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DEPARTMENT OF THE INTERIOR
Hubert Work, Secretary

U. S. GEOLOGICAL SURVEY
George Otis Smith, Director

WATER-SUPPLY PAPER 542

SURFACE WATER SUPPLY OF THE
UNITED STATES

1922

PART II. SOUTH ATLANTIC SLOPE AND EASTERN
GULF OF MEXICO BASINS

NATHAN C. GROVER, Chief Hydraulic Engineer

A. H. HORTON, W. R. KING, and WARREN E. HALL

District Engineers



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**Water Resources Branch,
Geological Survey,
Box 3106, Capitol Station
Oklahoma City, Okla.**

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SURFACE WATER SUPPLY OF SOUTH ATLANTIC SLOPE AND EASTERN GULF OF MEXICO DRAINAGE BASINS. 1922

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, 1922.

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

Provided, That this officer [the Director] shall have the direction of the Geological Survey and the classification of 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 in the arid West. Since the fiscal year ending June 30, 1895, successive sundry civil bills passed by Congress have carried the following item and appropriations:

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, 1895-1923

1895.....	\$12, 500. 00
1896.....	20, 000. 00
1897 to 1900, inclusive.....	50, 000. 00
1901 to 1902, inclusive.....	100, 000. 00
1903 to 1906, inclusive.....	200, 000. 00
1907.....	150, 000. 00
1908 to 1910, inclusive.....	100, 000. 00
1911 to 1917, inclusive.....	150, 000. 00
1918.....	175, 000. 00
1919.....	148, 244. 10
1920.....	175, 000. 00
1921 to 1923, inclusive.....	180, 000. 00

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 9.

Measurements of stream flow have been made at about 5,480 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1922, 1,540 gaging stations were being maintained by the Survey and the cooperating organizations. Many miscellaneous discharge measurements were made at other points. In connection with this work, data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

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

“Second-foot” 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 depth in inches.

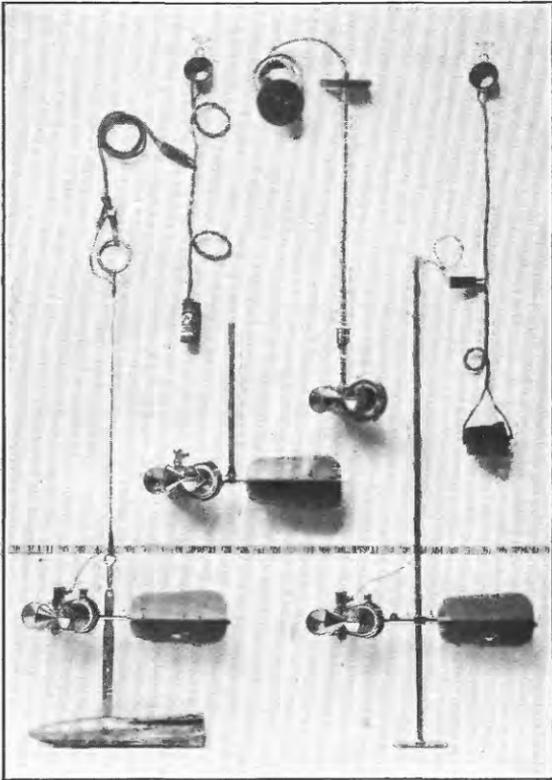
An “acre-foot,” equivalent to 43,560 cubic feet, is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

The following terms not in common use are here defined:

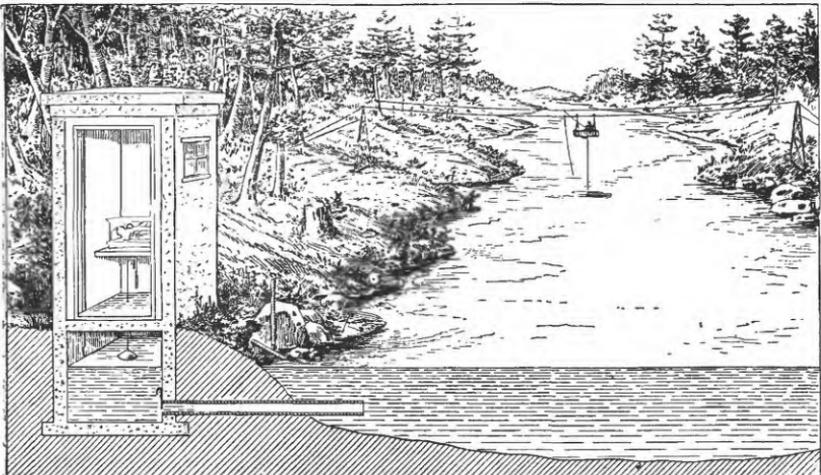
“Stage-discharge relation,” an abbreviation for the term “relation of gage height to discharge.”

“Control,” a term used to designate the section or sections of the stream channel below the gage which determine the stage-discharge relation at the gage. It should be noted that the control may not be the same section or sections at all stages.

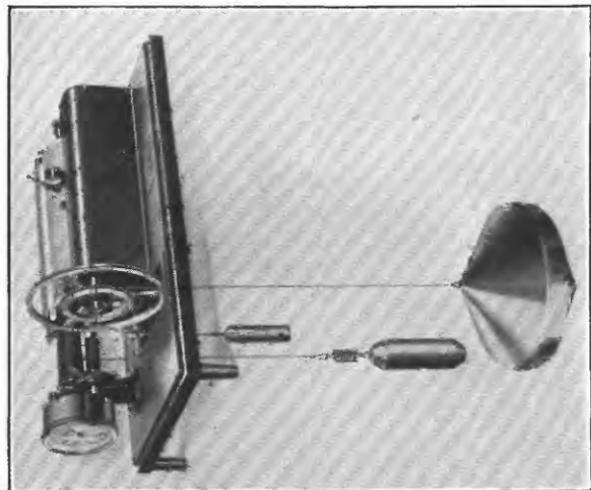
The “point of zero flow” for a gaging station is that point on the gage—the gage height—at which water ceases to flow over the control.



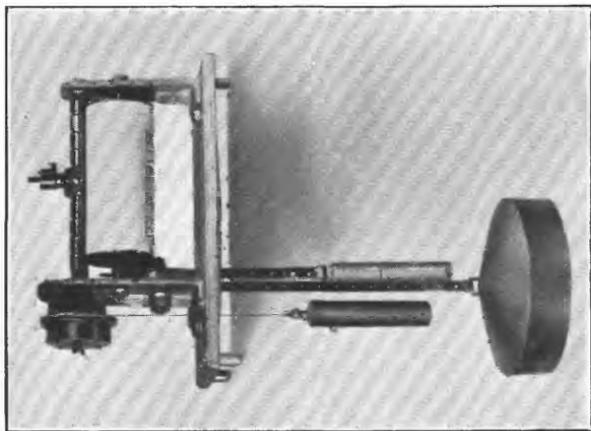
A. PRICE CURRENT METERS



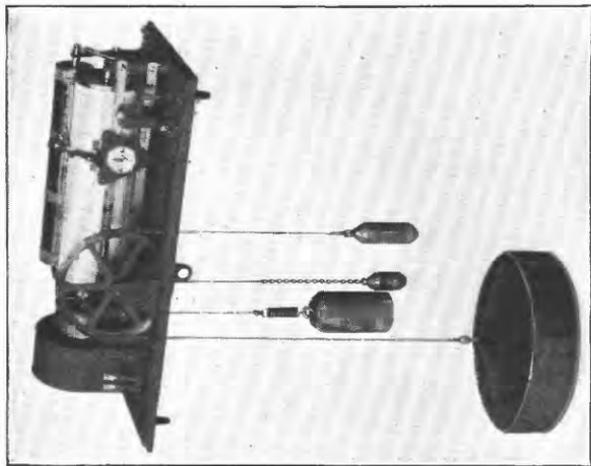
B. TYPICAL GAGING STATION



A



B



C

WATER-STAGE RECORDERS

A, Au; B, Gurley; C, Stevens

EXPLANATION OF DATA

The data presented in this report cover the year ending September 30, 1922. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored as ground water, in the form of snow or ice, or in ponds, lakes, and swamps, and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a 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. (See Pls. I, II.) The general methods are outlined in standard textbooks on the measurement of river discharge.

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

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

If the base data are insufficient to determine the daily discharge, tables giving daily gage height and records of discharge measurements are published.

The description of the station gives, in addition to statements regarding location and equipment, information in regard to any conditions that may affect the permanence of the stage-discharge relation, covering such subjects as the occurrence of ice, the use of the stream for log driving, shifting of control, and the cause and effect of backwater; it gives also 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 table of daily discharge gives, in general, the discharge in second-feet corresponding to the mean of the gage heights read each day. At stations on streams subject to sudden or rapid diurnal fluctuations 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 operating on the principle of the planimeter and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest. As the gage height is the mean for the day it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise, in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet per second during the month. On this average flow computations recorded in the remaining columns, which are defined on page 2, are based.

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.

A paragraph in the description of the station gives information regarding the (1) permanence of the stage-discharge relation, (2) precision with which the discharge rating curve is defined, (3) refinement of gage readings, (4) frequency of gage readings, and (5) methods of applying daily gage height to the rating table to obtain the daily discharge.

For the rating tables "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

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. All figures representing "second-feet per square mile" and

"run-off in inches," published in the earlier reports by the Survey should be used with caution because of possible inherent sources of error not known to the Survey.

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. To give an idea of the amount of prior appropriations, a paragraph on diversions is presented in each station description. The figures given can not be considered exact but represent the best information available.

The tables of monthly discharge give only a general idea of the flow at the station and should not be used for other than preliminary estimates; the tables of daily discharge allow 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.

PUBLICATIONS

Investigation of water resources by the United States Geological survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water powers, ground 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 monographs, bulletins, professional papers, 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.

II. South Atlantic slope and eastern Gulf of Mexico basins.

III. Ohio River basin.

IV. St. Lawrence River basin.

V. Upper Mississippi River and Hudson Bay basins.

VI. Missouri River basin.

VII. Lower Mississippi River basin.

VIII. Western Gulf of Mexico basins.

IX. Colorado River basin.

X. Great Basin.

XI. Pacific slope basins in California.

XII. North Pacific slope basins, in three parts:

A, Pacific slope basins in Washington and upper Columbia River basin.

B, Snake River basin.

C, Lower Columbia River basin and Pacific slope basins in Oregon.

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 obtained free of charge by applying to the Director of the Geological Survey, Washington, D. C. The edition printed for free distribution is, however, small and is soon exhausted.

2. 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.

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

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

Boston, Mass., 2500 Customhouse.

Albany, N. Y., 704 Journal Building.

Trenton, N. J., State House.

Asheville, N. C., 316 Jackson Building.

Chattanooga, Tenn., 37 Municipal Building.

Columbus, Ohio, Brown Hall, Ohio State University.

Madison, Wis., c/o Railroad Commission of Wisconsin.

Chicago, Ill., 950 Transportation Building.

Ames, Iowa, State Highway Commission Building.

Rolla, Mo., Rolla Building, School of Mines and Metallurgy.

Topeka, Kans., 23 Federal Building.

Austin, Tex., Capitol Building.

Helena, Mont., 45-46 Federal Building.

Denver, Colo., 403 Post Office Building.

Tucson, Ariz., 210 Agricultural Building, University of Arizona.

Salt Lake City, Utah, 313 Federal Building.

Boise, Idaho, Federal Building.

Idaho Falls, Idaho, 228 Federal Building.

Tacoma, Wash., 406 Federal Building.

Portland, Oreg., 606 Post Office Building.

San Francisco, Calif., 328 Customhouse.

Los Angeles, Calif., 600 Federal Building.

Honolulu, Hawaii, 25 Capitol 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 5,480 points in the United States, and the data obtained have been published in the reports tabulated on pages 7 and 8.

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.

The records at most of the stations discussed in these reports extend over a series of years, and miscellaneous measurements at many points other than regular gaging stations have been made each year. 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 1922. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data for Machias River at Whitneyville, Maine, 1903 to 1921, are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, 321, 351, 381, 401, 431, 451, 471, 501, and 521, which contain records for the New England streams from 1903 to 1921. Results of miscellaneous measurements are published by drainage basins.

Numbers of water-supply papers containing results of stream measurements, 1899-1922

Year	North Pacific slope basins											
	I North Atlantic slope basins (St. John River to York River)	II South Atlantic and Gulf of Mexico (James River to the Missis- sippi)	III Ohio River basin	IV St. Lawrence River and Great Lakes basins	V Hudson Bay and upper Missis- sippi River basins	VI Missouri River basin	VII Lower Missis- sippi River basin	VIII Western Gulf of Mexico basins	IX Colorado River basin	X Great Basin	XI Pacific slope basins in Cali- fornia	XII North Pacific slope basins
1899	35	35, 36	36	36	36	37	37	37	38, * 39	38, / 39	38	38
1900	47, * 48	48, * 49	48, * 49	49	49, / 50	50	50	50	51	51	51	51
1901	66, 75	65, 75	65, 75	65, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	82, 83	82	82	* 83, 84	84	84	85	85	85	85	85
1903	97	* 97, 98	98	97	* 98, 99, / 100	99	99	100	100	100	100	100
1904	* 124, * 126	128	128	129	* 128, 130	130, * 131	132	133	133, * 134	134	135	135
1905	* 165, * 166, / 167	167, 168	169	170	171	172	174	175, * 177	176, * 177	177	178	* 177, 178
1906	* 201, * 202, / 203	203, 204	205	206	207	208	* 205, 209	210	212, * 213	213	214	214
1907-S	241	242	243	244	245	246	247	248	250, * 251	251	252	252
1909	261	262	263	264	265	266	267	268	270, * 271	271	272	272
1910	281	282	283	284	285	286	287	288	290	291	292	292
1911	301	302	303	304	305	306	307	308	310	311	312	312
1912	321	322	323	324	325	326	327	328	330	331	332	332-C
1913	351	352	353	354	355	356	357	358	360	361	362-A	362-C
1914	381	382	383	384	385	386	387	388	390	391	392	392-C
1915	401	402	403	404	405	406	407	408	410	411	412	414
1916	431	432	433	434	435	436	437	438	440	441	442	444
1917	451	452	453	454	455	456	457	458	460	461	462	464
1918	471	472	473	474	475	476	477	478	480	481	482	484
1919-20	501	502	503	504	505	506	507	508	510	511	512	514
1921	521	522	523	524	525	526	527	528	530	531	532	534
1922	541	542	543	54	545	546	547	548	549	551	552	554

* Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 34. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part IV.

† James River only.

‡ Galatin River.

§ Mohave and Gunnison rivers and Grand River above junction with Gunnison.

¶ Meade River only.

‡ Kings and Kern rivers and south Pacific slope basins.

§ 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.

¶ Wissahickon and Schuylkill rivers to James River.

‡ Scioto River.

† Loup and Platte rivers near Columbus, Nebr., and all tributaries below junction with Platte.

‡ Tributaries of Mississippi from east.

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

¶ Hudson Bay only.

‡ New England rivers only.

§ Hudson River to Delaware River, inclusive.

¶ Susquehanna River to Yackin River, inclusive.

‡ Platte and Kansas rivers.

§ Great Basin in California, except Truckee and Carson river basins.

¶ Below junction with Gila.

‡ Rogue, Umpqua, and Siletz rivers only.

COOPERATION

Acknowledgments are due for financial assistance rendered by the North Carolina Geological and Economic Survey, Col. Joseph Hyde Pratt, director; Geological Survey of Georgia, Prof. S. W. McCallie, State geologist; Alabama Geological Survey, Eugene Allen Smith, State geologist; Roanoke Railway & Electric Co.; Roanoke Development Co.; Granite Falls Manufacturing Co.; Virginia Railway & Power Co.; Central Georgia Power Co.; Columbia Railway & Navigation Co.; Columbus Power Co.; Hardaway Contracting Co.; Tallasse Power Co.; the city of Dothan, Ala.; the Houston Power Co.; Tucker & Laxton; Viele, Blackwell & Buck; and Benjamin H. Hardaway.

DIVISION OF WORK

Data for stations in Virginia except for Roanoke River at Buggs Island and Dan River near Pinnacles were collected and prepared for publication under the direction of A. H. Horton, district engineer, assisted by J. J. Dirzulaitis, B. L. Bigwood, D. S. Wallace, and W. C. Wiggins.

Data for stations in North Carolina, South Carolina, and Georgia and for the two stations in Virginia mentioned above were collected and prepared for publication under the direction of Warren E. Hall, district engineer, assisted by L. J. Hall, B. M. Hall, jr., J. H. Morgan, and Mrs. E. T. Workman.

Data for all stations in Alabama and Florida were collected and prepared for publication under the direction of W. R. King, district engineer, assisted by Warren Withee, D. A. Dudley, A. E. Killbrew, and Duncan Charlton.

The manuscript was assembled and the records were reviewed by O. D. Mussey.

GAGING-STATION RECORDS**JAMES RIVER BASIN****JAMES RIVER AT BUCHANAN, VA.**

LOCATION.—At highway bridge near Chesapeake & Ohio Railway station, Buchanan, Botetourt County.

DRAINAGE AREA.—2,060 square miles.

RECORDS AVAILABLE.—August 18, 1895, to September 30, 1922.

GAGE.—Chain gage attached to highway bridge, installed November 21, 1903; read by D. D. Booze for United States Weather Bureau. A span of the bridge and the gage were destroyed by flood on the night of March 27, 1913. A temporary gage was used from April 22 to September 15, 1913, when a new gage was installed.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed under bridge is composed of rock overlain with a thick deposit of mud. Banks high; not overflowed except in extreme floods. Control of boulders and gravel several hundred feet below station.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.0 feet March 11 (discharge, 28,800 second-feet); minimum stage, 1.8 feet October 15-30 (discharge, 300 second-feet).

1895-1922: Maximum stage recorded, 31 feet during night of March 27, 1913, determined by levels from flood marks October 2, 1914 (discharge not determined); minimum stage, 1.2 feet (present gage datum) April 17 and May 2, 1896 (discharge, 260 second-feet).

ICE.—Stage-discharge relation affected by ice during severe winters.

ACCURACY.—Stage-discharge relation apparently permanent during the year except as affected by ice. Rating curve fairly well defined between 300 and 28,000 second-feet; extended beyond these limits. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. The gage heights indicate river apparently has a very steady flow at low stages, this apparently steady flow may be due to careless or inaccurate gage readings. Records fair.

COOPERATION.—Gage-height record furnished by United States Weather Bureau.

The following discharge measurement was made by Dirzulaitis and Bigwood: February 25, 1922: Gage height, 5.67 feet; discharge, 5,930 second-feet.

Daily discharge, in second-feet, of James River at Buchanan, Va., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	390	26,600	6,580	2,720	1,780	4,100	4,100	2,220	1,780	1,920	975	445
2	390	13,300	6,060	2,560	4,560	5,290	3,670	2,070	1,780	1,920	715	505
3	390	7,100	7,100	2,070	3,470	17,200	3,270	2,070	4,330	1,920	715	445
4	390	2,720	6,580	1,780	3,270	18,300	3,080	4,330	5,800	2,390	640	1,290
5	390	1,520	4,560	1,400	2,720	7,100	2,900	9,320	5,540	11,700	715	1,080
6	340	1,180	3,470	1,290	2,390	5,290	2,720	9,900	4,560	12,400	570	1,080
7	340	1,080	2,720	1,180	2,390	4,100	2,560	9,610	3,470	8,480	640	880
8	340	1,080	2,390	1,180	3,080	10,800	2,560	4,560	3,080	6,320	570	880
9	340	975	2,070	1,180	5,540	11,400	2,390	4,100	2,560	4,330	570	715
10	340	975	1,780	1,180	5,040	11,400	2,220	3,670	4,100	3,670	505	795
11	340	880	1,650	1,180	4,330	28,800	2,070	3,880	3,470	2,390	570	640
12	340	880	1,520	1,080	5,800	13,700	2,070	3,080	2,900	1,920	505	715
13	340	795	1,400	1,080	9,900	9,040	1,920	2,560	2,390	1,520	570	570
14	340	795	1,290	1,080	7,640	7,100	1,920	2,900	2,070	1,400	505	475
15	300	795	1,290	975	6,320	6,480	1,920	3,270	1,780	1,180	570	418
16	300	795	1,290	975	14,700	6,840	2,560	3,270	1,520	1,180	505	418
17	300	715	1,180	1,180	13,000	5,540	3,080	3,670	1,400	1,080	570	418
18	300	1,080	1,650	1,180	11,700	4,560	2,900	5,290	1,290	2,390	505	418
19	300	2,220	1,520	1,080	6,580	4,100	2,900	7,100	1,290	1,650	570	418
20	300	2,070	1,520	1,080	10,800	3,670	3,080	20,300	1,290	1,400	505	365
21	300	1,780	1,520	10,500	25,700	3,470	2,560	7,370	1,290	1,290	505	365
22	300	1,650	1,520	20,300	13,000	3,270	2,560	4,100	1,290	1,290	445	365
23	300	1,650	2,390	13,000	9,900	3,270	2,390	3,670	1,180	1,180	505	365
24	300	1,650	13,000	2,900	7,640	2,900	2,220	3,470	1,180	1,290	445	365
25	300	1,520	14,700	2,220	5,800	2,720	2,070	2,900	1,180	1,180	505	365
26	300	1,520	11,400	2,070	4,560	2,560	1,920	2,720	1,180	1,180	445	320
27	300	1,520	8,480		4,100	2,560	1,780	2,390	9,900	1,080	505	320
28	300	2,560	6,580		4,100	2,560	1,780	2,220	7,720	1,180	445	320
29	300	9,040	4,560	1,740		2,900	2,560	2,070	2,070	1,080	505	320
30	300	7,100	3,470			4,100	2,220	1,920	1,920	1,180	445	320
31	880		3,080			4,330		1,920		1,080	505	

NOTE.—Stage-discharge relation affected by ice Jan. 27-31; discharge estimated by study of weather records and record of flow of James River at Cartersville.

Monthly discharge of James River at Buchanan, Va., for the year ending September 30, 1922

[Drainage area, 2,060 square miles]

Month	Discharge in second-feet.				Run-off in inches
	Maximum	Minimum	Mean	Persquare mile	
October.....	880	300	345	0.167	0.19
November.....	26,600	715	3,250	1.58	1.76
December.....	14,700	1,180	4,140	2.01	2.32
January.....	20,300	975	2,810	1.36	1.57
February.....	25,700	1,780	7,140	3.47	3.61
March.....	28,800	2,560	7,140	3.47	4.00
April.....	4,100	1,780	2,530	1.23	1.37
May.....	20,300	1,920	4,580	2.22	2.56
June.....	9,900	1,180	2,680	1.30	1.45
July.....	12,400	1,080	2,720	1.32	1.52
August.....	975	445	556	.270	.31
September.....	1,290	320	546	.265	.30
The year.....	28,800	300	3,180	1.54	20.96

JAMES RIVER AT CARTERSVILLE, VA.

LOCATION.—At highway bridge between Pemberton and Cartersville, Cumberland County, 1 mile below mouth of Willis River.

DRAINAGE AREA.—6,230 square miles.

RECORDS AVAILABLE.—January 1, 1899, to September 30, 1922.

GAGE.—Chain gage on downstream side of bridge; read by B. W. Palmore. Wire gage used previous to July 24, 1903.

DISCHARGE MEASUREMENTS.—Made from bridge.

CHANNEL AND CONTROL.—Bed composed of rocks and sand; shifts somewhat during floods. Banks high; left bank is overflowed at a stage of about 20 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.46 feet at 10 a. m. March 16 (discharge, 46,600 second-feet); minimum stage, 0.33 foot at 10 a. m. October 27. As measurements at low stages have not been made for several years the discharge corresponding to the minimum stage may be considerably in error and is therefore not published.

1899-1922: Maximum stage recorded, 26.7 feet at 6 p. m. December 30, 1901 (discharge, about 106,000 second-feet); minimum stage is apparently that of October 27, 1921.

ICE.—Stage-discharge relation affected by ice during extreme winters.

ACCURACY.—Stage-discharge relation apparently permanent except as affected by ice. Rating curve fairly well defined between 1,300 and 40,000 second-feet and extended beyond these limits. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair except for low stages for which they are poor and should be used with caution.

No discharge measurements were made during the year.

Daily discharge, in second-feet, of James River at Cartersville, Va., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	704	2,470	11,400	5,020	4,810	10,800	15,500	5,920	5,460	5,020	3,020	1,790
2	834	14,300	11,700	3,790	7,360	12,500	14,600	5,690	5,460	5,460	2,830	1,710
3	1,000	19,600	6,630	3,790	26,400	24,000	12,000	6,150	6,390	4,810	2,470	1,880
4	1,000	8,390	7,610	3,790	26,100	27,500	11,400	6,630	5,920	6,150	2,300	1,880
5	1,000	4,810	8,920	3,590	20,000	35,900	10,000	7,870	5,920	8,650	2,830	1,880
6	1,000	3,020	8,390	3,020	19,300	30,000	9,190	10,300	8,650	14,000	2,650	1,790
7	1,080	2,650	6,870	3,020	17,100	27,500	8,130	13,400	12,800	15,200	2,130	2,040
8	860	2,130	5,920	3,020	14,000	24,000	7,870	18,800	12,000	10,000	2,650	2,470
9	730	2,470	5,240	3,020	11,100	20,900	8,390	12,200	8,920	8,920	3,400	2,180
10	600	2,300	4,600	2,650	9,460	24,700	8,920	9,460	9,460	5,460	2,300	1,880
11	548	2,830	4,190	5,240	8,920	40,900	6,390	8,130	9,800	4,810	2,040	1,630
12	509	2,040	3,990	11,100	9,460	87,000	6,150	7,870	9,800	4,390	2,300	1,880
13	678	1,960	3,020	6,630	10,600	28,600	5,690	7,870	9,800	4,600	3,020	2,470
14	730	1,880	3,400	5,020	11,700	23,000	5,240	7,360	9,800	5,690	4,390	2,130
15	730	1,880	3,210	4,600	13,700	29,300	5,920	6,890	9,800	4,600	2,830	2,040
16	930	1,790	3,020	3,990	20,300	45,300	6,390	6,150	4,810	3,990	2,300	1,630
17	634	1,880	3,990	4,190	16,800	40,500	7,360	7,110	4,810	3,400	2,300	1,470
18	639	1,790	3,020	3,590	13,700	30,000	7,360	9,190	4,810	2,830	2,300	1,310
19	678	1,470	3,020	3,790	11,700	25,000	7,610	21,300	4,600	3,210	2,040	1,310
20	600	1,790	2,830	4,390	15,200	17,400	8,650	26,100	4,390	4,390	2,130	1,150
21	730	2,130	9,460	5,690	20,900	15,500	7,110	23,000	3,790	3,790	2,040	1,310
22	730	2,040	8,650	11,100	32,600	14,000	6,399	17,100	2,590	3,590	1,790	1,390
23	808	2,830	7,870	20,900	34,400	11,700	6,150	13,400	3,400	3,400	1,390	1,310
24	730	3,020	6,870	17,400	23,700	10,000	5,920	10,600	8,210	3,210	1,630	1,390
25	600	2,830	7,110	12,800	20,600	9,190	5,690	9,190	3,210	4,810	2,040	1,310
26	548	2,470	7,870	8,920	19,300	8,890	5,460	7,870	3,020	6,150	2,650	1,150
27	444	2,830	15,200	6,870	17,400	7,870	5,240	6,870	4,190	7,610	4,390	1,150
28	930	2,830	11,100	4,900	11,400	7,870	5,020	6,390	5,920	6,630	3,590	1,310
29	1,000	3,210	8,920	4,900	9,460	9,460	6,390	5,920	9,190	7,610	2,830	1,310
30	930	4,390	6,870	4,900	9,460	9,460	6,390	5,690	5,920	6,630	2,860	930
31	730	-----	5,920	-----	12,800	12,800	-----	5,460	-----	3,990	2,040	-----

NOTE.—Stage-discharge relation affected by ice Jan. 28-31, discharge estimated from weather records and observer's notes. No gage readings June 9-15; discharge estimated from weather records and record of flow of James River at Buchanan. Gage heights decreased 1 foot Jan. 1 and 2 and increased 1 foot June 27, as weather records and record of flow of James River at Buchanan indicated that the readings were in error by 1 foot.

Monthly discharge of James River at Cartersville, Va., for the year ending September 30, 1922

[Drainage area, 6,230 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,080	444	763	0.122	0.14
November	19,600	1,470	3,670	.589	.66
December	15,200	2,830	6,640	1.07	1.23
January	20,900	2,650	6,150	.987	1.14
February	34,400	4,810	16,700	2.68	2.79
March	45,300	7,870	21,600	3.47	4.00
April	15,500	5,020	7,750	1.24	1.38
May	26,100	5,460	10,100	1.62	1.87
June	-----	3,020	6,670	1.07	1.19
July	15,200	2,830	5,910	.949	1.09
August	4,390	1,390	2,550	.409	.47
September	2,470	930	1,630	.262	.29
The year	45,300	444	7,470	1.20	16.25

ROANOKE RIVER BASIN

ROANOKE RIVER AT ROANOKE, VA.

LOCATION.—At Walnut Street highway bridge in Roanoke, Roanoke County.

DRAINAGE AREA.—388 square miles.

RECORDS AVAILABLE.—July 10, 1896, to July 15, 1906; May 7, 1907, to September 30, 1922.

GAGE.—Chain gage on downstream side of bridge; read by an employee of Roanoke Railway & Electric Co. Wire gage used previous to November 28, 1903.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge or by wading.

CHANNEL AND CONTROL.—Bed composed of coarse gravel and small boulders. Banks may be overflowed at extreme flood stages. Control, loose boulders.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.20 feet at noon November 1 (discharge, 15,300 second-feet); minimum stage, 0.53 foot October 21 and 22 (discharge, 48 second-feet).

1896-1922: Maximum stage recorded, 14.34 feet August 6, 1901 (discharge, 16,900 second-feet); minimum stage, zero on morning of December 23, 1909, when flow was retarded by freezing.

ICE.—Stage-discharge relation affected by ice during severe winters only.

ACCURACY.—Stage-discharge relation permanent; not affected by ice. Rating curve fairly well defined between 80 and 7,000 second-feet; extended beyond these limits. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

The following discharge measurement was made by Dirzulaitis and Bigwood: February 27, 1922: Gage height, 2.10 feet; discharge, 686 second-feet.

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	77	12,500	288		624	837	554	267	332	380	108	120
2.....	77	1,650	288		789	2,250	491	267	1,650	380	108	120
3.....	73	624	522		745	2,130	491	267	1,100	380	171	113
4.....	68	522	462	310	745	2,380	462	990	1,100	356	147	108
5.....	68	356	406		624	2,130	433	937	4,930	356	203	108
6.....	68	310	380		554	1,890	406	885	1,650	332	147	108
7.....	68	288	356		589	1,530	390	789	1,250	332	142	108
8.....	68	280	332	332	523	1,650	356	663	996	356	138	108
9.....	59	267	356	310	491	1,100	332	522	837	310	125	108
10.....	56	310	332	332	491	5,206	310	491	624	267	120	104
11.....	51	288	310	288	491	2,906	310	433	554	210	115	102
12.....	61	280	288	267	491	2,250	310	380	491	228	108	97
13.....	51	267	280	240	491	1,770	288	332	433	247	108	97
14.....	51	247	247	228	491	1,310	288	406	380	247	108	97
15.....	51	247	233	228	624	990	280	462	310	247	108	97
16.....	51	228	217	228	1,100	837	280	624	288	267	108	97
17.....	51	228	210	332	1,310	624	267	1,420	267	332	120	97
18.....	51	228	203	406	1,260	1,100	267	3,980	267	433	108	97
19.....	51	240	193	462	1,260	837	310	2,900	267	491	97	97
20.....	51	228	177	624	1,150	663	310	1,360	267	491	147	93
21.....	48	210	177	937	1,100	624	267	1,100	267	554	120	89
22.....	48	193	171	2,770	990	554	247	789	259	624	108	89
23.....	51	193	162	2,640	789	491	247	624	247	332	108	87
24.....	51	184	193	1,650	745	462	247	522	240	228	102	85
25.....	51	184	193	1,360	702	433	247	491	240	193	210	79
26.....	51	177	247	837	702	433	247	491	228	228	133	77
27.....	51	177	356	554	663	624	247	462	228	147	120	77
28.....	51	203	380	332	624	624	310	406	228	120	120	77
29.....	51	332	356	380		554	310	356	247	120	104	77
30.....	87	310	332	462		554	288	310	288	120	97	77
31.....	1,890		332	523		624		267		120	147	

NOTE.—Gage not read Jan. 1-7; discharge estimated.

Monthly discharge of Roanoke River at Roanoke, Va., for the year ending September 30, 1922

[Drainage area, 388 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	1,890	48	117	0.302	0.35
November.....	12,500	177	725	1.87	2.09
December.....	522	162	290	.747	.86
January.....	2,770	228	609	1.57	1.81
February.....	1,310	491	755	1.95	2.03
March.....	5,200	433	1,300	3.35	3.86
April.....	554	247	326	.840	.94
May.....	3,980	267	780	2.01	2.32
June.....	4,930	228	682	1.76	1.96
July.....	624	120	304	.784	.90
August.....	210	97	126	.325	.37
September.....	120	77	96.3	.248	.28
The year.....	12,500	48	508	1.31	17.77

ROANOKE RIVER AT BUGGS ISLAND, VA.

LOCATION.—At proposed dam site, 600 feet upstream from upper end of Buggs Island, Mecklenburg County, 1½ miles below mouth of Teets Creek, and 35 miles upstream from gaging station at Old Gaston, N. C.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—November 6, 1921, to September 30, 1922.

GAGE.—A Friez seven-day graph water-stage recorder in wooden stilling well on right bank.

EXTREMES OF STAGE.—Maximum stage during year, 13.0 feet at 7 p. m. March 4, 1922; minimum stage, 1.4 feet from midnight to 4 a. m. September 27, 1922.

ICE.—Ice forms to considerable thickness during severe winters, probably affecting stage-discharge relation.

REGULATION.—During low water there are variations of flow probably due to weekly (Sunday) shutdown of large power plants upstream.

COOPERATION.—Viele, Blackwell & Buck, engineers for the Roanoke River Development Co., installed the recorder and furnished the gage heights from January 9 to September 30.

This station was established to determine the length of time it takes for changes in stage at proposed dam site above Buggs Island to reach the gaging station at Old Gaston, N. C., 35 miles below.

Daily gage height, in feet, of Roanoke River at Buggs Island, Va., for the year ending September 30, 1922

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		2.48		3.30	4.23	4.20	2.96	2.65	2.62		2.01
2		2.45		5.05	6.20	5.03	2.90	2.68	2.43		2.06
3		2.45	2.04	9.30	8.65	4.70	2.68	3.83	3.15		2.40
4		2.56	2.00	10.20	10.00	4.08	2.72	5.92	3.44		2.03
5		2.80	1.98	9.30	9.65	3.72	5.12	6.03	6.02		2.15
6	2.51	2.74	2.05	9.00	8.12	3.52	5.80	5.05	6.35		3.28
7	2.30	2.47	2.13	8.35	7.27	3.40	5.75	5.88	4.98		2.68
8	2.08	2.28	2.06	7.20	6.44	3.40	4.52	4.78	3.80		2.20
9	2.09	2.20	2.02	5.95	5.55	3.42	3.72	4.38	3.21		1.90
10	2.11	2.14	2.05	4.98	6.30	3.20	3.25	3.59	3.15		1.83
11	2.33	2.15	3.20	4.57	9.15	3.25	4.33	3.46	3.16		1.65
12	2.57	1.92	4.65	4.45	9.35	3.05	3.87	3.27	2.82		1.72
13	2.22	1.98	4.73	4.38	8.88	3.00	3.67	2.93	2.92		2.75
14	1.86	2.01	3.82	4.32	5.32	2.94	3.58	2.82	2.70	3.54	2.58
15	1.92	1.94	3.02	4.30	4.88	2.82	4.00	2.70	2.73	2.74	2.30
16	1.96	1.90	2.65	8.00	5.88	2.80	4.18	2.65	3.13	2.60	1.90
17	1.92	1.86	2.55	9.30	6.32	2.80	3.78		2.85	2.90	1.75
18	1.80	1.90	2.53	6.80	5.20	2.75	5.38			3.38	1.65
19	1.90	1.93	2.51	5.56	4.54	3.18	3.34	3.75		3.19	1.88
20	2.01	2.05	2.72	5.15	4.40	4.15	9.70	3.75		2.53	1.85
21	2.56	2.24	3.20	4.98	5.00	4.38	7.77	5.71		2.14	1.62
22	2.90	2.18	4.75	4.70	4.85	3.97	4.92	4.71		2.34	1.60
23	2.44	2.03	5.25	4.63	4.23	3.30	4.18	3.59		2.08	1.58
24	2.16	1.96	4.70	4.36	3.35	3.15	4.00	3.22		1.82	1.58
25	2.03	2.16	3.82	4.20	3.70	2.95	3.57	2.58		1.82	1.57
26	1.93	2.52	3.38	3.95	3.50	2.88	3.38	2.30		2.67	1.57
27	1.89	2.58	3.10	4.05	3.46	2.80	3.67	2.37		3.45	1.50
28	1.87	2.52	2.61	4.30	3.48	2.87	3.58	2.33		3.60	1.55
29	2.60	2.34	2.40		4.37	2.92	3.36	3.00		2.81	1.55
30	2.38	2.28	2.74		5.12	3.00	2.95	2.68		2.43	1.55
31		2.19	3.51		4.60		2.75			2.15	

ROANOKE RIVER AT OLD GASTON, N. C.

LOCATION.—At bridge of Roanoke Railway Co. at Old Gaston, Northampton County, three-fourths mile below mouth of Indian Creek, 1¼ miles north of Thelma, N. C., and 2½ miles above mouth of Deep Creek.

DRAINAGE AREA.—8,350 square miles.

RECORDS AVAILABLE.—December 7, 1911, to September 30, 1922.

GAGE.—Prior to November 21, 1921, R. A. Howell read a chain gage attached to downstream side of second span from right end of deck railroad bridge. On November 21, 1921, a Friez water-stage recorder was installed in a timber well and shelter attached to downstream end of second masonry pier from right end of railroad bridge, near chain gage. No change in gage datum.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge Measuring section broken by 11 bridge piers. This bridge has been floored over and is now a combined toll highway and railroad bridge.

CHANNEL AND CONTROL.—Channel practically permanent. Control, about 1 mile below gage, is of rocks and probably permanent. Left bank subject to overflow in extreme floods but a fair determination can be made of the overflow discharge around bridge.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.78 feet at noon March 5, 1922 (discharge, 73,500 second-feet); minimum stage, 1.00 foot at 7.25 a. m. October 28, 1921 (discharge, 890 second-feet).

1911-1922: Maximum stage recorded, 16.6 feet at 7 a. m. March 18, 1912 (discharge, 210,000 second-feet); minimum stage, 0.95 foot at 6 a. m. October 1, 1914 (discharge, 790 second-feet).

ICE.—Ice forms to considerable thickness at this station during severe winters.

REGULATION.—The record from water-stage recorder shows daily fluctuations, probably caused by operation of power plants many miles upstream. As the diurnal fluctuations are slight accuracy of records obtained from one daily reading of chain gage prior to November 21, 1921, was probably not greatly impaired.

ACCURACY.—Stage-discharge relation practically permanent; not affected by ice during year. Slight changes have been made in rating curve due to the collection of more field data. Rating curve well defined below 33,000 second-feet and fairly well defined to 200,000 second-feet. Operation of water-stage recorder after November 21, 1921, fairly satisfactory; checked with daily readings of chain gage by observer. Prior to November 21, 1921, gage heights obtained from one daily reading to tenths and daily discharge ascertained by applying mean daily gage height to rating table. Subsequent to November 1, 1921, daily discharge ascertained by applying to rating table mean daily gage height obtained by inspecting gage-height graph. Records good.

Discharge measurements of Roanoke River at Old Gaston, N. C., during the year ending September 30, 1922

[Made by W. E. and L. J. Hall]

Date	Gage height	Discharge
Apr. 8.....	Feet 3.15	Sec.-ft. 7,070
10.....	3.06	7,400

Daily discharge, in second-feet, of Roanoke River at Old Gaston, N. C., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	2,220	1,580	4,180	3,380	7,540	11,500	12,500	6,660	5,560	5,560	4,860	3,380
2-----	2,090	7,080	4,860	3,080	9,000	17,800	14,100	6,280	5,560	5,200	4,180	2,930
3-----	1,830	31,300	4,520	2,930	32,200	36,500	14,700	5,920	7,540	5,560	3,860	3,540
4-----	2,930	13,000	4,860	2,930	49,100	55,300	12,000	5,560	16,600	7,080	3,700	4,180
5-----	1,830	7,080	5,200	2,930	49,100	89,400	9,000	10,500	28,500	12,500	3,700	4,180
6-----	2,360	4,860	5,920	3,080	46,100	54,200	8,500	16,600	16,600	25,000	4,180	6,660
7-----	2,220	4,180	5,200	3,080	41,200	34,700	8,000	22,000	19,900	19,200	3,860	4,860
8-----	2,090	3,540	4,180	2,640	34,700	32,200	7,540	15,300	15,900	12,500	4,520	4,180
9-----	2,090	2,640	4,180	2,360	23,500	23,500	8,000	11,000	12,500	9,000	4,860	3,230
10-----	1,580	3,230	3,540	2,980	17,800	25,000	7,540	8,000	9,000	7,080	4,180	2,780
11-----	1,240	2,980	3,540	3,860	13,660	42,100	7,080	9,090	8,000	7,080	4,520	2,640
12-----	1,340	4,180	3,230	10,500	12,500	48,190	7,080	10,500	7,540	6,660	4,180	2,220
13-----	1,110	4,520	2,780	13,600	12,000	34,700	6,280	9,500	6,660	6,280	4,180	2,930
14-----	1,460	3,860	3,080	12,000	12,000	22,000	6,280	9,000	5,920	6,280	11,500	5,200
15-----	1,580	2,640	3,080	8,000	11,000	15,300	5,920	12,000	5,560	5,560	8,500	4,860
16-----	1,830	2,930	2,930	5,560	26,500	16,600	5,560	12,000	5,560	6,660	6,280	3,700
17-----	1,580	2,930	2,780	4,860	44,100	23,500	5,560	9,500	6,280	6,660	5,560	2,930
18-----	1,340	3,080	2,930	4,180	35,000	22,000	5,560	14,100	10,000	6,280	8,000	2,640
19-----	1,340	2,640	2,930	4,860	21,300	17,200	5,920	30,500	13,000	23,500	7,540	2,500
20-----	1,110	3,230	3,080	4,860	16,600	12,500	5,920	46,100	12,000	37,400	6,280	3,230
21-----	1,110	3,860	3,700	5,920	14,700	12,500	12,000	42,100	17,800	25,000	4,520	2,640
22-----	1,340	5,920	3,860	11,500	13,600	15,300	11,500	17,800	16,600	12,500	3,860	2,220
23-----	1,110	5,560	3,380	15,900	13,000	12,000	9,000	12,000	11,000	9,000	4,180	2,220
24-----	1,340	4,180	3,080	13,600	12,000	10,000	7,080	11,000	7,540	6,280	3,380	2,220
25-----	1,340	3,540	3,380	10,000	11,000	8,500	6,280	9,000	6,280	6,660	2,930	2,090
26-----	1,110	3,080	4,180	7,540	10,000	8,000	5,920	8,000	4,860	6,280	3,540	2,220
27-----	1,110	3,080	4,860	5,200	10,000	7,540	5,560	8,500	4,180	7,540	5,920	2,090
28-----	890	2,930	4,860	4,180	12,000	7,540	5,560	9,000	4,520	7,540	11,500	1,960
29-----	1,220	3,230	4,180	4,180	-----	9,000	5,560	8,500	5,560	11,000	8,000	2,090
30-----	1,340	4,860	3,700	4,520	-----	14,700	6,280	6,660	6,280	8,500	5,200	2,090
31-----	1,580	-----	3,540	6,280	-----	14,100	-----	6,280	-----	5,200	4,180	-----

NOTE.—Discharge prior to Nov. 20, 1921, determined from one daily chain-gage reading. Discharge for following periods when water-stage recorder did not operate satisfactorily, determined from mean daily gage heights obtained from graph based on observers daily gage readings: Jan. 7-10, Jan. 26-28, Feb. 2-4, 16, 17, Apr. 20-22, June 3-10, 13-17, 26-29, July 1-3 12-16, 30, 31, Aug. 1-12, and Sept. 2-9.

Monthly discharge of Roanoke River at Old Gaston, N. C., for the year ending September 30, 1922

[Drainage area, 8,350 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	2,930	890	1,570	0.188	0.22
November.....	31,300	1,580	5,060	.606	.68
December.....	5,920	2,730	3,860	.462	.53
January.....	15,900	2,360	6,140	.735	.85
February.....	49,100	7,540	21,800	2.61	2.72
March.....	69,400	7,540	23,700	2.84	3.27
April.....	14,700	5,560	7,930	.950	1.06
May.....	46,100	5,920	13,200	1.68	1.82
June.....	26,500	4,130	10,000	1.20	1.34
July.....	37,400	5,200	10,500	1.26	1.45
August.....	11,500	2,930	5,340	.640	.74
September.....	6,660	1,960	3,160	.378	.42
The year.....	69,400	890	9,280	1.11	15.10

DAN RIVER NEAR PINNACLES, VA.

LOCATION.—In the middle of Pinnacles Gorge, 3 miles southeast of Pinnacles, Patrick County, 3 miles north of Kibler, Va., 4 miles south of Meadows of Dan, and 7 miles upstream from North Carolina State line.

DRAINAGE AREA.—35 square miles (determined by a survey around basin by private engineers).

RECORDS AVAILABLE.—October 29, 1920, to November 24, 1921, when the station was discontinued.

GAGE.—A vertical staff on right bank at end of measuring weir; read by C. M. Gentry.

DETERMINATION OF DISCHARGE.—Flow measured by a rectangular, sharp-edged timber weir attached to heavy timber, bolted to bedrock. The joint between rock and weir was not tight, so some water escaped under weir. The weir discharge table was checked by one current-meter discharge measurement made by wading. A standard weir formula was used to compute weir rating table.

CHANNEL AND CONTROL.—Channel approaches weir on a fairly straight line, the weir forming a pool 3 or 4 feet deep at low stages. Control formed by weir.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of records, 2.9 feet morning of December 14, 1920 (discharge, 686 second-feet); minimum stage, 0.22 foot October 20–24, 1921 (discharge, 17 second-feet).

REGULATION.—Low stages considerably affected by operation of several mill dams upstream.

COOPERATION.—Records furnished by North Carolina Geological and Economic Survey.

No discharge measurements made during the year.

Daily discharge, in second-feet, of Dan River near Pinnacles, Va., for the period October 1 to November 24, 1921

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1.....	28	237	11.....	26	45	21.....	17	31
2.....	28	178	12.....	26	45	22.....	17	31
3.....	33	99	13.....	26	43	23.....	17	31
4.....	28	69	14.....	26	39	24.....	17	24
5.....	28	51	15.....	26	39	25.....	20	-----
6.....	28	47	16.....	26	39	26.....	20	-----
7.....	28	45	17.....	26	39	27.....	20	-----
8.....	28	45	18.....	26	39	28.....	20	-----
9.....	28	45	19.....	20	39	29.....	20	-----
10.....	26	45	20.....	17	33	30.....	190	-----
						31.....	165	-----

Monthly discharge of Dan River near Pinnacles, Va., for the period October 1 to November 24, 1921

[Drainage area, 35 square miles]

Month	Discharge in second-feet				Run-off in inches.
	Maximum	Minimum	Mean	Per square mile	
October.....	190	17	33.9	0.969	1.12
November 1-24.....	237	24	57.4	1.64	1.46

PEEDEE RIVER BASIN

YADKIN RIVER AT NORTH WILKESBORO, N. C.

LOCATION.—At bridge 3,870 feet below Southern Railway station at North Wilkesboro, Wilkes County.

DRAINAGE AREA.—500 square miles.

RECORDS AVAILABLE.—April 10, 1903, to June 30, 1909, and October 1, 1920, to September 30, 1922.

GAGE.—Chain gage on downstream handrail; read by S. U. Reynolds. Original gage on old bridge which was washed away July 16, 1916, was at different datum.

DISCHARGE MEASUREMENTS.—Made from bridge at gage.

CHANNEL AND CONTROL.—Channel is straight above station, slightly curved at bridge and straight for 600 feet below. Right bank is low and subject to overflow, but all water must pass under bridge and approaches. Left bank is high and rocky. Bed of stream is rocky with sand in places.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 13.45 feet at 7 a. m. July 15 (discharge, 11,300 second-feet); minimum stage, 1.20 feet at 5.40 p. m. October 9 and 7.25 a. m. October 12 (discharge, 340 second-feet).

1903-1909 and 1920-1922: Maximum stage recorded, 18.8 feet (datum of old gage) at 10.20 a. m. November 19, 1906 (discharge, 22,300 second-feet); minimum stage, -0.6 foot January 26, 1905 (discharge, 184 second-feet).

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Very slight regulation from small milldams upstream.

ACCURACY.—Stage-discharge permanent. Rating curve well defined between 376 and 10,000 second-feet; extended beyond these limits. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Yadkin River at North Wilkesboro, N. C., during the year ending September 30, 1922

[Made by L. J. Hall]

Date	Gage height	Dis-charge	Date	Gage height	Dis-charge	Date	Gage height	Dis-charge
	<i>Feet</i>	<i>Sec.-ft.</i>		<i>Feet</i>	<i>Sec.-ft.</i>		<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 20.....	1.33	386	July 18.....	3.63	1,500	July 19.....	5.89	3,040
Dec. 21.....	2.19	752	18.....	4.30	1,860	19.....	5.10	2,320
Apr. 13.....	2.67	985	19.....	6.72	3,590	19.....	4.89	2,160

Daily discharge, in second-feet, of Yadkin River at North Wilkesboro, N. C., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	452	2,220	574	492	760	1,020	1,920	1,070	1,070	860	810	664
2.....	433	1,070	964	492	1,700	2,100	1,590	1,020	1,640	860	810	664
3.....	664	712	1,070	532	1,280	2,360	1,380	1,220	2,700	860	964	574
4.....	574	664	860	532	1,020	1,590	1,280	4,200	1,700	1,540	1,070	712
5.....	433	574	712	532	1,480	1,220	1,220	3,660	2,290	1,700	1,280	712
6.....	414	574	618	532	1,330	1,120	1,640	2,420	1,860	1,170	1,070	574
7.....	395	532	618	492	1,480	1,220	1,480	1,800	2,040	1,020	810	574
8.....	376	492	574	492	1,280	1,170	1,330	1,480	1,800	964	760	574
9.....	358	664	574	492	1,120	1,070	1,220	1,280	1,590	860	760	574
10.....	376	618	574	492	1,020	1,750	1,170	1,280	1,480	860	760	532
11.....	376	492	532	1,220	1,020	2,700	1,070	1,380	1,330	860	712	532
12.....	358	492	532	964	964	1,860	1,020	1,280	1,170	810	760	618
13.....	358	433	532	618	912	1,480	1,020	1,170	1,120	810	712	574
14.....	358	492	492	574	860	1,280	964	1,070	1,120	1,120	760	532
15.....	376	532	472	492	2,290	2,160	964	1,020	1,070	5,080	810	532
16.....	358	532	472	618	2,040	1,750	912	1,330	1,020	1,920	1,020	532
17.....	376	472	492	618	1,430	1,480	964	2,160	1,120	1,480	1,280	492
18.....	376	472	1,590	574	1,220	1,330	964	3,400	1,070	1,540	860	492
19.....	376	472	860	574	1,070	1,170	1,380	3,750	1,540	2,630	810	492
20.....	358	860	760	760	1,020	1,430	1,280	1,750	1,330	1,380	964	492
21.....	376	664	664	1,700	964	1,170	1,070	1,590	1,120	1,380	810	492
22.....	376	574	664	1,330	912	1,120	1,020	1,480	1,020	1,280	712	492
23.....	358	532	618	1,020	860	1,070	964	1,430	964	1,220	664	492
24.....	358	532	618	860	810	1,020	912	1,280	912	1,070	664	472
25.....	376	492	618	760	760	964	912	1,280	810	1,020	664	492
26.....	376	492	618	664	760	860	860	1,280	860	1,020	712	492
27.....	358	492	618	712	912	1,280	964	1,280	912	964	860	492
28.....	358	860	618	760	810	3,320	1,590	1,220	964	964	760	472
29.....	358	760	574	760	-----	2,560	1,380	1,120	964	860	712	472
30.....	1,430	664	574	760	-----	2,040	1,430	1,070	912	860	664	452
31.....	6,180	-----	532	712	-----	1,800	-----	1,020	-----	860	664	-----

NOTE.—Discharge May 3-7 and July 15-20 determined from mean daily gage height ascertained from graph constructed on basis of two or more daily gage readings.

Monthly discharge of Yadkin River at North Wilkesboro, N. C., for the year ending September 30, 1922

[Drainage area, 500 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	6,180	358	614	1.23	1.42
November.....	2,220	433	648	1.30	1.45
December.....	1,590	472	664	1.33	1.53
January.....	1,700	492	714	1.43	1.65
February.....	2,290	760	1,150	2.30	2.40
March.....	3,320	860	1,560	3.12	3.60
April.....	1,920	860	1,200	2.40	2.68
May.....	4,200	1,020	1,670	3.34	3.85
June.....	2,700	810	1,320	2.64	2.94
July.....	5,080	810	1,280	2.56	2.95
August.....	1,280	664	828	1.66	1.91
September.....	712	452	542	1.08	1.20
The year.....	6,180	358	1,020	2.04	27.58

YADKIN RIVER AT DONNAHA, N. C.

LOCATION.—One-fourth mile upstream from railroad station at Donnahaha, Forsyth County, just below site of old toll bridge, which was washed away by a flood in 1916.

DRAINAGE AREA.—1,600 square miles.

RECORDS AVAILABLE.—April 11, 1913, to September 30, 1918; October 1, 1920, to September 30, 1922.

GAGE.—Vertical gage in four sections on left bank, 150 feet downstream from left end of remains of old toll bridge; read by J. F. Goolsby.

DISCHARGE MEASUREMENTS.—Since 1920 made from a cable 400 feet upstream from gage.

CHANNEL AND CONTROL.—Bed composed of sand and bedrock. Current slightly obstructed by two old steel trusses, one of which is opposite and the other 300 feet below gage. Control is a rock ledge across river 450 feet below gage.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 14.5 feet at 8.30 a. m. June 5 (discharge, 19,200 second-feet); minimum stage, 5.2 feet numerous readings October 21–29 (discharge, 910 second-feet).

1913–1922: Maximum stage recorded, 40.0 feet at 8 a. m. July 16, 1916 (determined by observer who measured from flood marks down to water surface at lower stage; discharge not determined); minimum stage, 4.65 feet at 4 p. m. September 30, 1914 (discharge, 678 second-feet).

ICE.—Stage-discharge relation not affected by ice.

DIVERSIONS.—None.

REGULATION.—None except for a few small milldams on tributary streams.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined below 2,500 second-feet and fairly well defined between 2,500 and 15,000 second-feet. Above 15,000 second-feet curve is an extension, and data above that stage should be used with caution. Gage read to tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Discharge measurements of Yadkin River at Donnahaha, N. C., during the year ending September 30, 1922

[Made by L. J. Hall]

Date	Gage height	Discharge
	<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 17.....	5.32	1,060
Apr. 14.....	6.20	2,490
July 17.....	7.60	4,670

Daily discharge, in second-feet, of Yadkin River at Donnah, N. C., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	1,300	17,100	1,450	1,300	4,240	2,240	5,190	3,290	2,910	2,240	2,340	1,780
2.....	1,300	10,300	1,450	1,380	7,850	2,240	4,810	3,670	3,290	2,150	2,150	1,780
3.....	1,300	5,760	1,450	1,300	6,140	2,530	4,430	5,570	5,570	2,240	2,240	1,780
4.....	1,300	3,290	1,450	1,380	5,570	2,530	4,050	11,500	7,280	3,100	2,340	1,780
5.....	1,300	1,960	1,450	1,450	4,620	3,290	4,050	9,750	15,600	3,100	2,340	1,610
6.....	1,300	1,960	1,450	1,300	4,430	3,290	3,860	5,570	8,230	2,910	2,240	1,610
7.....	1,230	1,780	1,380	1,300	4,050	4,430	3,670	4,620	6,330	3,290	2,530	1,610
8.....	1,160	1,870	1,380	1,300	4,050	4,050	3,860	4,810	5,380	2,910	2,910	1,610
9.....	1,160	1,780	1,300	1,530	4,240	4,620	3,670	4,430	5,190	4,430	2,530	1,610
10.....	1,160	1,610	1,530	6,330	4,240	5,190	3,290	4,050	5,190	4,050	2,530	1,450
11.....	1,160	1,610	1,530	5,570	4,240	7,850	2,910	3,860	5,570	3,670	2,910	1,450
12.....	1,160	1,610	2,340	2,910	4,430	6,330	2,530	3,670	5,570	3,670	2,530	1,450
13.....	1,160	1,700	3,290	2,720	4,620	5,570	2,530	4,050	5,190	4,620	2,530	1,450
14.....	1,160	1,780	2,150	2,530	5,190	5,570	2,530	4,050	4,810	5,190	2,530	1,450
15.....	1,100	1,610	2,530	2,530	5,190	5,570	3,670	4,810	4,430	15,000	2,530	1,450
16.....	1,030	1,530	2,720	2,530	5,000	5,190	3,290	4,810	4,430	10,500	2,530	1,450
17.....	1,030	1,530	9,370	3,290	5,190	4,810	2,910	6,900	4,240	5,190	2,530	1,450
18.....	1,030	1,450	5,570	3,670	5,190	4,810	3,290	9,940	3,670	4,050	2,530	1,450
19.....	1,030	1,450	2,910	3,100	4,810	4,240	3,290	13,900	3,290	3,670	2,720	1,450
20.....	1,030	1,530	1,960	4,430	3,670	4,620	3,100	9,370	3,670	3,100	2,530	1,450
21.....	970	1,870	1,780	3,480	2,910	5,190	2,910	6,330	3,290	2,910	2,340	1,450
22.....	910	1,700	3,480	2,910	5,190	3,290	3,670	3,100	2,910	2,910	2,530	1,380
23.....	910	1,450	1,610	2,910	4,810	3,100	3,290	2,910	2,910	2,720	2,240	1,300
24.....	910	1,450	1,530	2,530	2,530	4,810	2,910	3,290	2,910	2,530	2,060	1,300
25.....	910	1,610	1,450	2,720	2,530	4,430	2,910	3,290	2,720	2,530	1,960	1,300
26.....	910	1,700	1,450	2,910	2,530	4,430	2,910	3,290	2,530	2,530	1,960	1,300
27.....	970	1,610	1,450	2,910	2,530	5,760	2,910	3,290	2,530	2,530	1,960	1,300
28.....	970	1,610	1,300	2,530	2,340	7,850	2,910	3,290	2,530	2,340	1,960	1,300
29.....	970	1,450	1,300	2,530	-----	8,610	2,530	3,100	2,340	2,150	1,960	1,300
30.....	1,100	1,450	1,300	2,530	-----	6,330	2,530	3,100	2,340	2,240	1,780	1,300
31.....	7,470	-----	1,300	2,910	-----	5,570	-----	2,910	-----	2,150	1,780	-----

NOTE.—Discharge July 14-17 determined from mean daily gage height ascertained from graph constructed on basis of two or more daily gage readings.

Monthly discharge of Yadkin River at Donnah, N. C., for the year ending September 30, 1922

[Drainage area, 1,600 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	7,470	910	1,300	0.812	0.94
November.....	17,100	1,450	2,640	1.65	1.84
December.....	9,370	1,300	2,090	1.31	1.51
January.....	6,330	1,300	2,690	1.68	1.94
February.....	7,850	2,340	4,220	2.64	2.75
March.....	8,610	2,240	4,900	3.06	3.53
April.....	5,190	2,530	3,330	2.08	2.32
May.....	13,900	2,910	5,210	3.26	3.76
June.....	15,600	2,340	4,570	2.86	3.19
July.....	15,000	2,150	3,760	2.35	2.71
August.....	2,910	1,780	2,340	1.46	1.68
September.....	1,780	1,300	1,480	.925	1.03
The year.....	17,100	910	3,200	2.00	27.20

YADKIN RIVER NEAR SALISBURY, N. C.

LOCATION.—At highway bridge known as Piedmont toll bridge, 1,000 feet upstream from Southern Railway bridge and 6 miles northeast of Salisbury, Rowan County.

DRAINAGE AREA.—3,400 square miles.

RECORDS AVAILABLE.—September 24, 1895, to December 31, 1909; September 1, 1911, to September 30, 1922.

GAGE.—Chain gage attached to highway bridge since January 1, 1906; read by J. T. Yarbrough. Datum unchanged except for a possible change of about 0.1 foot due to settlement of bridge. See previous water-supply papers for changes in location of gage.

DISCHARGE MEASUREMENTS.—Made from downstream side of side of highway bridge.

CHANNEL AND CONTROL.—Channel wide; bed rather rough. Control is a rock ledge about 500 feet below bridge extending entirely across river; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 7.97 feet at 6 p. m. May 19 (discharge, 26,500 second-feet); minimum stage, 1.79 feet frequent short periods October 15–30 (discharge, 1,390 second-feet).

1895–1922: Maximum stage recorded, 23.8 feet at 1 a. m. July 18, 1916 (discharge, 121,000 second-feet); minimum stage, 1.2 feet September 20, October 6, November 22 and 26, 1897 (discharge, 900 second-feet).

ICE.—Never enough to affect stage-discharge relation.

DIVERSIONS.—None.

REGULATION.—Flow during low stages may be somewhat affected by developed power on river and tributaries above.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 1,280 and 20,000 second-feet and fairly well defined up to 121,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurements were made by L. J. Hall:

October 15, 1921: Gage height, 1.78 feet; discharge, 1,380 second-feet.

July 20, 1922: Gage height, 4.86 feet; discharge, 11,200 second-feet.

Daily discharge, in second-feet, of Yadkin River near Salisbury, N. C., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,720	24,400	2,820	2,100	3,250	3,890	10,200	4,740	3,560	4,400	3,400	2,690
2	1,810	15,000	2,690	2,100	10,200	6,100	9,400	4,060	4,740	4,400	3,100	2,440
3	1,900	5,760	3,400	2,100	17,300	18,800	6,440	4,060	17,800	3,720	2,960	2,560
4	1,900	3,720	4,740	2,000	8,240	15,800	5,780	6,780	15,800	4,230	3,890	3,400
5	2,440	3,100	3,560	2,100	7,140	10,200	5,080	21,800	12,700	12,200	3,560	5,760
6	1,900	2,690	2,820	2,210	10,200	7,140	5,080	16,800	13,200	9,800	3,400	4,740
7	1,720	2,560	2,690	2,100	9,400	6,780	6,100	12,200	10,600	5,080	4,060	2,560
8	1,560	2,320	2,440	2,100	10,200	7,140	6,100	7,140	11,400	4,060	3,100	2,320
9	1,640	2,440	2,440	2,210	7,500	6,100	5,080	5,760	9,400	4,740	2,820	2,100
10	1,640	3,560	2,210	2,100	5,760	7,500	4,740	5,080	7,500	5,080	2,690	2,000
11	1,560	3,100	2,320	4,060	5,080	16,800	4,400	5,080	6,100	3,890	3,560	2,210
12	1,560	2,560	2,320	6,440	4,400	15,000	4,230	6,100	5,080	3,400	2,820	2,320
13	1,640	2,320	2,320	4,400	4,400	8,240	4,060	6,100	4,400	3,250	2,820	3,100
14	1,560	2,440	2,100	2,960	5,080	6,440	3,890	6,440	4,230	3,400	2,690	2,210
15	1,400	2,210	2,100	2,560	7,860	6,100	3,720	5,760	4,060	5,760	2,560	2,100
16	1,560	2,320	2,000	2,560	23,900	16,800	3,720	4,400	3,890	16,800	3,890	1,900
17	1,640	2,320	2,000	2,320	16,300	10,200	3,560	7,140	3,560	9,400	14,500	1,810
18	1,640	2,320	2,210	2,560	8,240	7,140	3,560	14,000	3,400	6,100	10,200	2,100
19	1,560	2,210	3,100	2,560	5,760	5,760	5,420	25,000	3,890	9,400	4,740	1,900
20	1,640	2,820	3,400	2,560	5,080	6,440	9,400	18,300	9,800	12,200	3,890	1,720
21	1,560	3,250	2,560	3,400	4,400	9,000	6,440	9,000	6,440	6,100	3,720	1,790
22	1,560	2,690	2,440	8,240	4,230	6,100	4,740	7,140	6,100	5,760	2,560	1,810
23	1,400	2,440	2,210	6,440	3,890	5,080	4,400	6,440	5,420	5,760	2,440	1,900
24	1,560	2,320	2,100	4,740	3,720	4,740	4,230	5,420	3,720	4,400	2,320	1,720
25	1,400	2,320	2,560	3,720	3,560	4,400	3,890	4,740	3,720	3,890	2,320	1,900
26	1,480	2,210	2,690	3,250	3,400	4,230	3,720	4,400	3,250	3,400	2,320	1,720
27	1,560	2,210	2,440	2,560	3,560	4,230	3,720	4,400	3,100	5,760	2,820	1,900
28	1,560	2,560	2,210	2,440	4,400	5,760	4,400	4,740	3,100	4,740	3,890	1,720
29	1,560	3,720	2,210	3,560	-----	10,600	6,100	4,400	3,720	4,060	3,100	1,720
30	1,560	3,720	2,210	3,400	-----	9,400	5,760	3,890	3,890	3,720	2,560	1,720
31	8,240	-----	2,100	3,250	-----	8,240	-----	3,560	-----	3,400	2,320	-----

Monthly discharge of Yadkin River near Salisbury, N. C., for the year ending
September 30, 1922

[Drainage area, 3,400 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	8,240	1,400	1,850	0.544	0.63
November.....	24,400	2,210	3,920	1.15	1.28
December.....	4,740	2,000	2,560	.753	.87
January.....	8,240	2,000	3,200	.941	1.08
February.....	23,900	3,250	7,370	2.17	2.26
March.....	18,800	3,890	8,390	2.47	2.85
April.....	10,200	3,560	5,240	1.54	1.72
May.....	25,000	3,560	7,900	2.32	2.68
June.....	17,800	3,100	6,580	1.94	2.16
July.....	16,800	3,250	5,880	1.73	1.99
August.....	14,500	2,320	3,710	1.09	1.26
September.....	5,760	1,720	2,330	.685	.76
The year.....	25,000	1,400	4,900	1.44	19.54

FISHER RIVER NEAR DOBSON, N. C.

LOCATION.—At Turkey Ford steel highway bridge, on Dobson-Ararat highway 2 miles east of Dobson, Surry County.

DRAINAGE AREA.—109 square miles (measured on topographic maps).

RECORDS AVAILABLE.—September 1, 1920, to September 30, 1922.

GAGE.—Chain gage on upstream side of bridge; read by Miss Ada Kidd. Prior to August 30, 1921, gage was an enameled staff fastened to tree on left bank about 20 feet above bridge.

DISCHARGE MEASUREMENTS.—Made from lower side of bridge.

CHANNEL AND CONTROL.—Channel straight above and below gage; bed is rather rough. Banks subject to overflow above gage height 10 feet. Control is shoals about 50 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—1920-1922: Maximum stage recorded, 6.05 feet at 7.30 a. m. June 5, 1922 (discharge, 3,540 second-feet); minimum stage, 0.43 foot at 6.30 p. m. October 12 and 5 p. m. October 20, 1921 (discharge, 62 second-feet).

ICE.—Stage-discharge relation probably not affected by ice.

REGULATION.—Probably none.

ACCURACY.—Stage-discharge relation probably permanent. Rating curve well defined between 45 and 300 second-feet and extended above by comparison with records for Ararat River near Pilot Mountain. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good except for high stages.

Discharge measurements of Fisher River near Dobson, N. C., during the year ending
September 30, 1922

Date	Made by—	Gage height	Dis- charge
Oct. 19	L. J. Hall.....	<i>Feet</i> 0.45	<i>Sec.-ft.</i> 67.7
Dec. 21	do.....	.68	116
July 14	W. E. and L. J. Hall.....	.89	208

Daily discharge, in second-feet, of Fisher River near Dobson, N. C., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	94	485	132	101	125	204	364	200	247	211	164	144
2.....	82	281	247	132	622	760	298	193	1,060	388	161	132
3.....	125	178	215	101	268	460	255	215	1,440	485	185	164
4.....	94	151	164	104	208	388	247	1,120	1,500	820	164	164
5.....	88	138	151	107	341	298	235	460	1,980	388	154	171
6.....	76	125	138	101	255	247	239	412	1,440	255	158	132
7.....	76	119	128	98	276	320	247	298	1,060	215	151	125
8.....	79	119	125	94	204	276	227	251	485	208	154	119
9.....	74	171	119	101	189	235	215	231	412	208	147	113
10.....	76	144	116	94	185	622	208	223	364	215	141	113
11.....	76	125	113	235	185	540	204	276	320	185	200	119
12.....	65	119	113	144	171	320	196	223	298	178	151	161
13.....	68	113	113	119	164	276	193	215	276	164	151	119
14.....	71	125	107	138	158	243	189	208	255	298	171	113
15.....	71	119	107	158	1,120	940	193	193	243	1,640	175	107
16.....	71	113	101	113	388	412	178	193	239	341	171	104
17.....	71	119	107	125	251	320	178	298	239	595	485	107
18.....	76	113	255	122	227	276	193	1,310	255	540	175	101
19.....	71	113	144	122	208	255	298	820	820	760	164	101
20.....	65	144	125	151	193	320	227	364	341	341	151	107
21.....	65	119	125	298	189	247	196	298	364	276	138	101
22.....	71	113	116	208	175	219	204	255	255	255	132	101
23.....	71	113	113	171	171	215	193	243	223	276	132	101
24.....	65	110	113	151	175	204	182	231	211	227	132	101
25.....	71	107	119	138	154	200	175	215	208	208	138	98
26.....	71	104	107	132	158	193	175	239	204	208	341	98
27.....	74	107	113	154	193	320	231	223	204	200	239	98
28.....	71	215	107	152	164	1,060	341	208	211	200	154	101
29.....	76	164	110	135	-----	460	255	193	208	196	132	94
30.....	435	144	104	138	-----	364	215	185	196	182	125	94
31.....	1,500	-----	107	125	-----	412	-----	178	-----	178	171	-----

NOTE.—Discharge June 1-6 determined from mean daily gage height ascertained from graph constructed on basis of two daily gage readings.

Monthly discharge of Fisher River near Dobson, N. C., for the year ending September 30, 1922

[Drainage area, 109 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	1,500	65	134	1.23	1.42
November.....	485	104	145	1.33	1.48
December.....	255	101	131	1.20	1.38
January.....	298	94	137	1.26	1.45
February.....	1,120	125	255	2.34	2.44
March.....	1,060	193	374	3.43	3.95
April.....	364	175	225	2.06	2.30
May.....	1,310	178	328	3.01	3.47
June.....	1,980	196	519	4.76	5.31
July.....	1,640	164	350	3.21	3.70
August.....	485	125	174	1.60	1.84
September.....	171	94	117	1.07	1.19
The year.....	1,980	65	241	2.21	29.93

ARARAT RIVER NEAR PILOT MOUNTAIN, N. C.

LOCATION.—At highway bridge on Ararat road, R. D. route 3, half a mile below mouth of Bull Run Creek and 5 miles west of Pilot Mountain, Surry County.

DRAINAGE AREA.—250 square miles.

RECORDS AVAILABLE.—July 28, 1920, to December 31, 1922, when the station was discontinued because of backwater from dam under construction a quarter of a mile downstream.

GAGE.—Staff gage on downstream side of pier at left bank; read by Martin A. Fulk.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Channel straight and smooth above and below gage.

Banks are about 10 feet high and are seldom overflowed. Control is a rock shoal about 75 feet downstream from gage; excellent for stages below 10 feet. Rock bluffs farther downstream make excellent high-water control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 1, 1921, to December 31, 1922, 6.6 feet at 7 a. m. May 19 (discharge, 5,520 second-feet); minimum stage recorded, 0.32 foot at 8 a. m. October 16, 1921, (discharge, 76 second-feet).

1920-1922: Maximum stage recorded, 6.6 feet at 7 a. m. May 19, 1922, (discharge, 5,520 second-feet); minimum stage recorded, 0.30 foot at 8 a. m. September 20, 1921 (discharge, 70 second-feet).

ICE.—Probably not enough to affect stage-discharge relation.

REGULATION.—Two hydroelectric power plants on the river above may seriously affect the low-water flow; their storage, however, is relatively small.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 165 and 2,550 second-feet and probably accurate up to 6,000 second-feet. Gage read to hundredths twice daily, which may compensate for regulation, because the storage at the power plants is relatively small. Daily discharge ascertained by applying mean daily gage height to rating table except as noted in footnote to daily-discharge table. Records good.

Discharge measurements of Ararat River near Pilot Mountain, N. C., during the period October 1, 1921, to December 31, 1922.

Date	Made by—	Gage height	Discharge
1921		Feet	Sec.-ft.
Oct. 18	L. J. Hall	0.64	175
Dec. 22	do.	.71	209
1922			
July 14	W. E. and L. J. Hall	1.82	749
15	L. J. Hall	3.80	2,380
15	do.	3.55	2,120
16	do.	2.11	920
Oct. 14	do.	.80	255

Daily discharge, in second-feet, of Ararat River near Pilot Mountain, N. C., for the period October 1, 1921, to December 31, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1921-22												
1	235	1,520	295	200	315	405	822	405	615	560	360	218
2	103	480	360	200	1,200	1,960	532	382	1,780	615	338	235
3	172	360	430	200	405	1,130	560	455	2,050	760	430	275
4	235	315	315	182	382	790	532	1,690	1,790	822	360	2,550
5	196	315	295	200	990	700	480	1,780	855	990	338	615
6	168	275	275	193	615	588	505	920	990	588	382	338
7	179	255	275	168	615	700	505	642	1,690	455	315	295
8	154	255	200	172	455	642	480	588	1,060	430	338	235
9	124	405	255	193	430	505	455	505	855	405	315	235
10	140	338	218	196	382	1,280	430	990	642	505	315	315
11	179	275	235	480	382	1,130	430	700	505	430	505	360
12	176	275	235	295	405	670	430	588	560	405	315	588
13	190	235	235	235	382	588	405	615	532	382	315	295
14	176	255	218	218	338	588	405	588	532	730	315	275
15	179	255	218	218	2,050	1,780	405	455	480	1,520	338	176
16	97	255	218	235	1,060	1,130	405	455	455	990	642	235
17	165	255	200	218	560	760	382	1,280	455	642	822	200
18	179	218	360	235	480	615	382	3,750	455	560	532	235
19	168	218	235	200	430	560	642	3,200	760	1,440	338	176
20	151	338	218	360	430	730	505	920	642	615	360	165
21	130	275	218	670	382	560	455	670	700	532	196	154
22	121	255	200	455	360	505	430	730	532	560	295	200
23	121	235	193	360	360	455	430	670	455	480	235	218
24	134	235	200	315	382	455	405	532	405	480	218	168
25	154	218	148	255	315	405	382	505	430	405	295	168
26	144	218	200	275	382	405	382	615	382	405	315	179
27	137	218	196	295	455	560	430	588	360	405	360	172
28	172	730	200	275	360	1,200	588	480	405	405	338	200
29	115	382	218	275	-----	920	480	430	430	382	295	158
30	920	382	200	275	-----	730	405	430	505	382	218	127
31	3,310	-----	186	235	-----	730	-----	430	-----	382	218	-----

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1922											
1	158	255	218	11	360	250	200	21	172	235	235
2	140	235	255	12	255	240	218	22	235	255	235
3	151	210	200	13	255	250	200	23	235	240	230
4	151	190	193	14	255	260	190	24	275	218	225
5	154	165	330	15	200	260	275	25	193	255	220
6	1,440	235	200	16	255	300	320	26	190	190	218
7	1,280	200	235	17	235	240	730	27	182	255	200
8	920	154	235	18	235	230	235	28	165	220	255
9	360	295	218	19	179	218	235	29	148	182	405
10	990	240	218	20	176	255	255	30	148	186	300
								31	148	-----	280

NOTE.—Discharge June 1-6, determined from mean daily gage height ascertained from graph constructed on basis of two daily gage readings. Backwater at gage Nov. 3, 4, 7, 10-18, 23, 28, Dec. 5, 6, 16, 17, 23-25, 30, and 31, 1922; discharge estimated by comparison with records for Fisher River near Dobson.

Monthly discharge of Ararat River near Pilot Mountain, N. C., for the period October 1, 1921, to December 31, 1922

[Drainage area, 250 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1921-22					
October.....	3,310	97	285	1.14	1.31
November.....	1,520	218	342	1.37	1.53
December.....	430	148	240	.96	1.11
January.....	670	168	267	1.07	1.23
February.....	2,050	315	546	2.18	2.27
March.....	1,960	405	778	3.11	3.58
April.....	822	382	469	1.88	2.10
May.....	3,750	382	871	3.48	4.01
June.....	2,050	360	743	2.97	3.31
July.....	1,520	382	602	2.41	2.78
August.....	822	196	353	1.41	1.63
September.....	2,550	127	325	1.30	1.45
The year.....	3,750	97	485	1.94	26.31
1922					
October.....	1,440	140	330	1.32	1.52
November.....	300	154	231	.924	1.03
December.....	730	190	257	1.03	1.19

SANTEE RIVER BASIN

SANTEE RIVER AT FERGUSON, S. C.

LOCATION.—At Ferguson boat landing, three-fourths mile from railroad station, in Orangeburg County, 4 miles downstream from mouth of Eutaw Creek.]

DRAINAGE AREA.—14,800 square miles (from United States Weather Bureau records and checked on map compiled by United States Geological Survey, scale 1 to 500,000).

RECORDS AVAILABLE.—December 1, 1907, to September 30, 1922.

GAGE.—A vertical staff gage with enamel face is attached to a cypress pile driven into river bottom near right bank at boat landing; installed September 21, 1907. On November 23, 1921, a Gurley seven-day water-stage recorder was installed about 10 feet below staff gage. According to the United States Weather Bureau the datum of staff gage has never been changed. Staff gage read and water-stage recorder attended by H. C. Savage.

DISCHARGE MEASUREMENTS.—Made from downstream side of steel railroad bridge 1 mile above gage. This bridge originally had long trestle approaches which were destroyed by flood of July, 1916, and have never been rebuilt. The steel bridge, which consists of four deck-girder spans on concrete piers, spans only the main channel. Above 12 or 13-foot stages the stream spreads over left bank, which is a flat swamp, for about 3½ miles, and over right bank, which is also flat and swampy, for about half a mile.

CHANNEL AND CONTROL.—The channel up to 12 feet is deep, narrow, and probably permanent. Left bank above 12-foot stage is a flat swamp 3½ miles wide. Right bank is a flat swamp about half a mile wide, and somewhat lower than left bank. Control is not definitely known, but as much of the river banks and bottoms are limestone and marl, it is believed that control is fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year ending September 30, 1922, by water-stage recorder, 15.77 feet at 11 a. m. February 21 (discharge, 106,000 second-feet); minimum stage, 2.48 feet from 2 to 4 a. m. September 27 (discharge, 4,530 second-feet).

1907-1922: Maximum stage recorded, 24.5 feet on July 22, 1916 (estimated discharge, 368,000 second-feet); minimum stage, 0.9 foot October 23, 1918 (discharge about 3,480 second-feet). Minimum stage probably caused by regulation of storage reservoirs above.

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Two large hydroelectric plants have fairly large reservoirs on Broad River, there are a number of reservoirs on Wateree River, two of which are very large, and there is at least one reservoir on Saluda River. Apparently the Parr Shoals reservoir on Broad River and Camden reservoir on Wateree River have the most effect. As the two are about equidistant from Ferguson the storage effect probably reaches the gage about the same time. There are no daily fluctuations, probably because the nearest reservoir is more than a hundred miles upstream. However there is a very distinct weekly fluctuation during average and low-water periods caused apparently by shutdown of plants on Saturday afternoons and Sundays. On Mondays the stage at Ferguson begins to drop and continues with accelerated rapidity until some time during Tuesday. After reaching lowest point the stage rises rapidly and is back to an even stage by Wednesday night. During the rest of the week there is comparatively little fluctuation. This cycle occurs so often as to be quite noticeable on the water-stage recorder graphs.

ACCURACY.—Mean-monthly gage heights for Ferguson for months when there was no excessive range in stage, when plotted against the mean monthly gage heights for Rimini, 26 miles upstream, develop a well-defined gage-height relationship curve for these stations for the period July, 1916, to December, 1922, thus indicating that the stage-discharge relation was practically permanent at each of these stations. Gage heights for these stations from 1908 to the flood in July, 1916, plot close to the above-mentioned curve at high stages, but a slightly different curve is defined for medium and low stages, indicating that the flood of July, 1916, caused a change in stage-discharge relation at one or both of the gages. No information is available to show definitely at which gage the change occurred. The maximum error from this source in the rating curve used for Ferguson is less than 10 per cent unless there were changes of like kind in the stage-discharge relation at both stations. The same rating curve was used for the entire record for Ferguson. It is based on nine current-meter measurements made in 1921 and 1922 and is well defined between 5,000 and 16,000 second-feet. Above 16,000 second-feet the curve is extended on basis of results showing comparison of discharge at Ferguson with the discharge at Camden as obtained by use of rating curve formerly developed for the gage at Camden. Gage at Ferguson read to tenths once daily until November 22, 1921; water-stage recorder in operation after that date. Daily discharge ascertained by applying daily gage height to rating table for period prior to installation of water-stage recorder; after November 22, 1921, mean daily gage heights obtained by inspection of recorder graph were used. Records below 16,000 second-feet, fair prior to November 22, 1921; good after that date. Records above 16,000 second-feet somewhat uncertain because no current-meter measurements have been made at Ferguson above that stage.

COOPERATION.—Gage-height record prior to November 23, 1921, furnished by the United States Weather Bureau.

Discharge measurements of Santee River at Ferguson, S. C., during the year ending September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>			<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 18	W. E. Hall.....	3.48	5,510	Nov. 26	L. J. Hall.....	9.24	14,100
22	do.....	5.70	8,430	28	do.....	8.43	12,400
Nov. 24	L. J. Hall.....	9.31	14,100	29	do.....	8.70	13,300
25	do.....	9.70	14,700				

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922

Day	Oct.	Nov.	Dec	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1907-8												
1			32,500	38,000	20,800	24,000	44,000	23,200	13,100	25,000	16,400	323,000
2			30,500	32,500	21,400	23,200	38,000	23,200	12,500	21,900	16,400	266,000
3			28,800	35,000	22,500	23,200	35,000	21,400	11,800	18,300	16,600	203,000
4			27,200	38,000	21,900	22,500	28,800	20,800	11,800	18,300	16,600	137,000
5			23,200	44,000	27,200	21,900	27,200	20,000	11,800	18,000	12,600	77,000
6			20,800	44,000	35,000	21,400	25,000	18,600	11,800	18,000	9,430	53,000
7			19,300	41,000	38,000	20,800	23,200	17,300	11,800	19,300	10,200	38,000
8			15,700	38,000	35,000	20,400	21,900	16,600	11,800	20,400	11,800	28,800
9			13,700	35,000	30,500	20,000	21,400	15,800	12,600	22,500	13,900	27,200
10			12,100	32,500	30,500	19,300	20,400	15,800	12,000	25,000	16,000	27,200
11			11,300	38,000	27,200	18,600	20,000	16,000	11,800	28,800	17,100	27,200
12			13,900	44,000	26,000	18,600	18,600	16,600	11,800	28,800	18,000	25,000
13			15,700	50,000	26,000	19,300	17,800	16,200	11,800	30,500	18,300	23,200
14			18,000	50,000	26,000	20,400	17,100	15,100	11,800	32,500	18,300	23,200
15			19,300	47,000	35,000	21,400	16,200	14,200	11,800	30,500	14,900	22,500
16			21,400	56,000	41,000	21,400	16,200	13,700	11,800	28,800	12,800	20,800
17			21,400	80,000	47,000	20,800	17,500	16,400	13,500	26,000	11,000	18,900
18			24,000	83,000	47,000	20,000	18,900	12,300	15,300	23,200	10,000	17,100
19			35,000	68,000	53,000	19,300	20,000	11,800	15,700	20,000	9,580	15,300
20			38,000	47,000	68,000	18,600	22,500	12,600	15,800	17,800	11,000	13,500
21			38,000	38,000	68,000	17,800	23,200	14,900	14,600	15,300	15,300	12,800
22			35,000	30,500	56,000	21,400	24,000	16,400	13,500	12,800	17,500	12,100
23			32,500	28,800	35,000	23,200	25,000	17,100	12,500	11,800	18,300	11,800
24			30,500	27,200	44,000	24,000	23,200	17,100	14,400	11,300	18,300	11,800
25			27,200	25,000	38,000	26,000	22,500	16,600	16,400	11,800	18,900	12,100
26			27,200	23,200	38,000	28,800	21,900	15,700	18,300	14,200	20,800	10,800
27			28,800	21,900	35,000	50,000	21,400	14,900	19,600	16,700	21,900	10,800
28			44,000	20,400	30,500	77,000	21,400	14,200	20,800	17,100	27,200	10,800
29			47,000	19,600	28,800	77,000	22,500	13,700	22,500	17,100	74,000	11,000
30			53,000	20,000		65,000	22,500	13,100	24,000	17,100	278,000	12,100
31			47,000	20,000		50,000		13,100		16,400	344,000	
1908-9												
1	13,700	26,000	13,500	38,000	16,000	38,000	26,000	15,100	30,500	26,000	21,900	11,800
2	13,300	30,500	13,000	27,200	15,300	38,000	27,200	16,200	28,800	27,200	20,400	13,100
3	12,600	38,000	13,500	27,200	14,600	35,000	27,200	17,500	27,200	28,800	22,500	13,100
4	11,800	41,000	12,300	26,000	14,200	32,500	26,000	19,600	24,000	28,800	24,000	12,100
5	11,500	41,000	12,800	24,000	14,200	28,800	25,000	21,400	25,000	26,000	24,000	11,500
6	11,000	38,000	12,800	21,900	14,200	27,200	24,000	24,000	27,200	25,000	25,000	9,580
7	9,430	35,000	12,800	20,800	14,800	26,000	23,500	35,000	28,800	25,000	27,200	9,580
8	9,430	30,500	12,600	20,800	15,300	25,000	21,900	41,000	44,000	25,000	35,000	8,140
9	10,000	28,800	12,300	21,400	14,600	22,500	20,000	53,000	62,000	25,000	41,000	9,430
10	11,100	27,200	14,400	21,900	17,100	22,500	18,900	65,000	101,000	26,000	41,000	10,200
11	11,800	23,200	16,200	22,500	18,600	22,500	18,000	27,200	95,000	27,200	38,000	10,200
12	13,900	21,400	17,100	22,500	23,200	22,500	17,100	25,000	71,000	28,800	35,000	10,200
13	15,100	19,600	17,500	22,500	23,200	24,000	16,200	23,200	53,000	30,500	30,500	8,980
14	18,000	20,800	18,300	21,400	26,000	27,200	15,700	21,900	41,000	32,500	26,000	8,700
15	18,000	22,500	18,600	20,400	30,500	35,000	15,500	21,900	41,000	28,800	25,000	8,700
16	17,100	22,500	18,600	18,600	38,000	38,000	16,200	20,000	38,000	28,800	23,200	8,700
17	15,700	20,000	17,800	17,800	38,000	41,000	15,500	19,300	38,000	25,000	23,200	8,560
18	14,900	21,900	16,900	17,100	38,000	41,000	16,000	17,100	38,000	25,000	24,000	11,800
19	13,500	23,200	16,200	17,100	30,500	41,000	16,400	16,200	41,000	25,000	24,000	13,500
20	11,800	24,000	13,500	20,000	27,200	41,000	16,700	15,300	41,000	25,000	25,000	18,600
21	10,500	25,000	12,800	22,500	27,200	35,000	16,200	14,900	41,000	24,000	27,200	20,000
22	10,800	26,000	13,500	25,000	27,200	32,500	16,000	17,100	41,000	23,200	26,000	22,500
23	10,800	23,200	15,300	27,200	25,000	27,200	15,800	18,600	38,000	20,400	26,000	26,000
24	10,800	22,500	18,000	27,200	25,000	26,000	15,300	20,000	35,000	17,300	22,500	27,200
25	12,800	17,100	20,000	27,200	25,000	26,000	14,600	23,200	30,500	16,200	18,300	28,800
26	15,300	17,100	22,500	24,000	27,200	25,000	14,000	30,500	28,800	15,700	16,200	26,000
27	18,300	16,900	27,200	21,900	30,500	23,200	13,700	74,000	27,200	14,800	13,500	25,000
28	19,300	16,000	30,500	20,000	35,000	22,500	14,200	71,000	27,200	13,500	13,000	25,000
29	20,400	15,300	30,500	20,000		22,500	14,600	27,200	25,000	15,300	11,800	24,000
30	21,900	14,800	47,000	19,300		22,500	15,100	41,000	25,000	17,300	11,100	22,500
31	23,200	44,000	44,000	17,100		25,000		41,000		24,000	11,000	

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1909-10												
1	18,300	10,800	7,600	12,800	23,200	47,000	13,000	9,430	11,000	18,000	10,200	11,000
2	16,400	11,000	8,700	11,100	25,000	47,000	13,000	8,700	10,500	20,000	8,980	16,200
3	13,500	8,700	9,280	10,200	28,800	41,000	12,500	7,730	10,200	21,400	8,280	19,300
4	12,800	9,580	9,730	10,200	35,000	41,000	11,800	7,340	10,200	21,400	8,000	20,000
5	11,100	10,200	9,730	10,200	35,000	41,000	10,700	7,340	10,200	25,000	9,430	22,500
6	11,100	10,700	9,580	10,200	28,800	44,000	10,200	8,700	9,430	26,000	10,200	27,200
7	12,800	11,000	10,200	11,800	27,200	50,000	10,700	9,430	9,430	26,000	11,000	38,000
8	14,200	11,800	7,340	11,800	23,200	50,000	11,000	9,580	10,200	23,200	11,800	38,000
9	13,500	10,200	8,420	11,800	19,300	50,000	11,500	9,880	10,500	22,500	12,500	35,000
10	11,800	10,500	9,430	11,800	17,100	44,000	11,000	9,880	11,600	21,900	16,000	35,000
11	11,500	12,300	9,880	11,100	16,700	41,000	10,300	15,300	12,500	20,000	18,000	30,500
12	10,200	12,600	10,800	10,200	16,400	35,000	9,430	16,600	13,500	19,600	18,000	27,200
13	9,580	11,100	12,800	11,800	18,000	27,200	8,420	17,100	16,200	19,600	16,900	26,000
14	10,200	11,100	11,800	11,800	20,000	26,000	9,580	22,500	17,100	19,600	15,300	23,200
15	11,100	10,200	11,800	11,800	21,400	24,000	10,200	24,000	20,000	19,600	14,400	20,000
16	11,800	9,880	16,400	11,800	23,200	21,900	11,000	27,200	21,900	18,000	11,800	17,100
17	13,500	9,580	16,700	11,100	23,200	20,800	10,500	26,000	24,000	18,900	11,000	15,300
18	16,400	10,200	17,100	10,200	21,900	20,000	10,200	20,000	27,200	19,600	11,000	13,100
19	16,400	10,700	20,000	9,580	20,800	17,800	10,200	17,100	32,500	20,000	11,000	11,800
20	15,300	10,800	23,200	10,200	21,900	16,600	12,300	16,200	41,000	20,800	11,000	9,880
21	14,600	10,500	20,000	11,100	24,000	15,700	14,600	13,500	41,000	20,800	10,700	7,340
22	13,500	10,200	18,600	11,100	26,000	14,800	14,600	14,400	44,000	24,000	10,200	7,080
23	13,500	10,200	17,100	15,300	28,800	14,400	13,100	12,600	41,000	21,400	9,580	6,700
24	13,500	8,140	16,400	17,100	41,000	15,300	11,100	11,800	35,000	20,800	8,700	6,340
25	14,200	8,420	14,600	18,600	41,000	15,300	10,300	13,500	32,500	21,900	8,140	8,700
26	14,600	8,980	13,500	19,300	41,000	15,500	9,430	15,300	30,500	17,500	12,500	10,000
27	11,100	10,200	11,800	19,300	41,000	14,600	8,700	15,300	27,200	14,200	12,500	9,730
28	10,200	10,200	11,100	19,300	44,000	13,900	10,200	15,300	24,000	12,000	10,200	9,430
29	10,700	9,580	14,600	18,600	44,000	12,600	10,200	14,400	20,800	11,800	9,880	8,700
30	11,000	8,700	13,500	18,000	44,000	12,300	10,200	13,500	18,300	11,000	9,880	9,280
31	10,800	13,500	18,000	12,600	12,600	11,800	11,800	10,700	10,700	7,730	7,730	7,730
1910-11												
1	9,580	8,420	6,100	11,500	7,340	7,860	16,000	12,600	5,440	5,550	4,730	6,100
2	10,800	7,080	5,880	11,500	7,340	8,280	14,400	11,100	6,580	5,880	4,280	9,730
3	12,800	6,820	5,550	10,500	8,000	8,560	13,100	10,800	7,340	6,460	3,660	14,000
4	13,500	7,080	5,230	10,800	9,730	9,280	11,300	11,800	7,210	6,460	3,610	15,300
5	11,000	7,340	5,030	11,800	10,200	10,300	9,730	12,500	6,700	5,230	3,520	14,200
6	11,000	7,340	5,330	20,000	10,300	10,200	9,730	12,100	6,100	4,120	5,660	12,600
7	10,200	7,340	5,660	27,200	9,430	8,700	10,200	11,300	5,030	4,280	9,280	13,700
8	9,880	7,600	5,770	23,200	7,080	7,340	13,300	10,700	4,120	4,370	12,000	14,900
9	12,600	8,140	9,130	27,200	7,340	8,000	17,100	9,430	5,030	4,550	10,000	16,400
10	17,100	8,420	14,800	35,000	9,280	9,280	18,300	8,560	6,100	4,640	9,580	16,900
11	20,000	8,700	13,700	35,000	10,200	10,300	20,000	9,430	7,340	4,830	9,280	16,400
12	21,900	8,980	12,600	27,200	13,500	10,500	21,900	10,200	7,340	5,030	9,280	13,500
13	25,000	8,980	11,500	25,000	15,800	10,200	23,200	6,460	5,990	8,700	10,200	20,000
14	27,200	9,430	10,500	23,200	16,000	9,430	24,000	9,880	5,030	6,820	7,340	9,730
15	30,500	9,580	9,580	20,800	16,900	9,280	25,000	9,430	4,550	7,210	7,210	7,600
16	30,500	9,880	10,300	18,000	17,100	9,280	25,000	8,560	5,880	7,860	4,930	8,000
17	30,500	9,430	10,700	14,900	16,600	10,200	26,000	7,080	6,580	8,420	4,120	7,340
18	35,000	8,700	11,000	12,600	15,300	11,800	26,000	7,080	5,880	7,340	4,280	6,220
19	27,200	8,700	9,130	12,600	14,000	11,500	27,200	8,280	5,440	7,080	5,030	5,440
20	27,200	8,140	8,700	12,600	12,600	10,800	28,800	8,700	4,640	7,730	5,030	4,660
21	27,200	8,000	8,420	12,500	11,100	9,430	30,500	8,560	4,120	10,000	4,550	4,120
22	18,300	7,600	8,420	11,800	10,300	8,140	30,500	8,000	6,580	10,300	4,200	4,550
23	15,300	7,340	8,700	11,500	10,200	9,430	28,800	7,210	7,340	8,560	4,200	6,100
24	14,400	6,950	9,580	10,000	13,300	11,000	26,000	5,880	7,340	7,340	4,120	8,000
25	13,500	6,580	9,580	8,420	13,000	11,000	23,200	5,880	6,820	6,950	4,200	10,300
26	12,800	6,100	9,880	8,700	11,800	10,200	20,800	7,340	6,700	5,440	4,640	11,800
27	12,100	6,100	10,200	9,880	11,300	10,000	18,600	7,860	6,100	5,130	4,930	10,500
28	11,500	6,100	10,700	10,800	10,000	9,430	16,700	8,000	5,030	5,030	4,370	8,280
29	10,500	6,460	11,800	11,000	10,000	10,800	15,300	8,000	4,120	5,550	4,370	7,470
30	10,200	6,700	12,500	11,000	10,000	15,300	13,700	7,080	4,120	5,230	4,930	7,080
31	9,580	11,800	9,430	16,400	16,400	16,400	16,400	5,880	5,230	4,930	4,930	4,930

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1911-12												
1	6,700	26,000	14,400	50,000	19,600	50,000	32,500	41,000	17,300	18,900	13,700	10,800
2	7,080	22,500	15,300	47,000	21,400	53,000	32,500	35,000	17,500	19,600	13,500	10,200
3	9,280	21,900	14,800	41,000	25,000	50,000	38,000	30,500	18,000	19,300	13,100	8,140
4	12,500	18,600	13,500	35,000	38,000	50,000	41,000	28,800	16,900	19,600	12,800	7,080
5	13,100	15,800	11,600	35,000	35,000	47,000	41,000	28,500	16,900	20,400	12,500	6,700
6	11,000	13,700	11,100	32,500	32,500	44,000	38,000	27,200	18,300	21,400	11,600	7,210
7	8,280	11,800	10,200	32,500	30,500	41,000	38,000	25,000	20,400	21,900	10,800	7,340
8	7,080	9,130	11,100	32,500	27,200	38,000	38,000	25,000	22,500	22,500	12,600	7,600
9	5,660	11,300	10,800	32,500	23,200	38,000	32,500	25,000	25,000	23,200	13,900	7,340
10	5,030	16,600	9,880	32,500	20,400	47,000	30,500	27,200	25,000	25,000	15,300	6,700
11	4,200	17,100	9,280	30,500	18,600	47,000	28,800	28,800	32,500	27,200	17,300	6,340
12	5,770	20,000	8,000	28,800	15,500	50,000	27,200	35,000	38,000	28,800	18,000	7,340
13	6,100	23,200	6,820	32,500	14,600	47,000	26,000	38,000	35,000	28,800	16,700	9,430
14	6,950	28,800	7,340	35,000	17,100	44,000	24,000	35,000	27,200	28,800	14,900	9,580
15	8,700	35,000	8,420	38,000	20,800	41,000	22,500	32,500	24,000	28,800	14,000	9,730
16	9,730	38,000	8,840	32,500	22,500	44,000	21,400	30,500	22,500	27,200	13,100	10,000
17	7,860	30,500	15,100	30,500	27,200	41,000	20,000	32,500	23,200	27,200	13,300	11,000
18	6,950	27,200	18,300	27,200	53,000	41,000	20,400	30,500	24,000	26,000	13,900	12,500
19	8,000	24,000	20,000	50,000	62,000	65,000	21,900	35,000	27,200	25,000	13,500	12,500
20	16,000	20,000	23,200	47,000	83,000	197,000	23,200	41,000	38,000	25,000	13,500	11,600
21	18,600	17,300	26,000	35,000	77,000	209,000	27,200	41,000	41,000	24,000	13,500	10,200
22	21,400	16,200	28,800	32,500	62,000	167,000	35,000	41,000	38,000	24,000	15,700	9,430
23	23,200	13,900	27,200	30,500	50,000	125,000	38,000	35,000	32,500	24,000	15,300	8,700
24	23,200	14,000	30,500	20,000	47,000	68,000	35,000	30,500	27,200	24,000	13,900	8,140
25	26,000	13,000	32,500	19,300	47,000	50,000	32,500	27,200	23,200	25,000	12,600	9,880
26	27,200	11,800	47,000	18,600	50,000	41,000	32,500	23,200	18,900	25,000	11,800	18,000
27	28,800	11,300	56,000	17,500	50,000	38,000	32,000	20,800	18,000	25,000	11,100	17,500
28	32,500	10,200	65,000	16,400	50,000	35,000	47,000	18,300	17,800	22,500	11,500	20,800
29	27,200	8,700	80,000	15,700	50,000	35,000	50,000	16,600	18,000	19,600	13,100	25,000
30	26,000	10,800	68,000	14,600	-----	32,500	44,000	16,900	18,600	16,900	12,800	27,200
31	30,500	-----	53,000	16,200	-----	32,500	-----	17,300	-----	13,900	11,800	-----
1912-13												
1	30,500	11,800	11,500	12,100	53,000	26,000	35,000	15,300	18,600	13,000	16,600	8,700
2	30,500	11,300	11,800	13,500	53,000	25,000	35,000	15,300	18,600	12,100	17,300	10,700
3	27,200	11,100	11,000	14,400	56,000	25,000	38,000	14,900	16,700	13,300	17,800	9,430
4	23,200	10,200	9,880	15,100	53,000	27,200	35,000	14,400	15,300	13,000	16,600	9,730
5	19,600	9,130	10,500	15,500	47,000	41,000	35,000	13,700	15,300	11,800	13,900	9,430
6	15,300	9,280	10,800	15,700	41,000	50,000	32,500	12,100	15,700	10,800	11,000	8,980
7	13,900	10,000	11,000	15,500	38,000	53,000	30,500	10,500	15,700	10,300	12,600	9,430
8	10,700	11,800	11,500	14,000	32,500	50,000	27,200	10,200	15,800	11,000	16,200	10,200
9	8,700	17,500	12,100	13,700	30,500	47,000	24,000	12,500	16,400	11,000	17,100	10,000
10	9,130	19,600	11,000	14,200	27,200	41,000	21,900	12,600	17,100	10,500	16,200	10,200
11	10,200	21,900	10,500	14,600	24,000	32,500	20,000	12,100	18,600	10,200	15,300	9,580
12	9,880	41,000	12,000	14,200	20,800	27,200	20,000	11,500	20,000	10,000	13,100	10,000
13	9,130	53,000	11,000	13,300	20,000	26,000	18,900	11,000	20,800	9,730	10,300	8,980
14	8,980	47,000	11,100	11,800	21,400	27,200	20,000	11,500	21,900	9,430	10,300	7,860
15	8,420	47,000	11,500	9,880	22,500	28,800	21,400	11,100	23,200	8,980	11,800	7,340
16	8,700	38,000	9,430	11,800	24,000	32,500	23,200	11,800	21,900	7,860	12,500	7,340
17	9,430	30,500	7,600	11,800	26,000	35,000	27,200	11,800	20,800	6,820	13,500	7,600
18	11,800	25,000	8,140	11,800	27,200	41,000	30,500	11,600	17,100	6,700	14,600	6,700
19	11,600	19,600	8,980	11,800	25,000	56,000	32,500	11,800	15,800	8,420	13,900	6,700
20	11,100	16,000	9,880	11,800	22,500	83,000	35,000	10,800	14,400	8,700	10,200	13,700
21	13,300	14,900	10,300	10,800	21,400	98,000	32,500	8,560	13,500	8,700	8,700	16,900
22	17,100	13,900	10,800	9,130	20,800	77,000	30,500	9,280	12,300	10,200	9,280	19,300
23	18,900	12,800	11,000	10,700	21,400	65,000	27,200	11,000	11,000	12,100	8,700	20,000
24	20,400	12,100	11,100	11,000	22,500	53,000	25,000	13,500	10,500	12,000	10,800	21,900
25	21,900	11,500	12,000	14,600	25,000	47,000	22,500	14,200	9,280	11,500	12,600	23,200
26	23,200	10,000	13,300	18,600	27,200	44,000	20,800	14,400	9,280	10,500	14,800	22,500
27	21,900	8,700	15,300	20,000	27,200	41,000	18,900	16,700	13,500	12,600	12,300	21,900
28	18,300	9,880	13,900	22,500	27,200	38,000	17,500	17,800	13,700	12,800	6,700	18,600
29	14,800	10,800	13,700	28,800	-----	35,000	15,800	18,300	13,300	14,000	9,430	16,200
30	12,100	10,800	14,400	47,000	-----	32,500	14,600	18,300	13,000	15,500	9,880	13,500
31	11,500	-----	13,700	50,000	-----	32,500	-----	18,600	-----	16,200	8,700	-----

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period
December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1913-14												
1	9,730	17,500	8,700	25,000	13,300	28,800	11,500	16,200	5,440	7,730	8,140	12,000
2	8,700	15,800	8,980	26,000	14,000	30,500	13,100	15,100	5,770	7,600	9,430	10,000
3	9,880	13,900	8,980	26,000	13,500	30,500	16,900	14,200	5,330	6,820	7,340	8,280
4	11,000	13,100	12,500	32,500	12,100	32,500	18,300	13,500	5,880	8,000	8,700	7,340
5	10,000	8,700	15,300	47,000	13,500	35,000	18,600	12,100	6,820	8,700	9,730	7,210
6	8,700	8,280	18,600	53,000	14,600	32,500	17,100	9,580	7,470	9,280	12,600	7,080
7	8,700	9,430	18,600	53,000	14,800	32,500	15,700	8,420	8,000	9,280	13,500	6,820
8	7,340	9,430	18,000	50,000	16,700	30,500	13,100	10,800	8,700	10,000	11,800	5,880
9	7,340	10,300	16,200	47,000	18,000	28,800	13,500	11,100	10,700	13,500	11,100	5,030
10	8,700	12,100	14,400	47,000	19,600	27,200	14,400	10,800	9,130	15,800	9,430	5,030
11	8,980	15,800	15,300	44,000	20,400	22,500	15,300	10,700	8,700	16,700	8,280	5,550
12	8,280	18,300	15,700	41,000	20,800	21,900	16,900	8,700	8,700	17,300	7,600	5,330
13	7,860	20,800	14,600	32,500	21,900	20,000	18,300	8,000	8,560	16,700	12,500	5,130
14	7,600	23,200	13,500	27,200	21,900	20,000	18,300	8,980	8,560	14,400	16,000	5,030
15	6,340	25,000	12,100	23,200	20,400	20,400	18,300	8,560	8,700	10,800	15,700	4,930
16	6,100	23,200	11,100	20,800	19,600	21,400	18,900	8,000	8,700	8,700	15,700	4,550
17	6,950	20,400	8,700	18,600	20,400	20,800	20,400	7,600	8,140	8,000	16,700	4,830
18	6,950	15,700	7,340	16,700	20,800	20,800	22,500	7,340	9,280	8,420	16,700	4,830
19	6,700	13,500	11,000	15,700	20,800	20,000	25,000	6,340	9,430	8,980	14,900	5,330
20	6,460	11,800	11,000	13,700	21,400	19,300	30,500	5,990	8,840	9,580	11,800	5,330
21	6,700	11,800	10,200	11,100	21,400	18,300	41,000	7,080	8,560	8,140	13,500	5,330
22	7,340	11,500	10,200	12,100	21,900	17,800	44,000	7,470	8,140	7,340	8,700	5,130
23	11,800	10,700	9,880	13,100	22,500	17,100	44,000	8,420	7,210	8,700	7,600	4,370
24	14,000	10,200	7,860	13,100	24,000	16,200	22,500	8,000	5,990	8,280	6,950	5,230
25	14,000	9,730	8,000	13,900	25,000	15,300	21,400	7,600	5,770	7,470	6,100	5,030
26	14,600	8,140	13,500	14,600	28,800	16,200	23,200	6,580	5,880	6,100	5,550	5,130
27	15,700	7,600	15,300	15,700	28,800	15,800	26,000	5,880	7,210	5,770	5,550	6,220
28	17,800	7,600	17,100	14,900	28,800	15,700	21,900	5,990	7,080	5,550	5,550	11,100
29	18,900	7,600	15,600	14,400	-----	15,100	18,600	6,100	7,210	4,280	6,100	8,700
30	19,600	8,280	20,000	14,200	-----	14,600	16,900	7,210	7,340	4,830	8,980	7,210
31	19,600	-----	20,800	13,300	-----	13,500	-----	6,580	-----	7,340	12,000	-----
1914-15												
1	6,100	8,840	6,340	56,000	32,500	26,000	16,200	12,500	18,000	9,430	6,820	17,100
2	5,660	7,730	12,100	59,000	30,500	28,800	17,300	12,300	18,300	10,200	6,460	16,900
3	5,440	6,340	17,100	56,000	27,200	32,500	18,900	12,100	19,300	11,000	6,460	16,000
4	5,330	5,330	18,900	53,000	27,200	32,500	20,000	10,500	20,800	12,000	6,460	16,000
5	5,230	4,830	20,400	50,000	28,800	24,000	20,800	8,700	22,500	13,100	8,700	13,700
6	4,830	4,370	24,000	47,000	38,000	28,800	22,500	10,700	25,000	11,300	11,500	14,000
7	7,080	6,460	41,000	41,000	50,000	27,200	23,200	12,000	28,800	8,980	13,500	12,600
8	11,500	6,700	50,000	38,000	50,000	27,200	23,200	12,300	32,500	8,060	15,700	10,500
9	12,500	7,080	53,000	32,500	50,000	28,800	25,000	13,700	32,500	13,500	16,000	13,900
10	11,800	5,990	56,000	35,000	47,000	32,500	26,000	15,800	27,200	16,000	14,000	15,700
11	8,980	5,030	62,000	47,000	44,000	41,000	23,200	18,300	22,500	14,800	10,000	18,000
12	7,730	6,460	62,000	53,000	38,000	47,000	20,800	21,400	21,400	13,100	6,950	15,300
13	5,770	6,580	56,000	62,000	35,000	44,000	18,300	22,500	21,400	11,000	8,000	14,400
14	5,030	6,700	47,000	59,000	30,500	41,000	17,100	24,000	21,400	9,730	11,800	11,100
15	5,440	7,210	41,000	53,000	27,200	38,000	16,700	25,000	16,000	10,200	15,500	8,560
16	5,660	8,700	35,000	53,000	25,000	32,500	16,700	25,000	12,600	11,000	17,800	10,000
17	5,660	11,600	32,500	47,000	24,000	28,800	16,200	25,000	13,000	11,800	18,900	10,700
18	7,340	16,700	30,500	50,000	23,200	26,000	15,700	23,200	14,000	11,800	19,300	10,200
19	15,500	18,300	28,800	50,000	23,200	24,000	14,900	20,000	16,200	11,800	20,000	9,580
20	18,000	19,300	26,000	47,000	24,000	22,500	13,100	18,000	16,600	9,730	20,000	8,840
21	20,800	18,600	24,000	44,000	25,000	21,400	11,800	16,900	18,600	7,600	18,300	8,000
22	21,400	17,800	20,800	41,000	25,000	20,400	13,300	15,800	18,060	7,600	17,300	7,080
23	21,900	16,000	19,300	47,000	24,000	18,900	14,000	14,900	16,600	10,700	18,300	7,080
24	20,800	13,500	20,000	68,000	23,200	18,600	13,900	14,600	15,700	12,600	19,300	7,340
25	16,600	11,500	20,800	71,000	21,900	18,300	13,700	13,500	14,900	12,600	20,000	8,060
26	13,900	10,700	21,900	62,000	21,400	18,000	13,500	16,200	14,400	11,100	20,400	7,340
27	12,800	10,200	23,200	50,000	22,500	18,000	11,800	16,900	13,500	9,730	19,600	6,820
28	10,200	9,130	24,000	44,000	24,000	17,500	11,800	17,100	12,500	7,210	17,100	6,100
29	10,000	7,340	25,000	41,000	-----	16,900	11,800	16,600	11,000	6,820	16,600	5,440
30	10,700	8,140	32,500	38,000	-----	16,200	12,600	16,400	10,200	6,460	16,000	5,230
31	9,880	-----	50,000	35,000	-----	15,700	-----	17,100	-----	7,340	17,100	-----

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1915-16												
1	6,100	10,200	11,800	20,400	16,200	20,800	13,900	10,700	16,000	15,300	71,000	14,900
2	7,080	8,700	11,800	23,200	16,700	21,400	13,500	8,980	15,300	15,100	56,000	13,700
3	8,840	7,470	12,500	23,200	17,300	22,500	13,100	7,340	13,300	14,900	44,000	13,700
4	10,800	7,470	13,700	35,000	19,300	24,000	11,300	7,860	12,300	14,400	38,000	16,900
5	14,900	8,980	12,800	47,000	21,900	25,000	10,300	9,430	11,800	13,500	35,000	13,500
6	15,800	9,430	11,800	50,000	27,200	27,200	13,500	10,200	10,000	16,400	32,500	12,100
7	15,800	8,980	9,280	47,000	50,000	32,500	15,300	10,200	8,420	17,800	35,000	12,000
8	18,000	8,700	8,280	44,000	86,000	35,000	15,300	10,200	9,730	17,800	35,000	12,100
9	18,600	7,730	8,280	38,000	104,000	32,500	15,500	8,420	13,000	16,200	32,500	11,600
10	20,800	6,100	9,730	32,500	83,000	30,500	15,800	6,340	16,700	15,300	32,500	11,300
11	21,900	5,550	9,730	27,200	59,000	30,500	16,900	6,100	18,000	14,400	30,500	11,000
12	23,200	7,340	9,880	24,000	44,000	32,500	17,300	6,100	17,500	17,300	30,500	10,500
13	23,200	8,140	10,200	20,800	44,000	30,500	17,100	7,600	16,000	19,300	28,800	10,000
14	21,400	8,140	10,200	19,600	38,000	28,800	16,700	7,860	13,700	24,000	27,200	11,300
15	18,900	7,860	10,500	19,300	27,200	25,000	16,200	8,140	11,800	32,500	25,000	11,100
16	17,100	6,820	11,800	19,300	25,000	22,500	15,500	6,950	18,000	38,500	23,200	12,000
17	15,500	6,100	12,600	19,600	23,200	20,400	14,600	6,100	14,800	44,000	19,300	14,000
18	13,900	7,340	12,500	18,000	22,500	18,600	13,500	5,880	17,100	50,000	17,300	16,200
19	11,000	9,130	12,500	17,300	19,600	17,300	9,730	7,730	19,600	71,000	18,900	15,500
20	9,580	13,300	12,800	17,100	18,300	16,200	8,700	8,420	20,800	260,000	18,300	13,000
21	8,560	17,100	17,300	16,700	17,100	13,500	11,300	8,280	21,900	385,000	47,800	11,100
22	11,800	19,300	19,300	15,800	15,300	12,800	13,100	7,340	21,900	368,000	16,600	11,000
23	17,100	20,800	20,800	15,300	14,400	12,100	12,500	6,100	20,000	311,000	14,800	10,500
24	17,500	21,400	22,500	14,900	14,400	14,400	11,800	5,330	19,600	263,000	13,700	10,000
25	16,600	25,000	27,200	13,700	15,100	14,200	11,800	5,330	19,300	215,000	13,700	9,280
26	14,900	26,000	27,200	13,300	15,800	14,400	7,730	13,500	18,900	179,000	13,700	8,280
27	13,900	25,000	25,000	14,000	17,100	14,000	8,420	17,500	16,900	155,000	14,200	7,470
28	13,500	20,800	21,900	14,400	18,900	12,100	10,500	15,600	17,300	155,000	14,900	7,730
29	12,600	18,000	18,900	14,800	20,000	11,500	10,500	19,600	18,300	140,000	14,900	8,000
30	12,300	14,900	17,300	15,500	-----	12,800	10,700	18,900	16,900	128,000	14,400	11,000
31	11,500	-----	18,600	15,800	-----	13,700	-----	17,100	-----	95,000	13,900	-----
1916-17												
1	14,900	7,210	7,860	11,600	16,600	47,000	32,500	11,800	10,500	9,430	16,400	7,080
2	14,900	7,470	8,980	12,300	17,500	50,000	38,000	10,700	10,800	10,300	16,000	8,700
3	13,300	8,140	9,580	9,580	18,000	53,000	47,000	10,200	11,000	11,300	15,300	13,300
4	12,300	8,980	9,280	10,200	18,900	47,000	41,000	14,000	10,700	11,800	14,800	16,600
5	11,500	10,000	8,840	11,100	20,800	35,000	32,500	15,100	10,200	10,800	14,400	18,300
6	10,800	11,000	8,140	11,500	21,400	27,200	32,500	15,500	8,560	10,200	13,700	26,000
7	10,000	8,420	7,600	11,800	21,400	27,200	32,500	15,700	11,000	10,200	13,000	26,000
8	9,730	8,820	8,140	12,100	21,400	27,200	35,000	15,700	11,300	15,100	12,300	27,200
9	9,580	7,600	8,700	11,000	20,000	59,000	41,000	15,300	11,000	17,800	13,300	20,000
10	8,840	7,860	8,420	12,100	18,000	74,000	47,000	16,200	10,700	13,900	14,200	21,400
11	6,950	8,420	8,140	10,800	17,100	62,000	50,000	16,700	10,200	10,200	13,100	23,200
12	7,210	7,860	7,730	12,100	16,200	53,000	53,000	16,200	11,000	11,600	13,000	24,000
13	9,130	7,340	8,140	12,500	13,100	44,000	50,000	15,800	14,900	12,500	12,100	20,800
14	9,430	7,340	11,000	11,800	12,100	38,000	44,000	15,100	17,800	11,100	8,000	18,900
15	8,980	6,820	14,900	11,100	11,000	32,500	38,000	13,300	18,300	9,730	7,080	16,200
16	8,560	6,820	11,100	9,130	12,100	27,200	32,500	12,300	18,900	7,730	8,140	13,900
17	8,000	7,340	11,600	7,860	13,000	27,200	30,500	11,000	18,600	6,220	8,280	12,100
18	7,210	7,080	11,100	10,300	13,300	24,000	30,500	11,000	18,300	5,980	8,420	8,280
19	6,460	7,340	10,500	14,000	12,800	22,500	32,500	10,800	17,800	7,600	8,980	6,950
20	7,860	7,600	9,580	15,800	11,800	21,400	27,200	10,800	15,100	11,500	8,560	7,340
21	10,000	6,580	9,130	16,200	14,800	19,600	24,000	10,700	13,000	15,500	7,210	7,470
22	14,000	6,220	11,100	15,700	19,300	19,600	22,500	10,300	12,100	16,900	6,460	7,470
23	16,900	6,820	13,700	13,900	20,800	19,600	21,400	9,730	11,300	20,000	6,950	7,340
24	16,900	7,340	11,500	13,300	24,000	20,000	18,900	8,000	10,700	21,400	9,580	6,580
25	16,400	7,600	9,430	15,700	27,200	20,800	15,700	7,080	9,430	21,400	9,430	6,820
26	15,100	7,340	8,560	18,300	38,000	22,500	14,400	8,000	8,700	20,000	8,700	7,080
27	13,300	7,340	7,860	19,600	44,000	24,000	12,100	10,700	8,280	18,600	8,420	7,600
28	12,300	6,820	8,140	20,400	44,000	26,000	12,900	15,300	7,600	26,000	6,220	8,000
29	11,000	6,820	10,500	20,800	-----	28,800	12,300	12,600	6,950	22,500	5,880	9,580
30	9,580	7,210	10,800	19,300	-----	41,000	12,100	11,600	8,700	18,900	5,660	16,700
31	8,140	-----	11,100	17,800	-----	50,000	-----	10,500	-----	18,300	6,460	-----

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period
December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1917-18												
1	21,900	16,700	7,340	6,700	23,200	14,000	11,000	30,500	11,000	8,420	15,300	8,840
2	22,500	18,000	7,340	5,660	20,000	14,400	9,130	26,000	10,800	7,340	16,700	9,430
3	21,900	16,700	7,340	6,460	24,000	13,700	7,600	22,500	10,500	6,460	18,600	7,340
4	19,300	15,500	6,220	7,600	41,000	13,100	8,980	20,800	8,980	11,100	20,400	5,440
5	16,400	14,400	5,030	8,140	47,000	11,100	10,000	18,300	7,600	13,500	21,400	5,770
6	13,100	11,100	5,770	7,600	50,000	9,280	10,000	17,500	11,500	12,600	21,900	6,820
7	11,300	9,880	7,080	7,340	47,000	12,100	10,500	14,900	12,800	11,100	24,000	7,080
8	8,840	7,730	7,340	9,580	44,000	15,300	10,500	11,100	12,100	8,980	26,000	7,210
9	7,600	8,140	7,470	10,500	41,000	15,800	9,430	10,700	11,600	7,340	26,000	7,340
10	7,080	8,000	7,470	8,560	28,800	15,100	13,500	12,300	11,100	6,100	24,000	9,880
11	8,000	7,860	6,700	8,280	20,800	14,200	17,100	13,900	10,500	6,220	19,600	12,000
12	8,840	7,470	6,220	9,430	27,200	11,100	19,300	14,900	8,420	7,470	17,300	14,400
13	8,280	6,220	6,700	10,700	23,200	8,840	20,400	15,800	8,420	7,860	16,000	14,400
14	8,000	5,030	8,280	13,500	20,400	9,430	21,400	13,500	7,600	7,340	13,000	11,800
15	6,580	5,030	8,000	17,800	19,600	11,000	24,000	10,700	8,840	6,950	12,300	10,300
16	5,990	8,560	7,860	19,300	18,300	11,300	24,000	14,900	8,280	6,460	11,100	8,560
17	6,220	9,730	7,730	20,800	17,800	11,100	21,900	17,500	7,730	4,730	10,200	6,820
18	7,470	9,130	6,700	21,900	17,100	11,100	20,000	18,000	6,460	5,550	10,200	5,030
19	8,140	8,420	5,130	24,000	16,900	10,200	18,900	18,000	6,220	6,180	10,200	5,880
20	7,600	6,580	5,880	26,000	16,400	10,300	17,100	17,300	7,340	6,700	8,140	6,950
21	7,860	5,440	7,730	28,800	17,100	12,600	18,300	15,700	8,420	7,600	6,100	7,340
22	6,580	5,880	8,140	26,000	17,300	13,700	18,900	15,300	8,980	8,280	8,420	10,000
23	5,880	7,210	7,600	22,500	17,800	14,000	19,600	13,300	8,980	7,470	10,000	12,600
24	8,700	7,600	7,080	20,000	17,800	14,400	24,000	14,800	8,840	6,820	9,880	14,800
25	11,600	7,600	6,580	18,900	17,800	13,700	26,000	14,800	6,950	7,600	9,730	14,400
26	11,100	7,600	6,100	18,600	16,600	11,600	30,500	14,800	6,460	7,860	9,280	12,600
27	9,730	6,340	4,830	18,600	13,500	10,200	41,000	14,800	7,730	12,000	6,820	11,000
28	8,840	4,730	4,930	18,000	14,400	12,000	38,000	12,800	11,000	13,000	5,030	9,580
29	7,600	5,440	6,460	18,000	-----	13,300	35,000	9,430	9,430	13,900	5,660	8,840
30	6,700	6,460	7,600	17,300	-----	13,100	32,500	9,280	8,700	14,400	6,820	8,280
31	6,580	-----	8,560	19,300	-----	11,000	-----	10,200	-----	13,700	7,860	-----
1918-19												
1	6,820	41,000	18,000	50,000	50,000	47,000	18,600	12,500	18,900	32,500	38,000	12,100
2	5,550	50,000	20,800	41,000	50,000	47,000	18,300	14,200	17,800	32,500	32,500	13,900
3	6,100	62,000	24,000	32,500	44,000	47,000	18,300	15,800	16,000	28,800	25,000	13,900
4	6,820	71,000	28,800	30,500	38,000	44,000	18,300	16,700	15,500	26,000	25,000	14,800
5	7,210	80,000	35,000	32,500	30,500	44,000	18,000	18,300	15,700	22,600	21,900	15,100
6	7,340	71,000	35,000	35,000	27,200	38,000	18,300	18,600	15,700	18,900	19,300	14,000
7	6,950	62,000	30,500	38,000	27,200	41,000	18,300	18,600	15,300	18,900	18,900	13,000
8	5,660	50,000	26,000	41,000	26,000	38,000	17,800	18,900	15,300	14,200	18,900	11,500
9	5,230	32,500	24,000	47,000	24,000	38,000	17,500	20,000	16,200	14,400	19,600	9,880
10	5,880	30,500	18,900	47,000	22,500	38,000	17,500	21,400	14,600	16,400	20,000	8,140
11	6,340	27,200	15,700	41,000	21,400	41,000	17,500	23,200	12,600	18,000	20,400	8,140
12	5,550	22,500	14,800	35,000	20,000	44,000	17,300	26,000	12,000	19,300	20,000	8,700
13	5,770	17,800	14,600	32,500	19,600	44,000	17,500	28,800	13,500	20,400	20,000	9,130
14	5,880	16,200	14,000	28,800	19,300	50,000	18,000	32,500	13,700	21,400	21,400	8,700
15	4,930	15,500	13,500	27,200	19,300	53,000	19,600	38,000	13,900	20,400	23,200	8,420
16	3,830	14,400	13,000	24,000	20,000	47,000	20,400	38,000	14,000	18,900	27,200	8,140
17	4,640	13,100	15,700	22,500	20,800	41,000	20,800	38,000	12,100	18,300	32,500	7,860
18	4,370	11,800	18,300	20,000	24,000	41,000	20,800	41,000	11,000	15,300	41,000	8,140
19	3,830	11,100	20,800	21,900	27,200	35,000	20,800	44,000	10,500	18,900	38,000	9,130
20	3,520	16,400	23,200	21,900	30,500	32,500	20,000	47,000	12,100	20,000	35,000	9,580
21	3,660	18,600	32,500	23,200	30,500	30,500	19,300	44,000	13,300	21,900	30,500	8,980
22	3,610	19,300	38,000	24,000	28,800	27,200	17,800	38,000	13,700	26,000	27,200	8,000
23	3,480	20,000	47,000	24,000	27,200	26,000	16,200	35,000	13,300	32,500	25,000	7,340
24	3,710	19,600	47,000	25,000	26,000	25,000	16,200	32,500	11,500	47,000	22,500	7,080
25	6,340	18,900	44,000	25,000	26,000	23,200	16,200	30,500	10,000	101,000	21,400	6,460
26	6,820	16,400	41,000	26,000	27,200	21,900	16,200	20,000	16,200	137,000	18,300	6,950
27	8,140	13,700	44,000	27,200	32,500	21,900	15,700	19,300	18,600	146,000	16,000	7,080
28	13,700	14,400	53,000	27,200	44,000	20,400	14,900	18,600	20,000	137,000	14,600	6,950
29	17,300	14,900	47,000	32,500	-----	20,000	12,600	22,500	23,200	116,000	14,600	7,700
30	18,600	16,900	68,000	44,000	-----	20,000	10,500	21,900	26,000	86,000	12,300	5,660
31	20,400	-----	62,000	47,000	-----	19,600	-----	20,800	-----	59,000	12,300	-----

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1919-20												
1	5,550	11,600	9,130	13,500	38,000	21,900	38,000	27,200	10,800	9,430	17,500	44,000
2	5,550	11,500	6,700	14,900	44,000	19,300	38,000	26,000	10,200	10,800	16,700	44,000
3	5,550	11,300	5,990	15,300	47,000	18,000	53,000	26,000	11,100	12,300	14,000	44,000
4	5,770	10,700	7,730	14,900	44,000	17,300	47,000	23,200	13,500	13,500	12,500	44,000
5	5,550	10,200	8,280	14,800	38,000	17,300	47,000	21,900	14,000	14,400	14,000	38,000
6	5,330	9,730	9,580	9,880	38,000	17,500	44,000	20,800	14,600	15,300	15,700	35,000
7	4,930	8,840	9,730	9,430	41,000	19,300	47,000	20,400	15,100	12,600	16,400	32,500
8	4,120	9,730	9,280	7,600	41,000	20,800	47,000	20,000	16,600	11,800	15,800	30,500
9	4,550	9,430	7,470	13,100	44,000	23,200	47,000	19,600	17,500	10,700	15,100	28,800
10	5,330	9,130	15,700	13,500	44,000	26,000	50,000	18,900	18,600	15,100	10,700	27,200
11	6,700	8,000	18,300	12,800	41,000	28,800	47,000	16,400	18,600	13,500	14,200	26,000
12	6,460	5,770	18,600	12,500	41,000	27,200	47,000	15,100	18,300	13,500	15,700	26,000
13	6,340	8,280	20,000	10,200	35,000	27,200	44,000	16,200	16,900	11,800	19,600	26,000
14	5,440	9,430	22,500	8,280	35,000	27,200	41,000	16,400	16,400	10,500	20,400	26,000
15	4,370	10,000	26,000	11,800	32,500	26,000	38,000	16,000	14,900	12,600	25,000	24,000
16	5,130	11,300	38,000	12,100	28,800	27,200	35,000	16,700	11,500	13,300	28,800	22,500
17	5,440	12,600	44,000	12,500	30,500	32,500	32,500	16,900	13,000	13,700	32,500	21,400
18	5,990	9,880	44,000	13,000	32,500	44,000	32,500	15,100	13,300	13,700	32,500	20,000
19	5,880	7,730	41,000	13,700	35,000	44,000	32,500	14,000	13,100	13,900	32,500	19,600
20	5,770	8,840	28,800	13,100	30,500	41,000	30,500	15,100	13,000	12,800	32,500	19,300
21	5,770	10,700	28,800	11,100	28,800	38,000	28,800	15,700	12,800	14,600	35,000	16,900
22	6,580	11,000	27,200	10,700	27,200	35,000	26,000	16,600	10,200	17,100	35,000	15,500
23	7,210	10,200	23,200	11,300	25,000	35,000	24,000	16,600	14,900	18,800	38,000	15,300
24	7,860	9,430	18,900	11,500	24,000	35,000	25,000	16,600	15,700	19,300	41,000	15,300
25	12,500	6,700	16,700	11,800	22,500	32,500	26,000	14,000	16,400	20,800	44,000	15,300
26	13,500	6,220	15,800	12,000	21,900	32,500	27,200	12,500	15,800	21,900	41,000	16,600
27	16,700	8,420	12,100	16,400	21,900	32,500	28,800	13,700	15,700	24,000	41,000	17,500
28	15,700	9,130	10,000	18,000	20,800	30,500	30,500	14,900	15,300	23,200	41,000	17,500
29	14,200	8,840	7,730	19,600	21,900	30,500	28,800	14,200	13,700	21,400	35,000	17,800
30	10,800	9,130	7,860	21,400	-----	28,800	27,200	14,600	10,200	20,400	32,500	18,300
31	11,800	-----	10,500	30,500	-----	28,800	-----	14,900	-----	19,300	35,000	-----
1920-21												
1	19,600	11,000	17,100	26,000	32,500	27,200	19,300	16,400	18,000	14,000	18,000	11,500
2	20,800	10,500	18,900	27,200	32,500	27,200	18,900	16,000	17,800	14,600	14,800	11,500
3	20,800	10,800	20,800	30,500	35,000	27,200	18,300	13,500	17,300	13,000	12,500	10,800
4	21,400	10,800	22,500	27,200	35,000	26,000	18,000	14,000	17,100	12,500	11,800	10,200
5	21,900	11,000	24,000	27,200	35,000	25,000	16,000	15,500	16,400	9,880	14,800	9,430
6	21,400	11,600	27,200	26,000	35,000	25,000	15,500	15,800	15,500	11,100	15,100	7,730
7	21,400	11,800	27,200	25,000	38,000	24,000	16,600	16,000	11,800	10,200	15,700	5,550
8	20,400	11,800	27,200	22,500	38,000	21,400	16,700	15,300	12,000	11,500	16,900	6,700
9	20,400	9,880	25,000	19,300	38,000	20,000	16,900	14,900	13,700	14,200	15,800	6,700
10	18,600	11,000	24,000	17,800	38,000	20,000	16,600	12,600	14,900	14,400	14,800	6,820
11	16,900	11,800	25,000	18,300	38,000	20,800	16,000	13,000	14,400	14,600	14,400	7,600
12	12,000	12,600	27,200	19,600	41,000	21,900	12,800	14,800	13,300	11,300	17,100	9,130
13	12,500	12,800	28,800	20,800	71,000	20,800	12,800	16,600	11,600	10,200	16,900	10,200
14	12,800	12,100	35,000	23,200	89,000	20,400	15,100	18,900	10,200	13,900	16,000	11,100
15	14,200	11,500	28,800	24,000	143,000	19,300	16,200	20,800	9,130	16,200	14,800	10,800
16	14,200	7,340	35,000	27,200	149,000	17,800	16,700	23,200	12,500	17,300	14,400	10,700
17	12,800	8,280	32,500	35,000	125,000	18,000	16,400	25,000	13,500	18,300	13,000	10,200
18	11,600	14,000	30,500	35,000	83,000	18,000	16,000	20,000	13,900	19,600	14,400	9,880
19	8,840	15,100	35,000	44,000	62,000	17,800	14,200	30,500	13,500	20,000	15,300	9,580
20	7,600	18,600	38,000	47,000	50,000	17,300	15,500	30,500	13,100	20,000	15,500	7,600
21	8,000	19,300	35,000	53,000	41,000	16,700	17,100	30,500	10,700	20,800	13,000	5,880
22	11,000	20,000	32,500	47,000	35,000	14,400	17,500	28,800	11,600	21,900	10,800	7,600
23	11,800	17,100	30,500	44,000	32,500	14,800	17,500	27,200	13,700	22,500	8,700	14,000
24	11,000	16,200	27,200	41,000	32,500	16,000	17,100	25,000	13,500	24,000	11,800	16,600
25	10,200	16,200	27,200	38,000	32,500	17,100	16,600	25,000	13,900	26,000	11,300	17,500
26	7,470	16,000	27,200	32,500	32,500	18,000	14,800	22,500	14,200	27,200	12,500	16,900
27	6,950	14,600	30,500	32,500	30,500	17,300	15,300	21,900	14,000	27,200	13,300	13,700
28	7,080	10,800	27,200	26,000	27,200	19,600	16,200	20,800	9,880	26,000	12,600	10,200
29	10,200	9,280	26,000	27,200	-----	20,400	16,400	20,800	9,280	23,200	12,300	12,500
30	13,000	10,800	26,000	27,200	-----	18,900	16,400	20,400	12,800	19,600	9,130	16,600
31	11,500	-----	26,000	28,800	-----	19,300	-----	19,300	-----	19,300	8,700	-----

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the period December 1, 1907, to September 30, 1922—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1921-22												
1	17,800	5,660	16,700	12,600	17,300	27,200	26,000	26,000	24,000	16,900	19,300	12,500
2	17,300	7,600	17,100	12,100	17,800	26,000	26,000	26,000	23,200	16,900	18,600	12,600
3	17,100	16,200	16,700	9,130	18,300	25,000	26,000	25,000	23,200	16,000	18,900	12,100
4	14,000	18,000	16,700	9,880	19,300	25,000	26,000	24,000	24,000	13,300	18,900	10,300
5	11,500	18,900	17,500	12,500	20,800	26,000	25,000	24,000	26,000	12,300	19,300	7,340
6	12,300	18,300	16,400	14,000	22,500	28,800	25,000	24,000	30,500	13,900	19,300	7,340
7	12,300	17,300	15,300	14,900	24,000	35,000	25,000	25,000	35,000	16,600	19,300	10,200
8	12,500	15,700	15,700	15,100	26,000	41,000	25,000	25,000	38,000	18,300	18,300	11,800
9	11,800	11,800	15,800	13,900	28,800	41,000	27,200	26,000	38,000	19,300	16,000	12,600
10	11,500	13,500	15,700	11,500	35,000	44,000	41,000	28,800	35,000	18,600	14,800	12,600
11	8,280	14,200	15,100	13,100	41,000	50,000	50,000	30,500	35,000	16,700	16,400	10,700
12	6,580	13,900	13,300	16,400	44,000	56,000	59,000	30,500	32,500	16,200	18,600	7,600
13	7,860	12,300	9,880	18,300	41,000	53,000	56,000	28,800	28,800	16,900	20,000	7,600
14	9,280	10,500	10,300	19,600	38,000	47,000	47,000	26,000	26,000	17,300	21,900	9,130
15	10,300	17,860	12,100	20,800	35,000	50,000	41,000	24,000	24,000	18,000	23,200	9,700
16	9,430	9,130	13,100	22,500	32,500	50,000	35,000	22,500	22,500	18,900	21,900	10,200
17	8,420	11,300	13,500	23,200	32,500	47,000	30,500	21,400	21,900	18,300	20,800	10,000
18	6,100	12,500	13,900	22,500	38,000	47,000	28,800	21,400	21,400	17,100	21,400	8,700
19	5,990	13,000	13,100	21,400	53,000	41,000	26,000	21,900	19,600	17,500	21,900	6,100
20	7,340	15,100	11,600	20,400	86,000	38,000	25,000	23,200	17,100	18,900	22,500	6,580
21	8,700	16,000	12,300	19,600	101,000	35,000	25,000	25,000	17,100	21,400	22,500	8,700
22	7,860	14,800	14,000	18,900	92,000	30,500	27,200	28,800	18,600	23,200	21,400	8,280
23	7,340	12,100	14,600	19,300	68,000	30,500	30,500	35,000	20,000	24,000	20,400	10,200
24	6,820	13,900	14,600	19,600	50,000	35,000	35,000	38,000	20,800	25,000	19,300	9,880
25	5,440	14,500	13,500	20,400	41,000	38,000	38,000	35,000	21,900	26,000	18,600	8,140
26	4,730	13,900	10,300	21,400	35,000	38,000	35,000	32,500	21,900	26,000	18,000	5,550
27	5,880	13,500	8,140	22,500	32,500	35,000	32,500	30,500	18,900	25,000	17,100	5,440
28	8,140	12,600	9,280	23,200	30,500	32,500	28,800	28,800	16,900	24,000	15,300	7,340
29	8,280	13,100	10,500	22,500	-----	28,800	27,200	27,200	16,700	22,500	12,000	8,840
30	8,700	15,500	10,800	21,400	-----	27,200	27,200	26,000	16,700	21,900	11,300	9,730
31	7,600	-----	11,800	18,300	-----	26,000	-----	25,000	-----	21,900	12,500	-----

NOTE.—Discharge for following periods when gage was not read determined from gage heights obtained by interpolation or from gage-height record of Santee River at Rimini: Mar. 1-31, June 21, 28, July 4, 5, 7, 12, 19, 21, 26, Aug. 2, 3, and 16, 1908; Sept. 11, 1909; July 20-23, Sept. 16, 27, and Dec. 11-17, 1910; May 25-30, 1915, Sept. 28-30, and Oct. 5, 1916; July 12-16, Aug. 9-19, Sept. 6-8, and Sept. 18 to Nov. 4, 1917. Water-stage recorder failed to operate Apr. 16-18, 22-28, and Aug. 8-10, 1922; daily gage height obtained from hydrograph based on daily readings of staff gage.

Monthly discharge of Santee River at Ferguson, N. C., for the period December 1, 1907, to September 30, 1922

[Drainage area, 14,800 square miles]

Month	Discharge in second-feet			Month	Discharge in second-feet				
	Maximum	Minimum	Mean		Maximum	Minimum	Mean		
December	53,000	11,300	27,500	August	41,000	11,000	24,300		
January	83,000	19,600	39,200	September	28,800	8,140	15,400		
February	68,000	20,800	36,300	The year.....			101,000	8,140	23,700
March	77,000	17,800	28,200	1909-10					
April	44,000	16,200	23,200	October	18,300	9,580	12,900		
May	23,200	11,800	16,200	November	12,600	8,140	10,300		
June	24,000	11,800	14,300	December	23,200	7,340	13,100		
July	32,500	11,300	20,500	January	19,300	9,580	13,100		
August	344,000	9,430	36,600	February	44,000	16,400	26,900		
September	323,000	10,800	50,100	March	50,000	12,300	27,800		
1908-9				April	14,600	8,420	11,000		
October	23,200	9,430	14,100	May	27,200	7,340	14,200		
November	41,000	14,800	25,000	June	44,000	9,430	21,400		
December	47,000	12,300	18,800	July	26,000	10,700	19,600		
January	38,000	17,100	22,600	August	18,000	7,730	11,500		
February	38,000	14,200	23,800	September	38,000	6,340	18,000		
March	41,000	22,500	29,600	The year.....			50,000	6,340	16,600
April	27,200	13,700	18,400						
May	65,000	14,900	28,800						
June	101,000	24,000	40,500						
July	32,500	13,500	23,900						

Monthly discharge of Santee River at Ferguson, N. C., for the period December 1, 1907, to September 30, 1922—Continued

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
1910-11				1915-16			
October	35,000	9,580	17,700	October	23,200	6,100	15,000
November	9,880	6,100	7,800	November	26,000	5,550	12,400
December	14,800	5,030	9,290	December	27,200	8,280	14,800
January	35,000	8,420	16,300	January	50,000	13,300	23,400
February	17,100	7,080	11,600	February	104,000	14,400	31,700
March	16,400	7,340	10,100	March	35,000	11,500	21,300
April	30,500	9,730	20,100	April	17,300	7,730	13,100
May	12,600	5,880	9,010	May	19,600	5,330	9,620
June	7,340	4,120	5,900	June	21,900	8,420	16,000
July	10,300	4,120	6,280	July	368,000	13,500	100,000
August	12,000	3,520	5,840	August	71,000	13,700	26,200
September	16,900	4,120	10,000	September	16,900	7,470	11,700
The year	35,000	3,520	10,800	The year	368,000	5,330	24,700
1911-12				1916-17			
October	32,500	4,200	14,500	October	16,900	6,460	10,900
November	38,000	8,700	18,600	November	11,000	6,220	7,580
December	80,000	6,820	24,600	December	14,900	7,600	9,710
January	50,000	14,600	30,900	January	20,800	7,860	13,500
February	83,000	14,600	37,000	February	44,000	11,000	20,000
March	209,000	32,500	61,500	March	74,000	19,600	35,200
April	56,000	20,000	32,600	April	53,000	12,100	31,100
May	41,000	16,600	29,700	May	16,700	7,080	12,500
June	41,000	16,900	24,800	June	18,900	6,950	12,100
July	28,800	13,900	23,500	July	26,000	5,990	14,000
August	18,000	10,800	13,600	August	16,400	5,660	10,300
September	27,200	6,340	11,100	September	27,200	6,580	14,000
The year	209,000	4,200	26,900	The year	74,000	5,660	15,900
1912-13				1917-18			
October	30,500	8,420	15,500	October	22,500	5,880	10,200
November	53,000	8,700	19,200	November	18,000	4,730	8,820
December	15,300	7,600	11,300	December	8,560	4,830	6,880
January	50,000	9,130	16,400	January	28,800	5,660	15,400
February	96,000	20,000	30,600	February	50,000	13,500	24,900
March	98,000	25,000	43,100	March	15,800	8,840	12,300
April	38,000	14,600	26,300	April	41,000	7,600	19,600
May	18,600	8,560	13,100	May	30,500	9,280	15,600
June	23,200	9,280	16,000	June	12,800	6,220	9,110
July	16,200	6,700	11,000	July	14,400	4,730	8,770
August	17,800	6,700	12,700	August	26,000	5,030	13,800
September	23,200	6,700	12,600	September	14,800	5,030	9,360
The year	98,000	6,700	18,900	The year	50,000	4,730	12,800
1913-14				1918-19			
October	19,600	6,100	10,400	October	20,400	3,480	7,030
November	25,000	7,600	13,300	November	80,000	11,100	29,600
December	20,800	7,340	13,300	December	68,000	13,000	31,100
January	53,000	11,000	26,100	January	50,000	20,000	32,100
February	28,800	12,100	20,000	February	50,000	19,300	28,700
March	35,000	13,500	22,300	March	53,000	19,600	35,700
April	44,000	11,500	21,200	April	20,800	10,500	17,600
May	16,200	5,880	9,000	May	47,000	12,500	26,900
June	10,700	5,330	7,710	June	26,000	10,000	15,100
July	17,300	4,280	9,360	July	146,000	14,200	42,900
August	16,700	5,550	10,500	August	41,000	12,300	23,600
September	12,000	4,370	6,300	September	15,100	5,660	9,450
The year	53,000	4,280	14,100	The year	146,000	3,480	25,000
1914-15				1919-20			
October	21,900	4,830	10,600	October	16,700	4,120	7,500
November	19,300	4,370	9,770	November	12,600	5,770	9,460
December	62,000	6,340	32,300	December	44,000	5,990	18,400
January	71,000	32,500	49,300	January	30,500	7,600	13,600
February	50,000	21,400	30,700	February	47,000	20,800	33,600
March	47,000	15,700	28,900	March	44,000	17,300	28,500
April	26,000	11,800	17,100	April	53,000	24,000	37,000
May	25,000	8,700	16,700	May	27,200	12,500	17,600
June	32,500	10,200	18,800	June	18,600	10,200	14,400
July	16,000	6,460	10,600	July	24,000	9,430	15,300
August	20,400	6,460	14,600	August	44,000	10,700	25,500
September	18,600	5,230	11,100	September	44,000	15,900	25,500
The year	71,000	4,370	20,700	The year	53,000	4,120	20,500

Monthly discharge of Santee River at Ferguson, N. C., for the period December 1, 1907, to September 30, 1922—Continued

Month	Discharge in second-feet			Month	Discharge in second-feet		
	Maximum	Minimum	Mean		Maximum	Minimum	Mean
1920-21				1921-22			
October	21,900	6,950	14,100	October	17,800	4,730	9,560
November	20,000	7,340	12,800	November	18,900	5,660	13,400
December	38,000	17,100	27,900	December	17,500	8,140	13,500
January	53,000	17,800	30,300	January	23,200	9,130	17,800
February	149,000	27,200	52,600	February	101,000	17,300	40,000
March	27,200	14,400	20,200	March	56,000	25,000	37,200
April	19,300	12,800	16,300	April	59,000	25,000	32,600
May	30,500	12,600	20,400	May	38,000	21,400	27,000
June	18,000	9,130	13,400	June	38,000	16,700	24,500
July	27,200	9,880	17,600	July	26,000	12,300	19,300
August	18,000	8,700	13,700	August	23,200	11,300	18,700
September	17,500	5,550	10,500	September	12,600	5,440	9,260
The year	149,000	5,550	20,600	The year	101,000	4,730	21,800

LINVILLE RIVER AT BRANCH, N. C.

LOCATION.—At wooden highway bridge 800 feet from Branch post office, Burke County, a quarter of a mile upstream from Lake James, $1\frac{1}{4}$ miles upstream from Fonta Flora, 2 miles below mouth of Linville Gorge, and 12 miles from Nebo, N. C.

DRAINAGE AREA.—65 square miles (measured on topographic maps).

RECORDS AVAILABLE.—June 7 to September 30, 1922.

GAGE.—Vertical staff on downstream end of first bridge pier from right bank; read by J. M. Wall.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Channel wide and shallow, slightly curved above bridge and straight for 200 feet below; bed composed of gravel and boulders; right bank wooded, not subject to overflow; left bank partly wooded and subject to overflow in extreme floods for 500 feet back from stream. Control is a boulder and gravel shoal 200 feet downstream from gage; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record 2.46 feet at 7 a. m. June 7 (discharge, 315 second-feet); minimum stage, 1.60 feet numerous times during September (discharge, 39 second-feet).

ICE.—Stage-discharge relation not affected by ice.

ACCURACY.—Stage-discharge relation permanent. Rating curve is well defined up to 500 second-feet and extended above. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records goods.

Discharge measurements of Linville River at Branch, N. C., during the year ending September 30, 1922.

Date	Made by—	Gage height	Discharge
		Feet	Sec.-ft.
May 6	L. J. Hall	2.52	347
Sept. 3	W. E. Hall	1.66	49.1
4	do.	1.64	46.0

Daily discharge, in second-feet, of Linville River near Branch, N. C., for the year ending September 30, 1922

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		94	97	50	16	154	207	137	45
2		128	94	50	17	157	154	125	43
3		122	81	50	18	140	154	144	43
4		140	79	47	19	137	150	110	43
5		223	79	54	20	167	163	91	41
6		144	76	47	21	150	154	86	45
7		107	74	47	22	131	223	63	45
8	311	104	72	47	23	119	243	54	39
9	289	134	72	43	24	107	150	56	39
10	264	102	70	41	25	102	128	70	39
	260								
11	227	94	67	41	26	102	131	72	86
12	203	86	67	72	27	107	122	94	74
13	177	97	67	76	28	107	119	79	63
14	170	107	58	58	29	102	113	67	50
15	160	137	72	47	30	102	99	54	43
					31		97	58	

Monthly discharge of Linville River at Branch, N. C., for the year ending September 30, 1922

[Drainage area, 65 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
June 7-30	311	102	164	2.52	2.25
July	243	86	136	2.09	2.41
August	144	54	80.2	1.23	1.42
September	86	39	50.3	.774	.86

WILSON CREEK NEAR ADAKO, N. C.

LOCATION.—At pool $2\frac{1}{2}$ miles northwest of Adako, Caldwell County, 3 miles above junction of Wilson Creek with Johns River and $4\frac{1}{2}$ miles downstream from mouth of Harper Creek.

DRAINAGE AREA.—66 square miles (measured on topographic maps).

RECORDS AVAILABLE.—July 27, 1921, to May 31, 1922, when the station was discontinued.

GAGE.—Enamelled staff in two sections in a pool at site of proposed lower dam; read by W. H. Thompson. See level elevation of zero of gage, 1,144.00 feet.

DISCHARGE MEASUREMENTS.—Made by wading just above control.

CHANNEL AND CONTROL.—Bed and banks composed mostly of solid bedrock; banks are the sides of the gorge. Control is a solid rock ledge; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of records, 6.1 feet at 5.30 p. m. March 27, 1922 (discharge, 1,130 second-feet); minimum stage, 1.30 feet October 21-27, 1921 (discharge, 52 second-feet).

The flood of July, 1916, reached a stage of approximately 27.0 feet.

ICE.—Probably never enough to affect stage-discharge relation.

REGULATION.—Probably none.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 50 and 120 second-feet; extended above. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good, except those for high water, which may be subject to error.

The following discharge measurement was made by L. J. Hall:

October 22, 1921: Gage height, 1.30 feet; discharge, 52.4 second-feet.

Daily discharge, in second-feet, of Wilson Creek near Adako, N. C., for the period October 1, 1921, to May 31, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1.....	76	301	97	88	113	141	240	141
2.....	71	200	160	86	141	280	210	132
3.....	91	160	160	88	132	210	180	170
4.....	76	132	141	86	118	180	180	451
5.....	69	122	122	86	141	160	170	260
6.....	66	113	115	86	141	150	280	220
7.....	66	106	108	83	160	170	220	190
8.....	64	100	104	83	141	160	200	180
9.....	64	122	100	83	132	150	180	170
10.....	64	111	97	79	132	230	170	180
11.....	62	99	95	141	141	280	170	170
12.....	60	93	93	104	141	210	160	150
13.....	59	90	93	93	132	180	150	141
14.....	59	99	88	78	132	170	141	141
15.....	59	97	86	72	260	240	141	132
16.....	60	90	83	91	230	200	141	150
17.....	59	90	91	91	170	170	141	301
18.....	59	88	250	90	160	160	141	473
19.....	59	150	150	95	150	160	180	429
20.....	55	150	132	132	141	180	150	280
21.....	52	118	122	280	132	150	141	220
22.....	52	109	117	200	122	141	132	200
23.....	52	104	111	150	122	141	132	180
24.....	52	100	108	132	118	132	122	210
25.....	52	97	108	122	115	132	122	190
26.....	52	97	104	118	111	122	120	170
27.....	52	99	100	120	122	451	122	170
28.....	54	122	95	118	111	451	190	170
29.....	54	113	93	115	-----	343	160	150
30.....	385	100	90	111	-----	280	150	141
31.....	385	-----	90	106	-----	250	-----	141

NOTE.—Discharge Oct. 30, 31, Mar. 27, and May 4 determined from mean daily gage height ascertained from graph constructed on basis of two daily gage readings.

Monthly discharge of Wilson Creek near Adako, N. C., for the period October 1, 1921, to May 31, 1922

[Drainage area, 66 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	385	52	81.9	1.24	1.43
November.....	301	88	119	1.80	2.01
December.....	250	83	113	1.71	1.97
January.....	280	72	110	1.67	1.92
February.....	260	111	141	2.14	2.23
March.....	451	122	206	3.12	3.60
April.....	280	120	165	2.50	2.79
May.....	473	132	207	3.14	3.62

SAVANNAH RIVER BASIN

CHATTOOGA RIVER NEAR TALLULAH FALLS, GA.

LOCATION.—300 feet above mouth of Camp Creek, 5½ miles above junction with Tallulah River, and 8 miles east of Tallulah Falls, Rabun County.

DRAINAGE AREA.—256 square miles (measured on topographic maps).

RECORDS AVAILABLE.—January 1, 1917, to September 30, 1922.

GAGE.—Gurley seven-day water-stage recorder installed on right bank August 17, 1917. On the same date a new vertical staff gage was installed 30 feet upstream, to which all recording gage records are referred. Prior to August, 17, 1917, readings were taken from an old vertical staff gage located on same site as new staff gage and set at same datum. Gage read by employees of Georgia Railway & Power Co.

DISCHARGE MEASUREMENTS.—Made from cable at gage location.

CHANNEL AND CONTROL.—Section under cable may shift somewhat. Control is a solid rock shoal about 100 feet below gage; permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year, 8.2 feet at 3 p. m. January 21 (discharge, 7,690 second-feet); minimum stage, 0.63 foot at 2 a. m. Oct 17 (discharge, 264 second-feet).

1917-1922: Maximum stage recorded, 12.2 feet March 24, 1917 (discharge, 13,900 second-feet); minimum stage, 0.6 foot October 16-18, 1918 (discharge, 255 second-feet).

ICE.—Stage-discharge relation not affected by ice.

ACCURACY.—Stage-discharge relation probably permanent, but no current-meter measurements have been made since 1919. Rating curve well defined between 280 and 2,500 second-feet. Operation of water-stage recorder satisfactory except for short periods as indicated in footnote to daily-discharge table. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspecting gage-height graph. Records good.

COOPERATION.—Gage-height record furnished by Georgia Railway & Power Co.

Daily discharge, in second-feet, of Chattooga River near Tallulah Falls, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	655	538	755	705	1,970	920	2,060	1,040	1,040	810	655	430
2	630	560	810	705	2,250	1,310	1,880	1,100	1,470	810	630	430
3	630	538	1,100	655	2,250	1,550	1,630	2,450	1,710	810	605	410
4	655	492	1,040	630	2,060	1,240	1,550	3,750	1,390	810	582	430
5	655	450	980	600	2,350	1,170	1,470	2,750	1,240	810	582	450
6	605	430	920	655	2,550	1,100	2,250	1,970	1,240	810	582	410
7	560	390	865	630	2,450	1,310	2,250	1,630	1,240	810	560	410
8	430	390	810	755	2,060	1,550	1,880	1,470	1,170	755	582	390
9	390	515	755	980	1,390	2,450	1,710	1,390	1,100	755	630	390
10	372	605	705	920	1,040	3,400	1,550	1,390	1,040	755	560	390
11	355	560	705	1,100	980	3,070	1,470	1,310	980	755	538	450
12	355	515	655	1,390	980	2,250	1,470	1,240	980	755	538	470
13	338	470	630	1,100	920	1,710	1,390	1,240	920	755	538	410
14	320	450	605	980	1,170	1,550	1,390	1,170	865	755	538	390
15	320	470	560	865	2,150	1,630	1,310	1,100	865	755	538	410
16	320	515	538	865	2,250	1,550	1,240	1,100	810	810	655	410
17	302	1,040	655	810	1,550	1,390	1,240	1,240	755	865	705	390
18	302	865	2,250	755	1,310	1,240	1,240	1,240	755	810	655	390
19	302	1,100	2,650	1,630	1,240	1,240	1,880	1,240	755	810	560	390
20	285	1,790	1,790	4,230	1,170	1,550	1,880	1,170	755	920	582	390
21	285	1,240	1,100	7,130	1,100	1,310	1,550	1,100	755	980	515	390
22	285	980	755	4,970	1,040	1,240	1,390	1,040	755	980	492	390
23	285	865	655	3,510	980	1,170	1,310	1,040	755	920	492	390
24	285	755	655	3,070	980	1,170	1,240	1,310	865	865	492	390
25	270	755	1,040	2,650	920	1,170	1,240	2,250	865	755	492	390
26	270	705	1,040	2,350	920	1,170	1,170	1,550	810	705	492	372
27	270	705	810	2,250	865	2,350	1,170	1,310	810	655	470	372
28	270	810	810	2,150	865	2,850	1,170	1,240	755	655	450	372
29	302	810	865	2,060	-----	2,250	1,100	1,170	755	655	430	372
30	430	755	810	1,970	-----	1,970	1,100	1,100	755	655	430	372
31	560	-----	755	1,880	-----	1,880	-----	1,100	-----	655	430	-----

NOTE.—Discharge Dec. 17-23, 26-30, Jan. 19-21, Mar. 7-13, Apr. 6, 7, 30, May 1-3, and June 26-30 determined from mean daily gage height ascertained from graph constructed from maximum and minimum gage heights obtained from recorder during these periods when clock was not operating, and study of rainfall records at Camp Creek, Ga.

Monthly discharge of Chattooga River near Tallulah Falls, Ga., for the year ending September 30, 1922

[Drainage area, 256 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	655	270	397	1.55	1.79
November.....	1,790	390	702	2.74	3.06
December.....	2,650	538	938	3.66	4.22
January.....	7,130	905	1,770	6.91	7.97
February.....	2,550	865	1,490	5.82	6.06
March.....	3,400	920	1,670	6.52	7.52
April.....	2,250	1,100	1,510	5.90	6.58
May.....	3,750	1,040	1,460	5.70	6.57
June.....	1,710	755	965	3.77	4.21
July.....	980	655	787	3.07	3.54
August.....	705	430	548	2.14	2.47
September.....	470	372	402	1.57	1.75
The year.....	7,130	270	1,050	4.10	55.74

ALTAMAHA RIVER BASIN

OCONEE RIVER NEAR GREENSBORO, GA.

LOCATION.—At highway bridge connecting Morgan and Greene counties, Ga., $1\frac{1}{2}$ miles downstream from Town Creek, 4 miles upstream from mouth of Apalachee River, and 5 miles west of Greensboro, Greene County.

DRAINAGE AREA.—1,100 square miles.

RECORDS AVAILABLE.—July 25, 1903, to September 30, 1922.

GAGE.—Chain gage attached to bridge; read by N. T. Oakes.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed chiefly of sand; slightly shifting. Control practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.4 feet at 4 p. m. February 16 (discharge, 27,800 second-feet); minimum stage, 0.6 foot at 4 p. m. October 12 (discharge, 228 second-feet).

1903–1922: Maximum stage recorded, 35.4 feet August 26, 1908 (discharge, about 70,000 second-feet); minimum stage, 0.2 foot in forenoon of July 15, 1918 (discharge, 141 second-feet).

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Considerable diurnal fluctuation caused by operation of power plant.

ACCURACY.—Stage-discharge relation practically permanent. No current-meter measurements have been made since 1919, but rating curve developed previously is considered applicable and is well defined between 250 and 6,000 second-feet. It is extended above this point on basis of area and mean velocity curves and the discharge for crest of flood on December 11, 1919, as computed, using concrete dam at Athens as weir and correcting for difference in drainage area. Gage read to tenths twice daily. No corrections for possible elongation of chain have been made since 1919; on June 8, 1922, the gage chain was stolen, and a new chain, correct in length, was sent to the observer for installation. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

Daily discharge, in second-feet, of Oconee River near Greensboro, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	750	680	855	614	925	1,920	2,220	1,540	5,200	1,640	890	550
2.....	614	550	960	614	1,590	3,470	1,920	1,360	5,410	1,460	715	550
3.....	1,460	614	1,030	582	1,590	5,930	1,540	1,640	7,550	2,720	680	490
4.....	1,980	432	1,110	614	1,460	4,870	1,190	5,418	11,800	2,440	750	520
5.....	960	432	855	614	4,870	2,550	1,360	4,090	10,100	3,350	680	520
6.....	647	490	785	680	5,410	2,020	6,200	2,660	3,530	1,820	647	490
7.....	490	432	750	750	5,620	7,850	14,100	1,920	2,440	1,110	750	550
8.....	582	490	680	785	3,350	12,000	9,000	2,280	2,440	960	750	460
9.....	378	785	647	1,720	2,020	5,200	2,330	1,720	2,020	1,720	1,360	490
10.....	460	960	680	1,500	1,680	5,410	1,920	1,360	1,680	995	690	432
11.....	490	750	614	5,770	1,540	20,200	1,640	1,280	1,360	1,030	750	582
12.....	326	715	647	5,550	1,360	20,200	1,540	1,820	1,110	1,360	680	2,440
13.....	378	490	680	2,940	1,320	16,500	1,410	1,190	1,190	1,780	680	1,590
14.....	378	490	614	1,980	3,530	4,090	1,320	1,150	1,880	2,280	750	820
15.....	326	647	550	1,110	7,700	3,590	1,280	1,030	1,410	1,410	750	680
16.....	314	1,880	550	1,110	25,400	3,470	1,320	1,360	1,150	1,110	995	582
17.....	352	5,550	582	960	24,800	2,220	1,280	1,720	1,030	960	890	680
18.....	378	5,000	1,540	960	12,400	1,820	1,280	2,220	995	960	1,030	680
19.....	378	1,720	1,680	925	2,960	2,820	2,440	2,330	1,460	1,720	890	550
20.....	378	3,470	855	890	2,220	9,360	3,770	2,330	1,720	3,900	750	490
21.....	378	2,380	715	2,550	1,920	13,100	3,110	1,980	2,380	2,770	1,320	490
22.....	352	1,110	680	2,550	1,720	5,690	2,120	1,640	1,820	2,220	785	460
23.....	326	890	680	2,080	1,590	2,180	1,500	1,280	1,360	2,500	647	460
24.....	326	820	647	1,640	1,460	1,920	1,360	1,460	1,030	1,820	614	432
25.....	378	820	614	1,540	1,360	1,720	1,360	1,460	890	1,720	750	460
26.....	326	715	1,030	1,360	1,460	1,640	1,190	1,920	890	1,460	1,110	490
27.....	352	820	890	1,190	1,540	1,720	1,190	1,640	890	1,920	1,030	432
28.....	378	2,020	750	1,190	1,540	1,720	1,360	2,180	1,190	1,360	785	378
29.....	352	1,720	715	1,030	-----	1,640	3,230	1,880	960	1,230	614	404
30.....	432	995	647	1,030	-----	1,540	2,120	1,190	960	960	582	378
31.....	750	-----	614	960	-----	1,640	-----	2,990	-----	890	550	-----

Monthly discharge of Oconee River near Greensboro, Ga., for the year ending September 30, 1922

[Drainage area, 1,100 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	1,980	314	528	0.480	0.55
November.....	5,550	432	1,300	1.18	1.32
December.....	1,680	550	795	.723	.83
January.....	5,770	582	1,540	1.40	1.61
February.....	25,400	925	4,440	4.04	4.21
March.....	20,200	1,540	5,480	4.98	5.74
April.....	14,100	1,190	2,590	2.35	2.62
May.....	5,410	1,030	1,940	1.76	2.03
June.....	11,800	890	2,580	2.35	2.62
July.....	3,900	890	1,730	1.57	1.81
August.....	1,360	550	806	.733	.85
September.....	2,440	378	618	.562	.63
The year.....	25,400	314	2,010	1.83	24.82

OCONEE RIVER AT FRALEY'S FERRY, NEAR MILLEDGEVILLE, GA.

LOCATION.—At Fraley's Ferry, in Baldwin County, 4 miles downstream from mouth of Little River and 6 miles upstream from Milledgeville.

DRAINAGE AREA.—2,840 square miles.

RECORDS AVAILABLE.—May 23, 1906, to December 31, 1908; October 6, 1909, to September 30, 1922.

GAGE.—A combination sloping and vertical rod gage on left bank. Low-water section, inclined, is 75 feet upstream from ferry cable and extends to 8.5 feet; vertical section, 8.5 to 10.0 feet, is at same site. High-water section, 10.0 to 20.0 feet, is attached to tree 75 feet upstream from inclined section. Read by H. H. Taylor.

DISCHARGE MEASUREMENTS.—Made from ferryboat.

CHANNEL AND CONTROL.—Sandy and shifting at measuring section. Control formed by a rock ledge extending across river 200 feet downstream; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 21.8 feet at 5 p. m. March 11 (discharge, 62,900 second-feet); minimum stage, 4.6 feet at 5 p. m. October 27, 7 a. m. October 24, 7 a. m. and 5 p. m. October 25, and 7 a. m. October 28 (discharge, 590 second-feet).

1906-1922: Maximum stage recorded, approximately 24.6 feet March 17, 1913 (discharge, 93,600 second-feet); minimum stage, 3.88 feet at 5 p. m. October 8, 1918 (discharge, 182 second-feet).

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Operation of power plants a great distance upstream can cause only slight fluctuations.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 400 and 4,200 second-feet, and above 4,200 second-feet based on flood run-off obtained from stations at Greensboro and Dublin. Current-meter measurements have not been made since May, 1919. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records below 4,200 second-feet probably good; above that stage fair.

Daily discharge, in second-feet, of Oconee River at Fraley's Ferry, near Milledgeville, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,790	1,200	2,520	1,410	2,060	3,920	4,140	4,140	19,600	3,000	1,790	1,150
2	1,660	1,200	2,680	1,200	5,970	4,360	4,580	3,000	25,800	2,680	1,600	1,100
3	2,680	1,100	2,060	1,100	5,250	12,600	3,340	3,540	23,000	4,140	2,360	1,060
4	2,840	920	2,060	1,200	3,720	14,300	3,160	12,200	17,700	3,920	1,790	1,010
5	2,680	880	2,060	1,250	17,700	8,850	2,680	12,900	18,800	5,720	1,470	1,100
6	1,530	750	1,920	1,250	23,800	5,020	9,510	7,590	10,500	4,580	2,680	1,100
7	1,150	790	1,530	1,660	20,000	44,000	16,900	4,800	6,480	2,680	2,680	1,060
8	920	830	1,410	1,790	12,900	40,400	17,700	3,720	5,020	2,060	2,680	1,010
9	920	1,010	1,410	2,360	6,220	21,900	8,850	3,540	4,140	2,360	4,140	920
10	750	1,360	1,410	3,340	4,580	20,400	3,920	3,000	4,140	2,520	3,520	965
11	710	1,660	1,300	8,850	3,720	58,500	3,520	2,680	3,340	1,920	2,360	1,060
12	830	1,410	1,300	11,200	3,340	42,200	3,160	2,680	3,000	3,000	1,600	3,000
13	750	1,060	1,250	9,180	3,000	25,800	3,340	3,720	2,680	3,920	1,530	3,160
14	750	920	1,300	4,140	3,340	15,800	2,680	2,680	2,840	4,140	1,530	2,060
15	750	1,150	2,060	2,680	10,800	7,590	2,680	2,800	3,720	3,340	1,530	1,410
16	830	1,530	1,200	2,360	24,200	8,210	3,000	2,060	2,680	2,360	1,790	1,300
17	670	5,480	1,150	2,210	27,400	5,970	2,840	4,580	2,520	2,060	2,680	1,200
18	670	9,180	3,920	2,060	27,000	4,580	2,680	5,250	2,060	2,060	1,200	1,200
19	750	7,300	4,140	1,920	15,100	5,020	3,340	4,580	2,680	3,160	2,060	1,100
20	710	2,680	3,160	1,920	5,020	25,000	6,480	3,920	3,520	5,480	1,660	1,100
21	670	4,580	2,360	2,060	4,360	22,600	5,970	3,340	4,580	5,970	1,660	1,010
22	590	3,340	1,790	3,920	3,920	17,300	4,360	9,510	4,580	4,360	2,360	875
23	670	1,920	1,530	3,720	3,340	8,210	3,340	7,590	3,920	5,020	1,790	850
24	590	1,530	1,410	3,340	3,340	4,580	2,680	3,520	2,840	4,480	1,410	920
25	590	1,410	1,530	3,340	3,000	4,140	2,680	3,340	2,060	3,540	1,300	850
26	670	1,410	1,580	3,340	2,840	3,720	2,520	3,160	1,790	2,680	2,060	750
27	710	2,060	1,790	3,000	2,840	3,720	2,680	5,480	1,790	2,520	2,060	820
28	590	4,140	1,600	2,360	3,520	3,920	3,720	5,250	2,060	3,340	1,660	875
29	750	4,140	1,470	2,210	-----	3,720	7,020	5,250	2,680	3,000	1,470	750
30	750	3,000	1,300	2,060	-----	3,340	6,220	3,920	3,000	2,060	1,250	750
31	920	-----	1,200	2,060	-----	3,340	-----	5,720	-----	2,060	1,200	-----

Monthly discharge of Oconee River at Fraley's Ferry, near Milledgeville, Ga., for the year ending September 30, 1922

[Drainage area, 2,840 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	2,840	590	1,030	0.363	0.42
November.....	9,180	750	2,330	.820	.91
December.....	4,140	1,150	1,840	.648	.75
January.....	11,200	1,100	3,050	1.07	1.23
February.....	27,400	2,060	9,010	3.17	3.30
March.....	58,500	3,340	14,600	5.14	5.93
April.....	17,700	2,520	4,980	1.75	1.95
May.....	12,900	2,060	4,790	1.69	1.95
June.....	25,800	1,790	6,450	2.27	2.53
July.....	5,970	1,920	3,360	1.18	1.36
August.....	4,140	1,200	2,010	.708	.82
September.....	3,160	750	1,190	.419	.47
The year.....	58,500	590	4,530	1.60	21.62

ST. MARYS RIVER BASIN

ST. MARYS RIVER AT MONIAC, GA.

LOCATION.—At wooden highway bridge 200 feet upstream from railroad trestle and 200 yards west of Moniac station, Chariton County, on Georgia Southern & Florida Railway.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 26, 1921, to September 30, 1922.

GAGE.—Staff gage fastened to an ash tree on left bank 20 feet downstream from highway bridge; read to hundredths twice daily by Mrs. L. Knabb.

DISCHARGE MEASUREMENTS.—Low-water measurements made from downstream side of highway bridge; high-water measurements made from railroad trestle.

CHANNEL AND CONTROL.—Bed of stream composed of sand. One channel at low water and two or three at high stages; straight for short distances above and below gage. Right bank low, flat, and wooded and subject to overflow; left bank high.

EXTREMES OF STAGE.—Maximum stage recorded during year, 5.9 feet at 6.10 p. m. September 18, 8.40 a. m. and 6.15 p. m. September 19; minimum stage, 0.9 foot from October 3 to 23.

1921-1922: Maximum stage recorded, 9.9 feet at 8 a. m. August 2, 1921; minimum stage, 0.81 foot at 6 a. m. and 6 p. m. June 20, 1921.

DIVERSIONS.—None.

REGULATION.—None.

Daily gage height, in feet, of *St. Marys River at Moniac, Ga., for the year ending September 30, 1922*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	1.0	1.10	2.18	3.0	4.15	2.6	1.06	3.6	1.40	2.0	2.95
2	.95	1.0	1.10	2.15	3.3	3.95	2.51	1.10	3.85	1.50	2.0	2.7
3	.9	1.0	1.15	2.14	3.52	3.75	2.4	1.16	4.35	2.1	3.1	2.5
4	.9	1.0	1.20	2.12	3.55	4.1	2.46	1.30	3.95	2.4	3.55	2.45
5	.9	1.0	1.30	2.10	3.65	4.3	2.54	1.30	3.85	2.5	3.7	2.4
6	.9	1.0	1.40	1.9	4.6	4.15	2.35	1.20	4.0	2.44	3.07	2.3
7	.9	1.0	1.37	1.9	5.15	4.2	2.21	1.25	4.05	2.34	3.08	2.25
8	.9	1.0	1.36	1.9	5.3	5.45	2.27	1.16	4.1	2.1	3.08	2.2
9	.9	1.1	1.30	1.9	5.2	5.3	2.11	1.10	4.45	1.9	3.09	2.1
10	.9	1.15	1.55	1.9	4.55	5.15	2.0	1.20	4.4	1.93	4.25	2.6
11	.9	1.2	1.60	2.1	4.25	5.1	2.04	1.10	3.45	1.87	4.65	2.6
12	.9	1.2	1.70	2.1	4.05	5.15	1.9	1.12	3.0	1.75	4.85	2.55
13	.9	1.2	1.70	2.1	3.85	4.85	1.86	1.25	2.75	1.70	4.95	2.5
14	.9	1.2	1.69	2.0	3.7	4.65	1.76	1.15	2.35	1.65	4.8	2.4
15	.9	1.2	1.68	2.0	3.55	4.35	1.70	1.10	2.2	1.55	4.55	2.35
16	.9	1.2	1.68	2.0	3.45	4.1	1.60	1.10	2.1	1.50	4.3	2.3
17	.9	1.2	1.68	2.05	3.35	3.45	1.57	1.15	2.0	1.50	4.65	2.2
18	.9	1.2	2.0	2.6	3.25	3.3	1.54	1.10	1.75	1.50	5.8	4.7
19	.9	1.2	2.15	2.6	3.15	3.35	1.40	1.10	1.72	1.75	5.8	5.9
20	.9	1.2	2.2	2.5	3.05	3.55	1.36	1.10	1.70	2.2	5.8	5.75
21	.9	1.2	2.2	2.5	2.95	3.7	1.33	1.13	1.66	2.3	5.7	5.35
22	.9	1.15	2.2	2.5	2.85	3.8	1.20	1.21	1.60	2.4	5.55	4.9
23	.9	1.1	2.3	2.5	2.8	3.45	1.20	1.26	1.60	2.5	5.3	4.6
24	.95	1.1	2.3	2.55	2.7	3.15	1.17	1.20	1.68	2.5	4.95	4.2
25	1.05	1.19	2.3	2.6	2.6	2.95	1.10	1.26	1.60	2.45	4.5	3.8
26	1.1	1.19	2.2	2.75	2.5	2.85	1.05	1.25	1.55	2.35	4.1	3.5
27	1.05	1.19	2.2	3.0	3.45	2.8	1.10	1.35	1.50	2.3	3.85	2.95
28	1.0	1.16	2.15	3.1	4.15	2.8	1.10	1.72	1.55	2.1	3.75	2.65
29	1.0	1.17	2.1	3.1	-----	2.66	1.10	3.0	1.55	2.1	3.65	2.6
30	1.0	1.14	2.1	3.0	-----	2.54	1.05	2.85	1.50	2.1	3.4	2.55
31	1.0	-----	2.1	3.0	-----	2.5	-----	2.85	-----	2.0	3.15	-----

SUWANNEE RIVER BASIN

SUWANNEE RIVER AT FARGO, GA.

LOCATION.—At railroad trestle a few hundred feet east of Fargo depot, Clinch County, on Georgia Southern & Florida Railway.

DRAINAGE AREA.—Not measured.

RECORDS AVAILABLE.—January 27, 1921, to September 30, 1922.

GAGE.—Enameled staff gage attached to seventeenth bent from right bank abutment of railroad trestle; read to hundredths twice daily by L. L. Sloan.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge 200 feet downstream from railroad trestle.

CHANNEL AND CONTROL.—Full of vegetation. One channel at low water about 110 feet wide; at stages above 10 feet water spreads out over swamp, which is 2,175 feet wide. Channel has many snags and boils; straight for 100 feet below bridge and slightly curved above.

EXTREMES OF STAGE.—Maximum stage recorded during year, 8.07 feet at 8 a. m. June 22; minimum stage, —1.83 feet at 5 p. m. October 24.

1921-22: Maximum stage recorded, 9.69 feet at 5 p. m. August 12, 1921; minimum stage recorded, —2.17 feet at 5 p. m. June 23, 1921.

Highest known flood is said to have reached a stage corresponding to gage height 16.0 feet, date unknown.

DIVERSIONS.—None.

REGULATION.—None.

Daily gage height, in feet, of Suwanee River at Fargo, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-0.06	-0.92	-0.34	0.36	1.97	3.99	4.60	-0.46	3.12	6.50	3.56	6.66
2	-1.15	-.86	-.31	.30	2.32	3.92	4.48	-.59	3.44	6.40	3.53	6.58
3	-.26	-.82	-.22	.23	2.65	4.21	4.36	-.68	3.70	6.28	3.49	6.50
4	-.31	-.78	-.15	.16	2.92	4.98	4.24	-.52	3.96	6.16	3.44	6.40
5	-.39	-.75	-.06	.10	3.30	5.52	4.12	-.36	4.26	6.03	3.38	6.30
6	-.48	-.71	.02	.04	3.74	5.62	4.02	-.27	4.56	5.91	3.32	6.20
7	-.56	-.68	.10	-.02	4.12	5.74	3.92	-.21	4.91	5.78	3.36	6.10
8	-.65	-.56	.20	-.05	4.44	5.94	3.84	-.24	5.26	5.64	3.47	5.98
9	-.73	-.25	.30	-.02	4.76	6.24	3.76	-.31	5.58	5.48	3.62	5.86
10	-.76	.04	.38	.03	4.91	6.49	3.62	-.42	5.86	5.32	3.82	5.73
11	-.81	.24	.49	-.06	5.22	6.68	3.44	-.58	6.13	5.16	4.02	5.59
12	-.84	.50	.58	.06	5.39	6.82	3.26	-.75	6.38	5.00	4.24	5.44
13	-.90	.54	.62	.03	5.49	6.91	3.10	-.92	6.62	4.82	4.46	5.29
14	-.98	.46	.64	-.02	5.55	6.98	2.90	-1.08	6.86	4.62	4.68	5.14
15	-1.06	.35	.66	-.05	5.56	7.04	2.66	-1.25	7.08	4.40	4.92	4.98
16	-1.14	.24	.69	-.02	5.54	7.07	2.42	-1.41	7.30	4.19	5.20	4.80
17	-1.23	.12	.74	.06	5.50	7.05	2.18	-1.58	7.53	4.04	5.43	4.62
18	-1.31	-.06	.79	.16	5.44	7.00	1.94	-1.54	7.70	3.92	5.60	4.44
19	-1.39	-.24	.82	.24	5.35	6.96	1.70	-1.38	7.84	3.80	5.78	4.26
20	-1.48	-.32	.82	.29	5.24	6.88	1.46	-1.13	7.96	3.68	5.46	4.08
21	-1.56	-.36	.78	.33	5.12	6.76	1.22	-.96	8.05	3.62	6.12	3.90
22	-1.62	-.40	.76	.37	4.98	6.60	.94	-.79	8.06	3.58	6.26	3.72
23	-1.73	-.44	.73	.41	4.82	6.44	.72	-.62	8.03	3.54	6.38	3.54
24	-1.81	-.49	.69	.45	4.65	6.26	.52	-.37	7.00	3.48	6.48	3.38
25	-1.74	-.53	.65	.51	4.49	6.08	.32	.00	6.96	3.42	6.58	3.20
26	-1.59	-.57	.61	.60	4.34	5.86	.13	.36	6.92	3.36	6.67	3.08
27	-1.40	-.61	.57	.70	4.20	5.64	-.02	.84	6.86	3.34	6.74	2.98
28	-1.28	-.56	.53	.81	4.08	5.42	-.10	1.30	6.78	3.40	6.78	2.90
29	-1.15	-.48	.49	1.04	-----	5.20	-.22	1.87	6.70	3.46	6.78	2.90
30	-1.03	-.39	.45	1.33	-----	4.98	-.38	2.28	6.60	3.51	6.75	2.70
31	-.97	-----	.41	1.62	-----	4.76	-----	2.70	-----	3.54	6.71	-----

APALACHICOLA RIVER BASIN

CHATTAHOOCHEE RIVER NEAR NORCROSS, GA.

LOCATION.—At Medlocks Bridge, 1½ miles upstream from mouth of John Creek, 4½ miles north of Norcross, Gwinnett County, and 5 miles below Suwanee Creek.

DRAINAGE AREA.—1,170 square miles.

RECORDS AVAILABLE.—January 9, 1903, to September 30, 1922.

GAGE.—Chain gage on toll bridge; read by W. O. Medlock. January 1 to September 30, 1916, a Dexter water-stage recorder on right bank just above bridge, and referred to chain gage without change in datum, was also used for recording stages below 7 feet. See "Regulation."

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed sandy; shifts. Control is a rock shoal about 2½ miles downstream and is more pronounced for higher stages than for low. Medium stages are somewhat affected by shifting bottom conditions between gage and rock shoal. However, at extreme low stages control is practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 12.4 feet at 6 p. m. March 11 (discharge, 14,000 second-feet); minimum stage, 1.5 feet at 7 a. m. October 23 (discharge, 770 second-feet).

1903-1922: Maximum stage recorded, 27.1 feet at 3 p. m. December 10, 1919 (discharge, 54,700 second-feet); minimum stage, 1.02 feet October 21, 1911 (discharge, 294 second-feet). It is believed that this low stage was caused by shutting off flow at the two power dams near Gainesville, Ga.

ICE.—Never enough to affect stage-discharge relation.

REGULATION.—Diurnal fluctuation is caused by operation of hydroelectric plants on Chattahoochee and Chestatee rivers near Gainesville, Ga. Monthly discharge, January to September, 1916, determined from records of water-stage recorder, agreed very closely with that obtained by using mean daily gage heights from two readings of chain per day, indicating that monthly discharge obtained by using records from chain gage is not seriously in error. See Water-Supply Paper 472, page 34.

ACCURACY.—Stage-discharge relation practically permanent during the year. Rating curve well defined between 800 and 55,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

The following discharge measurement was made by W. E. Hall and B. M. Hall, jr.:

September 16, 1922: Gage height, 2.12 feet; discharge, 1,130 second-feet.

Daily discharge, in second-feet, of Chattahoochee River near Norcross, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,740	1,370	1,370	1,370	2,160	2,820	4,690	3,040	4,140	1,940	1,550	1,210
2	1,370	1,210	1,640	1,370	2,380	4,140	3,700	2,820	5,600	1,940	1,640	1,210
3	1,740	1,290	2,050	1,370	2,820	5,960	3,260	3,040	6,800	2,380	1,550	1,210
4	1,940	1,140	1,940	1,290	2,380	4,140	3,040	8,360	4,580	2,600	1,460	1,140
5	1,290	1,000	1,740	1,290	4,580	3,370	2,930	10,300	7,280	2,380	1,460	1,210
6	1,140	1,000	1,740	1,550	5,720	3,040	7,520	5,480	4,690	2,160	1,370	1,070
7	940	940	1,460	1,640	3,920	5,240	7,640	5,720	6,200	2,380	1,370	1,140
8	970	940	1,370	1,550	3,260	6,080	4,580	4,580	6,920	2,050	1,460	1,070
9	910	1,210	1,290	2,930	2,820	4,030	3,920	3,810	4,140	1,940	4,140	1,070
10	850	1,640	1,290	3,040	2,600	6,680	3,700	3,480	3,370	1,840	3,260	1,070
11	880	1,290	1,210	6,200	2,380	13,300	3,480	3,480	3,040	1,740	2,930	1,370
12	880	1,040	1,210	5,600	2,270	8,840	3,370	4,140	2,820	1,840	1,840	2,600
13	850	1,070	1,140	3,040	2,490	5,020	3,040	3,480	2,710	2,050	1,640	1,740
14	820	1,070	1,140	2,380	5,480	4,140	2,930	3,040	2,600	1,940	1,550	1,370
15	820	1,210	1,140	2,050	9,320	4,140	2,820	2,930	2,820	2,270	1,740	1,210
16	820	1,290	1,140	1,940	10,900	4,140	2,820	2,820	2,600	4,360	1,740	1,140
17	820	4,250	1,140	1,740	5,240	3,480	2,930	3,260	2,380	4,140	2,380	1,140
18	820	3,920	3,260	1,740	3,920	3,260	3,150	3,480	2,380	2,160	1,740	1,070
19	880	2,160	3,700	1,740	3,480	4,360	6,680	4,140	3,480	3,920	1,640	1,070
20	820	3,040	2,160	4,360	3,040	6,560	11,900	2,930	2,820	4,030	1,740	1,070
21	820	2,600	1,640	9,320	2,820	4,580	5,720	2,710	3,040	7,640	1,460	1,070
22	820	1,840	1,550	11,900	2,600	3,590	4,140	2,710	2,600	5,020	1,370	1,000
23	770	1,460	1,460	7,640	2,600	3,260	3,700	3,260	2,380	3,040	1,370	1,040
24	820	1,370	1,370	4,470	2,490	3,040	3,480	3,810	2,160	3,040	1,370	1,040
25	820	1,210	2,380	3,920	2,380	2,930	3,260	5,480	2,050	3,040	1,370	970
26	820	1,290	3,370	3,260	2,380	2,820	3,040	3,480	1,940	1,940	1,370	1,000
27	820	1,460	2,380	3,040	2,820	3,040	3,040	3,040	1,940	2,050	1,940	1,000
28	820	1,940	1,840	2,820	3,260	4,360	3,150	3,040	2,050	2,270	1,370	970
29	880	1,940	1,740	2,490		3,700	3,920	2,710	2,050	2,600	1,290	940
30	970	1,640	1,550	2,380		3,480	3,480	2,490	1,940	2,160	1,210	970
31	1,140		1,550	2,270		3,700		2,710		1,740	1,210	

Monthly discharge of Chattahoochee River near Norcross, Ga., for the year ending September 30, 1922

[Drainage area, 1,170 square miles]

Month	Discharge in second-feet.				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	1,940	770	994	0.850	0.98
November.....	4,250	940	1,630	1.39	1.55
December.....	3,700	1,140	1,740	1.49	1.72
January.....	11,900	1,290	3,280	2.80	3.23
February.....	10,300	2,160	3,660	3.13	3.26
March.....	13,300	2,820	4,560	3.90	4.50
April.....	11,900	2,820	4,170	3.56	3.97
May.....	10,300	2,490	3,860	3.30	3.80
June.....	8,600	1,940	3,550	3.03	3.38
July.....	7,640	1,740	2,730	2.33	2.69
August.....	4,140	1,210	1,730	1.48	1.71
September.....	2,600	940	1,170	1.00	1.12
The year.....	13,300	770	2,750	2.35	31.91

CHATTAHOOCHEE RIVER AT WEST POINT, GA.

LOCATION.—At West Point waterworks pumping plant, just below Oseligee Creek, one-fourth mile east of Alabama-Georgia State line in Troup County and 1 mile upstream from West Point railroad station. Prior to October 20, 1912, station was at Montgomery Street Bridge in West Point.

DRAINAGE AREA.—3,300 square miles.

RECORDS AVAILABLE.—July 30, 1896, to September 30, 1922.

GAGE.—Original gage was a chain on downstream handrail of Montgomery Street Bridge. On October 20, 1912, the gage was moved 1 mile upstream to a point opposite city pumping plant. A staff gage (0–18 feet) was placed on left bank. This gage was read from October 20, 1912, to December 10, 1919, by using a telescope from pumping station which is on right bank. The flood of December 10, 1919, put the gage out of commission. On January 14, 1920, the rod on left bank was replaced but could not be read below 6 feet because of a sand bar formed by flood. A short section of rod (0–6.7 feet) was located on right bank. Both rods were set to same datum but the right-bank section reads slightly higher than the left-bank section. Since January 14, 1920, the observer has read right-bank gage during stages below 6 feet and left-bank gage for stages above 6 feet. Gage read by J. H. Miller.

DISCHARGE MEASUREMENTS.—Made from the Montgomery Street Bridge 1 mile downstream. No tributaries enter between gage and bridge.

CHANNEL AND CONTROL.—Bed rough and rocky; fairly permanent. Banks subject to overflow at high stages. Control is rock ledge extending across river just below gage and is not affected by Langdale dam 5 miles downstream.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 19.6 feet at 11 a. m. and 5 p. m. March 11 (discharge, 54,800 second-feet); minimum stage, 2.3 feet at 5 p. m. October 26 (discharge, 1,100 second-feet).

1896–1922: Maximum stage recorded, 30.0 feet at 2 p. m. December 10, 1919 (discharge, 134,000 second-feet); minimum stage recorded (old gage) 0.8 foot September 18–21, 1896 (discharge, 780 second-feet).

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Operation of power plants a great distance upstream causes some diurnal fluctuation.

ACCURACY.—Stage-discharge relation permanent since December 10, 1919. Rating curve well defined between 1,000 and 60,000 second-feet; extended above that point on basis of a computed discharge of 134,000 second-feet for the crest of the flood of December 10, 1919, using the Goat Rock dam, 12 miles above Columbus, as a weir and correcting for difference in drainage area. Gage read to tenths twice daily; during high water oftener. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Chattahoochee River at West Point, Ga., during the year ending September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>			<i>Feet</i>	<i>Sec.-ft.</i>
Mar. 11	B. M. Hall, jr.-----	19.45	54,400	Mar. 11	B. M. Hall, jr., and D.	19.60	54,800
11	B. M. Hall, jr., and D.	19.60	54,400	*May 23	W. Bowles	6.57	10,100
	W. E. Hall -----						

* Measured from Montgomery Street Bridge 1 mile below gage.

Daily discharge, in second-feet, of Chattahoochee River at West Point, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,580	2,580	3,360	2,760	4,750	8,750	13,200	8,250	10,800	4,500	4,260	2,250
2	3,360	2,250	4,260	2,580	5,750	14,200	10,500	7,250	31,100	4,500	3,360	2,250
3	12,200	2,250	4,260	2,580	6,000	24,800	9,000	7,250	23,200	4,030	10,200	2,250
4	9,250	1,950	3,800	2,250	5,250	15,800	7,250	15,800	20,000	7,750	6,250	2,100
5	4,260	1,950	3,580	2,580	10,800	11,800	7,250	21,200	17,000	7,000	3,800	1,950
6	3,360	1,950	3,360	2,760	16,200	9,250	8,750	18,800	12,200	5,750	3,360	1,950
7	2,580	2,580	2,760	3,360	17,800	38,000	14,800	15,200	21,200	4,750	2,580	1,950
8	1,950	1,540	2,950	4,750	14,000	39,800	15,200	10,200	18,800	4,030	2,580	1,950
9	1,420	1,670	2,580	7,750	9,250	18,890	10,800	10,200	14,000	4,260	2,950	1,670
10	1,540	2,250	2,580	7,250	7,750	26,200	9,250	8,250	11,200	3,800	3,800	1,810
11	1,420	2,580	2,250	17,000	7,250	54,200	8,250	7,000	8,250	3,360	6,250	1,810
12	1,420	2,250	2,250	15,800	6,250	42,700	7,250	10,200	6,750	7,750	4,260	3,360
13	1,420	2,250	2,250	12,200	5,750	29,200	6,750	7,750	6,500	7,250	4,260	3,800
14	1,310	1,950	2,250	8,500	9,750	19,200	6,250	7,250	6,250	7,250	4,260	4,260
15	1,420	2,950	1,950	6,000	34,700	15,800	6,250	6,250	5,750	7,000	4,260	3,360
16	1,420	3,580	1,950	4,750	46,800	12,000	7,250	6,250	5,250	5,250	4,030	2,250
17	1,310	2,580	1,950	4,030	28,600	10,000	6,250	6,750	5,500	4,260	5,250	2,250
18	1,310	12,800	9,000	3,800	18,200	9,000	5,750	8,500	5,250	6,250	3,800	1,810
19	1,200	8,750	8,500	3,580	10,200	9,500	11,500	7,750	5,250	7,500	4,030	1,670
20	1,420	13,000	6,250	4,260	8,000	27,400	20,200	7,250	7,000	12,200	3,360	1,950
21	1,420	8,500	5,250	9,250	7,250	21,800	17,200	6,750	7,250	11,200	2,760	1,670
22	1,200	5,750	3,800	13,800	5,750	14,800	17,200	7,750	5,750	9,750	2,760	1,670
23	1,200	4,750	3,150	16,800	5,500	9,750	9,250	10,200	5,750	11,200	2,760	1,670
24	1,200	3,360	2,950	18,200	6,250	8,500	7,500	10,500	5,000	7,000	2,580	1,670
25	1,200	2,760	3,360	12,200	5,250	7,750	7,000	8,500	4,500	5,750	2,410	1,670
26	1,200	2,580	5,000	9,750	5,250	7,750	6,750	10,800	4,260	5,250	2,950	1,540
27	1,200	4,260	5,000	8,250	5,750	7,750	6,250	10,000	3,580	5,500	3,360	1,540
28	1,310	4,750	4,750	7,000	8,250	8,750	6,750	8,750	4,260	4,030	3,580	1,540
29	1,420	5,750	3,800	6,250	-----	9,000	13,800	8,750	5,000	4,260	2,950	1,670
30	3,150	3,800	3,360	5,500	-----	8,750	11,200	6,750	4,500	5,750	2,410	1,420
31	3,150	-----	2,950	5,000	-----	9,250	-----	6,250	-----	5,750	2,250	-----

Monthly discharge of *Chattahooche River at West Point, Ga., for the year ending September 30, 1922*

[Drainage area, 3,300 square miles]

Month.	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	12,200	1,200	2,380	0.721	0.83
November.....	13,000	1,540	4,000	1.21	1.35
December.....	9,000	1,950	3,720	1.13	1.30
January.....	18,200	2,250	7,440	2.25	2.59
February.....	46,800	4,750	11,500	3.48	3.62
March.....	54,200	7,750	17,800	5.39	6.21
April.....	20,200	5,750	9,820	2.98	3.32
May.....	21,200	6,250	9,410	2.85	3.29
June.....	31,100	3,580	9,700	2.94	3.28
July.....	12,200	3,360	6,250	1.89	2.18
August.....	10,200	2,250	3,760	1.14	1.31
September.....	4,260	1,420	2,090	.633	.71
The year.....	54,200	1,200	7,300	2.21	29.99

FLINT RIVER NEAR WOODBURY, GA.

LOCATION.—At Macon & Birmingham Railroad bridge one-fourth mile downstream from mouth of Elkins Creek, one-third mile upstream from mouth of Cane Creek, and 3 miles east of Woodbury, Pike County.

DRAINAGE AREA.—1,090 square miles.

RECORDS AVAILABLE.—March 29, 1900, to September 30, 1922.

GAGE.—Chain gage attached to guardrail on downstream side of Macon & Birmingham Railroad bridge; installed May 24, 1918. Prior to that date, gage was a vertical staff in four sections on left bank about 300 feet above present gage. Gages set to same datum. Zero of gage, 660 feet above sea level. Gage read twice daily by E. T. Riggins.

DISCHARGE MEASUREMENTS.—Made from downstream side of railroad bridge.

CHANNEL AND CONTROL.—Bottom consists chiefly of rock; rough; current irregular. Control formed by a shoal 1 mile downstream; shifts occasionally.

EXTREMES OF STAGE.—Maximum stage recorded during year, 12.2 feet at 7 a. m. March 11; minimum stage, 0.02 foot October 22–25.

1900–1922: Maximum stage recorded, 17.1 feet at 7 a. m. December 11, 1919 (discharge, 38,400 second-feet); minimum stage, -0.4 foot October 8–10, 1911 (discharge, 86 second-feet).

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Some slight diurnal fluctuations caused by operation of small mills on tributary streams.

No determinations of discharge have been made, as the rating curve has not been verified by discharge measurements since September 20, 1919.

Daily gage height, in feet, of Flint River near Woodbury, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.60	0.92	1.56	0.80	1.41	2.25	2.36	2.35	4.97	1.10	1.46	0.47
2	.71	.80	1.46	.76	2.36	2.71	2.44	1.86	9.35	2.21	1.26	.68
3	1.24	.64	1.28	.70	2.05	3.90	2.26	1.76	7.71	1.11	2.06	.59
4	1.39	.57	1.28	.70	1.91	4.31	1.84	2.09	6.05	.92	2.42	.42
5	1.16	.50	1.25	.85	4.50	3.21	1.71	2.45	4.80	1.47	1.74	.36
6	1.00	.41	1.08	1.15	5.65	3.45	1.99	2.72	4.15	1.45	1.19	.36
7	.65	.37	1.10	1.41	5.15	7.92	2.02	2.36	3.71	1.12	.85	.36
8	.49	.34	1.63	1.55	4.35	9.51	2.00	1.76	3.95	.87	.70	.33
9	.38	.37	.95	1.42	3.65	7.78	2.06	1.48	4.15	.80	.62	.32
10	.28	.44	.81	2.15	2.75	8.55	2.05	1.35	4.20	.75	.60	.30
11	.20	.51	.75	4.10	2.26	12.10	1.88	1.20	2.25	1.79	2.34	.30
12	.18	.49	.75	4.20	2.10	10.51	1.46	2.51	1.73	2.40	1.82	.42
13	.16	.40	.71	3.65	1.73	7.95	1.25	2.36	1.44	2.33	1.61	.80
14	.13	.45	.63	2.96	1.63	5.20	1.20	2.19	1.25	2.15	1.30	.68
15	.10	.62	.64	2.01	4.40	3.60	1.05	1.05	1.09	1.91	1.20	.78
16	.09	.64	.63	1.54	8.20	3.15	1.00	1.05	1.00	1.87	1.05	.83
17	.06	.95	.62	1.32	7.20	3.22	1.00	1.26	.95	1.40	1.20	.69
18	.06	1.25	2.38	1.23	5.50	2.56	1.05	1.00	.85	.91	1.14	.47
19	.04	1.66	2.76	1.19	3.50	3.67	1.75	1.15	.80	2.20	1.03	.37
20	.05	1.93	2.26	1.33	2.43	6.60	2.21	1.61	.80	2.06	.89	.30
21	.05	1.85	1.68	1.98	2.07	5.75	2.62	1.47	.80	2.26	.73	.28
22	.02	2.00	1.23	2.36	1.80	4.45	2.78	3.21	1.25	2.26	.54	.26
23	.02	1.55	1.04	2.48	1.61	3.35	2.06	4.47	1.04	1.62	.50	.22
24	.02	1.24	.92	2.54	1.79	2.42	1.42	4.06	.85	1.25	.60	.19
25	.02	1.03	.99	2.61	1.80	2.05	1.69	3.10	.70	.97	.50	.16
26	.08	.90	1.10	2.48	1.65	1.90	1.00	2.05	.70	.80	.70	.22
27	.09	.96	1.09	2.24	1.74	1.80	.98	1.95	.85	.78	1.05	.17
28	.21	1.60	1.00	1.96	2.21	1.85	1.03	2.11	1.30	.76	.88	.14
29	.50	1.60	1.01	1.70	-----	1.86	2.24	2.11	1.11	.93	.60	.15
30	.65	1.75	.95	1.51	-----	1.80	2.51	1.87	1.16	1.80	.50	.12
31	.82	-----	.81	1.38	-----	1.80	-----	1.91	-----	2.16	.43	-----

FLINT RIVER NEAR CULLODEN, GA.

LOCATION.—At Grays Ferry, Upson County, 1½ miles upstream from mouth of Auchumpkee Creek and 14 miles southwest of Culloden.

DRAINAGE AREA.—2,000 square miles.

RECORDS AVAILABLE.—July 1, 1911, to September 30, 1922.

GAGE.—Original gage was a staff in four sections on left bank at old ferry landing.

In August, 1918, a Stevens continuous water-stage recorder was installed on left bank 100 feet upstream from old rod gage; the Stevens gage was replaced by a Gurley seven-day graph recorder on May 29, 1919. Gage inspected by Arthur Preston.

DISCHARGE MEASUREMENTS.—Made from boat.

CHANNEL AND CONTROL.—Channel sandy and shifting at gage. Control is a rock ledge half a mile downstream; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 27.2 feet at 7 a. m. March 11 (discharge, 46,800 second-feet); minimum stage, 1.35 feet at 10 p. m. October 24 (discharge, 275 second-feet).

1911-1922: Maximum stage recorded, 33.3 feet during night of July 9, 1916 (discharge not determined); minimum stage, 1.0 foot October 8, 1911 (discharge, 165 second-feet).

ICE.—None.

DIVERSIONS.—None.

ACCURACY.—Stage-discharge relation considered permanent. Rating curve well defined between 250 and 5,000 second-feet; extension above 5,000 second-feet based on discharge at crest of floods at Woodbury corrected for difference in drainage area. Operation of water-stage recorder not satisfactory owing to frequent stopping of clock, but observer read rod gage when clock was not

running. Diurnal fluctuation at this station is negligible. Daily discharge ascertained by applying mean daily gage height to rating table. Records considered good except for extremely high stages.

No discharge measurements made at this station during year.

Daily discharge, in second-feet, of Flint River near Culloden, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.	1,010	840	1,800	880	1,800	3,100	4,130	3,380	11,600	1,500	2,460	655
2.	840	800	1,700	840	4,430	3,830	3,680	2,580	27,500	2,230	1,700	760
3.	1,100	725	1,600	840	4,280	6,720	3,830	2,460	20,600	1,700	3,240	840
4.	1,700	655	1,400	800	3,100	7,230	2,960	4,430	13,100	1,300	3,530	800
5.	1,200	585	1,300	800	14,300	6,040	2,960	5,380	9,280	1,600	2,460	690
6.	1,200	550	1,200	1,100	17,000	5,380	3,830	3,830	7,230	1,800	1,600	690
7.	840	515	1,010	1,700	14,700	34,100	3,380	3,680	6,210	1,700	1,300	655
8.	655	480	920	1,800	9,820	33,400	3,100	2,960	6,380	1,300	1,100	620
9.	550	515	920	2,120	6,890	21,300	3,100	2,230	7,230	1,100	1,010	620
10.	450	550	920	2,700	5,060	22,100	2,830	2,230	6,550	1,010	920	585
11.	420	585	920	8,420	3,680	43,100	2,230	1,900	4,280	1,300	1,010	585
12.	390	585	920	7,910	3,100	35,400	2,010	3,240	2,700	4,130	2,010	655
13.	390	550	880	6,210	2,580	23,900	1,800	3,530	2,230	3,240	2,230	725
14.	360	585	880	4,740	2,340	13,800	1,700	2,230	1,900	3,240	2,010	920
15.	360	690	840	3,240	6,210	8,250	1,600	1,600	1,700	2,580	1,800	800
16.	360	760	760	2,460	15,600	6,380	1,600	1,600	1,500	1,600	1,600	760
17.	360	725	760	2,010	15,600	6,040	1,600	2,010	1,400	1,200	1,500	840
18.	360	920	725	1,700	11,300	4,900	1,700	2,120	1,400	1,400	1,400	840
19.	360	1,200	725	1,500	7,400	6,550	1,900	2,230	1,300	3,240	1,300	800
20.	330	1,800	690	1,500	4,740	15,900	2,460	2,230	1,300	4,740	1,200	655
21.	330	1,800	725	2,230	4,900	13,200	3,100	1,900	1,600	5,380	1,100	585
22.	300	2,010	1,300	2,960	2,830	9,820	3,530	3,380	1,600	4,430	1,010	585
23.	300	1,800	1,400	3,100	2,580	6,890	2,830	6,040	1,500	2,700	920	685
24.	275	1,300	1,100	3,240	2,460	5,060	2,120	7,230	1,400	1,900	840	585
25.	300	1,100	1,100	3,530	2,460	3,530	1,700	4,430	1,300	1,600	840	585
26.	300	920	1,100	3,530	2,460	3,100	1,500	3,100	1,100	1,300	760	585
27.	300	840	1,100	3,240	2,230	3,100	1,400	5,060	1,100	1,100	880	585
28.	300	1,800	1,200	2,700	2,830	3,680	1,600	5,870	1,600	1,100	1,010	550
29.	330	1,900	1,200	2,230		3,240	3,830	4,580	2,230	1,300	840	550
30.	515	1,800	1,010	2,010		2,960	3,980	3,380	1,900	1,600	725	550
31.	725		920	1,800		3,240		3,240		2,580	690	

NOTE.—Recorder not functioning during following periods: Oct. 18 to Nov. 26, Dec. 17-24, Mar. 12, 13, 20, 21, May 23, 24, and Aug. 5-19. Graph was estimated for these periods from rod readings by observer and by comparison with gage heights of Flint River near Woodbury, Ga.

Monthly discharge of Flint River near Culloden, Ga., for the year ending September 30, 1922

[Drainage area, 2,000 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,700	275	555	0.278	0.32
November	2,010	480	996	.498	.56
December	1,800	690	1,070	.535	.62
January	8,420	800	2,700	1.35	1.56
February	17,000	1,800	6,310	3.16	3.29
March	43,100	2,960	11,800	5.90	6.80
April	4,130	1,400	2,600	1.30	1.45
May	7,230	1,600	3,360	1.68	1.94
June	27,500	1,100	5,020	2.51	2.80
July	5,380	1,010	2,160	1.08	1.24
August	3,530	690	1,450	.725	.84
September	920	550	675	.338	.38
The year	43,100	275	3,210	1.60	21.80

CHIPOLA RIVER NEAR ALTHA, FLA.

LOCATION.—At Willis highway bridge, 1 mile above Look and Tremble Shoals, 3 miles above mouth of Tenmile Creek, and 4 miles southwest of Altha, Calhoun County.

DRAINAGE AREA.—740 square miles.

RECORDS AVAILABLE.—November 21, 1912, to December 31, 1913; September 21, 1921, to September 30, 1922.

GAGE.—Chain gage attached to upstream handrail of bridge; read by A. A. Allen. Original gage was a vertical staff spiked to cedar stump on left bank, 75 feet above bridge. On April 22, 1913, a chain gage was attached to the upstream handrail of the bridge. This bridge was replaced later and on September 21, 1921, the present gage was installed on the new bridge. Gage datum unchanged.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge.

CHANNEL AND CONTROL.—Bed is rough with bottom of soft limestone; banks steep and are seldom overflowed. Rock shoal, 1 mile below gage, forms excellent control for low and medium stages.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period September 21, 1921, to September 30, 1922, 15.98 feet June 2, 1922 (discharge, 3,870 second-feet); minimum stage, 8.49 feet January 7, 1922 (discharge, 440 second-feet).

1913; 1921–1922: Maximum stage recorded, 21.1 feet March 22, 1913 (discharge not determined); minimum stage, 8.49 feet January 7, 1922 (discharge, 440 second-feet).

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Slight regulation from small power plant upstream.

ACCURACY.—Stage-discharge relation practically permanent below 1,500 second-feet; above that stage the low-water control is drowned out and stage-discharge relation is fairly permanent. Rating curve well defined below 1,500 second-feet and fairly well defined between 1,500 and 2,600 second-feet. Gage read to hundredths once daily except Sundays and holidays. Daily discharge ascertained by applying daily gage height to rating table. Records good below 1,500 second-feet, and fair between 1,500 and 3,000 second-feet.

Discharge measurements of Chipola River near Altha, Fla., during the period September 8, 1921, to September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
1921 Sept. 8	B. M. Hall and B. M. Hall, jr.	<i>Feet</i> 9.20	<i>Sec.-ft.</i> 814	1922 Feb. 9	B. M. Hall, jr.-----	<i>Feet</i> 11.44	<i>Sec.-ft.</i> 2,000
21	B. M. Hall, jr.-----	8.89	650	10	do-----	11.04	1,790
22	do-----	8.85	624	May 25	W. R. King-----	8.88	644
				June 20	Warren Withee-----	9.50	996
				July 27	Duncan Charlton-----	9.57	1,020

Daily discharge, in second-feet, of Chipola River near Altha, Fla., for the period September 21, 1921, to September 30, 1922

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		604	524	472	577	630	1,240	1,880	816	2,540	922	869	710
2		644	524	604	525	816	1,240	1,920	816	3,870	896	816	710
3		684	524	578	472	816	1,190	1,960	869	3,770	869	763	692
4		710	498	604	472	816	1,450	1,920	922	3,470	922	763	675
5		684	498	630	472	1,370	1,600	1,960	922	3,170	975	763	657
6		684	498	657	472	1,920	1,760	2,000	869	3,400	869	763	710
7		630	498	710	445	1,960	2,140	1,800	842	3,260	816	763	710
8		604	524	604	472	1,640	2,130	1,590	816	2,900	816	1,030	710
9		591	551	604	498	1,840	2,300	1,420	816	2,720	790	816	684
10		578	524	551	524	1,720	2,080	1,240	763	2,500	763	1,080	657
11		578	524	578	604	1,800	2,220	1,240	763	2,170	763	922	630
12		524	498	604	604	1,800	2,130	1,190	763	1,840	763	1,080	816
13		524	538	578	630	1,800	2,040	1,130	763	1,540	763	1,080	869
14		524	578	630	630	1,590	2,220	1,080	724	1,400	816	1,080	816
15		578	578	630	670	1,500	2,460	1,080	684	1,290	922	975	869
16		564	604	524	710	1,840	2,580	1,060	684	1,130	948	975	1,130
17		551	578	710	710	1,500	2,380	1,030	684	1,080	975	922	1,240
18		551	578	710	684	1,640	2,080	975	763	1,080	1,130	869	1,350
19		524	578	710	657	2,090	1,920	975	710	1,080	1,130	816	1,240
20		472	578	684	657	2,540	1,760	922	763	975	1,030	816	1,240
21	630	472	578	763	657	2,720	1,500	869	816	922	1,080	816	1,240
22	630	472	551	710	578	2,420	1,450	869	869	1,030	1,240	763	1,190
23	630	498	578	710	498	2,110	1,500	842	816	975	1,300	816	975
24	630	524	578	657	604	2,040	1,680	816	684	922	1,350	816	896
25	617	551	578	670	630	1,720	1,720	816	630	922	1,240	763	816
26	604	524	578	684	684	1,580	1,650	816	763	922	1,240	763	763
27	578	524	578	657	684	1,450	1,590	816	763	975	1,030	763	763
28	710	524	578	657	684	1,240	1,350	763	869	816	975	763	763
29	578	472	445	710	697		1,450	816	975	816	869	710	710
30	604	512	472	684	710		1,290	816	1,050	1,080	842	710	710
31		551		630	710		1,400		1,130		816	710	

NOTE.—Gage not read on Sundays and holidays; discharge interpolated.

Monthly discharge of Chipola River near Altha, Fla., for the period September 21, 1921, to September 30, 1922

[Drainage area, 740 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1921					
September 21-30	710	578	621	0.839	0.31
1921-22					
October	710	472	562	.759	.88
November	604	445	544	.735	.82
December	763	472	642	.868	1.00
January	710	445	601	.812	.94
February	2,720	630	1,670	2.26	2.35
March	2,580	1,190	1,790	2.42	2.79
April	2,000	763	1,220	1.65	1.84
May	1,130	630	810	1.09	1.26
June	3,870	816	1,820	2.46	2.74
July	1,350	763	963	1.30	1.50
August	1,080	710	850	1.15	1.33
September	1,350	630	865	1.17	1.30
The year	3,870	445	1,020	1.38	18.70

CHOCTAWHATCHEE RIVER BASIN

CHOCTAWHATCHEE RIVER NEAR NEWTON, ALA.

LOCATION.—Near highway bridge on Newton-Ozark road, 1 mile north of Newton, Dale County.

DRAINAGE AREA.—720 square miles (measured on map compiled by United States Geological Survey; scale, 1 to 500,000).

RECORDS AVAILABLE.—June 11, 1906, to August 22, 1908; October 20, 1911, to August 3, 1912; November 29, 1921, to September 30, 1922.

GAGE.—Gurley seven-day water-stage recorder on left bank 700 feet above highway bridge, installed November 29, 1921; inspected by L. L. Davenport. Original gage was vertical staff located at Elba Junction, 1 mile above highway bridge and was used during 1906. On April 22, 1907, a chain gage was attached to the downstream side of the highway bridge and was used until August 3, 1912. Gage heights for 1906 were reduced to the same datum as the chain gage. Present gage is set to an independent datum.

DISCHARGE MEASUREMENTS.—Made from cable 100 feet above gage. Prior to May 23, 1922, measurements were made from highway bridge.

CHANNEL AND CONTROL.—Bed composed of marl formation; permanent. Low-water control is low marl shoal 100 feet below gage; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period November 29, 1921, to September 30, 1922, 16.62 feet at 10 a. m. June 2 (discharge, 11,400 second-feet); minimum mean daily stage, -0.02 foot September 5 (discharge, 122 second-feet). Actual minimum stage uncertain as on several days water level in river fell below bottom of stilling well, but inspection of recorder graph indicates that the lowest stage was about -0.1 foot on September 8.

1906-1908; 1911-1912; 1921-1922: Maximum stage recorded, 24.2 feet, old gage datum, March 25, 1908 (discharge not determined); minimum stage same as for 1922.

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Possibly slight regulation from grist-mill dams upstream.

ACCURACY.—Stage-discharge relation affected by a fish-trap dam which was constructed below gage on April 29 and removed June 10-13. Rating curve used November 29 to April 28 well defined below 3,000 second-feet. Rating curve used April 29 to June 10 is based on two discharge measurements and form of previous curve. Rating curve used June 14 to September 30 is well defined below 2,000 second-feet; based on form of original curve above that point. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph, except for days of considerable fluctuation in stage, for which it was ascertained by averaging bi-hourly discharge, and for periods during which recorder did not operate. Records good below 3,000 second-feet; fair above that point.

Discharge measurements of Choctawhatchee River near Newton, Ala., during the year ending September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>			<i>Feet</i>	<i>Sec.-ft.</i>
Jan. 4	King and Killebrew ^a	0.76	324	May 24	W. R. King	^b 2.98	1,170
Mar. 5	Dudley and Killebrew	2.94	1,720	June 13	Warren Withee	1.68	721
9	D. A. Dudley	4.51	2,900	19	Withee and Killebrew	1.02	391
29	do	2.65	1,450	Aug. 1	Duncan Charlton	.78	301
31	do	2.09	1,060	Sept. 23	A. E. Killebrew	.24	186
May 23	W. R. King	^b 1.75	429				

^a Engineer for city of Dothan.

^b Stage-discharge relation affected by fish-trap dam.

Daily discharge, in second-feet, of Choctawhatchee River near Newton, Ala., for the year ending September 30, 1922

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		383	364	660	955	1,860	1,300	6,220	438	351	136
2		482	344	1,000	1,340	1,220	1,420	10,900	394	731	138
3		535	335	1,040	1,900	1,150	1,060	6,890	316	389	140
4		514	322	1,040	2,050	985	1,060	4,120	305	290	136
5		493	326	2,400	1,710	940	985	3,520	312	312	122
6		472	496	7,300	1,450	810	829	2,160	384	425	136
7		451	660	5,880	2,800	719	664	2,020	348	384	143
8		403	822	4,000	2,800	665	545	1,530	293	322	144
9		415	1,040	2,420	2,880	654	442	1,260	251	380	260
10		438	1,450	1,820	3,100	604	382	1,090	240	590	202
11		469	1,980	1,520	3,020	621	370	985	402	510	154
12		428	1,790	1,380	2,350	719	394	880	369	372	157
13		395	1,560	1,190	1,900	683	356	775	308	389	284
14		368	1,260	1,060	1,600	610	329	670	299	344	314
15		344	1,040	1,790	1,450	535	265	595	251	356	490
16		340	897	1,790	1,220	492	382	525	296	344	434
17		361	758	1,560	1,060	438	520	470	326	344	348
18		566	671	1,380	985	420	724	443	380	299	284
19		500	654	1,220	2,360	399	640	402	495	272	245
20		500	626	1,080	3,250	446	572	394	540	222	230
21		492	610	955	2,230	424	577	412	591	228	200
22		482	665	836	1,680	411	530	505	692	215	173
23		474	555	822	1,410	387	490	550	452	215	149
24		415	545	1,000	1,220	383	1,380	505	344	206	140
25		460	683	1,150	1,040	420	1,200	412	363	198	143
26		478	784	978	940	415	1,750	344	364	190	138
27		482	770	890	948	428	2,540	319	326	180	136
28		460	713	925	1,230	540	2,920	326	525	170	132
29	415	395	654		1,450	1,530	2,090	380	368	160	130
30	411	358	665		1,190	1,680	1,660	416	319	150	130
31		354	632		1,520	2,130	2,130		281	140	

NOTE.—Recorder not operating Dec. 4-6 and Aug. 19-30; discharge interpolated or estimated by comparison with records of flow at Bellwood and Geneva. Fish-trap dam being removed June 11-13; discharge interpolated. Gage heights partly estimated Sept. 5, 8, 23, 26, 28-30, as water level in river was below bottom of stilling well for a few hours each day.

Monthly discharge of Choctawhatchee River near Newton, Ala., for the year ending September 30, 1922

[Drainage area, 720 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Persquare mile	
November 29-30	415	411	413	0.573	0.04
December	535	340	442	.614	.71
January	1,980	322	796	1.11	1.28
February	7,300	660	1,750	2.43	2.53
March	3,250	940	1,780	2.47	2.85
April	1,860	383	720	1.00	1.12
May	2,920	265	991	1.38	1.59
June	10,900	319	1,670	2.32	2.59
July	692	240	373	.518	.60
August	731	140	312	.433	.50
September	490	122	199	.276	.31

CHOCTAWHATCHEE RIVER NEAR BELLWOOD, ALA.

LOCATION.—Half a mile below Chalkers Bluff dam site of city of Dothan, 1½ miles above Central of Georgia Railway bridge, and 2½ miles east of Bellwood, Geneva County.

DRAINAGE AREA.—1,260 square miles (measured on United States soil survey maps by the Ludlow Engineers, Winston Salem, N. C.).

RECORDS AVAILABLE.—December 11, 1921, to September 30, 1922.

GAGE.—Gurley seven-day water-stage recorder on left bank of river; inspected by Marvin Blackwell and Elmer Childs.

DISCHARGE MEASUREMENTS.—Made from cable 20 feet above gage for stages below 8 feet (discharge, 4,400 second-feet); above that point it is impossible to obtain measurements. See "Channel and control."

CHANNEL AND CONTROL.—Bed sandy and shifting. Above 8 feet right bank is overflowed some distance above gage and river flows around the gage in several channels. No well-defined control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 13.05 feet at 5 p. m. June 2 (discharge, 15,300 second-feet); minimum discharge, estimated 430 second-feet September 30.

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Some diurnal fluctuation caused by operation of Houston Power Co.'s plant on Little Choctawhatchee River 16 miles above.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined below 4,400 second-feet; extended above that point on basis of comparison with rating for Choctawhatchee River near Newton. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph, except for days of considerable fluctuation in stage, for which it was ascertained by averaging bi-hourly discharge and for periods during which recorder did not operate. Records good below 4,400 second-feet; above that point they may be subject to error on account of uncertain definition of rating curve.

Discharge measurements of Choctawhatchee River near Bellwood, Ala., during the year ending September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>			<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 19	W. G. Kirkpatrick ^a ...	^b 0.95	422	Mar. 30	D. A. Dudley.....	5.20	2,580
25	do.....	^b 1.00	435	May 24	W. R. King.....	^d 4.06	2,200
Jan. 4	King and Killebrew ^a...	.53	617	June 14	Withee and Killebrew..	2.57	1,280
Mar. 6	Dudley and Killebrew.....	4.93	2,500	19	do.....	1.92	1,000
8	D. A. Dudley.....	8.00	4,240	July 31	Duncan Charlton.....	.73	638
9	do.....	6.90	3,650	Sept. 26	A. E. Killebrew.....	.14	462
29	do.....	6.18	^c 2,780				

^a Engineer for city of Dothan.

^b Gage height from temporary staff gage at Dothan dam site. Deduct 1.00 foot to reduce to present gage datum.

^c Result doubtful, as current meter was not working properly.

^d Rapidly rising stage.

NOTE.—Measurements on and after March 8 made from cable. Prior to that date made from boat

Daily discharge, in second-feet, of Choctawhatchee River near Bellwood, Ala., for the year ending September 30, 1922

Day	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		595	1,070	1,570	3,770	1,740	7,760	970	640	480
2		595	1,790	2,170	3,040	2,010	14,200	935	1,030	480
3		580	1,870	3,440	2,070	1,720	12,400	812	882	470
4		568	1,570	3,850	1,770	1,720	7,400	882	694	470
5		579	2,600	3,000	1,620	1,870	6,640	830	650	460
6		876	7,720	2,410	1,520	1,480	5,070	795	680	460
7		1,210	9,820	3,270	1,390	1,210	3,560	795	850	450
8		1,240	7,160	4,380	1,260	1,050	3,050	700	800	450
9		1,790	4,270	3,630	1,170	900	2,320	610	700	530
10		1,800	2,950	3,820	1,130	848	2,020	580	800	625
11	730	3,180	2,440	5,120	1,170	865	1,770	610	1,000	505
12	715	2,440	2,120	3,950	1,340	812	1,570	812	970	595
13	655	2,030	1,870	3,090	1,210	760	1,390	730	780	835
14	625	1,710	1,720	2,490	1,090	715	1,260	715	800	1,090
15	610	1,390	3,290	2,220	1,010	655	1,170	670	730	935
16	595	1,260	4,690	2,000	935	715	1,050	600	750	988
17	625	1,130	3,810	1,770	882	1,050	970	670	730	865
18	908	1,050	2,630	1,670	848	1,440	900	710	730	890
19	970	970	2,220	1,970	830	1,170	970	800	670	685
20	830	970	2,020	6,330	882	1,010	970	940	610	610
21	778	935	1,770	3,980	865	900	986	1,000	530	568
22	745	1,090	1,570	2,740	795	900	1,260	1,090	542	530
23	685	1,010	1,520	2,190	760	882	1,210	935	530	518
24	685	900	1,670	1,970	730	2,060	1,050	745	530	500
25	745	1,090	1,770	1,770	700	2,140	882	760	518	480
26	760	1,260	1,620	1,620	670	2,690	760	900	510	470
27	745	1,210	1,480	1,770	685	3,420	715	935	510	460
28	715	1,090	1,670	2,170	685	5,440	700	1,090	500	450
29	670	1,010		3,130	1,780	4,130	778	882	500	440
30	640	1,170		2,570	2,420	3,030	795	700	490	430
31	595	1,170		2,390		3,200		625	490	

NOTE.—Recorder not operating Jan. 5, 6, July 15-22, Aug. 5-19, 26-31, Sept. 1-8, and 24-30; discharge estimated by comparison with records of flow at Newton and Geneva.

Monthly discharge of Choctawhatchee River near Bellwood, Ala., for the year ending September 30, 1922

[Drainage area, 1,260 square miles]

Month.	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
December 11-31	970	595	716	0.568	0.44
January	3,180	568	1,220	.968	1.12
February	9,820	1,070	2,880	2.29	2.33
March	6,330	1,570	2,850	2.26	2.61
April	3,770	670	1,300	1.03	1.15
May	5,440	655	1,690	1.34	1.54
June	14,200	700	2,850	2.26	2.32
July	1,090	580	801	.636	.73
August	1,030	490	682	.541	.62
September	1,090	430	589	.467	.52

CHOCTAWHATCHEE RIVER NEAR GENEVA, ALA.

LOCATION.—At highway bridge three-fourths mile above mouth of Double Bridge Creek, 1 mile from Geneva, Geneva County, and 1½ miles above confluence with Pea River.

DRAINAGE AREA.—1,380 square miles (measured on map compiled by United States Geological Survey; scale, 1 to 500,000).

RECORDS AVAILABLE.—June 12 to September 30, 1922; gage-height records, August 26 to December 31, 1904.

GAGE.—Chain gage on downstream side of highway bridge, installed June 18, 1922; read by Walter L. McLeod. Gage used June 12–17, 1922, was a vertical staff nailed to tree on right bank about 100 feet downstream from bridge, and was read by employees of the Hardaway Construction Co. Datum of chain gage is 2.14 feet lower than that of staff gage. During 1904 vertical staff gage, attached to right bent of old highway bridge at same site as present bridge, was used; datum unknown.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge.

CHANNEL AND CONTROL.—Channel straight for 200 feet above and half a mile below gage; banks subject to overflow. Bed of stream firm sand and rock; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period June 12 to September 30, 1922, 8.64 feet at 6.10 p. m. June 12 (discharge, 2,860 second-feet); minimum stage, 1.97 feet at 11.30 a. m. September 25 (discharge, 452 second-feet).

REGULATION.—Slight regulation caused by small power plant and mills above Bellwood.

ACCURACY.—Stage-discharge relation fairly permanent during low and medium stages; affected by backwater during high stages on Pea River. Rating curve fairly well defined between 400 and 3,500 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Choctawhatchee River near Geneva, Ala., during the year ending September 30, 1922

Date	Made by—	Gage height	Discharge	Date	Made by—	Gage height	Discharge
May 25	W. R. King	<i>Feet</i> 6.99	<i>Sec.-ft.</i> 3,050	July 31	Duncan Charlton	<i>Feet</i> 3.10	<i>Sec.-ft.</i> 758
June 14	Withee and Killebrew*	5.24	1,550	31	do	3.08	747
18	do	4.08	1,040	Sept. 25	A. E. Killebrew	2.07	475

* Engineer for city of Dothan.

Daily discharge, in second-feet, of Choctawhatchee River near Geneva, Ala., for the year ending September 30, 1922

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		1,060	590	510	16	1,060		890	1,240
2		1,130	650	560	17	955		800	1,060
3		1,100	1,100	485	18	1,080		800	890
4		1,060	800	510	19	1,200		740	800
5		990	740	535	20	1,200		680	620
6		1,020	860	535	21	1,130		680	590
7		955	860	560	22	1,340		680	590
8		860	770	485	23	1,200		650	510
9			890	460	24	1,160		560	485
10			1,060	485	25	1,130		560	490
11			1,440	535	26	860		560	485
12			1,130	590	27	860		560	485
13	2,840		650	590	28	890		635	510
14	1,760		955	650	29	940		535	510
15	1,440		800	1,060	30	990		485	510
	1,200		1,020	920	31			485	

NOTE.—Gage not read June 18, 24, 29, and July 1; discharge interpolated. No record July 9–31.

Monthly discharge of Choctawhatchee River near Geneva, Ala., for the year ending September 30, 1922

[Drainage area, 1,380 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
June 12-30.....	2,840	860	1,220	0.884	0.62
July 1-8.....	1,130	860	1,020	.789	.22
August.....	1,440	485	774	.561	.65
September.....	1,240	460	621	.450	.50

PEA RIVER AT PERA, ALA.

LOCATION.—At Elton wagon bridge, 500 feet below Louisville & Nashville Railroad bridge, half a mile west of Pera, Geneva County, and 10 miles above mouth of Flat Creek.

DRAINAGE AREA.—1,180 square miles.

RECORDS AVAILABLE.—August 27, 1904, to August 31, 1913; June 16 to September 30, 1922.

GAGE.—Gurley seven-day water-stage recorder, installed June 27, 1922, on right bank, downstream side of bridge, referred to chain gage on upstream hand-rail of bridge; inspected by J. W. McCullough. Chain gage is in same location and set to same datum as original gage.

DISCHARGE MEASUREMENTS.—Made from upstream side of wagon bridge.

CHANNEL AND CONTROL.—Channel is composed of marl and sand. No well-defined control but stage-discharge relation is fairly permanent over a long period.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period June 16 to September 30, 1922, 8.22 feet at 1 p. m. August 13 (discharge, 1,950 second-feet); minimum stage uncertain as on several days water level in river fell below bottom of stilling well, this always occurred on Mondays. The lowest reading of the chain gage was 1.63 feet at 7.30 a. m. September 25 (discharge, 133 second-feet).

1904-1913; 1922: Maximum stage recorded, 32.8 feet April 24, 1912 (discharge, 13,200 second-feet); minimum discharge same as for 1922.

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Power plants on Pea River at Elba and on Whitewater Creek, a tributary stream above station, cause considerable diurnal fluctuation in stage. The storage of water at Elba over Sundays causes extreme low water at this station on Mondays.

ACCURACY.—Stage-discharge relation practically permanent during the year. Rating curve fairly well defined below 2,800 second-feet; above that point it is the same as curve used for 1911. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspection of recorder graph except for periods during which recorder did not operate. Records good except for periods during which recorder did not operate, for which they are fair.

Discharge measurements of Pea River at Pera, Ala., during the year ending September 30, 1922

Date	Made by—	Gage height	Dis-charge	Date	Made by—	Gage height	Dis-charge
		<i>Feet</i>	<i>Sec.-ft.</i>			<i>Feet</i>	<i>Sec.-ft.</i>
May 24	W. R. King.....	8.24	1,980	July 29	Duncan Charlton.....	3.86	496
June 21	Killebrew* and Withee.	4.82	700	Sept. 24	A. E. Killebrew.....	2.93	303

* Engineer for city of Dothan.

Daily discharge, in second-feet, of Pea River at Pera, Ala., for the year, ending September 30, 1922

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1		715	405	245	16		602	455	590
2		820	415	245	17		525	415	515
3		740	455	220	18		715	405	445
4		715	395	200	19		1,260	375	435
5		765	345	250	20		940	405	335
6		820	415	275	21	715	715	275	335
7		765	375	280	22	910	690	365	298
8		628	415	275	23	820	640	475	298
9		590	375	275	24	765	615	355	268
10		578	405	290	25	565	615	335	155
11		565	335	200	26	545	715	290	222
12		550	375	260	27	545	578	288	260
13		535	1,260	298	28	665	602	198	230
14		525	628	415	29	665	485	268	230
15		565	495	505	30	890	495	245	245
					30		425	275	

NOTE.—Recorder not operating June 16, 21–26, July 12–14, Aug. 16, Sept. 3–8, June 16, and 21–26; discharge determined from readings of chain gage. Discharge, July 12–14, estimated from form of recorder graph; Aug. 16, interpolated; Sept. 3–8, estimated by comparison with record of flow at Geneva. Gage heights estimated July 11, 17, Sept. 11, and 25; partly estimated June 27, July 10, 15, 16, 18, 28, 29, Aug. 15, 17, 28, Sept. 2, 9, and 24.

Monthly discharge of Pea River at Pera, Ala., for the year ending September 30, 1922

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
June 21–30.....	910	545	708	0.600	0.22
July.....	1,260	425	661	.560	.65
August.....	1,260	198	403	.342	.39
September.....	590	155	303	.257	.29

PEA RIVER NEAR GENEVA, ALA.

LOCATION.—At highway bridge 2 miles west of Geneva, Geneva County, and 3 miles above confluence with Choctawhatchee River.

DRAINAGE AREA.—1,560 square miles (measured on maps compiled by United States Geological Survey; scale, 1 to 500,000).

RECORDS AVAILABLE.—June 17 to September 30, 1922.

GAGE.—Chain gage attached to upstream handrail of highway bridge, read by J. D. Howell.

DISCHARGE MEASUREMENTS.—Made from upstream side of bridge.

CHANNEL AND CONTROL.—Channel straight above and below gage. Right bank high; left bank subject to overflow at high stages. Bed of stream firm sand; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 6.2 feet at 7.30 a. m. August 14 (discharge, 1,440 second-feet); minimum stage, 1.97 feet at 7.20 a. m. September 5 (discharge, 326 second-feet).

REGULATION.—Considerable regulation at power plants above Pera, Ala.

ACCURACY.—Stage-discharge relation fairly permanent; may be affected by back-water during extreme high water on Choctawhatchee River. Rating curve well defined between 300 and 11,000 second-feet; extended above that point. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair.

Discharge measurements of Pea River near Geneva, Ala., during the year ending September 30, 1922

Date	Made by—	Gage height	Dis-charge	Date	Made by—	Gage height	Dis-charge
June 15	Withee and Killebrew*	<i>Feet</i> 6.00	<i>Sec.-ft.</i> 1,500	July 25	Duncan Charlton.....	<i>Feet</i> 5.18	<i>Sec.-ft.</i> 932
18	do.....	4.70	1,050	Sept. 25	A. E. Killebrew.....	2.39	420

* Engineer for city of Dothan.

Daily discharge, in second-feet, of Pea River near Geneva, Ala., for the year ending September 30, 1922

Day	June	July	Aug.	Sept.	Date	June	July	Aug.	Sept.
1.....		890	635	400	16.....			785	785
2.....		920	610	380	17.....			980	760
3.....		935	710	380	18.....	890		635	760
4.....		950	635	345	19.....	1,010		610	660
5.....		890	560	330	20.....	1,230		560	585
6.....		875	610	380	21.....	1,200		560	520
7.....		860	660	420	22.....	1,230		480	480
8.....		860	585	440	23.....	1,300		500	440
9.....			610	440	24.....	1,170		500	420
10.....			710	440	25.....	1,040		500	400
11.....			1,300	420	26.....	810		480	330
12.....			980	380	27.....	810		440	345
13.....			1,010	500	28.....	760		420	380
14.....			1,440	635	29.....	825		345	360
15.....			980	660	30.....	890		400	345
					31.....			380	

NOTE.—Gage not read June 18, 24, 29, July 3, and 6; discharge interpolated. No record July 9-31.

Monthly discharge of Pea River near Geneva, Ala., for the year ending September 30, 1922

[Drainage area, 1,560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
June 17-30.....	1,300	760	1,010	0.647	0.34
July 1-8.....	950	860	894	.873	.17
August.....	1,440	345	665	.426	.49
September.....	785	330	471	.302	.84

PERDIDO RIVER BASIN

PERDIDO RIVER AT MUSCOGEE, FLA.

LOCATION.—At Muscogee, Escambia County, Fla., on State line between Alabama and Florida, 12 miles northwest of Pensacola.

RECORDS AVAILABLE.—January 9 to July 1, 1922, when station was discontinued.

DRAINAGE AREA.—Not measured.

GAGE.—Staff gage in two sections; lower section, 0 to 9.0 feet is inclined and upper section, 9.0 to 15.0 feet, is vertical and is nailed to large tree on left bank 100 feet downstream from highway bridge at Muscogee; read by J. H. Holman.

DISCHARGE MEASUREMENTS.—Made from downstream side of highway bridge above gage.

CHANNEL AND CONTROL.—Channel is extremely crooked and seriously obstructed by drift and logs in many places. Bed is composed of compact sand and is strewn with sunken and buried logs throughout its length. Control not well defined.

EXTREMES OF STAGE.—Maximum stage recorded during period of record, 10.90 feet, February 6; minimum stage, 1.10 feet May 13, 14, and 24.

ACCURACY.—Rating curve not developed. Data insufficient for determination of discharge.

COOPERATION.—Gage-height record furnished by Reed Bingham.

The following discharge measurements were made by W. R. King:

December 29, 1921: Gage height, 1.90 feet; discharge, 548 second-feet;

January 1, 1922: Gage height, 1.36 feet; discharge, 461 second-feet.

Daily gage height, in feet, of Perdido River at Muscogee, Fla., for the period January 9 to July 1, 1922

Day	Jan.	Feb.	Mar.	Apr.	May	June	Aug.
1		5.65	3.95	7.80	1.25	7.45	3.65
2		6.30	4.10	6.10	1.40	6.05	
3		6.70	6.40	5.20	4.45	5.85	
4		6.20	7.70	3.70	6.00	5.15	
5		8.70	7.50	3.05	6.35	4.80	
6		10.90	5.10	2.70	6.30	4.90	
7		10.00	4.70	2.50	5.20	8.35	
8		9.20	4.40	2.70	4.00	5.75	
9	4.60	8.00	4.00	3.35	2.60	3.75	
10	6.60	6.70	4.05	3.30	2.30	2.85	
11	8.75	3.60	5.40	3.30	1.45	2.35	
12	7.20	3.20	5.10	3.00	1.25	2.20	
13	5.77	2.80	4.60	2.35	1.10	1.60	
14	4.70	2.50	4.35	2.05	1.10	1.45	
15	3.60	7.20	3.10	2.00	1.15	1.85	
16	2.65	6.10	2.40	1.75	1.30	1.25	
17	2.23	4.13	2.10	1.60	1.55	1.20	
18	1.65	3.50	1.90	1.45	2.10	1.90	
19	1.50	3.20	2.00	1.45	1.75	2.10	
20	1.70	2.80	4.70	1.35	1.45	1.60	
21	1.95	2.45	4.70	1.40	1.30	1.55	
22	2.32	2.20	2.80	1.40	1.25	1.45	
23	2.30	2.15	2.15	1.35	1.15	1.40	
24	2.10	2.50	1.90	1.25	1.10	1.40	
25	2.35	2.45	1.75	1.15	1.35	1.25	
26	3.25	2.50	1.80	1.15	1.90	1.20	
27	3.40	2.70	4.05	1.15	2.85	1.50	
28	3.10	3.80	6.00	1.15	5.10	2.15	
29	3.40		10.40	1.20	8.75	2.45	
30	4.20		9.60	1.20	9.50	4.15	
31	4.60		7.60		9.10		

BLACKWATER RIVER NEAR SEMINOLE, ALA.

LOCATION.—At Pettigrew's farm, in sec. 20, T. 6 S., R. 6 E., St. Stephens base and meridian, 3 miles west of Seminole, Baldwin County, Ala.

DRAINAGE AREA.—Not determined.

RECORDS AVAILABLE.—January 10 to June 30, 1922, when station was discontinued.

GAGE.—Vertical staff on left bank half a mile from Pettigrew's farmhouse; read by Robert Houston.

DISCHARGE MEASUREMENTS.—Made from foot logs across stream at gage or by wading.

CHANNEL AND CONTROL.—Channel very crooked and obstructed in many places by snags and drift. Bed is composed of compact white sand. There is no well defined control.

ACCURACY.—Rating curve not developed. Data insufficient for determination of discharge.

COOPERATION.—Gage-height record furnished by Reed Bingham.

The following discharge measurement was made by W. R. King:

December 31, 1921: Gage height 2.10 feet; discharge, 99 second-feet.

Daily gage height, in feet, of Blackwater River near Seminole, Ala., for the period January 10 to June 30, 1922

Day	Jan.	Feb.	Mar.	Apr.	May	June
1		4.50			2.48	8.70
2		5.08			2.76	6.75
3		4.72			4.12	
4		3.92			3.55	4.45
5		6.32				3.40
6		9.32				3.90
7		8.82				3.80
8		6.50				3.60
9		4.88	5.10			3.40
10	5.80	4.18	4.55	2.56		
11	7.50	3.60	3.90			3.32
12	5.42	3.28	3.52			2.82
13	5.08	3.05				2.38
14	4.15	2.67				2.60
15	3.32	5.48				2.40
16	2.70	7.90		3.36		2.30
17	2.75	5.95		3.24		
18	2.67	4.62	3.80	3.06		
19	2.62	3.98	3.48			2.30
20	2.64	3.52	3.27			2.82
21	2.46	3.13				2.90
22	2.24	2.73		1.95		2.82
23	2.10	3.32		1.76		2.60
24	2.19	3.19	3.72	1.95	2.38	
25	3.21	3.03	3.92		2.58	
26	2.56	2.77	4.22		2.94	3.16
27	3.19	2.63	3.95	3.05		3.40
28	3.01	2.52	3.45	2.89	8.60	3.85
29	2.59		4.25	2.70	10.00	3.25
30	2.98		7.75	2.22	12.00	2.82
31	3.95		5.98		10.50	

MOBILE RIVER BASIN

COOSAWATTEE RIVER AT CARTERS, GA.

LOCATION.—At iron highway bridge at Carters, Murray County, 1,000 feet above Louisville & Nashville Railroad bridge, and half a mile below mouth of Talking Rock Creek.

DRAINAGE AREA.—531 square miles.

RECORDS AVAILABLE.—August 15, 1896, to December 31, 1908; December 20, 1918, to September 30, 1922.

GAGE.—Chain gage on downstream side of bridge; read by R. P. Messer.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Channel is curved above and below bridge. Current is swift and broken. Banks fairly high but subject to overflow during extremely high stages. Bed of stream mostly rock and gravel.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 26.5 feet at 4 p. m. January 21 (estimated discharge, 19,300 second-feet determined from rating curve extended above 6,000 second-feet); minimum stage, 1.0 foot at 7 a. m. October 22-28 (discharge, 340 second-feet).

1896-1908; 1919-1922: Maximum stage recorded, 28.6 feet at 6 a. m. November 19, 1906 (discharge, not determined); minimum stage, 0.4 foot September 20-22, October 9 to November 3, and November 11-21, 1904 (discharge, 184 second-feet).

ICE.—Practically none.

DIVERSIONS.—None.

REGULATION.—Operation of a few small mills on tributaries probably has no effect on stage at the gage.

ACCURACY.—Stage-discharge relation probably permanent, but no measurements have been made since February 6, 1920. Rating curve previously developed fairly well defined between 500 and 3,000 second-feet; extended above 6,000 second-feet. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair except those for stages above 6,000 second-feet, which are subject to error.

Daily discharge, in second-feet, of Coosawattee River at Carters, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	615	470	775	695	1,820	2,350	2,700	1,880	1,400	1,000	865	505
2	655	435	3,050	695	1,880	7,300	2,560	1,820	3,820	955	820	470
3	865	400	2,000	655	1,820	3,400	2,490	1,820	2,490	910	735	470
4	695	370	1,700	735	1,820	2,700	2,420	7,700	2,350	910	695	470
5	615	435	1,400	775	3,400	2,350	2,350	3,330	2,280	865	655	470
6	575	400	1,150	820	2,630	2,070	2,560	2,700	2,210	865	615	435
7	540	435	1,460	820	2,560	5,700	2,350	3,050	2,140	865	575	435
8	540	575	1,350	955	1,700	3,400	2,280	2,350	2,350	820	575	400
9	540	575	1,150	2,280	1,700	2,770	2,070	2,070	2,210	820	695	400
10	505	540	1,050	1,400	1,640	9,780	2,000	1,940	2,070	820	655	400
11	470	540	955	1,300	1,580	3,050	1,940	1,820	1,940	865	615	400
12	470	505	865	1,250	1,700	3,400	1,880	2,210	1,880	910	575	2,000
13	435	505	820	1,250	2,000	2,350	1,820	2,350	1,820	1,050	575	1,150
14	435	540	775	1,400	2,350	2,210	1,760	2,210	1,760	1,250	540	615
15	400	4,260	735	1,400	8,500	4,660	1,760	2,070	1,700	1,150	505	540
16	400	910	695	1,350	4,500	3,050	2,070	2,000	1,640	1,050	505	540
17	400	5,300	695	1,250	3,050	2,700	2,350	1,940	1,580	955	575	470
18	400	1,150	2,770	1,200	2,350	2,350	5,300	2,070	1,520	820	540	470
19	370	1,150	2,000	1,400	2,070	2,210	6,900	2,000	1,400	1,200	505	615
20	370	955	1,580	16,500	2,000	3,750	3,050	1,880	1,350	1,150	470	540
21	370	820	1,850	18,100	1,880	3,050	2,770	1,820	1,460	1,050	615	470
22	340	695	1,250	12,500	1,820	2,700	2,630	2,070	1,300	1,000	575	435
23	340	655	1,200	4,900	1,700	2,350	2,350	1,940	1,200	910	540	437
24	340	615	1,050	3,400	1,580	2,070	2,210	2,350	1,100	865	505	477
25	340	575	955	2,700	1,520	1,940	2,070	2,210	1,000	820	470	400
26	340	540	865	2,350	1,460	1,880	1,940	2,070	955	820	1,460	405
27	340	3,050	820	2,070	1,400	2,210	1,820	1,940	910	6,900	1,150	470
28	340	2,700	775	2,000	1,350	2,350	2,210	1,820	1,100	2,000	1,050	470
29	370	1,050	775	1,940	-----	3,050	2,000	1,700	1,000	1,050	865	400
30	400	865	735	1,880	-----	2,770	1,940	1,700	910	955	695	400
31	540	-----	735	1,820	-----	2,700	-----	1,580	-----	910	540	-----

Monthly discharge of Coosawatee River at Carters, Ga., for the year ending September 30, 1922

[Drainage area, 531 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	865	340	463	0.872	1.01
November.....	5,300	370	1,070	2.02	2.25
December.....	3,050	695	1,210	2.28	2.63
January.....	18,100	655	2,960	5.57	6.42
February.....	8,500	1,350	2,280	4.29	4.47
March.....	9,780	1,880	3,180	5.99	6.91
April.....	6,900	1,760	2,480	4.67	5.21
May.....	7,700	1,580	2,270	4.27	4.92
June.....	3,820	910	1,690	3.18	3.55
July.....	6,900	820	1,180	2.22	2.56
August.....	1,460	470	670	1.26	1.45
September.....	2,000	400	543	1.02	1.14
The year.....	18,100	340	1,660	3.13	42.52

OOSTANAULA RIVER AT RESACA, GA.

LOCATION.—At Dixie Highway bridge at Resaca, Gordon County, 400 feet below Nashville, Chattanooga & St. Louis Railroad bridge and 3 miles below junction of Coosawatee and Conasauga rivers, which unite to form Oostanaula River.

DRAINAGE AREA.—1,610 square miles (measured on topographic maps).

RECORDS AVAILABLE.—1891–1898 (gage heights by United States Weather Bureau and discharge measurements by United States Geological Survey); 1894–1904, incomplete records of gage heights only; continuous records January 1, 1905, to September 30, 1922.

GAGE.—Chain gage on downstream handrail of bridge. Prior to March 23, 1919, when chain gage was installed, the gage was a rod attached to downstream end of midstream pier of Nashville, Chattanooga & St. Louis Railroad bridge, 400 feet upstream from present gage. Gage read by observer for United States Weather Bureau.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of rock and sand. Right bank high and is not overflowed; left bank is overflowed at very high stages. Control practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 31.9 feet January 22 (discharge, 28,600 second-feet); minimum stage, 1.9 feet September 10 and 27–30 (discharge, 600 second-feet).

1896–1922: Maximum stage recorded,¹ 33.0 feet February 11, 1921 (discharge, 29,700 second-feet); minimum stage, 0.95 foot during discharge measurement made September 26, 1904 (discharge, 273 second-feet).

ICE.—None.

DIVERSIONS.—None.

REGULATION.—Practically none from the few small mills upstream.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 450 and 8,000 second-feet; extended above 8,000 second-feet on a tangent. Gage read to tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records below 9,000 second-feet good; above that stage they should be used with caution.

No discharge measurements have been made at this station since October 16, 1919.

¹ Gage-height records not obtained during the following periods: May 1 to July 31, 1896; May 1 to October 31, 1899; July 1 to October 31, 1900; May 1 to November 12, 1901; and January 1, 1902, to December 31, 1904.

Daily discharge, in second-feet, of Oostanaula River at Resaca, Ga., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	1,040	5,630	1,910	3,460	4,460	8,400	3,780	2,610	1,510	1,150	795
2	1,040	1,980	4,020	1,840	3,540	11,200	7,900	3,300	4,550	1,630	1,090	750
3	2,470	1,700	7,000	1,700	3,700	15,100	5,810	3,140	7,800	1,510	1,040	710
4	3,060	1,450	5,810	1,570	3,300	14,400	4,100	10,100	6,600	1,570	940	710
5	2,470	1,040	4,190	1,510	5,450	13,900	3,700	13,000	4,640	1,910	890	670
6	2,050	940	3,220	2,120	7,500	9,700	4,730	10,700	3,460	1,630	890	670
7	1,770	840	2,200	1,840	5,810	9,000	5,900	8,000	3,060	1,510	840	670
8	1,510	795	2,330	2,980	4,820	12,300	4,370	6,700	4,100	1,390	840	635
9	990	1,390	2,190	6,200	3,780	10,000	3,620	5,630	4,280	1,330	1,700	635
10	840	1,210	2,050	5,450	3,460	9,200	3,700	5,090	3,380	1,270	1,390	600
11	750	1,040	1,910	6,500	3,460	17,100	3,700	3,940	2,540	1,210	1,150	670
12	750	940	1,770	6,800	3,140	19,600	4,100	6,600	2,330	1,630	940	2,120
13	710	840	1,630	5,540	3,140	20,900	3,780	4,020	2,540	1,450	890	990
14	710	1,270	1,570	3,700	4,550	18,300	3,300	3,140	2,820	1,770	840	795
15	670	2,750	1,450	2,820	12,400	14,700	2,980	2,900	2,400	1,630	840	750
16	710	3,460	1,390	2,610	16,300	12,200	2,900	3,060	2,050	1,510	795	710
17	710	7,800	1,390	2,750	16,400	10,100	3,620	3,300	1,770	1,510	1,090	670
18	710	6,900	2,470	2,820	14,600	10,000	4,190	3,140	2,260	2,050	990	1,510
19	710	5,540	2,680	2,750	11,100	7,700	11,300	3,140	2,610	1,630	940	990
20	710	5,810	2,330	14,300	5,630	11,800	13,400	2,900	2,260	1,450	890	710
21	670	4,100	2,190	20,300	4,370	9,900	12,900	2,540	1,980	1,270	840	670
22	670	2,820	1,980	27,600	3,860	6,600	7,000	2,330	1,840	1,270	795	670
23	670	2,050	1,630	28,000	3,460	4,910	4,460	2,540	1,700	1,210	750	670
24	670	1,840	1,510	25,000	3,380	4,460	3,860	2,400	1,630	1,330	750	635
25	670	1,630	2,610	21,700	3,300	4,020	3,460	2,820	1,570	1,330	750	635
26	635	1,510	6,400	16,600	3,060	3,780	3,380	2,540	1,510	1,270	990	635
27	635	2,400	5,270	7,800	4,190	3,620	3,300	2,330	1,510	1,060	1,570	600
28	750	7,400	3,140	5,720	4,730	4,460	3,620	3,140	1,840	2,120	1,450	600
29	710	8,600	2,680	4,910	-----	4,550	5,450	3,060	2,120	1,390	990	600
30	795	7,000	2,330	4,190	-----	3,940	4,550	2,900	1,630	1,330	840	600
31	940	-----	2,050	3,460	-----	3,700	-----	2,610	-----	1,270	795	-----

Monthly discharge of Oostanaula River at Resaca, Ga., for the year ending September 30, 1922

[Drainage area, 1,610 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,060	635	1,040	0.646	0.74
November	8,600	795	2,940	1.83	2.04
December	7,000	1,390	2,890	1.80	2.08
January	28,000	1,510	7,840	4.87	5.62
February	16,400	3,060	5,920	3.68	3.83
March	20,900	3,620	9,860	6.12	7.06
April	13,400	2,900	5,250	3.26	3.64
May	13,000	2,330	4,340	2.70	3.11
June	7,800	1,510	2,850	1.77	1.98
July	2,120	1,210	1,510	.938	1.06
August	1,700	750	989	.614	.71
September	2,120	600	769	.478	.53
The year	28,000	600	3,840	2.39	32.42

COOSA RIVER AT CHILDERSBURG, ALA.

LOCATION.—At Central of Georgia Railway bridge half a mile west of Childersburg, Talladega County.

DRAINAGE AREA.—8,390 square miles (determined by Alabama Power Co.).

RECORDS AVAILABLE.—February 22, 1914, to September 30, 1922.

GAGE.—Gurley printing water-stage recorder attached to downstream end of second pier from right bank of river, installed May 5, 1914. Prior to that date readings were taken from a vertical staff gage fastened to upstream

side of same pier to which the Gurley gage is now attached. Datum of Gurley gage is about 0.1 foot higher than that of the staff gage. This difference in datum is believed constant since 1914. All records from 1915 to 1922 are referred to datum of Gurley gage. Sea-level elevation of zero of staff gage is 421.00 feet (United States Engineer Corps datum).

DISCHARGE MEASUREMENTS.—Made from bridge.

CHANNEL AND CONTROL.—Channel straight for half a mile below gage. Left bank high; right bank subject to overflow at extremely high stages. Control not well defined; bed of stream probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 20.9 feet March 11 (discharge, 96,400 second-feet); minimum stage, 1.4 feet October 22–28 (discharge, 2,760 second-feet).

1914–1922: Maximum stage from water-stage recorder, 24.7 feet from 3 to 9 and 11 to 12 p. m. July 11, 1916 (discharge, 121,000 second-feet); minimum discharge, 2,370 second-feet, September 20, 1914.

REGULATION.—None.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 3,000 and 70,000 second-feet; extended above 70,000 second-feet. Operation of water-stage recorder satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying to rating table mean daily gage height obtained by averaging hourly gage height. Records good below 70,000 second-feet; fair above that point.

COOPERATION.—Gage-height record furnished by Alabama Power Co.

No discharge measurements were made at this station during the year.

Daily discharge, in second-feet, of Coosa River at Childersburg, Ala., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	7,330	3,250	15,900	8,550	29,300	18,900	24,900	23,600	15,900	9,850	7,630	4,800
2.....	6,750	3,750	16,600	7,930	18,900	39,200	25,700	21,200	22,800	8,550	6,460	4,800
3.....	7,930	4,530	16,600	7,040	17,000	58,700	27,500	23,600	33,900	7,930	7,040	4,270
4.....	6,750	4,530	16,200	6,360	16,200	55,900	25,300	36,800	48,400	8,550	6,460	4,530
5.....	6,460	4,270	15,100	6,750	28,000	52,600	21,600	49,400	53,200	9,520	5,620	4,270
6.....	7,630	4,530	14,400	6,750	35,400	48,400	21,600	48,400	47,300	9,190	5,340	4,010
7.....	7,330	4,630	12,600	6,460	35,800	57,600	25,700	46,300	38,700	9,190	5,070	3,750
8.....	6,180	4,270	10,500	7,330	35,400	57,000	24,500	44,200	28,400	8,550	5,070	3,750
9.....	7,630	4,270	9,190	9,520	32,600	51,600	23,200	39,700	23,600	7,930	5,340	3,750
10.....	4,270	4,010	8,240	12,200	26,200	71,600	20,400	36,300	22,400	7,630	5,620	3,750
11.....	4,010	3,750	7,040	23,600	19,600	95,100	18,100	30,300	20,800	7,330	7,040	4,010
12.....	3,500	4,270	6,460	28,900	18,100	86,900	17,400	32,100	17,700	7,040	7,330	3,750
13.....	3,500	4,530	5,900	29,300	16,600	74,600	16,600	33,000	15,100	7,040	6,180	3,500
14.....	3,250	4,270	5,900	27,100	18,900	68,000	15,100	30,700	13,300	7,930	5,340	3,750
15.....	3,250	4,010	5,620	22,000	39,200	68,000	14,400	24,500	13,300	8,870	5,340	5,900
16.....	3,250	4,270	5,620	16,600	54,800	67,400	17,000	18,900	12,600	9,850	5,070	5,900
17.....	3,000	5,900	6,460	13,300	58,200	63,300	14,800	17,400	11,900	10,200	5,070	4,800
18.....	3,000	9,850	6,750	10,900	57,000	58,700	15,500	21,200	10,900	9,190	5,070	4,010
19.....	3,000	17,400	7,630	10,900	54,800	57,600	28,400	20,800	11,900	8,870	5,340	3,750
20.....	3,000	20,900	8,550	17,000	52,100	58,200	45,800	19,300	13,900	8,240	5,070	3,750
21.....	3,000	17,400	10,500	46,300	46,800	45,800	47,800	17,000	11,900	8,240	5,070	4,010
22.....	2,760	14,800	10,200	77,000	35,800	40,200	46,800	15,100	10,900	7,930	4,800	4,270
23.....	2,760	13,000	8,240	79,400	23,200	35,800	44,200	14,400	10,900	7,930	4,800	4,270
24.....	2,760	10,200	7,930	77,000	18,500	30,300	39,200	18,100	9,850	8,550	4,530	3,750
25.....	2,760	8,240	11,900	75,800	16,600	23,200	27,500	20,400	8,870	7,930	4,530	3,500
26.....	2,760	6,750	13,000	72,200	15,500	19,600	18,900	19,600	8,550	7,330	4,800	3,500
27.....	2,760	7,630	13,300	68,600	15,100	17,700	15,900	20,000	7,930	7,040	4,530	3,500
28.....	2,760	10,500	15,100	64,500	15,900	17,000	22,800	19,600	8,870	7,040	5,070	3,500
29.....	3,000	13,000	15,100	61,600	.....	16,600	32,600	20,000	8,870	7,040	5,900	3,250
30.....	3,250	15,500	12,200	58,700	.....	16,600	27,100	18,900	11,200	9,190	5,340	3,250
31.....	3,250	.....	9,850	49,900	.....	20,000	.....	16,600	.....	9,190	5,340	.....

NOTE.—Water-stage recorder did not operate satisfactorily Dec. 21 and Feb. 5–10; discharge for these periods determined from morning readings of staff gage reduced to datum of recording gage.

Monthly discharge of Coosa River at Childersburg, Ala., for the year ending September 30, 1922

[Drainage area, 8,390 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	7,930	2,760	4,290	0.511	0.59
November.....	20,000	3,250	7,910	.943	1.05
December.....	16,600	5,620	10,600	1.26	1.45
January.....	79,400	6,460	32,600	3.89	4.48
February.....	58,200	15,100	30,400	3.62	3.77
March.....	95,100	16,600	48,100	5.73	6.61
April.....	47,800	14,400	25,500	3.04	3.39
May.....	49,400	14,400	26,400	3.15	3.63
June.....	53,200	7,930	19,100	2.28	2.54
July.....	10,200	7,040	8,350	.995	1.15
August.....	7,630	4,530	5,520	.658	.76
September.....	5,900	3,250	4,050	.483	.54
The year.....	95,100	2,760	18,500	2.21	29.96

TALLAPOOSA RIVER AT STURDIVANT, ALA.

LOCATION.—2,000 feet above bridge of Central of Georgia Railway, which is one-fourth mile west of Sturdivant, Tallapoosa County, 1 mile below Stow's Ferry, and 5 miles below mouth of Hillabee Creek.

DRAINAGE AREA.—2,460 square miles.

RECORDS AVAILABLE.—July 19, 1900, to September 30, 1922.

GAGE.—Vertical staff, 0 to 24 feet, on right bank 2,000 feet upstream from bridge; installed August 20, 1906; read by A. L. Stow. Original gage, a staff attached to pier of railroad bridge and later a chain gage on railroad bridge, was read until August 20, 1906, when the present gage was substituted for the chain gage. From August 21, 1906, to September 30, 1915, readings on the present staff gage were reduced to datum of original gage by means of comparative readings. Since October 1, 1915, gage heights have been obtained from readings on the present staff gage without reference to datum of old gage, which has been removed.

DISCHARGE MEASUREMENTS.—Made from a plank walk resting on lower members of deck of railroad bridge.

CHANNEL AND CONTROL.—Bed rough and rocky; permanent. At extremely high stages water overflows banks. Control is a series of rock ledges and shoals below gage; permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 16.8 feet at 8 a. m. March 11 (discharge, 44,100 second-feet); minimum stage, 0.03 foot at 7 a. m. and 5 p. m. October 28 and 7 a. m. October 29 (discharge, 422 second-feet).

1900-1922: Maximum stage recorded, 33.3 feet at noon December 11, 1919 (discharge, 104,000 second-feet); minimum stage, -0.2 foot (old datum) October 25-29, 1904 (discharge, 250 second-feet).

ICE.—Stage-discharge relation not affected by ice.

REGULATION.—Practically none.

ACCURACY.—Stage-discharge relation fairly permanent. No measurements were made at this station from 1920 to 1922, but five measurements made during 1923 indicate a small change in the stage-discharge relation below 17,000 second-feet. Rating curve for 1922 is drawn practically parallel to previous curve below 7,000 second-feet; between 7,000 and 17,000 second-feet new curve gradually merges into original curve; above 17,000 second-

feet the two curves are identical. Rating curve well defined between 600 and 30,000 second-feet; extended above 30,000 second-feet on basis of crest run-off of Chattahoochee River during flood of December 11, 1919. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Daily discharge, in second-feet, of Tallapoosa River at Sturdivant, Ala., for the year ending September 30, 1922

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	860	1,460	1,940	1,550	2,160	5,720	10,400	6,140	14,800	1,740	2,640	920
2.....	2,640	1,370	1,940	1,460	7,700	27,100	11,400	5,720	21,300	2,390	2,510	1,060
3.....	11,400	1,210	3,050	1,370	3,840	24,300	8,890	7,010	17,900	2,160	2,390	1,060
4.....	4,370	990	3,200	1,370	3,510	13,100	4,930	18,600	22,600	4,010	2,270	1,060
5.....	2,050	990	1,940	1,550	12,800	5,720	4,740	16,300	19,900	3,200	2,050	860
6.....	1,290	605	1,740	1,940	17,900	10,600	7,930	11,400	12,500	3,840	1,550	860
7.....	1,210	430	1,550	2,270	16,000	41,200	5,120	9,380	12,800	3,840	1,840	860
8.....	990	830	1,460	4,740	10,900	26,700	4,930	8,650	16,700	2,270	2,390	605
9.....	770	2,270	1,370	10,400	8,170	16,700	4,190	6,570	10,600	2,160	2,160	530
10.....	740	2,640	1,290	5,720	5,720	29,100	3,840	8,170	8,410	2,160	2,050	530
11.....	680	1,940	1,290	14,500	4,930	41,900	4,190	8,650	6,570	2,050	1,740	555
12.....	630	1,840	1,210	9,880	3,200	25,000	4,010	7,240	5,320	2,050	1,210	1,940
13.....	580	1,910	1,130	8,410	3,840	18,600	3,840	7,010	4,550	6,570	1,290	2,160
14.....	530	1,210	1,130	3,840	8,410	11,200	3,510	5,520	4,930	4,930	1,460	1,740
15.....	510	1,290	1,060	3,510	36,600	11,200	3,350	4,550	4,190	4,930	1,940	1,640
16.....	490	2,160	1,060	4,190	26,700	7,930	4,010	5,720	3,670	2,910	1,940	2,390
17.....	470	1,940	5,720	2,390	14,800	5,720	5,120	9,380	3,510	2,390	1,940	860
18.....	490	5,520	9,880	2,270	8,410	4,190	4,740	6,140	3,200	3,670	1,840	770
19.....	470	6,570	6,790	2,160	7,010	8,170	23,300	5,120	3,510	5,320	1,370	740
20.....	470	13,400	4,010	4,550	6,790	22,600	19,600	4,550	3,510	4,740	1,370	680
21.....	490	7,010	2,160	9,380	4,930	15,100	14,500	4,190	3,840	2,270	1,290	655
22.....	430	3,200	2,160	10,900	4,550	9,880	8,890	3,840	3,350	3,350	1,210	710
23.....	490	2,050	1,840	9,380	4,370	7,700	5,720	3,840	2,910	2,160	1,130	680
24.....	470	1,840	1,550	6,570	4,190	5,720	4,930	8,890	2,640	1,940	990	860
25.....	450	2,160	2,160	7,010	3,840	5,520	4,370	8,410	2,510	1,840	1,060	800
26.....	430	1,940	4,930	7,010	3,670	5,320	4,010	6,350	2,270	2,270	1,060	740
27.....	430	1,370	3,350	5,930	5,120	5,120	3,840	7,010	1,940	2,390	1,550	770
28.....	430	3,050	2,770	4,550	5,930	5,520	6,140	7,240	2,510	2,270	1,210	740
29.....	430	2,510	2,160	3,840	-----	6,140	17,000	7,700	2,510	3,350	1,210	605
30.....	1,370	2,050	1,940	3,510	-----	5,120	11,700	5,520	2,910	2,390	1,130	490
31.....	1,840	-----	1,550	3,350	-----	5,320	-----	10,600	-----	1,940	990	-----

Monthly discharge of Tallapoosa River at Sturdivant, Ala., for the year ending September 30, 1922

[Drainage area, 2,460 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October.....	11,400	430	1,250	0.508	0.59
November.....	13,400	430	2,590	1.05	1.17
December.....	9,880	1,060	2,560	1.04	1.20
January.....	14,500	1,370	5,150	2.09	2.41
February.....	36,600	2,160	8,790	3.57	3.72
March.....	41,900	4,190	14,000	5.69	6.56
April.....	23,300	3,350	7,430	3.03	3.38
May.....	18,600	3,840	7,570	3.08	3.55
June.....	22,600	1,940	7,600	3.09	3.45
July.....	6,570	1,740	3,010	1.22	1.41
August.....	2,640	990	1,640	.667	.77
September.....	2,390	490	962	.391	.44
The year.....	41,900	430	5,190	2.11	28.65

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 south Atlantic and eastern Gulf of Mexico drainage basins during the year ending September 30, 1922

Streams draining into south Atlantic Ocean

Date	Stream	Tributary to—	Locality	Gage height	Discharge
Oct. 20	Reddies River.....	Yadkin River.....	At footlog 7 miles above mouth, near North Wilkesboro, N. C.	Feet	Sec.-ft. 51.4
20	Roaring River.....	do.....	At steel bridge half a mile above mouth, near Roaring River, N. C.	-----	107
22	Johns River.....	Catawba River.....	At Southern Railway bridge one-fourth mile below Collettsville, N. C.	-----	44.9

Streams draining into eastern Gulf of Mexico

June 14	Double Bridges Creek.	Choctawhatchee River	Geneva, Ala.....	2.24	180
July 26	do.....	do.....	do.....	-----	548
Sept. 25	do.....	do.....	do.....	-----	61.4
Dec. 30	Styx River.....	Perdido River.....	In sec. 30, T. 5 S., R. 6 E., St. Stephens base and meridian, 6 miles north of Seminole, Ala.	1.00	275

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