764 square miles.
RECORDS AVAILABLE.—October, 1923, to September, 1929.
EXTREMES.—Maximum discharge for year, 21,200 second-feet May 28 (gage height, 13.25 feet); minimum, 16 second-feet May 11, Sept. 1, 3, and 4 (gage height, 1.65 feet).

1923–1929: Maximum discharge, 27,000 second-feet July 23, 1926 (gage height, 14.88 feet); minimum, 8.9 second-feet Sept. 9–11, 1924.

The floods of 1913 and Sept. 21, 1923, reached a stage of 26.5 feet, from floodmarks (discharge, 74,500 second-feet, by slope-area method). Floods in 1903 reached a slightly higher stage.

REMARKS.—Records for low stages fair and for high stages poor. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	49		39	31	30	26	24	302	44	76	16
2	22	46		39	31	30	26	23	248	44	69	17
3	22	46		39	30	30	26	24	220	474	66	16
4	22	46		37	30	30	24	23	390	352	62	16
5	23	46	37	37	28	30	24	23	202	210	56	17
6	24	46		37	30	30	24	22	159	159	52	19
7	24	46		35	30	30	23	22	143	132	49	18
8	25	46		33	30	30	46	20	124	117	44	17
9	25	46		33	30	30	35	19	113	109	42	17
10	26	46	37	31	30	30	31	17	106	102	39	17
11	26	46	37	31	31	31	30	16	102	99	37	17
12	26	46	37	31	31	30	28	84	95	92	37	17
13	26	46	37	31	31	35	28	66	99	86	35	17
14	26	44	37	30	33	30	28	40	89	86	33	17
15	26	44	37	30	31	30	26	30	86	82	31	17
16	177	44	37	30	31	30	26	33	82	76	28	106
17	266	44	37	30	33	30	26	35	76	69	26	120
18	120	44	37	30	33	30	26	31	69	64	25	86
19	86	42	35	30	31	30	26	28	72	62	24	56
20	72	42	35	30	31	30	28	28	69	56	23	44
21	66	40	35	30	31	30	31	28	72	92	22	39
22	62	40	35	30	31	30	31	30	66	92	20	39
23	59	39	35	31	33	30	31	31	62	82	19	37
24	59	39	35	31	31	30	30	39	59	72	18	33
25	56	37	35	31	31	28	30	67	56	66	22	31
26	54	37	35	33	33	28	30	355	54	66	20	37
27	52	37	35	33	31	28	28	124	52	64	19	35
28	52	37	35	33	31	30	28	3,570	46	143	19	31
29	49	37	37	33	-------	30	28	2,940	62	92	18	30
30	49		39	33	-------	28	26	756	49	86	18	28
31	49	-------	39	31	-------	26	-------	437	-------	79	17	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	266	22	54.6	3,360
November	49	37	42.8	2,550
December	-------	-------	36.5	2,240
January	39	30	32.6	2,000
February	33	28	31.0	1,720
March	35	26	29.8	1,830
April	46	23	28.3	1,680
May	3,570	16	290	17,800
June	390	46	114	6,780
July	474	44	111	6,820
August	76	17	34.4	2,120
September	120	16	33.6	2,000
The year	3,570	16	70.4	50,900

NUECES RIVER NEAR UVALDE, TEX.

LOCATION.—Water-stage recorder at Tom Nunn crossing, 6 miles south of Southern Pacific Railroad bridge and 9 miles west of Uvalde, Uvalde County.

DRAINAGE AREA.—1,930 square miles, large part of which is noncontributing at low stages, owing to water entering fault a few miles above gage.

RECORDS AVAILABLE.—October, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, about 14,500 second-feet May 29 (gage height, 8.34 feet); minimum not determined.

1927–1929: Maximum discharge, that of May 29, 1929; minimum not determined.

The river reached a stage of 26.4 feet during December, 1913.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	1.7		2.6	1.7	1.2	1.1	0.6	113	3.5	3.0	1.4
2	3.0	.8		2.6	1.9	1.2	1.2	.6	40	3.5	3.0	1.4
3	3.0	.9		2.6	1.7	1.2	1.2	.7	16	1,030	2.8	1.4
4	2.8	.9		2.4	1.4	1.2	1.1	.7	14	124	2.8	1.4
5	3.0	.8		1.9	1.2	1.1	1.1	.7	26	14	2.6	1.4
6	3.0	1.1		1.9	1.2	1.1	1.1	.7	12	9.9	2.6	2.4
7	3.0	1.0		1.9	1.1	1.2	1.1	.7	11	9.9	2.6	1.7
8	2.8	.9		1.9	1.0	1.2	1.2	.7	9.0	9.0	2.6	1.7
9	2.6	1.0		1.4	.6	1.4	1.1	.7	9.0	8.4	2.4	1.7
10	2.6	1.2		1.2	.5	1.4	1.0	.7	8.4	7.4	2.4	1.7
11	2.1		1.6	1.2	.3	1.4	1.0	.7	7.9	6.2	2.1	1.7
12	1.9			1.2	.2	1.4	1.0	2.6	7.4	5.2	1.9	1.7
13	1.7			1.1	.2	1.9	1.1	11	7.4	4.6	1.9	1.7
14	1.2			1.1	.2	1.7	.9	1.0	6.2	4.6	1.9	1.7
15	1.2			.9	.2	1.7	1.0	.9	6.2	4.0	1.9	1.7
16	1.7			.8	.2	1.7	1.1	.8	5.7	4.0	1.9	145
17	1.2			.7	.2	1.7	1.1	.8	5.2	4.0	1.7	3.5
18	1.2			.9	.2	1.7	1.0	.8	4.6	3.5	1.7	3.3
19	1.4			1.1	.2	1.9	.9	.7	4.6	3.5	1.4	3.3
20	1.2			1.1	.2	1.9	.8	.6	4.6	3.5	1.4	3.0
21	1.1	1.6		1.1	.2	1.9	.8	.6	4.0	3.3	1.4	3.0
22	1.4		2.1	1.2	.2	1.7	.8	.6	4.6	3.3	1.4	2.8
23	1.2		2.4	1.2	.3	1.7	.8	.6	4.6	3.5	1.4	2.6
24	1.1		2.4	1.2	.4	1.7	.9	.7	4.0	3.5	1.4	2.1
25	1.0		2.6	1.2	.5	1.7	.7	.4	4.6	3.5	1.4	2.1
26	1.0		2.1	1.4	.7	1.9	.6	.7	4.0	3.5	1.4	1.9
27	1.0		2.1	1.4	1.0	1.7	.7	.5	3.5	3.5	1.4	1.9
28	1.0		2.6	1.4	1.1	1.7	.6	.5	3.5	4.6	1.4	1.9
29	1.0		2.6	1.7	-------	1.7	.6	4,750	4.6	3.3	1.4	2.1
30	1.0		2.6	1.7	-------	1.4	.6	732	3.5	3.3	1.4	1.9
31	1.2	-------	2.4	1.4	-------	1.4	-------	273	-------	3.3	1.4	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3	1.0	1.79	110
November	----------	----------	1.41	84
December	----------	----------	1.85	114
January	2.6	.7	1.46	90
February	1.9	.2	.67	37
March	1.9	1.1	1.54	95
April	1.2	.6	.94	56
May	4,750	.4	187	11,500
June	113	3.5	12.0	714
July	1,030	3.3	42.0	2,580
August	3.0	1.4	1.94	119
September	145	1.4	6.84	407
The year	4,750	----------	21.9	15,900

NUECES RIVER AT COTULLA, TEX.

LOCATION.—Staff gage 100 feet upstream from Farmer Dam, half a mile below International-Great Northern Railroad bridge, and 1.9 miles by road from post office at Cotulla, LaSalle County.

DRAINAGE AREA.—5,260 square miles, large part of which is noncontributing at low stages, owing to water entering a fault near Uvalde.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 22,100 second-feet May 29 (gage height, 12.20 feet); no flow during several periods.

1923–1929: Maximum discharge, 49,500 second-feet June 3, 1925 (gage height, 14.89 feet); no flow during several periods.

REMARKS.—Records fair. Most of low-water flow is diverted by pumping from storage reservoir above; amount not known. Low-water flow is regulated by storage reservoir above.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	948	0	5.2	0	1,700	0	182	0
2	240	0	3.1	0	1,530	0	680	0
3	143	0	2.5	0	1,530	0	860	0
4	116	0	1.9	0	1,280	0	655	0
5	68	0	1.3	0	718	0	159	0
6	46	0	.7	0	186	0	130	0
7	24	0	.3	0	136	0	89	0
8	12	0	201	0	89	10	60	0
9	7.0	0	542	0	28	420	42	0
10	5.2	0	82	0	13	480	26	0
11	3.1	0	17	0	8.2	300	8.8	0
12	1.9	0		0	6.4	159	3.7	0
13	.9	0	100	0	4.6	89	1.3	0
14	.5	0		2.3	3.4	68	.7	0
15	.1	0	420	571	1.9	28	0	0
16	0	0	480	948	1.6	15	0	0
17	0	0	195	836	1.0	12	0	0
18	0	0	109	580	.8	11	0	0
19	0	0		2,220	.6	10	0	550
20	0	0		1,790	.2	7.6	0	788
21	0	151	220	730	0	7.0	0	3,240
22	0	360		222	0	5.8	0	13,200
23	0	300		102	0	4.6	0	15,300
24	0	642	336	788	0	3.7	0	11,000
25	0	817	186	817	0	3.1	0	5,930
26	0	518	68	7,950	0	2.5	0	2,290
27	0	159	31	12,000	0	1.0	0	759
28	0	64	16	12,800	0	0	0	240
29	0	31	7.6	15,200	0	0	0	231
30	0	8.8	1.6	5,920	0	0	0	73
31	0	6.4	------	2,580	------	0	0	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	948	0	52.1	3,200
March	817	0	98.6	6,060
April	------	0.3	137	8,150
May	15,200	0	2,130	131,000
June	1,700	0	241	14,300
July	480	0	52.8	3,250
August	860	0	93.4	5,740
September	15,300	0	1,790	107,000
The year	15,300	0	384	279,000

NOTE.—No flow November to February.

NUECES RIVER NEAR THREE RIVERS, TEX.

LOCATION.—Staff gage at San Antonio, Uvalde & Gulf Railroad bridge 2 miles southeast of Three Rivers, Live Oak County, and half a mile below Frio River.

DRAINAGE AREA.—15,600 square miles, part of which is noncontributing at low stages, owing to water entering faults near Uvalde.

RECORDS AVAILABLE.—July, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, about 29,000 second-feet May 31 (gage height, 41.7 feet); no flow Nov. 2–4, and Sept. 10.

1915–1929: Maximum discharge not determined (gage height, 46.0 feet, probably some backwater, owing to Gulf storm, Sept. 18, 1919); no flow during several periods.

REMARKS.—Records fair. About 10,000 acres has been declared irrigated above station. At very low stages flow is regulated for short periods by railway pumping plant just above control. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	790	0.6	2.4	10	2.4	2.4	282	137	27,400	395	14	1.3
2	940	0	2.4	6.5	2.4	1.3	137	60	24,400	195	10	1.3
3	1,000	0	1.3	4.0	4.0	1.3	75	48	21,600	497	10	.6
4	1,090	0	1.3	116	4.0	1.3	38	38	18,200	685	6.5	.6
5	1,240	254	2.4	1,630	4.0	2.4	31	31	13,800	379	6.5	.6
6	1,540	2,170	2.4	429	6.5	2.4	25	25	9,680	724	4.0	1.3
7	2,020	1,540	31	108	4.0	2.4	19	19	7,120	2,140	22	1.3
8	2,410	205	25	31	4.0	2.4	838	10	5,060	1,840	316	.6
9	2,470	60	14	25	4.0	2.4	4,040	6.5	3,760	1,600	331	.6
10	1,500	31	46	19	4.0	1.3	3,100	4.0	3,140	1,180	195	0
11	117	25	880	14	4.0	2.4	1,600	4.0	2,920	470	117	4.0
12	60	14	470	10	2.4	103	1,270	2.4	1,900	299	75	48
13	38	10	264	6.5	2.4	38	1,300	26.0	433	195	38	60
14	31	6.5	48	6.5	4.0	19	2,860	282	265	299	25	48
15	19	6.5	31	6.5	4.0	10	2,890	363	214	395	19	25
16	14	4.0	19	4.0	4.0	6.5	2,170	470	137	299	14	25
17	25	4.0	14	4.0	2.4	4.0	1,960	1,420	137	195	6.5	31
18	19	4.0	10	6.5	2.4	4.0	1,300	4,260	117	137	4.0	167
19	38	4.0	6.5	6.5	2.4	125	660	3,520	95	95	2.4	510
20	19	4.0	232	4.0	2.4	1,840	450	2,830	75	60	6.5	735
21	10	2.4	315	4.0	2.4	6,560	395	2,260	48	38	22	535
22	6.5	2.4	137	4.0	4.0	10,500	331	2,140	137	31	195	117
23	6.5	1.3	48	6.5	2.4	8,330	1,060	2,260	95	25	48	60
24	137	.6	31	6.5	2.4	4,550	331	3,100	75	25	19	48
25	31	.6	75	4.0	2.4	1,960	265	4,290	48	57	19	214
26	14	2.4	60	4.0	2.4	1,030	157	5,760	48	395	25	430
27	10	2.4	48	4.0	2.4	1,030	231	9,440	38	248	95	610
28	2.4	2.4	31	4.0	2.4	1,330	282	10,800	48	60	14	850
29	1.3	2.4	19	4.0	------	1,480	315	12,300	75	31	4.0	1,390
30	.6	2.4	14	4.0	------	1,390	231	19,600	322	25	2.4	2,890
31	.6	------	10	4.0	------	660	------	28,100	------	25	1.3	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,470	0.6	503	30,900
November	2,170	0	145	8,630
December	880	1.3	93.2	5,730
January	1,630	4.0	80.5	4,950
February	6.5	2.4	3.23	179
March	10,500	1.3	1,340	82,400
April	4,040	19	955	56,800
May	28,100	2.4	3,660	225,000
June	27,400	38	4,710	280,000
July	2,140	25	421	25,900
August	331	1.3	53.8	3,310
September	2,890	0	294	17,500
The year	28,100	0	1,020	741,000

NUECES RIVER AT CALALLEN, TEX.

LOCATION.—Staff gage at old pump house for city of Corpus Christi half a mile northwest of Calallen, Nueces County, and half a mile above edge of tidewater and breakwater dam.

DRAINAGE AREA.—16,900 square miles, large part of which is noncontributing at low stages, owing to water entering faults near Uvalde.

RECORDS AVAILABLE.—August, 1915, to September, 1929.

EXTREMES.—Maximum stage during year, 10.65 feet June 5 and 6; minimum stage, −0.35 foot Mar. 16.

1915–1929: During September, 1919, the river reached a stage of about 12 feet, as determined from floodmarks on gage. This was not only the highest stage reached during the period covered by records but probably exceeds any that occurred for many years prior to the establishment of this station. No flow Aug. 23–28, 1918.

REMARKS.—Discharge not computed. Gage-height record furnished by city of Corpus Christi.

Daily gage height, in feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.22	0.50	0.70	1.48	0.08	0.48	3.88	2.35	8.60	2.45	2.00	2.42
2	3.42	.50	.65	1.40	.05	.48	3.60	2.20	8.92	2.58	1.88	2.32
3	3.62	.50	.62	1.35	.10	.70	3.18	1.95	9.18	3.05	1.80	2.18
4	3.70	.58	.60	1.40	.20	.95	2.68	1.80	10.08	3.22	1.78	2.15
5	3.78	.82	.60	1.88	.25	.75	2.28	1.72	10.62	3.18	1.70	2.15
6	4.08	3.02	.60	4.45	.22	.55	2.00	1.55	10.62	3.35	1.65	2.15
7	4.22	4.98	.60	4.75	.25	.35	1.88	1.45	10.52	3.40	1.65	2.15
8	4.38	5.70	.60	4.02	.28	.15	1.72	1.38	10.35	3.45	1.60	2.12
9	4.58	5.98	.60	3.42	.38	.10	1.75	1.30	10.15	3.90	1.50	2.10
10	5.15	3.80	.70	2.70	.45	.22	2.15	1.30	9.85	4.30	1.60	2.10
11	5.40	2.15	.95	2.12	.42	.40	4.60	1.50	9.48	4.22	2.60	2.08
12	5.35	1.75	.95	1.78	.32	.50	5.52	1.60	8.90	4.15	2.52	2.10
13	2.88	1.55	1.42	1.48	.25	.55	5.72	1.68	8.25	3.80	2.30	2.15
14	2.05	1.42	2.78	1.38	.18	.35	4.75	2.05	7.54	3.28	2.25	2.05
15	1.78	1.35	2.52	1.30	.15	−.05	4.45	2.05	6.20	2.80	2.38	2.00
16	1.65	1.28	2.15	1.25	.18	−.30	5.22	2.55	3.95	2.62	2.55	2.00
17	1.60	1.25	1.88	1.15	.25	.20	5.92	2.90	2.95	2.78	2.55	2.00
18	1.48	1.20	1.68	1.10	.35	.62	6.00	3.05	2.60	2.75	2.50	1.90
19	1.40	1.20	1.50	1.02	.30	.85	5.48	3.62	2.58	2.60	2.50	1.80
20	1.30	1.18	2.15	1.00	.30	1.30	4.60	4.75	2.48	2.45	2.72	1.78
21	1.42	1.05	2.82	.98	.30	2.58	3.40	5.42	2.40	2.28	2.72	1.58
22	1.72	1.00	2.30	.92	.22	4.70	3.08	5.92	2.38	2.12	2.80	1.42
23	1.52	1.00	2.50	.88	.12	5.25	2.88	5.88	2.35	2.05	2.82	1.40
24	1.30	.92	2.40	.85	.25	6.15	2.75	5.35	2.48	2.00	2.88	1.32
25	1.22	.88	2.08	.78	.45	6.90	2.90	5.02	2.38	1.98	3.02	1.32
26	1.10	.72	1.82	.65	.42	7.58	2.78	5.50	2.32	1.92	3.10	1.48
27	1.00	.70	1.62	.52	.50	8.12	2.58	6.08	2.18	3.08	3.00	1.68
28	.90	.70	1.65	.42	.48	7.75	2.40	6.52	2.18	3.22	2.80	1.60
29	.78	.70	1.65	.32	------	6.40	2.22	7.20	2.32	2.80	2.72	1.40
30	.68	.70	1.60	.25	------	4.70	2.32	7.62	2.32	2.50	2.62	1.40
31	.58	------	1.52	.15	------	3.92	------	8.05	------	2.20	2.52	------

FRIO RIVER AT CONCAN, TEX.

LOCATION.—Staff and chain gages half a mile below Concan post office, Uvalde County, four-fifths of a mile below what is known as "Shut In."

DRAINAGE AREA.—485 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,000 second-feet May 29 and July 3 (gage height, 4.50 feet); minimum, 13 second-feet Aug. 29–31.

1923–1929: Maximum discharge, about 30,400 second-feet July 13, 1926 (gage height, 14.50 feet); minimum, 8.1 second-feet Aug. 2 and 3, 1928.

Highest known stage, 28.8 feet (from floodmark) Sept. 18, 1923.

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

Monthly discharge, in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	223	23	35.9	2,210
November	24	24	24.0	1,430
December	25	24	24.2	1,490
January	25	23	24.2	1,490
February	22	20	20.8	1,160
March	20	20	20.0	1,230
April	20	14	16.6	988
May	934	13	66.9	4,110
June	----------	33	46.2	2,750
July	943	28	65.2	4,010
August	28	13	19.2	1,180
September	29	19	23.2	1,380
The year	943	13	32.4	23,400

FRIO RIVER NEAR DERBY, TEX.

LOCATION.—Staff gage at International-Great Northern Railroad bridge 900 feet below mouth of Leona River and 4 miles south of Derby, Frio County.

DRAINAGE AREA.—3,490 square miles, large part of which is noncontributing at low stages, owing to water entering fault near Uvalde.

RECORDS AVAILABLE.—August, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,200 second-feet May 26 (gage height, 9.80 feet); no flow during several periods.

1915–1929: Maximum discharge, about 34,400 second-feet Sept. 18, 1919 (gage height, 19.5 feet); no flow during several periods of each year.

REMARKS.—Records good. Small areas are irrigated above station; amount diverted not known.

Daily and monthly discharge, in second-feet, 1928–29

Day	Apr.	May	June	July	Sept.	Day	Apr.	May	June	July	Sept.
1	0	0	467	0	0	16	23	490	0.2	0.6	0
2	0	0	232	0	0	17	11	190	.2	.3	0
3	0	0	91	0	0	18	4.7	602	.2	.2	0
4	0	0	33	345	0	19	1.7	2,190	.2	.2	0
5	0	0	17	1,940	0	20	.5	1,050	.2	.2	18
6	0	0	8.4	465	0	21	0	262	.2	.2	11
7	0	0	3.0	175	0	22	5.7	46	.2	0	4.1
8	0	0	1.7	106	0	23	170	16	.2	0	.1
9	0	0	1.4	47	0	24	35	482	.2	0	0
10	0	0	1.4	22	0	25	13	763	.2	0	0
11	0	0	.6	8.4	0	26	3.0	5,450	.2	0	0
12	0	0	.5	3.0	0	27	0	5,200	0	0	0
13	0	37	.3	2.1	0	28	0	1,350	0	0	0
14	564	1,070	.2	.6	0	29	0	192	0	0	0
15	128	1,940	.2	.6	0	30	0	1,460	0	0	0
						31	-------	1,050	-------	0	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
April	564	0	32.0	1,900
May	5,450	0	769	47,300
June	467	0	28.7	1,710
July	1,940	0	101	6,210
September	18	0	1.11	66
The year	5,450	0	78.9	57,200

NOTE.—No flow October to March and August.

LEONA RIVER NEAR DIVOT, TEX.

LOCATION.—Staff gage at Divot-Pearsall highway bridge 2½ miles northeast of Divot, Frio County, and 12 miles above mouth of river.

DRAINAGE AREA.—565 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 6,130 second-feet May 26 (gage height, 15.50 feet); no flow during most of year.

1924–1929: Maximum discharge, that of May 26, 1929; no flow during several periods each year.

REMARKS.—Monthly records fair. Records of daily discharge not sufficiently accurate for publication. Several small diversions above station; amount not known. Low-water flow regulated by dams upstream.

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May	4,110	0	287	17,600
June	5.2	0	.17	10
September	193	0	17.0	1,010
The period				18,600

NOTE.—No record Oct. 1 to Mar. 31. No flow during April, July, and August.

RIO GRANDE BASIN

RIO GRANDE AT SAN MARCIAL, N. MEX.

LOCATION.—Water-stage recorder in sec. 17, T. 7 S. R. 1 W., at highway bridge half a mile northeast of San Marcial, Socorro County.

DRAINAGE AREA.—30,000 square miles.

RECORDS AVAILABLE.—January, 1922, to September, 1929. From January, 1895, to December, 1921, a station was maintained 1½ miles downstream.

EXTREMES.—Maximum discharge not determined (gage height, 7.40 feet Sept. 24); no flow Oct. 1 to Nov. 18.

1895–1929: Maximum mean daily discharge, 33,000 second-feet Oct. 11, 1904 (maximum discharge on Sept. 24, 1929, probably reached about the same discharge as the flood of 1904); no flow during several periods.

REMARKS.—Records fair except those for short periods of ice effect in winter, which are poor. Water diverted from Rio Grande and tributaries above station for irrigation of 600,000 acres.

Daily and monthly discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	354	479	584	606	920	1,500	4,480	127	1,250	3,600
2	0	385	435	575	556	1,460	1,520	4,030	96	784	3,620
3	0	370	555	507	585	1,200	2,120	3,990	388	1,490	2,580
4	0	377	497	488	575	1,080	1,960	3,680	114	2,240	2,270
5	0	354	409	479	596	1,100	1,640	3,390	267	1,670	3,180
6	0	295	393	479	596	1,040	1,620	3,550	86	1,050	3,240
7	0	295	330	555	489	1,220	1,920	3,480		649	2,610
8	0	243	444	507	395	1,880	2,710	3,520		4,860	1,860
9	0	274	536	605	373	1,860	3,010	3,390	2.0	5,830	1,220
10	0	354	435	440	335	1,500	3,480	3,270		11,900	1,330
11	0	722	393	280	294	1,350	4,560	3,390	127	10,800	1,500
12	0	546	479	122	883	1,280	5,260	3,550	547	15,100	1,600
13	0	377	565	270	883	1,070	5,520	3,300	832	16,300	1,580
14	0	444	507	410	933	870	5,090	2,840	920	14,200	1,410
15	0	427	488	560	895	703	3,960	2,810	280	8,240	1,400
16	0	435	427	700	820	596	3,610	2,460	123	5,970	1,140
17	0		444	689	659	691	3,920	2,190	53	5,130	1,270
18	0		435	733	627	726	4,640	1,810	24	3,640	1,520
19	7.3		418	679	627	883	4,960	1,400	118	3,270	1,550
20	47		393	810	617	1,220	5,390	1,140	254	3,010	1,590
21	86		479	755	508	1,620	5,920	960	82	2,710	1,980
22	135	400	497	636	472	2,100	6,340	691	327	2,100	6,490
23	162		400	585	412	1,680	7,440	566	472	1,710	12,200
24	192		200	575	403	1,530	8,240	508	703	1,320	
25	219		80	453	480	1,450	7,700	463	1,640	1,220	20,000
26	208		250	435	784	1,810	6,580	429	2,810	1,880	
27	248		350	462	1,220	1,840	6,580	380	1,020	1,690	
28	237	844	471	575	1,770	1,790	5,790	294	1,840	1,790	5,700
29	346	890	462	-------	1,360	1,660	5,790	214	2,950	1,940	4,880
30	316	925	507	-------	1,040	1,620	5,560	177	1,660	1,800	4,060
31	-------	700	605	-------	920	-------	5,010	-------	1,320	2,950	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	346	0	73.4	4,340
December	925	243	452	27,800
January	605	80	431	26,500
February	810	122	533	29,600
March	1,770	294	700	43,000
April	2,100	596	1,320	78,600
May	8,240	1,500	4,490	276,000
June	4,480	177	2,210	132,000
July	2,950	-------	619	38,100
August	16,300	649	4,470	275,000
September	-------	1,140	5,180	308,000
The year	-------	0	1,710	1,240,000

NOTE.—No flow during October.

RIO GRANDE BELOW ELEPHANT BUTTE DAM, N. MEX.

LOCATION.—Water-stage recorder in sec. 25, T. 13 S., R. 4 W., just below Elephant Butte Dam, Sierra County. Mescal Canyon enters river half a mile downstream.

RECORDS AVAILABLE.—October, 1916, to September, 1929.

EXTREMES.—No data.

REMARKS.—Records good. Considerable water is diverted above station; amount not known. Flow controlled by Elephant Butte Dam which forms reservoir having capacity of 2,638,000 acre-feet. Records furnished by United States Bureau of Reclamation. Computations changed slightly to conform with rules used by United States Geological Survey.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	820	3	3	3	3	694	1,740	1,880	1,430	1,830	1,550	1,740
2	820	3	53	3	3	825	1,850	1,710	1,540	1,460	1,590	1,740
3	800	3	525	3	3	825	1,850	1,740	1,750	1,680	1,700	1,690
4	800	3	525	3	221	825	1,900	1,610	1,770	1,980	1,640	1,370
5	800	3	520	3	700	825	2,030	1,610	1,720	1,986	1,700	1,440
6	800	3	430	3	586	825	1,660	1,610	1,720	1,980	1,640	1,600
7	800	3	430	3	493	825	2,030	1,610	1,730	1,980	1,640	1,600
8	800	3	382	3	493	825	2,040	1,610	1,920	1,980	1,540	1,600
9	760	3	125	3	493	840	2,270	1,620	1,910	1,980	1,400	1,570
10	90	3	125	3	493	891	2,250	1,880	1,900	1,940	1,150	1,300
11	3	3	35	3	493	891	2,150	1,880	1,960	1,640	1,040	1,300
12	3	540	3	6	493	891	2,260	1,940	2,050	1,430	790	1,180
13	3	540	3	406	493	901	2,270	2,160	2,100	1,480	675	1,120
14	3	450	3	406	493	932	2,310	2,160	2,180	1,580	675	1,120
15	3	450	3	406	493	932	2,310	2,000	2,290	1,580	675	1,120
16	3	450	3	406	530	940	2,300	1,820	2,290	1,580	675	1,100
17	3	450	3	406	676	1,140	2,120	1,700	2,290	1,580	740	1,040
18	3	450	3	406	676	1,080	2,100	1,720	2,200	1,580	920	1,030
19	25	450	3	406	676	1,080	1,960	1,720	2,020	1,560	935	973
20	540	427	3	406	676	1,080	2,000	1,740	2,040	1,400	1,090	966
21	540	3	3	406	650	1,080	2,030	1,680	2,040	1,240	1,090	832
22	540	3	3	406	576	1,120	2,030	1,500	2,040	1,240	1,110	832
23	540	3	3	329	582	1,240	2,050	944	2,040	1,400	1,280	810
24	540	3	3	3	694	1,240	1,970	965	2,040	1,640	1,280	574
25	540	3	3	3	694	1,240	1,970	1,320	2,040	1,790	1,280	574
26	540	3	3	3	694	1,240	1,970	1,330	2,040	1,790	1,400	574
27	540	3	3	3	694	1,240	1,970	1,330	2,040	1,750	1,700	574
28	540	3	3	3	694	1,240	1,970	1,160	2,040	1,730	1,700	574
29	540	3	3	3	-------	1,250	1,970	1,020	2,020	1,580	1,700	573
30	540	3	3	3	-------	1,660	1,970	1,100	1,860	1,540	1,700	443
31	225	-------	8	3	-------	1,660	-------	1,360	-------	1,540	1,700	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	820	3	436	26,800
November	540	3	142	8,450
December	525	3	104	6,400
January	406	3	144	8,850
February	700	3	517	28,700
March	1,660	694	1,040	64,000
April	2,310	1,660	2,040	121,000
May	2,160	944	1,590	97,800
June	2,290	1,430	1,970	117,000
July	1,980	1,240	1,660	102,000
August	1,700	675	1,280	78,700
September	1,740	443	1,100	65,500
The year	2,310	3	1,000	725,000

RIO GRANDE NEAR EL PASO, TEX.

LOCATION.—Water-stage recorder in SE. ¼ sec. 9, T. 29 S., R. 4 E., at Courchenes quarries 4 miles northwest of El Paso, El Paso County.

RECORDS AVAILABLE.—May, 1897, to September, 1929. May, 1889, to June, 1893, for station at Old Fort Bliss 1,500 feet above Mexican Dam; January, 1895, to May, 1897, for station at pumping house of smelter company, 1 mile below present gage.

EXTREMES.—Maximum discharge during year, 6,870 second-feet Aug. 11 (gage height, 6.18 feet); minimum, 128 second-feet Feb. 7 (gage height, 0.46 foot). 1889–1893, 1895–1929: Maximum mean daily discharge, 23,700 second-feet June 12, 1905; no flow for several periods previous to construction of Elephant Butte Dam.

REMARKS.—Records good. Considerable water is diverted above station; amount not known. Flow regulated by Elephant Butte Reservoir, diversions, and return water from irrigated lands between reservoir and gaging station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	790	986	230	170	158	468	902	1,090	531	1,130	3,190	1,050
2	689	726	212	170	154	486	862	1,180	584	1,000	1,390	1,130
3	661	619	190	170	146	537	814	1,180	806	902	1,010	953
4	612	486	190	162	146	531	782	1,040	703	910	1,120	1,030
5	605	352	195	158	142	584	750	1,070	726	846	1,520	1,030
6	591	299	204	158	142	584	782	1,010	838	1,080	1,440	863
7	570	283	259	158	139	524	977	862	782	1,080	1,310	760
8	524	273	380	162	150	474	854	798	822	1,180	2,000	953
9	499	254	402	150	363	468	830	766	918	1,120	1,630	1,080
10	512	244	397	154	420	518	902	814	1,010	1,350	2,580	934
11	474	240	368	139	391	524	968	750	959	3,780	5,830	944
12	1,000	240	352	135	374	537	1,000	910	846	2,320	3,250	925
13	1,090	226	283	132	325	518	1,000	1,220	806	1,760	3,560	889
14	640	259	240	128	309	505	1,200	1,030	862	1,470	2,990	880
15	480	288	235	146	336	544	1,400	1,260	959	1,440	2,160	872
16	391	352	226	142	358	505	1,230	1,490	1,080	1,110	1,360	793
17	374	449	208	146	336	568	1,320	1,650	1,390	1,110	1,110	760
18	336	443	208	244	346	661	1,350	1,450	1,200	968	1,040	742
19	341	462	226	309	363	734	1,130	1,300	1,080	862	962	784
20	320	431	208	304	325	682	1,190	1,380	1,140	977	989	750
21	283	449	195	309	443	654	1,090	1,280	1,080	1,430	810	709
22	278	462	182	320	455	668	1,120	1,560	1,050	1,310	1,070	979
23	268	402	186	352	443	647	1,160	2,530	1,130	1,160	1,150	1,410
24	391	304	186	391	505	675	1,080	1,980	1,130	846	2,840	1,090
25	455	330	182	414	499	742	1,070	1,100	977	774	1,610	810
26	426	325	182	414	420	579	1,040	902	977	870	1,210	684
27	426	283	182	304	426	626	1,100	902	986	1,280	968	629
28	455	283	178	226	462	742	1,260	878	977	1,170	856	519
29	455	268	174	174	------	846	1,310	758	959	1,760	692	462
30	468	244	170	170	------	703	1,090	710	1,020	2,790	1,270	644
31	598	------	166	158	------	870	------	689	------	1,950	980	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,090	268	516	31,700
November	986	226	375	22,300
December	402	166	232	14,300
January	414	128	215	13,200
February	505	139	324	18,000
March	870	468	603	37,100
April	1,400	750	1,050	62,500
May	2,530	689	1,150	70,700
June	1,390	531	944	56,200
July	3,780	774	1,350	83,000
August	5,830	692	1,740	107,000
September	1,410	482	866	51,500
The year	5,830	128	783	568,000

RIO GRANDE AT TORNILLO BRIDGE, NEAR FABENS, TEX.

LOCATION.—Water-stage recorder in NE. ¼ NW. ¼ sec. 26, T. 34 S., R. 8 E., at highway bridge 4½ miles southeast of Fabens, El Paso County.

RECORDS AVAILABLE.—October, 1927, to September, 1929. Station maintained for several years prior to October, 1927, by United States Bureau of Reclamation.

EXTREMES.—Maximum discharge during year, 3,440 second-feet Aug. 14 (gage height, 14.72 feet); no flow at 12.15 p. m. June 14.

1927–1929: Maximum discharge, that of Aug. 14, 1929; no flow at 12.15 p. m., June 14, 1929.

REMARKS.—Records fair. Considerable water is diverted above station; amount not known. Flow regulated by Elephant Butte Reservoir, diversions, and return water from irrigated lands between reservoir and gaging station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	453	414	227	137	109	50	204	319	184	201	1,160	153
2	241	637	215	113	128	54	150	284	71	193	1,250	241
3	190	505	190	130	142	65	34	340	58	61	1,300	228
4	193	475	187	135	135	71	23	322	9	16	725	70
5	139	357	198	119	135	23	17	368	6	77	432	91
6	135	305	174	111	135	52	10	344	2	9	425	130
7	115	235	101	122	86	103	7	175	39	30	321	59
8	151	195	109	133	35	62	56	51	7	38	418	82
9	97	182	190	133	23	45	66	20	86	25	891	214
10	103	171	256	135	34	12	22	24	94	265	970	224
11	142	161	241	135	146	49	18	36	19	457	1,250	230
12	144	209	195	133	71	24	22	50	10	827	1,600	302
13	638	253	177	130	51	44	65	169	7	1,020	2,340	246
14	659	256	182	130	18	11	137	262	1	1,290	3,380	189
15	337	250	159	130	9	14	277	151	2	930	3,220	175
16	299	268	109	122	10	25	303	363	95	486	2,740	215
17	296	262	169	130	23	54	303	577	201	265	1,770	193
18	305	327	244	115	23	144	343	721	274	144	858	154
19	293	318	156	122	11	101	299	637	184	71	525	117
20	305	299	161	169	27	140	192	471	164	60	293	103
21	327	290	164	177	8	159	390	633	122	302	334	117
22	268	293	154	169	13	116	268	633	61	494	365	107
23	130	290	166	142	62	121	130	935	88	337	504	251
24	107	277	174	154	107	168	119	1,080	201	190	597	527
25	135	204	171	135	84	131	71	1,280	151	82	970	327
26	107	117	169	198	44	80	138	1,060	115	33	738	156
27	72	235	142	174	59	35	175	573	67	56	385	143
28	81	241	156	115	56	51	371	401	33	418	96	102
29	95	235	156	82	------	79	498	256	19	471	30	39
30	154	290	154	40	------	163	465	159	204	863	5	28
31	302	------	147	139	------	106	------	139	------	1,050	164	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	659	72	226	13,900
November	637	117	283	16,800
December	256	101	174	10,700
January	198	40	133	8,180
February	146	8	63.7	3,540
March	168	11	75.9	4,670
April	498	7	172	10,200
May	1,280	20	414	25,500
June	274	1	85.5	5,090
July	1,290	9	347	21,300
August	3,380	5	970	59,600
September	527	28	173	10,300
The year	3,380	1	262	190,000

RIO GRANDE BELOW OLD FORT QUITMAN, NEAR FINLAY, TEX.

LOCATION.—Water-stage recorder at lower end of El Paso Valley 1½ miles below Old Fort Quitman and 11½ miles south of Finlay, Hudspeth County. Zero of gage, 3,452.64 feet (revised) above mean sea level.

RECORDS AVAILABLE.—January, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,460 second-feet Aug. 20 (gage height, 6.38 feet); minimum, 40 second-feet Apr. 14 (gage height, 0.32 foot).

1923–1929: Maximum mean daily discharge, 2,600 second-feet Sept. 11, 1925; minimum, 20 second-feet July 23 and 24, 1925.

REMARKS.—Records good. Considerable water diverted above station; amount not known. Flow regulated by storage at Elephant Butte Reservoir, diversions, and return water from irrigated lands between reservoir and gaging station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	842	428	237	170	142	147	149	300	250	126	766	240
2	748	408	235	176	123	130	195	278	220	225	880	258
3	522	408	230	176	151	161	140	225	218	230	910	274
4	421	582	220	155	138	168	160	202	176	183	965	317
5	388	637	213	157	162	178	133	225	126	151	960	305
6	372	641	213	162	159	170	84	215	96	138	598	228
7	329	561	211	160	155	155	65	262	81	142	476	192
8	295	456	250	146	151	123	59	273	94	110	535	199
9	278	378	247	146	164	113	52	202	128	88	510	199
10	303	314	220	151	159	140	57	137	123	98	1,280	178
11	260	281	267	153	140	151	73	88	116	81	1,160	192
12	254	265	353	159	137	153	59	66	113	118	1,210	240
13	292	267	388	157	223	137	44	76	73	180	1,270	244
14	356	250	344	157	265	137	43	68	75	435	1,390	254
15	654	244	323	155	227	128	57	75	73	518	1,350	278
16	557	237	326	151	187	159	58	170	90	620	1,450	248
17	496	240	303	155	144	170	105	185	103	488	1,650	262
18	418	252	273	144	119	172	168	223	106	257	1,830	314
19	341	252	198	138	123	116	170	341	111	162	2,120	286
20	317	311	225	144	144	106	191	459	131	123	2,410	252
21	300	369	202	144	131	126	250	518	119	114	1,540	226
22	295	372	191	170	130	116	198	456	106	131	742	268
23	286	350	193	218	151	239	237	1,030	116	289	644	234
24	329	353	189	235	138	220	232	916	100	295	692	266
25	297	350	185	235	138	198	131	708	96	273	705	317
26	260	338	187	213	153	209	113	802	119	206	925	462
27	314	314	187	193	176	176	114	950	124	142	900	417
28	317	237	180	215	140	126	121	629	102	237	559	278
29	297	211	170	240	------	108	140	425	110	220	322	224
30	522	242	166	220	------	98	211	332	110	385	292	226
31	452	------	170	183	------	110	------	278	------	500	262	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	842	254	391	24,000
November	641	211	352	20,900
December	388	166	235	14,400
January	240	138	173	10,600
February	265	119	156	8,660
March	239	98	150	9,220
April	250	43	127	7,560
May	1,030	66	358	22,000
June	250	73	120	7,140
July	620	81	234	14,400
August	2,410	262	1,010	62,100
September	462	178	263	15,600
The year	2,410	43	299	217,000

RIO GRANDE AT BOQUILLAS, TEX.

LOCATION.—Water-stage recorder 4.0 miles below mouth of Tornillo Creek and 73 miles southeast of Marathon, Brewster County.

RECORDS AVAILABLE.—June, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 27,600 second-feet Sept. 11 (gage height, 11.90 feet); minimum, 750 second-feet July 15 (gage height, 1.23 feet).

1928–29: Maximum discharge, that of Sept. 11, 1929; minimum, that of July 15, 1929.

REMARKS.—Records good. Considerable water is diverted above station. Amount not known. Flow partly regulated by Elephant Butte Dam and dams on tributaries. Discharge estimated Aug. 28.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,330	1,780	1,240	2,029	1,560	1,600	1,270	1,240	2,660	1,130	3,790	1,840
2	2,250	1,860	1,060	2,020	1,410	1,490	1,340	1,040	3,820	1,150	3,400	1,650
3	2,410	2,330	981	2,000	1,480	1,480	1,320	1,000	2,500	1,560	2,840	1,580
4	2,410	2,250	915	1,850	1,540	1,490	1,700	1,000	1,840	1,560	2,840	1,410
5	2,330	2,090	1,250	1,730	1,560	1,490	1,190	959	1,560	1,090	2,410	1,300
6	2,170	2,090	1,640	1,730	1,560	1,520	1,060	959	1,490	1,010	2,250	1,220
7	2,090	2,250	1,720	1,750	1,520	1,530	1,040	937	1,680	981	2,250	1,080
8	1,970	2,330	1,680	1,750	1,580	1,450	1,140	970	1,450	1,110	2,330	1,160
9	1,850	2,330	1,760	1,710	1,400	1,400	1,530	981	2,020	970	2,580	1,090
10	1,720	2,170	1,910	1,710	1,500	1,350	2,090	871	2,500	904	2,330	1,020
11	1,680	2,250	1,970	1,500	1,580	1,380	1,610	882	1,500	882	2,040	18,900
12	1,730	2,250	1,980	1,340	1,580	1,420	1,320	871	1,250	871	2,250	3,890
13	1,570	2,170	1,970	1,420	1,580	1,410	1,270	970	1,130	849	2,410	2,250
14	1,490	2,170	1,960	1,500	1,600	1,360	1,210	915	1,050	860	2,500	2,000
15	1,520	2,090	1,800	1,560	1,640	1,340	1,190	926	981	816	2,750	3,300
16	1,540	2,090	1,790	1,540	1,600	1,260	1,140	1,790	937	926	2,660	2,580
17	1,520	1,940	1,860	1,540	1,580	1,210	1,150	3,310	1,970	926	2,930	2,330
18	1,500	1,940	1,880	1,540	1,610	1,260	1,120	2,840	2,050	893	2,500	2,090
19	1,610	1,960	1,920	1,380	1,620	1,320	1,130	1,530	1,240	937	2,410	1,840
20	1,730	1,980	1,960	1,460	1,640	1,360	1,090	1,180	1,020	948	2,500	1,750
21	1,750	1,970	2,020	1,500	1,660	1,340	1,050	1,090	981	860	3,490	1,900
22	1,800	1,970	1,880	1,480	1,730	1,360	1,090	1,090	948	981	2,660	2,410
23	1,790	1,960	1,970	1,450	1,580	1,370	1,130	1,530	882	1,020	2,500	2,090
24	1,750	1,880	2,030	1,440	1,500	1,300	1,090	1,620	893	937	2,410	2,250
25	1,730	1,920	2,030	1,480	1,500	1,280	1,090	2,140	926	959	2,500	2,030
26	1,690	1,980	2,030	1,410	1,560	1,300	1,020	1,820	981	1,550	2,580	1,910
27	1,640	2,090	2,040	1,370	1,640	1,240	1,060	1,460	959	2,780	2,580	1,800
28	1,650	1,900	2,000	1,300	1,600	1,250	1,050	1,460	948	8,150	2,170	1,530
29	1,720	1,500	1,880	1,380	-------	1,270	1,150	1,580	•937	3,590	1,760	1,410
30	1,710	1,300	1,940	1,440	-------	1,140	1,210	2,910	871	3,590	1,920	1,370
31	1,650	-------	1,900	1,540	-------	1,090	-------	3,800	-------	3,890	1,960	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,410	1,490	1,820	112,000
November	2,330	1,300	2,030	121,000
December	2,040	915	1,770	109,000
January	2,020	1,300	1,580	97,200
February	1,730	1,400	1,570	87,200
March	1,600	1,090	1,360	83,600
April	2,090	1,020	1,230	73,200
May	3,800	871	1,470	90,400
June	3,820	871	1,470	87,500
July	8,150	816	1,570	96,500
August	3,790	1,760	2,530	156,000
September	18,900	1,020	2,430	145,000
The year	18,900	816	1,740	1,260,000

RIO GRANDE AT LANGTRY, TEX.

LOCATION.—Water-stage recorder at east end of canyon section, 1 mile southwest of Langtry, Val Verde County, and 13 miles above Pecos River.

RECORDS AVAILABLE.—May, 1900, to October, 1914; December, 1919, to March, 1920; and January, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, about 22,000 second-feet Sept. 12 (gage height, 11.15 feet); minimum, 1,100 second-feet July 24 (gage height, 1.52 feet).

1900–1914, 1919–20, 1924–1929: Maximum discharge, 132,000 second-feet Sept. 13, 1904 (gage height, 34.25 feet); minimum, 270 second-feet May 8–13, 1904.

A float measurement by W. H. Dodd on Sept. 16, 1919, at stage of 46.9 feet showed discharge of 152,000 second-feet. A stage of 56.9 feet (from floodmark by W. H. Dodd) reached about June 18, 1922.

REMARKS.—Records fair. Considerable water is diverted above station; amount not known. Flow partly regulated by storage at Elephant Butte Dam and at dams on tributaries.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,410	1,960	1,820	2,260	1,820	1,890	1,460	1,320	3,410	1,190	4,050	2,190
2	3,120	1,960	1,690	2,190	1,820	1,890	1,390	1,370	3,410	1,200	3,520	2,190
3	2,840	1,960	1,590	2,260	1,890	1,890	1,510	1,390	3,470	1,460	3,520	2,120
4	2,840	2,190	1,470	2,260	1,820	1,820	1,590	1,340	4,380	1,450	3,210	1,890
5	2,930	2,580	1,380	2,260	1,820	1,820	1,930	1,300	2,420	1,700	2,840	1,960
6	2,930	2,500	1,320	2,120	1,890	1,820	1,840	1,350	2,120	1,760	*2,840	1,700
7	2,760	2,340	1,580	2,040	1,890	1,820	1,510	1,290	1,960	1,460	*2,500	1,560
8	2,580	2,340	1,960	2,040	1,890	1,820	1,400	1,320	1,820	1,350	2,340	2,470
9	2,500	2,500	2,120	2,120	1,820	1,820	1,390	1,310	1,890	1,320	2,500	1,820
10	2,260	2,580	2,120	2,040	1,820	1,760	1,550	1,310	1,760	1,410	2,580	1,590
11	2,260	2,500	2,190	2,040	1,760	1,700	1,820	1,350	2,520	1,340	2,840	1,560
12	2,120	2,420	2,340	1,960	1,820	1,700	2,260	1,290	2,500	1,270	2,580	11,600
13	2,040	2,420	2,340	1,820	1,890	1,700	1,890	1,280	1,760	1,240	2,340	7,110
14	2,040	2,420	2,420	1,700	1,890	1,760	1,630	1,210	1,550	1,200	2,580	3,410
15	1,890	2,340	2,420	1,760	1,960	1,760	1,570	1,240	1,440	1,190	2,580	2,840
16	1,820	2,340	2,420	1,890	1,960	1,700	1,510	1,250	1,390	1,220	3,020	3,040
17	1,820	*2,310	2,260	1,890	1,960	1,700	1,490	1,300	1,300	1,150	3,020	3,310
18	1,820	*2,290	2,260	1,890	1,960	1,700	1,430	2,730	1,700	1,210	3,120	2,500
19	1,820	2,260	2,260	1,890	1,960	1,630	1,510	3,310	2,240	1,200	3,020	2,260
20	1,820	2,190	2,260	1,890	1,960	1,630	1,450	2,840	1,700	1,190	2,670	2,120
21	1,890	2,120	2,260	1,760	1,890	1,700	1,390	1,820	1,460	1,190	2,580	2,040
22	1,960	*2,090	2,340	1,760	1,960	1,700	1,360	1,550	1,300	1,200	3,120	2,040
23	2,040	*2,070	2,340	1,820	1,960	1,630	1,300	1,470	1,260	1,160	3,310	2,120
24	2,040	2,040	2,260	1,820	2,040	1,700	1,320	1,500	1,210	1,160	2,760	2,340
25	2,040	2,120	2,340	1,820	1,890	1,700	1,340	2,190	1,190	1,250	2,580	2,340
26	2,040	2,120	2,420	1,760	1,820	1,620	1,310	2,120	1,190	1,250	2,840	2,420
27	2,040	2,190	2,500	1,820	1,820	1,620	1,310	2,580	1,220	1,220	2,500	2,260
28	1,960	2,260	2,500	1,760	1,820	1,580	1,270	2,120	1,250	1,950	2,120	2,120
29	1,890	2,340	2,420	1,760	-------	1,550	1,300	1,820	1,210	7,530	*1,890	2,040
30	1,890	2,040	2,340	1,700	-------	1,530	1,280	1,820	1,220	5,120	*1,700	1,820
31	1,960	-------	2,190	1,760	-------	1,560	-------	1,970	-------	3,720	2,040	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,410	1,820	2,240	138,000
November	2,580	1,960	2,260	134,000
December	2,500	1,320	2,130	131,000
January	2,260	1,700	1,930	119,000
February	2,040	1,760	1,890	105,000
March	1,890	1,530	1,720	106,000
April	2,260	1,270	1,510	89,800
May	3,310	1,210	1,680	103,000
June	4,380	1,190	1,910	114,000
July	7,530	1,150	1,720	106,000
August	4,050	1,700	2,750	169,000
September	11,600	1,560	2,690	160,000
The year	11,600	1,150	2,040	1,470,000

* Estimated.

RIO GRANDE NEAR DEL RIO, TEX.

LOCATION.—Water-stage recorder 900 feet upstream from international highway bridge between Del Rio, Val Verde County, and Villa Acuna, Coahuila, Mexico.

RECORDS AVAILABLE.—December, 1923, to September, 1929. May, 1900, to April, 1915, records obtained 11 miles upstream; and December, 1919, to March, 1920, at McKees Switch 7½ miles upstream. Relation between gages not known. Several springs but no large tributaries enter river between the different sites.

EXTREMES.—Maximum and minimum discharges during year not determined. 1900–1915, 1919–20, 1923–1929: Maximum discharge not determined; maximum stages, 36.5 feet on gage 11 miles upstream Apr. 6, 1900, and 41.0 feet on gage 7½ miles upstream September, 1919 (relation to present gage not known). Minimum mean daily discharge, 1,120 second-feet May 12, 1904 (gage height, 3.25 feet).

Highest stage on record from floodmark, 32.8 feet (present gage datum) June 18 or 19, 1922.

REMARKS.—Records fair. Considerable water diverted above station; amount not known. Flow partly regulated by storage at Elephant Butte Dam and at dams on tributaries.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,720	3,210		3,110	2,670	2,600	2,470	2,160	3,140	5,280		
2	4,560	3,190		3,090	2,690	2,690	2,380	2,210	4,420	2,690		
3	4,270	3,190		3,070	2,740	2,790	2,250	2,230	3,990	2,720	4,610	2,580
4	3,990	3,140		3,070	2,810	2,810	2,250	2,020	6,070	2,600		
5	3,990	3,280		3,090	2,740	2,690	2,360	1,790	3,990	2,560		2,490
6	4,130	3,590		3,280	2,720	2,650	2,670	1,850	3,360	2,580		2,670
7	3,990	3,590		3,110	2,760	2,670	2,530	2,040	3,070	2,690		2,290
8	3,860	3,860	3,340	3,070	2,760	2,690	2,580	2,100	2,830	2,290		2,360
9	3,720	3,720		2,880	2,790	2,670	2,290	2,120	2,580	1,980		3,440
10	3,720	3,860		2,830	2,690	2,690	2,160	2,100	2,740	1,910		2,580
11	3,240	4,130		2,760	2,600	2,620	2,020	1,930	2,470	2,140		2,560
12	3,260	4,130		3,040	2,600	2,580	2,290	2,600	3,280	2,040		2,230
13	3,260	3,860		3,110	2,650	2,580	2,720	2,440	3,140	2,040		
14	3,210	3,590		3,070	2,760	2,490	2,400	2,180	2,380	2,120		
15	3,110	3,860	3,720	2,830	2,830	2,470	2,080	2,000	2,210	1,950		5,920
16	3,720	3,860	3,720	2,880	2,860	2,490	2,040	2,040	1,890	1,930		
17	3,260	3,860	3,590	2,920	2,760	2,490	2,140	4,240	1,870	2,160		
18	3,070	3,720	3,590	2,900	2,790	2,510	2,120	3,070	2,040	2,020		
19	3,070	3,860	3,590	2,720	2,790	2,510	2,080	3,720	2,290	2,120	3,180	3,590
20	3,070	3,720	3,590	2,600	2,790	2,560	2,100	3,860	2,880	1,890		3,280
21	3,040	3,590	3,590	2,560	2,830	2,690	2,100	3,340	2,360	1,810		3,040
22	3,090	3,590	3,590	2,440	2,720	2,720	2,210	2,900	2,180	1,790		2,790
23	3,140	3,720	3,590	2,560	2,740	2,600	2,210	3,090	1,810	2,020		2,670
24	3,140		3,590	2,620	2,720	2,670	2,180	3,460	1,730	2,040		2,830
25	3,160		3,590	2,620	2,740	2,650	2,080	2,560	1,730	2,060		3,110
26	3,160	3,340	3,590	2,690	2,790	2,620	2,040	3,280	1,770			3,090
27	3,160		3,460	2,670	2,670	2,620	1,930	3,160	1,670			3,160
28	3,590		3,590	2,690	2,650	2,510	2,210	3,360	1,630	5,110		2,970
29	3,410		3,720	2,650	-------	2,490	2,120	4,480	1,790			2,830
30	3,260		3,720	2,670	-------	2,510	1,950	3,160	15,000			2,740
31	3,190	-------	3,460	2,530	-------	2,490	-------	2,880	-------			-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	4,720	3,040	3,500	215,000
November	----------	----------	3,580	213,000
December	----------	----------	3,490	215,000
January	3,280	2,440	2,840	175,000
February	2,860	2,600	2,740	152,000
March	2,810	2,470	2,610	160,000
April	2,720	1,930	2,230	133,000
May	4,480	1,790	2,720	167,000
June	15,000	1,630	3,080	183,000
July	----------	1,790	2,840	175,000
August	----------	----------	3,410	210,000
September	----------	----------	3,420	204,000
The year	----------	----------	3,040	2,200,000

RIO GRANDE AT EAGLE PASS, TEX.

LOCATION.—Water-stage recorder half a mile above international highway bridge between Eagle Pass, Maverick County, and Piedras Negras, Coahuila, Mexico. Zero of gage, 682.99 feet above mean sea level.

RECORDS AVAILABLE.—May, 1900, to April, 1916, and November, 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 20,100 second-feet July 1 (gage height, 8.22 feet); minimum, 1,760 second-feet June 25 (gage height, 3.14 feet).

1900–1916, 1923–1929: Maximum mean daily discharge, 238,000 second-feet June 30, 1905; maximum stage, 34.6 feet (International Boundary Commission gage) June 29, 1905; minimum mean daily discharge, 1,030 second feet Apr. 15, 1913.

In June, 1922, the river reached a stage of 43.7 feet (present gage datum). Relation between gages not known. Local residents declare this to be the highest stage known.

REMARKS.—Records good. Considerable water diverted above gage; amount not known. Flow partly regulated by storage at Elephant Butte Dam and at dams on tributaries. Discharge estimated Feb. 10, 11, and June 2.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,420	3,800	4,150	3,580	2,870	2,680	2,500	2,050	3,060	13,200	5,150	2,410
2	5,690	3,800	3,920	3,380	2,960	2,780	2,500	2,110	3,380	3,770	4,880	2,680
3	5,420	3,800	3,580	3,270	2,960	2,870	2,410	2,240	4,630	8,660	4,880	2,780
4	5,020	3,690	3,380	3,270	3,060	2,780	2,320	2,240	3,800	3,820	4,630	2,680
5	4,880	3,690	3,270	3,380	3,060	2,870	2,240	2,160	5,950	3,480	4,380	2,590
6	4,880	3,920	3,060	3,280	2,870	2,780	2,410	1,970	3,690	2,870	3,920	2,500
7	4,880	4,150	2,960	3,580	2,960	2,780	2,870	2,000	3,160	2,870	3,690	2,680
8	4,630	4,150	2,870	3,380	2,960	2,780	3,160	2,140	2,960	2,870	3,580	2,320
9	4,500	4,150	3,160	3,480	2,960	2,780	2,590	2,160	2,780	2,680	3,380	2,410
10	4,380	4,150	3,800	3,270	2,900	2,780	2,410	2,160	2,590	2,410	3,270	3,380
11	4,150	4,380	4,040	3,160	2,840	2,780	2,240	2,160	2,680	2,320	3,380	2,680
12	3,800	4,500	4,040	3,160	2,780	2,680	2,240	3,430	2,500	2,500	3,580	2,590
13	3,920	4,500	4,040	3,480	2,780	2,680	2,500	3,380	3,060	2,410	3,690	6,930
14	3,800	4,260	4,040	3,480	2,780	2,680	2,780	2,870	2,960	2,410	3,480	10,400
15	3,690	4,040	4,040	3,380	2,960	2,680	2,320	2,410	2,320	2,410	3,380	5,020
16	3,690	4,380	4,040	3,270	2,960	2,680	2,130	2,240	2,240	2,240	3,380	13,000
17	4,150	4,260	3,920	3,380	2,960	2,680	2,080	2,320	1,920	2,240	3,380	10,800
18	3,690	4,150	3,920	3,480	2,780	2,680	2,030	6,190	1,970	2,410	3,800	5,150
19	3,580	4,150	3,800	3,270	2,960	2,680	2,020	3,270	2,060	2,240	3,800	4,040
20	3,580	4,040	3,800	3,060	2,960	2,680	2,030	4,380	2,410	2,240	4,040	3,800
21	3,580	3,920	3,800	2,960	2,960	2,680	2,080	4,150	2,780	2,080	3,480	3,580
22	3,580	3,920	3,920	2,870	2,960	2,870	2,100	3,380	2,320	2,000	3,380	3,270
23	3,580	4,040	3,920	2,780	2,960	2,680	2,160	2,780	2,160	1,970	3,380	2,960
24	3,690	4,040	3,920	2,960	2,960	2,680	2,140	8,430	1,950	2,130	4,150	2,870
25	3,800	3,920	3,800	2,870	2,960	2,680	2,030	4,110	1,870	2,110	3,690	3,060
26	3,800	3,690	3,800	2,960	2,960	2,680	2,030	3,160	2,320	2,160	3,380	3,270
27	3,800	3,800	3,920	3,060	2,780	2,680	2,050	3,580	2,000	2,430	3,380	3,270
28	3,800	3,920	3,800	2,960	2,780	2,680	2,020	3,480	1,870	7,320	3,430	3,270
29	4,040	3,800	3,920	3,060	-------	2,590	2,240	3,690	1,970	3,580	2,960	3,160
30	3,920	4,150	4,040	2,960	-------	2,500	2,130	4,700	5,720	6,200	2,780	3,060
31	3,800	-------	3,920	2,870	-------	2,500	-------	3,270	-------	8,100	2,590	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	5,690	3,580	4,170	256,000
November	4,500	3,690	4,040	240,000
December	4,150	2,870	3,760	231,000
January	3,580	2,780	3,210	197,000
February	3,060	2,780	2,920	162,000
March	2,870	2,500	2,710	167,000
April	3,160	2,020	2,290	136,000
May	8,430	1,970	3,180	196,000
June	5,950	1,870	2,840	169,000
July	13,200	1,970	3,550	218,000
August	5,150	2,590	3,690	227,000
September	13,000	2,320	4,090	243,000
The year	13,200	1,870	3,370	2,440,000

RIO GRANDE AT ROMA, TEX.

LOCATION.—Water-stage recorder at international highway bridge between Roma, Starr County, and San Pedro, Tamaulipas, Mexico. Mar. 6 to Apr. 29, gage heights obtained from staff gage at same location. Zero of gage, 145.94 feet above mean sea level.

RECORDS AVAILABLE.—August, 1900, to March, 1914; November, 1922, to September, 1925; March to September, 1929.

EXTREMES.—Maximum discharge during period not determined; maximum gage height, 12.86 feet Aug. 26; minimum discharge, 1,730 second-feet May 10 and 11 (gage height, 2.84 feet).

A gage height of 35.0 feet was reached on June 22, 1922 (discharge, 240,000 second-feet measured by slope-area method).

REMARKS.—Records fair. Considerable water diverted above gage; amount not known. Flow partly regulated by storage at Elephant Butte Dam and at dams on tributaries.

Daily and monthly discharge, in second-feet, 1929

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	2,550	1,970	6,790	3,570	3,620	2,820
2	-------	2,550	1,920	5,590	2,550	7,210	2,580
3	-------	2,470	1,970	3,970	9,920	6,120	2,390
4	-------	2,470	1,920	3,480	8,840	4,710	2,150
5	-------	2,470	1,840	3,400	15,500	4,710	2,150
6	2,630	2,420	1,880	4,020	7,680	4,530	2,340
7	*2,740	*2,380	1,970	4,050	4,260	4,220	2,400
8	2,860	4,350	2,020	5,080	3,420	3,920	2,340
9	*2,860	8,350	1,920	3,750	3,080	3,710	2,220
10	*2,850	4,690	1,770	3,210	2,760	3,570	2,290
11	2,350	6,240	1,730	2,930	2,980	3,370	2,470
12	2,750	4,240	1,810	2,770		3,110	2,350
13	2,740	3,260	1,920	2,570		2,990	2,660
14	2,700	2,960	6,030	2,510		2,990	2,990
15	2,600	2,670	5,440	2,450	*3,460	3,110	3,510
16	2,550	2,570	3,390	2,570		3,370	20,200
17	*2,650	2,670	2,950	2,330	*2,230	3,250	19,900
18	2,750	2,780	2,530	2,390	2,230	3,050	26,600
19	2,750	2,450	2,290	2,210	2,230	3,110	14,300
20	2,910	2,170	2,250	2,050	2,130	3,180	7,360
21	2,910	2,390	4,400	1,900	2,080	3,440	5,920
22	6,040	5,730	3,250	1,900	2,130	3,570	6,540
23	7,210	3,670	3,320	1,950	2,080	3,850	4,670
24	4,180	2,550	3,650	2,310	2,130	3,510	4,390
25	3,160	2,160	22,700	2,420	1,980	3,510	4,110
26	2,960	2,110	25,100	2,150	1,980	23,100	3,810
27	2,640	2,110	27,400	2,360	3,760	6,730	3,650
28	2,690	*2,040	9,580	2,200	2,210	4,240	3,650
29	2,640	*1,960	5,340	2,880	2,010	3,310	3,890
30	2,690	1,960	5,560	4,360	4,310	2,940	3,890
31	*2,620	-------	4,340	-------	5,700	3,080	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March 6-31	7,210	2,550	3,110	161,000
April	8,350	1,960	3,110	185,000
May	27,400	1,730	5,300	326,000
June	6,790	1,900	3,100	184,000
July	15,500	1,980	3,900	240,000
August	23,100	2,940	4,490	276,000
September	26,600	2,150	5,680	338,000
The period				1,710,000

* Estimated.

RIO GRANDE AT HIDALGO, TEX.

LOCATION.—Water-stage recorder at international highway bridge between Hidalgo, Hidalgo County, and Reynosa, Tamaulipas, Mexico, 0.7 mile southwest of Hidalgo. Also water-stage recorder on each of two floodway channels at the point of crossing of the east McAllen-Hidalgo highway. Zero of gages, 80 feet above mean sea level.

RECORDS AVAILABLE.—July, 1928, to September, 1929.

EXTREMES.—Maximum and minimum discharge during year not determined.

1928–29: Maximum discharge, about 47,500 second-feet Sept. 25, 1928 (gage height, 20.20 feet); minimum not determined.

The river reached a stage of 26.6 feet June 23, 1922, discharge not determined.

REMARKS.—Records good. No flow in floodway channels during period. Considerable water diverted above gage; amount not known. Flow partly regulated by storage at Elephant Butte Dam and at dams on tributaries.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,000	4,590	4,370	3,950	2,640	2,240	2,720	1,620	4,590	4,370	4,150	3,650
2	9,000	4,820	4,370	3,950	2,720	2,240	2,480	1,590	5,660	4,590	3,950	3,560
3	8,780	4,820	4,370	3,950	2,970	2,480	2,400	1,480	5,690	3,770	4,800	3,140
4	8,580	4,590	4,480	4,050	2,970	2,400	2,320	1,440	4,590	8,980	5,560	2,640
5	8,180	4,480	4,590	4,050	2,720	2,160	2,240	1,660	3,850	12,100	4,700	2,320
6	8,180	4,370	4,820	3,850	2,640	2,080	2,160	1,590	3,480	14,000	4,050	2,000
7	7,580	4,150	4,820	3,650	2,560	2,040	2,160	1,290	3,650	6,910	4,050	1,960
8	7,080	4,150	4,700	3,400	2,480	2,080	2,160	1,320	3,950	4,160	3,950	2,240
9	6,670	4,260	4,480	3,400	2,720	2,080	3,200	1,400	4,480	3,400	3,750	2,240
10	6,410	7,140	4,260	3,310	2,970	2,320	6,710	1,320	4,370	3,060	3,480	1,960
11	6,170	13,900	4,050	3,480	3,220	2,400	4,590	1,440	3,750	2,720	3,220	2,080
12	5,930	7,070	3,750	3,650	2,640	2,320	4,940	1,400	3,220	2,640	3,060	2,160
13	5,810	5,090	3,750	3,650	2,480	2,160	4,700	1,360	2,970	3,140	2,720	4,620
14	5,810	4,700	3,850	3,560	2,400	2,160	3,650	1,700	2,720	4,480	2,560	5,820
15	5,480	5,180	4,150	3,310	2,400	2,160	3,140	3,690	2,480	4,050	2,400	4,260
16	5,300	5,560	4,480	3,140	2,320	2,240	2,970	8,310	2,480	3,750	2,480	5,380
17	5,180	5,820	4,480	3,140	2,320	2,240	2,800	5,420	2,240	3,220	2,640	17,400
18	4,940	5,690	4,370	3,310	2,320	2,240	2,640	3,850	2,400	2,800	2,880	*19,300
19	4,700	5,180	4,370	3,310	2,320	2,160	2,640	3,310	2,560	2,320	2,970	21,300
20	4,940	4,940	4,370	3,310	2,320	2,480	2,720	2,800	2,400	2,160	2,720	19,200
21	5,060	4,820	4,590	3,400	2,400	2,480	2,480	2,320	2,160	1,890	2,800	*15,000
22	4,940	4,820	4,940	3,140	2,400	2,800	2,590	2,670	1,920	1,890	3,220	*10,000
23	4,590	4,820	5,060	3,060	2,320	4,380	5,410	3,310	1,780	1,740	3,310	*8,200
24	4,370	4,820	4,700	3,060	2,480	5,960	4,420	3,140	1,780	1,620	3,400	*12,800
25	4,260	4,940	4,480	2,970	2,640	4,380	3,400	3,260	1,780	4,400	3,850	*12,500
26	4,260	4,700	4,370	2,970	2,400	3,480	2,560	*20,200	2,000	4,780	*9,070	*7,330
27	4,260	4,590	4,260	3,060	2,240	3,140	2,160	*22,400	2,000	3,310	*17,800	*5,430
28	4,480	4,590	4,260	2,800	2,240	2,970	2,160	19,600	2,000	3,220	*7,960	4,940
29	4,480	4,700	4,260	2,560	-------	2,800	2,000	*7,940	2,240	3,140	*5,300	4,700
30	4,260	4,590	4,150	2,640	-------	2,800	1,780	*4,660	2,940	2,260	*4,150	4,590
31	4,260	-------	4,050	2,560	-------	2,640	-------	4,590	-------	2,110	*3,650	-------

Month	Maximum	Minimum	Mean	Run off in acre-feet
October	9,000	4,260	5,900	363,000
November	13,900	4,150	5,260	313,000
December	5,060	3,750	4,390	270,000
January	4,050	2,560	3,340	205,000
February	3,220	2,240	2,540	141,000
March	5,960	2,040	2,660	164,000
April	6,710	1,780	3,080	183,000
May	22,400	1,290	4,580	282,000
June	5,690	1,780	3,070	183,000
July	14,000	1,620	4,100	252,000
August	17,800	2,400	4,340	267,000
September	21,300	1,960	7,090	422,000
The year	22,400	1,290	4,210	3,040,000

* Estimated.

PECOS RIVER NEAR ANGELES, TEX.

LOCATION.—Water-stage recorder in T. 26 S., R. 29 E., just below mouth of Delaware Creek, 8½ miles northwest of Angeles, Reeves County.

RECORDS AVAILABLE.—May, 1914, to September, 1929.

EXTREMES.—Maximum discharge during year, 5,610 second-feet May 17 (gage height, 4.95 feet); minimum, 46 second-feet June 28 (gage height, —0.17 foot).

1914–1929: Maximum discharge not determined (gage height, from flood-marks, 21.5 feet Aug. 8, 1916); minimum, 45 second-feet July 4 and 5, 1925.

REMARKS.—Records fair. Large part of natural flow above Carlsbad, N. Mex., diverted for irrigation; considerable water is returned by seepage. Flow is regulated to large extent by storage in reservoirs of the Carlsbad project. Discharge estimated Oct. 1–13 and May 18 and 19.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		540	493	429	272	253	123	138	167	167	324	137
2		429	500	244	272	257	111	138	178	141	262	137
3		1,610	474	210	286	267	106	168	174	108	212	141
4		989	474	231	223	257	135	141	144	117	194	117
5		1,080	467	191	198	267	132	126	151	114	199	141
6		731	454	168	202	257	90	129	120	84	174	163
7	210	645	429	161	210	267	95	117	131	90	151	137
8		770	416	165	194	194	103	135	131	108	114	151
9		700	416	151	161	168	98	123	114	120	134	167
10		435	410	165	158	183	90	151	127	99	174	167
11		850	410	141	179	183	98	138	124	90	120	212
12		664	422	151	194	194	120	93	134	87	155	243
13	214	406	410	179	175	198	98	88	93	82	167	248
14	214	657	416	223	158	175	95	108	105	99	155	212
15	240	584	410	277	175	165	98	172	102	93	151	216
16	175	527	422	282	214	191	106	202	93	114	127	243
17	198	507	435	277	227	141	123	1,690	87	87	102	308
18	210	507	422	277	194	165	135	338	90	79	114	258
19	1,720	454	422	277	175	183	129	203	90	87	99	207
20	2,240	359	416	267	151	253	120	167	108	131	105	186
21	1,050	480	429	257	123	172	123	163	87	93	111	170
22	359	461	416	282	101	144	129	199	82	99	108	170
23	311	461	416	277	138	132	126	174	87	127	120	155
24	282	480	416	267	123	117	151	203	84	105	117	190
25	262	493	416	267	132	132	165	216	66	90	108	207
26	248	500	410	262	198	138	151	178	64	90	114	224
27	231	507	422	267	231	132	138	174	66	93	131	220
28	218	507	416	277	253	148	129	155	59	187	134	174
29	218	507	296	282	------	123	151	159	111	583	131	159
30	690	500	206	282	------	129	151	141	262	368	120	178
31	1,440	------	390	277	------	126	------	159	------	375	144	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,240	----------	421	25,900
November	1,610	359	611	36,400
December	500	206	418	25,700
January	429	141	241	14,800
February	286	101	190	10,600
March	267	117	184	11,300
April	165	90	121	7,200
May	1,690	88	209	12,900
June	262	59	114	6,780
July	583	79	139	8,550
August	324	99	147	9,040
September	308	117	188	11,200
The year	2,240	59	249	180,000

PECOS RIVER NEAR COMSTOCK, TEX.

LOCATION.—Staff gage at bridge of Galveston, Harrisburg & San Antonio Railway 12 miles northwest of Comstock, Val Verde County, 5½ miles above confluence with Rio Grande, and below all tributaries.

RECORDS AVAILABLE.—May, 1900, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,970 second-feet June 30 (gage height, 4.88 feet); minimum, 131 second-feet July 24.

1900–1929: Maximum discharge not determined (gage height 35.75 feet Apr. 6, 1900); minimum, 106 second-feet July 29 to Aug. 1, 1918.

REMARKS.—Records good. Considerable water diverted and stored above station for irrigation. In lower part of basin return waters tend to equalize effects of diversions. Flow at station partly controlled by storage and diversions upstream.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	399	421	625	518	298	255	280	199	182	212	182	144
2	377	468	625	518	317	255	280	182	170	187	179	144
3	377	421	625	518	298	262	280	193	170	255	173	144
4	377	399	652	518	298	280	280	190	196	317	173	141
5	356	377	680	518	298	262	280	187	196	218	167	139
6	356	468	680	493	298	280	280	187	187	187	170	157
7	356	705	680	468	280	280	262	187	182	176	164	170
8	356	570	652	468	280	262	262	179	176	167	157	506
9	356	518	652	493	280	259	317	176	170	167	154	317
10	336	806	652	444	280	242	298	182	157	164	149	298
11	336	800	625	444	280	245	262	182	157	159	144	212
12	336	832	652	421	280	245	242	215	157	154	141	190
13	336	740	652	421	262	242	242	358	149	151	141	176
14	336	740	652	377	259	238	242	252	144	151	139	179
15	317	740	652	356	262	248	235	259	144	151	144	196
16	317	770	625	336	262	252	235	280	139	144	144	421
17	317	652	625	336	262	262	235	493	139	149	141	317
18	317	740	598	356	255	280	242	317	141	146	139	280
19	317	740	598	336	259	317	228	262	139	144	139	238
20	317	740	598	336	255	317	228	252	144	144	146	235
21	317	625	598	336	248	317	231	228	144	144	146	215
22	317	680	598	317	259	317	222	228	144	141	149	193
23	317	710	544	317	252	444	218	212	144	139	151	182
24	317	652	518	298	248	336	206	212	139	134	144	179
25	317	652	518	298	255	317	202	255	141	139	157	173
26	317	652	518	280	252	317	199	298	141	380	157	170
27	727	652	518	280	262	336	202	252	139	423	154	173
28	680	598	493	280	262	317	215	248	134	202	149	167
29	518	652	493	298	------	317	212	245	672	218	144	164
30	493	652	493	298	------	317	199	206	1,690	199	154	167
31	444	------	518	298	------	298	------	196	------	187	157	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	727	317	376	23,100
November	832	377	639	38,000
December	680	493	600	36,900
January	518	280	386	23,700
February	317	248	271	15,100
March	444	238	288	17,700
April	317	199	244	14,500
May	493	176	236	14,500
June	1,690	134	224	13,300
July	423	134	189	11,600
August	182	139	153	9,410
September	506	139	213	12,700
The year	1,690	134	319	231,000

LIMPIA CREEK NEAR FORT DAVIS, TEX.

LOCATION.—Water-stage recorder on State highway No. 3, 13½ miles northeast of Fort Davis, Jeff Davis County, and 16 miles southwest of Balmorhea.
DRAINAGE AREA.—272 square miles.
RECORDS AVAILABLE.—February, 1925, to September, 1929.
EXTREMES.—Maximum discharge during year, 858 second-feet July 28 (gage height, 3.97 feet); no flow during several periods.
1925–1929: Maximum discharge, about 3,420 second-feet Aug. 26, 1928 (gage height, 7.00 feet); no flow during several periods.
REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	1.0	0.6	0.3	0		0.2	0.2	0	0.2	0.1
2	4.4	1.0	.4	.2	0		.2	.2	0	.2	0
3	3.3	1.1	.4	.1	0		.2	.2	0	.2	0
4	2.1	1.1	.4	0	0		.1	.2	0	.2	0
5	1.7	1.0	.4	0			.1	.2	0	.2	0
6	1.1	.8	.4	0			.1	.2	0	.2	0
7	1.0	.7	.4	0			.1	.2	0	.2	0
8	.8	.6	.4	0			0	.2	0	2.7	0
9	.8	.5	.4	0			0	.2	0	19	1.5
10	.7	.4	.4	0	*0		0	.1	0	14	.2
11	.6	.3	.5	.1			0	.1	0	.4	*.2
12	.6	.2	.5	.1			0	.1	0	.2	
13	.6	.2	.5	.1			0	.1	0	.2	
14	.6	.2	.6	.2			0	.1	0	.2	
15	.6	.3	.6	.2		*0.5	0	.1	0	.2	
16	.6	.2	.6	.2			.1	0	0	.2	
17	.6	.4	.6	.2			.1	0	0	.2	
18	.6	.4	.6	.2			0	0	0	.2	
19	.6	.4	.6	.2			0	0	0	.2	
20	*.6	.5	.6	.2			.1	0	0	.2	
21	*.6	.6	.6	.2			.1	0	0	.2	*.1
22	*.6	.7	.6	.2			.1	0	0	.2	
23	.6	.7		.2	*6.0		5.6	.1	0	.2	
24	.6	.8		.2			105	0	0	.2	
25	.6	.8		.2			.4	0	0	.2	
26	.6	.8	*.4	.2			.2	0	1.1	.2	
27	.7	.8		.2			.2	12	9.4	.2	
28	.7	.8		.1			.2	.2	40	.2	
29	.7	.7		.1			.2	.1	16	.2	
30	.8	.7		0		*.2	.1	0	.7	.1	
31	1.0			0			.1		.2	.1	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	5.0	0.6	1.11	68
November	1.1	.2	.62	37
December			.47	29
January	.3	0	.13	8.0
March		0	3.10	191
April			.49	29
May	105	0	3.66	225
June	12	0	.49	29
July	40	0	2.17	133
August	19	.1	1.33	82
September		0	.13	7.7
The year	105	0	1.16	839

* Estimated.

NOTE.—No flow during February.

GOODENOUGH SPRINGS NEAR COMSTOCK, TEX.

LOCATION.—Water-stage recorder half a mile above mouth of Arroyo which drains into the Rio Grande, 11.75 miles southwest of Comstock, Val Verde County.
DRAINAGE AREA.—Indeterminate.
RECORDS AVAILABLE.—February to September, 1929.
EXTREMES.—Maximum discharge for period not determined; minimum, 124 second-feet during several periods.
REMARKS.—Records fair. No diversions.

Daily and monthly discharge, in second-feet, 1929

Day	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		139	132	124	132	139	135	139
2		139	128	124	132	139	135	139
3		139	128	128	132	143	135	139
4		143	128	128	139	143	135	139
5		139	128	128	151	143	135	139
6		143	128	128	147	143	135	139
7		143	128	128	143	143	135	139
8		143	128	128	143	143	135	135
9		143	132	128	139	143	135	135
10		143	132	128	139	143	135	135
11		143	128	130	139	139	135	140
12		143	128	124	135	139	135	135
13		139	128	124	135	139	139	135
14		139	128	124	135	139	139	135
15		139	128	124	135	139	139	135
16		135	128	124	132	139	139	135
17		135	128	130	132	139	139	135
18		135	128	124	132	139	139	135
19		135	128	124	132	135	139	135
20		132	128	124	132	135	139	135
21		139	128	124	132	135	139	135
22		139	124	124	128	135	139	135
23	139	143	124	124	128	135	139	135
24	143	147	128	124	128	135	139	135
25	143	143	124	128	128	132	139	135
26	143	143	124	128	128	132	139	135
27	143	143	124	128	128	132	139	135
28	139	135	124	128	124	132	139	135
29		135	124	132	135	132	139	135
30		132	124	132	144	132	139	139
31		132		132		132	139	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
February 23–28	143	139	142	1,690
March	147	132	139	8,550
April	132	124	127	7,560
May	132	124	127	7,810
June	151	124	135	8,030
July	143	132	138	8,480
August	139	135	137	8,420
September	140	135	136	8,090
The period				58,600

DEVILS RIVER NEAR JUNO, TEX.

LOCATION.—Water-stage recorder 500 feet below Walter Baker ranch house, 2 miles above mouth of Phillips Creek, and 13½ miles southwest of Juno, Val Verde County.

DRAINAGE AREA.—2,730 square miles.

RECORDS AVAILABLE.—May, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, about 16,000 second-feet July 26 (gage height, 11.12 feet); minimum, 68 second-feet several periods in June (gage height, 2.18 feet).

1925–1929: Maximum discharge by slope-area method, 43,700 second-feet May 29, 1925 (gage height, 15.8 feet); minimum, 64 second-feet Aug. 9–11, 1927 (gage height, 2.02 feet).

One of the highest known floods, 22.1 feet (on present gage), occurred about Sept. 1, 1916; data furnished by Walter Baker.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	101	93	97	89	82	87	74	72	186	145	89
2	107	101	92	97	87	82	89	72	72	129	135	89
3	107	101	91	97	87	82	89	72	72	140	129	87
4	107	101	91	97	87	84	87	72	72	121	125	87
5	107	101	91	97	87	84	89	70	72	113	121	87
6	107	99	91	97	87	84	89	70	70	107	117	93
7	107	99	91	95	87	84	89	72	72	103	115	87
8	109	101	91	97	87	84	87	74	72	99	113	87
9	109	101	93	97	87	84	87	72	70	93	111	86
10	109	101	93	97	87	84	84	72	70	91	107	86
11	109	99	93	97	87	84	84	72	69	89	107	86
12	107	99	93	97	87	84	82	76	70	89	105	86
13	107	99	93	97	87	84	84	74	70	89	103	84
14	107	99	93	97	86	84	82	74	70	87	105	84
15	105	99	93	95	86	86	81	74	70	87	101	84
16	107	97	93	93	86	84	82	74	70	87	101	84
17	101	95	95	93	86	91	81	81	70	86	99	84
18	101	95	97	93	86	87	82	78	70	86	99	82
19	101	95	97	91	86	87	82	75	70	84	97	82
20	101	95	97	91	86	87	81	75	70	84	97	82
21	101	93	97	93	86	87	80	75	70	82	95	80
22	99	93	97	93	84	86	78	75	70	82	95	80
23	99	93	97	93	84	86	80	75	70	82	95	80
24	101	93	97	93	86	86	78	76	70	82	93	80
25	99	93	99	91	84	86	76	74	70	82	93	80
26	99	95	97	91	84	87	76	74	72	6,430	93	78
27	97	93	97	91	86	95	78	74	70	1,910	93	78
28	97	93	97	91	86	93	76	74	70	341	93	78
29	97	91	97	91	------	89	74	76	205	192	89	76
30	101	91	95	91	------	89	75	74	1,810	165	89	76
31	103	------	95	91	------	87	------	74	------	152	89	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	109	97	104	6,400
November	101	91	96.9	5,770
December	99	91	94.4	5,800
January	97	91	94.2	5,790
February	89	84	86.2	4,790
March	95	82	85.9	5,280
April	89	74	82.3	4,900
May	81	70	74.0	4,550
June	1,810	69	133	7,910
July	6,430	82	376	23,100
August	145	89	105	6,460
September	93	76	83.4	4,960
The year	6,430	69	118	85,700

DEVILS RIVER NEAR DEL RIO, TEX.

LOCATION.—Water-stage recorder 2,200 feet above Southern Pacific Railroad bridge and Sells Creek and 12 miles northwest of Del Rio, Val Verde County.

DRAINAGE AREA.—4,000 square miles.

RECORDS AVAILABLE.—December, 1923, to September, 1929. May, 1900, to March, 1914, records were obtained 1 mile downstream at station known as Devils River at Devils River.

EXTREMES.—Maximum discharge during year, about 26,500 second-feet June 30 (gage height, 10.12 feet); minimum not determined.

1900–1914, 1924–1929: Maximum discharge not determined (gage height, 24.96 feet May 29, 1925); minimum not determined.

On Apr. 6, 1900, a stage of 25.4 feet was reached on gage 1 mile downstream. A stage of 30.15 feet, present gage datum, was reached in October, 1914, by level to floodmarks.

REMARKS.—Records below 3,000 second-feet good and above poor. No diversions above station. Flow partly regulated by dams above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	e 533	451	402	68	313	310	337	396	538	2,050	541	247
2	e 533	429	182	56	323	304	350	369	443	795	588	242
3	e 533	423	159	57	321	307	350	356	389	808	451	220
4	e 526	423	226	58	361	292	143	104	363	604	409	205
5	e 503	423	137	109	330	310	343	59	356	565	402	210
6	e 480	423	73	380	330	307	244	259	324	518	380	226
7	e 480	423	62	324	343	289	154	343	376	533	343	220
8	e 473	416	62	282	362	350	226	389	317	510	293	210
9	e 473	416	439	92	335	337	416	396	305	350	293	220
10	e 480	416	606	e 63	320	282	133	331	409	343	331	226
11	194	416	541	e 56	280	318	58	274	363	526	409	226
12	409	416	480	492	331	363	56	572	289	396	365	240
13	429	267	429	488	277	318	55	580	276	503	445	299
14	389	109	382	495	330	318		343	268	526	480	318
15	347	356	376	558	395	318		318	214	382	288	247
16	e 696	389	279	495	361	305	e 53	331	99	423	232	332
17	565	396	350	526	180	288		916	244	518	318	369
18	416	396	382	318	375	350		654	416	458	356	288
19	458	396	382	120	334	363		451	376	503	344	356
20	458	396	382	70	332	343		311	376	276	343	357
21	436	396	382	58	341	402	e 225	311	356	242	389	337
22	458	389	382	86	324	293	282	301	443	264	318	288
23	488	409	382	126	303	337	288	276	321	451	324	261
24	503	282	363	157	223	337	270	621	298	473	337	264
25	495	68	369	303	404	331	259	423	348	382	288	299
26	488	229	369	345	350	363	115	318	352	369	305	264
27	466	343	271	244	358	305	190	277	328	6,330	318	270
28	436	396	336	349	273	293	363	308	282	1,670	247	253
29	429	409	541	326	-------	293	149	1,590	384	859	242	270
30	429	402	435	309	-------	343	221	644	9,120	645	231	258
31	451	-------	247	310	-------	337	-------	629	-------	549	231	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	696	194	466	28,700
November	451	68	370	22,000
December	696	62	339	20,800
January	526	56	246	15,100
February	404	180	322	17,900
March	402	282	323	19,900
April	416	----------	186	11,100
May	1,590	59	434	26,700
June	9,120	99	632	37,600
July	6,330	242	768	47,200
August	588	231	350	21,500
September	369	205	267	15,900
The year	9,120	----------	393	284,000

e Estimated

DEVILS RIVER SEEPAGE INVESTIGATIONS

Temporary gages were installed at five sites described below, each gage being a staff gage from 0 to 3.3 feet. From two to seven measurements were made at each station. On several occasions the stage rose above the gages. At those times daily discharge was not determined (see footnote to table of daily discharge). Records good for stations at Smith ranch and highway bridge; fair for the others.

At Gobbles ranch.—On right bank just below ranch house of M. H. Gobbles, 2½ miles below mouth of Dry Devils River, 25 miles northwest of Del Rio, Val Verde County, and 30 miles above mouth. Period of record: Mar. 22, 1928, to Apr. 27, 1929.

At Carruthers ranch.—On left bank near ranch house of J. W. Carruthers, 22 miles northwest of Del Rio, Val Verde County, and 27 miles above mouth. Period of record: Mar. 5, 1928, to Apr. 30, 1929.

At Smith ranch.—In front of Sam Smith ranch house, on left bank at Slaughter Bend crossing, 18 miles north of Del Rio, Val Verde County, and 18 miles above mouth. Period of record: Mar. 5, 1928, to Apr. 30, 1929.

At country club.—On right bank 500 feet above Devils River Country Club house, 6 miles above mouth, and 10 miles northwest of Del Rio, Val Verde County. Period of record: Mar. 12 to Sept. 21, 1928.

At highway bridge.—On right bank 800 feet above Comstock-Del Rio highway bridge, 5 miles above mouth, and 9 miles northwest of Del Rio, Val Verde County. Period of record: Jan. 1 to Sept. 21, 1928.

Daily discharge, in second-feet, of Devils River, 1928–29

Day	Highway bridge		Day	Highway bridge		Day	Highway bridge	
	January	February		January	February		January	February
1	341	341	11	341	324	21	377	308
2	359	324	12	341	341	22	359	324
3	359	324	13	341	324	23	359	316
4	359	341	14	341	324	24	341	316
5	359		15	341	324	25	341	308
6	359		16	359	324	26	341	308
7	359	324	17	359	316	27	341	308
8	359		18	359	316	28	341	308
9	359		19	341	308	29	341	301
10	359		20	359	308	30	341	-------
						31	341	-------

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	March					April				
	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge
1928										
1					301	174	171	204	261	280
2					301	174	181	204	261	273
3					301	174	181	204	261	273
4					301	174	171	204	261	273
5		181	222		301	172	171	197	261	266
6		187	222		301	170	181	191	261	266
7		181	222		308	170	171	191	275	266
8		181	222		308	174	171	191	275	266
9		181	222		308	174	171	191	275	280
10		171	222		301	177	171	191	261	273
11		171	222		301	174	171	191	261	273
12		181	222	290	294	174	171	191	261	266
13		181	222	290	294	174	171	191	261	266
14		171	222	290	294	174	171	191	261	266
15		181	212	290	294	174	171	191	261	260
16		171	212	290	294	174	171	191	261	260
17		171	212	290	294	172	171	191	261	260
18		181	212	290	294	170	171	191	261	260
19		181	212	290	287	172	171	191	261	260
20		181	212	290	287	172	171	191	261	260
21		181	212	290	287	170	171	191	261	260
22	179	181	212	290	287	170	171	191	247	260
23	179	181	212	290	287	170	171	191	247	260
24	179	181	212	290	287	170	171	191	247	254
25	177	181	212	275	287	170	171	191	247	248
26	177	181	204	261	287	170	171	191	247	248
27	177	171	204	261	287	167	171	180	247	248
28	174	171	204	261	280	165	171	180	235	242
29	174	171	204	261	280	165	171	180	235	242
30	174	171	204	261	280	165	171	180	235	242
31	174	171	204	261	280					

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	May					June				
	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge
1928										
1	165	171	180	235	242	194	193	204	290	308
2	165	171	180	235	237	189	221	365	(a)	(a)
3	165	181	261	(a)	545	189	207	274	408	457
4	165	181	404	(a)	(a)	189	193	248	372	359
5	165	181	204	(a)	590	189	181	248	356	341
6	165	181	204	306	359	189	181	222	338	332
7	165	181	204	275	280	189	181	222	322	316
8	165	171	191	261	266	184	181	204	306	316
9	165	171	185	261	254	184	181	204	306	308
10	165	171	180	247	254	184	181	(a)	306	308
11	165	171	185	247	254	182	181	313	306	308
12	165	171	180	247	266	189	181	300	306	308
13	230	181	(a)	(a)	(a)	242	171	274	290	308
14	(a)	(a)	(a)	(a)	(a)	(a)	(a)	248	(a)	(a)
15	(a)	(a)	(a)	(a)	(a)	(a)	(a)	248	(a)	(a)
16	(a)	(a)	(a)	(a)	590	(a)	(a)	248	(a)	(a)
17	230	252	404	(a)	479	(a)	221	222	(a)	(a)
18	219	252	326	408	457	236	207	212	408	457
19	214	252	300	372	457	225	207	204	372	416
20	214	252	274	372	377	225	207	204	372	377
21	214	252	274	372	377	214	207	(a)	356	359
22	214	252	248	356	359	214	207	(a)	356	341
23	214	207	248	338	350	203	207	(a)	338	324
24	203	207	248	338	350	203	207	235	322	324
25	203	207	222	338	341	203	207	235	322	316
26	203	207	222	322	341	208	207	235	322	316
27	198	207	222	322	341	208	207	235	322	308
28	198	193	222	306	324	208	193	222	322	308
29	198	193	222	306	324	203	193	222	306	308
30	194	193	222	306	324	198	193	204	306	308
31	194	193	204	306	308					

[a] Stage was above rating curve.

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	July					August				
	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge
1928										
1	198	193	204	306	308	214	221	248	356	359
2	198	193	204	306	308	208	207	235	338	359
3	198	193	204	306	308	208	207	248	338	341
4	194	193	204	306	308	214	207	248	338	341
5	194	193	212	306	308	214	181	235	322	341
6	194	193	212	306	308	203	207	204	306	341
7	194	193	212	290	308	203	193	222	306	341
8	194	181	212	290	308	208	193	248	390	545
9	194	181	212	290	301	208	207	248	356	501
10	194	181	212	290	301	208	207	235	338	396
11	194	181	204	290	301	208	193	248	322	377
12	194	181	204	290	301	208	236	248	338	359
13	194	181	204	290	301	208	193	248	322	416
14	194	181	204	290	301	203	193	235	322	377
15	194	181	204	290	301	201	193	235	322	359
16	194	181	204	290	301	201	193	222	322	359
17	189	181	204	290	301	201	193	222	306	359
18	189	181	204	290	301	201	193	274	306	359
19	189	181	204	290	301	201	193	212	306	359
20	189	181	204	290	301	198	207	212	306	341
21	189	181	204	290	294	198	207	212	306	324
22	189	181	204	290	294	198	207	212	306	324
23	194	181	222	275	294	198	193	204	306	324
24	194	181	212	290	294	198	193	204	306	324
25	194	181	204	290	294	198	193	204	306	316
26	194	181	204	322	294	198	193	204	290	308
27	208	207	248	444	377	198	193	204	290	308
28	(a)	(a)	(a)	372	359	198	193	204	290	308
29	(a)	(a)	(a)	(a)	(a)	198	193	204	290	523
30	236	236	313	426	479	198	193	191	290	501
31	219	221	274	372	377	194	193	(a)	290	501

[a] Stage was above rating curve.

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	September					October		
	Gobbles ranch	Carruthers ranch	Smith ranch	Country club	Highway bridge	Gobbles ranch	Carruthers ranch	Smith ranch
1928								
1	208	193	300	408	(a)	(a)	(a)	404
2	203	207	248	338	377	(a)	(a)	391
3	203	207	222	322	341	(a)	(a)	378
4	203	207	222	306	341	(a)	(a)	378
5	198	207	222	306	324	242	(a)	365
6	198	207	222	306	324	242	(a)	352
7	194	193	214	306	324	242	252	352
8	198	193	222	306	316	242	252	326
9	198	193	222	372	316	236	252	326
10	(a)	(a)	(a)	(a)	(a)	236	252	326
11	214	(a)	(a)	(a)	(a)	236	236	326
12	214	252	300	(a)	479	230	236	326
13	214	236	274	408	416	230	236	326
14	214	207	274	381	396	230	236	326
15	214	207	261	372	386	230	236	326
16	214	207	248	356	386	242	252	352
17	214	207	248	372	386	230	236	326
18	208	207	248	356	386	225	221	326
19	208	207	248	338	377	225	221	326
20	208	207	248	338	368	225	221	326
21	208	221	274	338	436	225	221	326
22	(a)	(a)	(a)	(a)	(a)	219	221	313
23	(a)	(a)	(a)	(a)	(a)	219	221	313
24	(a)	(a)	(a)	(a)	(a)	219	221	313
25	(a)	(a)	(a)	(a)	(a)	219	221	300
26	(a)	(a)	(a)	(a)	(a)	219	221	300
27	(a)	(a)	(a)	(a)	(a)	219	221	300
28	(a)	(a)	(a)	(a)	(a)	219	221	300
29	(a)	(a)	(a)	(a)	(a)	219	221	300
30	(a)	(a)	(a)	(a)	(a)	219	228	326
31						219	236	326

(a) Stage was above rating curve.

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	November			December			January		
	Gobbles ranch	Carruthers ranch	Smith ranch	Gobbles ranch	Carruthers ranch	Smith ranch	Gobbles ranch	Carruthers ranch	Smith ranch
1928–29									
1	219	236	300	214	221	300	208	207	261
2	219	221	300	214	221	274	208	207	261
3	219	221	300	214	221	274	208	207	261
4	219	236	300	214	221	274	208	207	261
5	219	236	300	214	221	274	208	207	261
6	219	236	300	214	221	274	208	207	261
7	219	236	300	214	221	300	208	207	261
8	219	236	300	214	221	300	208	207	261
9	219	236	300	214	221	274	208	207	274
10	219	236	300	214	221	274	208	207	261
11	219	236	300	214	221	274	208	207	261
12	219	236	300	214	221	274	208	207	248
13	219	236	300	214	221	274	208	207	248
14	219	221	300	214	221	274	203	207	248
15	219	221	300	214	221	274	203	207	248
16	219	221	300	214	221	274	203	207	248
17	219	221	287	214	221	274	203	207	248
18	216	221	287	211	221	274	203	207	248
19	216	221	274	211	221	274	203	207	248
20	216	221	274	211	221	261	203	207	248
21	216	221	274	208	221	274	203	207	248
22	216	221	274	208	221	274	203	207	248
23	214	221	274	208	221	274	203	207	248
24	214	221	274	208	221	261	201	207	248
25	214	221	274	208	221	261	201	207	248
26	214	221	274	208	221	261	201	207	235
27	214	221	274	208	221	261	201	207	235
28	214	221	274	208	221	261	201	207	235
29	214	221	274	208	221	261	201	207	235
30	214	221	300	208	207	261	201	207	235
31				208	207	261	201	207	235

Daily discharge, in second-feet, of Devils River, 1928–29—Continued

Day	February			March			April		
	Gobbles ranch	Carruthers ranch	Smith ranch	Gobbles ranch	Carruthers ranch	Smith ranch	Gobbles ranch	Carruthers ranch	Smith ranch
1929									
1	201	207	235	196	193	222	194	181	204
2	201	207	235	196	193	222	194	181	204
3	201	207	248	194	193	222	194	181	204
4	201	207	248	194	193	222	194	181	204
5	201	207	248	194	193	222	194	181	204
6	201	207	248	194	181	222	194	181	197
7	201	207	248	194	181	212	189	181	197
8	201	207	261	194	181	212	189	181	204
9	201	207	248	194	181	212	189	181	204
10	201	207	248	194	181	212	189	181	204
11	201	207	248	194	181	222	184	181	197
12	201	207	235	194	181	222	184	181	197
13	201	207	235	194	181	222	184	181	197
14	201	207	235	191	181	204	179	181	191
15	201	207	235	189	181	204	179	181	191
16	201	207	235	189	181	204	179	181	191
17	198	207	222	194	181	212	179	181	191
18	198	207	222	198	193	222	179	181	191
19	198	207	222	198	193	222	179	181	191
20	198	193	222	198	181	222	179	181	191
21	198	193	222	208	181	248	179	181	191
22	198	193	222	194	181	235	179	181	191
23	198	193	222	194	181	222	179	181	191
24	196	193	222	194	181	222	179	181	191
25	196	193	222	194	181	222	179	181	191
26	196	193	222	194	181	204	179	181	185
27	196	193	222	194	181	204	179	181	185
28	196	193	222	194	181	222	--------	181	191
29	--------	--------	--------	194	181	222	--------	181	191
30	--------	--------	--------	194	181	204	--------	181	191
31	--------	--------	--------	194	181	204	--------	--------	--------

PINTO CREEK NEAR DEL RIO, TEX.

LOCATION.—Water-stage recorder 500 feet above Del Rio-Eagle Pass highway crossing, 4.5 miles above confluence with Rio Grande, and 16 miles southeast of Del Rio, Val Verde County.
DRAINAGE AREA.—242 square miles.
RECORDS AVAILABLE.—November, 1928, to September, 1929.
EXTREMES.—Maximum discharge during period not determined; maximum stage, 9.77 feet July 3; no flow during several periods.
REMARKS.—Records poor. Small diversions above station for irrigation. Amount not known.

Daily and monthly discharge, in second-feet, 1928–29

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	1.5	1.6	1.4	0.9	0.7	0	1.9	0	1.8	0
2	------	1.6	1.6	1.3	.9	.7	0	1.8	33	1.5	0
3	------	1.6	1.6	1.3	.9	.7	0	1.7	2,010	1.3	0
4	------	1.5	1.6	1.3	.9	.7	0	1.6	90	1.0	0
5	------	1.5	1.6	1.2	9	.6	0	1.5	28	.8	0
6	------	1.5	1.6	1.2	.9	.6	0	1.4	15	.6	0
7	------	1.6	1.6	1.2	.8	.5	0	1.3	8.0	.4	0
8	------	1.6	1.6	1.2	.8	.5	0	1.2	7.0	.2	0
9	------	1.6	1.7	1.1	.8	2.1	0	1.2	5.0	.1	0
10	------	1.6	1.7	1.1	.8	2.0	0	1.1	2.5	0	0
11	------	1.6	1.6	1.1	.9	1.3	0	1.1	1.5	0	0
12	------	1.6	1.6	1.1	.9	1.2	0	1.0	1.0	0	0
13	------	1.6	1.6	1.1	.9	1.2	178	1.0	1.0	0	0
14	------	1.6	1.6	1.1	.8	1.1	62	.9	1.0	0	0
15	------	1.6	1.6	1.1	.8	1.0	9.9	.9	1.0	0	0
16	------	1.7	1.6	1.1	.8	1.0	4.9	.9	1.0	0	213
17	------	1.7	1.6	1.0	.8	.9	4.9	.8	1.0	0	13
18	------	1.6	1.6	1.0	.8	.9	62	.7	1.0	0	5.5
19	------	1.6	1.5	1.0	.8	.9	7.9	0	.9	0	2.1
20	------	1.6	1.5	1.0	.9	.8	3.1	0	.8	0	1.8
21	------	1.6	1.5	1.0	.9	.8	1.8	0	.7	0	1.5
22	0	1.6	1.5	1.0	.9	.8	1.8	0	.6	0	1.3
23	0	1.6	1.5	1.0	.8	.7	255	0	.4	0	1.1
24	0	1.6	1.5	1.0	.8	0	1,610	0	.2	0	.9
25	0	1.6	1.5	.9	.8	0	74	0	.1	0	.7
26	0	1.6	1.3	.9	.8	0	19	0	14	0	.6
27	0	1.7	1.3	.9	.8	0	6.1	0	20	0	.4
28	0	1.7	1.3	.9	.8	0	14	0	8.0	0	.3
29	.6	1.7	1.3	------	.8	0	28	0	5.5	0	.2
30	1.5	1.6	1.3	------	.8	0	2.6	0	3.0	0	.1
31	------	1.6	1.4	------	.8	------	2.0	------	2.1	0	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
Nov. 22-30	1.5	0	0.23	4.2
December	1.7	1.5	1.60	98
January	1.7	1.3	1.53	94
February	1.4	.9	1.09	61
March	.9	.8	.84	52
April	2.1	0	.72	43
May	1,610	0	75.7	4,650
June	1.9	0	.73	43
July	2,010	0	73.0	4,490
August	1.8	0	.25	15
September	213	0	8.08	481
The period				10,000

GOODWIN CANAL ABOVE PENITAS, TEX.

LOCATION.—Two Venturi meters at point of diversion, 2 miles above Penitas, Hidalgo County.

RECORDS AVAILABLE.—August, 1928, to September, 1929.

EXTREMES.—Maximum mean daily discharge during period, 42 second-feet Mar. 8; no flow during several periods.

Total capacity of pumping plant, 102 second-feet.

REMARKS.—Monthly records fair. Station is above all diversions from canal. Flow controlled by pumping plant. Canal diverts from left bank of Rio Grande for irrigation near Mission. Base data furnished by Hidalgo County Water Control and Improvement District No. 6.

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (21 days)	31	6.2	21.2	884
November (14 days)	31	4.7	20.5	569
December (6 days)	36	5.2	19.2	228
January (18 days)	40	3.4	17.3	619
February (13 days)	30	6.4	17.0	439
March (13 days)	42	2.1	20.6	532
April (16 days)	34	.7	16.5	524
May (15 days)	34	2.6	17.5	521
June (10 days)	40	3.7	20.6	408
July (22 days)	40	3.1	20.4	890
August (21 days)	34	11	21.8	908
September (13 days)	20	6.4	13.0	334
The year				6,850

EDINBURG CANAL AT PENITAS, TEX.

LOCATION.—Six Venturi meters at point of diversion in Penitas, Hidalgo County.
RECORDS AVAILABLE.—July, 1928, to September, 1929.
EXTREMES.—Maximum mean daily discharge during year, 316 second-feet Feb. 22; no flow during several periods.

1928–29: Maximum discharge, that of Feb. 22, 1929; no flow during several periods.

Total capacity of pumping plant, about 350 second-feet.
REMARKS.—Records good. Station is above all diversions from canal. Flow controlled by pumping plant. Canal diverts from left bank of Rio Grande for irrigation near Edinburg. Base data furnished by Hidalgo County Water Control and Improvement District No. 1.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	32	70	0	60	238	45	154	0	85	106	0
2	76	70	0	81	59	212	98	133	0	95	99	37
3	0	27	128	66	0	145	63	222	0	73	80	29
4	83	0	86	122	131	172	34	84	0	0	35	94
5	0	0	0	0	184	190	80	0	0	155	129	52
6	0	0	0	0	139	232	87	159	0	80	127	125
7	0	34	0	78	203	188	0	222	0	0	126	76
8	66	54	0	52	237	189	80	193	0	70	119	77
9	97	54	0	93	90	153	0	167	0	107	86	120
10	200	0	0	95	0	43	0	173	0	119	83	54
11	130	0	0	0	160	174	0	66	23	102	121	0
12	16	0	0	0	261	177	0	30	0	31	143	0
13	0	0	0	0	300	176	0	58	69	48	132	0
14	0	129	0	124	293	155	0	0	115	0	120	93
15	174	0	0	126	283	120	0	0	86	0	122	24
16	91	0	0	114	199	119	0	0	30	0	120	22
17	43	0	0	0	271	63	0	0	120	0	125	51
18	130	0	116	95	270	116	0	0	87	43	110	0
19	136	0	108	80	291	74	0	0	0	48	117	0
20	103	56	0	0	315	55	21	0	0	101	71	0
21	87	130	0	0	290	52	0	73	0	100	0	0
22	103	129	0	140	316	0	112	31	58	57	104	0
23	94	69	0	142	229	0	111	101	0	48	80	77
24	128	0	0	124	0	0	0	0	31	58	51	0
25	107	0	0	32	170	0	27	0	0	102	44	0
26	99	0	118	66	290	0	121	0	100	0	64	54
27	68	83	94	0	277	47	51	159	46	90	94	82
28	0	61	72	129	237	47	0	88	85	0	110	0
29	112	0	0	132	------	34	112	19	117	0	123	0
30	96	0	0	150	------	34	134	0	32	126	58	61
31	67	------	0	149	------	0	------	0	------	146	12	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (24 days)	200	16	101	4,800
November (13 days)	130	27	71	1,840
December (8 days)	128	70	99	1,570
January (21 days)	150	32	104	4,340
February (25 days)	316	59	222	11,000
March (25 days)	238	34	128	6,360
April (15 days)	134	21	78.4	2,330
May (18 days)	222	19	121	4,320
June (14 days)	120	23	71.4	1,980
July (22 days)	155	31	85.6	3,740
August (30 days)	143	12	97.0	5,770
September (17 days)	125	22	66.4	2,240
The year				50,300

MISSION CANAL NEAR MISSION, TEX.

LOCATION.—Water-stage recorder 1,200 feet downstream from Mission pumping plant, 3.4 miles south of Mission, Hidalgo County.

RECORDS AVAILABLE.—August, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 290 second-feet July 9 (gage height, 5.36 feet); no flow for several periods.

1928–29: Maximum discharge, that of July 9, 1929; no flow during several periods.

REMARKS.—Records good. Canal diverts water from left bank of Rio Grande 3.5 miles south of Mission for irrigation near Mission. Flow is regulated by pumps. Granjeno Canal diverts water from this canal above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	124	14	97	95	195	52	125	0	0	178	3.6
2	108	134	112	107	85	207	111	178	0	0	110	0
3	28	59	131	62	.3	184	111	158	0	0	130	0
4	98	98	104	0	.1	184	94	163	0	0	82	7.0
5	.1	133	20	0	.1	173	110	189	0	0	114	124
6	54	148	0	0	0	201	113	168	0	0	113	103
7	.2	132	0	129	0	207	114	158	0	169	117	86
8	56	88	0	139	0	227	139	168	0	259	99	58
9	17	59	42	41	0	258	1.1	201	0	266	95	147
10	.7	.1	61	35	0	258	0	204	0	229	97	116
11	0	0	13	0	36	250	0	195	0	213	135	53
12	0	0	14	0	123	264	0	191	0	227	213	139
13	0	73	5.9	11	163	264	0	136	5.7	167	213	120
14	0	75	1.0	86	163	250	0	68	0	.6	207	72
15	90	65	.1	80	189	227	0	117	0	2.2	207	112
16	99	61	0	86	184	175	0	132	130	0	189	93
17	92	4.7	93	82	173	184	0	120	146	0	189	51
18	153	69	70	84	178	184	0	40	87	0	61	22
19	153	104	42	71	163	173	14	0	57	0	48	0
20	144	77	0	.1	158	178	0	0	119	57	103	0
21	123	62	0	80	163	157	0	0	189	144	178	0
22	76	0	0	92	173	0	34	0	168	168	173	0
23	.4	0	0	130	184	0	15	0	168	168	178	1.5
24	.8	0	0	75	178	0	0	0	77	184	173	6.4
25	.3	90	0	88	184	2.2	120	0	88	153	67	0
26	0	142	143	104	189	0	131	0	78	82	82	0
27	0	112	102	.2	207	4.3	61	76	66	37	107	10
28	0	5.1	36	89	201	0	77	131	30	98	63	0
29	96	.4	.5	97	-------	1.5	99	44	96	201	23	85
30	98	0	0	105	-------	97	95	54	38	213	0	106
31	107	-------	113	117	-------	95	-------	3.9	-------	195	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (24 days)	153	0.1	68.5	3,260
November (24 days)	148	.1	79.8	3,800
December (20 days)	143	.1	55.9	2,220
January (26 days)	139	.1	80.3	4,140
February (23 days)	207	.1	139	6,330
March (26 days)	264	1.5	177	9,120
April (18 days)	139	1.1	82.8	2,960
May (23 days)	204	3.9	131	5,990
June (16 days)	189	5.7	96.4	3,080
July (21 days)	266	.6	154	6,410
August (29 days)	213	28	129	7,430
September (21 days)	147	1.5	72.2	3,010
The year				57,700

GRANJENO CANAL NEAR MISSION, TEX.

LOCATION.—Two water-stage recorders near pumping plant of United Irrigation Co., 1., 3.6 miles south of Mission, Hidalgo County.

RECORDS AVAILABLE.—August, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 108 second-feet Feb. 28; no flow during several periods.

1928–29: Maximum discharge, that of Feb. 28, 1929; no flow for several periods.

REMARKS.—Records poor. Station above all diversions from canal. Daily records not sufficiently accurate for publication. Canal diverts from Mission Canal 200 feet above station. Flow regulated at head gates. Water used for irrigation near Mission.

Monthly discharge in second-feet, 1928–29

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (15 days)	32	1.0	10.6	314
November (18 days)	23	1.3	8.06	288
December (16 days)	18	1.0	7.61	241
January (18 days)	18	1.1	6.18	221
February (20 days)	103	2.0	51.8	2,060
March (26 days)	103	1.0	45.9	2,370
April (19 days)	34	.6	9.44	356
May (19 days)	36	.6	13.3	502
June (12 days)	30	.9	14.6	347
July (22 days)	63	1.6	25.4	1,110
August (21 days)	36	7.8	19.0	798
September (18 days)	36	6.4	16.5	588
The year				9,190

McALLEN CANAL NEAR HIDALGO, TEX.

LOCATION.—Water-stage recorder 200 feet upstream from West McAllen-Hidalgo highway crossing, 1.1 miles north of Hidalgo, Hidalgo County.

RECORDS AVAILABLE.—July, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 67 second-feet Feb. 6 (gage height, 4.09 feet); no flow during several periods.

1928–29: Maximum discharge, that of Feb. 6, 1929; no flow several periods.

REMARKS.—Records fair. Discharge estimated Nov. 15 and 16. Canal diverts water from Rio Grande, 1.3 miles northwest of Hidalgo, for irrigation near McAllen. Entire flow regulated by pumps. Rio Bravo Canal diverts water from this canal above station.

Daily and monthly discharge, in second-feet, 1928–29

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	48	0	11	17	51	0.1	43	0	3.2	12	0
2	0	38	0	19	3.0	40	0	43	0	21	17	0
3	0	0	15	29	2.4	12	0	19	0	10	6.3	5.6
4	14	0	46	21	11	36	25	4.1	0	0	0	20
5	16	0	6.0	11	24	46	17	0	0	5.4	2.6	17
6	0	0	0	0	50	37	13	21	0	7.2	23	7.2
7	0	0	0	4.8	64	32	5.2	41	0	4.2	23	0
8	0	5.9	0	2.2	55	24	26	51	0	25	53	0
9	0	12	0	23	18	12	.7	48	0	34	37	0
10	8.0	0	0	44	2.4	.6	0	45	0	40	12	9.9
11	29	0	0	36	21	4.3	0	18	4.6	39	0	27
12	22	0	5.8	10	59	30	0	0	0	26	10	20
13	14	11	23	0	60	45	0	.2	0	8.6	14	27
14	0	2.0	13	0	60	40	0	0	0	0	16	0
15	0	3.2	3.6	16	57	28	0	0	0	9.7	23	0
16	11	2.1	0	29	56	20	0	0	5.0	11	16	0
17	20	0	1.7	34	44	6.7	0	0	34	25	12	7.9
18	28	0	9.7	34	46	3.4	0	0	24	18	4.5	10
19	20	9.0	15	6.8	54	1.5	0	0	19	26	18	0
20	0	23	0	0	24	18	0	0	13	19	18	0
21	0	33	17	0	40	43	0	0	5.2	3.0	14	3.0
22	0	14	5.9	4.5	56	0	0	0	0	15	18	0
23	6.9	7.8	2.9	26	54	0	0	0	0	17	19	3.9
24	26	4.4	0	48	51	0	6.1	9.0	0	33	0	3.3
25	33	0	0	43	50	.5	28	5.6	4.0	15	0	2.5
26	36	0	1.5	0	47	.6	20	0	19	10	0	5.5
27	17	0	13	0	49	.5	4.4	0	29	0	4.9	13
28	0	0	5.9	16	50	1.0	0	18	13	0	27	1.6
29	0	3.4	4.9	34	-------	.5	5.5	2.2	6.5	2.7	35	0
30	7.4	5.5	0	53	-------	.3	22	0	0	22	25	6.6
31	40	-------	0	50	-------	.2	-------	0	-------	26	4.0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October (17 days)	40	6.9	20.4	687
November (16 days)	48	----------	13.9	441
December (17 days)	46	1.5	11.2	377
January (24 days)	53	2.2	25.2	1,200
February (28 days)	64	2.4	40.2	2,230
March (28 days)	51	.2	19.1	1,060
April (13 days)	28	.1	13.3	343
May (15 days)	51	.2	24.5	730
June (12 days)	34	4.0	14.7	350
July (27 days)	40	2.7	17.6	944
August (26 days)	53	4.0	18.1	935
September (18 days)	27	1.6	10.6	378
The year	----------	----------	----------	9,680

RIO BRAVO CANAL NEAR HIDALGO, TEX.

LOCATION.—Great Western meter at the head gates of the Rio Bravo Canal, 1.3 miles northwest of Hidalgo, Hidalgo County.

RECORDS AVAILABLE.—July, 1928, to September, 1929.

REMARKS.—Records fair. Discharge measured in acre-feet by Great Western meter at head gates. Canal diverts water from left bank of McAllen Canal for irrigation near Hidalgo. Flow regulated by head gates. Table gives total flow in acre-feet for periods indicated.

Flow in acre-feet, 1928–29

Date	Acre-feet	Date	Acre-feet
Oct. 1–24	0	Mar. 29–Apr. 4	67
Oct. 25–Nov. 13	55	Apr. 5–May 10	0
Nov. 14–Dec. 13	8.2	May 11–June 27	20
Dec. 14–Jan. 3	36	June 28–July 2	14
Jan. 4–11	16	July 3–9	5.8
Jan. 12–16	0	July 10–19	0
Jan. 17–Feb. 2	71	July 20–Aug. 5	14
Feb. 3–Mar. 7	1,280	Aug. 6–12	8.4
Mar. 8–12	212	Aug. 13–Sept. 30	0
Mar. 13–14	85		
Mar. 15–20	261	Total	2,280
Mar. 21–28	130		

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements in western Gulf of Mexico basins during the year ending September 30, 1929

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
Oct. 30	Neches River	Gulf of Mexico	Former gaging station near Reese, Tex.	−24.96	[a] 24.3
Jan. 28	do	do	do	−19.72	752
Apr. 19	do	do	do	−20.18	760
June 18	do	do	do	−23.02	120
Aug. 8	do	do	do	−25.44	12.5
Oct. 29	Mud Creek	Neches River	Former gaging station near Ponta, Tex.	−24.03	11.5
Jan. 27	do	do	do	−16.74	1,020
Oct. 11	Village Creek	do	Former gaging station near Kountze, Tex.	−28.86	74.0
24	do	do	do	−28.52	97.6
Jan. 16	do	do	do	−21.92	1,290
Apr. 9	do	do	do	−25.60	456
28	do	do	do	−26.10	383
May 18	do	do	do	−10.48	14,900
19	do	do	do	−10.86	15,500
21	do	do	do	−11.95	12,900
22	do	do	do	−13.37	10,600
23	do	do	do	−15.50	6,080
24	do	do	do	−16.77	4,040
June 13	do	do	do	−22.68	1,000
July 6	do	do	do	−25.70	439
Aug. 14	do	do	do	−27.44	157
July 19	Brazos River	Gulf of Mexico	International-Great Northern Railroad bridge at Valley Junction, Tex.	8.11	1,130
May 28	Miller Creek	Pedernales River.	Highway crossing on Austin road near Johnson City, Tex.		[c] 22,900
28	Barton Creek	Colorado River	Near Riley, Tex.		[c] 39,400
28	Little Barton Creek.	Barton Creek	Near Bee Cave, Tex.		[c] 2,450
Oct. 22	Barton Springs	do	Austin, Tex.		[b] 17.1
Jan. 18	do	do	do		[b] 21.5
Mar. 22	do	do	do		[b] 21.5
Apr. 29	do	do	do		[b] 37.4
June 18	do	do	do		[b] 33.8
July 19	do	do	do		[b] 67.8
Aug. 26	do	do	do		[b] 43.3
May 28	Onion Creek	Colorado River	Near Dripping Springs, Tex.		[c] 21,900
28	do	do	One-fourth mile from Buda, Tex.		[c] 53,200
Dec. 23	Johnson Creek	Guadalupe River.	1 mile below State fish hatchery near Kerrville, Tex.		6.18
Oct. 26	Comal River	do	1,000 feet above Comal power plant at New Braunfels, Tex.		[b] 274
26	do	do	50 feet below Comal power plant intake at New Braunfels, Tex.		[c] 172
Apr. 2	do	do	Below Comal power plant at New Braunfels, Tex.		[b] 275
May 7	do	do	do		[b] 262
June 24	do	do	do		[d] 283
July 11	do	do	do		[b] 314
11	do	do	do		[b] 308
Aug. 23	do	do	do		[b] 307
Nov. 2	San Marcos River.	do	Bridge on State highway No. 2, at San Marcos, Tex.		119
Dec. 15	do	do	do		123
Jan. 28	do	do	do		118
Mar. 13	do	do	do		136
Apr. 22	do	do	do		131
June 17	do	do	do		226
28	do	do	do		241
Aug. 23	do	do	do		180

[a] Slope measurement.
[b] Total flow of springs.
[c] Total flow of springs minus flow through power plant and swimming pool.
[d] Total flow of springs minus flow through swimming pool.

Miscellaneous discharge measurements in western Gulf of Mexico basins during the year ending September 30, 1929—Continued

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
Sept. 11	San Marcos River.	Guadalupe River.	Bridge on Prairie Lea-Kingsbury highway, at Prairie Lea, Tex.		172
11	do	do	1 mile below highway bridge at Luling, Tex.		187
May 28	Blanco River	San Marcos River.	Blanco, Tex.		[a] 43,500
28	do	do	Austin road crossing, near San Marcos, Tex.		[a] 139,000
Sept. 10	Seale Creek	do	2 miles above mouth, near Luling, Tex.		5.98
10	Plum Creek	do	200 feet above Luling-Gonzales highway bridge, near Luling, Tex.		5.79
10	Clear Fork of Plum Creek.	Plum Creek	2 miles above mouth, near Luling, Tex.		.65
10	do	do	Mouth near Luling, Tex.		1.42
10	West Fork of Plum Creek.	do	One-fourth mile below San Antonio & Aransas Pass Railway bridge, near Luling, Tex.		2.01
10	do	do	do		2.03
10	do	do	Mouth, near Luling, Tex.		2.65
10	Salt Fork of Plum Creek.	do	do		.94
July 26	Pecos River	Rio Grande	One-fourth mile below Sheffield-Ozona highway bridge, near Sheffield, Tex.		47.2
25	do	do	300 feet above Independence Creek, near Sheffield, Tex.		51.1
25	do	do	Just below Richland Creek, near Sheffield, Tex.		84.7
27	do	do	Langtry-Pandale highway crossing, near Pandale, Tex.		105
Dec. 9	do	do	13½ miles above mouth, near Langtry, Tex.		642
10	do	do	do		638
Jan. 1	Limpia Creek	Paisano Creek	3 miles northeast of Fort Davis, Tex.		1.28
June 2	do	do	do		.05
Jan. 1	do	do	8.4 miles northeast of Fort Davis, Tex.		1.75
June 2	do	do	do		.16
Jan. 1	do	do	12.4 miles northeast of Fort Davis, Tex.		2.04
June 2	do	do	do		.48
Jan. 1	Musquiz Creek	do	On Fort Davis-Alpine road 10 miles from Fort Davis, Tex.		.30
June 2	do	do	On Fort Davis-Alpine road about 15 miles north of Alpine, Tex.		[e] 32
July 25	Independence Creek.	Pecos River	One-half mile above mouth, near Sheffield, Tex.		17.3
25	T-5 Spring	Independence Creek.	Hicks ranch, near Sheffield, Tex.		8.42
25	Richland Spring	Richland Creek	Just below dam, near Sheffield, Tex.		2.32
25	Wolf Spring	do	200 feet above mouth, near Sheffield, Tex.		6.15
Dec. 8	Devils River	Rio Grande	800 feet above gaging station, near Rio, Tex.	1.01	23.2
Jan. 18	San Felipe Creek.	do	Del Rio, Tex.		[b] 61.5
Mar. 14	do	do	do		[b] 47.9
Apr. 16	do	do	do		[b] 55.4
May 28	do	do	do		[b] 66.8
June 13	do	do	do		[b] 58.8
July 15	do	do	do		[b] 58.3
Aug. 28	do	do	do		[b] 46.1
Sept. 28	do	do	do		[b] 46.0
Aug. 13	Villa Nueva Canal.	Diverts from Rio Grande.	Discharge from pump No. 3 near Brownsville, Tex.		91.0
13	do	do	do		88.5
13	do	do	do		85.4

[a] Slope measurement. [b] Total flow of springs. [e] Discharge estimated.

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