DEPARTMENT OF THE INTERIOR
Hubert Work, Secretary

U. S. GEOLOGICAL SURVEY
George Otis Smith, Director

WATER-SUPPLY PAPER 582

SURFACE WATER SUPPLY OF THE UNITED STATES

1924

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

NATHAN C. GROVER, Chief Hydraulic Engineer
A. H. HORTON, WARREN E. HALL, and W. R. KING
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Prepared in cooperation with the State of North Carolina

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ILLUSTRATION

SURFACE WATER SUPPLY OF SOUTH ATLANTIC SLOPE AND EASTERN GULF OF MEXICO DRAINAGE BASINS, 1924

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1924.

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 appropriation bills passed by Congress have carried the following item:

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, 1895–1925

1895	$12,500.00	1908 to 1910, inclusive	100,000.00
1896	[1] 24,500.00	1911 to 1917, inclusive	150,000.00
1897 to 1899, inclusive	50,000.00	1918	175,000.00
1900	[2] 70,000.00	1919	148,244.10
1901 to 1902, inclusive	100,000.00	1920	175,000.00
1903 to 1906, inclusive	200,000.00	1921 to 1923, inclusive	180,000.00
1907	150,000.00	1924 and 1925	170,000.00

In this work many private and State organizations have cooperated, either by furnishing records 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 5,800 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1924, 1,670 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements are made at

[1] Includes $4,500 appropriated in act of Apr. 25, 1896.

[2] Includes $20,000 appropriated in deficiency act of Mar. 30, 1900.

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

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

"Run-off in inches" is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in 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 natural section or stretch of the channel or artificial structure below the gage which determines 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.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1923, and ending September 30, 1924. 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 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 the 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. The general methods

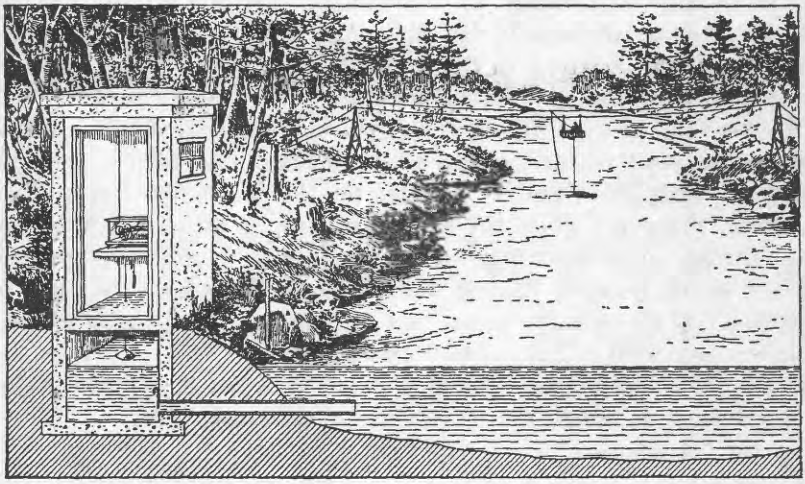

FIGURE 1.—Typical gaging station

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

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

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table giving results 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 results 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 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 fluctuation the discharge obtained from the rating table and 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 quantities of discharge for regular intervals during the day, or by means of a 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 permanence of the stage-discharge relation and (2) on the accuracy of observation of stage, measurement 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 the 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 by the Geological Survey in earlier reports should be used with caution because of possible inherent sources of error not known to the Geological Survey.

Many gaging stations on streams in the irrigated sections of the United States are located above most of the diversions from those streams, and the discharge recorded does not show the water supply available for further development, as prior appropriations below the station must 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 table of monthly discharge gives 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, underground waters, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

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

PART I. North Atlantic slope basins (St. John River to York River).
II. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).
III. Ohio River basin.
IV. St. Lawrence River basin.
V. 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 volumes:
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 purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will on application furnish lists giving prices.

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

3. 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., 904 Home Savings Bank Building.
Trenton, N. J., Statehouse.
Charlottesville, Va., c/o University of Virginia.
Asheville, N. C., 608 City Hall.
Chattanooga, Tenn., 830 Power Building.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Madison, Wis., c/o Railroad Commission of Wisconsin.
Chicago, Ill., 1510 Consumers Building.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Helena, Mont., 45–46 Federal Building.
Denver, Colo., 403 Post Office Building.
Tucson, Ariz., 106 College of Law 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., 303 Customhouse.
Los Angeles, Calif., 600 Federal Building.
Austin, Tex., Capitol Building.
Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 5,800 points in the United States, and the data obtained have been published in the reports tabulated below:

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

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

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

NOTE.—No data regarding stream flow are given in the fifteenth and seventeenth annual reports.

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.

Numbers of water-supply papers containing results of stream measurements, 1899–1924

[For basins included see p. 6]

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

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part IV.
[b] James River only.
[c] Gallatin River.
[d] Green and Gunnison Rivers and Grand River above junction with Gunnison.
[e] Mohave River only.
[f] Kings and Kern Rivers and south Pacific slope basins.
[g] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 25. Tables of monthly discharge for 1900 in Twenty-second Annual Report, Part IV.
[h] Wissahickon and Schuylkill Rivers to James River.
[i] Scioto River.
[j] Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with Platte.
[k] Tributaries of Mississippi from east.
[l] Lake Ontario and tributaries to St. Lawrence River.
[m] Hudson Bay only.
[n] New England Rivers only.
[o] Hudson River, to Delaware River inclusive.
[p] Susquehanna River to Yadkin River, inclusive.
[q] Platte and Kansas Rivers.
[r] Great Basin in California except Truckee and Carson River basins.
[s] Below junction with Gila.
[t] Rogue, Umpqua, and Siletz Rivers only.

The preceding table gives, by years and drainage basin, the numbers of papers on surface-water supply published from 1899 to 1924. 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 1902 to 1921 for any station in the area covered by Part III are published in Water-Supply Papers 83, 98, 128, 169, 205, 243, 263, 283, 303, 323, 353, 383, 403, 433, 453, 473, 503, and 523, which contain records for the Ohio River basin for those years. Results of miscellaneous measurements are published by drainage basins.

COOPERATION

Work in North Carolina was done in cooperation with the North Carolina Geological and Economic Survey, Col. Joseph Hyde Pratt, director, succeeded by Brent S. Drane in March, 1924.

Acknowledgment is also due for financial assistance rendered by the following organizations and individuals: Halifax Power Co.; Virginia Railway & Power Co.; Columbia Railway & Navigation Co.; Columbus Electric & Power Co.; Tallassee Power Co.; Viele, Blackwell & Buck; Alabama Power Co.; Houston Power Co.; B. H. Hardaway; and the cities of Charlotte and Gastonia, N. C., and Dothan, Ala.

DIVISION OF WORK

Data for stations in Virginia were collected and prepared for publication under the direction of A. H. Horton, district engineer, assisted by J. J. Dirzulaitis, W. C. Wiggins, O. D. Mussey, F. C. Christopherson, Karl Jetter, and Miss Nellie Minor.

Data for stations in North Carolina and South Carolina were collected and prepared for publication under the direction of Warren E. Hall and E. D. Burchard, district engineers, assisted by L. J. Hall and J. H. Morgan, engineers of the North Carolina Geological and Economic Survey. The data were prepared for publication under the direction of E. D. Burchard, assisted by J. H. Morgan, L. J. Hall, and Mrs. Effie T. Workman.

Data for stations in Florida and Alabama and Chattahoochee River at West Point, Ga., were collected and prepared for publication under the direction of W. R. King, district engineer, assisted by Warren Withee, P. P. Livingston, J. P. Clawson, D. B. Ventres, and Duncan Charlton. Data for stations on Coosa and Tallapoosa Rivers were collected and prepared for publication under the general direction of W. R. King by engineers of the Alabama Power Co.

The records were reviewed and manuscript assembled by B. J. Peterson.

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.—2,080 square miles (revised measurement on topographic maps).

RECORDS AVAILABLE.—August 18, 1895, to September 30, 1924.

GAGE.—Chain gage attached to highway bridge; installed November 21, 1903. Read by D. D. Booze for United States Weather Bureau.

DISCHARGE MEASUREMENTS.—Made from downstream side of two-span highway 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 STAGE.—Maximum stage recorded during year, 19.1 feet May 13; minimum stage, 1.9 feet from October 9 to November 23 and November 26.

1895–1924: Maximum stage recorded, 31 feet during the night of March 27, 1913 (determined by levels from floodmarks 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 has changed. New rating curve not fully developed. Gage read to tenths once daily. The gage heights indicate river apparently has a very steady flow at low stages, this apparent condition may be due to careless or inaccurate gage readings. Gage-height record fair.

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

The following discharge measurement was made:

April 19, 1924: Gage height, 5.49 feet; discharge, 5,350 second-feet.

Daily gage height, in feet, of James River at Buchanan, Va., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	1.9	2.5	2.4	3.8	3.7	7.1	3.4	5.0	2.9	2.4	3.3
2	2.3	1.9	2.4	2.4	3.7	3.7	6.8	3.3	4.7	2.9	2.4	3.0
3	2.2	1.9	2.4	2.4	3.6	3.6	6.0	3.3	4.6	2.9	2.4	2.8
4	2.2	1.9	2.3	2.3	3.5	3.6	5.2	3.3	4.6	2.9	2.4	2.8
5	2.1	1.9	2.9	2.3	3.5	4.1	4.9	3.2	4.6	2.9	2.4	2.7
6	2.1	1.9	4.3	2.3	3.4	4.3	4.7	3.2	4.5	2.9	2.3	2.6
7	2.0	1.9	5.5	2.3	3.4	3.9	4.6	3.2	4.5	3.9	2.3	2.5
8	2.0	1.9	5.0	2.2	3.4	3.9	5.1	3.4	4.5	6.8	2.3	2.4
9	1.9	1.9	4.6	2.2	3.3	3.8	5.1	3.6	4.4	11.0	2.3	2.4
10	1.9	1.9	4.2	2.2	3.3	3.8	5.1	3.9	4.4	7.0	2.3	2.4
11	1.9	1.9	3.8	5.2	3.3	3.9	5.3	4.5	4.8	5.0	2.3	2.4
12	1.9	1.9	3.3	4.8	3.2	4.7	4.9	16.5	4.7	4.0	2.9	2.3
13	1.9	1.9	3.1	4.2	3.2	4.6	4.5	19.1	5.0	3.7	3.2	2.3
14	1.9	1.9	3.0	4.0	3.2	4.6	4.2	9.0	5.0	3.5	5.8	2.3
15	1.9	1.9	2.9	3.8	3.1	4.5	4.0	7.6	4.8	3.4	4.0	2.3
16	1.9	1.9	2.8	3.7	3.1	4.5	3.9	5.9	4.6	3.3	3.4	2.3
17	1.9	1.9	2.7	14.1	3.1	4.4	3.8	5.5	5.1	3.2	3.2	2.2
18	1.9	1.9	2.6	9.2	3.1	4.4	3.8	5.2	4.4	3.1	3.1	2.2
19	1.9	1.9	2.6	6.9	3.1	4.3	5.6	5.0	4.1	3.0	3.1	2.2
20	1.9	1.9	2.6	5.5	3.6	4.3	5.8	4.9	3.9	2.9	3.1	2.2

Daily gage height, in feet, of James River at Buchanan, Va., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
21	1.9	1.9	2.5	4.8	4.1	4.3	4.5	4.8	3.7	2.8	3.0	2.2
22	1.9	1.9	2.5	4.2	4.1	4.5	4.2	4.7	3.6	2.8	3.0	2.6
23	1.9	1.9	2.5	4.2	4.0	4.1	4.0	4.6	3.5	2.7	3.0	2.8
24	1.9	2.0	2.4	4.1	4.0	3.9	3.9	4.5	3.4	2.7	4.2	2.6
25	1.9	2.0	2.4	4.1	3.9	3.8	3.8	4.4	3.3	2.7	4.6	2.5
26	1.9	1.9	2.3	4.0	3.8	3.7	3.7	4.3	3.2	2.6	5.2	2.4
27	1.9	2.0	2.3	4.0	3.7	3.6	3.6	4.2	3.1	2.6	5.0	2.4
28	1.9	2.1	2.2	4.0	3.7	3.5	3.5	4.1	3.0	2.6	4.5	2.3
29	1.9	2.1	2.2	3.9	3.7	7.4	3.4	4.1	2.9	2.5	4.2	6.2
30	1.9	2.6	2.2	3.8	-------	10.1	3.4	7.0	2.9	2.5	4.0	15.1
31	1.9	-------	2.2	3.7	-------	9.1	-------	5.9	-------	2.5	3.8	-------

JAMES RIVER AT CARTERSVILLE, VA.

LOCATION.—At highway bridge between Pemberton and Cartersville, Cumberland County, 50 miles above Richmond. Willis River enters from south 1 mile above station and Rivanna River from north 7 miles above.

DRAINAGE AREA.—6,240 square miles, revised (measured on topographic maps).

RECORDS AVAILABLE.—January 1, 1899, to September 30, 1924.

GAGE.—Chain gage on downstream side and near Cartersville end of bridge; read by A. F. Moon, jr. 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 ending September 30, 1923, 18.46 feet at 5 p. m. March 17 (discharge, 60,200 second-feet); minimum stage, 0.69 foot at 5 p. m. July 25 (discharge, 895 second-feet).

Maximum stage recorded during the year ending September 30, 1924, 24.68 feet during night of May 12 (discharge, 93,500 second-feet); minimum stage, 0.80 foot from 5 p. m. October 17 to 5 p. m. October 18 (discharge, 1,060 second-feet).

1899–1924: Maximum stage recorded, 26.7 feet at 6 p. m. December 30, 1901 (discharge, about 106,000 second-feet); minimum stage, 0.33 foot at 10 a. m. October 27, 1921.

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

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 900 and 50,000 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.

The following discharge measurement was made:

April 25, 1924: Gage height 4.35 feet; discharge, 7,470 second-feet.

Daily discharge, in second-feet, of James River at Cartersville, Va., for the years ending September 30, 1923 and 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1922-23												
1	1,220	1,540	1,540	8,480	13,500	5,720	6,730	8,960	3,430	1,620	9,710	2,550
2	1,220	1,780	1,380	9,710	11,400	5,320	5,920	7,800	3,070	1,540	9,710	2,380
3	1,220	1,620	1,540	11,400	11,700	4,930	5,720	6,730	3,250	1,380	7,800	1,700
4	1,060	1,700	1,540	14,400	16,200	4,740	5,720	6,320	3,070	1,540	5,920	1,380
5	1,140	1,870	1,700	10,200	17,600	4,550	6,120	5,520	2,720	1,700	6,520	1,870
6	1,380	1,700	1,700	9,210	15,300	4,550	6,520	4,939	2,720	1,220	6,320	3,610
7	1,540	1,620	1,870	8,480	12,000	25,600	6,730	4,550	2,890	1,460	6,120	3,790
8	1,780	1,460	2,210	6,320	10,200	27,000	6,520	4,170	2,720	4,360	4,740	3,070
9	2,720	1,700	2,380	6,120	9,210	27,400	6,730	4,550	2,550	4,170	4,360	3,250
10	5,920	1,780	2,380	5,870	9,960	19,400	6,730	4,550	2,380	1,620	4,360	2,550
11	8,250	1,700	2,550	5,620	9,960	13,200	6,320	4,550	2,210	1,620	3,250	1,960
12	6,320	1,700	2,720	5,370	9,210	10,500	5,720	4,360	2,210	1,780	2,550	2,210
13	4,930	1,620	3,070	5,120	10,800	10,200	5,120	4,170	3,070	1,960	6,120	2,210
14	4,550	1,700	3,250	4,550	10,800	12,600	11,400	3,980	3,610	1,960	5,920	2,040
15	4,170	1,540	3,610	4,360	9,960	12,300	13,800	3,790	3,790	1,380	6,940	1,870
16	3,790	1,620	3,250	4,170	8,480	14,100	17,600	3,980	6,320	1,460	5,720	1,700
17	3,250	1,540	3,790	3,980	8,250	58,400	16,900	4,930	5,720	1,540	5,120	1,540
18	2,210	1,700	6,320	3,790	7,360	39,100	15,000	4,930	4,170	1,300	5,120	1,540
19	2,040	1,700	13,200	3,610	6,520	34,700	12,600	5,120	3,610	1,140	3,980	1,380
20	1,870	1,620	11,400	3,610	6,120	28,800	10,200	5,520	3,070	1,060	2,380	1,220
21	1,960	1,540	7,360	3,790	5,720	22,200	8,250	5,920	2,550	1,060	2,380	1,380
22	1,960	1,540	5,720	3,790	5,320	15,600	7,580	5,120	2,550	985	2,550	1,870
23	1,700	1,620	4,550	3,610	4,930	14,100	6,730	4,550	2,550	1,060	2,380	6,120
24	1,780	1,460	4,170	4,550	4,740	12,000	6,320	4,550	2,550	985	2,040	7,150
25	1,700	1,540	3,790	5,520	4,170	11,100	5,720	4,930	2,380	910	1,960	4,740
26	1,780	1,540	3,610	6,120	3,980	10,800	5,320	4,550	2,380	1,380	1,620	3,610
27	1,700	1,460	3,430	6,940	5,320	10,200	4,930	4,930	2,210	1,300	1,620	3,610
28	1,700	1,540	6,120	11,400	6,320	9,460	4,740	4,740	1,780	1,060	1,460	3,250
29	1,700	1,380	9,710	19,400	-------	8,480	12,300	4,360	1,700	4,550	6,320	2,720
30	1,620	1,540	7,150	22,800	-------	7,580	8,720	3,790	1,620	2,380	5,920	2,380
31	1,620	-------	4,550	18 000	-------	6,940	-------	3,980	-------	3,980	3,250	-------
1923-24												
1	2,040	1,620	3,430	2,550	6,730	6,940	23,200	7,150	13,800	4,740	2,380	3,790
2	1,870	1,540	3,980	3,250	6,120	7,800	16,900	6,520	11,700	4,550	2,380	3,070
3	2,040	1,460	3,790	4,360	5,920	8,720	14,400	5,520	12,900	3,980	2,380	3,070
4	1,870	1,700	3,430	5,320	5,520	10,200	12,000	5,320	9,960	4,170	2,550	3,070
5	1,620	2,890	6,940	6,730	6,520	9,710	10,500	4,930	8,720	3,980	2,720	2,550
6	1,380	3,070	15,300	9,210	8,250	10,200	10,500	4,550	7,580	3,790	2,720	2,380
7	1,300	3,070	14,100	7,800	7,150	12,000	14,400	4,360	6,320	6,730	2,720	2,380
8	1,300	2,890	12,000	6,120	6,520	13,500	15,000	8,250	5,920	13,800	2,550	2,380
9	1,380	2,720	9,460	5,120	6,520	11,700	14,100	13,800	5,920	29,200	2,380	2,040
10	1,460	2,550	7,580	5,120	6,320	9,460	12,900	8,250	7,150	34,700	2,040	2,210
11	1,380	2,550	6,320	5,520	5,320	10,200	12,300	8,720	6,320	21,400	2,040	2,040
12	1,220	2,040	4,930	8,020	5,120	15,900	10,800	80,500	7,150	14,100	4,170	1,780
13	1,380	2,210	4,740	25,300	4,930	22,200	9,710	90,000	8,720	10,500	9,210	1,620
14	1,380	2,720	4,360	17,600	4,550	16,600	8,720	78,800	10,800	8,720	13,200	1,700
15	1,380	2,380	3,980	11,700	4,360	12,600	7,800	36,700	13,800	6,940	14,400	1,780
16	1,220	2,720	3,790	11,100	3,980	10,200	7,150	29,200	13,500	6,520	8,480	1,700
17	1,060	2,040	3,610	37,900	3,790	8,480	6,940	25,300	12,300	5,920	5,320	2,040
18	1,060	1,960	3,430	55,600	3,790	8,020	7,580	20,800	11,700	4,930	4,570	1,870
19	1,380	1,870	3,430	33,900	3,610	7,580	12,900	17,200	14,100	4,360	3,820	1,620
20	1,540	1,700	3,250	20,400	3,430	7,150	12,900	14,100	10,800	4,170	3,070	1,700
21	1,700	1,620	3,070	14,400	10,500	9,210	13,800	12,900	8,020	3,790	2,890	1,960
22	1,380	1,870	3,070	10,500	8,960	13,500	11,400	13,500	6,730	3,430	2,890	2,210
23	1,460	1,700	2,890	8,960	10,500	14,700	9,710	11,700	5,920	3,250	4,170	2,720
24	1,540	1,870	2,720	7,150	8,960	14,100	8,720	10,500	5,920	3,430	4,360	3,070
25	2,210	2,550	2,550	10,200	7,150	11,700	7,800	11,700	5,720	3,250	7,580	4,170
26	1,960	2,720	2,550	14,100	6,940	12,000	7,150	9,710	5,520	3,070	18,600	4,170
27	1,870	2,380	2,550	12,900	6,940	12,300	6,320	8,960	5,520	3,070	9,460	3,980
28	1,540	2,890	2,550	11,700	6,730	12,000	5,920	10,200	9,460	2,720	8,480	3,610
29	1,460	2,890	2,720	9,210	6,730	13,200	6,120	10,800	5,320	2,380	6,940	3,610
30	1,380	2,890	2,550	8,020	-------	16,600	5,920	10,500	4,740	2,380	5,120	61,500
31	1,620	-------	2,550	7,150	-------	24,600	-------	12,300	-------	2,380	4,170	-------

NOTE.—Gage not read Jan. 10-12, 1923, and Aug. 17-20, 1924; discharge estimated.

Monthly discharge of James River at Cartersville, Va., for the years ending September 30, 1923 and 1924

[Drainage area, 6,240 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1922–23					
October	8,250	1,060	2,570	0.412	0.48
November	1,870	1,380	1,610	.258	.29
December	13,200	1,380	4,240	.679	.78
January	22,800	3,610	7,750	1.24	1.43
February	17,600	3,980	9,110	1.46	1.52
March	58,400	4,550	15,900	2.55	2.94
April	17,600	4,740	8,290	1.33	1.48
May	8,980	3,790	4,990	.800	.92
June	6,320	1,620	2,960	.474	.53
July	4,550	910	1,790	.287	.33
August	9,710	1,460	4,650	.745	.86
September	7,150	1,220	2,690	.431	.48
The year	58,400	910	5,530	.886	12.04
1923–24					
October	2,210	1,060	1,530	.245	.28
November	3,070	1,460	2,300	.369	.41
December	15,300	2,550	4,890	.784	.90
January	55,600	2,550	12,800	2.05	2.36
February	10,500	3,430	6,270	1.00	1.08
March	24,600	6,940	12,000	1.92	2.21
April	23,200	5,920	10,800	1.73	1.93
May	90,000	4,360	19,100	3.06	3.53
June	14,100	4,740	8,730	1.40	1.56
July	34,700	2,380	7,430	1.19	1.37
August	18,600	2,040	5,410	.867	1.00
September	61,500	1,620	4,530	.726	.81
The year	90,000	1,060	8,010	1.28	17.44

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, 1924.

GAGE.—Chain gage on downstream side of Walnut Street Bridge; read by an employee of Roanoke Railway & Electric Co.

DISCHARGE MEASUREMENTS.—Made from downstream side of Walnut Street 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 STAGE.—Maximum stage recorded during the year, 6.25 feet at 8 a.m. September 29 (discharge, 4,380 second-feet); minimum discharge, 76 second-feet September 15–20.

1896–1924: Maximum stage recorded, 14.34 feet August 6, 1901 (discharge, 16,900 second-feet). Minimum stage recorded, 0.0 foot on morning of December 23, 1909, when flow was retarded by freezing; reported that practically no water was flowing.

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

ACCURACY.—Stage-discharge relation shifted during high water in January. Rating curve well defined. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

63478—28—WSP 582——2

The following discharge measurements were made:
April 20, 1924: Gage height, 2.40 feet; discharge, 802 second-feet.
April 21, 1924: Gage height, 2.19 feet; discharge, 688 second-feet.
April 23, 1924: Gage height, 1.86 feet; discharge, 483 second-feet.

Daily discharge, in second-feet, of Roanoke River at Roanoke, Va., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	81	162	147	406	587		506	430	224	280	116
2	108	81	156	310	430	560	630	454	406	224	300	114
3	108	81	147	462	362	480		430	406	261	280	114
4	108	83	147	589	320	454	454	406	406	242	261	111
5	108	83	462	1,100	300	406	480	384	406	242	242	106
6	108	83	837	1,100	300	430	454	362	384	384	224	104
7	108	108	624	990	280	560	614	362	362	4,380	206	104
8	108	102	332	837	280	533	560	454	320	1,690	192	99
9	108	97	267	1,100	280	506	533	430	280	1,330	179	97
10	108	93	228	1,360	280	506	506	406	300	699	172	92
11	108	87	210	1,200	261	480	480	454	300	454	172	92
12	108	83	193	1,100	261	506	480	3,830	320	454	166	92
13	108	81	193	990	261	533	480	2,320	320	454	166	88
14	108	81	177	1,200	261	560	430	790	320	430	280	78
15	106	81	147	2,900	261	533	430	728	320	430	224	76
16	104	79	142	2,320	242		406	926	280	430	224	76
17	97	79	133	1,510	261		406	926	280	406	242	76
18	97	77	128	1,080	261		480	856	261	406	224	76
19	97	77	125	699	280		1,240	728	242	406	206	76
20	93	77	125	560	362		728	560	224	406	189	76
21	87	77	123	480	384		560	856	213	384	157	172
22	87	77	120	533	362	460	480	560	206	480	142	142
23	87	77	120	699	320		430	560	261	430	129	137
24	87	87	118	1,240	320		430	533	224	406	142	157
25	87	87	115	856	362		406	614	224	406	142	163
26	87	87	113	560	430		430	560	224	384	206	142
27	87	87	113	506	506		406	506	213	362	157	172
28	83	97	113	480	560		406	454	206	341	142	224
29	83	177	113	454	560		728	480	362	320	129	4,380
30	83	171	113	480	-------	2,450	587	430	242	300	129	4,160
31	83	-------	113	430	-------		-------	430	-------	280	121	-------

NOTE.—Gage not read Mar. 16 to Apr. 3; discharge estimated.

Monthly discharge of Roanoke River at Roanoke, Va., for the year ending September 30, 1924

[Drainage area, 388 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	108	83	98.3	0.253	0.29
November	177	77	90.6	.234	.26
December	837	113	200	.515	.59
January	2,900	147	912	2.35	2.71
February	560	242	336	.866	.93
March	-------	-------	676	1.74	2.01
April	1,240	406	530	1.37	1.53
May	3,830	362	719	1.85	2.13
June	430	206	298	.768	.86
July	4,380	224	582	1.50	1.73
August	300	121	194	.500	.58
September	4,380	76	390	1.01	1.13
The year	4,380	76	420	1.08	14.75

ROANOKE RIVER AT BROOKNEAL, VA.

LOCATION.—At highway bridge at Virginian Railway station at Brookneal, Campbell County, 2¾ miles above Falling River.

DRAINAGE AREA.—2,350 square miles (measured on base map of Virginia; scale, 1 to 500,000).

RECORDS AVAILABLE.—April 29, 1923, to September 30, 1924.

GAGE.—Chain gage on downstream side of bridge; read by C. R. McDowell.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of sand, silt, and bedrock. Banks low and subject to overflow.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period April 29 to September 30, 1923, 15.96 feet at 9 a. m. September 23 (discharge, 12,400 second-feet); minimum stage, 3.32 feet September 3 and 4 (discharge, 650 second-feet).

Maximum stage recorded during year ending September 30, 1924, 27.78 feet at 5 p. m. September 30 (discharge, 26,200 second-feet); minimum stage, 3.52 feet on October 22, 23, November 3 and 4 (discharge, 750 second-feet).

The flood of November, 1877, reached a stage of about 36 feet on the present gage and the flood of March 15, 1923, reached a stage of about 31 feet.

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

ACCURACY.—Stage-discharge relation practically permanent; not affected by ice. Rating curve well defined between 700 and 28,000 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 Roanoke River at Brookneal, Va., during the years ending September 30, 1923 and 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
1923	*Feet*	*Sec.-ft.*	1924	*Feet*	*Sec.-ft.*
Apr. 29	5.86	2,560	Apr. 23	6.28	2,820
May 1	5.48	2,220	May 13	12.13	8,260
Sept. 6	10.15	7,360	May 14	8.74	4,750
Do	9.86	6,020			

NOTE.—These determinations of gage height and discharge supersede those published in Water-Supply Paper 562.

Daily discharge, in second-feet, of Roanoke River at Brookneal, Va., for the years ending September 30, 1923 and 1924

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1923							1923						
1	-------	1,980	1,190	800	5,300	700	16	-------	2,300	2,470	3,170	900	800
2	-------	1,750	1,190	800	4,740	700	17	-------	2,300	2,220	3,620	850	800
3	-------	1,610	1,130	750	1,140	650	18	-------	1,820	1,610	1,610	1,900	800
4	-------	1,610	1,070	750	1,540	650	19	-------	1,680	1,400	1,130	1,680	800
5	-------	1,610	1,010	750	2,380	1,900	20	-------	1,540	1,400	900	1,070	800
6	-------	1,540	1,010	800	3,890	5,970	21	-------	1,540	1,260	800	950	800
7	-------	1,540	1,070	850	1,980	1,980	22	-------	1,540	1,260	750	1,010	2,300
8	-------	1,540	1,130	1,680	1,330	11,700	23	-------	1,470	1,260	700	1,540	12,400
9	-------	1,610	1,070	2,060	2,720	5,880	24	-------	1,400	1,260	700	1,070	4,450
10	-------	1,680	1,010	1,330	1,750	1,470	25	-------	1,540	1,070	750	900	2,720
11	-------	1,540	900	950	1,750	1,750	26	-------	1,540	950	750	850	1,900
12	-------	1,470	1,190	850	1,980	1,330	27	-------	1,540	900	750	800	1,540
13	-------	1,470	4,260	900	1,820	1,010	28	-------	1,400	850	700	750	1,330
14	-------	1,470	5,400	2,060	1,400	850	29	2,380	1,260	800	900	750	1,330
15	-------	1,540	4,070	2,470	1,130	800	30	2,140	1,260	800	950	900	1,010
							31	-------	1,190	-------	3,440	800	-------

Daily discharge, in second-feet, of Roanoke River at Brookneal, Va., for the years ending September 30, 1923 and 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1923-24												
1	950	800	1,070	2,140	2,220	2,900	5,780	2,990	2,470	3,170	1,130	1,190
2	950	750	1,330	2,560	2,140	2,900	4,640	2,720	2,300	2,990	1,130	1,190
3	900	750	1,330	3,440	2,140	2,900	3,620	2,560	2,380	2,900	1,540	1,130
4	900	750	2,060	4,830	2,140	2,810	3,170	2,560	2,220	2,810	2,470	1,070
5	900	1,130	3,440	3,350	2,140	2,720	2,900	2,380	2,060	2,640	2,220	1,010
6	900	2,060	7,930	2,660	2,140	3,980	3,860	2,060	1,980	2,470	1,330	950
7	800	1,750	4,160	1,980	2,060	3,930	4,830	1,980	2,140	2,300	1,260	900
8	850	1,470	2,900	1,900	2,060	3,620	4,450	1,980	2,140	11,200	1,190	900
9	800	1,260	2,300	1,900	1,980	3,530	3,440	1,980	2,140	10,200	1,130	850
10	800	950	1,820	1,820	1,900	3,440	3,440	1,980	3,710	6,060	1,130	850
11	800	900	1,610	2,220	1,820	3,350	3,710	5,000	2,810	4,640	1,190	850
12	800	1,010	1,470	7,730	1,820	3,710	3,620	11,100	2,470	3,350	1,190	850
13	800	950	1,400	4,450	1,750	3,800	3,080	8,630	2,220	3,170	2,060	850
14	800	950	1,400	3,350	1,750	3,710	2,900	5,120	2,060	2,810	1,610	850
15	800	900	1,400	2,990	1,680	3,440	2,720	4,540	2,060	2,380	1,470	900
16	800	900	1,330	4,640	1,680	2,990	2,560	4,920	2,060	2,300	1,330	900
17	750	900	1,260	23,700	1,680	2,220	2,470	4,640	2,900	2,220	1,260	900
18	750	900	1,260	6,640	1,680	2,140	3,170	4,450	2,380	2,060	1,130	900
19	750	900	1,190	5,300	2,600	2,140	5,590	3,530	2,060	1,980	1,130	950
20	750	900	1,190	3,980	3,530	2,060	4,920	3,350	1,750	1,820	1,130	950
21	750	900	1,190	3,260	6,440	3,530	3,710	6,540	1,610	1,750	1,130	950
22	750	900	1,190	2,640	4,450	4,160	3,350	6,160	1,610	1,540	1,070	1,610
23	850	1,010	1,130	2,470	2,990	3,530	2,900	4,070	1,820	1,540	1,070	3,350
24	1,070	1,070	1,130	2,380	2,500	3,170	2,720	3,260	1,750	1,540	1,070	2,640
25	1,070	1,070	1,130	3,170	2,380	2,990	2,470	3,350	1,750	1,480	1,980	1,540
26	1,070	1,010	1,070	3,620	2,560	2,810	2,380	3,260	1,750	1,420	2,060	2,300
27	1,010	950	1,070	3,350	2,990	1,900	2,380	2,990	1,900	1,360	1,680	2,810
22	900	950	1,070	2,640	2,990	1,820	2,300	3,620	2,140	1,310	1,400	3,260
98	850	950	1,070	2,470	2,900	3,890	2,300	3,080	2,470	1,250	1,260	5,880
30	850	950	1,010	2,380	-------	10,900	2,300	2,810	3,170	1,190	1,260	24,300
31	800	-------	1,010	2,300	-------	5,880	-------	2,640	-------	1,130	1,260	-------

NOTE.—Discharge estimated Nov. 11, 1923, Jan. 6, Feb. 18, 24, Apr. 6, May 10, June 1, and July 25–30, 1924, from study of records of flow of Roanoke River at Old Gaston and Dan River at South Boston.

Monthly discharge of Roanoke River at Brookneal, Va., for the years ending September 30, 1923 and 1924

[Drainage area, 2,350 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1923					
May	2,300	1,190	1,590	0.677	0.78
June	5,400	800	1,540	.655	.73
July	3,620	700	1,270	.540	.62
August	5,300	750	1,700	.723	.83
September	12,400	650	2,360	1.00	1.12
1923-24					
October	1,070	750	855	.364	.42
November	2,060	750	1,020	.434	.48
December	7,930	1,010	1,740	.740	.85
January	23,700	1,820	3,940	1.68	1.94
February	6,440	1,680	2,450	1.04	1.12
March	10,900	1,820	3,450	1.47	1.70
April	5,780	2,300	3,390	1.44	1.61
May	11,100	1,980	3,880	1.65	1.90
June	3,710	1,610	2,210	.940	1.05
July	11,200	1,130	2,870	1.22	1.41
August	2,470	1,070	1,400	.596	.69
September	24,300	850	2,250	.957	1.07
The year	24,300	750	2,460	1.05	14.24

ROANOKE RIVER AT OLD GASTON, N. C.

LOCATION.—At bridge of Roanoke Railway Co. at Old Gaston, Northampton County, three-fourths of a 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, 1924.

GAGE.—Friez water-stage recorder at downstream end of second masonry pier from right end of railroad bridge, installed November 21, 1921. Inspected by R. A. Howell.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge. Measuring section broken by 11 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, 10.87 feet between 11 and 12 p. m. May 11 (discharge, 74,900 second-feet); minimum stage, 1.35 feet from 10 to 12 p. m. September 10 (discharge, 2,040 second-feet).

1911–1924: 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.—Small daily fluctuations caused by operation of power plants many miles upstream.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve fairly well defined between 1,000 and 200,000 second-feet. Operation of water-stage recorder fairly satisfactory; checked with daily readings of chain gage. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspecting gage-height graph, or for days of considerable fluctuation in stage by averaging the discharge for bihourly periods. Records good.

The following discharge measurement was made:

August 20, 1924: Gage height, 1.69 feet; discharge, 2,850 second-feet.

Daily discharge, in second-feet, of Roanoke River at Old Gaston, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,040	3,020	3,590	4,690	6,900	12,100	25,900	15,600	8,150	11,000	3,160	3,160
2	3,440	2,890	4,040	5,030	6,590	11,600	21,400	15,600	7,300	15,000	2,890	3,020
3	3,300	2,760	4,360	9,040	6,500	10,500	18,000	11,600	6,900	13,800	4,690	3,020
4	3,440	2,890	4,690	18,600	6,120	9,040	14,400	8,590	7,300	10,500	5,380	4,360
5	3,160	3,020	5,030	21,400	6,500	8,150	11,600	7,300	6,900	7,300	8,590	4,690
6	2,760	3,300	10,000	18,000	6,500	7,720	10,000	6,900	6,500	6,120	10,000	3,740
7	2,760	7,300	27,500	12,100	6,900	8,590	11,600	6,900	6,500	6,500	6,590	2,890
8	2,760	8,150	15,600	8,150	7,300	9,520	15,000	12,700	6,120	8,150	5,380	2,640
9	2,760	5,740	8,590	6,500	6,500	9,040	15,000	13,200	6,120	15,600	4,360	2,390
10	2,640	4,690	6,500	6,120	6,120	8,150	12,100	10,500	10,000	38,000	4,360	2,160
11	2,510	4,040	5,740	6,500	5,380	9,040	14,400	53,200	13,800	30,800	5,030	2,270
12	2,640	3,590	4,690	6,500	5,380	13,200	15,600	63,700	9,520	16,200	4,690	2,270
13	2,640	3,300	4,360	10,000	5,740	18,000	13,800	42,800	6,900	10,500	4,040	2,160
14	2,760	3,740	4,360	13,800	5,380	15,600	12,100	25,900	6,500	8,150	4,360	2,160
15	2,760	3,740	6,500	10,000	5,030	12,100	10,000	20,000	8,150	7,300	4,690	2,270

Daily discharge, in second-feet, of Roanoke River at Old Gaston, N. C., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	2,510	3,740	6,500	8,590	5,030	10,000	9,040	21,400	9,040	6,900	4,690	2,270
17	2,510	3,590	5,740	22,800	4,690	8,590	8,150	16,200	7,300	6,500	3,740	2,270
18	2,640	3,590	5,380	46,800	4,690	7,720	8,150	13,800	11,000	7,300	3,440	2,510
19	2,640	3,440	5,030	58,900	5,030	7,300	18,000	11,600	13,800	6,120	3,440	2,640
20	2,510	3,020	4,690	35,200	13,700	6,900	23,600	10,500	8,590	5,740	2,890	2,640
21	2,510	3,300	4,360	16,200	27,500	11,600	21,400	33,400	6,120	5,740	2,890	3,160
22	2,640	3,160	4,360	11,000	30,000	18,000	15,600	38,000	5,030	5,380	3,020	3,020
23	3,020	3,160	4,360	8,150	22,100	18,000	11,600	31,700	4,360	5,030	3,160	3,160
24	3,160	3,300	5,030	7,720	13,800	13,800	9,040	22,800	4,690	5,030	3,300	5,030
25	3,020	3,300	5,380	8,590	9,520	11,000	8,150	19,300	5,030	5,380	3,300	6,500
26	3,300	3,440	5,740	12,100	8,150	9,520	7,720	13,800	5,740	5,740	3,440	6,500
27	3,590	3,440	5,030	12,100	8,590	8,590	7,300	13,800	5,740	5,030	4,360	5,030
28	3,440	3,740	4,690	10,000	9,520	8,150	6,900	19,300	5,030	4,040	4,690	5,030
29	3,300	3,590	4,690	8,150	11,000	9,040	7,300	16,800	5,030	3,740	4,690	9,910
30	2,760	3,590	4,690	7,300	-------	15,600	7,300	13,800	6,500	3,740	3,590	54,400
31	3,020	-------	4,690	6,900	-------	22,100	-------	10,500	-------	3,440	3,160	-------

NOTE.—Recorder not operating Oct. 1–6, Nov. 2 and 3, Jan. 19–26, Apr. 12–19, May 24–31, July 28 to Aug. 2, and Aug. 16–20; gage-height graph estimated from daily gage readings.

Monthly discharge of Roanoke River at Old Gaston, N. C., for the year ending September 30, 1924

[Drainage area, 8,350 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	4,040	2,510	2,930	0.351	0.40
November	8,150	2,760	3,790	.454	.51
December	27,500	3,590	6,320	.757	.87
January	58,900	4,690	14,100	1.69	1.95
February	30,000	4,690	9,170	1.10	1.19
March	22,100	6,900	11,200	1.34	1.54
April	25,900	6,900	13,000	1.56	1.74
May	63,700	6,900	20,000	2.40	2.77
June	13,800	4,360	7,320	.877	.98
July	38,000	3,440	9,350	1.12	1.29
August	10,000	2,890	4,380	.525	.61
September	54,400	2,160	5,240	.628	.70
The year	63,700	2,160	8,920	1.07	14.55

DAN RIVER AT SOUTH BOSTON, VA.

LOCATION.—At Norfolk & Western Railway Bridge at South Boston, Halifax County, 6 miles upstream from mouth of Banister River.

DRAINAGE AREA.—2,820 square miles (measured on base maps of Virginia and North Carolina; scale 1 to 500,000).

RECORDS AVAILABLE.—August 27, 1900, to May 5, 1907, and April 28, 1923, to September 30, 1924.

GAGE.—Chain gage on downstream side of guardrail of bridge; read by K. W. Thaxton. Gage used 1900 to 1907 not to same datum.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Bed composed of fine sand. Banks subject to overflow at stages above 20 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year ending September 30, 1924, 24.61 feet at 2.30 p. m. January 18 (discharge, 29,000 second-feet); minimum stage, 3.83 feet at 1.30 p. m. September 22 (discharge, 850 second-feet).

1900–1907: Maximum stage recorded, 25.2 feet at 4 p. m. December 31, 1901 (discharge, 52,600 second-feet); minimum stage, −0.1 foot at 10 a. m. October 11, 1904 (discharge, 350 second-feet).

ICE.—Stage-discharge relation not affected by ice except during severe winters.

REGULATION.—Dam about one-fourth mile above station and the dams at Danville regulate the flow.

DIVERSIONS.—The water supply of South Boston is taken out just above the measuring section.

ACCURACY.—Stage-discharge relation permanent. Rating curve fairly well defined between 2,000 and 30,000 second-feet; extended below. Gage read, to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records fair.

The following discharge measurements were made:

April 24, 1924: Gage height, 6.12 feet; discharge, 2,200 second-feet.

May 13, 1924: Gage height, 9.76 feet; discharge, 5,590 second-feet.

May 14, 1924: Gage height, 7.78 feet; discharge, 3,340 second-feet.

Daily discharge, in second-feet, of Dan River at South Boston, Va., for the years ending September 30, 1923 and 1924

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1923							1923						
1	-------	4,260	2,450	1,160	6,740	1,580	16	-------	2,030	2,240	2,100	1,400	1,160
2	-------	2,800	1,960	1,400	6,740	1,280	17	-------	2,030	1,700	1,760	1,400	1,050
3	-------	2,660	1,520	1,460	3,810	1,220	18	-------	3,360	2,100	1,340	1,340	1,160
4	-------	2,520	1,640	1,520	2,170	1,220	19	-------	2,520	1,700	1,400	2,660	1,340
5	-------	2,310	1,580	1,700	2,030	1,050	20	-------	1,700	1,700	1,160	2,240	1,220
6	-------	1,820	1,580	1,050	2,310	3,960	21	-------	1,890	1,640	1,280	1,760	1,340
7	-------	2,170	1,520	1,280	2,100	2,660	22	-------	2,100	1,580	1,100	1,400	3,810
8	-------	2,380	1,220	1,890	1,520	3,720	23	-------	2,240	1,340	950	1,460	8,180
9	-------	2,590	2,030	2,380	1,640	3,360	24	-------	1,960	1,400	1,160	5,050	8,420
10	-------	2,730	1,520	1,820	2,170	2,450	25	-------	2,310	1,520	1,160	4,080	3,360
11	-------	2,590	1,640	1,580	1,960	3,630	26	-------	2,310	1,890	1,580	1,760	2,660
12	-------	2,240	2,030	1,340	1,520	2,590	27	-------	1,760	1,890	1,520	1,640	2,880
13	-------	1,700	2,520	1,460	2,310	2,170	28	2,170	1,760	1,640	1,520	1,340	1,820
14	-------	2,030	3,200	1,760	2,310	1,520	29	3,720	1,960	1,520	2,380	1,520	1,460
15	-------	2,310	2,520	2,310	1,890	1,640	30	6,160	1,890	1,520	2,100	1,700	1,460
							31	-------	2,100	-------	2,170	1,960	------

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1923-24												
1	1,400	1,580	1,890	2,100	2,170	1,960	5,850	5,950	1,890	3,900	1,340	1,050
2	1,460	1,520	1,760	3,540	2,380	1,760	4,170	5,050	2,030	4,650	1,280	1,280
3	1,340	1,340	1,340	5,750	2,310	1,760	3,810	4,260	1,960	4,260	1,960	3,200
4	1,280	1,640	1,400	7,340	2,240	2,100	3,040	3,630	2,030	2,520	4,650	2,310
5	1,160	1,460	4,080	5,950	2,380	2,310	2,660	3,200	2,100	2,030	5,650	1,280
6	1,220	3,450	11,300	3,810	2,240	2,240	2,960	2,730	2,030	1,960	2,450	1,400
7	1,280	3,630	10,200	3,280	2,170	2,450	2,800	2,450	2,240	2,730	2,170	1,050
8	1,220	2,310	3,990	2,730	2,170	2,800	3,280	2,730	1,890	2,520	1,960	1,100
9	1,220	2,030	2,880	2,380	2,100	2,660	3,200	2,880	1,820	13,800	1,960	1,050
10	1,000	1,640	2,450	2,030	2,170	2,660	3,630	2,590	2,310	13,900	1,960	1,050
11	1,050	1,520	2,240	1,890	2,310	3,280	4,260	6,980	1,960	4,950	1,520	1,000
12	1,050	1,400	1,890	2,030	2,380	3,630	3,990	7,220	1,820	3,280	1,640	1,000
13	1,050	1,700	1,820	4,080	2,310	2,660	4,650	5,450	1,700	2,450	1,400	1,000
14	1,160	1,520	2,100	4,550	2,240	2,380	3,200	3,810	3,540	2,310	1,340	950
15	1,100	1,340	1,890	3,810	1,640	2,310	3,280	4,450	2,800	2,030	1,960	950

Daily discharge, in second-feet, of Dan River at South Boston, Va., for the years ending September 30, 1923 and 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
16	1,050	1,460	2,030	3,900	1,760	2,170	2,880	5,050	1,890	2,170	1,580	1,050
17	1,050	1,460	2,030	13,000	1,640	1,890	2,310	4,950	2,450	3,280	1,100	1,220
18	1,050	1,160	1,960	24,600	1,640	2,030	2,660	3,280	2,730	2,100	1,460	1,280
19	1,050	1,220	1,700	8,540	2,170	2,100	5,850	3,200	2,170	1,760	1,160	1,160
20	1,220	1,520	1,820	5,450	5,250	2,170	8,180	3,040	1,640	1,820	1,050	1,100
21	1,220	1,400	1,890	3,630	9,960	3,900	3,810	8,660	1,520	1,890	1,280	1,400
22	1,460	1,460	1,760	2,880	9,180	5,250	3,990	9,050	1,460	2,100	1,220	1,050
23	1,520	1,520	1,640	2,590	4,260	4,260	3,630	4,950	1,520	2,170	1,220	2,310
24	1,580	1,460	1,580	2,310	2,880	3,360	2,730	3,540	1,400	1,640	1,160	2,380
25	1,400	1,520	1,960	3,200	2,520	3,450	3,360	3,040	1,760	1,760	1,100	1,890
26	1,520	1,520	2,170	3,200	2,730	3,120	3,280	3,280	2,450	1,820	2,100	1,520
27	1,580	1,400	1,700	2,880	2,450	2,960	2,800	2,880	1,700	1,400	1,890	1,460
28	1,160	1,400	1,340	2,880	2,030	2,880	2,030	4,650	1,520	1,520	1,820	2,590
29	1,100	1,460	1,340	2,880	1,960	3,540	2,030	4,850	2,310	1,700	1,280	2,170
30	1,280	1,700	1,640	2,380	-------	7,100	2,590	2,880	2,380	1,280	1,520	16,300
31	1,280	-------	2,030	2,030	-------	6,380	-------	2,380	-------	1,280	1,220	-------

Monthly discharge of Dan River at South Boston, Va., for the years ending September 30, 1923 and 1924

[Drainage area, 2,820 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1923					
May	4,260	1,700	2,290	0.812	0.94
June	3,200	1,220	1,810	.642	.72
July	2,380	950	1,570	.557	.64
August	6,740	1,340	2,380	.844	.97
September	8,420	1,050	2,510	.890	.99
1923-24					
October	1,580	1,000	1,240	.440	.51
November	3,630	1,160	1,660	.589	.66
December	11,300	1,340	2,580	.915	1.06
January	24,600	1,890	4,570	1.62	1.87
February	9,960	1,640	2,880	1.02	1.10
March	7,100	1,760	3,020	1.07	1.23
April	8,180	2,030	3,560	1.26	1.41
May	9,050	2,380	4,290	1.52	1.75
June	3,540	1,400	2,030	.720	.80
July	13,900	1,280	3,130	1.11	1.28
August	5,650	1,050	1,790	.635	.73
September	16,300	950	1,950	.692	.77
The year	24,600	950	2,730	.968	13.17

NEUSE RIVER BASIN

MOCCASIN CREEK NEAR MIDDLESEX, N. C.

LOCATION.—At Taylor's mill, 3 miles west of Middlesex, Nash County.

DRAINAGE AREA.—Not determined.

RECORDS AVAILABLE.—January 4 to September 30, 1924.

GAGE.—Vertical staff gage in mill pond at boat landing about 30 feet from mill; read to hundredths twice daily by C. A. Morgan.

DISCHARGE MEASUREMENTS.—Made from bridge just below dam or by wading.

CONTROL.—Control is dam.

EXTREMES OF STAGE.—Maximum stage recorded during period of record, 7.75 feet at 8 a.m. September 30; minimum stage, 2.68 feet at 8 a. m. and 6 p. m. September 12.

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

REGULATION.—The mill causes diurnal fluctuation.

Data inadequate for determination of discharge owing to by-passing of water through the wheel and leaks in dam.

The following discharge measurements were made:

April 18, 1924: Gage height, 3.10 feet; discharge, 43.4 second-feet.

August 22, 1924: Gage height, 2.9 feet; discharge, 36.7 second-feet.

Daily gage height, in feet, of Moccasin Creek near Middlesex, N. C., for the year ending September 30, 1924

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	3.12	3.60	3.04	2.97	3.00	4.45	2.84	2.89
2	-------	3.08	3.30	3.05	2.97	2.95	4.45	2.81	2.86
3	-------	3.10	3.26	3.04	2.99	2.92	3.78	3.32	2.81
4	3.00	3.10	3.24	3.00	2.97	3.18	3.40	3.88	2.83
5	3.06	3.06	3.22	3.00	2.88	3.09	3.24	3.75	2.76
6	3.04	3.08	3.28	3.15	2.85	2.95	3.26	3.19	2.77
7	2.98	3.06	3.24	3.17	2.85	2.93	3.32	3.07	2.78
8	2.98	3.00	3.20	3.08	3.18	2.94	3.52	2.99	2.75
9	3.00	3.00	3.18	3.06	3.48	2.89	3.48	2.98	2.75
10	2.98	3.04	3.20	3.06	3.22	2.87	3.30	2.86	2.75
11	3.00	3.04	3.30	3.35	3.25	2.83	3.27	2.79	2.72
12	3.10	3.03	3.40	3.40	3.86	2.78	3.58	2.78	2.68
13	3.00	3.00	3.30	3.28	3.62	2.98	3.28	2.85	2.71
14	3.00	3.00	3.20	3.17	3.38	3.14	3.23	3.22	2.77
15	2.98	2.95	3.20	3.12	3.32	3.11	3.15	3.19	3.21
16	2.98	2.96	3.18	3.11	3.85	2.99	3.19	3.07	3.44
17	3.95	3.55	3.14	3.10	3.78	2.95	3.25	2.90	3.90
18	3.85	3.50	3.12	3.09	3.52	2.96	3.10	2.87	3.30
19	3.40	4.15	3.12	3.25	3.30	3.42	3.04	2.85	3.08
20	3.28	4.25	3.06	3.16	3.19	3.23	3.05	2.86	2.99
21	3.30	4.20	3.55	3.11	3.11	2.99	3.05	2.99	3.20
22	3.14	3.70	3.50	3.03	3.48	3.09	3.01	2.95	3.45
23	3.16	3.45	3.30	3.03	3.32	3.03	3.01	2.95	3.58
24	3.14	3.30	3.20	2.99	3.11	2.93	2.97	3.02	3.38
25	3.60	3.26	3.20	3.00	3.27	2.89	2.99	3.65	3.19
26	3.55	3.30	3.16	2.95	3.45	2.87	3.19	3.60	3.28
27	3.30	3.40	3.14	2.97	3.13	2.97	3.06	3.15	3.45
28	3.20	4.00	3.10	2.97	3.19	2.93	2.99	3.00	3.58
29	3.18	3.80	-------	2.95	3.14	2.97	2.93	2.96	6.15
30	3.16	-------	3.09	2.95	3.03	5.00	2.90	2.89	7.68
31	3.14	-------	3.06	-------	2.99	-------	2.87	2.90	-------

CAPE FEAR RIVER BASIN

CAPE FEAR RIVER AT LILLINGTON, N. C.

LOCATION.—At State highway bridge just below Norfolk Southern Railroad bridge at Lillington, Harnett County, and 1 mile below Neals Creek.

DRAINAGE AREA.—3,530 square miles (measured on base map of North Carolina, scale 1:500,000).

RECORDS AVAILABLE.—December 6, 1923, to September 30, 1924.

GAGE.—Chain gage on downstream side of bridge; read by Leo Kelly.

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

CHANNEL AND CONTROL.—Bed composed mostly of heavy gravel; channel curved above gage and straight below. Control is remains of old dam 1¼ miles below gage having seven channels at low water; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period of record, 18.7 feet at 4.15 p. m. September 30 (discharge, 51,800 second-feet); minimum stage 0.32 foot at 6.30 a. m. September 5 (discharge, 47 second-feet).

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

REGULATION.—During low water, daily regulation is appreciable.

ACCURACY.—Stage-discharge relation permanent during year. Rating curve well defined between 100 and 50,000 second-feet, extended above and below. Gage read to two-hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as stated in footnote to daily-discharge table. Records good.

Discharge measurements of Cape Fear River at Lillington, N. C., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 6	3.45	2,450	Apr. 16	4.47	3,830
Apr. 15	5.04	4,650	Aug. 23	2.28	972

Daily discharge, in second-feet, of Cape Fear River at Lillington, N. C., for the year ending September 30, 1924

Day	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	------	1,280	2,080	10,400	2,750	9,440	1,820	22,900	1,010	214
2	------	1,010	2,080	7,230	2,340	7,650	1,060	16,600	430	325
3	------	1,060	1,820	6,030	2,750	3,310	1,110	11,900	1,870	325
4	------	3,450	1,820	4,450	2,340	2,890	1,390	8,520	19,900	90
5	------	3,870	1,820	3,450	2,210	2,750	1,510	4,600	14,600	71
6	2,890	3,170	1,820	3,590	2,890	2,210	1,010	2,610	8,980	205
7	3,730	2,470	1,820	4,450	4,920	1,690	1,390	4,300	5,090	325
8	2,610	1,690	1,820	4,010	4,300	1,220	1,820	5,830	2,470	300
9	1,820	1,450	1,450	3,170	3,170	700	1,010	8,750	1,820	375
10	1,110	1,570	1,110	2,890	2,890	740	1,010	7,860	1,450	490
11	1,220	1,110	1,110	5,270	8,080	1,110	1,060	9,920	1,060	240
12	1,010	1,280	1,330	7,650	17,800	6,030	1,390	6,830	1,060	300
13	960	1,160	1,110	7,230	13,500	8,300	1,330	3,590	910	590
14	960	1,450	1,010	4,760	7,440	3,450	1,010	4,300	2,210	1,820
15	375	1,450	1,010	3,730	4,920	4,300	740	3,450	3,450	3,170
16	1,060	2,370	960	3,310	3,730	7,650	1,280	4,300	1,510	3,730
17	1,010	25,800	1,010	2,890	3,170	8,080	1,110	3,310	1,010	3,030
18	1,010	18,100	6,630	2,610	2,750	4,600	1,820	2,750	1,010	2,340
19	1,110	7,650	12,700	2,610	10,400	3,450	2,750	2,210	350	2,080
20	1,010	4,920	24,700	2,340	11,900	2,750	1,390	1,820	555	2,340
21	740	4,300	27,700	4,920	6,230	2,470	1,110	1,690	1,570	2,080
22	1,110	3,170	15,400	7,440	4,300	2,210	1,060	1,390	1,820	3,590
23	1,010	2,340	6,030	6,630	3,310	2,080	1,160	1,110	910	12,400
24	1,010	1,950	4,450	3,870	2,890	2,210	2,340	1,330	700	12,200
25	1,820	6,430	3,870	3,590	2,470	2,470	6,030	1,060	865	6,830
26	1,820	10,200	3,310	2,890	2,210	2,340	3,590	1,060	325	5,640
27	1,820	5,270	8,960	2,610	1,820	2,340	2,750	1,450	350	4,300
28	1,060	3,730	18,400	2,340	1,690	3,030	2,470	1,160	660	2,610
29	1,280	2,750	13,500	1,950	2,080	3,450	2,080	1,110	375	14,500
30	1,160	2,610	------	1,950	1,690	3,030	3,730	960	430	48,700
31	1,220	1,820	------	3,730	------	2,470	------	780	240	------

NOTE.—Discharge Jan. 16, 17, Feb. 27, Apr. 19, July 1, Aug. 3, 4, and Sept. 29 determined by approximate integration of graph constructed on basis of two daily gage readings.

Monthly discharge of Cape Fear River at Lillington, N. C., for the year ending September 30, 1924

[Drainage area, 3,530 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
December 6-31	3,730	375	1,380	0.391	0.38
January	25,800	1,010	4,220	1.20	1.38
February	27,700	960	5,899	1.67	1.80
March	10,400	1,950	4,320	1.22	1.41
April	17,800	1,690	4,760	1.35	1.51
May	9,440	700	3,560	1.01	1.16
June	6,030	740	1,780	.504	.56
July	22,900	780	4,820	1.37	1.58
August	19,900	240	2,550	.722	.83
September	48,700	71	4,510	1.28	1.43

MORGAN CREEK NEAR CHAPEL HILL, N. C.

LOCATION.—At ford, 500 feet below mouth of Neville Creek, 2 miles southwest of Carrboro, 3 miles southwest of Chapel Hill, Orange County, and 7 miles above mouth of creek.

DRAINAGE AREA.—29 square miles.

RECORDS AVAILABLE.—January 20, 1923, to September 30, 1924.

GAGE.—Stevens continuous water-stage recorder on left bank in wooden well and shelter, attended by students and faculty of University of North Carolina at Chapel Hill; washed away by flood August 4, 1924. Staff gage installed August 12, 1924, at same location and datum; read by J. D. Bynum.

DISCHARGE MEASUREMENTS.—Made from cable 75 feet upstream from gage or by wading.

CHANNEL AND CONTROL.—Creek is straight for 150 feet upstream and for about 700 feet downstream; bed of stream shifting sand. Banks are high and wooded but subject to overflow at high water. Control consists of large boulders and gravel about 40 feet downstream from gage; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, about 25.0 feet about 10 a. m. August 4 (discharge not determined); minimum stage, 1.06 feet numerous times in October (discharge, 3.8 second-feet).

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

ACCURACY.—Stage-discharge relation changed by flood of August 4. Rating curve used to August 4 well defined up to 500 second-feet and fairly well defined between 500 and 1,000 second-feet; curve used after August 4 is well defined up to 300 second-feet, fairly well defined between 300 and 1,200 second-feet and extended above, allowing for overflow. Operation of water-stage recorder satisfactory except as noted in footnote to daily-discharge table; staff gage read to hundredths twice daily August 12 to September 30. Daily discharge for periods when a recorder operated ascertained by applying to rating table mean daily gage height obtained by inspecting gage-height graph, or for days of wide range in stage by approximate integration; from August 12 to September 30, mean of twice-daily readings of staff gage was used. Records good.

Discharge measurements of Morgan Creek near Chapel Hill, N. C., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 1	1.10	4.6	Apr. 30	3.43	350	Apr. 30	3.30	278
Apr. 14	1.68	34.1	Do	3.62	360	Aug. 14	1.29	19.9

Daily discharge, in second-feet, of Morgan Creek near Chapel Hill, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	5.2	15			67	18	59	16	781		8.6
2	4.6	4.3	12		13	46	16	32	15	145		25
3	4.6	5.2	11			35	16	26	15	77	1,290	18
4	4.3	6.5	12			30	17	22	23	52		11
5	4.3	16	45	16		30	20	19	18	37		8.0
6	4.3	8.3	26			33	32	18	14			7.7
7	4.0	5.5	18		11	29	21	16	12	41		8.0
8	4.0	5.5	14			24	18	17	12			8.0
9	3.8	5.5	13			22	16	20	11		45	8.0
10	3.8	5.5	12			35	25	15	10			8.6
11	3.8	5.5	12	13	10	90	112	85	10	22		8.3
12	3.8	5.5	12		11	87	107	74	11		28	8.0
13	3.8	9.1	11		11	52	48	33	33		27	7.4
14	3.8	7.9	15		10	40	34	25	13		20	273
15		6.8	17		9.5	34	28	43	11		15	42
16		6.5	15		9.1	28	24	145	20		14	34
17		6.2	14		10	24	22	59	21		14	29
18	4.3	5.5	14	59	25	23	59	42	12		12	23
19		5.5	12		38	22	64	27	12	14	12	27
20		5.5	12		242	43	36	23	8.7		23	20
21		5.5	12		63	95	29	21	7.2		35	31
22		5.2	12		37	39	27	24	7.9		17	396
23		6.8	22		30	32	23	18	9.3		15	469
24		9.9	21		24	29	20	18	151		13	85
25	5.0	7.9	16	23	23	25	20	31	104		16	56
26		9.1			26	24	20	20	41	23	16	77
27		12			108	22	21	81	24		12	48
28		12	14		125	21	22	58	19		12	70
29	3.8	11			99	21	22	33	72		10	1,400
30	3.8	16		13	-------	20	119	22	480	12	9.0	782
31	4.6	-------			-------	18	-------	17	-------		9.0	-------

NOTE.—No record Oct. 14-29, Dec. 26 to Feb. 10, and July 6 to Aug. 11; discharge estimated from study of rainfall and run-off, using U. S. Weather Bureau rainfall records at Chapel Hill. Braced figures show mean discharge for periods indicated.

Monthly discharge of Morgan Creek near Chapel Hill, N. C., for the year ending September 30, 1924

[Drainage area, 29 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	[a]9	3.8	4.35	0.150	0.17
November	16	4.3	7.56	.261	.29
December	45	11	15.5	.534	.62
January	-------	-------	[a]26.3	[a].907	[a]1.05
February	242	9.1	35.5	1.22	1.32
March	95	18	36.7	1.27	1.46
April	119	16	35.2	1.21	1.35
May	145	16	36.9	1.27	1.46
June	480	7.2	40.4	1.39	1.55
July	781	-------	53.3	1.84	2.12
August	-------	9.0	227	7.83	9.03
September	1,400	7.4	133	4.59	5.12
The year	-------	3.8	54.5	1.88	25.54

[a] Estimated from study of rainfall and run-off.

DEEP RIVER AT RAMSEUR, N. C.

LOCATION.—At upper end of long pool, 2,000 feet downstream from railroad station at Ramseur, Randolph County, and 1½ miles below mouth of Sandy Creek.

DRAINAGE AREA.—343 square miles (measured on United States Department of Agriculture soil survey maps).

RECORDS AVAILABLE.—November 24, 1922, to September 30, 1924.

GAGE.—Gurley seven-day water-stage recorder on right bank; attended by J. M. Woodell.

DISCHARGE MEASUREMENTS.—Made from cable 200 feet below gage.

CHANNEL AND CONTROL.—Channel straight above and below for 700 feet. Bed composed of boulders and sand; fairly smooth. Banks are about 20 feet high but are overflowed occasionally. Control for low and medium stages is a solid rock, ragged shoal about 600 feet downstream from gage. High water is channel controlled. There are three small islands between the cable and control.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.9 feet from 9 to 10.30 p. m. September 30 (discharge, 14,900 second-feet); minimum stage, 0.46 foot numerous times in October and November (discharge, 16, second-feet).

1923–1924: Maximum stage recorded, 19.22 feet at 1 p. m. March 13 1923 (discharge, 16,600 second-feet); minimum discharge, 16 second-feet numerous times in October and November, 1923.

ICE.—Negligible.

DIVERSIONS.—None.

REGULATION.—The record from recorder shows continual regulations by power plants above station, but as no plant has more than 10 hours' storage the weekly and monthly mean discharge is representative of natural flow.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve is well defined between 170 and 7,000 second-feet, fairly well defined below and extended above these limits. Operation of water-stage recorder satisfactory. Daily discharge ascertained by approximate integration of discharge. Records excellent except those for low water, which are good.

Discharge measurements of Deep River at Ramseur, N. C., for the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 9	0.94	95.8	Apr. 11	5.47	2,440	Apr. 13	2.79	784
Oct. 10	.98	94.7	Do	4.78	1,990	Aug. 15	1.30	167
Do	.95	87.6	Apr. 12	4.74	1,980	Sept. 30	*11.14	5,720
Dec. 9	1.00	101	Do	4.21	1,620			
Apr. 9	1.98	403	Do	3.82	1,360			

* Stage falling at rate of 1.14 feet an hour.

Daily discharge, in second-feet, of Deep River at Ramseur, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	68	78	159	212	1,320	272	1,360	115	1,680	85	46
2	54	64	64	152	192	888	344	472	190	626	66	39
3	54	42	128	554	172	584	325	342	180	325	155	75
4	61	39	152	826	216	442	320	234	184	186	645	174
5	61	345	502	403	239	452	330	287	152	139	164	120
6	54	405	566	220	198	828	988	249	130	144	188	68
7	46	205	312	212	175	532	631	194	117	325	97	43
8	46	135	154	183	156	393	428	186	97	532	56	57
9	46	113	115	175	111	324	364	356	124	1,410	61	50
10	52	68	162	167	105	442	514	252	153	535	61	83

Daily discharge, in second-feet, of Deep River at Ramseur, N. C., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	49	48	149	181	170	869	2,140	911	121	394	473	62
12	45	84	144	192	149	996	1,620	1,590	162	185	186	48
13	35	76	137	135	144	616	822	543	152	145	598	30
14	16	109	126	197	139	474	616	367	121	381	385	76
15	52	107	105	178	135	426	500	314	103	264	156	120
16	56	93	103	2,230	113	352	409	643	184	387	89	78
17	45	70	182	2,870	68	352	364	457	468	346	24	80
18	54	48	175	768	286	308	912	292	238	220	31	73
19	48	82	156	476	1,090	268	3,340	264	172	119	102	111
20	39	82	146	364	4,120	347	872	251	189	115	100	86
21	24	101	139	331	1,270	1,430	562	197	137	186	77	56
22	42	75	97	248	609	641	430	195	84	150	33	.205
23	45	55	89	208	421	446	350	189	114	132	34	663
24	49	48	432	368	348	435	313	180	104	98	50	379
25	66	68	212	897	338	384	276	385	509	117	63	165
26	73	101	188	491	416	294	256	267	240	98	50	137
27	39	82	164	312	976	269	217	503	192	84	59	117
28	30	109	181	288	1,100	254	282	701	142	130	53	173
29	75	99	189	266	1,480	178	271	346	121	134	43	4,080
30	60	78	142	221	-------	288	1,080	224	510	118	34	5,000
31	50	-------	196	208	-------	335	-------	160	-------	92	24	-------

NOTE.—Recorder not operating Oct. 1–9, Apr. 4 and 5; discharge estimated from range in stage.

Monthly discharge of Deep River at Ramseur, N. C., for the year ending September 30, 1924

[Drainage area, 343 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	75	16	49.3	0.144	0.17
November	405	39	103	.300	.33
December	566	64	183	.534	.62
January	2,870	135	467	1.36	1.57
February	4,120	68	522	1.52	1.64
March	1,430	178	522	1.52	1.75
April	3,340	217	671	1.96	2.19
May	1,590	160	416	1.21	1.40
June	509	84	184	.536	.60
July	1,680	84	316	.921	1.06
August	645	24	137	.399	.46
September	5,000	30	416	1.21	1.35
The year	5,000	16	331	.965	13.14

WEST FORK OF DEEP RIVER NEAR HIGH POINT, N. C.

LOCATION.—At highway bridge 1½ miles northwest of Jamestown and 3½ miles northeast of High Point, Guilford County.

DRAINAGE AREA.—33 square miles (measured on United States Department of Agriculture soil survey maps).

RECORDS AVAILABLE.—June 14, 1923, to September 30, 1924.

GAGE.—Staff in two sections on right bank about 20 feet upstream from bridge; read by W. S. Davis.

DISCHARGE MEASUREMENTS.—Made from bridge or by wading.

CHANNEL AND CONTROL.—Bed composed mostly of sand. Control formed by loose rocks under lower side of bridge; sand between rocks washes away and is replaced frequently. Right bank is high, but left bank is subject to overflow at gage height of about 8 feet.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 10.1 feet during evening of September 29 (discharge, about 1,100 second-feet); minimum stage, 1.0 foot June 27, 28, and August 30 (discharge, 4.6 second-feet).

1923–1924: Maximum stage recorded, that of September 29, 1924; minimum discharge, 4.6 second-feet, July 6, 1923, June 27, 28, and August 30, 1924.

ICE.—Not enough to affect stage-discharge relation.

REGULATION.—Slight diurnal regulation due to operation of small gristmill.

DIVERSIONS.—None.

ACCURACY.—Stage-discharge relation for low water changed probably on October 30 and January 17. Rating curves for medium and higher stages fairly well defined. Gage read to hundredths once a day. Daily discharge ascertained by applying daily gage height to rating table. Records poor.

Discharge measurements of West Fork of Deep River near High Point, N. C., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec-ft.*		*Feet*	*Sec-ft.*		*Feet*	*Sec-ft.*
Oct. 21	1.10	10.0	Mar. 21	2.65	133	Sept. 30	5.60	480
Dec. 14	1.60	53	Apr. 17	1.31	22.2	Do	5.33	437
Jan. 25	1.65	46.2	Apr. 18	5.62	479			
Mar. 21	2.85	143	Aug. 15	1.13	10.1			

Daily discharge, in second-feet, of West Fork of Deep River near High Point, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.5	27	32	23	14	104	24	91	14	326	9.4	6.5
2	5.6	26	27	21	16	66	38	35	13	66	9.4	6.5
3	5.6	23	25	74	14	50	22	27	9.4	48	621	167
4	5.6	22	23	93	11	31	19	21	15	31	42	20
5	5.6	23	23	46	12	25	42	17	12	27	21	15
6	5.6	22	20	33	14	157	222	16	9.4	24	17	12
7	5.6	27	21	38	12	25	54	15	9.4	25	15	12
8	6.5	25	46	39	11	28	35	15	9.4	28	24	11
9	6.5	23	26	25	9.4	22	27	35	9.4	350	14	9.4
10	6.5	23	26	23	9.4	25	28	15	15	54	13	8.4
11	7.5	22	25	43	9.4	50	147	350	9.4	42	12	7.5
12	8.4	22	21	31	9.4	70	109	82	9.4	39	13	9.4
13	14	23	21	27	9.4	50	62	36	86	31	25	9.4
14	11	22	21	21	8.4	45	54	27	21	58	13	9.4
15	9.4	22	23	22	8.4	28	39	25	15	127	9.4	15
16	9.4	16	21	33	13	22	32	74	9.4	42	9.4	15
17	12	19	122	266	17	21	21	29	15	31	9.4	15
18	25	25	43	66	22	21	39	22	13	27	9.4	14
19	14	22	27	38	27	20	137	19	15	21	8.4	15
20	13	19	25	32	350	17	70	16	8.4	29	8.4	14
21	12	20	25	21	167	24	35	15	7.5	21	8.4	74
22	12	17	32	15	47	45	31	15	7.5	19	7.5	50
23	12	17	25	19	32	58	21	12	6.5	15	9.4	147
24	13	27	23	15	22	28	24	8.4	7.5	15	8.4	27
25	14	26	22	58	25	24	20	21	9.4	15	7.5	15
26	14	26	23	28	50	21	20	12	6.5	20	9.4	21
27	13	17	21	21	66	20	20	302	4.6	13	7.5	21
28	14	19	74	17	58	20	17	62	4.6	12	6.5	21
29	14	101	32	15	74	21	15	32	5.6	9.4	6.5	244
30	157	64	27	15	-------	58	326	24	278	9.4	4.6	759
31	31	-------	25	15	-------	24	-------	15	-------	8.4	5.6	-------

NOTE.—No gage-height record Dec. 29 and 30; discharge estimated.

Monthly discharge of West Fork of Deep River near High Point, N. C., for the year ending September 30, 1924

[Drainage area, 33 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	157	5.6	15.8	0.479	0.55
November	101	16	26.2	.794	.89
December	122	20	30.5	.924	1.07
January	266	15	39.8	1.21	1.40
February	350	8.4	39.2	1.19	1.28
March	157	17	39.4	1.19	1.37
April	222	15	58.3	1.77	1.98
May	350	8.4	47.9	1.45	1.67
June	278	4.6	21.8	.661	.74
July	350	8.4	51.1	1.55	1.79
August	621	4.6	31.8	.964	1.11
September	759	6.5	59.0	1.79	2.00
The year	759	4.6	38.4	1.16	15.85

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; October 1, 1920, to September 30, 1924.

GAGE.—Chain gage on downstream handrail; read by S. U. Reynolds. Original chain gage washed away with old bridge July 16, 1916; original datum was lost.

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. Current is swift. 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; one channel at all stages. Control is not perceptible.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 15.2 feet at 5.30 p. m. January 16 (discharge, 13,700 second-feet); minimum stage, 1.05 feet at 7 a. m. October 18 (discharge, 290 second-feet).

1903–1909; 1920–1924: 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.—Slight regulation from mill dams upstream.

ACCURACY.—Stage-discharge relation permanent. Rating curve is well defined between 376 and 10,000 second-feet; extended above. 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, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 11	1.28	376	Apr. 21	2.89	1,090
Dec. 12	1.60	476	Aug. 18	1.58	489

Daily discharge, in second-feet, of Yadkin River at North Wilkesboro, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	376	323	618	512	618	1,020	618	1,070	574	1,120	532	414
2	358	306	512	664	760	1,070	574	860	574	964	532	433
3	376	323	414	860	618	964	574	760	574	810	964	452
4	376	574	472	810	574	860	574	712	1,120	3,250	532	452
5	358	1,800	1,800	760	712	1,020	912	712	964	1,590	532	414
6	358	964	1,280	414	712	1,330	2,160	664	664	2,560	574	395
7	358	664	964	574	618	1,070	1,700	664	532	6,170	512	395
8	358	472	810	532	574	912	1,170	810	512	2,560	492	376
9	358	414	618	512	532	860	912	712	532	1,980	472	395
10	340	395	532	664	532	860	912	664	512	1,800	512	395
11	340	376	492	2,230	512	860	1,070	1,220	532	1,640	512	376
12	323	358	492	1,860	512	712	1,070	1,330	618	1,380	664	376
13	323	340	433	1,070	512	664	1,070	964	664	1,070	860	395
14	323	323	512	860	512	664	964	860	574	860	574	395
15	323	323	512	712	512	664	964	810	574	810	532	376
16	306	340	512	5,830	492	664	860	912	574	760	492	395
17	306	340	512	3,320	492	618	810	760	532	712	472	433
18	290	323	492	1,640	512	664	2,630	712	574	664	472	452
19	414	323	433	1,170	532	618	2,040	664	574	712	452	433
20	433	323	452	964	1,020	712	1,280	664	492	810	452	492
21	376	323	492	760	810	1,590	1,120	1,590	492	760	433	1,170
22	306	323	492	532	618	964	1,020	860	492	712	452	810
23	532	433	574	574	574	860	912	712	512	912	452	664
24	532	452	574	664	574	810	860	664	472	912	452	532
25	433	414	492	860	574	760	810	712	452	760	810	472
26	395	376	492	664	618	664	810	664	472	472	810	452
27	340	358	492	574	860	664	810	618	618	618	574	472
28	323	323	472	532	1,220	618	760	664	472	574	492	5,660
29	323	376	452	574	1,070	712	766	712	860	532	472	5,840
30	323	1,170	414	532	-------	712	1,070	664	760	532	433	6,480
31	323	-------	433	532	-------	712	------	618	-------	574	433	-------

NOTE.—Discharge Jan. 11, 16, Apr. 18, July 4, 7, Sept. 28, and 30 determined by approximate integration of graph constructed on basis of two daily gage readings.

Monthly discharge of Yadkin River at North Wilkesboro, N. C., for the year ending September 30, 1924

[Drainage area, 500 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	532	290	361	0.722	0.83
November	1,800	306	472	.944	1.05
December	1,800	414	588	1.18	1.36
January	5,830	414	1,060	2.12	2.44
February	1,220	492	647	1.29	1.39
March	1,590	618	835	1.67	1.92
April	2,630	574	1,060	2.12	2.36
May	1,590	618	807	1.61	1.86
June	1,120	452	596	1.19	1.33
July	6,170	472	1,280	2.56	2.95
August	964	433	547	1.09	1.26
September	6,480	376	1,030	2.06	2.30
The year	6,480	290	773	1.55	21.05

YADKIN RIVER NEAR SALISBURY, N. C.

LOCATION.—At highway bridge known as Piedmont toll bridge, 1,000 feet upstream from Southern Railway bridge, 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, 1924.

GAGE.—Chain gage attached to highway bridge since January 1, 1906; read by J. T. Yarbrough. Datum unchanged except for possible change of about 0.1 foot due to settlement of bridge.

DISCHARGE MEASUREMENTS.—Made from downstream side of bridge.

CHANNEL AND CONTROL.—Channel wide and 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, 12.2 feet at 6 p. m. September 29 and 30 (discharge, 51,600 second-feet); minimum stage, 1.70 feet at 6 p. m. October 14 and 7 a. m. October 16 (discharge, 1,260 second-feet).

1895–1924: 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 powers on the river and tributaries.

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:

April 20, 1924: Gage height, 4.88 feet; discharge, 11,000 second-feet.

August 26, 1924: Gage height, 3.51 feet; discharge, 6,070 second-feet.

Daily discharge, in second-feet, of Yadkin River near Salisbury, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,810	1,640	3,890	2,320	3,250	8,240	3,560	9,000	2,820	6,100	2,210	1,900
2	1,720	1,720	3,720	3,720	3,250	6,440	3,720	6,440	2,820	7,860	2,320	2,100
3	1,720	1,720	2,820	4,740	3,720	5,420	3,400	4,400	2,820	5,760	8,510	2,690
4	1,720	1,640	2,320	6,440	3,400	4,740	3,100	3,720	2,820	4,400	12,200	2,440
5	1,640	5,080	8,620	5,760	3,250	4,400	3,400	3,560	2,820	5,080	5,760	1,900
6	1,560	10,200	20,800	4,230	3,890	7,140	5,760	3,400	2,560	7,140	3,560	1,720
7	1,400	6,780	11,000	2,560	3,720	6,440	8,240	3,250	2,820	11,600	2,960	1,720
8	1,720	3,100	5,420	2,690	3,400	5,080	6,780	2,960	3,100	19,300	2,820	1,720
9	1,560	2,560	3,720	3,250	2,960	4,400	5,080	3,720	2,820	20,800	2,690	1,720
10	1,560	2,210	3,400	2,960	2,820	4,230	4,740	4,060	2,820	11,800	2,320	1,720
11	1,560	2,100	2,820	3,100	2,820	4,400	6,440	3,400	3,560	8,620	2,320	1,720
12	1,560	2,100	2,690	7,140	2,820	4,230	7,140	5,760	2,820	5,760	2,320	1,560
13	1,560	2,000	2,560	6,780	2,820	3,720	5,760	6,440	2,820	4,400	3,250	1,560
14	1,260	1,900	2,690	4,740	2,690	3,560	4,740	4,400	3,100	4,230	3,720	1,640
15	1,640	1,900	3,560	3,720	2,690	3,400	4,400	3,890	3,890	4,400	3,100	2,100
16	1,400	1,900	2,820	6,460	2,560	3,250	4,230	4,060	3,720	5,760	2,560	2,100
17	1,560	1,900	2,960	35,700	2,560	3,250	4,060	3,890	2,820	4,060	2,100	1,900
18	1,400	1,720	2,560	33,600	2,690	3,100	5,080	3,560	3,560	3,890	2,100	2,320
19	1,560	2,000	2,440	12,700	3,560	3,100	13,200	3,400	2,820	3,100	2,100	2,560
20	1,900	1,810	2,440	6,780	9,000	3,250	11,000	3,100	2,820	3,400	2,000	1,900
21	1,900	1,900	2,440	5,760	11,800	7,500	6,440	2,960	2,440	3,560	2,100	1,900
22	1,720	1,720	2,560	4,400	7,140	7,860	5,080	6,100	2,320	3,720	2,440	2,820
23	1,560	1,900	2,560	3,560	4,740	5,420	4,740	4,060	2,210	3,400	2,440	6,100
24	2,100	2,000	4,060	3,720	3,890	4,400	4,060	3,250	2,820	3,250	2,100	4,740
25	2,560	2,210	3,560	4,740	3,720	3,890	4,060	4,400	4,060	3,400	3,100	2,440
26	2,210	2,210	2,960	5,080	3,720	3,560	3,720	4,400	3,720	3,400	6,100	2,210
27	1,900	1,900	2,820	4,230	5,080	3,400	3,560	4,060	2,820	2,690	5,080	2,329
28	1,640	1,900	2,560	3,560	6,440	3,100	3,720	7,140	5,420	2,440	2,560	6,570
29	1,720	1,810	2,690	3,400	8,620	3,100	3,400	5,420	3,100	2,320	2,320	46,800
30	1,720	2,100	2,560	3,400	-------	5,080	4,740	3,720	2,960	2,320	2,000	46,800
31	1,720	-------	2,440	3,250	-------	4,740	-------	3,250	-------	2,100	1,900	-------

NOTE.—Discharge Jan. 18, 19, July 7, Aug. 3, and Sept. 28 determined by approximate integration of graph constructed on basis of two daily gage readings.

Monthly discharge of Yadkin River near Salisbury, N. C., for the year ending September 30, 1924

[Drainage area, 3,400 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per. square mile	
October	2,560	1,260	1,700	0.500	0.58
November	10,200	1,640	2,520	.741	.83
December	20,800	2,320	4,010	1.18	1.36
January	35,700	2,320	6,660	1.94	2.24
February	11,800	2,560	4,240	1.25	1.39
March	8,240	3,100	4,640	1.36	1.57
April	13,200	3,100	5,240	1.54	1.72
May	9,000	2,960	4,360	1.28	1.48
June	5,420	2,210	3,070	.903	1.01
July	20,800	2,100	5,810	1.71	1.97
August	12,200	1,900	3,320	.976	1.13
September	46,800	1,560	5,390	1.59	1.77
The year	46,800	1,260	4,240	1.25	17.01

YADKIN RIVER AT HIGH ROCK, N. C.

LOCATION.—At Brinkles Ferry, High Rock, Davidson County, 2 miles above mouth of Lick Creek and about 15 miles upstream from dam of Tallassee Power Co. at Badin.

DRAINAGE AREA.—3,930 square miles.

RECORDS AVAILABLE.—January 8, 1919, to September 30, 1924.

GAGE.—Friez water-stage recorder in concrete well and shelter on right bank; attended by employees of Tallassee Power Co. Zero flow at gage about elevation 592.8 feet above sea level.

CHANNEL AND CONTROL.—Bed of stream composed of rock and gravel; banks about 20 feet high; probably not subject to overflow. Control is rock shoal about half a mile downstream; permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year, about elevation 603.0 feet at midnight September 30 (discharge, 66,500 second-feet); minimum stage, elevation 593.64 feet from 8 p. m. to midnight October 16 and 18 (discharge, 1,230 second-feet).

1919–1924: Maximum stage, elevation 605.9 feet morning of July 21, 1919 (discharge, 104,000 second-feet); minimum stage, elevation 593.64 feet from 8 p. m. to midnight October 16 and 18, 1923 (discharge, 1,230 second-feet). Elevation of flood in 1916, 612.1 feet (discharge, 184,000 second-feet).

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

REGULATION.—Slight diurnal regulation noticeable in low-water periods from power developments on tributaries.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 1,000 and 28,000 second-feet and extended above. Operation of water-stage recorder not satisfactory. Daily discharge ascertained by applying to the rating table mean daily gage height obtained by inspecting gage-height graphs except for days of wide range in stage discharge graphs are approximately integrated. Records good except for high-water stages, for which they are fair.

COOPERATION.—Water-stage recorder graphs furnished by Tallassee Power Co.

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

Daily discharge, in second-feet, of Yadkin River at High Rock, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.
1	1,780	1,560	3,860	3,120	4,020	10,300	4,800	10,800	3,860	4,480	2,420	1,900
2	1,660	1,560	4,480	4,170	4,170	8,630	4,480	8,630	3,560	6,990	2,690	1,900
3	1,560	2,160	3,410	5,470	4,480	6,990	4,170	5,470	3,560	7,390	6,200	2,560
4	1,470	2,290	2,970	7,790	4,170	5,830	3,860	4,800	3,560	6,210	15,500	3,120
5	1,440	5,130	6,990	7,390	4,020	5,470	4,480	4,170	3,560	5,470	6,990	2,290
6	1,470	10,800	19,300	5,470	4,170	7,790	6,990	4,020	3,560	6,210	4,480	1,780
7	1,440	6,990	12,100	3,860	4,480	8,210	9,890	3,860	3,410	6,990	3,710	1,620
8	1,440	4,170	6,210	3,260	4,170	6,590	8,630	3,710	3,710	20,100	3,410	1,550
9	1,340	3,560	4,800	4,170	3,860	5,830	6,210	4,480	3,710	24,500	3,120	1,550
10	1,310	2,830	4,170	3,860	3,560	5,470	6,210	5,130	3,710	16,100	2,970	1,490
11	1,280	2,690	3,560	4,020	3,560	5,830	9,470	4,800	4,020	10,300	2,830	1,470
12	1,310	2,690	3,260	6,210	3,560	5,830	10,300	7,390	3,860	6,990	2,970	1,470
13	1,340	2,560	3,260	8,210	3,410	5,130	8,210	8,210	3,710	5,130	3,860	1,310
14	1,310	2,560	3,260	5,470	3,120	4,800	6,590	6,210	3,710	4,800	4,020	1,450
15	1,280	2,420	4,170	4,800	3,120	4,480	5,830	4,800	4,020	4,480	3,860	1,900
16	1,340	2,420	3,710	6,560	3,260	4,480	5,470	4,800	4,800	6,210	3,410	2,160
17	1,280	2,420	3,710	31,600	3,260	4,170	5,130	5,130	5,470	4,800	2,830	1,900
18	1,280	2,290	3,410	34,600	3,560	4,170	5,830	4,800	4,800	4,480	2,560	2,000
19	1,280	2,420	3,120	15,000	5,180	3,860	14,500	4,480	4,020	4,020	2,560	2,403
20	1,310	2,160	3,120	8,210	13,000	4,170	14,500	4,020	3,410	4,020	2,420	2,032
21	1,360	2,290	3,120	6,590	14,000	8,210	9,470	3,860	3,260	4,170	2,420	1,620
22	1,450	2,160	3,260	5,470	10,300	9,470	6,990	6,210	2,830	4,480	2,830	1,900
23	1,450	2,420	3,260	4,800	6,590	6,990	6,210	5,830	2,560	4,020	3,120	5,130
24	1,470	2,290	4,800	4,800	5,130	5,470	5,470	4,170	2,690	4,170	2,690	7,390
25	1,660	2,690	4,800	6,210	4,800	4,800	4,800	5,130	3,710	4,800	2,690	4,800
26	1,900	2,830	3,860	6,590	4,800	4,480	4,480	5,470	4,480	4,480	5,830	3,410
27	1,900	2,290	3,560	5,470	6,210	4,170	4,480	4,800	3,860	3,560	6,210	3,260
28	1,780	2,290	3,410	4,800	8,210	4,020	4,480	7,390	5,470	2,970	3,710	3,860
29	1,620	2,160	3,410	4,170	10,300	4,020	4,170	7,790	4,800	2,690	2,560	8,760
30	1,560	2,420	3,260	4,170	-------	5,130	5,360	5,470	3,710	2,560	2,290	46,600
31	1,440	-------	3,260	4,170	-------	5,830	-------	4,480	-------	2,420	2,030	-------

NOTE.—No gage-height record Aug. 14 and 15; discharge estimated by comparison with records at Salisbury. Recorder not working properly for high water July 8–10, Aug. 3, and Sept. 29 and 30; gage-height graphs estimated and approximately integrated.

Monthly discharge of Yadkin River at High Rock, N. C., for the year ending September 30, 1924

[Drainage area, 3,930 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,900	1,280	1,470	0.374	0.43
November	10,800	1,560	2,980	.758	.85
December	19,300	2,970	4,610	1.17	1.35
January	34,600	3,120	7,430	1.89	2.18
February	14,000	3,120	5,400	1.37	1.48
March	10,300	3,860	5,830	1.48	1.71
April	14,500	3,860	6,720	1.71	1.91
May	10,800	3,710	5,490	1.40	1.61
June	5,470	2,560	3,850	.980	1.09
July	24,500	2,420	6,450	1.64	1.89
August	15,500	2,030	3,840	.977	1.13
September	46,600	1,310	4,150	1.06	1.18
The year	46,600	1,280	4,850	1.23	16.81

FISHER RIVER NEAR DOBSON, N. C.

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

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

RECORDS AVAILABLE.—September 1, 1920, to September 30, 1924.

GAGE.—Chain gage installed August 30, 1921, on upstream side of bridge; read by Miss Ada Kidd.

DISCHARGE MEASUREMENTS.—Made from lower side of bridge.

CHANNEL AND CONTROL.—Channel is straight above and below gage; rather rough. Banks are subject to overflow above gage height 10.0 feet. Control is shoals about 50 feet below gage; practically permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 8.8 feet at 4 p. m. January 16 (discharge, about 5,660 second-feet); minimum stage, 0.48 foot several times in October and September (discharge, 76 second-feet).

1920–1924: Maximum stage recorded, 10.1 feet at 5 p. m. March 16, 1923 (discharge, about 6,700 second-feet); minimum stage, 0.34 foot at 7 a. m. and 5 p. m. July 27, 1923 (discharge, 42 second-feet).

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

REGULATION.—Probably none.

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 54 and 300 second-feet and extended above by comparison with records for Ararat River near Pilot Mountain, N. C., and therefore should be used with caution. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table except as stated in footnote to daily-discharge table. Records good except for high stages.

The following discharge measurements were made:

December 11, 1923: Gage height, 0.72 foot; discharge, 122 second-feet.

April 21, 1924: Gage height, 0.85 foot; discharge, 196 second-feet.

August 18, 1924: Gage height, 0.53 foot; discharge, 96 second-feet.

Daily discharge, in second-feet, of Fisher River near Dobson, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	88	185	193	164	208	158	178	128	193	107	107
2	101	91	154	178	185	193	158	158	125	208	101	101
3	101	88	158	251	156	178	151	158	125	215	705	119
4	94	151	171	247	164	171	147	144	132	200	200	94
5	91	540	595	151	200	243	185	151	119	171	158	88
6	94	208	298	154	204	231	460	151	119	161	151	85
7	94	171	208	204	158	208	255	164	138	485	125	88
8	94	147	185	185	151	182	215	260	122	1,090	128	85
9	94	128	164	158	138	175	208	223	122	485	113	91
10	88	138	168	164	147	200	193	147	125	289	113	85
11	88	128	151	859	138	185	185	650	144	231	151	85
12	82	119	113	320	132	178	185	298	125	200	151	76
13	82	116	124	239	138	171	178	219	128	198	128	76
14	79	125	164	208	144	171	171	200	178	189	101	82
15	76	116	147	178	135	164	164	193	158	171	98	91
16	82	113	144	2,950	125	151	158	208	161	154	101	101
17	82	107	138	796	132	151	154	171	116	158	94	110
18	116	101	132	341	128	151	512	164	116	138	94	94
19	154	107	125	298	158	151	298	158	104	141	88	94
20	110	104	132	251	460	164	227	151	94	147	98	101
21	82	101	161	208	243	272	200	231	94	189	94	235
22	82	101	164	200	185	193	185	158	94	215	88	147
23	138	151	164	231	171	178	171	141	107	164	88	144
24	125	128	147	193	158	175	168	151	255	151	88	116
25	101	107	125	223	161	168	164	151	119	135	235	125
26	94	107	132	193	223	158	171	138	128	119	235	151
27	94	107	126	158	223	151	171	208	227	119	151	171
28	88	107	135	193	243	147	161	171	125	113	151	820
29	94	85	125	171	239	215	154	158	298	113	135	1,060
30	94	388	125	161	-------	158	208	144	164	107	107	1,020
31	94	-------	125	158	-------	158	-------	135	-------	107	107	-------

NOTE.—Discharge Jan. 11, 16, 17, July 8, and Sept. 30 determined by approximate integration of graph constructed on basis of two daily gage readings.

Monthly discharge of Fisher River near Dobson, N. C., for the year endin g September 30, 1924

[Drainage area, 109 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	154	76	96.6	0.886	1.02
November	540	85	142	1.30	1.45
December	595	113	167	1.53	1.76
January	2,950	151	336	3.08	3.55
February	460	125	179	1.64	1.77
March	272	147	181	1.66	1.91
April	512	147	204	1.87	2.09
May	659	135	189	1.73	1.99
June	298	94	140	1.28	1.43
July	1,090	107	218	2.00	2.31
August	705	88	145	1.33	1.53
September	1,060	76	195	1.79	2.00
The year	2,950	76	183	1.68	22.81

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, 1924.

GAGE.—Gurley seven-day graph water-stage recorder on right bank installed November 23, 1921, just below the staff gage at boat landing which was used prior to that date; attended by H. C. Savage.

DISCHARGE MEASUREMENTS.—Made from downstream side of abandoned steel railroad bridge 1 mile above gage.

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. Banks are overflowed every year. Control is not definitely known as there are no shoals or riffles below Ferguson. However, much of the river banks and bottom are limestone and marl, and it is believed that control is fairly permanent. Current is good at all stages and slope of surface is very even for 50 miles downstream.

EXTREMES OF DISCHARGE.—Maximum stage during year, 13.87 feet from midnight to 4 p. m. January 23 (discharge, 50,000 second-feet); minimum stage, 2.56 feet at 10 p. m. October 23 (discharge, 4,460 second-feet).

1907–1924: Maximum stage recorded, 24.5 feet on July 22, 1916 (estimated discharge, 368,000 second-feet); minimum stage recorded, 0.9 foot October 23, 1918 (discharge not estimated). 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, tributaries to the Santee above Ferguson. 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 the 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.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 5,000 and 16,000 second-feet. Above 16,000 second-feet rating is based on an extended curve which is fairly accurate up to 20,000 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height obtained by inspecting gage-height graph. Records good.

The following discharge measurement was made:

November 19, 1923: Gage height, 3.60 feet; discharge, 5,520 second-feet.

Daily discharge, in second-feet, of Santee River at Ferguson, S. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,300	7,140	10,300	8,890	32,500	23,400	22,200	21,300	19,800	17,200	16,300	7,660
2	6,890	7,530	10,300	9,640	30,500	28,800	20,900	21,300	20,100	19,200	16,300	6,170
3	7,790	8,050	9,790	11,800	27,200	41,000	20,100	21,700	18,100	20,900	15,900	5,600
4	9,950	9,040	8,750	13,500	25,000	44,000	19,800	23,400	17,400	21,700	15,500	7,530
5	11,100	8,470	9,950	14,200	22,800	44,000	20,500	25,000	17,800	22,800	14,400	8,890
6	12,000	5,820	12,500	14,600	21,300	41,000	21,300	27,200	18,400	22,200	14,600	9,790
7	12,200	8,750	16,100	14,200	20,900	35,000	22,800	27,200	18,600	23,400	15,500	9,340
8	11,100	14,800	18,600	11,600	20,100	32,500	24,100	25,000	18,400	25,000	15,900	7,530
9	7,790	15,300	19,800	11,300	19,200	28,800	30,500	23,400	17,400	27,200	16,100	5,710
10	5,930	12,900	20,900	12,500	18,400	27,200	41,000	22,800	17,200	32,500	15,900	6,170
11	8,330	11,300	21,300	13,500	16,300	25,000	44,000	22,200	17,000	38,000	14,400	8,190
12	8,890	9,950	21,300	13,500	12,900	23,400	41,000	21,300	17,400	44,000	10,900	8,470
13	8,610	7,270	20,500	13,600	12,500	22,800	35,000	19,200	17,800	47,000	10,600	8,050
14	8,470	7,010	19,500	13,100	13,800	22,800	32,500	18,900	17,800	47,000	13,100	7,660
15	7,660	8,470	18,600	12,500	14,600	22,800	35,000	19,500	17,600	47,000	15,000	8,050
16	5,280	8,470	18,100	13,600	14,200	22,800	38,000	19,800	15,900	44,000	17,000	13,300
17	5,820	8,750	17,400	15,700	13,600	22,200	41,000	20,100	14,200	38,000	17,400	18,900
18	7,790	9,040	16,500	18,100	12,300	21,300	38,000	20,900	14,400	35,000	15,500	20,900
19	8,470	6,650	18,600	20,100	9,640	20,100	35,000	20,500	15,700	32,500	11,400	22,800
20	8,610	5,930	20,500	21,700	11,300	19,800	32,500	18,100	16,700	28,800	9,640	26,000
21	8,050	6,650	21,700	27,200	15,700	20,100	30,500	17,200	16,700	26,000	10,800	27,200
22	7,010	8,750	22,800	44,000	18,400	20,900	28,800	17,400	15,000	24,100	11,300	26,000
23	4,980	9,340	23,400	50,000	19,800	22,200	28,800	17,600	12,700	22,800	11,100	24,100
24	5,080	10,300	22,200	47,000	21,300	24,100	30,500	17,600	9,790	21,700	10,100	23,400
25	6,530	10,400	21,300	41,000	22,200	28,800	32,500	17,000	11,600	20,900	8,190	24,100
26	7,140	9,040	19,800	38,000	22,200	35,000	32,500	15,000	16,500	20,900	6,290	27,200
27	7,400	6,290	18,100	35,000	21,700	35,000	30,500	12,700	18,600	20,500	6,650	41,000
28	7,660	7,400	15,900	35,000	21,700	32,500	27,200	14,000	19,500	19,200	8,470	41,000
29	7,490	10,100	13,800	38,000	22,200	28,800	23,400	16,300	19,500	16,100	8,890	41,000
30	5,280	11,100	12,300	38,000	-------	27,200	21,700	18,100	18,600	14,800	8,750	41,000
31	5,380	-------	10,600	38,000	-------	25,000	-------	19,200	-------	15,900	8,470	-------

NOTE.—Gage-height graphs Nov. 17–23 and July 5–11 lost in mail; discharge based on graphs estimated from United States Weather Bureau gage heights at Ferguson.

Monthly discharge of Santee River at Ferguson, S. C., for the year ending September 30, 1924

[Drainage area, 14,800 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	12,200	4,980	7,900	0.534	0.62
November	15,300	5,820	9,000	.608	.68
December	23,400	8,750	17,100	1.16	1.34
January	50,000	8,890	22,900	1.55	1.79
February	32,500	9,640	19,100	1.29	1.39
March	44,000	19,800	28,000	1.89	2.18
April	44,000	19,800	30,100	2.03	2.26
May	27,200	12,700	20,000	1.35	1.56
June	20,100	9,790	16,900	1.14	1.27
July	47,000	14,800	27,600	1.86	2.14
August	17,400	6,290	12,600	.851	.98
September	41,000	5,600	17,800	1.20	1.34
The year	50,000	4,980	19,100	1.29	17.55

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, 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, 1922, to September 30, 1924.

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 or by wading.

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 about 6 feet high, 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.—1922–1924: Maximum stage recorded, 6.2 feet at 7 a. m. January 11 and 5 p. m. September 28, 1924 (discharge, 3,880 second-feet); minimum stage recorded, 1.50 feet at 5 p. m. September 14, 1924 (discharge, 23 second-feet).

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

REGULATION.—None.

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, except as stated in footnote to daily-discharge table. Records good.

Discharge measurements of Linville River at Branch, N. C., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Feb. 20	2.14	181	Feb. 22	2.05	151
Do	2.28	242	May 28	2.01	133
Feb 21	2.25	218			

Daily discharge, in second-feet, of Linville River at Branch, N. C., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	45	163	170	125	181	215	223	97	76	47	50
2	50	43	113	150	137	239	196	177	102	81	47	47
3	47	41	99	157	137	243	174	167	91	76	50	48
4	47	63	107	272	125	239	170	157	102	125	60	47
5	45	188	260	215	215	456	405	140	86	113	63	36
6	41	113	289	137	223	540	758	144	86	378	54	33
7	47	94	203	154	163	380	430	137	84	803	47	34
8	43	79	163	137	150	289	333	144	81	430	47	33
9	41	72	140	131	128	251	289	157	76	405	45	50
10	37	67	122	134	150	239	264	134	86	247	41	39
11	37	58	113	2,290	113	192	289	192	86	200	43	34
12	34	58	107	600	134	174	311	239	86	170	102	29
13	29	56	97	380	110	177	264	196	84	144	86	28
14	36	54	110	289	119	185	247	176	125	140	76	26
15	31	50	97	239	110	163	281	170	102	122	58	28
16	29	47	97	1,320	104	131	239	170	86	113	45	43
17	29	50	104	692	102	144	223	150	79	102	43	41
18	29	54	99	430	122	174	405	140	74	99	43	39
19	43	47	91	333	144	163	430	134	67	84	39	39
20	84	48	102	276	211	200	333	122	63	113	39	63
21	67	50	110	211	231	333	272	154	60	94	43	131
22	43	43	104	170	163	243	239	125	58	84	39	107
23	43	67	113	170	150	215	215	113	89	81	36	81
24	81	81	137	181	150	215	192	107	81	102	72	79
25	65	76	119	203	144	196	174	122	76	86	333	63
26	50	63	104	177	163	211	185	104	72	76	144	207
27	54	65	99	137	188	239	192	113	70	63	81	456
28	48	56	113	113	192	215	163	144	70	60	60	2,860
29	43	50	107	131	196	255	157	131	60	58	50	1,630
30	45	177	97	137	-------	333	188	113	60	52	43	898
31	48	-------	97	134	-------	255	-------	107	-------	47	43	-------

NOTE.—Discharge Jan. 11 and 16, July 6 and 7, and Sept 28 and 29 determined by approximate integration of graph constructed on basis of two or three daily gage readings.

Monthly discharge of Linville River at Branch, N. C., for the year ending September 30, 1924

[Drainage area, 65 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	84	29	45.7	0.703	0.81
November	188	41	68.5	1.05	1.17
December	289	91	125	1.92	2.21
January	2,290	113	331	5.09	5.87
February	231	102	152	2.34	2.52
March	540	131	241	3.71	4.28
April	758	157	274	4.22	4.71
May	239	104	148	2.28	2.63
June	125	58	81.3	1.25	1.40
July	803	47	156	2.40	2.77
August	333	36	65.1	1.00	1.15
September	2,860	26	243	3.74	4.17
The year	2,860	26	161	2.48	33.69

LONG CREEK NEAR GASTONIA, N. C.

LOCATION.—At pumping station of water-supply system of Gastonia 500 feet above bridge of No. 16 highway, 1,000 feet below Carolina & Northwestern Railroad bridge, 2 miles north of Gastonia, Gaston County, and 5 miles above mouth of creek.

DRAINAGE AREA.—41.9 square miles (measured on topographic maps).

RECORDS AVAILABLE.—November 28, 1923, to September 30, 1924.

GAGE.—Enameled vertical staff fastened to upstream wing wall of intake of pumping plant on right bank; read by attendant to plant.

DISCHARGE MEASUREMENTS.—Made from footbridge near gage or by wading.

CHANNEL AND CONTROL.—Channel straight above and below gage for several hundred feet; bed composed of rock, gravel, and sand. Banks about 8 feet high to cultivated flats which are seldom overflowed. Low-water control is a riffle at upstream side of intake to pumping station close to gage; fairly permanent. High-water control is 25 feet above highway bridge; collects trash.

EXTREMES OF DISCHARGE.—Maximum stage during period of record, 8.6 feet at 7.50 a. m. September 30 (estimated discharge, 1,390 second-feet); minimum stage, 1.44 feet at various times in September (discharge, 16 second-feet).

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

REGULATION.—None.

DIVERSIONS.—None.

ACCURACY.—Stage-discharge relation fairly permanent during year. Rating curve poorly defined between 18 and 500 second-feet; extended above. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, except as stated in footnote to daily-discharge table. Records probably fair.

Discharge measurements of Long Creek near Gastonia, N. C., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Nov. 28	1.58	18.4	July 4	5.13	378
Apr. 22	2.38	54.6	Aug. 26	1.91	30.6
July 4	5.08	372			

Daily discharge, in second-feet, of Long Creek near Gastonia, N. C., for the year ending September 30, 1924

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		47	50	39	72	39	178	36	222	26	20
2		26	36	36	62	34	84	34	72	28	24
3		24	62	34	50	34	59	34	345	28	26
4		68	50	34	47	39	50	34	394	26	20
5		300	39	66	69	80	42	30	268	26	22
6		84	34	36	62	72	42	32	92	26	20
7		47	36	34	62	50	39	84	774	24	20
8		36	32	32	47	42	39	44	216	24	20
9		34	28	30	44	42	44	53	106	24	20
10		30	30	30	62	50	42	36	80	24	19
11		32	66	30	56	144	92	36	69	22	19
12		28	36	30	47	144	50	34	56	22	19
13		26	34	30	44	84	42	34	50	146	19
14		36	32	32	47	66	39	34	44	42	344
15		30	28	32	44	72	39	50	42	28	116

Daily discharge, in second-feet, of Long Creek near Gastonia, N. C., for the year ending September 30, 1924—Continued

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.
16		47	502	30	39	84	42	34	42	26	56
17		42	741	34	39	62	39	248	42	24	36
18		32	116	42	39	273	36	72	36	22	28
19		30	80	201	39	155	34	53	36	22	26
20		39	66	271	157	88	34	36	39	22	56
21		34	44	111	243	66	36	32	36	30	53
22		34	39	62	92	56	36	30	34	22	32
23		80	36	36	62	47	34	86	34	22	122
24		36	47	39	56	44	34	279	44	22	39
25		34	76	42	47	44	44	92	47	22	30
26		32	44	50	44	47	32	47	30	28	39
27		32	36	262	42	42	105	39	30	20	32
28	19	30	36	216	42	42	76	36	28	22	345
29	20	28	36	96	44	39	44	43	26	20	451
30	128	28	39		42	181	36	134	26	20	1,190
31		30	36		39		34		26	20	

NOTE.—Discharge Dec. 4, Jan. 16, 17, Feb. 19, 27, Mar. 20, 21, Apr. 18, 30, May 27, June 17, 23, 24, 29, 30, July 1, 4, 5, 7, Aug. 13, Sept. 14 and 23 determined by approximate integration of graph constructed on basis of two daily gage readings.

Monthly discharge of Long Creek near Gastonia, N. C., for the year ending September 30, 1924

[Drainage area, 41.9 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
November 28-30	128	19	55.7	1.33	0.15
December	300	24	46.3	1.10	1.27
January	741	28	82.8	1.98	2.28
February	271	30	69.6	1.66	1.79
March	243	39	60.7	1.45	1.67
April	273	34	75.4	1.80	2.01
May	178	32	50.9	1.21	1.40
June	279	30	62.2	1.48	1.65
July	774	26	109	2.60	3.00
August	146	20	28.4	.678	.78
September	1,190	19	109	2.60	2.90

NORTH PACOLET RIVER NEAR TRYON, N. C.

LOCATION.—Below mouth of Horse Creek, 1½ miles above South Carolina line, and 4 miles from Tryon, Polk County.

DRAINAGE AREA.—49.0 square miles (measured on topographic map).

RECORDS AVAILABLE.—May 16 to September 30, 1924.

GAGE.—Staff gage on right bank 250 feet below mouth of Horse Creek; read by Edward Mitchell.

DISCHARGE MEASUREMENTS.—Made by wading or from footbridge 600 feet upstream and adding discharge of Horse Creek.

CHANNEL AND CONTROL.—Channel straight 100 feet above and 300 feet below gage. Banks wooded. Left bank steep and not subject to overflow; right bank steep but overflowed at gage height 12 feet. Control is a rocky riffle overlain with some sand; fairly permanent. Control for floods is a bottleneck formation of valley.

EXTREMES OF DISCHARGE.—Maximum stage during period of record, 4.5 feet at 6 p. m. September 29 (discharge, 300 second-feet); minimum stage, 1.80 feet several times in August and September (discharge, 33 second-feet).

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

REGULATION.—Slight regulation produced by operation of mills during low water.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 8 and 150 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 for high water.

The following discharge measurements were made:

May 16, 1924: Gage height, 2.32 feet; discharge, 81.9 second-feet.

August 6, 1924: Gage height, 2.07 feet; discharge, 60.6 second-feet.

September 5, 1924: Gage height, 1.88 feet; discharge, 37.8 second-feet.

Daily discharge, in second-feet, of North Pacolet River near Tryon, N. C., for the year ending September 30, 1924

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	-------	74	64	92	44	16	79	74	74	46	56
2	-------	74	60	84	40	17	79	64	69	44	57
3	-------	79	79	58	46	18	79	60	64	52	51
4	-------	88	127	54	38	19	74	59	64	51	49
5	-------	69	112	60	44	20	74	56	69	58	112
6	-------	69	177	54	36	21	84	56	84	60	127
7	-------	69	122	55	38	22	74	64	79	43	112
8	-------	69	207	51	41	23	74	60	69	55	74
9	-------	64	137	56	50	24	74	56	60	54	69
10	-------	64	107	48	38	25	74	112	64	54	79
11	-------	69	88	52	34	26	69	64	60	51	102
12	-------	69	88	52	43	27	102	69	60	48	122
13	-------	64	69	55	35	28	102	59	60	42	290
14	-------	79	74	59	46	29	88	56	58	41	228
15	-------	69	84	49	48	30	79	74	60	37	167
						31	74	-------	79	38	-------

Monthly discharge of North Pacolet River near Tryon, N. C., for the year ending September 30, 1924

[Drainage area, 49 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
May 16–31	102	69	79.9	1.63	0.97
June	112	56	68.4	1.40	1.56
July	207	58	86.1	1.76	2.03
August	92	37	53.3	1.09	1.26
September	290	34	77.2	1.58	1.76

SAVANNAH RIVER BASIN

CHATTOOGA RIVER NEAR TALLULAH FALLS, GA.

LOCATION.—About 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, 1924.

GAGE.—Gurley seven-day recorder installed on right bank about 30 feet downstream from vertical staff; attended 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, 10.68 feet at noon September 20, 1924 (discharge, 11,500 second-feet); minimum stage, 0.87 foot all day September 13, 1924 (discharge, 338 second-feet).

1917–1924: Maximum stage recorded, 12.2 feet March 24, 1917 (discharge, 13,900 second-feet); minimum stage recorded, 0.6 foot October 16–18, 1918 (discharge, 255 second-feet).

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

ACCURACY.—Stage-discharge relation permanent. Rating curve well defined between 150 and 2,500 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table or for days having considerable range in stage, by averaging the discharge for bihourly periods. Records good.

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

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

Daily discharge, in second-feet, of Chattooga River near Tallulah Falls, Ga., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	430	390	810	755	810	980	810	1,310	810	538	605	355
2	410	355	655	980	755	980	755	1,170	810	755	582	355
3	410	355	582	1,390	755	865	755	1,100	810	755	605	430
4	410	959	931	1,240	755	865	810	1,040	865	1,100	582	390
5	410	1,040	2,250	980	920	1,460	2,060	1,040	755	755	560	372
6	390	655	1,240	810	865	1,550	1,550	980	755	2,330	560	355
7	390	582	920	810	810	1,170	1,240	980	705	2,250	538	355
8	390	515	810	755	755	980	1,100	980	755	1,710	515	355
9	390	450	705	755	705	980	1,040	980	705	1,630	492	355
10	390	430	655	755	705	980	980	980	705	1,170	492	355
11	390	430	655	2,890	705	920	1,100	1,240	705	1,040	470	355
12	372	410	605	1,550	705	865	1,100	1,170	705	1,040	515	355
13	372	410	605	1,240	705	865	980	1,040	705	980	605	338
14	372	410	755	1,040	705	865	980	980	705	980	515	410
15	372	410	705	980	655	865	1,550	980	655	865	450	450
16	372	390	920	2,370	655	810	1,390	980	655	810	430	372
17	372	390	920	2,060	655	810	1,170	920	655	755	430	372
18	390	390	810	1,390	705	810	3,780	920	630	755	430	355
19	630	390	755	1,170	967	810	2,450	920	630	810	410	355
20	538	372	920	1,100	2,250	920	1,790	920	630	755	410	4,400
21	430	372	865	980	1,240	1,170	1,550	920	630	705	430	1,390
22	390	372	755	920	980	980	1,390	920	605	705	430	1,550
23	390	560	920	865	920	920	1,240	865	605	705	470	1,100
24	372	560	920	980	865	865	1,240	865	605	705	538	755
25	372	450	810	1,240	865	865	1,170	865	695	655	450	755
26	372	430	755	980	920	810	1,100	865	605	655	450	1,100
27	355	450	705	920	1,630	810	1,100	1,240	582	605	430	1,100
28	355	450	655	865	1,240	810	1,100	1,040	515	582	390	1,170
29	355	450	655	865	1,040	810	1,040	1,040	515	582	390	1,240
30	355	1,100	655	810	-------	920	1,550	980	515	605	355	1,170
31	410	-------	655	810	-------	810	-------	865	-------	582	372	-------

Monthly discharge of Chattooga River near Tallulah Falls, Ga., for the year ending September 30, 1924

[Drainage area, 256 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	630	355	399	1.56	1.80
November	1,100	355	498	1.95	2.18
December	2,250	582	824	3.22	3.71
January	2,890	755	1,140	4.45	5.13
February	2,250	655	905	3.54	3.82
March	1,550	810	939	3.67	4.23
April	3,780	755	1,330	5.20	5.80
May	1,310	865	1,000	3.91	4.51
June	865	515	671	2.62	2.92
July	2,330	538	931	3.64	4.20
August	605	355	481	1.88	2.17
September	4,400	338	759	2.96	3.30
The year	4,400	338	823	3.21	43.77

APALACHICOLA RIVER BASIN

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, 1924.

GAGE.—Vertical staff in two sections located at the pumping plant; read by Will Speer. The low-water section (0 to 6.7 feet) is on the right bank; the high-water section (6.0 to 17.5 feet) is on the left bank, facing the river, directly opposite the low-water section, and is read from the right bank by means of a telescope.

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 a 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, 12.6 feet April 19 (discharge, 25,400 second-feet); minimum stage, 2.3 feet October 16 (discharge, 1,050 second-feet).

1896–1924: 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.

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

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 1,000 and 60,000 second-feet; extended above 60,000 second-feet on basis of a computed discharge of 134,000 second-feet for the crest of the flood on 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 three times daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

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

Daily discharge, in second-feet, of Chattahoochee River at West Point, Ga., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,740	1,900	4,050	4,050	5,380	12,800	4,050	20,800	6,350	2,860	1,660	1,660
2	1,350	1,900	3,640	4,050	5,150	9,100	4,260	19,100	11,100	2,680	2,150	1,740
3	1,580	1,820	3,640	4,480	5,150	6,350	4,050	10,100	10,600	2,500	5,150	3,440
4	1,420	3,840	4,700	6,850	4,920	6,350	5,380	6,350	9,100	2,320	3,840	4,260
5	1,420	6,600	12,600	8,350	5,380	6,100	11,400	5,150	7,100	4,480	3,240	1,900
6	1,350	4,050	15,600	7,600	4,920	6,850	9,600	4,700	4,920	5,050	2,150	1,660
7	1,350	3,640	14,800	5,620	4,700	6,350	7,850	4,700	7,850	5,620	1,820	1,660
8	1,350	3,440	9,600	4,920	4,700	6,850	6,850	4,260	7,350	5,380	2,150	1,420
9	1,350	2,320	7,040	4,480	4,260	6,350	5,860	4,050	6,850	4,700	4,260	1,580
10	1,420	2,500	4,480	4,480	4,050	7,100	7,100	4,260	6,350	4,260	3,240	2,240
11	1,280	2,320	4,260	5,620	4,050	6,350	10,800	5,150	5,150	7,850	2,500	1,820
12	1,280	2,150	4,050	8,100	3,840	5,620	12,600	6,350	4,920	5,860	2,060	1,500
13	1,280	1,740	3,640	7,350	3,840	4,920	11,100	5,380	4,480	5,860	2,240	1,280
14	1,280	2,060	3,840	7,850	3,840	5,160	8,100	4,920	3,840	7,600	1,900	1,760
15	1,280	1,900	4,050	5,620	3,640	5,390	7,600	4,920	3,840	9,100	1,580	2,240
16	1,120	1,900	4,920	13,400	3,640	5,620	7,600	5,150	4,050	8,350	1,660	4,050
17	1,200	1,900	12,800	23,100	3,640	5,860	6,100	4,700	3,840	4,260	1,740	2,500
18	1,420	2,150	13,100	19,800	3,640	5,380	12,800	4,480	3,640	3,640	3,840	2,060
19	1,740	1,980	10,800	15,400	3,840	4,920	25,400	4,260	3,840	3,240	3,640	1,900
20	2,680	1,580	7,600	9,100	4,480	4,920	21,600	3,640	3,240	2,870	1,740	1,900
21	3,240	1,900	5,620	7,850	5,380	6,100	19,100	3,640	3,240	2,500	1,660	2,150
22	2,150	1,820	4,700	5,860	6,350	5,860	10,400	3,840	2,860	2,860	1,580	2,240
23	2,500	2,680	8,350	5,620	6,850	5,860	8,350	3,640	2,680	2,680	1,980	12,800
24	1,900	5,620	12,600	7,600	5,380	5,860	6,600	3,640	2,500	2,320	2,320	7,600
25	1,740	4,050	8,350	17,100	5,150	4,920	5,860	4,280	2,680	2,240	2,320	7,600
26	1,740	4,480	6,860	14,100	5,620	4,480	5,620	4,920	2,860	2,240	3,240	4,050
27	1,500	9,600	5,380	10,800	13,400	4,260	5,620	6,600	3,240	1,820	1,740	3,840
28	1,820	6,350	4,920	8,350	18,400	4,260	5,380	14,100	3,240	1,980	1,420	5,720
29	1,580	4,050	4,700	6,350	16,600	4,480	5,620	20,100	2,960	1,740	1,500	7,600
30	1,350	4,480	4,480	5,860	-------	4,920	6,600	12,400	2,680	1,980	1,900	6,100
31	2,240	-------	4,050	5,620	-------	4,700	-------	10,100	-------	1,820	1,980	-------

NOTE.—Gage not read Dec. 9, 26, Mar. 14-16, 23, Apr. 6, May 18, 25, June 8, 9, 29, July 6, 20, Aug. 14 and 28; discharge interpolated.

Monthly discharge of Chattahoochee River at West Point, Ga., for the year ending September 30, 1924

[Drainage area, 3,300 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,240	1,120	1,630	0.494	0.57
November	9,600	1,580	3,220	.976	1.09
December	15,600	3,640	7,090	2.15	2.48
January	23,100	4,050	8,560	2.59	2.99
February	18,400	3,640	5,870	1.78	1.92
March	12,800	4,260	5,940	1.80	2.08
April	25,400	4,050	8,980	2.72	3.04
May	20,800	3,640	7,090	2.15	2.48
June	11,100	2,500	4,910	1.49	1.66
July	9,100	1,740	3,970	1.20	1.38
August	5,150	1,420	2,390	.724	.83
September	12,800	1,280	3,410	1.03	1.15
The year	25,400	1,120	5,250	1.59	21.67

CHIPOLA RIVER NEAR ALTHA, FLA.

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

DRAINAGE AREA.—740 square miles (Water-Supply Paper 352).

RECORDS AVAILABLE.—November 21, 1912, to December 31, 1913; September 21, 1921, to September 30, 1924.

GAGE.—Chain gage attached to upstream handrail of bridge; read by A. A. Allen.

DISCHARGE MEASUREMENTS.—Made from upstream side of single span steel highway bridge.

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 17.6 feet at 1.20 p. m. September 16 (discharge, 4,670 second-feet); minimum stage, 8.85 feet at 10.15 a. m. September 11 (discharge, 630 second-feet).

1913; 1921–1924: Maximum stage recorded, 21.1 feet March 22, 1913 (discharge not determined); minimum stage, 8.49 feet January 7, 1922 (discharge, 440 second-feet).

REGULATION.—Slight regulation during low-water season caused by small power plant on Dry Creek, several miles above gage.

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 500 and 3,000 second-feet; extended above 3,000 second-feet. Gage read to hundredths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records good.

Discharge measurements of Chipola River near Altha, Fla., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 2	9.41	926	June 27	10.05	1,300
Apr. 15	13.24	2,600	Aug. 4	10.05	1,290
Apr. 19	13.24	2,550			

Daily discharge, in second-feet, of Chipola River near Altha, Fla., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,240	922	922	922	2,630	2,140	1,400	1,590	975	1,450	1,300	816
2	1,130	869	922	922	2,380	2,240	1,350	1,400	975	1,590	1,240	816
3	1,190	869	922	922	2,240	2,340	1,400	1,350	975	1,400	1,240	869
4	1,080	974	922	922	2,110	2,110	1,780	1,340	975	1,400	1,240	869
5	1,130	1,080	1,720	922	2,110	2,110	1,920	1,240	1,030	1,400	1,190	869
6	1,240	922	1,030	896	2,110	2,260	1,940	1,190	1,030	1,660	1,240	816
7	1,180	922	975	869	2,180	2,760	1,960	1,190	1,080	1,920	1,240	816
8	1,130	1,030	975	922	2,000	2,680	1,800	1,240	1,220	2,040	1,190	816
9	1,030	1,030	922	922	1,960	2,860	1,960	1,130	1,350	1,880	1,080	816
10	1,030	1,030	869	922	1,960	3,040	1,540	1,130	1,080	2,040	1,140	816
11	1,030	976	869	922	1,960	3,040	1,960	1,130	1,130	2,500	1,190	630
12	1,030	922	869	922	1,960	3,080	2,860	1,130	1,030	2,460	1,130	763
13	1,030	922	869	922	1,760	3,120	2,790	1,130	1,030	2,660	1,350	763
14	1,030	975	869	922	1,540	3,220	2,720	1,130	922	2,860	1,300	2,060
15	1,030	869	869	922	1,540	2,580	2,580	1,190	948	3,480	1,300	3,370
16	1,030	869	896	1,130	1,400	2,500	2,580	1,190	975	3,080	1,190	4,670
17	1,030	869	922	1,400	1,420	2,420	2,500	1,130	922	2,900	1,080	3,220
18	1,080	869	1,130	1,350	1,450	2,340	2,500	1,100	922	2,900	975	2,340
19	1,190	869	975	1,400	1,300	2,110	2,630	1,080	922	2,810	922	2,220
20	1,130	922	975	1,680	1,780	2,420	2,500	1,030	869	2,840	975	2,110
21	1,130	922	975	1,960	1,450	2,140	2,380	1,080	869	2,860	922	1,820
22	1,130	816	975	1,780	1,450	1,960	2,300	1,080	950	2,380	922	1,540
23	1,030	816	975	1,800	1,450	1,960	2,260	1,080	1,030	2,180	922	1,500
24	1,080	816	975	2,300	1,620	1,960	2,140	1,030	869	2,110	896	1,350
25	1,030	816	1,000	3,080	1,800	1,720	2,080	1,080	1,030	2,140	869	1,640
26	922	816	1,030	2,720	2,040	1,760	1,880	1,130	1,130	2,000	869	1,450
27	922	816	1,030	2,720	2,140	1,780	1,760	1,080	1,300	2,270	869	1,780
28	922	869	1,030	2,720	2,000	1,720	1,640	1,130	1,080	2,540	869	2,410
29	922	1,000	975	2,810	1,960	1,640	1,500	1,030	1,160	1,500	816	3,040
30	975	1,130	946	2,900	------	1,570	1,590	1,000	1,240	1,540	816	3,480
31	922	------	922	2,860	------	1,500	------	975	------	1,500	816	------

NOTE.—Gage not read Sundays or holidays; discharge interpolated.

Monthly discharge of Chipola River near Altha, Fla., for the years ending September 30, 1923 and 1924

[Drainage area, 740 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1922-23					
October	816	630	717	0.969	1.12
November	684	472	590	.797	.89
December	1,580	472	873	1.18	1.36
January	2,380	1,190	1,810	2.45	2.82
February	2,180	1,240	1,690	2.28	2.37
March	2,300	1,300	1,740	2.35	2.71
April	2,300	1,350	1,810	2.45	2.73
May	2,990	1,080	1,660	2.24	2.58
June	5,300	1,130	2,630	3.55	3.96
July	4,840	1,540	2,570	3.47	4.00
August 1-10	3,670	1,960	3,110	4.20	1.72
September 4-30	2,720	1,190	1,700	2.30	2.31
1923-24					
October	1,240	922	1,060	1.43	1.65
November	1,130	816	918	1.24	1.38
December	1,720	969	976	1.32	1.52
January	3,080	869	1,560	2.11	2.43
February	2,630	1,300	1,850	2.50	2.70
March	3,220	1,500	2,290	3.10	3.57
April	2,860	1,350	2,070	2.80	3.12
May	1,590	975	1,150	1.55	1.79
June	1,350	869	1,030	1.39	1.55
July	3,480	1,400	2,200	2.96	3.41
August	1,350	816	1,070	1.45	1.67
September	4,670	630	1,680	2.27	2.53
The year	4,670	630	1,490	2.01	27.32

NOTE.—Daily discharge June 27 to July 6, 1923, was withheld from publication in Water-Supply Paper 562 because of lack of definition of rating curve for high stages. On basis of high-water measurements made in 1925 the daily discharge, in second-feet, for the above period has been determined as follows: June 27, 5,120; June 28, 4,980; June 29, 5,300; June 30, 5,190; July 1, 4,840; July 2, 4,480; July 3, 4,380; July 4, 4,250; July 5, 4,120; and July 6, 3,730.

CHOCTAWHATCHEE RIVER BASIN

CHOCTAWHATCHEE RIVER NEAR NEWTON, ALA.

LOCATION.—Near highway bridge on Newton-Ozark road, 1 mile north of Newton, Dale County, and 8 miles above mouth of Little Choctawhatchee River.

DRAINAGE AREA.—720 square miles (measured on base map of Alabama; 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, 1924.

GAGE.—Gurley seven-day water-stage recorder on left bank 700 feet above highway bridge, installed November 29, 1921; inspected by L. L. Davenport.

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; fairly permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, from water-stage recorder, 10.60 feet at 8 p. m. January 25 (discharge, 7,340 second-feet); minimum mean daily stage recorded, 0.21 foot September 12 (discharge, 177 second-feet).

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1906–1908; 1911–1912; 1921–1924: Maximum stage recorded, 24.2 feet March 25, 1908 (discharge, not determined); minimum mean daily stage, −0.02 foot September 5, 1922 (discharge, 122 second-feet).

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

REGULATION.—Possibly slight regulation from gristmill dams above.

ACCURACY.—Stage-discharge relation changed July 14. Rating curves used before and after the change well defined between 250 and 3,000 second-feet; above 645 second-feet the curves are identical. Operation of water-stage recorder satisfactory. 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 bihourly discharge. Records good below 3,000 second-feet, others fair.

Discharge measurements of Choctawhatchee River near Newton, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Jan. 3	1.32	554	June 24	0.88	322
Apr. 11	2.62	1,410	Aug. 5	1.06	431
Apr. 16	3.72	2,180			

Daily discharge, in second-feet, of Choctawhatchee River near Newton, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	368	508	1,030	580	1,560	2,080	784	1,520	995	1,160	363	213
2	344	486	895	546	1,450	1,660	735	1,420	1,340	1,030	426	222
3	330	435	784	568	1,310	1,420	705	1,200	1,100	824	366	275
4	302	815	784	633	1,450	1,280	1,330	928	1,100	627	508	398
5	305	1,170	1,030	651	1,660	1,390	1,660	778	995	435	442	349
6	333	1,030	895	597	1,450	2,980	1,560	627	895	425	426	275
7	344	784	791	552	1,380	2,840	1,380	693	1,030	541	623	235
8	412	681	717	530	1,240	2,380	1,200	1,490	960	778	634	210
9	470	609	633	530	1,140	2,080	1,030	1,870	862	862	687	191
10	440	508	580	541	1,060	1,760	895	1,620	960	759	590	179
11	368	475	580	753	995	1,480	1,340	1,240	960	1,290	508	183
12	316	450	536	717	995	1,310	1,480	928	765	1,150	486	177
13	322	435	530	705	960	1,240	1,380	723	597	1,100	526	181
14	305	420	717	657	895	1,730	1,200	627	514	2,260	410	179
15	299	412	862	603	895	1,730	1,870	603	747	4,480	342	352
16	296	402	830	1,420	862	1,660	2,110	675	772	2,620	302	418
17	305	398	1,060	2,080	830	1,520	1,660	645	759	1,590	284	356
18	489	384	1,170	2,010	1,540	1,380	1,880	591	753	1,450	287	323
19	580	372	1,100	1,660	1,560	1,240	2,160	519	753	1,310	311	293
20	536	380	1,030	3,830	1,560	1,280	1,940	465	563	2,180	320	275
21	455	384	928	3,810	1,310	1,240	1,620	519	435	1,870	305	287
22	376	380	862	3,280	1,200	1,170	1,420	597	364	1,520	272	272
23	344	376	804	2,760	1,100	1,100	1,170	514	344	1,170	275	418
24	316	380	753	4,640	995	995	995	492	333	960	272	580
25	299	372	675	7,110	1,370	960	862	574	352	895	257	442
26	305	380	645	6,440	2,720	928	798	639	384	960	254	390
27	302	597	621	4,640	3,280	895	753	817	519	675	232	378
28	299	681	603	2,840	2,760	862	711	1,060	389	545	202	374
29	299	960	597	2,160	2,540	862	687	1,200	372	486	208	813
30	308	1,170	591	1,870	-------	862	916	798	412	426	220	1,170
31	384	-------	580	1,700	-------	830	-------	778	-------	390	215	-------

Monthly discharge of Choctawhatchee River near Newton, Ala., for the year ending September 30, 1924

[Drainage area, 720 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	580	296	360	0.500	0.58
November	1,170	372	561	.780	.87
December	1,170	530	781	1.08	1.24
January	7,110	530	1,980	2.75	3.17
February	3,280	830	1,450	2.01	2.17
March	2,980	830	1,460	2.03	2.34
April	2,160	705	1,270	1.76	1.96
May	1,870	465	876	1.22	1.41
June	1,340	333	711	.988	1.10
July	4,480	390	1,190	1.65	1.90
August	687	202	373	.518	.60
September	1,170	177	347	.482	.54
The year	7,110	177	945	1.31	17.88

CHOCTAWHATCHEE RIVER NEAR BELLWOOD, ALA.

LOCATION.—Half a mile below Chalkers Bluff dam site of the 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, 1924.

GAGE.—Gurley seven-day water-stage recorder on left bank of river, referred to inside and outside staff gages; inspected by E. L. Crook and Rush 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 during year from water-stage recorder, 12.07 feet at 7 p. m. January 25 (discharge, 13,100 second-feet); minimum mean daily discharge, estimated 438 second-feet September 12 and 13.

1921–1924: Maximum stage recorded, 14.28 feet at noon March 20, 1923 (discharge, 18,000 second-feet); minimum discharge, that of September 12 and 13, 1924.

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 not permanent; affected by timber and débris lodging in the channel below the gage during the period April 16 to June 25. Rating curve used prior to June 25 is well defined below 4,400 second-feet and extended above that point on the basis of records for Newton, Ala.; curve used since that date is well defined below 2,500 second-

feet and roughly defined above that point on the basis of two high-water measurements which were partly estimated. Operation of water-stage recorder fairly satisfactory except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying mean daily gage height direct to rating table, except for the period April 27 to June 25 when the indirect method for shifting control was used, and except for days of considerable fluctuation in stage when it was ascertained by averaging bihourly discharges. Records good below 4,400 second-feet; others subject to considerable error because of poor definition of high-water rating curve.

Discharge measurements of Choctawhatchee River near Bellwood, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft*
Dec. 28	2.04	1,100	Apr. 16	6.58	3,420	Aug. 1	1.82	748
Jan. 4	2.36	1,190	June 25	1.38	731	Aug. 5	2.24	932
Apr. 11	5.18	2,560						

Daily discharge, in second-feet, of Choctawhatchee River near Bellwood, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	760	882	1,770	1,130	2,760	3,520	1,440	2,170	1,440	1,240	800	488
2	745	900	1,440	1,090	2,600	2,980	1,340	2,120	1,920	1,470	800	545
3	730	848	1,300	1,090	2,380	2,540	1,300	1,920	1,770	1,160	800	725
4	700	1,560	1,400	1,210	2,490	2,270	2,360	1,520	1,770	955	890	740
5	700	2,120	1,750	1,210	3,280	2,220	3,340	1,300	1,520	800	955	710
6	745	1,620	1,550	1,090	2,600	4,240	2,760	1,210	2,120	900	890	605
7	745	1,340	1,400	1,010	2,440	5,510	2,320	1,090	1,720	1,050	1,060	575
8	795	1,130	1,300	1,050	2,220	3,980	1,970	1,670	1,570	1,460	1,060	560
9	865	1,050	1,150	1,050	2,070	4,220	1,770	2,540	1,390	1,500	1,020	545
10	812	935	1,050	1,050	1,920	3,100	1,620	2,380	1,340	1,350	1,100	515
11	760	848	1,050	1,300	1,870	2,600	2,320	1,920	1,620	2,100	955	475
12	655	812	1,000	1,390	1,820	2,320	2,980	1,390	1,340	2,000	1,160	438
13	640	812	1,000	1,210	1,770	2,170	2,540	1,050	1,050	1,850	1,240	438
14	580	795	1,300	1,130	1,770	2,840	2,170	1,050	935	2,700	920	462
15	580	795	1,570	1,090	1,670	3,040	2,440	1,050	1,840	4,290	800	800
16	670	795	1,480	2,020	1,570	2,760	3,280	1,130	1,260	5,280	740	990
17	700	795	1,800	4,370	1,570	2,660	2,660	1,130	1,300	3,870	680	860
18	970	760	2,000	3,640	2,160	2,380	2,710	1,130	1,870	3,290	650	770
19	1,130	760	1,900	2,880	3,100	2,220	3,700	1,010	1,260	2,820	725	710
20	970	778	1,750	4,720	2,880	2,270	3,160	935	1,010	2,600	725	695
21	848	778	1,600	8,760	2,440	2,320	2,710	830	865	2,760	740	650
22	745	795	1,440	5,930	2,170	2,070	2,270	830	760	2,180	665	620
23	715	812	1,390	4,400	1,970	1,920	1,970	1,050	715	1,850	590	710
24	685	745	1,340	4,870	1,770	1,820	1,720	935	670	1,590	560	920
25	670	700	1,130	11,700	2,120	1,720	1,520	1,050	655	1,430	500	800
26	670	700	1,170	11,300	3,890	1,620	1,520	1,150	740	1,470	530	680
27	655	970	1,130	8,850	6,820	1,620	1,340	1,450	860	1,270	545	725
28	655	1,210	1,090	5,510	5,310	1,570	1,260	1,600	860	1,060	515	725
29	640	1,440	1,130	3,900	4,140	1,620	1,260	1,400	740	990	515	1,240
30	685	2,120	1,170	3,340	-------	1,620	1,260	1,200	710	955	545	1,900
31	865	-------	1,130	3,040	-------	1,520	-------	1,090	-------	860	560	----

NOTE.—Gage height estimated July 15-18 and Sept. 9-12; partly estimated Dec. 3, 15, 22, Mar. 15, Apr 25, 26, May 17, July 19, and Sept. 13. Discharge estimated on basis of records for Newton and Geneva. Dec. 4-14, 17-21, May 25-30, and July 6-14.

Monthly discharge of Choctawhatchee River near Bellwood, Ala., for the year ending September 30, 1924

[Drainage area, 1,260 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,130	580	745	0.591	0.68
November	2,120	700	1,020	.810	.90
December	2,000	1,000	1,370	1.09	1.26
January	11,700	1,010	3,430	2.72	3.14
February	6,820	1,570	2,600	2.06	2.22
March	5,510	1,520	2,560	2.03	2.34
April	3,700	1,260	2,170	1.72	1.92
May	2,540	830	1,360	1.08	1.24
June	2,120	655	1,240	.984	1.10
July	5,280	800	1,900	1.51	1.74
August	1,240	500	782	.621	.72
September	1,900	438	721	.572	.64
The year	11,700	438	1,660	1.32	17.90

CHOCTAWHATCHEE RIVER NEAR GENEVA, ALA.

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

DRAINAGE AREA.—1,380 square miles (measured on base map of Alabama; scale, 1 to 500,000).

RECORDS AVAILABLE.—June 12, 1922, to September 30, 1924. Gage-height records August 26 to December 31, 1904.

GAGE.—Chain gage on downstream side of highway bridge, installed June 18, 1922; read by W. L. McLeod.

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

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

EXTREMES OF DISCHARGE.—Maximum stage recorded during year, 20.5 feet at 11.30 a. m. January 27 (discharge, 10,100 second-feet); minimum stage 2.35 feet at 9.50 a. m. August 28 (discharge, 620 second-feet).

1922–1924: Maximum stage recorded, 24.1 feet at 8.45 a.m. March 21, 1923 (discharge, estimated, 18,900 second-feet); minimum stage, 1.97 feet at 11.30 a. m. September 25, 1922 (discharge, 452 second-feet).

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

ACCURACY.—Stage-discharge relation fairly permanent during low and medium stages; affected by backwater from Pea River during high stages. Rating curve well defined between 600 and 2,000 second-feet and fairly well defined between 2,000 and 4,000 second-feet; extended above 4,000 second-feet. Gage read to half-tenths once daily. Daily discharge ascertained by applying daily gage height to rating table. Records fair, below 4,000 second-feet; others poor.

Discharge measurements of Choctawhatchee River near Geneva, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 31	4.41	1,280	June 25	3.31	889
Apr. 12	8.71	3,110	Aug. 1	3.60	891
Apr. 17	8.53	3,310			

Daily discharge, in second-feet, of Choctawhatchee River near Geneva, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	910	880	2,450	1,200	4,100	5,060	1,610	1,530	1,100	820	940	695
2	880	850	1,860	1,130	5,120	4,280	1,570	2,260	1,730	1,900	940	720
3	850	940	1,530	1,200	4,040	3,540	1,570	1,940	2,220	1,450	1,000	770
4	820	1,730	1,810	1,270	3,270	2,950	2,040	1,730	2,080	1,200	1,060	770
5	820	2,450	1,940	1,340	3,100	2,550	3,160	1,410	1,860	1,000	1,270	850
6	850	2,170	1,810	1,240	3,440	2,750	3,050	1,340	1,990	1,000	1,130	770
7	880	1,570	1,690	1,200	2,850	4,400	2,800	1,200	2,080	1,000	1,200	770
8	880	1,340	1,410	1,200	2,650	5,360	2,350	1,490	1,810	1,730	1,300	720
9	940	1,200	1,340	1,130	2,300	4,040	1,990	1,990	1,650	1,490	1,340	695
10	940	1,100	1,270	1,100	2,260	3,710	1,810	2,170	1,450	1,450	1,340	670
11	880	1,000	1,100	1,240	2,080	3,160	1,990	1,810	1,570	2,450	1,300	650
12	850	940	1,060	1,410	2,080	2,650	2,950	1,570	1,730	2,650	1,380	650
13	795	910	1,130	1,340	1,990	2,260	2,750	1,340	1,490	2,080	1,610	630
14	770	880	1,160	1,270	1,940	2,260	2,650	1,200	1,340	1,860	1,240	630
15	745	910	1,650	1,160	1,900	3,160	2,450	1,130	1,410	2,950	970	720
16	745	910	1,810	1,570	1,810	3,380	2,400	1,130	1,410	4,940	880	1,100
17	850	880	2,220	3,600	1,860	2,950	3,000	1,200	1,490	6,260	850	1,000
18	1,000	880	2,450	5,480	1,810	2,650	2,600	1,130	1,570	5,660	820	940
19	1,270	880	2,260	5,720	2,080	2,450	3,220	1,060	1,770	6,380	880	880
20	1,160	880	2,040	5,600	3,100	2,300	3,600	1,000	1,410	5,900	1,060	850
21	970	880	1,810	6,440	3,160	2,450	3,820	1,030	1,060	4,820	910	910
22	880	880	1,650	7,880	2,450	2,350	2,950	1,060	1,000	3,710	880	820
23	850	880	1,570	7,700	2,260	2,260	2,260	880	880	2,550	795	820
24	820	880	1,490	6,680	2,170	2,040	1,900	880	880	2,040	720	880
25	795	820	1,410	7,280	1,990	1,900	1,730	1,060	820	1,730	670	940
26	795	770	1,300	9,500	3,160	1,810	1,570	1,410	820	1,650	630	940
27	770	795	1,270	10,100	4,640	1,810	1,490	1,410	970	1,410	630	820
28	770	1,240	1,240	8,780	6,200	1,770	1,410	1,530	1,130	1,270	630	820
29	820	1,810	1,200	7,400	6,020	1,730	1,340	1,770	1,030	1,130	720	1,000
30	940	2,220	1,270	6,200	-------	1,730	1,340	1,530	880	1,060	745	1,340
31	910	-------	1,200	5,180	-------	1,650	-------	1,340	-------	1,000	720	-------

Monthly discharge of Choctawhatchee River near Geneva, Ala., for the year ending September 30, 1924

[Drainage area, 1,380 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,270	745	876	0.635	0.73
November	2,450	770	1,150	.833	.93
December	2,450	1,060	1,590	1.15	1.33
January	10,100	1,100	3,990	2.89	3.33
February	6,200	1,810	2,960	2.14	2.31
March	5,360	1,650	2,820	2.04	2.35
April	3,820	1,340	2,310	1.67	1.86
May	2,260	880	1,400	1.01	1.16
June	2,220	820	1,420	1.03	1.15
July	6,380	820	2,470	1.79	2.06
August	1,610	630	986	.714	.82
September	1,340	630	826	.599	.67
The year	10,100	630	1,900	1.38	18.70

PEA RIVER AT PERA, ALA.

LOCATION.—At Elton wagon bridge, 500 feet below the Louisville & Nashville Railroad bridge, half a mile west of Pera, Geneva County.

DRAINAGE AREA.—1,180 square miles.

RECORDS AVAILABLE.—August 27, 1904, to August 31, 1913; June 16, 1922, to September 30, 1924.

GAGE.—Gurley seven-day water-stage recorder, installed June 27, 1922, on right bank, downstream side of bridge; inspected by J. W. McCollough.

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 during year from water-stage recorder, 23.8 feet at 1.30 a. m. January 25 (discharge, 9,100 second-feet); minimum stage, estimated 2.00 feet at 10 p. m. September 8 (discharge, 160 second-feet).

1904–1913; 1922–1924: Maximum stage recorded, 32.8 feet April 24, 1912 (discharge, 13,200 second-feet); minimum discharge recorded, 133 second-feet at 7.30 a. m. September 25, 1922.

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

REGULATION.—Power plants located 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 Sunday causes extreme low water at this station on Mondays.

ACCURACY.—Stage-discharge relation fairly permanent. Rating curve well defined between 100 and 2,500 second-feet; fairly well defined above 2,500 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 inspection of recorder graph. Records good except for days when recorder did not operate, for which they are fair.

Discharge measurements of Pea River at Pera, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Dec. 29	5.90	1,110	Apr. 16	8.91	2,120	July. 31	3.66	474
Apr. 12	10.92	2,860	June 26	4.27	646	Aug. 5	4.38	626

Daily discharge, in second-feet, of Pea River at Pera, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	360	685	2,440	1,050	3,200	3,720	1,330	2,040	1,540	1,330	440	212
2	400	548	1,820	950	2,880	3,720	1,220	1 820	1,920	1,120	472	265
3	430	498	1,750	920	2,600	3,360	1,190	1,500	1,640	1,190	522	350
4	390	1,440	1,780	1,160	2,560	2,760	1,750	1,120	1,470	800	800	370
5	340	2,120	2,160	1,120	3,080	2,440	3,160	950	1,300	660	710	370
6	360	1,540	1,780	980	2,920	3,490	2,360	830	1,360	685	860	350
7	430	1,500	1,470	920	2,600	4,520	2,040	740	1,500	860	830	308
8	290	1,220	1,260	890	2,360	3,360	1,860	800	1,360	980	770	182
9	380	920	1,120	890	2,200	2,720	1,680	1,080	1,360	950	890	265
10	390	770	1,120	920	2,080	2,680	1,610	685	1,470	920	1,190	330

Daily discharge, in second-feet, of Pea River at Pera, Ala., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	290	660	1,050	1,220	2,080	2,440	2,320	1,020	1,750	1,220	1,190	310
12	320	610	980	1,440	2,000	2,200	2,880	980	1,860	1,750	980	310
13	350	572	950	1,220	1,890	2,120	2,280	860	1,500	1,610	980	310
14	380	535	1,220	1,160	1,750	2,960	2,040	800	1,160	1,960	740	258
15	265	522	1,470	1,120	1,680	3,240	3,360	740	1,020	2,800	660	182
16	310	522	1,360	3,440	1,610	2,920	2,440	860	1,050	3,580	585	300
17	410	498	1,680	7,250	1,540	2,680	1,960	890	1,260	4,120	472	290
18	890	485	2,240	6,100	1,580	2,480	2,760	800	1,400	5,160	360	320
19	950	498	1,890	4,480	2,000	2,480	4,840	710	1,350	5,400	430	272
20	635	498	1,780	5,900	3,040	2,600	4,440	635	1,100	3,720	440	420
21	510	485	1,720	7,750	2,320	2,520	2,880	660	950	2,560	498	350
22	460	485	1,610	7,350	1,890	2,080	2,160	1,020	830	1,640	420	198
23	472	498	1,580	6,000	1,750	1,860	1,780	920	800	1,400	370	290
24	485	460	1,580	5,750	1,640	1,750	1,580	860	585	1,580	440	220
25	420	498	1,400	8,500	1,780	1,640	1,470	1,470	535	1,300	310	460
26	360	450	1,260	8,850	3,360	1,610	1,330	1,640	635	1,020	350	510
27	360	660	1,120	8,050	5,550	1,540	1,120	1,610	830	800	300	460
28	390	920	1,080	7,400	5,200	1,540	1,120	2,240	890	660	310	410
29	272	1,470	1,120	6,950	4,210	1,500	1,120	2,200	610	585	290	622
30	360	2,920	1,120	5,400	-------	1,470	1,220	1,680	685	535	340	1,190
31	740	-------	1,120	3,900	-------	1,400	-------	1,260	-------	472	310	-------

NOTE.—Gage height estimated Oct. 1, 2, 5, Mar. 14, 15, May 23, June 23–25, July 8–26, July 30, to Aug. 2, and Aug. 17–22; partly estimated Oct. 3, 4, 6, Dec. 1, May 24, June 22, 26, July 27, and Aug. 23. Discharge estimated by comparison with records for Pea River near Geneva, Ala., June 16–21.

Monthly discharge of Pea River at Pera, Ala., for the year ending September 30, 1924

[Drainage area, 1,180 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	950	265	432	0.366	0.42
November	2,920	450	849	.720	.80
December	2,440	950	1,480	1.25	1.44
January	8,850	890	3,840	3.25	3.75
February	5,550	1,540	2,530	2.14	2.31
March	4,520	1,400	2,510	2.13	2.46
April	4,840	1,120	2,110	1.79	2.00
May	2,240	635	1,140	.966	1.11
June	1,920	535	1,190	1.01	1.13
July	5,400	472	1,720	1.46	1.68
August	1,190	300	589	.500	.58
September	1,190	182	356	.301	.34
The year	8,850	182	1,560	1.32	18.02

PEA RIVER NEAR GENEVA, ALA.

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

DRAINAGE AREA.—1,560 square miles (measured on base maps of Alabama and Florida; scale, 1 to 500,000).

RECORDS AVAILABLE.—June 17, 1922, to September 30, 1924.

GAGE.—Chain gage attached to upstream handrail of highway bridge, installed June 17, 1922; read by J. D. Howell.

DISCHARGE MEASUREMENTS.—Made from upstream side of highway 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 year, 22.0 feet at 3 p. m. January 27 (discharge, 12,600 second-feet); minimum stage, 2.35 feet at 7.20 a. m. September 9 (discharge, 322 second-feet).

1922–1924: Maximum stage recorded, 26.7 feet at 8 a. m. and noon March 21, 1923 (discharge, 16,900 second-feet); minimum stage that of September 9, 1924.

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

ACCURACY.—Stage-discharge relation fairly permanent; may be affected by backwater during extreme high water on Choctawhatchee River. Rating curve well defined between 300 and 11,000 second-feet; extended above 11,000 second-feet. 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, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec-ft.*		*Feet*	*Sec-ft.*
Dec. 31	5.88	1,470	June 25	3.99	854
Apr. 14	9.53	3,060	Aug. 1	3.91	739
Apr. 17	9.24	2,460			

Daily discharge, in second-feet, of Pea River near Geneva, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	770	990	2,840	1,410	5,230	6,020	1,690	1,550	1,800	1,200	800	470
2	590	955	2,320	1,340	3,980	4,530	1,620	2,280	1,830	1,940	710	385
3	650	830	1,970	1,270	4,390	3,980	1,550	2,040	2,200	1,620	860	440
4	650	1,340	1,860	1,340	5,230	4,110	1,620	1,660	2,200	1,240	1,020	590
5	620	2,320	2,280	1,520	3,980	3,040	2,690	1,410	2,080	1,060	1,240	590
6	620	2,520	2,520	1,440	3,620	2,890	3,620	1,270	1,900	990	1,380	530
7	620	1,900	2,120	1,300	3,290	3,740	3,040	1,160	2,040	920	1,940	440
8	710	1,690	1,800	1,240	3,980	5,860	2,400	1,060	1,940	1,620	1,440	440
9	620	1,440	1,580	1,240	2,740	4,390	2,120	1,380	1,970	1,690	1,620	322
10	680	1,200	1,440	1,240	2,560	3,920	1,940	1,720	1,760	1,560	1,560	360
11	680	1,060	1,410	1,340	2,440	3,340	2,000	1,520	1,800	1,970	1,520	385
12	590	955	1,380	1,660	2,400	2,890	3,040	1,410	2,080	2,280	1,440	385
13	560	890	1,340	1,620	2,280	2,600	3,500	1,270	1,970	2,640	1,440	410
14	560	860	1,340	1,480	2,200	2,600	2,890	1,130	1,620	1,900	1,410	385
15	560	830	1,760	1,410	2,080	3,140	2,440	1,060	1,380	2,520	1,060	470
16	500	800	2,000	1,660	2,000	3,500	2,790	1,020	1,410	3,860	890	590
17	560	800	2,080	3,920	1,940	3,290	2,890	1,130	1,620	6,500	800	680
18	770	770	2,660	6,900	1,940	2,990	2,520	1,130	1,830	7,790	680	560
19	1,380	740	2,840	8,060	2,400	2,740	3,290	990	1,800	7,360	680	530
20	1,440	740	2,440	7,840	2,990	2,690	4,020	920	1,440	6,930	860	500
21	1,060	740	2,160	7,620	3,500	2,790	4,740	860	1,240	6,500	710	590
22	830	740	2,040	10,300	3,090	2,740	3,440	990	1,150	4,820	680	530
23	770	740	2,000	10,200	2,600	2,280	2,480	1,300	1,060	2,890	620	385
24	710	770	1,860	8,690	2,200	2,160	2,080	1,160	955	2,280	590	530
25	710	740	1,800	9,140	2,120	2,040	1,860	1,410	830	1,970	590	680
26	680	680	1,660	11,800	2,940	1,970	1,720	1,970	770	1,800	440	650
27	620	740	1,520	12,600	4,950	1,900	1,620	2,040	1,130	1,440	440	650
28	590	1,130	1,440	11,800	6,980	1,860	1,480	1,860	1,550	1,270	440	650
29	590	1,380	1,410	10,500	7,460	1,830	1,440	2,200	1,320	1,060	440	710
30	530	2,080	1,480	8,420	-------	1,830	1,440	2,200	1,100	955	440	1,340
31	620	-------	1,410	7,060	-------	1,830	-------	1,720	-------	860	500	-------

NOTE.—Gage not read Jan. 20, Apr. 20, June 22, 29, July 6, 19, 20, and Aug. 3; discharge interpolated.

Monthly discharge of Pea River near Geneva, Ala., for the year ending September 30, 1924

[Drainage area, 1,560 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,440	500	705	0.453	0.52
November	2,520	740	1,110	.712	.79
December	2,840	1,340	1,900	1.22	1.41
January	12,600	1,240	5,080	3.25	3.75
February	6,980	1,940	3,360	2.16	2.33
March	6,020	1,830	3,080	1.97	2.27
April	4,740	1,440	2,470	1.59	1.77
May	2,280	860	1,570	1.01	1.16
June	2,200	770	1,590	1.02	1.14
July	7,790	860	2,680	1.72	1.98
August	1,940	440	943	.604	.70
September	1,340	322	539	.345	.38
The year	12,600	322	2,080	1.33	18.20

MOBILE RIVER BASIN

COOSA RIVER AT CHILDERSBURG, ALA.

LOCATION.—At Central of Georgia Railway bridge, half a mile west of Childersburg, Talladega County, 35 miles above site of Lock 12.

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

RECORDS AVAILABLE.—February 22, 1914, to September 30, 1924.

GAGE.—Gurley printing water-stage recorder attached to downstream end of second pier from right bank of river, installed on May 5, 1914. Sea-level elevation of zero of staff gage is 421.00 feet (United States Army Engineers' 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 extreme high stages. Control not well defined; bed of stream probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage during year from water-stage recorder, 14.48 feet at 3 p. m. April 21 (discharge, 53,600 second-feet); minimum stage, 1.5 feet October 7–21, 31, November 1–3 (discharge, 2,690 second-feet).

1914–1924: Maximum stage from water-stage recorder, 24.7 feet from 3 to 9 p. m. 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 2,500 and 60,000 second-feet; extended above 60,000 second-feet. Operation of water-stage recorder satisfactory throughout the year. Daily discharge ascertained by applying to rating table mean daily gage height obtained by averaging hourly gage heights. Records good below 60,000 second-feet; fair above that point.

COOPERATION.—Complete records furnished by the Alabama Power Co.

Discharge measurements of Coosa River at Childersburg, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 18	1.52	2,930	Feb. 5	5.56	14,700	Mar. 4	9.86	32,200
Do	1.52	2,840	Feb. 28	12.61	44,600	Do	9.47	31,400
Oct. 31	1.53	2,960	Feb. 29	13.24	47,100	Apr. 8	7.84	24,300
Nov. 14	1.69	3,250	Do	13.32	47,800	Apr. 21	14.40	52,600
Dec. 7	6.50	18,800	Mar. 1	13.44	48,700	July 18	4.50	10,800
Dec. 14	4.61	11,800	Mar. 3	12.00	41,700			
Jan. 15	8.53	27,300	Do	11.74	40,800			

Daily discharge, in second-feet, of Coosa River at Childersburg, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,080	2,690	7,680	9,240	14,400	48,200	9,930	18,400	35,100	6,540	4,210	2,880
2	3,080	2,690	6,820	10,600	13,200	45,100	9,240	19,200	33,800	6,000	4,700	2,880
3	2,880	2,690	6,000	23,600	12,500	40,700	8,910	19,600	29,000	5,470	4,950	3,080
4	2,880	4,450	6,820	37,700	12,100	31,600	11,700	19,200	25,200	4,950	5,470	3,080
5	2,880	4,450	12,500	40,300	14,800	23,600	18,400	18,000	20,400	4,700	4,950	3,080
6	2,880	4,210	16,000	39,000	14,800	37,200	22,800	16,800	15,600	4,700	4,950	3,080
7	2,690	4,210	18,800	32,900	12,900	46,000	25,600	12,500	14,000	5,470	4,950	3,080
8	2,690	4,700	20,800	26,100	11,400	50,600	24,000	10,600	12,100	6,540	4,950	3,080
9	2,690	4,450	18,000	20,000	10,300	49,100	20,800	9,930	12,100	10,600	4,950	3,080
10	2,690	3,970	14,000	15,600	9,580	45,600	20,000	9,240	12,900	14,000	4,450	3,290
11	2,690	3,510	12,900	20,800	9,240	40,700	22,000	8,910	15,600	14,800	4,210	3,290
12	2,690	3,290	11,700	26,900	8,910	34,200	24,400	8,910	14,800	13,600	4,210	3,290
13	2,690	3,080	10,300	29,400	8,590	22,800	22,000	8,590	12,900	11,400	3,740	3,510
14	2,690	3,080	11,400	29,900	8,590	18,800	20,000	9,240	12,100	11,700	3,510	3,740
15	2,690	3,080	14,400	27,300	8,280	18,000	18,400	9,240	11,000	17,600	3,510	3,510
16	2,690	3,080	19,600	30,700	8,280	17,200	16,400	8,590	9,580	14,000	3,510	3,080
17	2,690	2,880	26,500	39,800	7,980	16,000	14,800	7,680	9,240	10,600	3,510	2,880
18	2,690	2,880	30,300	40,700	7,980	14,800	29,400	7,680	9,580	11,000	3,740	2,880
19	2,690	2,880	30,700	41,100	11,700	13,600	39,800	7,390	12,500	10,300	3,290	2,880
20	2,690	2,880	27,300	38,100	28,600	14,800	49,600	7,390	10,300	8,280	3,290	3,080
21	2,690	2,880	20,800	32,000	26,900	18,000	53,200	7,100	7,980	6,540	3,290	3,970
22	2,880	2,880	15,600	24,800	25,600	17,200	52,700	6,820	6,820	5,730	3,290	5,730
23	3,290	3,290	17,200	18,800	24,000	15,600	49,660	6,820	6,270	5,470	3,290	5,730
24	3,510	3,510	18,400	18,800	20,400	14,800	46,000	6,540	6,000	5,470	3,080	4,450
25	3,080	3,740	18,400	25,600	17,600	14,000	40,700	6,540	5,730	4,950	3,080	3,970
26	3,080	5,210	18,000	25,600	18,800	12,900	29,900	6,540	6,270	4,450	2,880	3,740
27	3,080	7,390	16,800	27,700	39,800	11,700	17,600	7,980	6,270	4,450	3,080	3,510
28	3,080	6,820	14,400	26,500	44,700	11,000	14,000	41,600	6,270	4,450	3,290	3,510
29	2,880	6,270	12,100	22,400	48,200	10,300	13,200	51,600	6,540	4,210	3,080	3,290
30	2,880	7,680	10,600	18,400	------	10,600	15,200	45,600	7,100	3,970	3,080	3,510
31	2,690	------	9,580	15,600	------	10,600	------	39,800	------	3,970	3,080	------

Monthly discharge of Coosa River at Childersburg, Ala., for the year ending September 30, 1924

[Drainage area, 8,390 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	3,510	2,690	2,850	0.340	0.39
November	7,390	2,690	3,960	.472	.52
December	30,700	6,000	15,900	1.90	2.19
January	41,100	9,240	27,000	3.22	3.71
February	48,200	7,980	17,200	2.05	2.21
March	49,100	10,300	25,000	2.98	3.44
April	53,200	8,910	25,400	3.03	3.38
May	51,600	6,540	15,000	1.79	2.06
June	35,100	5,730	13,100	1.56	1.74
July	17,600	3,970	7,940	.946	1.09
August	5,470	2,880	3,860	.460	.53
September	5,730	2,880	3,470	.414	.46
The year	53,200	2,690	13,400	1.60	21.72

TALLAPOOSA RIVER NEAR CRAGFORD, ALA.

LOCATION.—In sec. 28, T. 20 S., R. 10 E., Huntsville base and meridian, 400 feet above mouth of Crooked Creek, 2½ miles east of Cragford, Clay County, and 9 miles below mouth of Little Tallapoosa River.

DRAINAGE AREA.—1,460 square miles (measured by Alabama Power Co.).

RECORDS AVAILABLE.—October 28, 1922, to September 30, 1924.

GAGE.—Gurley seven-day water-stage recorder on left bank 400 feet above mouth of Crooked Creek, installed October 23, 1923; inspected by McKinley Heard. Previous to October 23, 1923, a staff gage in two sections 3,000 feet upstream from present gage was used. Staff gage readings were reduced to datum of recording gage by means of a relationship curve developed from simultaneous readings of the two gages.

DISCHARGE MEASUREMENTS.—Made from cable 400 feet upstream from gage during medium and high stages. Low-water measurements are made from a boat.

CHANNEL AND CONTROL.—Channel rough and rocky; probably permanent. Left bank high, right bank is overflowed during high stages. Control for low and medium stages is rocky shoal 200 feet below gage; high-water control not defined.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period October 28, 1922, to September 30, 1923, 11.7 feet at 8 a. m. February 14 (discharge, 29,400 second-feet); minimum stage, 1.4 feet September 19–30 (discharge, 380 second-feet).

Maximum stage recorded during year ending September 30, 1924, 7.4 feet at 11 p. m. January 16 and 3 p. m. April 18 (discharge, 12,000 second-feet); minimum stage recorded, 1.1 feet October 10 and 16 (discharge, 160 second-feet).

ACCURACY.—Stage-discharge relation practically permanent. Rating curve well defined between 300 and 7,000 second-feet; extended beyond these limits. Gage read to tenths twice daily prior to October 23, 1923; water-stage recorder operated satisfactorily since that date except as indicated in footnote to table of daily discharge. Daily discharge ascertained by applying mean daily gage height to rating table. Records good between 300 and 7,000 second-feet; others fair.

COOPERATION.—Complete records furnished by Alabama Power Co.

Discharge measurements of Tallapoosa River near Cragford, Ala., during the years ending September 30, 1923 and 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
1923	*Feet*	*Sec.-ft.*	1923	*Feet*	*Sec.-ft.*	1924	*Feet*	*Sec.-ft.*
July 13	2.14	1,210	Dec. 8[a]	2.76	1,870	Jan. 12	4.37	4,350
Sept. 18[a]	1.40	323	Dec. 10[a]	2.28	1,170	Do	4.32	4,370
Sept. 19[a]	1.38	332	Dec. 11[a]	2.25	1,160	Do	4.25	4,090
Oct. 20[a]	1.68	646	Dec. 12[a]	2.22	1,160	Jan. 14	3.13	2,370
Oct. 22[a]	1.53	482	Do.[a]	2.22	1,160	Feb. 20	3.71	3,170
Oct. 23[a]	1.49	497				Do	3.70	3,060
Oct. 30[a]	1.44	427	1924			Feb. 27	5.51	6,720
Do.[a]	1.46	427	Jan. 11	4.09	3,740	Apr. 5	4.73	4,980
Nov. 9[a]	1.72	564	Do	4.40	4,270	May 29	4.74	5,260
Nov. 10[a]	1.67	521						

[a] Boat measurement.

NOTE.—Gage heights for all measurements refer to datum of recording gage.

Daily discharge, in second-feet, of Tallapoosa River near Cragford, Ala., for the years ending September 30, 1923 and 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1922–23												
1	------	540	710	4,600	1,350	3,640	1,960	3,460	5,000	1,700	1,460	1,130
2	------	540	710	3,820	1,350	2,960	1,960	2,500	3,120	1,700	1,240	910
3	------	540	710	2,800	1,350	2,500	1,960	2,220	2,650	1,460	1,700	910
4	------	540	710	2,220	2,090	2,220	3,640	2,500	2,360	1,350	1,020	910
5	------	540	710	1,960	6,960	2,090	5,000	2,360	2,500	1,350	910	810
6	------	1,350	710	1,700	7,200	2,090	3,640	2,500	2,960	1,240	910	810
7	------	1,130	710	1,580	4,400	3,290	2,800	2,360	2,360	1,130	1,130	810
8	------	710	710	1,350	2,960	3,290	2,650	2,500	2,220	1,350	1,130	810
9	------	540	910	1,350	2,360	2,500	2,800	2,500	2,360	1,700	1,460	710
10	------	540	1,350	1,350	2,090	2,220	2,500	2,220	2,220	2,090	2,500	540
11	------	540	1,350	1,350	10,700	2,090	2,220	1,960	1,960	1,700	1,960	540
12	------	540	1,130	1,240	7,960	1,960	2,090	1,700	1,960	1,350	1,350	540
13	------	540	1,130	1,240	16,200	4,010	2,360	2,500	2,360	1,240	1,130	540
14	------	540	1,350	1,240	22,700	4,200	6,260	2,220	2,090	1,130	910	460
15	------	540	1,830	2,800	15,400	3,120	6,040	1,960	1,960	1,020	910	460
16	------	540	2,650	1,830	9,550	3,460	2,960	14,700	1,700	1,350	810	460
17	------	710	5,200	1,580	3,640	8,220	2,500	9,830	1,830	1,350	1,240	460
18	------	710	7,960	1,350	2,800	5,820	2,360	5,400	1,580	1,240	1,240	460
19	------	1,130	9,550	1,240	2,360	4,200	2,220	3,640	1,460	1,350	1,130	380
20	------	1,350	9,280	1,240	2,360	3,640	2,090	2,360	1,460	1,130	1,350	380
21	------	1,130	2,650	1,240	2,220	2,960	1,960	5,400	1,460	1,020	1,460	380
22	------	910	1,960	1,130	2,090	2,650	1,960	3,640	1,350	910	1,130	380
23	------	710	1,580	2,360	1,960	2,800	1,960	2,650	2,360	910	1,580	380
24	------	710	1,350	6,490	1,830	4,400	1,830	2,360	1,960	810	2,800	380
25	------	710	1,240	4,400	1,830	3,290	1,830	3,120	2,960	810	1,830	380
26	------	710	1,240	2,800	1,830	2,650	1,700	2,800	3,120	810	1,460	380
27	------	710	1,240	2,220	6,720	2,500	1,700	4,010	2,650	710	1,130	380
28	710	710	1,240	1,830	5,200	2,220	1,960	8,220	2,360	1,350	1,130	380
29	710	710	1,240	1,580	------	2,090	12,300	9,280	3,460	1,240	3,290	380
30	540	710	1,240	1,460	------	2,220	6,260	7,450	2,090	1,130	2,500	380
31	540	------	1,830	1,460	------	2,090	------	7,960	------	1,020	1,460	------
1923–24												
1	380	460	1,350	1,240	1,830	2,800	1,350	5,400	1,350	910	220	460
2	380	460	1,650	1,460	1,700	2,220	1,240	3,820	3,640	710	300	300
3	380	380	1,310	5,200	1,580	1,960	1,240	2,960	3,820	620	1,580	910
4	300	2,220	2,040	5,610	1,700	1,830	2,800	1,960	3,820	620	1,460	910
5	300	2,220	3,960	3,460	3,460	1,020	4,800	1,960	2,090	540	1,130	710
6	300	1,350	3,900	2,360	3,290	1,580	3,640	1,830	1,580	540	710	620
7	300	910	2,690	1,830	2,960	1,130	2,650	1,830	2,360	540	810	460
8	380	710	1,240	1,580	2,800	910	2,220	1,830	2,220	1,460	1,020	300
9	220	620	1,240	1,460	1,460	1,830	1,960	1,700	1,830	1,240	1,240	1,020
10	160	620	1,240	1,460	1,460	2,090	2,360	1,580	2,360	1,130	810	910
11	220	620	1,130	3,290	1,460	2,090	3,640	1,580	2,650	1,020	710	620
12	220	540	1,130	4,200	1,460	1,960	5,400	1,700	1,830	1,960	710	460
13	220	620	1,130	2,960	1,350	1,700	4,010	1,580	1,580	1,020	460	380
14	220	540	1,020	2,360	1,460	1,830	2,960	1,460	1,580	1,020	380	300
15	220	620	1,700	1,830	1,350	1,830	2,650	1,460	1,460	910	380	220
16	160	540	5,820	6,260	1,350	1,960	2,360	1,350	1,350	1,130	220	220
17	300	540	7,700	10,100	1,350	1,960	2,220	1,350	1,240	710	300	220
18	620	540	4,600	6,260	1,460	1,830	8,220	1,240	1,130	540	620	380
19	620	540	2,800	3,640	1,700	1,830	10,400	1,240	1,240	910	620	910
20	710	540	2,090	2,800	2,960	1,830	6,040	1,130	1,240	1,460	540	2,360
21	620	540	1,700	2,220	2,500	1,960	4,010	1,130	910	1,350	460	1,700
22	540	540	1,460	1,960	1,960	1,960	2,800	1,130	910	910	220	1,130
23	460	1,580	4,010	3,290	1,830	1,830	2,360	1,020	810	710	380	810
24	460	2,360	3,460	3,120	1,700	1,700	2,090	910	710	540	460	620
25	380	1,580	2,360	6,960	1,580	1,580	2,090	1,020	710	460	620	540
26	380	2,500	1,700	5,200	2,220	1,580	1,830	1,130	710	460	460	460
27	380	3,460	1,580	3,460	5,820	1,580	1,830	1,020	1,020	380	460	540
28	460	1,830	1,350	2,800	5,820	1,460	1,830	2,500	1,350	300	380	540
29	460	1,960	1,350	2,360	3,640	1,460	1,830	4,400	1,020	220	380	710
30	380	1,460	1,240	2,090	------	1,460	4,600	2,220	910	300	460	910
31	460	------	1,240	1,960	------	1,460	------	1,700	------	220	620	------

NOTE.—Recording gage did not operate Dec. 2–7, 1922; discharge estimated on basis of records for Cherokee Bluffs.

Monthly discharge of Tallapoosa River near Cragford, Ala., for the years ending September 30, 1923 and 1924

[Drainage area, 1,460 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1922-23					
October 28-31	710	540	625	0.428	0.06
November	1,350	540	728	.499	.56
December	9,550	710	2,130	1.46	1.68
January	6,490	1,130	2,090	1.43	1.66
February	22,700	1,350	5,340	3.66	3.81
March	8,220	1,960	3,140	2.15	2.48
April	12,300	1,700	3,120	2.14	2.39
May	14,700	1,700	4,140	2.84	3.28
June	5,000	1,350	2,330	1.60	1.78
July	2,090	710	1,250	.856	.99
August	3,290	810	1,460	1.00	1.15
September	1,130	380	561	.384	.43
The period	22,700	380	2,340	1.60	20.27
1923-24					
October	710	160	374	.256	.35
November	3,460	380	1,110	.760	.80
December	7,700	1,020	2,300	1.58	1.82
January	10,100	1,240	3,380	2.32	2.68
February	5,820	1,350	2,250	1.54	1.66
March	2,800	910	1,750	1.20	1.38
April	10,400	1,240	3,250	2.23	2.49
May	5,400	910	1,840	1.26	1.45
June	3,820	710	1,650	1.13	1.26
July	1,960	220	801	.549	.63
August	1,580	220	617	.422	.49
September	2,360	220	688	.471	.53
The year	10,400	160	1,660	1.14	15.54

TALLAPOOSA RIVER AT WADLEY, ALA.

LOCATION.—In sec. 12, T. 22 S., R. 10 E., Huntsville base and meridian, in town of Wadley, Randolph County, 20 miles below Crooked Creek dam site.

DRAINAGE AREA.—1,660 square miles (measured by Alabama Power Co.).

RECORDS AVAILABLE.—September 1, 1923, to September 30, 1924.

GAGE.—Vertical staff in three sections on right bank, opposite depot and 3,300 feet below highway bridge; read by R. H. Drake.

DISCHARGE MEASUREMENTS.—Made from highway bridge, 3,300 feet upstream from gage.

CHANNEL AND CONTROL.—River bed is composed of mud, rock, and gravel. Banks subject to overflow above a stage of 10 feet. Control is rock and gravel shoal 300 feet below gage; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during period September 1, 1923, to September 30, 1924, 10.4 feet at 4 p. m. April 18 (discharge, 14,400 second-feet); minimum stage, 2.50 feet October 17 (discharge, 150 second-feet).

REGULATION.—Slight diurnal fluctuation caused by small mill dams during extreme low water.

ACCURACY.—Rating curve well defined between 80 and 14,000 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 below 14,000 second-feet and fair above.

COOPERATION.—Complete records furnished by Alabama Power Co.

Discharge measurements of Tallapoosa River at Wadley, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
June 3	5.85	4,910	June 5	5.26	3,710	July 22	3.03	684
June 4	6.62	5,990	June 12	3.92	1,990	July 23	2.98	624
Do	6.22	5,400	June 13	3.76	1,770			

Daily discharge, in second-feet, of Tallapoosa River at Wadley, Ala., for the period September 1, 1923, to September 30, 1924

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,100	280	280	1,380	1,240	1,940	2,750	1,660	6,500	2,120	1,030	330	740
2	860	280	380	1,380	2,330	1,940	2,680	1,660	4,860	4,060	800	280	500
3	860	280	620	1,100	5,200	2,000	2,260	1,380	3,310	5,200	670	2,000	860
4	1,100	280	3,310	1,520	6,500	2,000	2,000	3,100	2,120	5,740	640	1,730	1,040
5	860	280	2,750	4,540	3,760	1,940	2,120	5,200	1,940	3,610	590	1,170	740
6	860	280	1,520	4,220	1,380	1,940	3,460	4,540	1,940	2,960	590	860	680
7	860	280	1,100	2,890	1,660	2,000	2,960	3,030	1,800	2,120	590	860	620
8	740	280	860	2,060	1,380	1,800	2,330	2,610	1,660	1,800	1,570	860	560
9	740	280	620	1,380	1,380	1,450	2,060	2,060	1,660	1,800	1,380	2,060	500
10	620	280	500	1,100	1,380	1,380	2,610	3,030	1,660	2,750	1,250	1,590	1,380
11	620	280	500	1,100	5,930	1,310	2,540	4,380	1,800	3,460	1,140	740	860
12	620	210	500	1,100	4,860	1,240	2,400	6,500	1,660	1,940	2,260	1,520	680
13	500	210	380	1,100	3,610	1,240	2,000	4,700	1,660	1,590	1,730	740	500
14	500	210	280	980	1,940	1,240	2,120	3,760	1,660	980	1,310	560	500
15	500	210	280	1,100	1,800	1,240	2,820	3,310	1,660	860	1,040	500	380
16	500	210	280	7,260	8,520	1,240	2,680	2,540	1,520	1,240	1,380	380	500
17	500	150	280	8,740	11,200	1,240	2,540	2,750	1,520	1,380	920	380	380
18	380	210	280	5,560	7,860	1,240	2,330	7,360	1,380	1,380	740	860	620
19	380	380	280	3,170	4,860	1,590	2,260	11,500	1,380	1,380	800	680	980
20	380	280	280	2,330	3,030	3,760	2,330	6,310	1,380	1,450	1,380	500	3,100
21	380	380	280	1,520	2,330	2,470	2,330	4,860	1,240	1,240	860	500	1,520
22	380	500	280	1,520	2,190	2,330	2,120	3,460	1,240	1,100	620	380	980
23	380	500	1,240	6,120	1,940	1,940	1,940	2,680	1,240	860	560	380	800
24	380	380	2,750	4,540	3,030	1,800	1,940	2,400	1,240	860	500	380	740
25	380	380	1,660	3,460	8,300	1,940	1,800	2,260	1,240	860	500	500	620
26	380	280	2,190	2,060	6,690	2,190	1,800	2,060	1,240	980	500	380	620
27	380	210	4,060	1,520	3,910	4,860	1,730	1,940	1,380	1,310	500	380	620
28	380	280	2,330	1,380	3,460	7,260	1,660	2,060	2,820	1,310	380	380	620
29	380	210	1,380	1,240	2,470	3,760	1,520	2,060	5,560	1,140	380	280	620
30	280	210	2,330	1,240	2,330	-------	1,660	4,380	3,100	1,030	380	560	740
31	-------	210	-------	1,100	2,190	-------	1,660	-------	2,120	-------	380	680	-------

NOTE.—Gage not read June 29 to July 12; discharge estimated on basis of records of flow at Cragford.

Monthly discharge of Tallapoosa River at Wadley, Ala., for the period September 1, 1923, to September 30, 1924

[Drainage area, 1,660 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1923					
September	1,100	280	573	0.345	0.38
1923–24					
October	500	150	280	.169	.19
November	4,060	280	1,130	.681	.76
December	8,740	980	2,570	1.54	1.78
January	11,200	1,240	3,830	2.31	2.66
February	7,260	1,240	2,150	1.30	1.40
March	3,460	1,520	2,240	1.35	1.55
April	11,500	1,380	3,670	2.21	2.47
May	6,500	1,240	2,110	1.27	1.47
June	5,740	860	1,950	1.17	1.31
July	2,260	380	883	.532	.61
August	2,060	280	755	.455	.53
September	3,100	380	800	.482	.54
The year	11,500	150	1,870	1.13	15.27

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, 1924.

GAGE.—Staff gage in three sections, two inclined and one vertical, on right bank 2,000 feet upstream from bridge; installed September 22, 1923; read by B. F. Neighbors. Datum of present gage is 0.07 foot lower than that of previous gage.

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 extreme 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, 10.2 feet at 8 a. m. January 17 (discharge, 20,200 second-feet); minimum stage, −0.1 foot at 8 a. m. October 12 and 13 (discharge, 290 second-feet).

1900–1924: Minimum 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. Rating curve well defined between 500 and 30,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Records good.

Discharge measurements of Tallapoosa River at Sturdivant, Ala., during the year ending September 30, 1924

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
	Feet	*Sec.-ft.*		*Feet*	*Sec.-ft.*		*Feet*	*Sec.-ft.*
Oct. 24	0.71	710	Dec. 13	2.33	2,020	Feb. 18	2.74	2,360
Oct. 29	.50	598	Jan. 14	3.90	4,230	Apr. 6	5.38	6,670
Nov. 8	1.76	1,420	Jan. 16	7.87	13,000	Apr. 18	8.63	14,900
Dec. 6	5.48	7,010	Do	8.73	15,500	May 28	3.00	2,760
Dec. 13	2.33	2,000						

Daily discharge, in second-feet, of Tallapoosa River at Sturdivant, Ala., for the year ending September 30, 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	460	870	3,310	2,260	3,460	5,650	2,630	8,410	2,890	1,650	485	1,390
2	460	680	2,380	2,260	3,310	4,580	2,500	6,640	3,760	1,390	535	3,920
3	390	650	2,150	5,280	3,170	3,920	2,260	5,460	7,060	1,310	8,410	2,500
4	370	2,890	3,310	10,100	3,310	3,760	5,100	4,080	7,950	1,150	3,760	1,940
5	350	5,100	6,850	6,430	4,410	4,080	7,720	3,310	5,280	1,150	2,630	1,390
6	370	2,760	7,060	4,240	3,610	5,650	6,850	3,030	5,100	1,080	1,650	1,310
7	370	1,840	4,240	3,310	3,170	4,750	5,100	2,760	5,840	1,230	1,310	940
8	370	1,390	3,310	2,890	3,030	4,080	4,240	3,030	4,750	1,390	2,040	710
9	350	1,680	2,760	2,630	2,760	3,920	3,760	2,760	3,460	1,150	3,610	620
10	330	1,010	2,390	2,500	2,630	4,410	5,100	2,760	4,580	1,560	1,650	2,260

Daily discharge, in second-feet, of Tallapoosa River at Sturdivant, Ala., for the year ending September 30, 1924—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
11	310	1,010	2,150	6,430	2,630	4,080	8,180	3,460	5,460	1,740	1,390	1,310
12	290	940	2,040	7,280	2,630	3,920	8,650	3,170	3,920	1,650	1,230	940
13	290	870	2,040	5,650	2,630	3,610	7,950	2,890	2,760	2,500	1,230	770
14	330	870	2,380	4,240	2,500	3,920	6,030	2,760	2,760	1,940	1,010	835
15	330	870	2,760	3,610	2,500	4,410	5,650	2,760	2,350	2,150	800	1,740
16	310	800	7,720	14,500	2,380	4,580	5,100	2,630	2,890	1,940	740	1,080
17	330	870	13,600	18,600	2,380	4,580	4,410	2,500	2,380	1,740	650	740
18	940	870	9,130	12,000	2,380	4,080	14,800	2,380	2,760	1,390	1,150	1,150
19	940	870	5,280	6,850	2,890	3,920	17,000	2,260	3,170	1,940	1,310	940
20	1,080	800	4,080	5,280	8,410	3,920	12,000	2,150	2,630	1,940	1,080	2,380
21	940	740	3,310	4,410	5,460	4,080	7,500	2,260	1,840	2,260	940	3,310
22	800	680	2,760	3,610	4,240	3,760	5,650	2,260	1,650	1,310	800	2,380
23	710	1,560	7,500	3,310	3,610	3,460	4,750	2,150	1,560	1,080	650	2,040
24	680	3,030	7,060	6,850	3,310	3,310	4,080	2,040	1,560	870	510	1,310
25	620	3,170	4,750	13,600	3,170	3,170	3,920	2,150	1,650	1,010	460	1,080
26	620	3,310	3,610	9,870	4,580	3,030	3,610	2,260	1,650	870	590	1,010
27	620	9,620	3,170	6,640	10,400	2,890	3,310	2,760	1,650	710	485	1,230
28	560	4,240	2,760	5,100	10,900	3,030	3,310	2,760	2,040	620	435	1,150
29	560	3,310	2,630	4,410	7,500	3,030	3,610	5,460	1,740	590	370	1,650
30	620	4,410	2,500	3,920	-------	3,310	6,230	6,230	1,560	535	940	1,470
31	800	-------	2,380	3,610	-------	2,890	-------	3,310	-------	510	1,470	-------

Monthly discharge of Tallapoosa River at Sturdivant, Ala., for the year ending September 30, 1924

[Drainage area, 2,460 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
October	1,080	290	532	0.216	0.25
November	9,620	650	2,040	.829	.92
December	13,600	2,040	4,240	1.72	1.98
January	18,600	2,260	6,180	2.51	2.89
February	10,900	2,380	4,050	1.65	1.78
March	5,650	2,890	3,930	1.60	1.84
April	17,000	2,260	6,030	2.45	2.73
May	8,410	2,040	3,320	1.35	1.56
June	7,950	1,560	3,290	1.34	1.50
July	2,500	510	1,370	.557	.64
August	8,410	370	1,430	.581	.67
September	3,920	620	1,520	.618	.69
The year	18,600	290	3,150	1.28	17.45

TALLAPOOSA RIVER AT CHEROKEE BLUFFS, NEAR TALLASSEE, ALA.

LOCATION.—In sec. 36, T. 20 N., R. 21 E., St. Stephens base and meridian, 200 feet below Double Bridge Ferry, 1,000 feet below mouth of Wind Creek, three-fourths of a mile below Cherokee Bluffs Dam, and 9 miles north of Tallassee, Elmore County.

DRAINAGE AREA.—3,000 square miles (Alabama Power Co.).

RECORDS AVAILABLE.—July 1, 1912, to September 14, 1914; October 1, 1922, to September 30, 1924.

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GAGE.—Gurley seven-day water-stage recorder in concrete well on right bank installed September 10, 1923; inspected by B. H. Hornsby, Warren, and Dillon. From August 10, 1913, to September 30, 1923, a vertical staff gage on right bank 700 feet above present gage was used; datum 1.78 feet higher than that of present gage. Prior to August 10, 1913, gage was a temporary staff 35 feet below Double Bridge Ferry.

DISCHARGE MEASUREMENTS.—Made from cable 250 feet upstream from gage during medium and high stages. Low-water measurements made from a boat or from footbridge at cofferdam.

CHANNEL AND CONTROL.—Channel sand and gravel; somewhat shifting. Control is large rock shoal 700 feet below gage; probably permanent.

EXTREMES OF DISCHARGE.—Maximum stage recorded during year ending September 30, 1923, 6.8 feet February 14 (discharge, 54,500 second-feet); minimum stage, −0.9 foot October 1, 2, and 5 (discharge, 400 second-feet).

Maximum stage recorded during year ending September 30, 1924, 5.2 feet at 11 p. m. January 16 (discharge, 21,900 second-feet); minimum stage, 0.7 foot October 13–16 (discharge, 350 second-feet).

1912–1914; 1922–1924: Maximum stage recorded, that of February 14. 1923; minimum discharge, 340 second-feet October 17, 1913.

REGULATION.—Slight diurnal fluctuation caused by operation of small mills upstream.

ACCURACY.—Stage-discharge relation fairly permanent prior to February 10, 1924; affected by artificial contraction of channel near gage, due to construction work on the dam, since that date. Rating curves fairly well defined between 600 and 20,000 second-feet; extended beyond these limits. Staff gage read to tenths twice daily prior to October 1, 1923; water-stage recorder, used since that date, operated satisfactorily throughout the year. Daily discharge ascertained by applying mean daily gage height to rating table, Records fair.

COOPERATION.—Complete records furnished by Alabama Power Co.

Discharge measurements of Tallapoosa River at Cherokee Bluffs, near Tallassee, Ala., during the years ending September 30, 1923 and 1924

Date	Gage height in feet		Discharge	Date	Gage height in feet		Discharge
	Staff gage	Recording gage			Staff gage	Recording gage	
1923			*Sec.-ft.*	1923			*Sec.-ft.*
July 20 [a]	0.04		2,570	Dec. 4	0.46	2.08	3,550
July 21 [a]	.00		2,590	Dec. 5	1.40	3.02	8,020
Aug. 14	.45		4,390	Do	1.45	3.08	8,060
Aug. 15	−.11		1,990				
Aug. 16	−.57		4,300	1924			
Sept. 9 [a]	−.38		1,470	Jan. 4	2.05	3.60	11,800
Sept. 13 [a]	−.54	1.12	1,190	Jan. 25	2.85	4.60	18,200
Sept. 22 [a]	−.67	1.00	628	Do	2.72	4.43	15,900
Oct. 25 [b]	−.65	1.04	819	Do	2.68	4.36	15,800
Do. [b]	−.65	1.04	794	Jan. 26	2.30	3.84	12,800
Oct. 26 [b]	−.67	1.01	737	Do	2.14	3.68	11,600
Oct. 27 [b]	−.67	1.02	768	Feb. 15	.23	1.88	2,890
Do. [b]	−.67	1.02	827	Do. [b]		1.86	2,740
Nov. 6	.37	2.02	3,630	Apr. 7	1.10	2.73	6,360
Nov. 7 [b]	.06	1.74	2,470	Do	1.00	2.64	5,580
Do. [b]	.00	1.69	2,380	Apr. 17	.86	2.47	4,980
Nov. 24	.28	1.93	3,060	May 27	.44	2.05	2,900
Dec. 1	.46	2.09	4,010	July 30 [b]		1.02	785

[a] Boat measurement. [b] Measurement from footbridge at cofferdam, 2,000 feet above gage.

Daily discharge, in second-feet, of Tallapoosa River at Cherokee Bluffs, near Tallassee, Ala., for the years ending September 30, 1923 and 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1922–23												
1	400	1,100	1,300	10,700	2,610	9,580	4,450	12,500	18,400	4,040	2,030	2,310
2	400	1,100	1,300	9,580	2,310	6,640	4,040	9,070	8,560	3,280	5,280	2,030
3	540	1,100	1,300	6,190	2,310	5,280	4,860	5,280	5,740	2,940	3,650	1,770
4	540	1,100	1,300	4,860	2,940	4,860	12,500	6,640	5,740	2,610	2,310	1,770
5	400	1,100	1,300	3,650	10,100	4,450	16,000	7,100	6,640	2,610	2,030	1,770
6	1,100	1,100	1,300	3,280	16,700	4,040	10,700	5,280	6,640	2,310	2,030	1,520
7	10,100	1,520	1,520	3,280	11,900	5,740	7,570	4,860	6,190	2,310	1,770	1,520
8	7,570	2,030	1,770	3,280	7,100	5,740	6,640	4,450	5,740	2,310	2,030	1,520
9	4,040	2,610	2,310	2,940	6,190	4,860	5,740	4,450	4,860	2,940	2,030	1,520
10	2,610	2,030	3,280	4,450	5,740	4,450	5,740	4,450	4,450	2,610	4,860	1,300
11	1,770	1,520	2,610	2,310	8,560	4,040	4,860	3,650	4,450	2,940	4,040	1,100
12	1,100	1,520	2,310	2,310	17,500	4,450	4,450	3,650	4,040	2,310	2,940	1,100
13	1,100	1,300	2,310	2,310	15,300	19,200	5,280	4,040	4,450	2,310	2,310	1,100
14	1,100	1,300	2,310	2,310	49,500	15,300	9,580	4,860	4,450	2,030	3,280	1,100
15	1,100	1,300	4,450	2,310	32,600	8,560	6,190	5,280	3,650	2,610	2,310	900
16	1,100	1,300	7,100	2,940	20,000	9,070	5,740	23,400	3,280	2,310	3,650	900
17	2,610	1,300	7,100	2,940	12,500	19,200	5,280	23,400	3,280	2,310	1,770	900
18	3,280	3,650	14,600	2,610	7,100	16,000	5,740	13,900	3,280	3,650	1,770	710
19	2,030	9,070	18,400	2,610	4,860	13,200	4,860	7,570	3,280	5,280	2,610	710
20	1,770	5,740	15,300	2,310	4,450	10,700	4,040	6,190	2,940	2,940	5,280	710
21	1,520	2,940	11,900	2,030	4,040	7,570	4,040	5,740	2,610	2,610	4,040	710
22	1,300	2,030	6,190	3,650	3,650	6,190	4,040	5,280	2,610	2,030	2,610	710
23	1,300	1,770	3,280	9,580	3,650	6,640	3,650	3,650	2,940	2,030	2,310	710
24	1,300	1,770	2,610	16,000	3,650	9,580	3,650	4,860	6,190	1,770	4,450	710
25	1,300	1,520	2,310	12,500	3,280	7,570	4,860	6,190	11,900	1,770	3,650	710
26	1,100	1,520	2,310	7,100	4,450	6,190	4,040	5,740	6,640	1,770	2,940	710
27	1,100	1,300	2,310	5,280	23,400	5,280	3,650	13,900	4,450	1,770	2,310	710
28	1,100	1,300	2,310	3,650	16,000	4,860	3,650	14,600	4,040	2,610	2,610	710
29	1,100	1,300	2,310	3,280	-------	4,860	14,600	16,700	13,900	3,650	8,050	710
30	1,100	1,300	2,310	2,940	-------	5,280	21,700	17,500	5,280	2,310	5,280	710
31	1,100	-------	2,940	2,940	-------	4,860	-------	13,200	-------	2,310	4,040	-------
1923–24												
1	560	930	3,780	2,700	3,780	7,030	3,280	9,200	3,280	2,150	1,150	1,890
2	560	730	3,390	3,020	3,780	5,600	3,280	7,560	3,600	1,890	930	1,380
3	560	730	2,700	6,000	3,780	4,750	2,980	6,050	6,530	1,890	7,560	2,980
4	430	4,190	4,190	10,200	4,190	4,350	5,170	4,750	7,560	1,630	5,600	2,150
5	430	5,530	8,000	8,000	6,000	4,350	8,650	3,600	6,530	1,380	2,700	1,630
6	430	3,390	8,000	5,530	4,620	6,530	8,100	3,280	4,750	1,380	2,150	1,150
7	430	2,150	5,530	4,190	4,190	5,600	6,050	3,280	12,200	1,380	1,630	930
8	430	1,630	4,190	3,780	3,780	4,750	4,750	3,280	7,030	1,380	2,150	730
9	430	1,380	3,390	3,390	3,390	4,350	4,350	3,280	4,750	1,630	3,600	560
10	430	1,380	2,700	3,020	3,390	5,170	5,170	3,280	5,170	1,890	2,700	930
11	430	1,150	2,700	6,480	3,280	4,750	9,200	2,980	9,200	3,280	1,630	1,380
12	430	1,150	2,420	8,000	3,280	4,750	9,800	2,980	5,170	2,420	1,630	730
13	350	1,150	2,420	6,970	2,980	4,350	9,200	3,280	3,280	2,420	1,150	560
14	350	1,150	2,700	5,070	2,980	4,750	7,560	3,280	2,980	2,420	930	730
15	350	1,150	3,020	4,190	2,980	6,050	6,530	2,980	2,700	2,420	730	1,630
16	350	1,150	7,480	12,500	2,700	6,650	6,050	2,980	3,960	2,420	730	1,380
17	430	930	14,400	20,500	2,700	5,600	5,170	2,980	2,980	2,420	560	930
18	930	930	10,200	13,800	2,700	5,170	11,000	2,700	2,980	2,420	1,150	1,150
19	1,380	930	6,970	9,620	2,980	4,750	17,600	2,700	2,700	2,420	1,380	1,380
20	1,380	930	4,620	6,970	9,800	4,750	13,500	2,420	2,700	2,700	730	1,890
21	930	930	3,780	6,000	6,530	5,170	8,650	2,700	2,700	2,700	560	3,280
22	930	930	3,390	4,620	5,170	4,750	7,030	2,700	2,420	2,420	430	2,700
23	930	1,630	8,000	4,190	3,960	4,350	5,600	2,420	2,150	1,890	930	2,420
24	730	3,020	9,620	8,530	3,280	4,350	4,750	2,420	2,150	1,630	730	1,890
25	730	3,390	6,000	17,700	3,960	3,960	4,350	2,420	2,150	1,380	730	1,630
26	730	3,390	4,620	12,500	6,050	3,960	3,960	2,700	2,150	1,150	560	1,150
27	730	9,070	3,780	8,000	16,200	3,600	3,960	3,280	2,150	1,150	730	1,380
28	730	5,070	3,020	6,000	12,200	3,600	3,960	3,280	2,420	930	560	1,380
29	730	3,780	3,020	5,070	9,800	3,600	3,600	4,350	2,420	730	730	1,380
30	730	5,530	3,020	4,620	-------	3,960	5,600	6,530	2,150	730	2,980	1,380
31	930	-------	3,020	4,190	-------	3,600	-------	3,960	-------	560	1,380	-------

Monthly discharge of Tallapoosa River at Cherokee Bluffs, near Tallassee, Ala., for the years ending September 30, 1923 and 1924

[Drainage area, 3,000 square miles]

Month	Discharge in second-feet				Run-off in inches
	Maximum	Minimum	Mean	Per square mile	
1922-23					
October	10,100	400	1,870	0.623	0.72
November	9,070	1,100	1,980	.660	.74
December	18,400	1,300	4,320	1.44	1.66
January	16,000	2,030	4,710	1.57	1.81
February	49,500	2,310	10,800	3.60	3.75
March	19,200	4,040	7,880	2.63	3.03
April	21,700	3,650	6,740	2.25	2.51
May	23,400	3,650	8,630	2.88	3.32
June	18,400	2,610	5,690	1.90	2.12
July	5,280	1,770	2,620	.873	1.01
August	8,050	1,770	3,230	1.08	1.25
September	2,310	710	1,110	.370	.41
The year	49,500	400	4,930	1.64	22.33
1923-24					
October	1,380	350	642	.214	.25
November	9,070	730	2,310	.770	.86
December	14,400	2,420	4,970	1.66	1.91
January	20,500	2,700	7,270	2.42	2.79
February	16,200	2,700	4,980	1.66	1.79
March	7,030	3,600	4,790	1.60	1.84
April	17,600	2,980	6,630	2.21	2.46
May	9,200	2,420	3,660	1.22	1.41
June	12,200	2,150	4,100	1.37	1.53
July	3,280	560	1,850	.617	.71
August	7,560	560	1,650	.550	.63
September	3,280	560	1,490	.497	.55
The year	20,500	350	3,690	1.23	16.73

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, 1924

Streams draining into South Atlantic Ocean

Date	Stream	Tributary to—	Locality	Gage height	Discharge
				Feet	*Sec.-ft.*
Aug. 21	Fishing Creek	Tar River	Bricks Agriculture School, 2 miles from Enfield, N. C.	[a]1.98	182
May 14	Neuse River	Pamlico Sound	Smithfield, N. C	[a]13.25	5,020
May 14	do	do	do	[a]13.34	5,020
May 15	do	do	do	[a]13.73	5,260
May 16	do	do	do	[a]14.59	5,630
Aug. 23	do	do	do	[a]5.02	920
Oct. 17	Cape Fear River	Atlantic Ocean	Fayetteville, N. C	[a]3.15	602
Aug. 24	do	do	do	[a]4.76	1,360

Streams draining into eastern Gulf of Mexico

Dec. 30	Double Bridges Creek	Choctawhatchee River	Geneva, Ala	2.22	216
Apr. 13	do	do	do	5.23	374
Apr. 17	do	do	do	4.27	264
June 25	do	do	do	1.10	103
Aug. 1	do	do	do		81
Apr. 16	Oostanaula River	Coosa River	Resaca, Ga	[a]10.58	6,990
Apr. 17	do	do	do	[a]9.01	5,520

[a] U. S. Weather Bureau gage.

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