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UNITED STATES DEPARTMENT OF THE INTERIOR

SURFACE WATER SUPPLY
of the **UNITED STATES**
1928

PART VI
MISSOURI RIVER BASIN

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 666

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
GEOLOGICAL SURVEY
GEORGE OTIS SMITH, Director

Water-Supply Paper 666

SURFACE WATER SUPPLY
of the UNITED STATES
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PART VI
MISSOURI RIVER BASIN

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MONTANA, WYOMING, COLORADO
MISSOURI, and KANSAS



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ILLUSTRATION

FIGURE 1. Typical gaging station.....	1
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SURFACE WATER SUPPLY OF MISSOURI RIVER BASIN, 1928

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of streams in the United States during the year ending September 30, 1928.

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. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

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

Annual appropriations for the fiscal years ending June 30, 1895-1929

1895.....	\$12, 500. 00	1918.....	\$175, 000. 00
1896.....	24, 500. 00	1919.....	148, 244. 10
1897-1899.....	50, 000. 00	1920.....	175, 000. 00
1900.....	70, 000. 00	1921-1923.....	180, 000. 00
1901-2.....	100, 000. 00	1924-25.....	170, 000. 00
1903-1906.....	200, 000. 00	1926.....	165, 000. 00
1907.....	150, 000. 00	1927.....	151, 000. 00
1908-1910.....	100, 000. 00	1928.....	147, 000. 00
1911-1917.....	150, 000. 00	1929.....	270, 500. 00

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

Measurements of stream flow have been made at about 5,480 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1928, 1,830 gaging stations were being maintained by the Geological Survey and the cooperating

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

DEFINITION OF TERMS

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

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

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

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

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

The following terms not in common use are here defined:

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

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

EXPLANATION OF DATA

The data presented in this report cover the year ending September 30, 1928. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, in ponds, lakes, and swamps, or

as underground water, and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore, the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

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 reading on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods

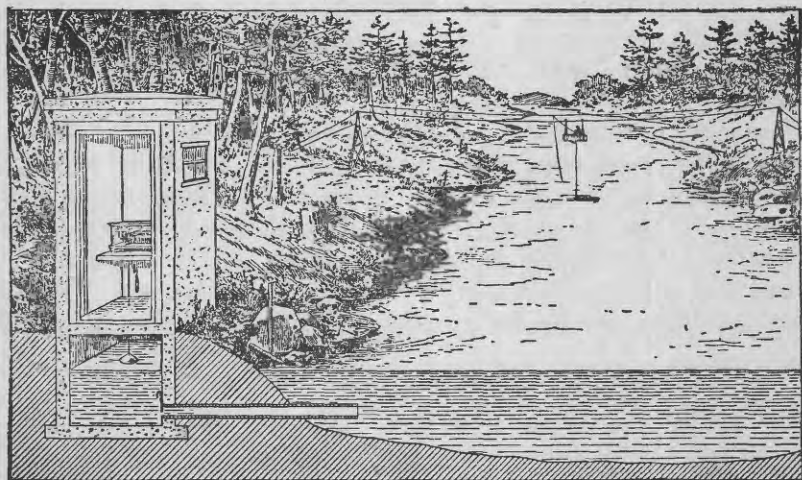


FIGURE 1.—Typical gaging station

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

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

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

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records. The

maximum discharge given under "Extremes" does not represent the crest discharge unless a water-stage recorder was in operation or unless a nonrecording gage was read at the time of the crest.

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

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

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

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

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 stations must first be satisfied.

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, annual reports, and monographs.

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. The Great Basin.

XI. Pacific slope basins in California.

XII. North Pacific slope basins, in three parts:

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

B, Snake River Basin.

C, Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

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

Augusta, Me., Statehouse.
 Boston, Mass., 2500 Customhouse.
 Hartford, Conn., 60 Washington Street.
 Albany, N. Y., 506 Broadway-Arcade Building.
 Trenton, N. J., 710 Trenton Trust Building.
 Charlottesville, Va., Brooks Museum, University of Virginia.
 South Charleston, W. Va., Naval Ordnance Plant.
 Asheville, N. C., 210 Post Office Building.
 Columbia, S. C., 801 National Loan & Exchange Bank Building.
 Ocala, Fla., Post Office Building.
 Chattanooga, Tenn., 630 Power Building.
 Tuscaloosa, Ala., Post Office Building.
 Columbus, Ohio, Engineering Experiment Station, Ohio State University.
 Indianapolis, Ind., 319 Federal Building.
 Lansing, Mich., M9 State Office Building.
 Chicago, Ill., 1503 Consumers Building.
 Madison, Wis., 337N State Capitol.
 St. Paul, Minn., 202 Old State Capitol.
 Topeka, Kans., 23 Federal Building.
 Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
 Fort Smith, Ark., Post Office Building.
 Austin, Tex., State Capitol.
 Tucson, Ariz., 210 Post Office Building.
 Denver, Colo., 403 Post Office Building.
 Salt Lake City, Utah, 313 Federal Building.
 Idaho Falls, Idaho, 228 Federal Building.
 Boise, Idaho, Federal Building.
 Helena, Mont., 416 Power Block.
 Tacoma, Wash., 406 Federal Building.
 Portland, Oreg., 606 Post Office Building.
 San Francisco, Calif., 303 Customhouse.
 Los Angeles, Calif., 751 South Figueroa Street, room 510.
 Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 5,430 points in the United States, and the data obtained have been published in the reports tabulated below.

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

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

Report	Character of data	Year
10th A, pt. 2.....	Descriptive information only.....	
11th A, pt. 2.....	Monthly discharge and descriptive information.....	1884 to Sept. 1890.
12th A, pt. 2.....	do.....	1884 to June 30, 1891.
13th A, pt. 3.....	Mean discharge in second-feet.....	1884 to Dec. 31, 1892.
14th A, pt. 2.....	Monthly discharge (long-time records, 1871 to 1893).....	1888 to Dec. 31, 1893.

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

Report	Character of data	Year
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 and 1908.
W 261 to 272	do.	1909.
W 281 to 292	do.	1910.
W 301 to 312	do.	1911.
W 321 to 332	do.	1912.
W 351 to 362	do.	1913.
W 381 to 394	do.	1914.
W 401 to 414	do.	1915.
W 431 to 444	do.	1916.
W 451 to 464	do.	1917.
W 471 to 484	do.	1918.
W 501 to 514	do.	1919 and 1920.
W 521 to 534	do.	1921.
W 541 to 554	do.	1922.
W 561 to 574	do.	1923.
W 581 to 594	do.	1924.
W 601 to 614	do.	1925.
W 621 to 634	do.	1926.
W 641 to 654	do.	1927.
W 661 to 674	do.	1928.

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

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1926. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part III are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899-1928

[For basins included see p. 5]

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII-A	XII-B	XII-C
1899 ^a	35	b 35, 36	36	36	c 36, 37	c 36, 37	37	37	d 37, 38	38, e 39	38, f 39	38	38	38
1900 ^a	47, h 48	48, i 49	49	49	49, j 50	49, j 50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	66, 76	66, 76	66, 76	66, 76	66, 76
1902	b 82, 83	b 82, 83	82	82	82	82	82	82	82	85	85	85	85	85
1903	b 87, 88	b 87, 88	88	88	88	88	88	88	88	90	90	90	90	90
1904	97	p 126, 127	126	126	126	126	126	126	126	133, r 134	134	134	134	134
1905	a 124, p 125	a 124, p 125	125	125	125	125	125	125	125	176, s 177	177	177	177	177
1906	b 105, p 106	b 105, p 106	106	106	106	106	106	106	106	212, t 213	213	213	213	213
1907	a 201, p 202	a 201, p 202	202	202	202	202	202	202	202	250, u 251	251	251	251	251
1907-8	241	242	243	244	245	246	247	248	249	270, v 271	271	272	272	272
1909	261	262	263	264	265	266	267	268	269	290	291	292	292	292
1910	281	282	283	284	285	286	287	288	289	310	311	312	312	312
1911	301	302	303	304	305	306	307	308	309	330	331	332	332	332
1912	321	322	323	324	325	326	327	328	329	350	351	352	352	352
1913	351	352	353	354	355	356	357	358	359	380	381	382	382	382
1914	381	382	383	384	385	386	387	388	389	410	411	412	413	414
1915	401	402	403	404	405	406	407	408	409	440	441	442	443	444
1916	431	432	433	434	435	436	437	438	439	460	461	462	463	464
1917	451	452	453	454	455	456	457	458	459	480	481	482	483	484
1918	471	472	473	474	475	476	477	478	479	500	501	502	503	504
1919-20	501	502	503	504	505	506	507	508	509	530	531	532	533	534
1921	521	522	523	524	525	526	527	528	529	550	551	552	553	554
1922	541	542	543	544	545	546	547	548	549	570	571	572	573	574
1923	561	562	563	564	565	566	567	568	569	590	591	592	593	594
1924	581	582	583	584	585	586	587	588	589	610	611	612	613	614
1925	601	602	603	604	605	606	607	608	609	630	631	632	633	634
1926	621	622	623	624	625	626	627	628	629	650	651	652	653	654
1927	641	642	643	644	645	646	647	648	649	670	671	672	673	674
1928	661	662	663	664	665	666	667	668	669					

^a Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 38. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part IV.

^b James River only.

^c Jactatin River.

^d Green and Gunnison Rivers and Grand Rivers 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 62. Tables

of monthly discharge for 1900 in Twenty-second Annual Report, Part IV.

^h Wissadickon and Schuykill Rivers to James River.

ⁱ Scioto River.

^j Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with Platte.

^k Tributaries of Mississippi from east.

^l Lake Ontario and tributaries to St. Lawrence River proper.

^m Hudson Bay only.

ⁿ New England rivers only.

^o Hudson River to Delaware River, inclusive.

^p Susquehanna River to Yaden 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 Shilet Rivers only.

COOPERATION

The legislature of Montana made an appropriation for stream-gaging work which was expended in cooperation with J. S. James, State engineer, largely in connection with the several Carey Act projects and irrigation districts in Montana. The work in Milk River Basin was carried on jointly with the Dominion Water Power Branch and Canadian Reclamation Service under the waterways treaty. Financial assistance was also rendered by the Liberty-Montana Mines Co.

Officials of the Yellowstone National Park have furnished observers for gaging stations operated in the park and have paid for a part of the expense of the work.

In Wyoming the work was done in cooperation with the State through John A. Whiting, State engineer. Financial assistance was rendered by the Bureau of Reclamation and the United States Indian Service.

In Colorado the work was carried on in cooperation with the State engineer, M. C. Hinderlider. Financial assistance was also rendered by Barton M. Jones.

In Kansas the work was done in cooperation with the Kansas Water Resources Division of the State Board of Agriculture, George S. Knapp, chief engineer.

In Missouri and at the station on Missouri River at Leavenworth, Kans., the work was carried on in cooperation with the Missouri Bureau of Geology and Mines, through H. A. Buehler, State geologist. Financial assistance was also rendered by the United States Weather Bureau, Chicago Great Western Railroad Co., Missouri Hydro-Electric Power Co., Central Missouri Power & Water Co., and Springfield City Water Co.

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

DIVISION OF WORK

Data for stations in the upper Missouri River and Yellowstone River Basins in Montana were collected and prepared for publication under the direction of W. A. Lamb, district engineer, assisted by A. H. Tuttle, C. S. Heidel, G. C. Sanders, W. J. Parsons, jr., and Mrs. G. Thompson.

Data for stations in Yellowstone National Park were collected and prepared for publication under the direction of C. G. Paulsen, district engineer, assisted by Berkeley Johnson, W. J. Parsons, jr., and Miss E. H. Hauge.

The data for stations in Colorado, Wyoming, South Dakota, and Nebraska were collected and prepared for publication under the

direction of Robert Follansbee, district engineer, assisted by P. V. Hodges, F. F. Le Fever, R. E. Cabell, and Miss Nellie L. Esterly.

Data for stations in Kansas were collected and prepared for publication under the direction of J. B. Spiegel, district engineer, assisted by Verne W. Stambaugh, R. H. Husted, and Mrs. Maude Moon.

Data for the stations in Missouri and for station on Missouri River at Leavenworth, Kans., were collected and prepared for publication under the direction of H. C. Beckman, district engineer, assisted by V. L. Austin, A. L. Hill, C. H. Jennings, H. C. Bolon, and R. D. Schmickle.

The records were reviewed and manuscript assembled by P. R. Speer.

GAGING-STATION RECORDS

MISSOURI RIVER PROPER

RED ROCK RIVER AT METZEL FORD, NEAR MONIDA, MONT.

LOCATION.—Water-stage recorder near north line of sec. 34, T. 13 S., R. 3 W., 1 mile below Metzel Ford and 20 miles east of Monida.

RECORDS AVAILABLE.—April, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 501 second-feet April 30 (gage height, 4.30 feet); minimum, 10 second-feet August 23 (gage height, 1.59 feet).
1925-1928: Maximum discharge, 586 second-feet May 17, 1927 (gage height, 4.20 feet); minimum, 2.7 second-feet September 23, 1926 (gage height, 1.36 feet).

REMARKS.—Records fair. No diversions. Flow regulated by natural storage in Red Rock Lake.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Day	May	June	July	Aug.
1		195			16	315		57	17
2		180			17	315		53	17
3		175			18	315		59	17
4		164		32	19	307		55	16
5		169		30	20	289		51	14
6	358	150		30	21	270		50	15
7	329	113		28	22	250		49	13
8	323	130	71	29	23	237		46	10
9	302	136	69	29	24	233		46	10
10	329		67	27	25	223		44	
11	321		65	26	26	210		42	
12	329		64	24	27	223		41	
13	321		63	23	28	205		40	
14	326		62	21	29	209			
15	321		59	19	30	188			
					31	196			

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 5-31	358	188	279	14,400
June 1-9	195	113	157	2,800
July 8-28	71	40	54.9	2,290
August 4-24	32	10	21.3	887

RED ROCK RIVER BELOW RED ROCK RESERVOIR, NEAR MONIDA, MONT.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 32, T. 13 S., R. 6 W., just below Red Rock Reservoir and 8 miles northwest of Monida.

RECORDS AVAILABLE.—July, 1911, to September, 1918; May, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 523 second-feet May 15-19 (gage height, 2.00 feet); minimum, 22 second-feet April 8-20, September 26 and 30 (gage height, 0.22 foot).

1911-1918, 1925-1928: Maximum discharge, 1,220 second-feet April 28, 1914 (gage height, 3.2 feet); minimum, 5 second-feet January 1 to April 10, 1913 (gage height, 0.10 foot).

REMARKS.—Records good. Flow regulated by storage in reservoir. No diversions upstream.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	90	88	161	71	55	55	34	326	381	257	243	45
2.....	88	88	161	71	55	55	34	341	377	257	237	45
3.....	90	88	161	71	55	55	34	345	365	257	233	44
4.....	90	90	161	71	55	55	34	334	357	253	230	44
5.....	88	90	161	71	55	53	34	322	351	253	227	45
6.....	88	90	161	66	55	51	34	326	337	253	214	44
7.....	90	90	123	61	55	53	28	330	334	250	208	44
8.....	90	88	92	61	55	53	22	337	322	250	196	41
9.....	88	88	92	59	55	53	22	337	314	246	185	39
10.....	88	90	90	58	55	53	22	345	312	246	172	38
11.....	88	90	88	58	55	48	22	349	308	246	154	35
12.....	90	90	88	58	55	45	22	353	296	246	144	32
13.....	88	90	88	58	55	44	22	422	292	250	135	31
14.....	88	92	83	55	55	42	22	497	282	243	131	29
15.....	90	92	78	55	58	41	22	510	281	246	127	27
16.....	88	92	78	55	55	39	22	523	274	246	125	27
17.....	88	106	78	55	55	39	22	523	270	250	125	27
18.....	88	121	78	55	55	39	22	523	277	246	121	26
19.....	88	121	78	55	55	39	22	519	274	243	117	26
20.....	90	140	78	55	55	37	22	501	274	144	117	26
21.....	90	161	78	55	55	37	23	488	274	71	115	26
22.....	88	161	78	55	55	35	41	455	274	61	111	24
23.....	88	161	78	53	55	34	63	431	274	61	108	24
24.....	90	161	78	51	55	34	66	389	270	88	81	24
25.....	90	161	78	51	55	34	117	361	270	117	70	23
26.....	88	161	76	53	55	34	185	341	267	117	70	22
27.....	88	161	75	51	55	34	188	326	263	174	70	23
28.....	88	161	71	55	55	34	188	314	263	250	63	23
29.....	88	161	71	51	55	34	250	314	260	246	59	23
30.....	88	161	71	51	55	34	322	310	257	246	58	22
31.....	88	-----	71	51	-----	34	-----	345	-----	250	50	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	90	88	88.7	5,450
November.....	161	88	118	7,020
December.....	161	71	96.9	5,960
January.....	71	51	57.9	3,560
February.....	58	55	55.3	3,180
March.....	55	34	42.8	2,630
April.....	322	22	65.4	3,890
May.....	523	310	392	24,100
June.....	381	257	298	17,700
July.....	257	61	212	13,000
August.....	243	50	138	8,480
September.....	45	22	31.6	1,880
The year.....	523	22	134	96,800

BEAVERHEAD RIVER AT BARRATTS, MONT.

LOCATION.—Chain gage in the SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 20, T. 8 S., R. 9 W., 1 mile above Barratts and 2 miles below Grasshopper Creek.

DRAINAGE AREA.—2,850 square miles.

RECORDS AVAILABLE.—August, 1907, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,350 second-feet March 23 (gage height, 2.97 feet); minimum, 174 second-feet September 15–20 (gage height, 0.62 foot).

1907–1928: Maximum discharge, 3,640 second-feet June 19 and 20, 1908 (gage height, 6.0 feet); minimum, 106 second-feet July 28, 29, August 19–31, September 1 and 10–17, 1919 (gage height, 0.50 foot).

REMARKS.—Records good. Numerous diversions above station. Some regulation of flood water in Red Rock River.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	358	423	518		379	518	543	358	230	198
2	379	423	518		379	518	494	358	230	198
3	401	423	543		379	494	470	358	230	198
4	401	423	543		401	446	470	338	230	198
5	423	423	543		379	401	379	338	230	186
6	423	423	401		358	401	319	338	230	186
7	423	423	401		358	423	319	319	230	186
8	446	423	401		358	446	264	282	230	186
9	446	423	423		358	494	247	282	230	186
10	446	423	446		358	494	230	282	230	186
11	446	446	446		358	568	230	282	230	180
12	446	470	446		358	726	230	264	217	180
13	423	470	446		358	1,010	338	247	204	180
14	423	494	446		358	1,010	338	247	198	180
15	423	494	446		358	1,010	319	247	192	174
16	423	494	446		358	780	300	247	186	174
17	423	494	446		358	726	282	264	186	174
18	423	518	446	780	358	646	282	264	186	174
19	423	518	446	780	358	594	300	264	186	174
20	423	518	446	836	358	594	319	247	186	174
21	423	518	446	836	319	594	338	247	186	180
22	423	543	446	952	319	594	338	247	198	180
23	423	543	446	1,310	319	646	319	247	204	180
24	423	543	446	952	358	672	319	247	204	180
25	423	543	446	836	401	726	319	247	204	180
26	423	568	446	494	423	726	319	230	204	180
27	423	568	446	446	543	726	319	230	204	180
28	423	594	446	358	543	726	319	230	204	180
29	423	543	446	358	594	646	338	230	204	180
30	423	518	446	379	518	620	338	230	204	180
31	423		446	379		594		230	204	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	446	358	423	26,000
November	594	423	488	29,000
December	543	401	455	28,000
March 18–31	1,310	358	693	19,200
April	594	319	387	23,000
May	1,010	401	631	38,800
June	543	230	331	19,700
July	358	230	272	16,700
August	280	186	209	12,900
September	198	174	182	10,800

JEFFERSON RIVER NEAR SILVERSTAR, MONT.

LOCATION.—Chain gage in SE. ¼ sec. 23, T. 2 S., R. 6 W., 5 miles southwest of Silverstar and 5 miles below junction of Beaverhead and Bear Hole Rivers.

DRAINAGE AREA.—7,840 square miles.

RECORDS AVAILABLE.—August, 1910, to September, 1916; July, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,900 second-feet May 13 (gage height, 6.92 feet); minimum, 234 second-feet August 21 (gage height, 160 feet).

1910-1916, 1920-1928: Maximum discharge, 19,800 second-feet June 15, 1927 (gage height, 9.85 feet); minimum, 129 second-feet August 30 and 31, 1924 (gage height, 1.36 feet).

REMARKS.—Records good. Numerous diversions. Flow partly regulated by two reservoirs.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,470	1,400	1,620		1,700	5,480	6,220	2,410	575	712
2	1,470	1,400	1,770		1,620	5,720	5,720	2,410	575	712
3	1,540	1,470	1,770		1,620	5,240	5,010	2,410	575	712
4	1,620	1,470	2,000		1,620	4,550	4,780	2,600	575	712
5	1,620	1,540	1,770		1,540	4,320	4,320	2,600	575	665
6	1,620	1,700	1,920		1,470	4,090	3,640	2,410	575	620
7	1,620	2,080			1,400	5,010	3,210	2,410	575	575
8	1,620	2,080			1,400	6,220	3,000	2,240	575	534
9	1,620	2,080			1,400	7,260	2,600	1,920	534	534
10	1,540	2,080		1,840	1,400	7,800	2,410	1,770	470	665
11	1,540	2,000		1,540	1,330	8,610	2,240	1,700	432	665
12	1,620	2,000		1,620	1,330	9,450	2,080	1,620	417	665
13	1,620	2,000		1,330	1,400	10,900	2,240	1,470	349	665
14	1,540	2,080		1,330	1,400	10,600	2,080	1,470	337	665
15	1,540	2,080		1,200	1,400	9,730	2,080	1,400	337	760
16	1,540	2,080		1,260	1,400	9,730	2,080	1,330	288	810
17	1,540	2,000		1,260	1,540	7,260	1,920	1,470	277	810
18	1,540	2,000		1,330	1,620	6,730	1,920	1,540	277	760
19	1,540	2,080		1,540	1,770	6,730	1,920	1,470	266	760
20	1,620	2,080		1,920	1,700	6,990	1,920	1,400	245	760
21	1,470	2,000		2,410	1,700	7,800	1,840	1,200	234	712
22	1,330	1,920		2,410	1,540	8,070	1,920	1,200	256	712
23	1,330	1,840		2,410	1,620	8,890	2,000	1,080	312	712
24	1,330	1,700		2,410	2,410	9,170	2,600	970	337	712
25	1,330	1,700		2,410	3,640	9,450	2,410	915	376	712
26	1,330	2,000		2,410	5,010	10,000	2,240	810	447	665
27	1,330	2,080		2,600	5,240	10,300	2,240	665	575	665
28	1,330	2,080		1,840	6,220	10,300	2,240	760	620	665
29	1,400	2,080		1,770	5,970	9,730	2,240	620	760	665
30	1,400	1,770		1,770	5,480	9,170	2,410	575	760	665
31	1,470			1,700		7,530		575	712	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,620	1,330	1,500	92,200
November	2,080	1,400	1,900	113,000
December 1-6	2,000	1,620	1,810	21,500
March 10-31	2,600	1,200	1,830	79,900
April	6,220	1,330	2,300	137,000
May	10,900	4,090	7,830	481,000
June	6,220	1,840	2,780	165,000
July	2,600	575	1,530	94,100
August	760	234	459	28,200
September	810	534	688	40,900

MISSOURI RIVER BELOW HAUSER LAKE DAM, NEAR HELENA, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 29, T. 12 N., R. 2 W., at Hauser Lake power plant, 15 miles northeast of Helena.

DRAINAGE AREA.—16,600 square miles.

RECORDS AVAILABLE.—December, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 33,300 second-feet May 14, 15, and 18 (gage height, 78.80 feet); minimum, 570 second-feet February 20 (gage height, 65.55 feet).

1922-1928: Maximum discharge, that of June 14, 15, and 18, 1923; minimum, 500 second-feet September 14, 1924 (gage height, 65.40 feet).

REMARKS.—Records good. Numerous diversions. Partly regulated by reservoirs and power plants above station. Records furnished by Montana Power Co.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	4,860	6,220	7,940	2,840	4,860	4,550	6,130	14,800	16,200	8,680	3,530	3,430
2.....	4,320	5,560	7,630	2,340	4,820	4,400	6,500	14,300	14,800	9,260	3,500	3,810
3.....	4,580	5,540	7,310	3,170	4,820	3,980	6,420	13,600	13,300	9,880	3,620	3,170
4.....	5,320	4,800	5,620	2,400	5,300	3,820	5,720	13,500	10,100	8,600	3,660	3,520
5.....	4,800	4,750	5,380	2,470	4,860	4,400	5,920	13,200	6,660	9,000	3,560	3,480
6.....	4,960	4,820	5,260	3,200	5,250	3,820	6,220	12,400	4,430	9,200	3,880	3,940
7.....	5,220	4,900	4,770	2,820	5,380	3,840	6,220	7,840	5,840	9,060	4,020	3,940
8.....	6,330	5,080	4,650	2,440	5,280	4,510	5,410	11,200	7,790	7,500	3,580	3,960
9.....	6,350	5,320	4,120	2,660	5,300	5,170	5,660	14,400	7,950	7,690	3,820	3,920
10.....	5,790	6,110	3,920	2,440	5,230	8,740	5,820	17,100	5,920	8,010	3,930	3,930
11.....	5,240	5,300	4,060	3,040	5,160	11,200	5,520	18,800	4,500	6,470	3,930	3,680
12.....	4,380	4,480	4,060	3,350	4,640	11,400	5,770	19,000	6,000	6,180	2,880	3,930
13.....	3,920	5,430	3,900	4,080	4,080	9,920	5,570	19,900	6,530	6,550	3,720	3,920
14.....	5,610	6,220	3,420	6,180	4,280	8,920	5,480	21,900	6,130	5,900	3,920	3,940
15.....	6,270	6,660	3,640	6,200	4,260	7,610	5,000	21,700	5,560	5,320	3,920	3,880
16.....	5,550	6,490	4,040	6,260	4,690	6,940	5,460	21,100	5,280	5,230	3,750	3,740
17.....	5,760	6,130	3,220	4,830	4,750	6,740	5,230	19,200	4,740	5,080	3,640	3,480
18.....	5,740	5,970	2,440	4,410	4,400	6,170	5,640	14,700	6,340	5,390	3,850	3,780
19.....	5,840	5,800	2,490	4,200	3,210	6,780	5,300	14,200	6,560	5,340	3,880	3,900
20.....	5,920	5,720	2,720	4,360	4,760	7,160	6,320	13,800	7,680	5,770	3,210	3,870
21.....	6,410	5,380	2,790	4,000	5,160	7,570	6,560	14,500	8,580	6,060	3,520	3,930
22.....	5,860	5,680	2,980	3,080	4,720	8,730	6,780	15,000	6,860	4,940	3,640	3,940
23.....	5,620	6,040	3,640	3,650	4,920	10,100	8,030	15,600	6,520	5,230	3,880	2,620
24.....	6,340	5,660	3,320	4,520	4,080	10,800	9,220	16,500	8,120	4,600	3,880	3,500
25.....	6,050	5,920	1,190	3,840	4,240	9,780	10,100	17,300	9,560	4,260	3,560	3,940
26.....	5,800	7,190	945	6,100	4,000	9,680	11,900	18,200	10,000	4,100	2,840	3,960
27.....	5,780	7,790	3,000	4,720	4,310	8,890	13,700	18,400	9,760	3,820	2,900	3,940
28.....	5,680	7,400	4,220	4,920	4,200	8,260	14,600	18,700	9,520	4,240	2,960	3,940
29.....	5,700	8,010	3,200	4,720	4,440	7,740	14,200	18,900	9,670	2,810	2,860	3,940
30.....	5,740	7,740	4,040	4,870	-----	7,230	15,100	18,400	9,620	3,310	3,020	3,930
31.....	6,080	-----	4,160	4,920	-----	6,840	-----	18,400	-----	4,360	3,600	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	6,410	3,920	5,540	341,000
November.....	8,010	4,480	5,940	353,000
December.....	7,940	945	4,000	246,000
January.....	6,260	2,340	3,970	244,000
February.....	5,380	3,210	4,730	272,000
March.....	11,400	3,820	7,280	448,000
April.....	15,100	5,000	7,520	447,000
May.....	21,900	7,840	16,300	1,000,000
June.....	16,200	4,430	8,020	477,000
July.....	9,880	2,810	6,190	381,000
August.....	4,020	2,840	3,560	219,000
September.....	3,960	2,620	3,760	224,000
The year.....	21,900	945	6,410	4,650,000

MISSOURI RIVER AT FORT BENTON, MONT.

LOCATION.—Water-stage recorder in NE. ¼ sec. 26, T. 24 N., R. 8 E., at Fort Benton.

DRAINAGE AREA.—24,600 square miles.

RECORDS AVAILABLE.—July, 1881, to November, 1891; July, 1902, to September, 1928.

EXTREMES.—Maximum discharge during year, 33,400 second-feet June 13 (gage height, 7.65 feet); minimum, 3,260 second-feet September 15 (gage height, 1.12 feet).

1881-1891, 1902-1928: Maximum discharge, 107,000 second-feet June 7, 1908 (gage height, 16.3 feet); minimum, 1,420 second-feet August 17, 1919.

REMARKS.—Records good except during winter, for which they are fair. Numerous diversions from tributaries. Flow partly regulated by storage in reservoirs.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	7,100	6,420	9,300	3,940	5,680	5,210	10,100	22,400	28,900	18,600	6,180	4,860
2.....	7,100	7,280	9,620	3,800	6,290	5,760	10,500	21,800	27,700	17,400	6,750	4,340
3.....	6,420	7,460	9,660	4,220	5,820	5,860	10,100	21,300	25,900	16,900	6,360	4,100
4.....	6,930	7,640	10,200	4,390	6,530	5,510	9,090	20,800	23,000	16,400	6,010	4,340
5.....	6,590	7,820	9,320	4,660	6,560	5,600	8,540	20,200	21,300	15,400	5,970	4,600
6.....	7,100	8,000	6,510	5,310	6,000	6,380	8,720	20,200	18,600	14,900	4,910	4,860
7.....	7,820	7,820	5,450	5,620	5,950	6,200	8,540	20,800	13,900	14,900	5,140	4,860
8.....	7,280	7,460	4,170	5,490	6,220	5,810	7,960	18,000	14,900	14,900	4,600	4,730
9.....	6,760	7,640	5,680	4,790	6,690	5,840	8,090	15,400	16,400	14,400	4,600	4,600
10.....	7,820	8,000	5,580	4,980	6,730	5,990	8,320	25,900	15,900	12,100	4,470	4,860
11.....	9,090	6,780	5,020	5,030	6,980	6,380	7,770	27,700	16,400	11,300	4,470	5,860
12.....	9,090	5,870	5,340	5,390	7,180	7,630	7,820	30,800	19,100	12,100	4,340	5,340
13.....	8,720	5,570	5,200	5,540	7,040	12,600	8,400	32,100	19,100	11,700	5,070	6,640
14.....	8,360	5,790	5,560	6,000	6,920	13,000	8,540	32,800	18,600	10,500	5,260	5,020
15.....	8,360	5,870	5,280	6,070	6,510	12,600	8,000	32,100	16,900	9,280	5,050	5,370
16.....	8,000	6,260	4,880	4,990	6,440	10,500	8,180	32,100	10,100	9,660	5,320	5,450
17.....	8,360	7,140	4,920	4,140	6,270	9,280	8,000	32,100	9,280	9,660	5,520	4,920
18.....	8,000	7,860	4,860	4,430	5,560	9,280	8,000	32,800	10,500	9,660	5,500	5,680
19.....	7,640	8,320	5,460	4,440	5,680	9,280	9,090	31,400	9,280	10,500	5,250	5,320
20.....	7,100	7,780	5,350	4,880	6,100	9,280	9,090	28,300	16,400	10,500	4,400	5,390
21.....	6,590	7,260	5,200	5,060	5,820	8,900	8,720	28,300	19,100	9,660	4,920	5,290
22.....	6,590	7,410	4,660	4,600	5,630	8,900	7,640	28,300	19,100	9,470	5,350	5,540
23.....	6,760	7,440	4,630	4,460	5,320	8,720	7,280	28,900	19,100	9,280	5,520	5,350
24.....	6,760	7,230	4,370	4,700	4,420	12,600	7,640	30,200	18,000	9,090	4,970	5,490
25.....	6,930	6,820	3,590	4,750	4,600	14,900	10,100	30,800	16,400	8,900	5,480	5,280
26.....	7,280	6,980	4,390	4,840	5,600	14,900	13,900	30,800	19,100	8,900	6,030	5,460
27.....	9,280	7,830	4,540	5,830	5,800	14,400	16,400	32,100	20,200	7,460	4,770	5,390
28.....	10,100	9,360	4,640	4,840	6,060	13,900	18,000	33,400	19,100	6,760	5,610	5,340
29.....	8,180	9,180	4,690	6,950	6,080	12,600	21,300	32,100	19,100	6,930	5,830	5,560
30.....	7,100	9,150	4,200	7,120	-----	11,300	23,500	30,800	18,600	6,590	5,710	5,610
31.....	6,590	-----	3,940	6,820	-----	10,500	-----	30,200	-----	6,420	4,860	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	10,100	6,420	7,610	468,000
November.....	9,360	5,570	7,380	439,000
December.....	10,200	3,590	5,680	349,000
January.....	7,120	3,800	5,100	314,000
February.....	7,180	4,420	6,090	350,000
March.....	14,900	5,210	9,340	574,000
April.....	23,500	7,280	10,200	607,000
May.....	33,400	15,400	27,600	1,700,000
June.....	28,900	9,280	18,000	1,070,000
July.....	18,600	6,420	11,300	695,000
August.....	6,750	4,340	5,300	326,000
September.....	5,860	4,100	5,140	306,000
The year.....	33,400	3,590	9,910	7,200,000

MISSOURI RIVER AT BISMARCK, N. DAK.

LOCATION.—Chain gage in sec. 31, T. 139 N., R. 80 W., at Northern Pacific Railway bridge at Bismarck, 2 miles above Heart River.

DRAINAGE AREA.—187,000 square miles.

RECORDS AVAILABLE.—September, 1904, to December, 1905; October, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 201,000 second-feet March 24 (gage height, 13.2 feet); minimum, 12,800 second-feet September 17, 18, and 23-26 (gage height, 1.3 feet).

1904-5, 1927-28: Maximum discharge, that of March 24, 1928; minimum, 7,680 second-feet November 1-6 and December 1, 1905 (gage height, -0.9 foot).

REMARKS.—Records fair. Numerous diversions above station. Tributaries partly regulated by storage reservoirs. Gage heights furnished by United States Weather Bureau and discharge measurements by R. E. Kennedy, State engineer.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	23, 100	18, 800	-----	101, 000	26, 800	116, 000	68, 600	40, 600	14, 600
2.....	23, 100	18, 800	-----	92, 200	26, 800	120, 000	73, 100	40, 600	14, 000
3.....	23, 100	17, 800	-----	61, 400	26, 800	124, 000	87, 300	45, 400	14, 000
4.....	24, 000	19, 600	-----	57, 100	26, 800	125, 000	97, 200	44, 200	14, 600
5.....	24, 000	20, 400	-----	53, 000	30, 900	125, 000	98, 900	45, 400	15, 200
6.....	-----	25, 000	20, 400	-----	30, 900	113, 000	101, 000	41, 800	15, 200
7.....	25, 000	21, 300	-----	41, 800	44, 200	97, 200	98, 900	37, 300	15, 900
8.....	25, 000	22, 200	-----	37, 300	44, 200	90, 600	101, 000	37, 300	15, 900
9.....	24, 000	22, 200	-----	34, 100	43, 000	84, 100	106, 000	35, 100	15, 200
10.....	24, 000	22, 200	-----	35, 100	40, 600	79, 300	106, 000	34, 100	15, 200
11.....	24, 000	21, 300	-----	34, 100	41, 800	77, 700	122, 000	30, 900	14, 600
12.....	23, 100	21, 300	-----	33, 000	41, 800	73, 100	111, 000	34, 100	15, 200
13.....	22, 200	19, 600	-----	33, 000	41, 800	67, 200	98, 900	35, 100	14, 600
14.....	22, 200	19, 600	-----	31, 900	47, 900	59, 900	85, 700	35, 100	14, 000
15.....	21, 300	-----	68, 600	31, 900	54, 400	59, 900	79, 300	26, 800	13, 400
16.....	20, 400	-----	68, 600	30, 900	59, 900	59, 900	76, 200	27, 800	13, 400
17.....	20, 400	-----	74, 600	29, 800	80, 900	59, 900	73, 100	25, 900	12, 800
18.....	19, 600	-----	102, 000	29, 800	88, 900	62, 800	71, 600	24, 000	12, 800
19.....	19, 600	-----	127, 000	27, 800	88, 900	65, 700	73, 100	23, 100	13, 400
20.....	20, 400	-----	146, 000	25, 900	87, 300	65, 700	77, 700	21, 300	13, 400
21.....	20, 400	-----	166, 000	25, 900	82, 500	58, 500	74, 600	20, 400	13, 400
22.....	20, 400	-----	168, 000	26, 800	79, 300	58, 500	74, 600	18, 000	13, 400
23.....	20, 400	-----	144, 000	26, 800	77, 700	57, 100	73, 100	17, 300	12, 800
24.....	20, 400	-----	201, 000	26, 800	79, 300	59, 900	73, 100	17, 300	12, 800
25.....	20, 400	-----	118, 000	26, 800	82, 500	64, 300	70, 100	16, 600	12, 800
26.....	20, 400	-----	151, 000	26, 800	85, 700	61, 400	64, 300	15, 900	12, 800
27.....	19, 600	-----	144, 000	26, 800	88, 900	61, 400	54, 400	15, 900	14, 000
28.....	19, 600	-----	113, 000	27, 800	92, 200	65, 700	50, 400	15, 900	13, 400
29.....	19, 600	-----	98, 900	27, 800	98, 900	61, 400	46, 600	15, 200	13, 400
30.....	19, 600	-----	92, 200	27, 800	104, 000	54, 400	41, 800	14, 600	13, 400
31.....	19, 600	-----	79, 300	-----	107, 000	-----	41, 800	14, 600	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	25, 000	19, 600	21, 700	1, 330, 000
November 1-14.....	22, 200	17, 300	20, 400	566, 000
March 15-31.....	201, 000	68, 600	121, 000	4, 080, 000
April.....	101, 000	25, 900	37, 800	2, 250, 000
May.....	107, 000	26, 800	63, 000	3, 870, 000
June.....	125, 000	54, 400	77, 600	4, 620, 000
July.....	122, 000	41, 800	79, 700	4, 900, 000
August.....	45, 400	14, 600	28, 100	1, 730, 000
September.....	15, 900	12, 800	14, 000	833, 000

MISSOURI RIVER NEAR MOBRIDGE, S. DAK.

LOCATION.—Chain gage in sec. 32, T. 124 N., R. 79 W., at railroad bridge 3 miles northwest of Mobridge and 500 feet above Grand River.

DRAINAGE AREA.—209,000 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		19,400	11		18,800	21		16,800
2		19,400	12		18,400	22		16,600
3		18,600	13		18,400	23		16,100
4		18,600	14		18,600	24		15,800
5		18,600	15		18,800	25	19,900	15,500
6		18,600	16		25,000	26	19,700	15,200
7		19,000	17		22,000	27	18,600	15,000
8		19,000	18		19,600	28	18,600	14,900
9		20,000	19		18,500	29	19,900	14,600
10		19,900	20		17,900	30	20,700	14,600
						31	20,100	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 25-31	20,700	18,600	19,600	272,000
September	25,000	14,600	18,100	1,080,000

MISSOURI RIVER AT CHAMBERLAIN, S. DAK.

LOCATION.—Staff gage in sec. 16, T. 104 N., R. 71 W., at railroad bridge at Chamberlain, 12 miles above White River. Zero of gage is 1,330.8 feet above sea level.

DRAINAGE AREA.—250,000 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. No diversions.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		20,300	11		19,900	21	30,000	31,400
2		20,100	12		20,200	22	28,600	24,300
3		17,600	13		20,600	23	27,200	19,700
4		18,800	14		21,000	24	26,400	18,600
5		18,500	15		20,400	25	24,200	17,800
6		18,900	16		20,300	26	23,100	17,200
7		18,600	17		20,000	27	22,100	16,600
8		18,100	18		21,400	28	21,600	16,100
9		18,200	19	31,600	27,600	29	21,100	16,200
10		18,900	20	30,000	36,700	30	20,200	16,200
						31	20,000	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 19-31	31,600	20,000	25,100	647,000
September	36,700	16,000	20,300	1,210,000
The period				1,860,000

MISSOURI RIVER AT ST. JOSEPH, MO.

LOCATION.—Chain gage in sec. 17, T. 57 N., R. 35 W., at St. Joseph and Grand Island Railroad bridge at St. Joseph. Zero of gage is 794.93 feet above mean sea level.

DRAINAGE AREA.—427,000 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 79,800 second-feet August 4 (gage height, 6.3 feet); minimum, 27,700 second-feet September 10 (gage height, 2.0 feet).

Maximum stage known, 21.7 feet April 29, 1881.

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

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	67,000	36,000	11	58,600	38,000	21	40,100	32,200
2	64,200	30,400	12	52,600	73,400	22	42,300	30,400
3	65,600	33,100	13	51,400	75,000	23	42,300	29,500
4	79,800	33,100	14	53,800	67,000	24	46,700	29,500
5	64,200	30,400	15	53,800	52,600	25	40,100	30,400
6	62,800	33,100	16	49,000	45,600	26	36,000	41,200
7	70,200	29,500	17	52,600	39,000	27	35,000	41,200
8	64,200	29,500	18	57,400	37,000	28	38,000	38,000
9	61,400	30,400	19	50,200	36,000	29	46,700	33,100
10	58,600	27,700	20	43,400	34,000	30	41,200	30,400
						31	40,100	-----
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
August			79,800	35,000	52,600	3,230,000		
September			75,000	27,700	38,200	2,270,000		
The period						5,500,000		

MISSOURI RIVER AT LEAVENWORTH, KANS.

LOCATION.—Chain gage in sec. 36, T. 8 S., R. 22 E., at Chicago Great Western Railroad bridge in Leavenworth. Zero of gage is 713.53 feet above mean sea level.

DRAINAGE AREA.—428,000 square miles.

RECORDS AVAILABLE.—April, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 146,000 second-feet June 18; maximum gage height, 46.4 feet June 9; minimum discharge, 6,250 second-feet December 10 and 11.

1922-1928: Maximum discharge, 241,000 second-feet July 7 and 8, 1923; maximum gage height, 49.3 feet June 28, 1924, May 17, 18, June 29 and 30, 1927; minimum discharge, 3,450 second-feet December 22, 1924.

Maximum stage known, 53.0 feet April 29 and 30, 1881.

ACCURACY.—Records fair except those for periods of ice effect, December 8-27, January 1-8, 22-31, and February 1-3, which are poor.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	44,500	29,100	18,200	13,800	27,500	34,700	115,000	36,500	70,600	85,000	85,000	41,500
2-----	47,700	31,500	18,200	13,000	27,500	38,500	117,000	36,500	78,600	75,400	81,800	37,500
3-----	51,000	29,900	17,700	12,200	27,500	39,500	106,000	37,500	83,400	75,400	81,800	35,500
4-----	47,700	29,900	16,700	12,200	25,200	46,600	92,200	35,500	94,000	85,000	92,200	33,100
5-----	38,500	30,700	17,200	13,400	28,300	48,800	88,600	38,500	98,000	88,600	85,000	32,300
6-----	38,500	33,100	13,800	17,700	29,900	49,900	94,000	38,500	102,000	88,600	80,200	30,700
7-----	48,800	30,700	10,600	24,500	41,500	48,800	111,000	38,500	108,000	88,600	92,200	29,100
8-----	44,500	31,500	6,800	43,500	43,500	48,800	92,200	39,500	120,000	90,400	77,000	27,500
9-----	36,500	29,900	6,500	54,300	62,500	49,900	77,000	39,500	141,000	127,000	80,200	26,700
10-----	33,100	29,900	6,250	51,000	60,100	54,300	62,500	39,500	132,000	125,000	69,000	27,500
11-----	33,100	29,900	6,250	43,500	51,000	67,700	61,300	38,500	134,000	125,000	66,400	32,300
12-----	33,900	30,700	6,500	39,500	66,400	92,200	57,700	39,500	125,000	125,000	65,100	73,800
13-----	33,100	29,900	6,500	35,500	66,400	75,400	60,100	39,500	117,000	120,000	63,800	81,800
14-----	33,900	30,700	6,500	30,700	60,100	60,100	60,100	35,500	113,000	127,000	62,500	73,800
15-----	30,700	29,900	6,500	31,500	56,500	57,700	55,400	35,500	117,000	127,000	60,100	60,100
16-----	29,900	30,700	6,500	20,600	54,300	52,100	49,900	39,500	108,000	129,000	58,900	48,800
17-----	29,900	30,700	6,800	20,600	49,900	48,800	48,800	57,700	129,000	127,000	66,400	41,500
18-----	29,900	30,700	7,100	21,800	49,900	52,100	49,900	56,500	146,000	127,000	56,500	40,500
19-----	28,300	29,900	7,400	21,800	43,500	49,900	48,800	52,100	141,000	115,000	54,300	38,500
20-----	29,100	26,700	8,000	20,000	39,500	46,600	47,700	56,500	144,000	102,000	53,200	33,900
21-----	26,700	24,500	9,200	19,400	38,500	44,500	46,600	57,700	113,000	108,000	48,800	32,300
22-----	29,900	21,800	10,600	18,800	36,500	43,500	45,500	61,300	98,000	106,000	48,800	31,500
23-----	28,300	19,400	12,200	19,400	33,900	46,600	44,500	85,000	94,000	102,000	47,700	30,700
24-----	30,700	19,400	13,400	20,000	29,900	46,600	41,500	92,200	92,200	108,000	53,200	29,100
25-----	29,900	20,600	15,200	20,600	25,900	43,500	40,500	86,800	90,400	98,000	47,700	27,500
26-----	30,700	23,100	17,700	21,200	25,900	41,500	41,500	85,000	90,400	90,400	42,500	33,900
27-----	29,100	21,800	20,600	21,800	21,200	43,500	40,500	78,600	102,000	96,000	41,500	43,500
28-----	29,900	21,200	23,100	23,100	40,500	78,600	40,500	75,400	108,000	100,000	39,500	40,500
29-----	29,100	20,000	25,200	24,500	38,500	104,000	37,500	73,800	132,000	92,200	54,300	33,100
30-----	29,100	18,800	20,600	25,200	-----	117,000	37,500	70,600	92,200	86,800	51,000	30,700
31-----	28,300	-----	16,700	27,500	-----	115,000	-----	70,600	-----	85,000	45,500	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	51,000	26,700	34,300	2,110,000
November-----	33,100	18,800	27,200	1,620,000
December-----	25,200	6,250	12,400	762,000
January-----	54,300	12,200	25,200	1,550,000
February-----	66,400	21,200	41,400	2,380,000
March-----	117,000	34,700	57,600	3,540,000
April-----	117,000	37,500	63,700	3,790,000
May-----	92,200	35,500	53,800	3,810,000
June-----	146,000	70,600	110,000	6,550,000
July-----	129,000	75,400	104,000	6,400,000
August-----	92,200	39,500	63,000	3,870,000
September-----	81,800	26,700	39,300	2,340,000
The year-----	146,000	6,250	52,700	38,200,000

MISSOURI RIVER AT KANSAS CITY, MO.

LOCATION.—Chain gage in sec. 31, T. 50 N., R. 33 W., at Chicago, Burlington & Quincy Railroad bridge at Kansas City and 1 mile below Kansas River. Zero of gage is 716.93 feet above mean sea level.

DRAINAGE AREA.—492,000 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 108,000 second-feet (gage height, 15.2 feet); minimum, 29,000 second-feet September 10 (gage height, 5.3 feet). Maximum stage known, 38.0 feet June 20, 1844.

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

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....	85,600	46,900	11.....	85,600	31,500	21.....	62,2 ⁰⁰	42,000
2.....	85,600	40,600	12.....	81,600	51,200	22.....	58,6 ⁰⁰	35,700
3.....	86,600	37,800	13.....	77,600	86,600	23.....	56,8 ⁰⁰	33,600
4.....	91,600	36,400	14.....	77,600	86,600	24.....	57,7 ⁰⁰	31,500
5.....	106,000	37,800	15.....	76,600	81,600	25.....	56,8 ⁰⁰	30,200
6.....	101,000	35,700	16.....	76,600	73,900	26.....	52,0 ⁰⁰	30,200
7.....	108,000	32,900	17.....	78,600	67,600	27.....	49,700	42,700
8.....	106,000	30,800	18.....	82,600	58,600	28.....	47,6 ⁰⁰	44,800
9.....	101,000	30,200	19.....	77,600	56,200	29.....	46,2 ⁰⁰	39,200
10.....	92,600	29,000	20.....	72,100	50,400	30.....	58,6 ⁰⁰	33,600
						31.....	51,2 ⁰⁰	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August.....	108,000	47,600	75,700	4,650,000
September.....	86,600	29,000	45,500	2,710,000
The period.....	-----	-----	-----	7,360,000

MISSOURI RIVER AT BOONVILLE, MO.

LOCATION.—Chain gage in sec. 35, T. 49 N., R. 17 W., at Boonville. Zero of gage is 562.71 feet above mean sea level.

DRAINAGE AREA.—508,000 square miles.

RECORDS AVAILABLE.—October, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 224,000 second-feet June 20 (gage height, 22.56 feet); minimum discharge, 12,400 second-feet December 15-18; minimum gage height, 8.0 feet December 19.

1925-1928: Maximum discharge, 381,000 second-feet April 23, 1927 (gage height, 26.87 feet); minimum, that of December 15-18, 1927.

Maximum stage known, 35.9 feet June 21, 1884.

REMARKS.—Records fair except those for periods of ice effect, December 11-25 and January 25-31, which are poor.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	61,800	37,200	31,700	34,600	30,200	47,100	159,000	38,800	88,000	164,900	105,000	48,000
2-----	140,000	36,400	30,700	19,000	31,200	41,200	155,000	38,000	88,000	136,000	100,000	43,000
3-----	181,000	36,400	29,700	19,600	31,700	38,800	155,000	36,400	88,000	111,000	94,000	39,100
4-----	186,000	36,400	29,700	19,300	31,700	39,600	152,000	36,400	107,000	96,000	98,200	35,700
5-----	179,000	37,200	27,900	19,300	31,200	41,200	145,000	35,800	129,000	92,000	105,000	34,100
6-----	155,000	38,000	27,900	19,300	31,700	45,600	155,000	35,800	125,000	100,000	144,000	34,100
7-----	122,000	38,000	27,900	19,900	58,200	51,600	164,000	35,800	127,000	96,000	142,000	34,100
8-----	104,000	38,000	27,400	24,200	113,000	53,100	188,000	37,200	158,000	92,000	149,000	32,000
9-----	109,000	37,200	26,600	30,200	118,000	50,100	191,000	37,200	174,000	94,000	144,000	30,700
10-----	111,000	37,200	21,800	37,300	131,000	48,600	150,000	37,200	188,000	120,000	120,000	30,100
11-----	90,000	36,400	18,700	61,800	133,000	51,600	122,000	37,200	176,000	151,000	105,000	32,000
12-----	78,000	36,400	15,400	45,600	96,000	67,200	107,000	37,200	162,000	174,000	92,000	67,600
13-----	90,000	35,800	13,600	43,200	80,000	109,000	100,000	36,400	153,000	169,000	84,200	144,000
14-----	92,000	35,800	12,700	35,800	80,000	109,000	100,000	36,400	142,000	167,000	80,600	167,000
15-----	92,000	35,000	12,400	38,800	96,000	84,000	100,000	35,800	133,000	164,000	77,000	158,000
16-----	70,800	36,400	12,400	40,400	98,000	74,400	94,000	35,800	131,000	158,000	77,000	149,000
17-----	58,200	41,200	12,400	39,600	88,000	69,000	82,000	37,200	131,000	158,000	77,000	138,000
18-----	45,600	38,800	12,400	32,800	72,600	61,800	70,800	58,200	127,000	158,000	78,800	127,000
19-----	44,400	38,800	12,700	30,700	67,200	58,200	70,800	58,200	191,000	158,000	82,400	118,000
20-----	42,000	38,000	13,000	30,200	56,400	56,400	63,600	58,200	224,000	151,000	73,800	105,000
21-----	41,200	36,400	14,200	29,200	54,600	54,600	61,800	54,600	215,000	140,000	67,600	84,200
22-----	39,600	34,600	15,700	29,200	50,100	48,600	60,000	56,400	200,000	147,000	60,600	59,200
23-----	38,800	32,200	17,200	27,900	45,600	45,600	58,200	61,800	186,000	172,000	53,800	47,000
24-----	38,000	32,800	19,000	26,600	43,200	44,400	53,100	92,000	172,000	158,000	51,400	42,000
25-----	38,800	31,700	20,800	25,800	41,200	44,400	50,100	109,000	169,000	158,000	53,800	38,200
26-----	38,000	30,700	22,500	25,800	38,800	44,400	47,100	109,000	149,000	153,000	56,400	34,100
27-----	38,000	30,200	23,900	25,800	36,400	44,400	43,200	100,000	136,000	144,000	51,400	32,700
28-----	37,200	30,200	29,200	26,200	32,800	44,400	41,200	96,000	149,000	138,000	49,000	32,700
29-----	38,000	31,700	38,800	26,600	31,200	51,600	40,400	96,000	169,000	131,000	45,000	30,700
30-----	37,200	31,700	38,800	27,000	-----	135,000	39,600	88,000	186,000	120,000	47,000	40,000
31-----	37,200	-----	38,800	28,400	-----	155,000	-----	88,000	-----	109,000	53,800	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	186,000	37,200	79,800	4,910,000
November-----	41,200	30,200	35,600	2,120,000
December-----	38,800	12,400	22,400	1,380,000
January-----	61,800	19,300	30,400	1,870,000
February-----	33,000	30,200	63,800	3,670,000
March-----	155,000	38,800	61,600	3,790,000
April-----	191,000	39,600	101,000	6,010,000
May-----	109,000	35,800	56,500	3,470,000
June-----	224,000	88,000	152,000	9,040,000
July-----	174,000	92,000	138,000	8,480,000
August-----	149,000	45,000	84,500	5,200,000
September-----	167,000	30,100	66,900	3,980,000
The year-----	224,000	12,400	74,300	53,900,000

MISSOURI RIVER AT HERMANN, MO.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 25, T. 46 N., R. 5 W., at Hermann. Zero of gage is 481.72 feet above mean sea level.

DRAINAGE AREA.—528,000 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 162,000 second-feet August 8 (gage height, 15.1 feet); minimum, 36,100 second-feet September 29 (gage height, 5.7 feet).

Maximum stage known, 35.7 feet in June, 1844.

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

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....	123,000	62,000	11.....	134,000	36,900	21.....	86,600	108,000
2.....	128,000	63,000	12.....	121,000	36,900	22.....	86,600	94,200
3.....	112,000	59,000	13.....	107,000	64,000	23.....	74,800	95,900
4.....	121,000	52,400	14.....	98,500	116,000	24.....	71,500	61,000
5.....	126,000	47,000	15.....	92,900	160,000	25.....	69,300	51,500
6.....	116,000	44,300	16.....	86,600	149,000	26.....	75,900	47,000
7.....	143,000	43,400	17.....	84,200	147,000	27.....	83,000	41,700
8.....	162,000	42,600	18.....	83,000	137,000	28.....	83,600	38,500
9.....	145,000	41,700	19.....	81,800	130,000	29.....	70,400	36,100
10.....	149,000	40,100	20.....	84,200	119,000	30.....	63,000	42,600
						31.....	59,000	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August.....	162,000	59,000	101,000	6,210,000
September.....	160,000	36,100	73,600	4,380,000
The period.....				10,600,000

GRASSHOPPER CREEK BASIN

GRASSHOPPER CREEK NEAR DILLON, MONT.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 26, T. 8 S., R. 10 W., 5 miles above Barratts and 14 miles above Dillon.

DRAINAGE AREA.—360 square miles.

RECORDS AVAILABLE.—March, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 327 second-feet May 13 (gage height, 6.10 feet); minimum, 2.8 second-feet September 6-9 (gage height, 4.27 feet).

1921-1928: Maximum discharge, 557 second-feet June 5, 1925 (gage height, 6.52 feet); minimum, 0.5 second-foot August 28 to September 3, 1924 (gage height, 3.85 feet).

REMARKS.—Records good. Numerous small diversions above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	45	42	22	-----	57	97	118	77	20	8.5
2.....	45	40	22	-----	70	93	99	126	20	6.5
3.....	50	42	22	-----	57	93	99	104	29	5.5
4.....	50	44	22	-----	44	86	89	116	29	4.5
5.....	53	47	20	-----	40	93	86	70	33	3.6
6.....	56	54	20	-----	35	86	80	54	29	2.8
7.....	56	67	-----	-----	42	108	80	44	25	2.8
8.....	48	60	-----	-----	52	108	68	42	21	2.8
9.....	48	54	-----	-----	54	118	62	33	21	2.8
10.....	48	52	-----	-----	57	152	53	29	20	3.6
11.....	48	47	-----	-----	54	188	53	27	20	5.5
12.....	48	47	-----	71	52	225	56	27	20	6.5
13.....	50	49	-----	40	47	327	71	27	18	6.5
14.....	50	52	-----	29	49	314	75	27	15	6.5
15.....	53	54	-----	22	47	275	62	27	14	8.5
16.....	50	54	-----	28	49	200	56	42	13	7.5
17.....	48	52	-----	59	60	200	50	40	12	7.5
18.....	48	49	-----	52	60	188	48	37	12	7.5
19.....	48	52	-----	141	63	176	59	35	11	7.5
20.....	48	49	-----	225	60	176	82	31	11	8.5
21.....	45	47	-----	130	60	176	82	27	11	9.6
22.....	45	49	-----	130	60	176	88	27	17	9.6
23.....	45	49	-----	275	67	176	59	27	14	9.6
24.....	43	49	-----	200	106	176	50	25	13	11
25.....	43	49	-----	102	99	176	43	23	9.6	11
26.....	45	49	-----	71	99	176	50	20	9.6	11
27.....	48	43	-----	45	99	225	53	20	12	11
28.....	48	35	-----	34	99	212	41	20	11	12
29.....	48	30	-----	28	110	188	32	21	11	13
30.....	45	23	-----	40	99	176	53	21	11	13
31.....	45	-----	-----	45	-----	152	-----	21	11	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	56	43	48.1	2,960
November.....	67	23	47.7	2,840
December 1-6.....	22	20	21.3	253
March 12-31.....	275	22	89.8	3,560
April.....	110	35	64.9	3,860
May.....	327	86	171	10,500
June.....	118	32	65.9	3,920
July.....	164	20	42.7	2,630
August.....	33	9.6	16.9	1,040
September.....	13	2.8	7.54	449

BIG HOLE RIVER BASIN

BIG HOLE RIVER NEAR MELROSE, MONT.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 27, T. 3 S., R. 9 W., at Brown's siding on Oregon Short Line Railroad, 8 miles south of Melrose.

RECORDS AVAILABLE.—March, 1924, to September, 1928.

EXTREMES.—Maximum discharge during year, 9,230 second-feet May 23 and 27 (gage height, 7.60 feet); minimum, 425 second-feet December 8. August 18–20, and September 6–13.

1924–1928: Maximum stage, 14.0 feet June 10, 1927 (discharge not determined); minimum discharge, 228 second-feet September 3, 1924 (gage height, 1.02 feet).

REMARKS.—Records good except those for May, which are fair. Some small diversions above station. Flow partly regulated.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	754	728	780	-----	836	4,500	5,750	2,090	755	460
2.....	780	780	1,090	-----	780	4,170	4,920	2,090	680	460
3.....	780	836	1,090	-----	780	3,350	4,350	1,980	755	460
4.....	836	894	1,020	-----	780	3,200	4,170	2,200	755	460
5.....	894	955	836	-----	728	2,930	3,500	2,090	755	425
6.....	955	1,240	728	-----	728	3,660	3,200	1,980	755	425
7.....	836	1,380	576	-----	680	4,350	2,800	1,760	830	425
8.....	780	1,240	455	-----	636	5,320	2,560	1,650	680	425
9.....	780	1,240	-----	-----	728	6,700	2,440	1,540	610	425
10.....	780	1,380	-----	-----	728	7,200	2,320	1,440	610	425
11.....	836	1,240	-----	-----	728	7,700	2,200	1,440	550	425
12.....	836	1,160	-----	-----	728	8,200	2,200	1,440	500	425
13.....	836	1,160	-----	-----	728	8,200	2,320	1,340	500	500
14.....	836	1,090	-----	-----	728	7,950	2,560	1,250	500	550
15.....	836	1,090	-----	-----	728	7,700	2,200	1,250	500	550
16.....	836	1,020	-----	-----	780	6,460	2,090	1,250	460	500
17.....	780	1,020	-----	-----	955	5,980	1,980	1,340	460	500
18.....	780	1,020	-----	636	1,090	5,980	1,980	1,250	425	460
19.....	780	1,020	-----	658	1,160	6,460	1,980	1,250	425	460
20.....	780	1,020	-----	780	1,020	6,700	1,980	1,250	425	460
21.....	780	1,090	-----	780	955	7,200	1,980	1,160	425	460
22.....	780	836	-----	780	955	7,950	2,200	1,080	460	460
23.....	780	658	-----	780	1,460	8,450	2,560	990	460	460
24.....	728	836	-----	894	2,280	8,450	2,440	990	460	460
25.....	728	1,020	-----	1,090	3,010	8,710	2,320	910	460	460
26.....	728	1,160	-----	1,020	4,350	9,230	2,090	910	500	460
27.....	780	1,160	-----	894	4,960	9,230	2,090	830	500	460
28.....	836	1,090	-----	894	4,960	8,450	1,980	830	550	460
29.....	836	955	-----	836	4,200	8,200	2,320	830	610	460
30.....	836	728	-----	836	3,640	7,700	2,200	755	550	460
31.....	780	-----	-----	836	-----	6,460	-----	755	500	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	955	728	803	49,400
November.....	1,380	728	1,040	61,900
December 1–8.....	1,090	455	822	13,000
March 18–31.....	1,090	636	837	28,200
April.....	4,960	636	1,560	92,800
May.....	9,230	2,930	6,670	410,000
June.....	5,750	1,980	2,660	158,000
July.....	2,200	755	1,350	83,000
August.....	830	425	561	34,500
September.....	550	425	461	27,400

SOUTH BOULDER CREEK BASIN

SOUTH BOULDER CREEK NEAR JEFFERSON ISLAND, MONT.

LOCATION.—Water-stage recorder in sec. 18, T. 2 S., R. 3 W., 200 feet above dam at headworks of power pipe line of the Liberty-Montana Mines Co. and 16 miles southwest of Jefferson Island.

RECORDS AVAILABLE.—May, 1926, to September, 1928.

EXTREMES.—Maximum discharge during year, 253 second-feet May 26 (gage height, 2.91 feet); minimum, 3.2 second-feet January 4 (gage height, 0.96 foot).

1926-1928: Maximum discharge, 359 second-feet June 26, 1927 (gage height, 3.08 feet); minimum, that of January 4, 1928.

REMARKS.—Records poor. Discharge estimated December 4 to March 31, because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	18	18	15		20	148	119	63	19
2	17	20	14		18	128	114	50	18
3	17	20	14		17	121	117	42	16
4	19	20			18	110	125	40	16
5	18	20			25	107	128	39	16
6	18	20			33	108	131	36	17
7	17	19			39	105	117	36	17
8	16	18			59	97	112	35	17
9	16	21			78	89	112	34	18
10	16	20			87	87	112	34	20
11	16	20			98	94	111	33	20
12	16	19			114	90	111	30	18
13	16	18			103	84	108	28	18
14	16	17			89	83	104	28	18
15	16	16			83	94	98	28	18
16	16	16			80	90	94	27	16
17	18	16			85	84	90	26	16
18	18	16			98	85	93	26	16
19	20	14			114	87	85	24	16
20	20	15			131	85	80	23	16
21	21	15			148	92	74	23	16
22	21	15			171	105	74	23	16
23	21	18			188	117	69	23	15
24	20	20			203	118	67	22	15
25	19	19			215	131	67	21	16
26	31	16			223	143	63	21	16
27	26	14			225	139	60	23	15
28	23	14			211	135	57	23	15
29	21	14		21	18	197	139	58	21
30	18	14		18	175	128	59	21	16
31	17				186		61	20	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	31	16	18.8	1,160
November	21	14	17.4	1,040
December			12.0	738
January		3.2	9.0	553
February			8.5	489
March			10.0	615
May	225	17	114	7,010
June	148	83	108	6,430
July	131	57	92.6	5,690
August	63	20	29.8	1,830
September	20	15	16.7	994

WILLOW CREEK BASIN

WILLOW CREEK NEAR WILLOW CREEK, MONT.

LOCATION.—Wire gage in SW. $\frac{1}{4}$ sec. 18, T. 1 S., R. 1 E., 7 miles south of Willow Creek.

DRAINAGE AREA.—164 square miles.

RECORDS AVAILABLE.—September, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 191 second-feet May 29 (gage height, 2.74 feet); minimum, 6 second-feet November 6 (gage height, 1.32 feet).

1919-1928: Maximum discharge, 456 second-feet June 21 and 22, 1922 (gage height, 3.40 feet); minimum, 3 second-feet November 27, 1926 (gage height, 1.40 feet).

REMARKS.—Records subsequent to March, good; prior to March, fair. Numerous diversions above and below station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	76	31	-----	65	52	75	59	56	15
2.....	83	25	-----	59	46	59	56	48	18
3.....	97	15	-----	50	44	38	68	39	15
4.....	105	10	-----	42	48	35	73	33	17
5.....	109	8	-----	40	48	27	63	31	17
6.....	105	6	-----	37	55	18	62	28	17
7.....	105	7	-----	38	78	25	68	24	15
8.....	101	7	-----	42	82	27	61	18	14
9.....	101	11	-----	43	86	31	48	15	17
10.....	105	9	-----	35	96	31	54	15	19
11.....	101	10	-----	26	101	30	61	14	19
12.....	101	11	-----	28	107	28	90	15	18
13.....	97	9	-----	26	111	31	81	15	18
14.....	90	9	-----	31	100	30	68	17	19
15.....	87	10	-----	41	101	30	61	14	19
16.....	83	11	-----	38	101	31	52	13	20
17.....	90	10	-----	35	98	30	54	15	21
18.....	94	10	75	34	98	35	68	15	21
19.....	94	9	81	37	98	33	56	15	23
20.....	97	13	89	40	101	38	63	17	19
21.....	96	-----	95	38	104	46	61	14	18
22.....	105	-----	101	42	107	46	63	13	18
23.....	99	-----	89	46	111	50	46	13	17
24.....	90	-----	83	63	121	56	35	14	18
25.....	88	-----	81	71	144	59	33	13	18
26.....	60	-----	89	79	161	61	30	15	19
27.....	62	-----	101	75	169	81	31	17	21
28.....	60	-----	136	78	182	54	35	17	24
29.....	52	-----	121	63	191	59	38	18	25
30.....	48	-----	107	59	165	56	36	17	25
31.....	35	-----	81	-----	107	-----	27	14	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	109	35	87.6	5,390
November 1-20.....	31	6	11.6	460
March 18-31.....	136	75	94.9	2,640
April.....	79	26	46.7	2,780
May.....	191	44	104	6,400
June.....	81	18	41.7	2,480
July.....	90	27	54.8	3,370
August.....	56	13	20.1	1,240
September.....	25	14	18.8	1,120

MADISON RIVER BASIN

MADISON RIVER NEAR WEST YELLOWSTONE, MONT.

LOCATION.—Water-stage recorder about 250 feet upstream from old footbridge on old Gallatin trail and 4 miles east of West Yellowstone and west boundary of Yellowstone National Park.

DRAINAGE AREA.—410 square miles.

RECORDS AVAILABLE.—June, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,580 second-feet May 12 (gage height, 2.22 feet); minimum, 360 second-feet February 14.

1913-1928: Maximum discharge, 1,950 second-feet June 10, 1917; minimum, 284 second-feet February 2, 1924.

REMARKS.—Records good except those for April and May, which are fair. Discharge obtained from observations on staff gage 3 miles downstream December 10 to April 7, July 26 to August 3, and August 26-28. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	540	500	500	* 466	413	371	413	664	980	590	499	424
2.....	550	500	510	477	434	371	413	642	874	622	488	433
3.....	540	510	530	455	424	392	413	611	* 847	600	488	433
4.....	500	540	500	455	* 416	371	413	622	* 820	580	480	424
5.....	540	550	500	455	* 408	392	392	674	* 793	550	471	424
6.....	500	520	500	455	* 400	392	* 392	805	* 765	560	462	414
7.....	480	580	* 500	455	392	392	392	897	* 733	664	442	414
8.....	471	570	* 500	* 450	413	371	386	1,000	* 711	590	442	414
9.....	480	717	* 499	* 444	371	392	395	1,240	681	550	433	424
10.....	471	920	499	* 439	392	392	395	1,340	695	550	433	424
11.....	462	664	* 499	434	392	434	378	1,420	761	530	442	424
12.....	442	590	* 499	434	392	392	395	1,470	823	530	442	411
13.....	442	580	* 499	444	371	371	386	1,420	723	* 540	442	414
14.....	442	570	499	466	360	371	386	1,220	723	550	433	414
15.....	433	550	488	455	392	371	386	1,080	733	520	433	414
16.....	433	530	510	* 448	392	371	395	1,140	717	530	433	404
17.....	433	520	477	* 441	* 382	392	395	1,150	733	530	433	404
18.....	424	510	477	434	371	* 392	404	1,190	791	570	433	414
19.....	424	510	* 499	424		392	386	1,280	723	530	433	414
20.....	433	550	* 521	413		413	395	1,320	671	510	433	404
21.....	433	580	543	413	* 375	* 434	386	1,330	674	480	424	404
22.....	433	530	554	424		455	370	1,370	* 681	* 480	424	424
23.....	442	520	565	* 413		477	378	1,340	695	* 480	433	424
24.....	433	490	455	402		499	433	1,300	664	480	433	424
25.....	442	500	434	413		499	473	1,300	653	* 495	452	424
26.....	452	520	455	413	371	434	530	1,300	674	510	488	424
27.....	674	520	* 455	413	371	477	600	1,450	695	499	488	424
28.....	695	510	* 455	413	392	* 463	695	1,370	643	500	499	442
29.....	560	490	455	413	371	* 448	590	1,240	633	510	442	414
30.....	520	480	466	424		434	611	1,160	590	532	424	424
31.....	520		455	413		434		1,060		499	424	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-foot
October.....	695	424	487	1.19	1.37	29,900
November.....	920	480	554	1.35	1.51	33,000
December.....	565	434	493	1.20	1.38	30,300
January.....	477	402	435	1.06	1.22	26,700
February.....	434	360	388	.946	1.02	22,300
March.....	499	371	413	1.07	1.16	25,400
April.....	695	370	433	1.06	1.18	25,800
May.....	1,470	611	1,140	2.78	3.20	70,100
June.....	980	590	732	1.79	2.00	43,600
July.....	664	480	537	1.37	1.51	33,000
August.....	499	424	449	1.10	1.27	27,600
September.....	442	404	419	1.03	1.14	24,900
The year.....	1,470	360	541	1.33	17.96	393,000

* Estimated or interpolated.

MADISON RIVER AT LYON, MONT.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 29, T. 10 S., R. 1 E., at Lyon.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 2,700 second-feet August 27 (gage height, 2.10 feet); minimum, 560 second-feet September 15 (gage height, 0.80 foot).

REMARKS.—Records good. No diversions. Complete regulation at Hebgen Dam.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		1,720	11.....	1,900	1,390	21.....	2,490	1,390
2.....		1,720	12.....	2,000	1,390	22.....	2,490	1,550
3.....		1,720	13.....	2,180	1,390	23.....	2,490	1,470
4.....		1,470	14.....	2,280	1,390	24.....	2,490	1,470
5.....		1,390	15.....	2,390	680	25.....	2,490	1,550
6.....		1,390	16.....	2,600	1,550	26.....	2,490	1,390
7.....		1,240	17.....	2,600	1,520	27.....	2,700	1,890
8.....		1,240	18.....	2,490	1,470	28.....	2,590	960
9.....		1,360	19.....	2,490	1,420	29.....	1,640	1,240
10.....		1,390	20.....	2,490	1,390	30.....	1,640	2,290
						31.....	1,550	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 11-31.....	2,600	1,550	2,310	96,200
September.....	2,290	680	1,430	85,100
The period.....				181,000

GALLATIN RIVER BASIN

GALLATIN RIVER AT LOGAN, MONT.

LOCATION.—Wire gage at highway bridge in sec. 26, T. 2 N., R. 2 E., half a mile west of Logan.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 758 second-feet August 30 and September 11 (gage height, 3.54 feet); minimum, 438 second-feet August 12, 13, and 14 (gage height, 2.88 feet).

REMARKS.—Records good. Numerous diversions above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		695	11.....	415	725	21.....	485	695
2.....		695	12.....	415	725	22.....	485	695
3.....		695	13.....	415	725	23.....	535	695
4.....		665	14.....	415	725	24.....	560	695
5.....		665	15.....	415	695	25.....	560	695
6.....		665	16.....	415	695	26.....	560	695
7.....		665	17.....	415	695	27.....	638	695
8.....		665	18.....	438	695	28.....	695	695
9.....		665	19.....	438	695	29.....	665	695
10.....	415	725	20.....	460	695	30.....	758	695
						31.....	695	-----
Month			Maximum		Minimum		Mean	Run-off in acre-feet
August 10-31.....			758		415		513	22,400
September.....			725		665		694	41,300
The period.....								63,700

CROW CREEK BASIN

CROW CREEK NEAR RADERSBURG, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 23, T. 6 N., R. 1 W., at Glendale ranger station, 1 mile above mouth of Slim Sam Creek and 6 mile north-west of Radersburg.

RECORDS AVAILABLE.—April, 1924, to September, 1928. May, 1919, to September, 1922, at station 600 feet below Slim Sam Creek; records not comparable during spring run-off.

EXTREMES.—Maximum discharge during year, 350 second-feet May 8 (gage height, 2.91 feet); minimum, 13 second-feet September 30 (gage height, 1.11 feet).

1919-1922, 1924-1928: Maximum discharge, 817 second-feet June 8, 1920; minimum, 2.1 second-feet December 13, 1924 (gage height, 0.73 foot).

REMARKS.—Records fair. No diversions above gage.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1	25	18	22	-----	103	116	39	20
2	24	22	23	-----	102	110	41	20
3	25	25	22	-----	103	112	38	20
4	31	32	20	75	94	110	38	20
5	28	38	22	86	85	105	41	19
6	25	32	-----	125	81	110	36	18
7	25	32	-----	199	79	102	31	17
8	25	28	-----	280	75	96	29	18
9	25	28	-----	314	75	91	26	20
10	25	28	-----	301	70	85	24	23
11	25	23	-----	283	71	80	23	23
12	24	25	-----	295	71	75	23	20
13	25	26	-----	268	67	71	22	20
14	23	25	-----	216	64	79	22	20
15	22	24	-----	188	66	65	23	18
16	22	25	-----	172	66	63	23	17
17	21	24	-----	177	61	65	22	17
18	21	23	-----	188	73	72	20	16
19	21	23	-----	199	116	81	20	16
20	21	24	-----	206	109	74	20	16
21	20	24	-----	202	107	62	19	17
22	20	21	-----	209	132	58	20	16
23	20	19	-----	209	183	55	27	16
24	20	23	-----	192	166	52	24	16
25	20	24	-----	181	155	48	25	15
26	22	22	-----	179	134	47	24	15
27	22	22	-----	172	125	44	30	15
28	24	22	-----	160	122	46	35	14
29	23	20	-----	136	122	45	28	14
30	20	19	-----	122	143	42	22	13
31	19	-----	-----	110	-----	38	21	-----

Month	Maximum	Minimum	Mean	Pun-off in acre-feet
October	31	19	23.0	1,410
November	38	18	24.7	1,470
December 1-5	23	20	21.8	218
May 4-31	314	75	194	10,800
June	183	61	101	6,010
July	116	38	74.2	4,560
August	41	19	27.0	1,660
September	23	13	17.6	1,050

PRICKLY PEAR CREEK BASIN

PRICKLY PEAR CREEK NEAR CLANCY, MONT.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 34, T. 9 N., R. 3 W., a quarter of a mile below Lump Gulch Creek and $1\frac{1}{4}$ miles north of Clancy.

DRAINAGE AREA.—178 square miles.

RECORDS AVAILABLE.—July, 1910, to September, 1916; July, 1921, to September, 1928. From July, 1908, to June, 1909, at site 1 mile downstream.

EXTREMES.—Maximum discharge during year, 174 second-feet July 17 (gage height, 2.34 feet); minimum, 20 second-feet August 18 and 20 (gage height, 0.98 foot).

1910-1916, 1921-1928: Maximum discharge, 492 second-feet June 3, 1927 (gage height, 3.8 feet); minimum, 9.3 second-feet September 9, 1924 (gage height, 0.71 foot).

REMARKS.—Records good. Several small diversions above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	44	39	46	-----	50	103	54	79	40	36
2.....	40	38	46	-----	49	80	59	77	36	33
3.....	41	39	46	-----	18	78	68	78	33	30
4.....	47	46	48	-----	43	75	61	85	35	27
5.....	46	50	-----	-----	42	74	56	83	39	28
6.....	47	46	-----	-----	40	103	52	79	34	25
7.....	44	46	-----	-----	39	106	51	69	33	25
8.....	40	44	-----	-----	38	122	52	61	31	25
9.....	44	45	-----	71	34	142	52	58	29	25
10.....	46	47	-----	49	46	135	51	53	24	28
11.....	45	47	-----	48	39	135	56	50	21	30
12.....	45	46	-----	40	44	149	65	47	21	28
13.....	43	46	-----	34	48	157	59	48	22	26
14.....	39	44	-----	43	43	128	59	49	21	26
15.....	38	39	-----	44	43	122	60	48	21	26
16.....	38	38	-----	45	46	122	53	51	21	26
17.....	37	38	-----	46	43	122	53	103	21	26
18.....	37	38	-----	45	43	122	68	84	20	26
19.....	35	41	-----	55	39	122	109	97	21	26
20.....	38	46	-----	60	42	122	85	80	20	26
21.....	39	45	-----	62	42	109	73	65	21	26
22.....	39	44	-----	60	42	109	78	60	23	27
23.....	36	47	-----	70	48	103	109	60	30	21
24.....	36	46	-----	66	56	91	80	56	34	21
25.....	35	46	-----	54	66	91	68	44	35	21
26.....	37	46	-----	38	80	91	62	36	36	21
27.....	39	46	-----	51	91	85	62	36	41	21
28.....	37	46	-----	49	109	75	52	36	41	21
29.....	38	46	-----	46	84	73	68	53	52	21
30.....	37	47	-----	46	74	68	97	48	47	21
31.....	40	-----	-----	47	-----	60	-----	43	42	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	47	35	40.2	2,470
November.....	50	38	44.1	2,620
March 9-31.....	71	34	50.8	2,320
April.....	109	34	51.7	8,080
May.....	157	60	106	6,620
June.....	109	51	65.7	3,910
July.....	103	36	61.8	3,800
August.....	52	20	30.5	1,880
September.....	36	21	25.6	1,520

TEN MILE CREEK NEAR RIMINI, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 20, T. 9 N., R. 5 W., at Moose Creek ranger station, 500 feet above Moose Creek and 3 miles north of Rimini.

DRAINAGE AREA.—34 square miles.

RECORDS AVAILABLE.—March, 1915, to September, 1928.

EXTREMES.—Maximum discharge during year, 249 second-feet May 9 (gage height, 2.16 feet); no flow at times during March and September.

1915-1928: Maximum discharge, 948 second-feet May 15, 1917 (gage height, 4.87 feet); no flow at times in March and September, 1928.

REMARKS.—Records good. Small diversions above station. Partly regulated by reservoir on tributary above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	2.4	6.2		4.7	74	44	22	4.1	0.1
2	2.7	2.9	6.1		4.7	62	42	22	6.9	0
3	3.1	3.3	7.2		4.7	58	40	19	5.8	0
4	5.5	8.9	8.0		5.5	60	35	20	6.9	0
5	4.3	3.0	6.2		6.7	78	33	17	6.7	0
6	3.3	9.3	6.9		6.7	116	36	19	6.1	0
7	3.1	9.7	7.2		6.7	158	30	14	4.7	0
8	3.1	8.0			8.0	198	22	11	3.1	0
9	3.3	7.5			8.0	212	21	8.8	6.2	.1
10	4.1	9.7			7.2	206	18	8.8	6.1	1.6
11	4.3	7.5			7.2	198	18	6.7	4.7	2.7
12	4.1	10.0			7.2	201	16	4.7	2.9	.6
13	4.7	8.0			7.2	173	10	4.3	1.9	0
14	5.0	8.0			7.5	135	9.8	5.3	.5	0
15	5.3	7.5			7.5	123	12	7.5	.5	0
16	5.0	7.5			7.5	123	10	9.3	.2	0
17	4.5	7.5			7.5	130	9.3	12	.1	0
18	4.3	7.2			7.5	142	16	24	0	0
19	4.3	6.2			7.5	145	23	24	.1	0
20	4.1	6.7		0	7.5	142	18	18	.2	0
21	4.1	6.7		0	8.4	137	16	12	.1	0
22	3.9	6.7		0	8.4	132	17	9.8	2.7	0
23	4.1	7.2		0	11	125	35	9.3	1.9	0
24	4.1	6.2		.6	17	111	22	4.3	.9	0
25	3.9	6.1		7.2	29	103	19	2.5	1.1	0
26	4.5	6.1		7.2	46	96	13	2.1	.8	0
27	5.5	5.8		6.7	67	82	12	1.4	1.0	0
28	5.3	5.5		6.7	82	74	14	3.5	7.5	.1
29	4.5	6.1		6.7	62	67	24	4.3	4.5	.3
30	3.7	6.9		6.9	58	56	36	4.7	1.3	0
31	2.1			6.9		52		4.5	.5	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	5.5	2.1	4.08	251
November	10.0	2.4	6.80	405
December 1-7	8.0	6.1	6.83	95
March 20-31	7.2	0	4.08	97
April	82	4.7	17.5	1,040
May	212	52	122	7,500
June	44	9.3	22.4	1,330
July	24	1.4	10.8	664
August	7.5	0	2.90	178
September	2.7	0	.18	11

TENMILE CREEK NEAR HELENA, MONT.

LOCATION.—Water-stage recorder in SE. ¼ sec. 22, T. 10 N., R. 4 W., opposite the Broadwater Hotel, near Helena.

DRAINAGE AREA.—103 square miles.

RECORDS AVAILABLE.—July, 1908, to September, 1928.

EXTREMES.—Maximum discharge during year, 404 second-feet May 10 (gage height, 5.06 feet); no flow at times during August.

1908–1928: Maximum discharge, 865 second-feet June 11, 1927 (gage height, 6.58 feet); no flow at times.

REMARKS.—Records for open channel good; others fair. Some small diversions above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....			20		* 10	* 17	32	135	40	40	0.3	3.9
2.....			23		9.2	* 18	33	121	38	35	.2	3.0
3.....			29		* 8.0	* 18	32	120	39	32	0	3.0
4.....				* 11	8.0	19	29	122	37	32	0	2.4
5.....			24		* 9.0	* 18	29	135	34	29	0	1.4
6.....		* 10	* 16		10	* 15	* 29	184	32	27	0	1.4
7.....			* 10	12	* 12	12	* 29	245	32	25	0	1.4
8.....			* 8		* 12	17	* 28	309	28	* 21	0	1.4
9.....			* 6	* 12	14	31	* 28	346	29	* 17	0	1.4
10.....	* 10		* 4		* 13	26	* 28	346	28	* 13	* 0	.7
11.....				* 30	* 11	36	* 27	322	31	* 9.0	* 0	.8
12.....				84	* 10	24	* 27	327	31	6.4	* .1	.9
13.....			* 8	38	* 9.0	16	* 27	282	28	5.7	* .2	1.0
14.....				26	8.0	16	* 26	225	23	.0	* .1	1.3
15.....				* 24	16	13	* 26	202	25	.3	* 0	1.6
16.....			12	* 22	* 12	18	* 25	188	* 28	2.0	* 0	2.0
17.....				* 20	* 8.0	22	* 25	190	* 31	6.0	* 0	1.8
18.....				18	4.5	23	* 24	186	* 34	22	* 0	1.6
19.....			* 12	* 19	6.0	26	* 24	173	36	25	* 0	1.4
20.....	8.0			* 20	* 6.0	31	23	158	37	29	* 0	1.2
21.....	16			* 20	* 6.0	36	* 32	149	31	16	* 0	1.0
22.....	8.8			* 21	* 6.0	42	* 41	149	26	12	* 0	.7
23.....	10			22	* 6.0	50	* 50	132	49	12	* 0	.7
24.....	10			* 20	* 6.0	46	* 59	116	35	12	* 1.0	.8
25.....				* 18	* 8.0	39	68	98	27	6.8	2.0	.8
26.....				16	* 10	32	88	91	24	4.5	2.0	.9
27.....				* 15	* 12	34	116	83	24	3.3	2.6	.9
28.....			* 12	* 14	* 14	31	154	77	23	* 2.7	5.1	1.0
29.....				* 13	16	29	120	65	35	* 2.1	9.6	.7
30.....				* 12	-----	29	110	58	47	* 1.5	8.0	.9
31.....				* 11	-----	31	-----	50	-----	* 9	6.0	-----
Month					Maximum	Minimum	Mean	Run-off in acre-feet				
October.....					16	8	10.1	621				
November.....					24	10	12.5	744				
December.....					29	4	12.8	787				
January.....					84	11	19.3	1,190				
February.....					16	4.5	9.64	554				
March.....					50	12	26.3	1,610				
April.....					154	23	46.3	2,760				
May.....					346	50	174	10,700				
June.....					49	23	32.1	1,910				
July.....					40	0	14.5	892				
August.....					9.6	0	1.20	73.9				
September.....					3.9	.7	1.40	83.3				
The year.....					346	0	30.2	21,900				

* Estimated or interpolated.

LITTLE PRICKLY PEAR CREEK BASIN

LITTLE PRICKLY PEAR CREEK NEAR MARYSVILLE, MONT.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 18, T. 12 N., R. 6 W., a quarter of a mile below Deadman Creek and 6 miles northwest of Marysville.

DRAINAGE AREA.—69 square miles.

RECORDS AVAILABLE.—May, 1913, to September, 1928. From April to May, 1913, at site a quarter of a mile upstream. May, 1909, to December, 1911, at station above mouth of Deadman Creek.

EXTREMES.—Maximum discharge during year, 238 second-feet May 9 (gage height, 2.05 feet); minimum, 14.8 second-feet March 18 and 19 (gage height, 0.52 foot).

1909-1911, 1913-1928: Maximum discharge, 454 second-feet May 25 and 26, 1917 (gage height, 3.8 feet); minimum, 1.2 second-feet March 7-13, 1911.

REMARKS.—Records good. Some diversions above station.

Daily and monthly discharge, in second-feet, 1926-27

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	16	-----	25	111	77	37	26	19
2	16	16	-----	25	109	68	37	26	19
3	16	16	-----	24	105	65	37	26	19
4	16	16	-----	24	95	58	37	26	19
5	16	16	-----	23	95	54	35	26	19
6	16	-----	-----	23	115	51	34	25	19
7	16	-----	-----	22	157	49	34	25	19
8	16	-----	-----	17	214	48	34	23	19
9	16	-----	-----	20	238	48	34	24	19
10	16	-----	-----	21	214	48	33	23	19
11	16	-----	-----	20	202	48	32	22	19
12	16	-----	-----	20	190	46	30	22	19
13	16	-----	-----	18	190	45	29	20	19
14	16	-----	-----	20	168	43	28	20	19
15	16	-----	-----	21	146	43	28	20	18
16	16	-----	-----	21	132	41	28	20	18
17	16	-----	-----	21	132	40	29	20	18
18	16	-----	15	21	136	40	29	20	18
19	16	-----	15	21	136	38	29	19	18
20	16	-----	16	22	136	37	30	19	18
21	16	-----	18	22	136	37	30	19	18
22	16	-----	25	21	132	37	28	19	18
23	16	-----	29	22	130	37	28	19	18
24	16	-----	30	25	128	35	28	19	18
25	16	-----	29	33	121	35	27	19	17
26	16	-----	28	51	119	34	26	19	17
27	16	-----	27	88	113	39	25	20	17
28	16	-----	26	136	107	35	25	20	17
29	16	-----	26	126	99	38	26	20	17
30	16	-----	25	107	91	38	26	20	17
31	16	-----	25	-----	84	-----	26	20	-----
Month	Maximum			Minimum		Mean		Run-off in acre-feet	
October	17			16		16.0		984	
November 1-5	16			16		16.0		150	
March 18-31	30			15		23.9		664	
April	136			17		35.3		2,100	
May	238			84		138		8,480	
June	77			34		45.1		2,680	
July	37			25		30.3		1,860	
August	26			19		21.5		1,320	
September	19			17		18.3		1,090	

SMITH RIVER BASIN

SMITH RIVER NEAR WHITE SULPHUR SPRINGS, MONT.

LOCATION.—Wire gage in SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 33, T. 11 N., R. 8 E., 14 miles northeast of White Sulphur Springs.

RECORDS AVAILABLE.—September, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 211 second-feet April 28 (gage height, 3.27 feet); minimum, 7.5 second-feet August 11 and 18–20 (gage height, 1.73 feet).

1922–1928: Maximum discharge, 224 second-feet June 21, 1923 (gage height, 3.15 feet); minimum, 3.1 second-feet March 8, 1923.

REMARKS.—Records for open channel good. Discharge estimated November 22, 23, and 28–30. A few small diversions above gage.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	15	18	-----	21	121	92	30	19	12
2.....	15	15	-----	22	113	86	34	17	12
3.....	15	15	-----	21	104	76	37	16	12
4.....	17	18	-----	22	106	70	40	16	14
5.....	16	20	-----	19	100	62	35	16	13
6.....	16	20	-----	19	113	63	34	16	12
7.....	16	18	-----	20	129	64	32	14	12
8.....	16	16	-----	19	148	57	29	14	12
9.....	17	18	-----	18	180	59	31	14	12
10.....	17	21	-----	18	173	57	29	13	14
11.....	16	22	-----	16	173	54	26	7.5	14
12.....	15	21	-----	16	194	50	20	8.5	15
13.....	15	19	-----	22	182	49	18	7.5	17
14.....	15	18	-----	22	168	49	29	9.0	17
15.....	15	18	-----	18	161	49	7.6	8.5	15
16.....	15	16	-----	18	136	49	16	8.5	14
17.....	15	18	-----	20	134	45	20	9.0	14
18.....	15	19	-----	20	118	47	34	7.5	14
19.....	14	21	12	18	113	47	29	7.5	14
20.....	15	15	13	22	141	43	25	7.5	14
21.....	15	18	14	20	141	41	23	8.0	14
22.....	15	17	18	21	136	42	24	8.2	12
23.....	15	17	23	22	148	40	24	8.5	16
24.....	14	16	20	35	148	42	21	8.8	16
25.....	14	17	20	90	148	43	21	9.0	16
26.....	14	17	26	177	131	43	21	9.5	15
27.....	15	17	22	168	118	46	20	17	12
28.....	16	16	18	205	110	42	20	18	12
29.....	16	16	15	139	100	40	16	17	12
30.....	16	15	18	146	96	36	17	17	12
31.....	20	-----	18	-----	96	-----	18	16	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	20	14	15.5	953
November.....	22	15	17.7	1,050
March 19–31.....	26	12	18.2	469
April.....	205	16	47.1	2,800
May.....	194	96	135	8,300
June.....	92	36	62.8	3,140
July.....	40	7.6	25.2	1,550
August.....	19	7.5	12.0	738
September.....	17	12	13.7	815

SUN RIVER BASIN

NORTH FORK OF SUN RIVER NEAR AUGUSTA, MONT.

LOCATION.—Staff gage in the unsurveyed tract at Sun River diversion dam, 18 miles northwest of Augusta.

DRAINAGE AREA.—596 square miles.

RECORDS AVAILABLE.—January, 1916, to September, 1928. August, 1889, to December, 1890, and October, 1903, to December, 1915, at station 8 miles downstream, in sec. 33, T. 22 N., R. 7 W.

EXTREMES.—Maximum discharge during year, 10,700 second-feet May 23; minimum, 217 second-feet at times.

1889-90, 1903-1928: Maximum discharge, 32,300 second-feet June 21, 1916 (gage height, 11.4 feet); minimum, 15 second-feet April 7 and 8, 1915 (gage height, 0.0 foot).

REMARKS.—Records good. Pishkun Canal diverts at right end of dam.

Daily and monthly discharge, in second-feet, of North Fork of Sun River and Pishkun Canal near Augusta, Mont., 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	372	461	291	217	217	217	372	1,840	3,590	2,440	849	372
2.....	372	461	372	217	217	217	372	2,000	3,410	2,120	747	372
3.....	372	461	372	217	217	217	372	1,840	3,230	1,960	651	372
4.....	372	461	372	217	217	217	372	1,840	3,230	1,960	562	372
5.....	372	461	372	217	217	217	291	2,330	3,140	1,960	481	372
6.....	372	461	332	217	217	217	291	3,820	2,960	1,800	451	372
7.....	372	461	332	217	217	217	217	6,060	2,780	1,640	532	372
8.....	372	461	332	217	217	217	217	7,310	2,600	1,500	532	372
9.....	461	461	291	217	217	217	217	7,340	2,440	1,500	482	372
10.....	461	461	291	217	217	217	291	6,800	2,280	1,380	482	372
11.....	461	461	254	217	217	217	291	7,670	2,120	1,380	482	372
12.....	461	461	217	217	217	217	291	7,970	2,120	1,240	482	372
13.....	461	461	217	217	217	217	291	7,460	2,120	1,320	482	372
14.....	461	372	217	217	217	217	372	6,040	2,120	1,190	482	557
15.....	557	372	217	217	217	217	372	4,460	2,140	1,190	562	476
16.....	557	372	217	217	217	217	372	4,900	2,140	1,190	481	402
17.....	557	372	217	217	217	291	372	5,820	2,140	1,320	481	402
18.....	557	372	217	217	217	291	372	6,300	1,870	1,560	481	387
19.....	557	332	217	217	217	461	372	6,540	2,170	1,680	407	322
20.....	557	332	217	217	217	461	372	6,540	1,960	1,260	407	322
21.....	557	332	217	217	217	557	372	7,800	1,960	1,260	407	322
22.....	509	332	217	217	217	767	372	8,880	1,960	1,130	407	322
23.....	509	291	217	217	217	659	461	10,700	3,340	1,000	407	322
24.....	509	291	217	217	217	557	659	9,270	2,980	1,000	407	322
25.....	509	291	217	217	217	461	1,000	9,070	2,800	1,000	217	252
26.....	509	291	217	217	217	372	1,680	9,920	2,620	883	217	284
27.....	461	291	217	217	217	291	2,680	9,680	2,980	883	291	284
28.....	461	291	217	217	217	291	3,040	8,100	2,800	659	291	284
29.....	461	291	217	217	217	291	2,500	6,620	3,160	659	372	284
30.....	461	291	217	217	-----	291	2,000	4,790	3,340	659	372	284
31.....	461	-----	217	217	-----	372	-----	4,380	-----	659	372	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	557	372	467	28,700
November.....	461	291	384	22,800
December.....	372	217	256	15,700
January.....	217	217	217	13,300
February.....	217	217	217	12,500
March.....	767	217	319	19,600
April.....	3,040	217	708	42,100
May.....	10,700	1,840	6,260	385,000
June.....	3,590	1,870	2,620	156,000
July.....	2,440	659	1,330	81,800
August.....	849	217	461	28,300
September.....	557	252	355	21,100
The year.....	10,700	217	1,140	827,000

Daily discharge, in second-feet, of Pishkun Canal near Augusta, Mont., 1927-28

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1-----	0	550	115	190	0	16-----	235	465	190	190	185
2-----	0	550	115	190	0	17-----	235	465	190	190	185
3-----	0	550	115	190	0	18-----	255	190	30	190	170
4-----	0	550	115	190	0	19-----	235	170	0	190	170
5-----	0	465	115	190	0	20-----	235	115	0	190	170
6-----	0	465	115	160	0	21-----	235	115	0	190	170
7-----	0	445	115	160	0	22-----	235	115	0	190	170
8-----	0	445	115	160	0	23-----	255	115	0	190	170
9-----	0	445	115	110	0	24-----	340	115	0	190	170
10-----	0	445	115	110	0	25-----	420	115	0	0	100
11-----	100	445	115	110	0	26-----	420	115	0	0	100
12-----	140	435	115	110	0	27-----	475	115	0	0	100
13-----	155	435	185	110	0	28-----	525	115	0	0	100
14-----	220	435	190	110	185	29-----	560	115	0	0	100
15-----	235	465	190	190	185	30-----	560	115	0	0	100
						31-----	560	-----	0	0	-----

NOTE.—No flow in canal on days for which no discharge is given.

SUN RIVER AT FORT SHAW, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 1, T. 20 N., R. 2 W., at highway bridge at Fort Shaw.

DRAINAGE AREA.—1,475 square miles.

RECORDS AVAILABLE.—May, 1912, to September, 1928. At Sun River, from July, 1905, to October, 1912.

EXTREMES.—Maximum discharge during year, 8,560 second-feet May 23 (gage height, 9.50 feet); minimum, 277 second-feet August 13 (gage height, 3.80 feet).

1905-1928: Maximum discharge, 18,400 second-feet June 7, 1908 (gage height, 13.4 feet); minimum, 38 second-feet August 27, 1926 (gage height, 3.04 feet).

REMARKS.—Records good. Numerous diversions above station. Some regulation owing to storage in Willow Creek and Pishkun Reservoirs.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	458	407	-----	550	2,280	3,270	3,030	630	568
2	440	401	-----	556	2,280	2,880	2,580	605	562
3	440	407	-----	521	2,080	2,730	2,220	492	556
4	508	446	-----	509	2,020	2,580	2,150	448	544
5	528	508	-----	486	2,140	2,430	2,080	437	-----
6	489	502	-----	475	2,800	2,500	1,950	411	-----
7	458	496	-----	464	3,940	2,430	1,820	390	-----
8	446	528	-----	437	5,650	2,080	1,590	390	-----
9	440	477	-----	411	6,250	1,890	1,480	351	-----
10	452	477	-----	437	6,250	1,650	1,380	318	-----
11	502	-----	-----	464	5,850	1,480	1,330	313	-----
12	508	-----	-----	509	5,850	1,430	1,230	295	-----
13	496	-----	-----	509	6,450	1,430	1,180	286	-----
14	528	-----	-----	504	5,650	1,590	1,180	282	-----
15	583	-----	-----	568	4,500	1,650	1,040	346	-----
16	628	-----	-----	544	4,220	1,650	1,030	375	-----
17	628	-----	-----	550	4,690	1,480	1,330	341	-----
18	643	-----	-----	574	5,450	1,540	1,380	308	-----
19	635	-----	-----	580	5,850	1,890	1,590	304	-----
20	613	-----	-----	580	5,850	1,760	1,590	313	-----
21	591	-----	-----	509	6,250	1,760	1,330	313	-----
22	562	-----	592	498	6,660	1,950	1,180	332	-----
23	542	-----	707	526	7,490	2,800	1,110	341	-----
24	528	-----	785	580	7,920	2,800	1,050	346	-----
25	508	-----	752	799	7,070	2,800	978	360	-----
26	508	-----	707	1,150	7,070	3,030	908	426	-----
27	496	-----	688	1,820	7,700	2,800	841	322	-----
28	477	-----	707	2,720	7,070	3,110	820	668	-----
29	452	-----	655	2,800	5,650	3,190	834	655	-----
30	440	-----	605	2,220	4,880	3,680	806	605	-----
31	429	-----	574	-----	3,940	-----	726	586	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	643	429	515	31,700
November 1-10	528	401	465	9,220
March 22-31	785	574	677	13,400
April	2,800	411	795	47,300
May	7,920	2,020	5,220	321,000
June	3,680	1,430	2,280	136,000
July	3,030	726	1,410	86,700
August	668	282	406	25,000

MARIAS RIVER BASIN

MARIAS RIVER NEAR SHELBY, MONT.

LOCATION.—Water-stage recorder in sec. 20, T. 31 N., R. 2 W., at highway bridge 7 miles south of Shelby.

DRAINAGE AREA.—2,610 square miles.

RECORDS AVAILABLE.—April, 1902, to January, 1908; April, 1911, to September, 1922; and March, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 6,450 second-feet May 24 (gage height, 7.1 feet); minimum, 303 second-feet September 3^d (gage height, 2.65 feet).

1902–1908, 1911–1928: Maximum discharge, 29,500 second-feet June 24, 1907 (gage height, 14.9 feet); minimum, 10 second-feet August 20, 1919 (gage height, 1.50 feet).

REMARKS.—Records good. Numerous diversions from tributaries. Flow regulated by storage in several reservoirs on tributaries.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	994	800		1,160	2,510		4,390	1,130	890
2	977	755		1,380	2,880		4,020	1,030	845
3	961	808		1,160	2,440		3,300	994	692
4	937	800		1,020	2,240		2,650	1,120	601
5	977	822		929	2,240		2,110	1,160	575
6	1,010	830		868	2,650		2,110	1,160	556
7	953	822		808	3,570		2,370	1,050	519
8	937	838		755	5,190		2,580	961	513
9	937	830		748	5,820		2,370	913	525
10	937	762		748	5,820		1,740	875	537
11	1,010			838	5,190	1,980	1,980	830	537
12	1,290			838	5,080	1,860	1,800	792	513
13	1,290			800	5,400	1,800	1,680	762	494
14	1,140			770	5,820	1,800	1,560	755	465
15	1,100			838	5,400	1,860	1,620	762	459
16	1,190			830	4,880	1,920	1,680	800	459
17	1,320			898	5,080	1,920	1,860	748	453
18	1,350			1,010	5,400	2,300	1,980	741	442
19	1,320			1,010	5,400	2,650	2,110	720	420
20	1,300			953	5,400	2,650	2,300	699	392
21	1,260			913	5,400	2,580	2,240	692	392
22	1,210			882	5,610	2,800	2,240	692	392
23	1,140		3,570	905	6,030	3,660	1,800	699	386
24	1,080		2,880	1,040	6,240	3,390	1,560	699	349
25	1,020		2,180	1,440	6,030	3,570	1,440	748	333
26	995		1,680	1,920	5,610	3,840	1,350	961	328
27	970		1,440	2,720	5,610	3,660	1,240	1,080	328
28	945		1,370	3,570	5,190	3,660	1,180	1,120	328
29	921		1,160	3,660	4,480	4,020	1,210	1,100	318
30	882		1,070	2,800	3,840	4,480	1,310	994	303
31	860		1,060		3,300		1,260	921	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,350	860	1,070	65,800
November 1–10	838	755	807	16,000
March 23–31	3,570	1,060	1,820	32,700
April	3,660	748	1,270	75,600
May	6,240	2,240	4,700	289,000
June 11–30	4,480	1,800	2,820	112,000
July	4,390	1,210	2,030	125,000
August	1,160	692	894	55,000
September	890	303	478	28,400

MARIAS RIVER NEAR BRINKMAN, MONT.

LOCATION.—Wire gage in NW. ¼ sec. 21, T. 29 N., R. 8 E., 4 miles from Brinkman post office.

RECORDS AVAILABLE.—October, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 5,620 second-feet May 10 and 25 (gage height, 5.2 feet); minimum, 427 second-feet September 29 (gage height, 1.36 feet).

1921-1928: Maximum discharge, 14,300 second-feet June 1, 1927 (gage height, 9.2 feet); minimum, 106 second-feet August 26-29, 1926 (gage height, 0.68 foot).

A stage of 18.00 feet was reached during the 1908 flood.

REMARKS.—Record below 6,000 second-feet good; fair above. Numerous diversions from tributaries. Flow regulated by storage in several reservoirs.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	965	875		1,290	2,900	3,350	4,150	1,190	1,090
2	965	875		1,290	2,470	3,050	4,320	1,140	990
3	920	875		1,590	2,470	2,750	4,150	1,040	940
4	920	875		1,590	2,330	2,610	3,660	1,040	840
5	965	875		1,590	2,200	2,330	3,350	1,090	790
6	965	875		1,190	2,200	2,200	3,200	1,190	695
7	965	875		1,140	2,330	2,200	2,900	1,190	652
8	920	830		1,040	2,900	1,940	2,750	1,140	610
9	1,010	875		990	4,500	1,700	2,610	1,140	610
10	1,060	875		940	5,050	2,330	2,330	1,090	610
11	1,160			940	5,240	2,330	2,200	940	610
12	1,260			940	4,860	2,070	1,940	890	570
13	1,260			940	4,860	1,940	1,820	890	570
14	1,210			990	4,680	1,940	1,820	890	570
15	1,210			990	5,050	1,940	1,700	940	530
16	1,210			940	4,860	1,940	1,700	890	530
17	1,210			940	4,500	2,070	1,700	840	492
18	1,210		1,390	990	4,500	2,070	1,940	840	455
19	1,210		1,340	1,090	4,860	2,330	2,330	790	455
20	1,210		1,390	1,190	4,860	2,610	2,470	790	455
21	1,210		1,940	1,140	4,860	2,900	2,330	790	455
22	1,160		2,900	1,090	4,860	3,050	2,200	790	441
23	1,160		3,980	1,040	5,240	2,900	1,820	742	441
24	1,160		4,150	1,040	5,430	3,350	1,590	742	455
25	1,110		3,980	1,040	5,620	3,500	1,590	840	448
26	965		3,050	1,340	5,430	3,500	1,490	940	448
27	965		2,900	1,590	5,430	3,660	1,390	1,140	434
28	920		2,070	2,330	5,240	3,660	1,490	1,190	434
29	920		1,820	3,350	4,860	3,660	1,390	1,240	441
30	920		1,490	3,660	4,320	3,500	1,340	1,240	427
31	875		1,340		3,820		1,290	1,140	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,260	875	1,070	65,800
November 1-10	875	830	870	17,300
March 18-31	4,150	1,340	2,410	66,900
April	3,660	940	1,340	79,700
May	5,620	2,200	4,280	263,000
June	3,660	1,700	2,650	158,000
July	4,320	1,290	2,290	141,000
August	1,240	742	992	61,000
September	1,090	427	583	34,700

SURFACE WATER SUPPLY, 1928, PART VI

BIRCH CREEK AT SWIFT DAM, NEAR DUPUYER, MONT.

LOCATION.—Staff gage near southwest corner of sec. 23, T. 28 N., R. 10 W., just below Swift Dam 20 miles west of Dupuyer.

DRAINAGE AREA.—75 square miles.

RECORDS AVAILABLE.—March, 1913, to September, 1926; October, 1927, to September, 1928.

EXTREMES.—Maximum discharge, 602 second-feet November 14 and 15 (gage height, 3.56 feet); minimum, 5 second-feet at times in November and December (gage height, 1.70 feet).

1913-1926, 1927-28: Maximum discharge, 5,275 second-feet June 21, 1916; no flow October 2, 1918, and January 2 and 3, 1920.

REMARKS.—Records good. Two small diversions above station. Flow regulated by operation of gates at Swift Dam except when water overflows into spillway. Complete field data furnished by the Valier-Montana Land & Water Co.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6	538	5					54	5	5	100	278
2	6	530	5					54	5	5	349	97
3	6	538	5					118	5	5	418	97
4	6	561	5					100	5	5	418	97
5	6	569	5					54	5	5	418	97
6	6	569	5					52	5	5	418	97
7	6	555	5		6			52	5	5	411	97
8	6	555	5					29	5	5	411	97
9	6	569	5					6	5	5	411	97
10	6	569	5					6	5	5	405	97
11	6	569	5					6	5	5	405	97
12	6	585	6					6	5	5	405	97
13	6	594	6					6	5	5	405	97
14	6	602	6					6	5	5	405	97
15	154	602	6				8	6	5	5	405	97
16	456	569	6	6		8		6	5	5	399	97
17	478	538	6					6	5	5	393	97
18	500	538	6					6	5	5	393	97
19	523	516	6					6	5	5	387	97
20	523	471	6					6	5	5	387	97
21	523	424	6					6	5	5	380	97
22	523	257	6		8			6	5	5	380	97
23	523	111	6					6	5	5	380	97
24	533	111	6					6	5	5	380	97
25	538	164	6					6	5	5	380	97
26	538	142	6					6	5	5	380	97
27	538	85	6					6	5	5	374	97
28	538	5	6					6	5	5	374	97
29	538	5	6					6	5	5	374	97
30	538	5	6				25	5	5	5	368	156
31	538		6					5		5	368	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	538	6	277	17,000
November	602	5	415	24,700
December	6	5	5.7	350
January			6.0	369
February			7.0	403
March			8.0	492
April	25	8	8.6	512
May	118	5	20.9	1,290
June	5	5	5.0	298
July	5	5	5.0	307
August	418	100	383	23,600
September	278	97	105	6,250
The year	602	5	104	75,600

BIRON CREEK NEAR DUPUYER, MONT.

LOCATION.—Staff gage in sec. 28, T. 29 N., R. 8 W., half a mile above headgates of B Canal and 12 miles west of Dupuyer.

DRAINAGE AREA.—110 square miles.

RECORDS AVAILABLE.—July, 1907, to September, 1926; October, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 894 second-feet May 23 (gage height, 2.60 feet); minimum, 8.5 second-feet February 18.

1907–1926, 1927–28: Maximum discharge (estimated), 5,000 second-feet June 21, 1916 (gage height, 10.0 feet); minimum, 3 second-feet April 7, 1921.

REMARKS.—Records good. Discharge estimated December 1 to March 20 and April 18–22. Two or three small diversions above station. Flow largely controlled by operation of gates at Swift Dam. Complete records furnished by Valier-Montana Land & Water Co.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	160	579					28	35	432	590	164	383
2	152	588					28	35	404	535	312	130
3	155	588					27	35	388	505	437	120
4	182	597					27	100	398	482	437	116
5	158	615					25	90	393	454	442	116
6	152	615					29	85	410	432	437	111
7	142	624					28	83	367	372	437	111
8	150	570					27	85	357	321	437	111
9	162	597		30			25	685	336	302	432	111
10	182	606					27	602	312	292	432	107
11	160	615				19	26	571	321	275	432	107
12	160	624					26	608	316	267	432	107
13	162	678					20	691	316	267	432	107
14	170	698					27	659	331	254	432	107
15	200	744					23	596	336	242	437	107
16	476	717					27	590	312	284	437	107
17	489	751					31	678	297	267	426	107
18	525	711			9		31	691	415	258	415	102
19	561	615					31	685	608	267	415	102
20	579	502	30				31	691	621	250	415	105
21	561	456				24	28	711	590	226	415	105
22	552	372				30	28	798	691	210	420	105
23	561	308				30	28	866	825	203	415	105
24	561	249				30	29	825	717	193	410	105
25	597	208				27	29	757	731	190	426	105
26	588	175				20	29	771	672	190	426	105
27	579	165				28	31	791	577	186	415	107
28	561	80				28	31	731	590	183	410	107
29	552	60				29	33	633	737	176	393	107
30	579	40				26	33	541	659	170	393	105
31	588			22		29		482		164	393	
Month	Maximum					Minimum			Mean		Run-off in acre-feet	
October	597					142			366		22,500	
November	751					40			492		29,300	
December									30		1,840	
January									25		1,540	
February									12		690	
March						30			22.0		1,350	
April						33			28.1		1,670	
May						866			35		32,200	
June						825			297		28,700	
July						590			164		17,900	
August						442			164		25,300	
September						383			102		7,020	
The year	866								233		170,000	

DUPUYER CREEK NEAR VALIER, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 33, T. 29 N., R. 6 W., 6 miles below Sheep Creek and 11 miles southwest of Valier.

DRAINAGE AREA.—111 square miles.

RECORDS AVAILABLE.—July, 1912, to September, 1926; October, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 384 second-feet June 29 (gage height, 4.35 feet); minimum, 20 second-feet at times in November, December, and January.

1912-1926, 1927-28: Maximum discharge, 2,180 second-feet June 21, 1916 (gage height, 6.5 feet); no flow September 19, 1919.

REMARKS.—Records for open channel good; others fair. Discharge estimated November 9 to March 23. Several small diversions above station. Somewhat regulated by operation of head gates above station. Complete records furnished by the Valier-Montana Land & Water Co.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	73	64	60	25	70	28	70	100	63	238	76	52
2.....	73	65	40	25	60	26	70	102	60	219	76	50
3.....	71	65	30	30	50	26	70	95	56	195	76	47
4.....	86	68	30	60	50	26	64	91	56	198	73	46
5.....	90	69	25	90	55	26	64	95	52	176	70	43
6.....	94	70	20	120	50	28	64	99	48	160	63	41
7.....	94	73	20	110	45	29	62	112	48	156	60	40
8.....	94	71	20	110	45	30	53	135	53	142	59	44
9.....	95	70	20	110	40	31	62	151	60	131	55	46
10.....	90	60	20	100	40	37	63	151	51	120	53	46
11.....	88	50	20	90	35	43	62	139	47	114	48	42
12.....	81	45	20	75	30	48	59	142	47	104	47	40
13.....	77	40	20	65	25	50	59	148	44	102	47	39
14.....	77	40	20	50	30	52	64	163	38	100	47	37
15.....	77	40	20	40	30	54	62	156	33	91	55	34
16.....	76	35	20	25	35	56	67	146	27	129	52	36
17.....	74	30	25	25	35	40	91	146	33	163	47	33
18.....	73	25	30	25	30	70	86	146	114	178	43	31
19.....	73	25	35	30	25	100	76	142	240	176	41	29
20.....	74	20	30	30	20	110	75	133	241	148	42	30
21.....	74	20	30	30	20	117	70	128	210	124	41	29
22.....	71	20	30	30	20	106	69	124	244	112	42	29
23.....	70	35	25	35	20	100	73	131	285	104	51	31
24.....	70	50	30	35	20	85	78	124	241	95	46	30
25.....	71	100	35	35	20	75	83	114	285	91	64	31
26.....	73	130	35	35	20	62	90	108	309	88	99	31
27.....	71	130	35	50	25	60	100	102	254	90	91	31
28.....	70	120	30	60	25	65	114	95	244	95	91	30
29.....	69	108	25	75	25	65	114	91	287	86	72	28
30.....	68	80	25	90	-----	64	102	83	278	80	60	30
31.....	65	-----	25	90	-----	67	-----	75	-----	75	55	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	95	65	77.5	4,770
November.....	130	20	60.6	3,610
December.....	60	20	27.4	1,690
January.....	120	25	57.7	3,550
February.....	70	20	34.3	1,970
March.....	117	26	57.3	3,520
April.....	114	63	74.5	4,430
May.....	163	75	122	7,600
June.....	309	27	135	8,080
July.....	238	75	132	8,120
August.....	99	41	69.4	3,650
September.....	52	28	36.9	2,200
The year.....	309	20	72.7	53,000

DRY FORK OF MARIAS RIVER AT FOWLER, MONT.

LOCATION.—Wire gage near center of sec. 31, T. 30 N., R. 1 W., on highway bridge about a quarter of a mile northeast of depot at Fowler.

RECORDS AVAILABLE.—March, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 189 second-feet March 22 (gage height, 1.90 feet); minimum, 2.5 second-feet September 15 and 16 (gage height, 0.30 foot).

1920-1928: Maximum discharge, 1,220 second-feet April 14, 1920 (gage height, 6.20 feet); no flow at times.

REMARKS.—Records good for open channel and fair for periods of shifting control, March 18 to May 23. Practically all flow diverted and controlled.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	8.3	15	18	-----	68	32	12	65	13	5.8
2.....	7.2	16	20	-----	66	24	12	37	32	0.6
3.....	10	16	24	-----	57	18	12	24	14	0.6
4.....	12	15	23	-----	52	18	11	22	9.8	5.5
5.....	12	16	27	-----	38	18	11	19	7.6	4.3
6.....	11	16	21	-----	32	13	12	17	6.6	3.7
7.....	12	19	-----	-----	26	9.0	15	13	6.6	3.4
8.....	15	21	-----	-----	20	8.3	17	12	6.2	3.1
9.....	17	24	-----	-----	34	8.0	17	9.8	4.9	4.3
10.....	19	24	-----	-----	29	6.2	20	7.2	3.7	5.5
11.....	18	23	-----	-----	29	6.6	21	4.9	4.0	5.8
12.....	16	25	-----	-----	23	8.0	19	3.1	3.1	4.6
13.....	17	24	-----	-----	26	8.0	18	5.2	2.8	3.7
14.....	17	23	-----	-----	31	10	15	3.4	3.1	3.4
15.....	15	24	-----	-----	29	9.4	15	2.5	5.8	2.8
16.....	16	24	-----	-----	44	9.4	18	4.9	8.0	2.8
17.....	20	22	-----	-----	50	7.6	18	21	9.8	3.7
18.....	20	19	-----	100	79	5.5	37	35	13	3.1
19.....	21	18	-----	109	68	4.6	136	127	11	4.3
20.....	16	17	-----	136	58	5.2	178	104	9.8	4.0
21.....	16	17	-----	167	50	6.2	109	38	8.0	5.5
22.....	17	17	-----	178	39	5.5	84	21	9.8	4.9
23.....	16	19	-----	109	32	3.4	58	16	13	5.5
24.....	16	19	-----	89	31	3.1	127	13	12	4.3
25.....	16	19	-----	60	30	2.5	74	17	13	4.6
26.....	16	19	-----	34	29	3.4	74	31	13	5.8
27.....	16	19	-----	25	29	7.2	66	90	15	5.2
28.....	17	20	-----	42	26	12	70	26	15	4.3
29.....	18	19	-----	40	30	14	62	15	12	4.3
30.....	17	16	-----	24	34	12	62	11	8.3	4.3
31.....	17	-----	-----	54	-----	12	-----	11	6.9	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	21	7.2	15.6	960
November.....	25	15	19.5	1,160
December 1-6.....	27	18	22.2	265
March 18-31.....	178	24	83.4	2,320
April.....	79	20	39.6	2,360
May.....	32	2.5	10.0	615
June.....	178	11	46.7	2,780
July.....	127	2.5	26.6	1,640
August.....	32	2.8	9.70	596
September.....	6.6	2.8	4.52	270

JUDITH RIVER BASIN

JUDITH RIVER NEAR UTICA, MONT.

LOCATION.—Wire gage in NW. $\frac{1}{4}$ sec. 17, T. 13 N., R. 12 E., 10 miles above Utica and 20 miles from Hobson.

DRAINAGE AREA.—326 square miles.

RECORDS AVAILABLE.—October, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 628 second-feet May 9 (gage height, 4.40 feet); minimum, 7.2 second-feet March 18 (gage height, 1.19 feet).

1919–1928: Maximum discharge, 1,070 second-feet June 11, 1927 (gage height, 5.70 feet); minimum, 0.5 second-foot November 16 to December 1, 1919, and March 31 to April 20, 1922 (gage height, 1.00 foot).

REMARKS.—Records good. Several diversions above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	25	26	22	-----	18	164	282	195	66	27
2.....	33	25	19	-----	19	195	269	174	65	26
3.....	35	24	18	-----	20	184	269	154	63	26
4.....	35	24	18	-----	16	164	256	206	58	26
5.....	33	24	17	-----	15	310	218	256	55	25
6.....	33	25	17	-----	14	394	195	230	54	24
7.....	33	24	17	-----	14	481	184	206	48	25
8.....	33	24	17	-----	14	510	174	184	42	25
9.....	33	25	17	-----	14	628	154	164	38	26
10.....	33	24	17	-----	14	568	136	154	36	24
11.....	33	23	15	-----	14	568	127	145	34	24
12.....	32	24	16	-----	15	568	127	145	34	24
13.....	33	23	14	-----	14	568	118	127	33	24
14.....	33	23	14	-----	14	539	118	118	33	24
15.....	32	24	14	-----	14	452	110	110	33	25
16.....	32	24	13	-----	14	423	110	127	32	26
17.....	29	25	12	-----	15	452	110	127	32	26
18.....	30	25	12	7.5	15	481	110	145	32	24
19.....	30	26	13	8.1	14	510	118	184	32	23
20.....	30	28	13	11	14	539	127	164	32	22
21.....	30	29	13	12	14	510	136	154	29	22
22.....	31	30	13	16	14	539	145	145	29	22
23.....	30	29	13	17	15	568	164	127	26	22
24.....	29	30	13	30	19	568	195	110	23	23
25.....	29	30	13	26	21	539	218	85	22	22
26.....	29	30	14	19	27	539	256	79	25	21
27.....	28	30	13	17	102	568	256	79	32	19
28.....	29	29	13	16	184	568	256	82	38	19
29.....	27	27	12	16	184	510	243	68	37	19
30.....	26	26	12	18	164	423	243	65	32	18
31.....	26	-----	12	18	-----	324	-----	65	29	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	35	25	30.8	1,890
November.....	30	23	26.0	1,550
December.....	22	12	14.7	904
March 18-31.....	30	7.5	16.5	458
April.....	184	14	34.8	2,070
May.....	628	164	463	28,500
June.....	282	110	181	10,800
July.....	256	65	141	8,670
August.....	66	22	37.9	2,330
September.....	27	18	23.4	1,390

MUSSELSHELL RIVER BASIN

NORTH FORK OF MUSSELSHELL RIVER AT DELPINE, MONT.

LOCATION.—Wire gage in SW. $\frac{1}{4}$ sec. 35, T. 10 N., R. 9 E., at Delpine.

DRAINAGE AREA.—48 square miles.

RECORDS AVAILABLE.—May, 1909, to October, 1911; March, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 243 second-feet April 24 (gage height, 3.60 feet); minimum, 5 second-feet September 28 (gage height, 1.65 feet).

1909-1911, 1922-1928: Maximum discharge, 545 second-feet July 21, 1923; minimum, 2.2 second-feet December 15-17, 1922.

REMARKS.—Records after March 18 good; prior to that date, fair. No diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	11	10	-----	25	64	53	19	12	12
2.....	11	10	-----	30	55	52	19	13	10
3.....	11	9.7	-----	38	64	51	22	14	8.0
4.....	16	21	-----	31	62	50	30	14	8.0
5.....	15	20	-----	22	64	48	24	13	8.0
6.....	14	20	-----	23	71	46	21	12	8.5
7.....	12	20	-----	26	74	44	19	12	8.5
8.....	12	20	-----	31	77	39	19	12	8.0
9.....	12	22	-----	35	81	36	19	12	8.5
10.....	12	25	-----	17	80	33	18	12	10
11.....	12	22	-----	18	81	31	17	12	9.0
12.....	12	16	-----	18	80	30	16	12	8.0
13.....	12	16	-----	22	79	30	14	12	8.0
14.....	12	-----	-----	23	79	30	13	12	9.0
15.....	12	-----	-----	24	74	30	14	12	8.0
16.....	12	-----	-----	28	74	31	14	11	8.0
17.....	11	-----	-----	41	70	30	15	11	8.0
18.....	11	-----	11	33	68	29	28	11	8.0
19.....	11	-----	16	33	66	31	24	12	8.0
20.....	11	-----	27	44	79	31	17	12	7.5
21.....	11	-----	38	37	79	28	14	12	8.0
22.....	11	-----	79	40	76	28	12	12	8.0
23.....	11	-----	136	70	74	27	11	12	7.5
24.....	11	-----	102	243	72	24	11	12	6.6
25.....	11	-----	40	198	68	23	10	13	6.2
26.....	11	-----	30	99	64	22	10	15	5.4
27.....	11	-----	27	89	62	21	10	18	5.0
28.....	11	-----	24	86	61	30	10	21	5.4
29.....	11	-----	19	66	58	19	10	18	5.4
30.....	10	-----	18	65	56	19	10	16	5.4
31.....	10	-----	21	-----	54	-----	10	13	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	16	10	11.6	713
November 1-13.....	25	9.7	17.8	459
March 18-31.....	136	11	42.0	1,170
April.....	243	17	51.8	3,080
May.....	81	54	69.9	4,300
June.....	53	19	32.9	1,960
July.....	30	10	16.1	928
August.....	21	11	13.1	806
September.....	12	5.0	7.80	464

SURFACE WATER SUPPLY, 1928, PART VI

MUSSELSHELL RIVER AT HARLOWTON, MONT.

LOCATION.—Chain gage in sec. 26, T. 8 N., R. 15 E., 1 mile south of Harlowton.
DRAINAGE AREA.—1,130 square miles.

RECORDS AVAILABLE.—July, 1907, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,620 second-feet May 12 (gage height, 5.25 feet); minimum, 27 second-feet August 22 (gage height, 2.83 feet).

1907-1928: Maximum discharge, 4,020 second-feet May 27, 1917 (gage height, 7.3 feet); no flow August 4-11, 1910, and September 11-15, 1919.

REMARKS.—Records fair. Discharge interpolated November 11, 21, and 22. Numerous diversions above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	104	196	-----	286	1,180	600	308	76	69
2	116	99	175	-----	319	1,080	486	324	89	69
3	116	106	196	-----	372	889	450	324	94	65
4	162	136	196	-----	330	794	417	417	104	60
5	183	171	179	-----	265	739	354	324	94	58
6	167	179	83	-----	241	784	308	354	91	55
7	150	175	-----	-----	214	927	252	319	78	51
8	136	179	-----	-----	134	1,160	241	297	67	48
9	136	175	-----	-----	180	1,360	205	265	60	56
10	129	171	-----	-----	227	1,480	197	251	58	63
11	122	171	-----	-----	205	1,560	180	218	51	71
12	118	171	-----	-----	197	1,560	173	205	45	69
13	116	171	-----	173	180	1,560	162	205	45	69
14	116	147	-----	173	188	1,460	150	197	43	67
15	113	188	-----	165	241	1,360	131	201	38	63
16	116	175	-----	154	246	1,160	128	205	35	62
17	113	230	-----	150	270	1,060	131	292	33	60
18	113	230	-----	143	384	1,060	143	450	32	60
19	113	256	-----	232	342	1,060	162	384	30	56
20	111	179	-----	397	308	1,160	162	302	32	55
21	113	154	-----	703	297	1,160	147	260	32	56
22	111	129	-----	703	275	1,160	154	222	28	60
23	108	104	-----	889	297	1,160	354	201	28	56
24	106	179	-----	1,080	384	1,160	561	165	28	55
25	104	196	-----	508	634	1,160	522	143	33	55
26	104	262	-----	437	908	1,160	486	124	33	58
27	106	225	-----	342	1,100	1,160	450	112	48	62
28	108	206	-----	275	1,190	1,060	450	107	73	67
29	113	196	-----	270	1,490	1,060	384	96	96	65
30	108	116	-----	275	1,190	870	384	91	86	65
31	106	-----	-----	275	-----	730	-----	76	76	-----
Month	Maximum				Minimum		Mean		Run-off in acre-feet	
October	183				104		121		7,440	
November	262				99		173		10,800	
December 1-6	196				85		171		2,040	
March 13-31	1,080				145		387		14,600	
April	1,490				134		430		25,600	
May	1,560				730		1,140		70,100	
June	600				128		297		17,700	
July	450				76		240		14,800	
August	104				28		56.6		3,480	
September	71				48		60.8		3,620	

MUSSELSHELL RIVER AT MUSSELSHELL, MONT.

LOCATION.—Wire gage in NW. $\frac{1}{4}$ sec. 28, T. 9 N., R. 29 E., at Musselshell, half a mile south of railway station.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 100 second-feet September 30 (gage height, 2.02 feet); minimum, 23 second-feet August 25 and September 1 (gage height, 1.44 feet).

REMARKS.—Records fair. Numerous diversions above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		26	11.....		39	21.....	29	44
2.....		49	12.....		41	22.....	25	45
3.....		46	13.....		44	23.....	25	72
4.....		44	14.....		46	24.....	25	75
5.....		48	15.....	36	46	25.....	23	78
6.....		48	16.....	35	46	26.....	78	80
7.....		51	17.....	33	46	27.....	49	83
8.....		51	18.....	32	41	28.....	45	91
9.....		46	19.....	32	41	29.....	42	96
10.....		42	20.....	32	44	30.....	37	98
						31.....	34	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 15-31.....	78	23	36.1	1,220
September.....	98	26	54.9	2,270
The period.....				4,490

CHECKERBOARD CREEK AT DELPINE, MONT.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 2, T. 9 N., R. 9 E., a quarter of a mile southeast of Delpine and half a mile above mouth.

DRAINAGE AREA.—24.3 square miles.

RECORDS AVAILABLE.—March, 1922, to September, 1928. May, 1909, to December, 1911, and May, 1913, to December, 1914, at site 2 miles upstream.

EXTREMES.—Maximum discharge during year, 113 second-foot April 24 (gage height, 2.75 feet); minimum, 4.4 second-foot September 30 (gage height, 1.24 feet).

1909-1911, 1913-14, 1922-1928: Maximum discharge, 167 second-foot July 16, 1923 (gage height, 3.1 feet); minimum, 0.7 second-foot September 10, 1924 (gage height, 0.38 foot).

REMARKS.—Records fair. One small diversion above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	8.2	6.7	9.1	-----	9.1	51	31	12	8.8	6.0
2.....	8.2	6.4	8.8	-----	11	49	30	12	9.1	5.7
3.....	8.2	6.4	8.8	-----	13	45	28	14	9.1	5.3
4.....	9.8	7.6	8.8	-----	9.8	44	26	17	8.5	5.5
5.....	9.8	7.3	8.2	-----	9.4	43	24	12	8.2	5.3
6.....	9.1	7.0	7.6	-----	10	49	23	13	7.6	5.3
7.....	8.5	7.0	7.3	-----	10	64	22	13	7.3	5.5
8.....	8.5	6.7	6.7	-----	10	83	20	12	7.3	5.5
9.....	8.5	7.3	6.7	-----	9.4	93	18	12	7.0	6.2
10.....	8.5	8.2	6.7	-----	9.1	93	18	11	7.0	6.0
11.....	8.2	7.6	6.7	-----	9.4	83	17	11	6.7	5.5
12.....	8.2	6.4	6.7	-----	9.8	83	17	11	6.4	5.3
13.....	8.2	7.0	6.7	-----	11	78	18	10	6.2	5.3
14.....	8.2	7.3	6.7	-----	12	64	18	10	6.0	5.7
15.....	8.2	7.6	6.4	-----	11	60	18	9.8	6.0	5.1
16.....	7.9	8.2	6.7	-----	11	60	20	10	5.7	5.1
17.....	7.9	8.5	6.7	-----	12	60	18	10	5.7	5.1
18.....	7.9	8.5	6.4	5.3	12	60	18	12	5.5	4.9
19.....	7.6	8.8	6.4	15	13	60	14	12	5.7	4.9
20.....	7.0	9.4	6.4	23	12	56	14	11	6.2	4.9
21.....	7.0	8.8	6.4	30	11	56	13	10	6.0	4.9
22.....	7.0	9.1	6.2	60	10	56	13	10	6.0	4.9
23.....	7.0	9.8	6.2	41	13	51	13	9.8	6.0	4.9
24.....	6.7	9.4	6.2	31	113	51	12	9.1	5.7	4.9
25.....	6.7	8.8	6.0	18	103	48	14	8.5	7.0	4.6
26.....	6.7	8.8	6.0	15	88	44	16	8.2	7.3	4.4
27.....	6.7	8.2	6.0	13	93	41	18	8.2	7.9	4.6
28.....	6.7	8.5	6.0	12	83	39	13	8.2	8.2	4.6
29.....	6.7	8.8	5.7	11	74	36	12	8.2	7.3	4.6
30.....	6.7	9.4	5.7	10	64	35	12	8.2	6.7	4.4
31.....	6.7	-----	5.7	10	-----	32	-----	8.5	6.2	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	9.8	6.7	7.78	478
November.....	9.8	6.4	7.98	475
December.....	9.1	5.7	6.79	418
March 18-31.....	60	5.3	21.0	583
April.....	113	9.1	28.9	1,720
May.....	93	32	57.0	3,500
June.....	31	12	18.3	1,090
July.....	17	8.2	10.7	658
August.....	9.1	5.5	6.91	425
September.....	6.2	4.4	5.16	307

AMERICAN FORK NEAR HARLOWTON, MONT.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 12, T. 7 N., R. 15 E., half a mile above Lebo Creek and 5 miles southeast of Harlowton.

RECORDS AVAILABLE.—July, 1907, to December, 1911; May to December, 1913; and May, 1924, to September, 1928.

EXTREMES.—Maximum discharge during year, 217 second-feet May 12 (gage height, 2.92 feet); minimum, 1.6 second-feet August 12 and 13 (gage height, 0.82 foot).

1907–1911, 1913, 1924–1928: Maximum discharge, 870 second-feet June 1, 1908 (gage height, 4.40 feet); no flow at times.

REMARKS.—Records fair. No diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.2	7.2	8.3		9.2	14	80	61	2.9	3.0
2	6.2	7.2	7.8		8.0	14	34	56	5.5	3.7
3	6.2	8.3	7.8		7.5	26	20	47	7.0	3.7
4	6.2	8.3	6.8		5.1	26	20	47	7.0	4.1
5	5.8	8.3	6.8		4.9	26	11	43	5.5	4.1
6	5.8	8.3			4.9	26	11	106	5.1	3.4
7	5.8				4.9	27	2.4	51	4.7	3.4
8	6.0				7.0	27	2.4	37	4.7	3.4
9	6.0				7.0	27	2.4	29	3.5	3.7
10	6.0	10.0			6.0	211	2.4	26	3.2	4.1
11	6.0				5.5	211	3.0	21	2.6	5.8
12	5.5				6.0	211	3.0	18	1.6	4.1
13	5.5				3.9	211	3.0	26	1.6	5.3
14	5.5	15.4			3.9	146	3.0	26	2.8	4.1
15	5.8	15.4			7.5	136	2.9	23	2.8	3.9
16	5.8	15.4			7.0	119	2.8	40	2.8	3.9
17	5.8	15.4			6.5	104	2.9	48	1.6	3.9
18	5.8	13.8		8.0	6.0	111	2.9	51	1.6	2.9
19	6.0	13.8		8.0	6.0	119	3.5	25	1.9	3.2
20	6.2	13.0		8.6	6.0	158	3.9	22	1.9	2.9
21	6.5	11.4		8.6	5.5	119	4.3	18	1.9	3.2
22	6.5	11.4		8.6	4.5	127	4.3	16	2.4	3.2
23	6.5	11.4		7.0	4.5	127	48	12	2.4	3.2
24	6.5	13.0		7.0	4.5	182	71	10	3.7	3.2
25	6.8	17.0		7.0	4.3	169	82	6.8	4.5	3.5
26	6.8	14.6		5.5	4.3	169	61	3.7	4.5	3.5
27	6.8	13.8		4.7	3.5	169	82	3.4	6.2	3.5
28	7.2	13.8		4.3	3.5	158	106	3.4	7.8	3.5
29	7.2	10.1		3.9	14.6	127	76	3.4	7.8	3.5
30	7.2	8.9		7.0	14.6	127	82	3.0	4.1	3.5
31	7.2			10.4		127		2.5	3.4	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	7.2	5.5	6.2'	384
November	15.4	7.2	11.5	684
December 1-5	8.3	6.8	7.50	74.4
March 18-31	10.4	3.9	7.0'	195
April	14.6	3.5	6.22	370
May	211	14	115	7,070
June	106	2.4	27.8	1,650
July	106	2.5	28.6	1,760
August	7.8	1.6	3.84	236
September	5.8	2.9	3.68	219

SURFACE WATER SUPPLY, 1928, PART VI

LEBO CREEK NEAR HARLOWTON, MONT.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 12, T. 7 N., R. 15 E., half a mile above junction with American Fork and 5 miles southeast of Harlowton.

DRAINAGE AREA.—48 square miles.

RECORDS AVAILABLE.—July, 1907, to December, 1911; May to November, 1913; and May, 1924, to September, 1928.

EXTREMES.—Maximum discharge during year, 417 second-feet July 6 (gage height, 6.90 feet); no flow at times.

1907–1911, 1913, 1924–1928: Maximum discharge, that of July 6, 1928; no flow at times in 1928.

REMARKS.—Records fair. Numerous diversions and some storage above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	26	24	-----	42	28	0	5.4	3.7	16
2.....	26	24	-----	42	28	0	5.4	3.7	16
3.....	26	26	-----	42	13	0	6.6	3.7	16
4.....	26	26	-----	37	13	0	6.6	4.5	12
5.....	26	31	-----	27	13	3.1	6.6	5.1	13
6.....	26	31	-----	27	13	3.1	15 ⁷	4.7	11
7.....	26	31	-----	26	14	2.3	5 ⁷	4.7	11
8.....	26	36	-----	26	12	2.3	4 ⁵	5.6	11
9.....	26	36	-----	26	12	2.3	3 ⁷	6.8	11
10.....	26	-----	-----	26	11	2.3	3 ³	6.8	13
11.....	26	-----	-----	26	10	3.0	3 ⁴	8.3	16
12.....	24	-----	-----	26	10	2.7	2 ¹	9.9	11
13.....	24	-----	-----	21	10	2.5	3 ¹	9.9	16
14.....	24	-----	-----	28	10	2.5	2 ¹	20	11
15.....	24	-----	-----	36	10	1.9	2 ¹	8.3	12
16.....	24	-----	-----	36	14	1.4	7 ⁴	13	11
17.....	24	-----	-----	33	10	1.4	3 ¹	13	11
18.....	24	-----	-----	33	10	1.4	2 ³	11	11
19.....	24	-----	-----	30	10	1.6	2 ³	9.9	11
20.....	23	-----	-----	30	10	1.6	2 ³	5.8	10
21.....	23	-----	44	28	10	1.5	2 ¹	4.0	10
22.....	23	-----	38	25	24	1.5	2 ¹	4.9	10
23.....	23	-----	38	26	34	1.5	2 ¹	5.8	12
24.....	23	-----	38	26	28	1.5	2 ¹	8.3	12
25.....	23	-----	33	26	0	2.5	1 ⁴	8.3	14
26.....	24	-----	33	26	0	3.1	7.5	8.3	14
27.....	24	-----	32	26	0	3.5	6.3	9.9	14
28.....	24	-----	22	26	13	11	6.3	20	14
29.....	24	-----	32	27	13	5.6	1 ⁷	20	14
30.....	24	-----	38	27	13	3.8	7.5	26	12
31.....	24	-----	43	-----	0	-----	4.3	20	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	26	23	24.5	1,510
November 1–9.....	36	24	29.4	525
March 21–31.....	44	22	35.5	775
April.....	42	21	29.4	1,750
May.....	34	0	12.8	787
June.....	11	0	2.36	140
July.....	157	4.3	27.4	1,680
August.....	26	3.7	9.48	583
September.....	16	10	12.6	750

FLATWILLOW CREEK NEAR FLATWILLOW, MONT.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 19, T. 12 N., R. 25 E., on Flatwillow Land & Livestock Co.'s ranch, 12 miles above Flatwillow.

DRAINAGE AREA.—About 195 square miles.

RECORDS AVAILABLE.—April, 1918, to September, 1928. May, 1911, to April, 1918, at station in sec. 23, T. 12 N., R. 25 E., 4 miles downstream.

EXTREMES.—Maximum discharge during year, 160 second-feet March 26 (gage height, 3.40 feet); minimum, 0.8 second-foot August 18, 20, and 21 (gage height, 0.92 foot).

1911-1928: Maximum discharge, 454 second-feet June 4-10, 1917 (gage height, 9.0 feet); no flow at times.

REMARKS.—Records fair. Several diversions above stations.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	18	22	24	-----	68	87	16	38	24	11
2.....	18	24	24	-----	55	80	13	39	23	11
3.....	18	22	24	-----	58	73	11	41	22	12
4.....	20	22	24	-----	49	76	11	42	22	13
5.....	20	24	24	-----	49	76	11	67	22	13
6.....	18	29	-----	-----	46	73	12	67	20	13
7.....	22	30	-----	-----	43	76	11	63	18	13
8.....	22	33	-----	-----	42	76	11	67	12	13
9.....	24	32	-----	-----	42	73	11	64	10	13
10.....	24	28	-----	-----	41	73	11	57	9.4	13
11.....	24	27	-----	-----	41	69	8.2	54	7.8	13
12.....	24	27	-----	-----	41	70	5.8	48	7.4	14
13.....	24	29	-----	-----	40	70	5.0	45	6.6	14
14.....	24	29	-----	-----	40	63	5.8	48	5.4	16
15.....	24	28	-----	-----	40	60	3.4	45	1.4	16
16.....	24	28	-----	-----	41	51	3.8	46	.9	16
17.....	24	27	-----	-----	41	45	4.2	39	.9	16
18.....	24	26	-----	61	40	38	4.2	44	.8	16
19.....	24	26	-----	64	40	33	9.4	44	.9	16
20.....	24	27	-----	64	33	29	19	39	.8	16
21.....	24	28	-----	68	38	28	25	38	.8	18
22.....	26	29	-----	127	36	27	29	36	.9	16
23.....	27	29	-----	127	40	26	32	38	.9	18
24.....	26	30	-----	111	41	27	33	35	1.0	16
25.....	24	29	-----	111	62	24	34	35	1.6	16
26.....	24	29	-----	160	59	23	35	30	2.0	16
27.....	24	29	-----	127	76	25	35	27	5.0	18
28.....	22	26	-----	119	83	23	34	27	11	17
29.....	22	22	-----	82	108	21	35	25	11	16
30.....	22	24	-----	58	93	19	35	24	11	16
31.....	22	-----	-----	58	-----	17	-----	25	12	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	27	18	22.8	1,400
November.....	33	22	27.2	1,620
December 1-5.....	24	24	24.0	238
March 18-31.....	160	58	95.5	2,650
April.....	108	33	50.9	3,080
May.....	87	17	50.0	3,070
June.....	35	3.4	17.1	1,020
July.....	67	24	43.1	2,650
August.....	24	8	8.79	540
September.....	18	11	14.8	881

FLATWILLOW CREEK AT PETROLIA, MONT.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 25, T. 14 N., R. 28 E., 2 miles above Box Elder Creek and 1 mile south of Petrolia.

DRAINAGE AREA.—650 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 209 second-feet June 7 (gage height, 3.04 feet); no flow August 20 to September 14.

1921-1928: Maximum discharge, 3,700 second-feet July 5, 1923 (gage height, 12.94 feet); no flow at times.

REMARKS.—Records fair. Numerous diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	43		62	85	4.0	37	10	0
2	28	43		66	79	4.0	31	9.0	0
3	28	43		71	65	3.8	195	7.0	0
4	28	43		64	70	3.8	53	7.0	0
5	28	43		55	65	3.8	39	10	0
6	30			54	63	3.8	46	9.0	0
7	31			56	56	3.8	209	30	0
8	33			56	55	3.5	68	14	0
9	33			50	55	3.0	47	10	0
10	33			51	52	3.0	43	7.0	0
11	31			47	51	2.5	42	3.0	0
12	33			57	49	2.5	40	1.5	0
13	33			60	43	2.0	38	1.1	0
14	33		34	57	36	1.4	32	.2	0
15	33		45	61	33	1.2	40	.1	.4
16	33		55	54	31	.9	46	.1	.5
17	33		66	58	29	.9	46	.2	.7
18	31		53	61	24	.9	42	.1	.4
19	31		46	62	24	3.0	63	.1	.2
20	33		50	61	24	1.5	46	0	.1
21	33		48	44	18	1.2	104	0	.1
22	33		54	48	13	5.0	42	0	.1
23	35		74	53	13	4.0	29	0	.1
24	35		145	51	12	3.5	23	0	55
25	33		126	45	14	11	22	0	55
26									
28	35		103	43	11	10	21	0	.2
27	37		92	53	10	10	20	0	.3
28	43		77	57	18	10	16	0	4.0
29	43		73	70	6.0	16	16	0	6.0
30	43		67	73	5.0	11	14	0	6.0
31	43		54	64	5.0		10	0	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	43	28	33.5	2,060
November 1-5	43	43	43.0	426
March 14-31	145	34	70.1	2,500
April	73	43	56.8	3,380
May	85	5.0	35.9	2,210
June	16	.9	4.50	268
July	209	10	49.0	3,010
August	30	0	3.85	237
September	55	0	4.30	256

MILK RIVER BASIN

SOUTH FORK OF MILK RIVER NEAR INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 29, T. 37 N., R. 9 W., just above Kennedy Coulee and 5 miles south of international boundary.

DRAINAGE AREA.—288 square miles.

RECORDS AVAILABLE.—April, 1905, to September, 1928.

EXTREMES.—Maximum discharge during year, 771 second-feet July 1 (gauge height, 4.07 feet); minimum, 36.8 second-feet September 30 (gauge height, 1.96 feet).

1905-1928: Maximum stage, 15.4 feet June 6, 1908 (discharge not determined); no flow August 1-8 and August 18 to September 2, 1919.

REMARKS.—Records good except those for estimated periods, October 10-17, June 10-16, July 5 and 7-10, which are fair. No diversions. Station maintained in cooperation with Dominion Water Power Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	102	-----	288	282	112	729	93	49.8
2.....	102	-----	208	292	105	579	82	45.6
3.....	110	-----	205	251	100	406	84	41.4
4.....	133	-----	182	238	98	381	76	40
5.....	154	-----	152	238	91	300	74	38.4
6.....	184	-----	154	258	84	191	68	38.4
7.....	186	-----	146	307	91	200	58	39.2
8.....	192	-----	149	341	112	190	51	40
9.....	194	-----	160	349	182	150	48.4	41.4
10.....	190	-----	188	314	150	140	45.6	42.8
11.....	195	-----	166	274	175	130	42.8	42.8
12.....	200	-----	166	261	100	120	40	41.4
13.....	180	-----	157	296	90	112	39.2	40
14.....	160	-----	125	458	80	133	39.2	39.2
15.....	140	-----	108	361	70	120	42.8	42.8
16.....	130	-----	138	292	60	102	48.4	66
17.....	120	-----	274	258	70	174	49.8	72
18.....	108	-----	248	248	349	261	45.6	56
19.....	102	-----	214	235	639	333	42.8	51
20.....	93	-----	191	217	458	220	42.8	49.8
21.....	87	-----	205	208	341	149	42.8	49.8
22.....	78	-----	217	196	292	125	41.4	49.8
23.....	72	-----	258	191	314	102	44.2	51
24.....	69	-----	345	180	288	89	51	47
25.....	73	-----	373	163	299	80	76	44.2
26.....	78	245	406	157	345	80	152	45.6
27.....	73	199	471	163	329	72	168	42.8
28.....	72	180	506	149	232	120	188	40
29.....	68	136	406	136	220	174	115	39.2
30.....	64	174	282	125	361	138	74	38.4
31.....	54	251	-----	125	-----	98	53	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	200	54	121	7,440
March 26-31.....	251	136	198	2,360
April.....	506	108	236	14,000
May.....	458	125	244	15,000
June.....	639	60	208	12,400
July.....	729	72	200	12,300
August.....	188	39.2	68.3	4,200
September.....	72	38.4	45.5	2,710

MILK RIVER AT MILK RIVER, ALBERTA

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 21, T. 2 N., R. 16 W. fourth meridian, at Milk River, Alberta.

DRAINAGE AREA.—1,104 square miles.

RECORDS AVAILABLE.—July, 1909, to September, 1928; prior to October, 1920, maintained by Department of the Interior, Canada.

EXTREMES.—Maximum discharge during year, 3,900 second-feet March 21 and 22 (gage height, 8.07 feet); minimum, 52 second-feet December 31, January 1 and 2.

1909–1928: Maximum discharge, 7,460 second-feet May 22, 1927 (gage height, 11.41 feet); no flow at times during 1922, 1923, and 1927.

REMARKS.—Records good. No diversions. Flow estimated November 1 to March 24 because of ice. Flow increased by water from St. Mary Canal during irrigation season. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	194	162	159	52	117	105	918	487	170	1,700	566	549
2	190	148	138	52	124	105	834	449	167	2,170	572	400
3	190	135	117	53	126	105	589	454	160	1,740	589	369
4	190	135	97	55	126	105	538	390	154	1,380	612	353
5	208	133	79	59	126	105	422	384	157	1,200	601	343
6	241	131	61	69	126	105	374	400	147	1,060	595	333
7	258	131	62	79	126	105	348	422	226	1,000	578	318
8	262	128	62	91	126	105	318	476	572	870	543	279
9	274	128	62	103	126	105	318	515	694	624	532	222
10	295	126	62	198	128	105	364	509	752	630	515	157
11	303	126	62	298	126	107	487	470	717	647	509	147
12	298	124	62	628	124	107	384	400	688	612	509	141
13	278	124	62	900	122	107	379	395	688	572	492	141
14	290	124	62	939	120	107	333	438	696	566	498	134
15	245	124	62	809	117	107	364	630	688	589	515	131
16	221	124	62	550	115	109	328	498	688	612	520	131
17	214	124	61	339	113	109	369	400	717	659	520	134
18	198	124	61	298	111	133	572	353	967	630	520	136
19	188	124	61	290	111	1,020	476	343	1,588	746	509	131
20	182	124	61	282	109	1,550	422	318	1,700	846	509	121
21	182	124	59	275	107	2,840	416	298	1,480	728	515	118
22	179	128	59	267	105	3,150	422	279	1,220	612	515	114
23	176	135	59	259	105	2,230	492	270	1,180	572	526	114
24	168	162	59	234	105	1,750	560	256	1,160	536	532	114
25	162	191	59	214	105	1,450	688	230	1,110	515	595	114
26	168	188	59	194	105	907	711	217	1,150	515	728	112
27	176	185	58	176	105	912	746	205	1,120	520	770	112
28	185	182	56	159	105	618	811	209	1,060	578	770	112
29	182	182	55	140	105	487	823	195	1,030	728	770	112
30	182	179	53	126	-----	504	676	187	1,060	665	717	112
31	179	-----	52	113	-----	665	-----	170	-----	601	659	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	303	162	215	13,200
November	191	124	142	8,450
December	159	52	69.1	4,250
January	959	52	268	16,500
February	128	105	116	6,670
March	3,150	105	646	39,700
April	918	318	516	30,700
May	680	170	363	22,300
June	1,700	147	797	47,400
July	2,170	515	820	50,400
August	770	492	577	35,500
September	549	112	193	11,500
The year	3,150	52	395	287,000

MILK RIVER AT EASTERN CROSSING OF INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 6, T. 37 N., R. 9 E., at eastern crossing of international boundary, 30 miles north of Rudyard, Mont., and 37 miles south of Many Berries, Alberta. Zero of gage is 2,698.92 feet above mean sea level.

DRAINAGE AREA.—2,514 square miles.

RECORDS AVAILABLE.—April, 1913, to September, 1928. From August, 1909, to November, 1912, maintained by Irrigation Branch, Department of the Interior, Canada.

EXTREMES.—Maximum discharge during year, 6,020 second-feet March 24 (gage height, 7.30 feet); minimum discharge, 93 second-feet.

1909–1928: Maximum discharge, 12,000 second-feet May 23, 1927 (gage height, 10.16 feet); no flow August 3–17, 22, and 23, 1914.

REMARKS.—Records good. Discharge estimated or interpolated October 29, 31, March 1–25, 30, 31, April 1, 2, 24, 28, May 7, 9, and 18. No diversions. Discharge increased by water from St. Mary Canal during irrigation season. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	261	-----	800	833	217	1,280	619	638
2.....	233	-----	986	619	214	1,650	560	589
3.....	220	-----	1,140	527	199	2,970	516	533
4.....	208	-----	958	482	202	2,510	522	473
5.....	204	-----	729	473	220	2,050	543	427
6.....	201	-----	672	468	191	1,590	543	405
7.....	204	-----	589	450	194	1,280	543	389
8.....	230	-----	583	427	202	1,160	522	365
9.....	267	-----	560	440	188	1,070	511	357
10.....	283	-----	554	458	334	968	506	357
11.....	294	-----	543	501	549	744	497	334
12.....	302	-----	522	511	595	685	482	303
13.....	326	-----	497	487	583	736	477	244
14.....	338	-----	473	463	527	714	454	202
15.....	334	-----	450	436	555	658	458	176
16.....	330	-----	422	450	533	613	463	160
17.....	326	-----	397	589	560	638	408	157
18.....	322	-----	432	530	601	645	473	150
19.....	314	-----	432	468	968	665	458	142
20.....	302	-----	436	389	2,130	672	463	134
21.....	287	-----	454	352	2,590	736	497	142
22.....	272	3,700	468	368	1,850	800	522	137
23.....	261	4,740	436	372	1,530	751	527	127
24.....	247	4,470	460	393	1,300	658	527	118
25.....	233	2,740	487	376	1,270	601	549	111
26.....	217	3,080	577	283	1,500	577	607	104
27.....	208	2,720	722	283	1,230	560	589	102
28.....	195	2,240	800	372	1,210	543	652	104
29.....	181	1,730	877	303	1,180	554	699	102
30.....	178	986	868	238	1,400	589	672	97
31.....	175	722	-----	226	-----	658	665	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October.....	338		175		256		15,700	
March 22–31.....	4,740		722		2,710		53,800	
April.....	1,140		397		611		36,400	
May.....	833		226		438		26,900	
June.....	2,590		188		827		49,200	
July.....	2,970		543		978		60,100	
August.....	699		454		535		32,900	
September.....	638		97		256		15,200	

MILK RIVER ABOVE HAVRE, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 32, T. 33 N., R. 15 E., a quarter of a mile above Big Sandy Creek and 6 miles west of Havre.

RECORDS AVAILABLE.—May to September, 1928.

EXTREMES.—Maximum discharge, 2,540 second-feet June 21 (gage height, 5.42 feet); minimum, 80 second-feet September 30 (gage height, 2.64 feet).

REMARKS.—Records fair prior to July, poor thereafter. No diversions. Flow increased by discharge of St. Mary Canal during irrigation season.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.
1		265		591	778
2		250		542	735
3		229		501	659
4		222		465	625
5		201	1,800	440	619
6		162		430	
7		175		421	
8	401	185		425	375
9		198		416	
10		205		416	
11	480	232		411	
12		445		416	
13		575	900	470	
14	460	630			235
15		608			
16		641		460	
17	520	717			150
18		784			138
19	501	930			132
20	445	1,380			123
21	501	2,290			115
22	495	2,390			109
23	465	2,000			118
24	435	1,800			96
25	421	1,680	650	540	112
26	406	1,540	613		104
27	387	1,500	591		101
28	374	1,340	569	778	96
29	338	1,220	559	778	91
30	378	1,150	548	804	85
31	313		548	778	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 8-31		313	447	21,300
June	2,390	162	867	51,600
July		548	996	61,200
August	804	411	519	31,900
September	778	85	276	16,400
The period				182,000

MILK RIVER NEAR VANDALIA, MONT.

LOCATION.—Staff gage in sec. 7, T. 30 N., R. 37 E., at Vandalia Dam, 2 miles west of Vandalia.

RECORDS AVAILABLE.—May, 1915, to September, 1920; August to September, 1928.

EXTREMES.—Maximum discharge during year, 1,810 second-feet September 27 (gage height, 9.50 feet); minimum, 139 second-feet September 21 (gage height, 5.00 feet).

1915-1920, 1928: Maximum discharge, 25,200 second-feet April 11, 1917 (gage height, 34 feet); 13, 1910, and June 5, 1919.

REMARKS.—Receives water from St. Mary Canal during irrigation season.

in second-feet, 1928

Day	Sept.	Day	Aug.	Sept.
1.....	665	21.....	300	152
2.....	432	22.....	255	255
3.....	488	23.....	300	432
4.....	515	24.....	223	460
5.....	300	25.....	325	515
6.....	300	26.....	590	760
7.....	193	27.....	640	1,370
8.....	208	28.....	760	565
9.....	565	29.....	850	515
10.....	515	30.....	850	378
		31.....	760	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 19-31.....	850	223	533	13,700
September.....	1,370	152	582	34,600
The period.....				48,300

NORTH FORK OF MILK RIVER ABOVE ST. MARY CANAL, NEAR BROWNING, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 16, T. 37 N., R. 11 W., $1\frac{1}{4}$ miles above outlet of canal, 3 miles south of international boundary, and 30 miles north of Browning.

DRAINAGE AREA.—62 square miles (revised).

RECORDS AVAILABLE.—June, 1921, to September, 1928 (irrigation seasons only).

EXTREMES.—Maximum discharge during year, 161 second-feet June 18 (gage height, 2.79 feet); minimum, 27.5 second-feet June 16 (gage height, 0.96 foot).

1921-1928: Maximum discharge, 363 second-feet May 29, 1927 (gage height, 4.93 feet); minimum, 7.3 second-feet September 22, 1922.

REMARKS.—Records good. No diversions or regulation. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		33.3	117	40.1	37.5	16.....		28.1	53.0	41.4	-----
2.....		33.3	64.0	40.1	37.5	17.....		49.9	48.6	36.2	-----
3.....		32.7	64.0	41.4	36.9	18.....		130.0	51.0	34.4	-----
4.....		32.1	68.0	42.0	36.2	19.....		67.0	47.3	35.0	-----
5.....		32.1	44.6	40.7	36.9	20.....		71.0	42.0	36.2	-----
6.....		33.3	72.0	40.1	35.6	21.....		42.0	46.6	37.5	35.6
7.....		36.9	68.0	39.4	34.4	22.....		42.7	59.0	36.9	37.5
8.....		47.9	46.6	36.9	37.5	23.....		41.4	49.3	36.2	40.1
9.....		42.7	46.6	33.3	37.5	24.....		40.1	40.1	36.2	40.1
10.....		35.0	43.3	34.4	36.9	25.....		38.2	54.0	36.9	69.0
11.....		33.3	41.4	36.2	-----	26.....		39.4	40.1	37.5	64.0
12.....		31.5	40.1	36.9	-----	27.....		38.8	36.9	38.2	57.0
13.....		31.0	46.6	38.2	-----	28.....		36.2	46.0	63.0	47.3
14.....		29.2	47.3	40.1	-----	29.....		35.6	44.6	41.4	40.7
15.....		28.6	40.1	41.4	-----	30.....		33.9	86.0	41.4	38.8
						31.....		33.9	-----	40.1	38.1

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 21-31.....	42.7	33.9	38.4	838
June.....	130	28.1	45.4	2,700
July.....	117	36.2	49.6	3,050
August.....	69.0	33.3	41.1	2,530
September 1-10.....	37.5	34.4	36.7	728
The period.....	130	28.1	43.9	9,850

NORTH FORK OF MILK RIVER NEAR INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 11, T. 1, R. 23 W. fourth meridian, 2 miles north of international boundary and 18 miles east of Kimball, Alberta.

DRAINAGE AREA.—101 square miles.

RECORDS AVAILABLE.—January, 1913, to September, 1928. July, 1909, to December, 1912, at station in NE. $\frac{1}{4}$ sec. 13, T. 1, R. 23 W. fourth meridian, about 2 miles downstream; May, 1911, to December, 1912, at station 2 miles south of international boundary.

EXTREMES.—Maximum discharge during year, 956 second-feet June 24 (gage height, 3.66 feet); minimum, 35.3 second-feet June 3 (gage height, 1.42 feet). 1909–1928: Maximum discharge, 1,070 second-feet May 8, 1920 (gage height, 4.14 feet); minimum, 3.2 second-feet March 1, 1927.

REMARKS.—Records good. Discharge interpolated October 19, 20, 22, 23, 25, 27, and 29. No diversions. Flow increased by discharge of Ft. Mary Canal during irrigation season. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Mar.	Apr.	May	June	July	Avg.	Sept.
1.	54		110	79	37.5	854	390	262
2.	52		90	75	37.5	687	405	245
3.	54		81	70	37.5	629	415	238
4.	65		70	67	36.4	664	436	238
5.	65		63	67	35.3	583	441	235
6.	68		59	68	244	510	436	220
7.	67		55	73	405	242	436	176
8.	67		51	75	478	126	441	97
9.	65		58	75	516	270	446	67
10.	63		58	70	499	330	451	60
11.	67		59	65	516	334	451	56
12.	75		56	63	538	330	441	55
13.	84		51	64	555	338	441	55
14.	60		54	73	566	347	446	54
15.	55		53	68	577	325	451	61
16.	52		56	64	589	343	456	61
17.	52		72	59	664	430	451	55
18.	48.8		75	55	860	366	451	46.0
19.	50		70	55	705	361	446	43.0
20.	53		65	53	854	338	446	44.5
21.	56		64	51	722	325	451	43.0
22.	56		68	50	824	330	446	43.0
23.	55		77	47.8	752	330	446	43.0
24.	55		90	46.6	776	338	451	43.0
25.	55		97	45.4	800	347	505	43.0
26.	55	93	104	44.2	635	356	521	43.0
27.	55	79	116	43.0	600	371	499	43.0
28.	55	73	128	43.0	635	499	483	43.0
29.	55	79	106	41.9	589	395	472	43.0
30.	55	73	84	38.6	693	385	461	43.0
31.	55	90		38.6		380	380	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	84	48.8	58.8	3,620
March 26–31.....	93	73	81.1	965
April.....	128	51	74.7	4,450
May.....	79	38.6	59.0	3,630
June.....	860	35.3	526	31,300
July.....	854	126	402	24,700
August.....	521	380	448	27,500
September.....	262	43.0	93.7	5,580

BIG SANDY CREEK NEAR BOXELDER, MONT.

LOCATION.—Vertical staff in NE. $\frac{1}{4}$ sec. 13, T. 30 N., R. 13 E., 3 miles north of Boxelder.

RECORDS AVAILABLE.—March to September, 1928.

EXTREMES.—Maximum discharge during year, 338 second-feet March 25 (gauge height, 10.96 feet); minimum, 1 second-foot May 14 to June 18 (gauge height, 2.00 feet).

REMARKS.—Records good. Flow regulated by storage in Cowan Reservoir. Diversions above station for irrigation.

Daily and monthly discharge, in second-feet, 1928

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1		46	21	1.0	94	16	4.5
2		56	21	1.0	94	18	4.5
3		70	22	1.0	88	20	4.5
4		70	24	1.0	82	19	4.5
5		84	27	1.0	82	18	3.8
6		84	24	1.0	80	16	3.8
7	11	80	23	1.0	77	14	3.8
8	14	70	21	1.0	71	12	3.8
9	14	59	18	1.0	64	9.9	3.8
10	14	42	16	1.0	58	7.4	3.8
11	50	34	3.2	1.0	51	6.0	3.8
12	74	33	2.2	1.0	45	6.0	3.8
13	81	30	1.5	1.0	24	6.0	3.8
14	88	27	1.0	1.0	12	5.2	3.8
15	54	24	1.0	1.0	20	5.2	3.5
16	18	27	1.0	1.0	24	5.2	3.3
17	16	27	1.0	1.0	24	5.2	3.3
18	7.7	25	1.0	1.0	31	4.5	3.3
19	3.2	24	1.0	1.5	28	4.5	3.3
20	56	24	1.0	10	27	4.5	3.3
21	138	24	1.0	148	28	4.5	3.3
22	270	27	1.0	126	32	4.5	3.3
23	154	30	1.0	156	39	4.5	3.3
24	242	33	1.0	182	39	4.5	3.3
25	265	30	1.0	204	28	4.5	3.3
26	242	30	1.0	226	21	3.8	3.3
27	146	25	1.0	196	18	4.5	3.3
28	138	24	1.0	170	22	4.5	3.3
29	106	17	1.0	140	21	4.5	3.5
30	21	16	1.0	118	19	4.5	3.5
31	28		1.0		16	4.5	
Month	Maximum		Minimum		Mean	Run-off in acre-feet	
March 7-31	270		3.2		90.0	4,460	
April	84		16		39.7	2,360	
May	27		1.0		7.80	480	
June	226		1.0		56.5	3,360	
July	94		12		42.1	2,590	
August	20		3.8		8.11	499	
September	4.5		3.3		3.65	217	
The period							14,000

LODGE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 12, T. 1, R. 29 W. third meridian, in Saskatchewan, Canada, 1 mile north of international boundary and 30 miles northwest of Havre, Mont.

DRAINAGE AREA.—797 square miles (revised).

RECORDS AVAILABLE.—April, 1917, to September, 1928. April, 1910, to October, 1916, maintained by Irrigation Branch, Department of the Interior, Canada.

EXTREMES.—Maximum discharge during year, 3,500 second-feet March 23, (gage height, 12.60 feet); no flow at times.

1917–1928: Maximum discharge, 3,680 second-feet May 23, 1927 (gage height, 12.40 feet); no flow at times usually after July 15 of each year.

REMARKS.—Records good. Discharge estimated because of ice March 1–29 and April 7–13. Several diversions above gage. Station maintained in co-operation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927–28

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	0	968	115	1.3	10.0	0.3	0.1
2.....	0	1,290	82	1.1	11.0	.4	.1
3.....	0	954	62	1.0	26.3	4.2	.04
4.....	0	593	52	1.0	68	24.4	0
5.....	0	358	44.8	.8	48.3	13.0	0
6.....	0	226	37.3	.8	29.1	6.8	0
7.....	0	150	32.6	.9	22.5	3.6	0
8.....	0	108	29.1	.8	20.0	2.0	0
9.....	0	89	25.7	.8	18.9	1.1	0
10.....	0	82	22.5	.8	12.5	.9	0
11.....	0	95	19.4	1.1	8.6	.7	0
12.....	0	143	17.2	1.1	5.9	.6	0
13.....	0	136	16.2	1.0	3.6	.4	0
14.....	0	125	14.5	1.0	2.3	.3	0
15.....	0	90	13.5	.8	1.9	.3	0
16.....	0	86	12.5	.7	1.4	.3	0
17.....	0	75	11.0	.8	1.0	.3	0
18.....	0	76	10.5	1.0	.9	.2	0
19.....	0	94	9.5	1.6	.9	.2	0
20.....	1.0	82	10.0	1.8	.8	.1	0
21.....	2.6	75	9.0	1.5	.8	.02	0
22.....	402	64	7.7	1.3	.6	.02	0
23.....	2,500	63	6.4	25.0	.6	.02	0
24.....	2,800	91	5.4	28.4	.5	.01	0
25.....	1,960	136	6.8	20.0	.4	.1	0
26.....	1,430	176	5.0	19.4	.4	.2	0
27.....	872	198	4.5	23.2	.3	.2	0
28.....	483	197	4.2	20.0	.5	.2	0
29.....	257	184	3.4	15.6	.4	.1	0
30.....	232	153	2.0	12.0	.3	.1	0
31.....	297	-----	1.6	-----	.3	.1	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March.....	2,800	0	362	22,300
April.....	1,290	63	239	14,200
May.....	115	1.6	22.4	1,380
June.....	28.4	.7	6.22	370
July.....	68.0	.3	9.65	593
August.....	24.4	.01	1.97	121
September.....	.1	0	.01	.6
The period.....	-----	-----	-----	39,000

NOTE.—No flow during October, 1927.

McRAE COULEE AT INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 5, T. 1, R. 28 W. third meridian, a quarter of a mile above mouth, in Saskatchewan, Canada, three-quarters of a mile north of international boundary.

DRAINAGE AREA.—53 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 166 second-feet April 2 (gage height, 4.42 feet); no flow during greater part of year.

1927-28: Maximum discharge, 486 second-feet May 23, 1927 (gage height, 5.74 feet); no flow during greater part of each year.

REMARKS.—Records good. Discharge estimated March 1-25, 27-31, April 1, 3-5, and 12-14 because of ice. No regulation or diversions. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1.....	0	30.4	11.....	0	30.4	21.....	0	0.9
2.....	0	80	12.....	0	10.2	22.....	.1	.7
3.....	0	114	13.....	0	4.9	23.....	1.0	.6
4.....	0	58	14.....	0	4.2	24.....	3.5	.4
5.....	0	50	15.....	0	3.6	25.....	10.2	.3
6.....	0	41.9	16.....	0	3.1	26.....	8.6	.2
7.....	0	26.3	17.....	0	2.5	27.....	3.5	.1
8.....	0	16.3	18.....	0	2.1	28.....	.5	0
9.....	0	7.0	19.....	0	1.8	29.....	.2	0
10.....	0	57.	20.....	0	1.2	30.....	.5	0
						31.....	2.8	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March.....	10.2	0	1.00	62
April.....	114	0	18.3	1,090

NOTE.—No flow Oct. 1-31, Mar. 1-21, and Apr. 28 to Sept. 30.

NORTH CHINOOK CANAL NEAR HAVRE, MONT.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 2, T. 35 N., R. 17 E., 1 mile below head-works and 23 miles northeast of Havre.

RECORDS AVAILABLE.—May to August, 1928.

REMARKS.—Records good. Canal diverts flood water from Lodge Creek in sec. 3, T. 35 N., R. 17 E., and stores it in North Chinook Reservoir for irrigation of lands between Lodge and Battle Creek, north of Chinook, Mont.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Day	May	June	July	Aug.
1.....		0.5	7.7	0	16.....	12.0	0	0.1	0
2.....		.3	5.8	0	17.....	11.3	0	0	0
3.....		.1	3.5	0	18.....	9.9	0	0	0
4.....		.1	2.5	0	19.....	9.2	0	0	0
5.....		.1	1.8	0	20.....	7.5	1.7	1.4	0
6.....		0	14	0	21.....	7.2	1.1	0	0
7.....		0	13.2	0	22.....	6.3	.1	0	0
8.....		0	12.2	0	23.....	6.0	.2	0	0
9.....	20	0	11.3	1.0	24.....	4.9	.2	0	0
10.....	18	0	9.4	.1	25.....	4.3	.8	0	0
11.....	18	0	7.7	0	26.....	4.0	13.0	0	0
12.....	16	0	3.7	0	27.....	3.1	12.6	0	0
13.....	15	0	2.0	0	28.....	3.1	10.6	0	0
14.....	14	0	1.1	0	29.....	2.3	10.4	0	0
15.....	13.6	0	.5	0	30.....	1.7	9.7	0	0
					31.....	1.2	-----	0	0
Month					Maximum	Mean	Run-off in acre-feet		
May (23 days).....					20.0	9.07	414		
June (16 days).....					13.0	3.81	121		
July (17 days).....					14.0	5.76	194		
August (2 days).....					1.0	.55	2.2		
The period.....							731.2		

NOTE.—No flow Sept. 1-30.

BATTLE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 4, T. 1 N., R. 26 W. third meridian, in Saskatchewan, a quarter of a mile above international boundary and 35 miles north of Chinook, Mont.

DRAINAGE AREA.—726 square miles.

RECORDS AVAILABLE.—April, 1917, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,320 second-feet April 3 (gage height, 9.50 feet); minimum, 7.5 second-feet August 23 (gage height, 2.30 feet).

1917-1928: Maximum discharge, 3,200 second-feet April 13, 1917 (gage height, 8.50 feet); no flow at various times.

REMARKS.—Records good except those for period of ice effect, March 15 to April 17, which are fair. Numerous diversions above station. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23.3		747	148	25.6	68	18.6	22.8
2	23.8		1,430	124	24.7	64	28.5	20.9
3	22.8		2,000	110	23.8	70	29.4	19.4
4	22.8		1,140	101	23.8	101	26.6	17.9
5	21.8		680	93	23.8	93	25.6	16.3
6								
7	20.8		557	87	22.8	81	23.8	14.1
8	21.8		318	79	22.8	72	20.9	12.7
9	20.8		267	73	28.5	68	23.8	12.1
10	24.8		231	70	29.4	63	20.9	11.0
	24.8		407	70	35.4	59	18.6	13.3
11								
12	24.8		350	68	35.4	56	16.3	13.3
13	24.8		310	63	35.4	53	14.1	11.0
14	26.0		280	61	35.4	47.4	12.7	11.0
15	29.4		240	61	36.7	44.4	11.6	11.0
	32.0	14	200	58	32.9	40.5	10.4	11.0
16								
17	29.4	16	166	55	29.4	39.2	14.8	12.1
18	40.7	20	168	48.8	27.6	38.0	13.3	13.3
19	43.6	30	95	53	27.6	34.2	9.8	13.3
20	43.6	45	137	52	29.4	32.9	9.8	11.0
	40.7	60	131	50	29.4	31.7	8.7	11.0
21								
22	39.2	76	126	45.9	29.4	30.4	8.7	11.0
23	34.9	85	122	43.0	139	28.5	8.7	11.0
24	33.5	94	124	43.0	260	28.5	7.5	9.8
25	32.0	60	126	40.5	196	26.6	11.0	10.4
	30.6	157	144	40.5	157	22.8	16.3	11.6
26								
27	29.4	860	194	35.4	135	21.8	17.9	11.6
28	29.4	917	194	35.4	112	19.4	20.9	12.1
29	27.1	1,060	180	43.0	93	19.4	20.1	12.7
30	24.8	1,140	173	40.5	79	17.9	19.4	14.1
31	24.8	917	166	29.4	73	16.3	20.1	14.8
	24.8	579		26.6		15.6	22.8	
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October	43.6		20.8		28.8		1,770	
March 15-31	1,140		14		362		12,200	
April	2,000		95		380		22,600	
May	148		26.6		62.8		3,860	
June	260		22.8		61.8		3,680	
July	101		15.6		45.3		2,790	
August	29.4		7.5		17.1		1,050	
September	22.8		9.8		13.3		791	

WOODPILE COULEE NEAR INTERNATIONAL BOUNDARY

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 8, T. 37 N., R. 17 E., just below Antelope Coulee, 4 miles south of international boundary and 2 miles east of Phipps, Mont.

DRAINAGE AREA.—70 square miles at new site.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 352 second-feet April 2 (gage height, 5.04 feet); no flow at times.

1927-28: Maximum discharge, 423 second-feet April 4, 1927 (gage height, 16.69 feet); no flow at times.

REMARKS.—Records good. Discharge estimated March 1-30 because of ice. No diversions. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Mar.	Apr.	May
1	0	130	0.4
2	0	209	.4
3	0	88	.3
4	0	48.2	.3
5	0	34.1	.3
6	0	48.2	.2
7	0	44.0	.2
8	0	32.4	.2
9	0	22.8	.2
10	0	192	.2
11	0	127	.2
12	0	54	.2
13	0	10.8	.2
14	0	15.3	.2
15	0	13.0	.2
16	0	10.7	.2
17	0	11.1	.2
18	0	7.6	.2
19	0	4.7	.1
20	0	3.3	.1
21	0	2.6	.1
22	0	2.2	.1
23	0	2.4	.3
24	1.0	2.6	0
25	12.6	1.7	0
26	26.7	1.2	0
27	14.8	.8	0
28	5.7	.6	0
29	3.7	.5	0
30	3.3	.5	0
31	31.8	-----	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March	31.8	0	3.21	197
April	209	.5	37.7	2,240
May	.40	0	.153	9.40
The year	-----	-----	-----	2,480

NOTE.—No flow prior to Mar. 24 and May 24 to Sept. 30.

EAST FORK OF BATTLE CREEK NEAR INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 17, T. 37 N., R. 20 E., 2 miles south of international boundary and 7 miles east of Norheim, Mont.

DRAINAGE AREA.—98 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 432 second-feet April 1 (gage height, 5.48 feet); no flow at times.

1927-28: Maximum discharge, that of April 1, 1928; no flow at times.

REMARKS.—Records good. Discharge estimated because of ice March 1-30, April 5-7, and 11-13. No diversions. Stations maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Mar.	Apr.	May	June	July	Aug.
1.....	0	286	3.2	0	0.7	0
2.....	0	275	2.2	0	.6	21.3
3.....	0	110	1.8	0	.5	7.7
4.....	0	68	1.4	0	.3	2.7
5.....	0	43.0	1.2	0	.3	1.3
6.....	0	31.5	.9	0	.3	.6
7.....	0	16.3	.7	0	.3	.3
8.....	0	10.8	.7	0	.2	.2
9.....	0	9.8	.5	0	.2	.1
10.....	0	54	.4	0	.2	.1
11.....	0	60	.3	0	.2	.02
12.....	0	25.8	.3	0	.2	.01
13.....	0	12.6	.3	0	.3	0
14.....	0	10.1	.2	0	.2	0
15.....	0	8.4	.2	0	.2	0
16.....	0	15.5	.1	0	.2	0
17.....	0	34.3	.1	0	.1	0
18.....	0	24	.1	0	.8	0
19.....	0	19	.1	.3	13.7	0
20.....	0	16	.04	.4	3.7	0
21.....	0	15	.02	.3	1.4	0
22.....	.01	15	.01	3.7	.6	0
23.....	3.2	16	.01	2.7	.3	0
24.....	14.4	18	0	4.6	.2	0
25.....	56	17	0	2.5	.1	0
26.....	62	16	0	1.1	.02	0
27.....	43	15.2	0	4.9	.01	0
28.....	41	10.8	0	7.1	0	0
29.....	39	7.4	0	2.0	0	0
30.....	53	5.2	0	1.2	0	0
31.....	162		0		0	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March.....	162	0	15.3	941
April.....	286	5.2	42.2	2,510
May.....	3.2	0	4.77	29.3
June.....	7.1	0	1.03	61.3
July.....	13.7	0	.833	51.2
August.....	21.3	0	1.11	68.2
The period.....				3,660

NOTE.—No flow Oct. 1-31 and Sept. 1-30.

LYONS COULEE AT INTERNATIONAL BOUNDARY

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 4, T. 37 N., R. 19 E., half a mile south of international boundary and 1 mile east of Norheim, Mont.

DRAINAGE AREA.—47 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 557 second-feet April 2 (gage height, 7.80 feet), no flow at times.

1927-28: Maximum discharge, 668 second-feet April 3, 1927 (gage height 7.65 feet); no flow at times.

REMARKS.—Records good. Discharge estimated March 1 to April 9 because of ice. Some small diversions above gage. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Mar.	Apr.	May	Day	Mar.	Apr.	May	Day	Mar.	Apr.	May
1.....	0	247	0.8	11.....	0	59	0.3	21.....	0	3.5	0
2.....	0	377	.8	12.....	0	19.6	.2	22.....	0	3.5	0
3.....	0	162	.9	13.....	0	11.0	.2	23.....	11.7	4.2	0
4.....	0	53	.8	14.....	0	10.8	.1	24.....	22.2	4.9	0
5.....	0	25.2	.8	15.....	0	8.9	.1	25.....	25.2	4.8	0
6.....	0	28.8	.8	16.....	0	8.7	.1	26.....	16.9	3.6	0
7.....	0	15.7	.8	17.....	0	15.7	.04	27.....	14.0	3.0	0
8.....	0	12.2	.7	18.....	0	11.0	.03	28.....	16.4	2.1	0
9.....	0	11.8	.6	19.....	0	6.3	.02	29.....	12.7	1.3	0
10.....	0	155	.5	20.....	0	4.8	.01	30.....	14.0	.9	0
								31.....	68	-----	0
Month				Maximum		Minimum		Mean		Run-off in acre-feet	
March.....				68		0		6.49		399	
April.....				377		.9		42.5		2,530	
May.....				.9		0		.277		17	
The period.....										2,950	

NOTE.—No flow Oct. 1-31, Mar. 1-22, and after May 20.

MATHESON CANAL NEAR CHINOOK, MONT.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 29, T. 33 N., R. 20 E., at headworks of canal, $3\frac{1}{2}$ miles east of Chinook.

RECORDS AVAILABLE.—April, 1905, to October, 1921; May to July, 1928.

REMARKS.—Records good. Canal diverts water from Battle Creek for irrigation of lands between Battle Creek and Milk River.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July
1		7.0	0.7
2		7.0	.3
3		3.6	.3
4		2.2	.3
5		2.2	.4
6		2.2	.4
7		1.2	.4
8		0	.3
9		0	.2
10		0	.1
11	0	.5	.1
12	3.6	.7	.1
13	4.7	.3	0
14	5.2	.3	0
15	5.2	.4	0
16	4.7	.4	0
17	4.3	.4	0
18	3.2	.5	0
19	2.5	2.2	0
20	6.0	2.5	0
21	9.6	1.4	0
22	10.2	.3	0
23	0	0	0
24	0	2.2	0
25	8.5	2.5	0
26	10.7	2.2	0
27	11.2	1.6	0
28	14.0	1.4	0
29	11.2	.9	0
30	9.0	.7	0
31	8.5	-----	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May (18 days)	14.0	2.5	7.35	262
June (26 days)	7.0	.3	1.80	93
July 1-12	.7	.1	.30	7.1
The period				362

NOTE.—No flow May 11, 23-24, June 8-10, 11, and after July 12.

WHITEWATER CREEK NEAR INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 24, T. 37 N., R. 29 E., just below North Fork of Whitewater Creek, $3\frac{1}{2}$ miles south of the international boundary, and 5 miles northeast of Lowrane, Mont.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 830 second-feet March 21 (gage height, 5.36 feet); minimum, 0.1 second-foot at times during October.

1927-28: Maximum discharge, 1,140 second-feet April 5 (gage height, 4.71 feet); no flow at times in March, 1927.

REMARKS.—Records good. Discharge estimated because of ice March 1-21 and 27-31. No diversions. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	0.1	0.3	108	4.6	0.3	4.8	1.0	0.9
2.....	.1		143	3.7	.4	2.2	3.0	.7
3.....	.1		101	3.1	.4	1.3	3.2	.7
4.....	.6		153	2.2	.3	1.5	1.9	.6
5.....	.1		187	1.7	.3	1.6	1.4	.5
6.....	.1	0.3	153	1.3	.4	.9	1.1	.5
7.....	.1		106	1.0	.5	.7	1.0	.4
8.....	.1		97	.8	.5	.7	.8	.3
9.....	.1		94	.7	.5	.9	.7	.4
10.....	.1		84	.5	.4	.9	.7	.4
11.....	.1	2.0	68	.4	.4	.8	.6	.3
12.....	.1		56	.4	.3	.6	.6	.3
13.....	.1		34.3	.5	.3	.5	.5	.3
14.....	.1		52	.5	.3	.5	.4	.3
15.....	.1		35.0	.6	.3	.4	.5	.4
16.....	.1	36.6	29.1	.7	.2	.4	.5	.4
17.....	.1		25.1	.6	.3	4.4	.5	.4
18.....	.1		17.8	.5	.6	308	.5	.3
19.....	.1		163	.4	1.7	204	.5	.3
20.....	.1		533	.4	1.3	81	.5	.3
21.....	.1	672	20.9	.3	.9	36.4	.6	.3
22.....	.1	630	15.0	.2	1.4	21.4	.6	.3
23.....	.1	523	12.8	.2	2.1	14.1	.6	.3
24.....	.1	468	11.2	.2	1.3	9.2	.6	.3
25.....	.1	260	9.2	.2	.9	6.0	.7	.2
26.....	.1	139	7.7	.2	.9	4.0	1.1	.2
27.....	.1	97	6.3	.3	.8	2.5	1.1	.2
28.....	.1	33.0	5.2	.3	.7	1.5	1.0	.3
29.....	.1	33.6	4.4	.3	.5	1.3	.9	.2
30.....	.1	29.8	3.8	.3	6.0	1.1	1.1	.2
31.....	.1	31.7	-----	.3	-----	1.0	1.0	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October.....	0.6		0.1		0.12		7.4	
March.....	672		-----		121		7,440	
April.....	187		3.8		55.7		3,310	
May.....	4.6		.2		.88		54.1	
June.....	6.0		.2		.84		50.0	
July.....	308		.4		23.1		1,420	
August.....	3.2		.4		.94		57.8	
September.....	.9		.2		.37		22.0	

FRENCHMAN RIVER AT INTERNATIONAL BOUNDARY

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 4, T. 1, R. 10 W. third meridian, in Saskatchewan, and just across the international boundary from eastern side of lot 3, sec. 6, T. 37 N., R. 34 E., in Montana.

DRAINAGE AREA.—1,875 square miles.

RECORDS AVAILABLE.—April, 1917, to September, 1928.

EXTREMES.—Maximum discharge during year, 4,950 second-feet March 25 (gage height, 12.71 feet); minimum, 19.8 second-feet March 1.

1917-1928: Maximum discharge, 5,440 second-feet March 29, 1925 (gage height, 13.12 feet); no flow at times.

REMARKS.—Records good. Discharge estimated March 1-22 because of ice. Numerous diversions in Canada. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	24.0	19.8	1,190	251	83	189	63	35.4
2.....	24.7	19.8	1,400	248	81	149	62	34.3
3.....	25.4	19.8	1,490	242	81	126	58	33.2
4.....	27.5	19.8	1,190	230	81	110	52	32.1
5.....	28.2	19.8	911	218	88	104	52	31.0
6.....	29.6	19.8	788	203	86	97	51	29.2
7.....	31.0	19.8	696	183	* 84	206	49.8	28.3
8.....	32.1	19.8	* 620	178	81	271	47.2	27.4
9.....	35.4	19.8	553	175	79	* 200	44.6	30.1
10.....	39.8	19.8	406	162	* 76	133	43.3	32.1
11.....	46.8	19.8	347	146	72	* 110	42.0	31.0
12.....	46.8	20.0	389	136	72	86	39.8	30.1
13.....	39.8	26.1	* 330	130	74	81	37.6	29.2
14.....	39.8	24.0	271	128	76	72	35.4	29.2
15.....	37.6	29.6	271	123	78	69	34.3	29.2
16.....	36.5	212	308	120	76	74	34.3	29.2
17.....	36.5	86	323	118	76	78	34.3	29.2
18.....	35.4	400	* 295	113	84	108	34.3	29.2
19.....	* 36.5	625	268	110	167	99	34.3	28.3
20.....	37.6	960	* 256	108	93	110	32.1	28.3
21.....	38.7	950	245	104	81	128	31.0	28.3
22.....	38.7	950	245	110	93	186	31.0	28.3
23.....	38.7	1,470	245	108	209	203	31.0	26.5
24.....	39.8	2,440	242	104	164	230	31.0	24.7
25.....	38.7	4,360	239	99	401	167	31.0	22.9
26.....	36.5	3,330	230	95	359	116	39.8	22.0
27.....	36.5	* 2,500	227	93	203	90	42.0	21.4
28.....	35.4	1,910	236	90	178	97	40.9	21.4
29.....	35.4	1,660	248	84	156	88	93	20.8
30.....	36.5	1,240	255	84	186	76	39.8	20.2
31.....	* 36.5	1,100	-----	* 84	-----	66	37.6	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	46.8	24.0	35.6	2,190
March.....	4,360	19.8	791	48,600
April.....	1,490	227	490	29,200
May.....	251	84	141	8,670
June.....	401	72	124	7,380
July.....	271	66	126	7,750
August.....	93	31.0	42.9	2,640
September.....	35.4	20.2	28.1	1,670

* Interpolated.

FRENCHMAN CANAL NEAR SAGO, MONT.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 27, T. 33 N., R. 34 E., $1\frac{1}{2}$ miles below head-gates and 18 miles from Sago.

RECORDS AVAILABLE.—May to September, 1928.

REMARKS.—Records fair. Canal diverts water from Frenchman River for irrigation of lands in Frenchman Valley.

Daily and monthly discharge, in second-feet, 1927-28

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		8.0	16.7	15.3	18.5	16.....	0	11.1	0	11.3	0
2.....		8.0	16.1	15.0	11.9	17.....	0	11.2	0	11.7	0
3.....		8.0	15.2	14.9	0	18.....	0	11.4	4.9	11.3	0
4.....		10.2	13.5	15.0	0	19.....	0	13.3	22.0	10.9	0
5.....		4.3	12.0	14.6	0	20.....	0	17.5	19.2	10.4	0
6.....		5.2	9.5	14.3	0	21.....	0	18.8	9.4	10.3	0
7.....		12.1	7.6	14.0	0	22.....	0	19.1	4.1	10.2	0
8.....		12.1	7.6	13.8	0	23.....	2.0	19.2	0	10.2	0
9.....		12.0	12.6	13.5	0	24.....	6.1	18.1	0	10.7	0
10.....		12.1	11.5	13.0	0	25.....	7.6	16.1	0	13.1	0
11.....		5.2	9.5	12.6	0	26.....	7.1	18.3	0	13.8	0
12.....	0	0	3.6	12.5	0	27.....	4.0	20.1	0	16.7	0
13.....	0	0	0	12.4	0	28.....	4.5	17.5	10.2	17.7	0
14.....	0	3.0	0	12.3	0	29.....	7.6	16.2	15.8	18.1	0
15.....	0	11.0	0	11.4	0	30.....	7.6	16.8	15.8	18.7	0
						31.....	7.8		15.5	18.9	
Month						Maximum		Mean		Run-off in acre-feet	
May (9 days).....						7.8		6.03		108	
June (28 days).....						20.1		12.7		705	
July (21 days).....						22.0		12.0		500	
August.....						18.9		13.5		820	
September (2 days).....						18.5		15.2		60	
The period.....										2,208	

ROCK CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 1, T. 37 N., R. 37 E. three-quarters of a mile south of international boundary, 2 miles above Horse Creek, and 5 miles west of Barnard, Mont.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 938 second-feet March 22 (gage height, 10.44 feet); minimum, 0.8 second-foot August 21 to September 10.

1927-28: Maximum discharge, 982 second-feet April 6, 1927 (gage height, 10.51 feet); no flow March 1-17, 1927.

REMARKS.—Records good. Small diversions. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1		110.	16.0	6.2	74		
2	5.8		120.	15.1	5.8	88		
3	5.3		80.	14.4	5.6	24.0		
4	5.3		57.	13.8	5.6	20.9		
5	* 5.4		42.2	13.4	6.5	15.1	* 3.4	* 0.8
6	* 5.4		31.8	12.8	6.2	12.6		
7	* 5.5		27.6	12.4	5.8	11.7		
8	5.5		20.6	11.7	2.8	9.1		
9	5.1		* 23	10.8	5.6	8.6		
10	* 4.6	* 2	* 25	10.1	8.0	8.4		
11	* 4.1		24.7	9.9	7.3			
12	3.7		24.0	9.7	7.0			
13	* 3.7		* 20.0	9.5	2.7			
14	* 3.6		* 18.2	9.1	2.7			
15	* 3.6		* 18.5	9.1	1.7	* 11.2	* 2.4	* 1.4
16	* 3.5		* 17.9	9.3	5.4			
17	* 3.5		* 17.0	8.6	7.0			
18	* 3.4		* 17.0	8.8	7.0			
19	* 3.4		17.0	8.4	13.6			
20	* 3.3		15.7	8.4	111.			
21	* 3.3		17.0	8.2	31.1			
22	* 3.3	* 503	17.3	8.2	27.6			
23	* 3.2		18.5	7.8	46.6			
24	3.2		18.5	7.7	59			
25	* 3.2		18.2	7.5	77	* 7.3	* 0.8	* 3.0
26	3.2		17.6	6.8	94			
27	3.2		17.9	6.8	44.6			
28	* 3.6	* 76	17.3	6.5	19.7			
29	4.0		16.8	11.7	16.8			
30	* 4.0		16.8	11.2	106			
31	* 4.0			7.0				
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October	5.8		3.2		4.10		252	
March					113		6,950	
April	120		15.7		30.1		1,790	
May	16.0		6.5		10.0		615	
June	111		1.7		24.9		1,480	
July					15.0		922	
August					2.15		132	
September					1.73		103	

* Estimated or interpolated.

HORSE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 3, T. 37 N., R. 37 E., three-quarters of a mile south of international boundary and 8 miles west of Bernard, Mont.

DRAINAGE AREA.—71 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,340 second-feet March 22 (gage height, 10.50 feet); no flow March 1-17.

1927-28: Maximum discharge, that of March 22, 1928; no flow at times.

REMARKS.—Records good prior to May 21 and poor thereafter. No diversions. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	0.2	0	29.6	1.7	0.8	22.0	0.6	0.1
2.....	0.3	0	32.4	1.7	0.8	10.0	0.6	0.1
3.....	0.4	0	18.8	1.7	0.8	5.0	0.5	0.1
4.....	0.5	0	7.7	1.7	0.8	2.0	0.4	0.1
5.....	0.5	0	6.5	1.5	0.8	2.2	0.4	0.1
6.....	0.5	0	5.6	1.2	0.8	2.0	0.5	0.1
7.....	0.5	0	4.3	1.0	0.8	1.7	0.5	0.1
8.....	0.5	0	4.6	1.2	0.8	1.7	0.5	0.1
9.....	0.5	0	3.2	1.4	0.8	1.7	0.4	0.1
10.....	0.4	0	3.2	1.4	0.7	1.6	0.4	0.1
11.....	0.4	0	3.5	1.1	0.7	1.5	0.4	0.2
12.....	0.3	0	3.5	1.0	0.7	1.5	0.3	0.2
13.....	0.3	0	3.0	1.0	0.6	1.4	0.3	0.2
14.....	0.3	0	2.6	0.9	0.5	1.3	0.3	0.1
15.....	0.3	0	2.8	0.8	0.5	1.2	0.2	0.1
16.....	0.3	0	3.0	0.9	0.5	1.1	0.2	0.1
17.....	0.3	0	3.0	0.9	0.5	1.1	0.2	0.1
18.....	0.3	0	3.2	0.9	0.5	1.0	0.1	0.1
19.....	0.3	0.10	3.5	0.8	0.5	1.5	0.1	0.1
20.....	0.3	0.15	3.2	0.7	0.10	1.2	0.1	0.1
21.....	0.4	0.400	2.3	0.7	0.10	1.0	0.1	0.1
22.....	0.4	0.560	2.3	0.7	0.50	0.9	0.1	0.1
23.....	0.4	498	2.0	0.7	0.10	0.9	0.1	0.1
24.....	0.4	452	2.0	0.6	8.1	0.8	0.1	0.1
25.....	0.4	80	2.0	0.6	20.0	0.8	0.1	0.1
26.....	0.4	58	2.2	0.6	28.6	1.0	0.1	0.1
27.....	0.4	22.2	2.2	0.6	25.0	1.0	0.1	0.1
28.....	0.4	19.3	2.2	0.6	10.0	0.8	0.1	0.1
29.....	0.4	9.7	2.0	0.7	8.0	0.7	0.1	0.1
30.....	0.4	5.6	1.8	0.7	139	0.7	0.1	0.1
31.....	0.4	25.8	-----	0.7	-----	0.7	0.1	-----
Month			Maximum	Minimum	Mean		Run-off in acre-feet	
October.....			0.5	0.2	0.33		22	
March.....			560	0	69.6		4,280	
April.....			32.4	1.8	5.61		334	
May.....			1.7	0.6	0.93		61	
June.....			139	0.5	9.23		550	
July.....			22	0.7	2.33		143	
August.....			0.6	0.1	0.23		16	
September.....			0.2	0.1	0.11		6.6	

* Estimated or interpolated.

McEACHERN CREEK AT INTERNATIONAL BOUNDARY

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 1, T. 37 N., R. 36 E., half a mile south of international boundary and 7 miles north of Thoeny.

DRAINAGE AREA.—160 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928. March, 1924, to October, 1926, by the Department of the Interior, Canada.

EXTREMES.—Maximum discharge during year, 1,340 second-feet March 21 (gage height, 9.19 feet); no flow March 1-17.

1927-28: Maximum discharge, that of March 21, 1928; no flow at times.

REMARKS.—Records fair. Discharge estimated March 1-21, April 1, 10, 12, August 5, 22, 23, 30, and September 1. Station maintained in cooperation with the Dominion Water Power and Reclamation Service, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1927-28

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	22.0	2.2	0.1	295	0.5	0.05
2	0	23.3	1.9	.1	73	.5	.05
3	0	22.9	1.7	.1	46.2	.5	.05
4	0	22.6	1.4	.1	23.6	.5	.05
5	0	22.2	1.3	.1	54	.4	.03
6	0	22.2	1.1	.1	9.7	.3	.03
7	0	21.5	.9	.1	5.3	.3	.03
8	0	17.3	.9	.1	4.8	.3	.03
9	0	10.4	.7	.1	4.3	.3	.01
10	0	8.7	.6	.1	3.4	.3	.01
11	0	7.0	.5	.05	2.4	.3	.01
12	0	7.2	.5	.05	1.6	.3	.01
13	0	7.3	.4	.05	1.1	.3	.01
14	0	7.3	.4	.05	1.0	.3	.01
15	0	7.3	.1	.05	1.0	.3	.01
16	0	5.5	.1	.05	1.2	.3	.01
17	0	4.5	.1	.05	1.2	.3	.01
18	.1	4.1	.1	.1	1.2	.3	.01
19	26.5	3.8	.1	.1	1.9	.1	.01
20	547	3.6	.1	2.2	1.4	.1	.01
21	1,000	3.2	.1	36.5	1.0	.1	.01
22	968	3.0	.1	17.3	.6	.1	.01
23	702	2.9	.1	40.3	.6	.05	.01
24	353	2.9	.1	105	.5	.05	.01
25	944	2.9	.1	299	.4	.05	.01
26	67	2.5	.1	232	.3	.05	.01
27	23.3	2.5	.1	90	2.5	.1	.01
28	59	2.4	.1	36.8	1.0	.1	.01
29	22.6	2.4	.1	22.9	.7	.1	.01
30	20.8	2.1	.1	100	.6	.1	.01
31	20.8		.1		.5	.1	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March	1,000	0	153	9,410
April	23.3	2.1	9.25	550
May	2.2	.1	.52	32.1
June	299	.05	32.8	1,950
July	295	.3	17.5	1,080
August	.5	.05	.239	14.7
September	.05	.01	.018	1.1
The period				13,000

YELLOWSTONE RIVER BASIN

YELLOWSTONE LAKE AT LAKE HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—Staff gage at boat landing at Lake Hotel, 1½ miles southwest of lake outlet. Zero of gage is 7,729.51 feet above mean sea level.

DRAINAGE AREA.—1,010 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1928.

EXTREMES.—Maximum stage during year, 5.25 feet May 31; minimum, 1.09 feet December 13.

1921-1928: Maximum stage, 6.12 feet June 30, 1927; minimum, 0.36 foot December 17, 1921.

REMARKS.—Records good. Records furnished by officials of Yellowstone Park.

Daily gage height, in feet, 1927-28

Day	Oct.	Nov.	Dec.	May	June	July	Aug.	Sept.
1	1.90	1.34	1.24		4.95	4.75	4.02	2.55
2					4.95	4.75	3.98	2.50
3			1.18		4.95	4.75	3.94	2.48
4	1.74	1.30			4.95	4.75	3.87	2.45
5					4.95	4.75	3.79	2.40
6		1.26			4.95	4.75	3.70	2.37
7	1.70		1.12		4.95	4.75	3.68	2.30
8					4.95	4.85	3.59	2.28
9		1.37			4.95	4.85	3.58	2.25
10	1.67		1.10		4.95	4.84	3.55	2.23
11					4.95	4.81	3.46	2.19
12					4.90	4.83	3.40	2.16
13	1.58	1.36	1.09		4.85	4.83	3.35	2.07
14					4.85	4.83	3.30	2.05
15					4.85	4.83	3.30	2.03
16	1.53				4.85	4.83	3.27	
17			1.10		4.75	4.80	3.10	
18	1.48	1.38			4.70	4.76	3.09	
19				2.50	4.70	4.73	3.00	
20			1.10		4.69	4.68	2.96	
21	1.42			2.75	4.65	4.60	2.96	
22		1.33			4.65	4.55	2.83	
23					4.60	4.58	2.80	
24	1.35			3.44	4.55	4.49	2.75	
25					4.60	4.39	2.74	1.70
26	1.32	1.31		3.88	4.60	4.35	2.70	1.70
27				4.40	4.70	4.30	2.70	1.68
28	1.33			4.75	4.70	4.22	2.68	
29				4.95	4.90	4.20	2.65	1.67
30		1.24		5.10	4.90	4.15	2.60	1.64
31	1.35			5.25		4.13	2.58	

YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK

LOCATION.—Staff gage at Fishing Bridge, a quarter of a mile below outlet of Yellowstone Lake and $1\frac{1}{2}$ miles northeast of Lake Hotel. Zero of gage is 7,728.90 feet above mean sea level.

DRAINAGE AREA.—1,010 square miles.

RECORDS AVAILABLE.—December, 1922, to September, 1927. Gage-height records only prior to October, 1926.

EXTREMES. Maximum discharge during year, 5,680 second-feet May 31 to June 10 (gage height, 5.4 feet); minimum, 665 second-feet March 30 (gage height, 1.27 feet).

1922-1928: Maximum discharge, 7,420 second-feet June 29, 30, and July 1, 1927 (gage height, 6.3 feet); minimum, 560 second-feet January 9 and 10, 1927 (gage height, 0.94 foot).

REMARKS.—Discharge records are fair below and good above 1,000 second-feet. Gage-height record shows approximate stages in Yellowstone Lake. Discharge estimated for days of no gage-height record. Gage-height record furnished by Yellowstone Park officials.

Daily gage height, in feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.35	1.83	1.74		1.50	1.33			5.38	5.23	4.43	3.01
2	2.41					1.33			5.38	5.23	4.38	2.98
3	2.37		1.81						5.33	5.23	4.33	2.93
4	2.25	1.75			1.46				5.38	5.23	4.28	2.90
5									5.38	5.23	4.20	2.87
6		1.71							5.38	5.23	4.13	2.81
7	2.21		1.65	1.64	1.44		1.28		5.38	5.23	4.08	2.75
8								1.61	5.38	5.28	3.98	2.72
9		1.85		1.63		1.31			5.38	5.28	3.93	2.70
10	2.16		1.63						5.38	5.26	3.93	2.68
11					1.42				5.33	5.23	3.92	2.64
12				1.63					5.33	5.23	3.83	2.59
13	2.08	1.81	1.62	1.62					5.28	5.23	3.80	2.52
14							1.28		5.28	5.23	3.68	2.50
15					1.40			2.58	5.28	5.23	3.68	2.48
16	2.00					1.30			5.28	5.20	3.68	
17			1.63					2.79	5.23	5.06	3.58	
18	1.96	1.73		1.60	1.39				5.18	5.11	3.48	
19					1.39				5.18	5.11	3.51	
20			1.63	1.58				3.13	5.17	5.03	3.43	
21	1.90						1.28		5.13	4.98	3.38	
22		1.69			1.37			3.52	5.13	4.98	3.33	
23				1.54		1.28			5.03	4.93	3.28	
24	1.84				1.36				4.98	4.88	3.23	
25								4.13	5.03	4.78	3.20	2.18
26	1.80	1.65	1.63	1.53				4.28	5.03	4.73	3.20	2.12
27								4.53	5.03	4.63	3.20	2.12
28	1.83						1.29	4.88	5.13	4.68	3.18	2.13
29				1.66				5.08	5.23	4.58	3.13	2.11
30		1.74				1.27		5.23	5.23	4.53	3.11	2.11
31	1.85							5.38		4.51	3.03	

Daily and monthly discharge, in second-feet, of Yellowstone River at Yellowstone Lake outlet, Yellowstone National Park, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	1,300	955	898	845	770	705	670	726	5,680	5,310	4,010	1,920
2.....	1,340	936	912	845	763	705	672	739	5,680	5,310	3,920	1,920
3.....	1,300	917	925	845	755	702	675	752	5,680	5,310	3,840	1,860
4.....	1,220	898	905	845	748	699	678	766	5,680	5,310	3,760	1,810
5.....	1,210	884	885	845	748	696	680	780	5,680	5,310	3,600	1,760
6.....	1,190	870	865	845	748	694	682	793	5,680	5,310	3,520	1,700
7.....	1,180	898	845	845	748	691	685	806	5,680	5,310	3,440	1,660
8.....	1,170	927	845	845	742	688	685	820	5,680	5,490	3,280	1,600
9.....	1,150	955	845	845	736	685	685	919	5,680	5,490	3,210	1,600
10.....	1,140	948	845	845	731	685	685	1,020	5,680	5,490	3,210	1,600
11.....	1,130	940	837	845	725	685	685	1,120	5,490	5,310	3,130	1,560
12.....	1,120	932	838	845	725	685	685	1,210	5,490	5,310	3,060	1,510
13.....	1,110	925	820	820	725	685	685	1,310	5,490	5,310	2,980	1,420
14.....	1,090	920	826	820	725	685	685	1,410	5,490	5,310	2,930	1,420
15.....	1,060	914	832	820	725	685	685	1,510	5,490	5,310	2,830	1,420
16.....	1,040	909	839	820	725	685	685	1,600	5,490	5,310	2,830	1,390
17.....	1,030	903	845	820	725	685	685	1,700	5,310	5,130	2,680	1,360
18.....	1,020	898	845	820	725	685	685	1,830	5,310	5,130	2,680	1,340
19.....	1,010	891	845	820	725	685	685	1,970	5,310	5,130	2,540	1,310
20.....	997	884	845	820	718	685	685	2,100	5,310	4,950	2,480	1,280
21.....	985	877	845	812	712	685	685	2,320	5,130	4,950	2,410	1,250
22.....	975	870	845	803	705	685	685	2,540	5,130	4,950	2,340	1,220
23.....	965	864	845	795	705	685	685	2,870	4,950	4,780	2,280	1,200
24.....	955	858	845	795	705	682	685	3,190	4,950	4,780	2,220	1,170
25.....	940	851	845	795	705	679	685	3,520	4,950	4,600	2,160	1,140
26.....	925	845	845	795	705	676	685	3,760	4,950	4,430	2,160	1,110
27.....	940	858	845	812	705	674	685	4,180	4,950	4,260	2,160	1,110
28.....	955	872	845	828	705	671	685	4,780	5,130	4,260	2,160	1,140
29.....	955	885	845	845	705	668	698	5,130	5,310	4,260	2,100	1,110
30.....	955	898	845	820	-----	665	712	5,310	5,310	4,180	2,040	1,110
31.....	955	-----	845	795	-----	668	-----	5,680	-----	4,090	1,980	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	1,340	925	1,070	1.06	1.22	65,800
November.....	955	845	899	.890	.99	53,500
December.....	925	820	862	.844	.97	52,400
January.....	845	795	826	.813	.94	50,800
February.....	770	705	727	.720	.78	41,800
March.....	705	665	685	.678	.78	42,100
April.....	712	670	685	.678	.76	40,800
May.....	5,680	726	2,170	2.15	2.48	133,000
June.....	5,680	4,950	5,390	5.34	5.96	321,000
July.....	5,490	4,090	5,010	4.96	5.72	308,000
August.....	4,010	1,980	2,830	2.80	3.23	174,000
September.....	1,920	1,110	1,430	1.42	1.53	85,100
The year.....	5,680	665	1,890	1.87	25.41	1,370,000

YELLOWSTONE RIVER NEAR CANYON HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—Water-stage recorder half a mile upstream from Upper Falls and Canyon ranger station and $1\frac{1}{4}$ miles south of Canyon Hotel.

DRAINAGE AREA.—1,280 square miles.

RECORDS AVAILABLE.—June, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 5,840 second-feet June 2-5 (gage height, 3.6 feet); minimum, 907 second-feet October 25 (gage height, 1.02 feet).

1913-1928: Maximum discharge, 8,550 second-feet June 27, 1918 (gage height, 4.50 feet); minimum, 664 second-feet September 6, 1919 (gage height, 0.72 foot).

REMARKS.—Records excellent. Discharge estimated September 28-30. No diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	May	June	July	Aug.	Sept.	Day	Oct.	May	June	July	Aug.	Sept.
1....	1,380	-----	5,710	5,210	4,060	1,980	16....	1,060	-----	5,460	5,210	2,780	1,360
2....	1,380	-----	5,840	5,330	3,950	1,930	17....	1,040	-----	5,460	5,210	2,780	1,340
3....	1,340	-----	5,840	5,330	3,840	1,890	18....	1,020	-----	5,330	5,090	2,670	1,320
4....	1,350	-----	5,840	5,210	3,730	1,840	19....	1,000	-----	5,330	5,090	2,610	1,300
5....	1,300	-----	5,840	5,210	3,730	1,780	20....	984	-----	5,210	4,970	2,530	1,250
6....	1,250	-----	5,710	5,210	3,620	1,750	21....	966	-----	5,090	4,850	2,440	1,230
7....	1,220	-----	5,710	5,330	3,520	1,710	22....	958	3,200	5,090	4,850	2,380	1,220
8....	1,210	-----	5,580	5,330	3,410	1,650	23....	941	3,410	5,090	4,740	2,300	1,200
9....	1,210	-----	5,710	5,210	3,300	1,620	24....	924	3,620	4,970	4,620	2,280	1,190
10....	1,190	-----	5,710	5,210	3,300	1,590	25....	916	3,950	4,970	4,510	2,220	1,160
11....	1,160	-----	5,710	5,210	3,200	1,530	26....	916	4,280	4,970	4,510	2,200	1,140
12....	1,140	-----	5,710	5,090	3,090	1,500	27....	1,020	4,620	4,970	4,400	2,180	1,120
13....	1,120	-----	5,580	5,210	3,090	1,460	28....	984	4,970	5,090	4,400	2,200	} 1,100
14....	1,100	-----	5,580	5,210	2,980	1,430	29....	950	5,210	5,090	4,280	2,120	
15....	1,080	-----	5,460	5,210	2,880	1,390	30....	950	5,460	5,090	4,280	2,060	
							31....	958	5,590	-----	4,170	2,000	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	1,380	916	1,100	0.859	0.99	67,600
May 22-31.....	5,580	3,200	4,430	3.46	1.29	87,900
June.....	5,840	4,970	5,420	4.25	4.72	323,000
July.....	5,330	4,170	4,960	3.85	4.47	305,000
August.....	4,060	2,000	2,890	2.25	2.61	178,000
September.....	1,980	-----	1,440	1.17	1.25	85,700

YELLOWSTONE RIVER AT CORWIN SPRINGS, MONT.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 30, T. 8 S., R. 8 E., in canyon at Corwin Springs, 8 miles north of Gardiner.

DRAINAGE AREA.—2,630 square miles.

RECORDS AVAILABLE.—September, 1910, to September, 1928.

EXTREMES.—Maximum discharge during year, 25,300 second-feet May 26 (gage height, 10.0 feet); minimum, 895 second-feet March 16 (gage height, 1.00 foot).

1910-1928: Maximum discharge, 26,500 second-feet June 14 and 15, 1918 (gage height, 11.5 feet); minimum (estimated), 720 second-feet January 8-10, 1920.

REMARKS.—Records good. Discharge estimated December 14-27. No diversions. Natural storage in Yellowstone Lake.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,340	2,120	1,900	1,010	1,220	3,680	15,100	11,100	5,650	2,740
2	2,340	2,010	1,900	1,010	1,220	4,030	14,400	11,700	5,210	2,740
3	2,340	2,010	1,900	1,010	1,220	3,850	13,700	11,400	5,210	2,740
4	2,340	2,010	1,900	1,080	1,220	4,210	13,000	11,100	5,000	2,600
5	2,340	2,010	1,800	1,080	1,140	4,790	13,000	10,800	5,000	2,600
6	2,230	2,120	1,900	1,080	1,140	7,090	13,000	10,800	4,790	2,460
7	2,230	2,120	1,310	1,140	1,140	8,700	13,000	10,800	4,790	2,460
8	2,120	2,230	1,700	1,140	1,080	10,200	12,000	10,500	4,590	2,460
9	2,120	2,120	1,310	1,140	1,140	12,400	11,400	9,860	4,400	2,320
10	2,120	2,680	1,220	1,140	1,140	12,400	11,100	9,860	4,400	2,320
11	2,120	2,230	1,220	1,140	1,140	14,400	11,100	9,270	4,400	2,190
12	2,010	2,230	1,220	1,140	1,140	14,400	11,100	9,270	4,030	2,190
13	2,010	2,230	1,220	1,140	1,140	12,400	10,500	9,270	4,030	2,190
14	2,010	2,120	1,080	1,080	1,140	9,270	10,500	9,270	4,030	2,190
15	2,010	2,120	1,080	1,080	1,140	8,700	10,500	8,980	3,850	2,190
16	2,010	2,120	895	1,140	1,140	9,270	10,800	8,700	3,680	2,060
17	2,010	2,120	1,140	1,140	1,140	9,860	10,500	8,150	3,680	1,930
18	2,010	2,010	1,140	1,140	1,220	12,400	10,500	8,700	3,680	1,930
19	1,900	2,010	1,140	1,140	1,220	13,000	9,860	8,150	3,510	1,930
20	1,900	2,010	1,140	1,140	1,220	14,400	9,860	7,610	3,350	1,930
21	1,900	2,010	1,220	1,140	1,220	15,900	9,270	7,350	3,190	1,930
22	1,900	1,900	1,310	1,220	1,220	18,200	9,860	7,090	3,030	1,810
23	1,900	1,900	1,310	1,310	1,310	19,900	10,500	7,090	3,030	1,810
24	1,900	1,900	1,400	1,310	1,310	20,300	10,500	6,590	3,030	1,810
25	1,800	1,900	1,400	1,400	1,500	22,500	11,100	6,590	3,030	1,700
26	1,800	1,900	1,220	1,220	1,810	25,300	11,400	6,590	3,030	1,700
27	2,560	1,900	1,220	1,220	2,320	23,400	12,400	6,110	3,030	1,700
28	2,340	1,900	1,500	1,220	3,350	24,400	12,400	6,350	3,190	1,700
29	2,340	1,900	1,500	1,220	3,510	22,500	12,400	6,110	3,190	1,700
30	2,120	1,900	1,500	1,220	3,680	21,200	11,400	6,110	3,030	1,700
31	2,120	1,400	1,400	1,220	18,200	-----	-----	5,650	2,740	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	2,560	1,800	2,100	0.798	0.92	129,000
November	2,680	1,900	2,060	.783	.87	123,000
December	1,900	1,220	1,400	.532	.6	86,100
March	1,400	895	1,150	.437	.50	70,700
April	3,680	1,080	1,480	.563	.63	88,100
May	25,300	3,680	13,600	5.17	5.96	836,000
June	15,100	9,270	11,500	4.37	4.88	634,000
July	11,700	6,650	8,610	3.27	3.7	529,000
August	5,650	2,740	3,900	1.48	1.7	240,000
September	2,740	1,700	2,120	.806	.90	126,000

YELLOWSTONE RIVER NEAR LIVINGSTON, MONT.

LOCATION.—Wire gage in NW. $\frac{1}{4}$ sec. 12, T. 3 S., R. 9 E., on Yellowstone Trail, 5 miles south of Livingston.

RECORDS AVAILABLE.—May, 1897, to December, 1903; August to September, 1928.

EXTREMES.—Maximum discharge during year, 3,840 second-feet August 28 (gage height, 3.04 feet); minimum (estimated), 2,700 second-feet September 21–30.

REMARKS.—Records good except those for estimated period, September 14–30, which are fair. Some diversions.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		3,390	11.....		2,920	21.....		
2.....		3,230	12.....		2,920	22.....		
3.....		3,230	13.....		2,920	23.....	3,740	
4.....		3,230	14.....			24.....	3,560	
5.....		3,070	15.....			25.....	3,740	
6.....		3,070	16.....			26.....	3,560	
7.....		3,070	17.....		2,850	27.....	3,740	
8.....		2,920	18.....			28.....	3,740	
9.....		2,920	19.....			29.....	3,560	
10.....		2,920	20.....			30.....	3,560	
						31.....	3,390	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 23-31.....	3,740	3,390	3,620	64,600
September.....	3,390	2,700	2,890	172,000
The period.....				237,000

YELLOWSTONE RIVER AT BILLINGS, MONT.

LOCATION.—Wire gage in NE. $\frac{1}{4}$ sec. 34, T. 1 N., R. 26 E. on Custer Battlefield Highway at Billings.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 7,910 second-feet August 29 (gage height, 3.29 feet); minimum, 4,760 second-feet September 30 (gage height, 1.98 feet).

REMARKS.—Records fair. Numerous diversions above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		6,550	11.....		5,810	21.....		5,150
2.....		6,550	12.....		5,810	22.....		5,150
3.....		6,550	13.....		5,580	23.....		4,950
4.....		6,300	14.....		5,810	24.....	7,080	4,950
5.....		6,050	15.....		5,810	25.....	7,080	4,760
6.....		5,810	16.....		5,580	26.....	7,080	4,760
7.....		5,810	17.....		5,360	27.....	6,810	4,760
8.....		5,810	18.....		5,360	28.....	7,080	4,760
9.....		5,810	19.....		5,150	29.....	7,910	4,760
10.....		5,810	20.....		5,150	30.....	7,350	4,760
						31.....	7,080	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 24-31.....	7,910	6,810	7,180	114,000
September.....	6,550	4,760	5,510	328,000
The period.....				442,000

YELLOWSTONE RIVER AT MILES CITY, MONT.

LOCATION.—Staff gage at Chicago, Milwaukee & St. Paul Railway pumping plant, half a mile below Miles City and just below Tongue River.

RECORDS AVAILABLE.—September, 1922, to August, 1923; August to September, 1928.

EXTREMES.—Maximum discharge during year, 11,800 second-feet August 31 (gage height, 5.16 feet); minimum, 7,320 second-feet September 25 and 26 (gage height, 4.06 feet).

1922-23, 1928: Maximum discharge, 53,300 second-feet, June 15, 1923 (gage height, 8.80 feet, old datum); minimum, 1,800 second-feet December 7, 1923.

REMARKS.—Records good. Numerous diversions and some storage above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		10,900	11.....		7,660	21.....		7,320
2.....		10,400	12.....		8,020	22.....		7,320
3.....		9,200	13.....		8,020	23.....		7,320
4.....		9,200	14.....		7,660	24.....		7,320
5.....		8,020	15.....		7,660	25.....		7,320
6.....		8,020	16.....		7,660	26.....		7,320
7.....		8,020	17.....		7,660	27.....		7,320
8.....		7,660	18.....		7,660	28.....	10,000	7,320
9.....		8,020	19.....		7,660	29.....	10,400	7,320
10.....		7,660	20.....		7,660	30.....	10,900	7,320
						31.....	11,800	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August.....	11,800	10,000	10,800	85,700
September.....	10,900	7,320	7,920	471,000
The period.....				557,000

YELLOWSTONE RIVER AT INTAKE, MONT.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 36, T. 18 N., R. 56 E. at Lower Yellowstone diversion dam at Intake, 18 miles below Glendive.

DRAINAGE AREA.—66,800 square miles.

RECORDS AVAILABLE.—January, 1911, to September, 1928; at Glendive, 18 miles upstream from August, 1903, to December, 1910.

EXTREMES.—Maximum discharge during year, 88,900 second-feet June 1 (gage height, 8.65 feet); minimum, 6,250 second-feet December 15 (gage height, 1.40 feet).

1903–1928: Maximum discharge, 159,000 second-feet June 21, 1921 (gage height, 12.6 feet); minimum, 1,200 second-feet December 6–8.

REMARKS.—Records good. Numerous diversions. Some storage on tributary streams.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	13,600	9,550	9,600	-----	10,800	9,550	88,000	52,200	21,500	10,800
2.....	12,800	9,550	9,400	-----	10,800	12,800	86,400	55,800	20,600	10,800
3.....	12,200	10,200	9,200	-----	10,200	14,300	72,200	61,400	19,800	10,200
4.....	12,200	9,550	9,000	-----	10,200	15,100	59,800	66,000	19,800	10,200
5.....	12,800	9,550	8,950	-----	10,200	15,100	53,800	56,800	19,800	9,550
6.....	13,600	9,550	10,200	-----	9,550	15,100	46,400	53,800	19,000	8,950
7.....	12,200	10,200	10,800	-----	9,550	15,800	41,000	64,400	17,400	8,370
8.....	10,200	10,800	10,200	-----	8,370	15,100	37,200	81,600	16,600	7,810
9.....	8,370	10,800	10,200	-----	7,810	15,100	36,000	72,200	15,800	7,810
10.....	7,270	11,500	10,200	-----	7,810	19,800	33,800	66,000	12,800	7,810
11.....	7,270	11,500	8,370	-----	7,810	23,200	32,700	55,200	12,200	7,810
12.....	7,270	10,800	7,270	-----	7,810	32,700	29,600	49,400	11,500	8,370
13.....	7,810	10,800	6,750	-----	7,810	32,700	28,600	45,000	10,800	7,810
14.....	8,370	10,800	6,500	-----	7,810	37,200	28,600	42,200	10,200	7,270
15.....	8,370	9,550	6,250	-----	7,810	42,200	28,600	42,200	10,800	7,270
16.....	8,950	7,810	6,500	-----	7,810	41,000	33,800	43,600	10,400	7,270
17.....	9,550	7,270	7,270	-----	7,810	39,600	31,600	43,600	9,970	7,270
18.....	8,950	7,270	-----	-----	7,810	34,900	32,700	43,600	9,550	7,810
19.....	9,550	7,270	-----	24,000	7,810	33,800	32,700	45,000	9,550	7,810
20.....	9,550	10,800	-----	23,200	8,370	32,700	31,600	45,000	9,550	7,810
21.....	9,550	10,000	-----	24,000	8,370	36,000	30,600	39,600	8,950	7,810
22.....	9,550	10,000	-----	24,000	8,370	41,000	29,600	37,200	9,550	7,810
23.....	9,550	10,000	-----	26,700	8,370	45,000	28,600	34,900	9,550	7,810
24.....	9,550	10,800	-----	21,500	7,810	50,800	28,600	30,600	8,950	7,270
25.....	9,550	9,550	-----	18,200	7,810	56,800	30,600	28,600	8,370	7,270
26.....	8,950	10,200	-----	16,600	7,810	62,900	31,600	25,800	9,550	7,270
27.....	8,370	10,200	-----	15,100	8,370	67,600	33,800	23,200	10,200	7,270
28.....	8,370	10,200	-----	13,600	8,370	75,300	36,000	23,200	10,200	7,270
29.....	8,370	10,000	-----	12,200	8,950	78,400	41,000	23,200	10,200	7,270
30.....	8,370	9,800	-----	12,200	9,550	83,200	46,400	23,200	10,800	7,810
31.....	8,370	-----	-----	11,500	-----	86,400	-----	21,500	10,800	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	13,600	7,270	9,660	594,000
November.....	11,500	7,270	9,860	587,000
December 1-17.....	10,800	6,250	8,630	291,000
March 19-31.....	26,700	11,500	18,700	482,000
April.....	10,800	7,810	8,590	511,000
May.....	86,400	9,550	38,100	2,340,000
June.....	88,000	28,600	40,100	2,390,000
July.....	81,600	21,500	45,100	2,770,000
August.....	21,500	8,370	12,700	781,000
September.....	10,800	7,270	8,120	483,000

TOWER CREEK AT TOWER FALLS, YELLOWSTONE NATIONAL PARK

LOCATION.—Staff gage a short distance above Tower Falls, a quarter mile above mouth, and 2 miles southeast of Camp Roosevelt.

DRAINAGE AREA.—51 square miles.

RECORDS AVAILABLE.—September, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 637 second-feet May '28 (gage height, 6.27 feet); minimum, 22 second-feet March 7-14 (gage height, 3.66 feet March 10).

1922-1928: Maximum discharge, 642 second-feet May 30, 1925, maximum gage height, that of May 28, 1928; minimum discharge, 13 second-feet May 6, 1924 (gage height, 3.38 feet).

REMARKS.—Records good from July to September; others fair except those for braced periods, which are poor. Gage read once daily June 26 to September 11; at other times gage was read at less frequent intervals and discharge estimated for days of no gage-height record.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	35	40	29	26	24	23	24	75	340	182	51	32
2.....	35	43	29	26	24	23	24		162	50	32	32
3.....	35	}	29	25	24	23	24	68	287	152	48	32
4.....	34		29	25	24	23	24		273	139	48	31
5.....	34		30	24	24	23	24	115	259	126	47	31
6.....	33	65	30	24	24	23	24		245	126	48	31
7.....	33		31	24	24	22	24		231	126	46	31
8.....	32		31	23	24	22	24		221	117	45	31
9.....	32	}	32	23	24	22	24		211	109	44	31
10.....	32		32	23	24	22	24		202	109	43	31
11.....	32	54	33	23	23	22	24	120	192	100	43	31
12.....	33	51	34	23	23	22	24		182	100	41	30
13.....	33	49	35	23	23	22	24	280	182	98	39	30
14.....	34	46	36	23	23	22	24		182	92	39	30
15.....	34	44	35	23	23	23	24		182	85	39	30
16.....	35	41	33	23	23	23	24		182	85	38	30
17.....	35	39	32	23	23	23	25		177	95	37	30
18.....	36	36	30	23	24	23	27	}	172	85	37	30
19.....	36	35	29	23	24	}	28		159	79	36	31
20.....	35	34	28	24	24		30		147	75	36	31
21.....	33	33	26	24	24	30	31	}	134	71	36	30
22.....	32	32	25	24	24		33		162	68	36	30
23.....	30	32	25	24	24		34	490	162	66	36	30
24.....	29	31	25	24	34		36		490	169	64	36
25.....	30	30	25	24	24		37	490	175	59	36	29
26.....	32	29	25	24	24	}	}	540	182	60	37	28
27.....	50	29	26	24	23				172	59	36	28
28.....		29	26	24	23		65	637	162	59	36	28
29.....		29	26	24	23				152	58	35	28
30.....		29	26	24	25				143	57	33	28
31.....		26	24	24	25		475	}	}	52	32	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	-----	29	35.9	0.704	0.81	2,210
November.....	-----	29	44.5	.873	.97	2,650
December.....	36	25	29.3	.575	.66	1,800
January.....	26	23	23.8	.467	.54	1,460
February.....	24	23	23.7	.465	.50	1,360
March.....	-----	22	25.0	.490	.56	1,540
April.....	-----	24	33.0	.647	.72	1,960
May.....	-----	-----	278	5.45	6.28	17,100
June.....	-----	143	199	3.90	4.35	11,800
July.....	182	52	94.0	1.84	2.12	5,780
August.....	51	32	40.1	.786	.9	2,470
September.....	32	28	30.2	.592	.66	1,800
The year.....	-----	-----	22	71.6	1.40	51,900

LAMAR RIVER NEAR TOWER FALLS RANGER STATION, YELLOWSTONE NATIONAL PARK

LOCATION.—Water-stage recorder half a mile north of Cooke C'ty road, three-quarters of a mile above mouth, and 2 miles northeast of Tower Falls ranger station.

DRAINAGE AREA.—640 square miles.

RECORDS AVAILABLE.—September, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 13,600 second-feet May 25 (gage height, 9.75 feet); minimum, 170 second-feet September 29 (gage height, 1.28 feet).

1922-1928: Maximum discharge, that of May 25, 1928; minimum, 104 second-feet April 20, 1924 (gage height, -0.08 foot).

REMARKS.—Records excellent for October and September; others fair except those for estimated periods, which are poor..

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	272	281	* 299						5,720			* 343
2.....	258	279	* 295					* 1,500	4,700		* 725	* 322
3.....	258	* 326	291									* 302
4.....	279	374	212					1,540	* 4,450		643	* 281
5.....	287											* 261
6.....	264							* 2,700				240
7.....	244	* 400						3,860	4,020	* 2,900		212
8.....	244							4,440				219
9.....	258										* 525	219
10.....	261							* 5,800	* 3,400			222
11.....	240	364					* 200	7,150				230
12.....	233										405	233
13.....	230											222
14.....	258									2,120		216
15.....	275	* 320			* 200	* 210						199
16.....	283			* 220					2,880			190
17.....	287		* 250					* 7,500		* 1,700		184
18.....	287	307										184
19.....	275								* 3,050	1,340		187
20.....	268											187
21.....	258	* 310								1,110	* 400	184
22.....	250							9,340		848		184
23.....	244						* 275	10,300	3,100			184
24.....	236							10,000		757		178
25.....	226						521	11,900		685		175
26.....	230	291						11,900	* 3,400	595		175
27.....	356	279						11,400				175
28.....	583	315					* 1,000	11,200				172
29.....	499	307						9,800		* 700	405	170
30.....	420	* 303					1,440	8,670	3,620		* 384	175
31.....	333							7,150		820	* 364	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	583	226	287	0.448	0.52	17,600
November.....		261	330	.516	.58	19,600
December.....			253	.395	.46	15,600
January.....			220	.344	.40	13,500
February.....			200	.312	.34	11,500
March.....			210	.328	.38	12,900
April.....	1,440		364	.569	.63	21,700
May.....	11,900		6,890	10.8	12.45	424,000
June.....	5,720		3,560	5.56	6.20	212,000
July.....			1,910	2.98	3.44	117,000
August.....		364	477	.745	.86	29,800
September.....	343	170	214	.334	.37	12,700
The year.....	11,900	170	1,250	1.95	26.63	907,000

* Estimated or interpolated.

GARDINER RIVER AT MAMMOTH HOTEL, YELLOWSTONE NATIONAL PARK

LOCATION.—Water-stage recorder a quarter of a mile below footbridge on Mount Everts trail, three-eighths of a mile below Mammoth Hot Springs, and nine-tenths of a mile northeast of Mammoth Hotel.

DRAINAGE AREA.—201 square miles.

RECORDS AVAILABLE.—September, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,790 second-feet May 28 (gage height, 3.59 feet); minimum, 31 second-feet April 7 (gage height, 0.55 foot). 1922-1928: Maximum discharge, that of May 28, 1928; minimum, that of April 7, 1928.

REMARKS.—Records excellent except those for estimated periods, December 26 to January 6 and September 9-30, which are fair. No diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	116	126		93	76	87	287	955	508	197	139
2	139	129	129		96	87	89	294	891	480	194	136
3	142	134	124		91	85	89	291	875	455	194	134
4	153	145	114	95	93	78	87	302	772	440	197	132
5	150	161	119		93	91	87	394	709	440	200	132
6	139	156	85		93	100	83	553	709	430	194	129
7	134	197	78	105	78	96	63	674	702	412	185	124
8	132	179	105	105	98	93	65	891	634	376	176	124
9	132	240	112	105	68	91	80	1,010	565	364	173	
10	132	283	105	102	89	83	83	1,100	565	351	167	
11	124	197	112	100	98	70	78	1,160	621	342	164	
12	124	182	109	98	102	80	83	1,130	547	334	161	
13	124	173	107	96	70	72	80	998	502	330	159	
14	126	167	96	98	102	83	83	815	491	326	159	
15	126	186	91	98	80	83	83	751	496	322	153	
16	126	150	105	89	98	85	87	751	496	318	150	
17	126	147	112	98	100	87	89	793	518	318	147	
18	124	145	112	96	93	85	87	891	530	310	145	
19	122	145	105	100	91	89	89	931	502	291	142	
20	119	153	107	74	93	93	89	989	470	272	142	125
21	119	150	105	91	100	98	89	1,130	465	260	139	
22	119	134	102	100	98	102	87	1,220	475	257	142	
23	116	124	105	96	65	107	87	1,350	496	245	145	
24	114	116	105	96	76	107	102	1,350	491	246	150	
25	114	105	98	98	83	102	116	1,500	502	236	153	
26	119	119		100	87	91	139	1,590	547	229	156	
27	167	129		100	91	98	164	1,640	559	226	164	
28	179	126	90	96	93	93	197	1,640	530	229	159	
29	153	122		105	89	91	203	1,500	524	216	150	
30	142	119		105		91	250	1,350	496	216	142	
31	129			102		89		1,110		207	139	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	179	114	132	0.657	0.76	8,120
November	283	105	153	.761	.85	9,100
December	129	78	103	.512	.59	6,330
January		74	97.5	.485	.56	6,000
February	102	65	89.7	.446	.48	5,160
March	107	70	89.5	.445	.51	5,500
April	250	63	103	.512	.57	6,130
May	1,640	287	977	4.86	5.60	60,100
June	955	465	588	2.93	3.27	35,000
July	508	207	322	1.60	1.84	19,800
August	200	139	163	.811	.94	10,000
September	139		127	.632	.71	7,560
The year	1,640	63	246	1.22	16.68	179,000

CLARK FORK AT CHANCE, MONT.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 32, T. 9 S., R. 22 E., at Chance, just above Sand Coulee and half a mile north of Wyoming State line.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,900 second-feet May 26 (gage height, 6.5 feet); minimum, 146 second-feet March 19 (gage height, 0.85 foot).

1921-1928: Maximum discharge, that of May 26, 1928; minimum, 72 second-feet March 19, 1927 (gage height, 0.50 foot).

REMARKS.—Records good. Numerous diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	518	376	600		230	1,730	5,620	5,870	2,170	685
2	480	389	600		226	1,940	5,120	7,730	2,020	642
3	480	443	600		219	1,590	4,620	4,380	1,800	600
4	443	443	518		204	1,460	3,930	4,150	1,590	600
5	443	600	480		194	1,660	3,280	4,330	1,590	600
6	443	730			201	2,680	3,710	4,620	1,520	559
7	436	730			163	3,490	3,930	5,120	1,330	600
8	383	775			166	4,150	3,770	4,150	1,200	600
9	396	730			184	5,120	3,280	3,930	1,330	775
10	383	870			222	5,120	2,870	3,930	1,330	920
11	370	822			178	5,620	2,870	4,150	1,330	559
12	410	775			175	6,650	3,070	4,380	1,200	518
13	396	775			190	5,370	2,870	4,870	1,200	480
14	383	822			178	4,150	2,680	4,620	1,200	423
15	376	775			178	3,280	2,500	4,620	1,140	383
16	383	730			172	3,280	2,870	4,380	1,080	480
17	416	685			234	3,930	2,680	4,150	1,020	376
18	403	680		157	219	5,370	2,500	4,150	970	283
19	403	642		155	204	5,620	2,500	3,490	870	341
20	341	685		185	184	6,390	2,170	3,490	870	318
21	353	685		286	175	6,920	2,500	3,070	775	364
22	347	600		288	208	7,730	3,280	2,870	822	383
23	353	518		480	208	8,570	3,070	2,870	920	370
24	313	600		600	234	8,570	3,490	2,680	870	330
25	308	518		443	364	9,730	2,870	2,870	822	318
26	298	600		288	685	10,900	5,120	2,870	642	318
27	324	642		298	970	10,000	5,620	2,680	730	318
28	313	600		268	1,660	10,300	5,620	2,870	775	318
29	308	600		251	1,400	9,730	5,870	2,680	870	313
30	430	600		260	1,520	8,570	5,620	2,500	775	298
31	443			230		7,190		2,680	685	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	518	298	390	24,000
November	870	376	648	38,600
March 18-31	600	155	295	8,190
April	1,660	163	378	22,500
May	10,900	1,460	5,700	350,000
June	5,870	2,170	3,660	218,000
July	7,730	2,500	3,910	240,000
August	2,170	642	1,140	70,100
September	920	283	469	27,900

CLARK FORK AT EDGAR, MONT.

LOCATION.—Wire gage in SW. $\frac{1}{4}$ sec. 24, T. 4 S., R. 23 E., on highway bridge half a mile east of Edgar.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,600 second-feet May 26 (gage height, 8.25 feet); minimum, 230 second-feet December 5 (gage height, 2.20 feet).

1921-1928: Maximum discharge, that of May 26, 1928; minimum, 208 second-feet March 20, 1927.

REMARKS.—Records good. Numerous diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	566	566	645		384	1,340	6,720	6,060	1,830	685
2	566	566	605		372	1,700	5,410	6,060	1,700	685
3	605	566	605		384	1,700	4,990	5,200	1,590	685
4	605	605	645		378	1,580	4,190	4,590	1,400	605
5	605	812	331		378	1,580	3,610	4,390	1,400	605
6	605	990	289		378	2,410	3,430	4,590	1,280	566
7	605	945			378	3,070	3,800	4,990	1,180	527
8	605	945			378	3,800	3,430	4,790	1,080	527
9	605	812			360	4,790	3,250	3,990	7,040	527
10	605	812			278	5,200	2,900	4,190	1,040	527
11	605	900		1,040	278	5,840	3,430	4,190	1,040	527
12	605	1,080		685	304	6,280	2,780	4,190	1,040	527
13	605	1,130		527	278	6,060	2,780	4,590	1,040	527
14	605	900		422	278	3,800	2,370	4,990	945	455
15	605	855		331	331	3,610	2,410	4,590	900	390
16	605	812		355	331	3,430	2,570	4,390	855	390
17	527	728		390	331	3,610	2,780	4,190	855	422
18	455	685		422	331	4,590	2,370	3,990	812	455
19	455	685		378	331	5,620	2,410	3,800	770	455
20	455	685		422	331	6,280	2,110	3,070	728	455
21	455	855		491	331	6,500	1,970	2,780	685	455
22	455	812		586	331	7,390	1,830	2,410	728	390
23	455	728		566	331	8,080	2,570	2,410	812	390
24	455	685		566	331	8,540	3,070	2,110	770	390
25	455	685		605	360	9,230	3,430	2,110	770	390
26	455	645		566	527	10,200	4,190	2,110	685	390
27	455	770		390	728	9,950	6,280	1,970	605	390
28	491	728		455	1,180	9,950	6,280	2,110	605	390
29	491	685		422	1,580	9,950	5,840	2,110	605	390
30	605	645		390	1,230	8,770	5,840	2,110	645	390
31	605			390		8,080		2,110	685	
Month					Maximum	Minimum	Mean	Run-off in acre-feet		
October					605	455	544	33,400		
November					1,130	566	777	46,200		
December 1-6					645	289	520	6,190		
March 11-31					1,040	331	494	20,600		
April					1,580	278	457	27,200		
May					10,200	1,340	5,580	343,000		
June					6,720	1,830	3,640	217,000		
July					6,060	1,970	3,710	228,000		
August					1,830	605	975	60,000		
September					685	390	484	28,800		

BIG HORN RIVER AT THERMOPOLIS, WYO.

LOCATION.—Chain gage in sec. 36, T. 43 N., R. 95 W., at highway bridge between Thermopolis and Hot Springs, a short distance above Thermopolis Hot Springs. Zero of gage is 4,304.80 feet above mean sea level.

DRAINAGE AREA.—8,080 square miles.

RECORDS AVAILABLE.—May, 1900, to December, 1905; June, 1910, to September, 1928.

EXTREMES.—Maximum discharge during year, 15,200 second-feet May 29 and 30 (gage height, 9.9 feet); minimum, 388 second-feet December 9 (gage height, 0.13 foot).

1900–1905, 1910–1928: Maximum discharge, 29,800 second-feet July 24, 1923 (gage height, 16.2 feet); minimum, 180 second-feet April 5, 1904 (gage height, 0.2 foot).

REMARKS.—Records good. Discharge estimated because of ice or missing gage heights December 15, 16, 31, January 1–3, and May 17–20. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,030	1,150	619	565	614	549	750	1,800	11,670	6,960	3,490	1,020
2	2,280	1,060	557	555	641	565	735	2,030	8,490	7,510	3,310	940
3	2,280	980	735	544	641	549	750	2,690	6,980	6,680	3,110	839
4	2,030	940	865	533	593	553	750	2,150	6,770	5,480	2,830	852
5	1,910	1,020	745	508	614	553	715	1,910	6,270	5,440	2,690	813
6	1,910	1,100	618	573	614	561	692	1,590	5,120	5,330	2,550	794
7	1,690	1,100	569	614	632	605	650	1,910	4,770	6,490	2,030	772
8	1,590	1,100	454	659	614	628	614	2,830	4,570	6,860	1,910	762
9	1,590	1,060	415	632	632	677	623	3,250	4,470	7,290	1,690	772
10	1,440	1,060	442	650	565	715	636	4,400	4,070	4,760	1,590	794
11	1,490	1,020	481	668	565	767	628	5,310	4,470	4,330	1,490	820
12	1,490	1,020	778	672	573	858	695	5,310	6,070	5,640	1,440	846
13	1,440	1,020	820	756	589	980	650	5,120	6,430	6,380	1,490	806
14	1,440	980	826	715	601	902	664	6,420	5,870	6,570	1,540	789
15	1,440	1,060	750	730	561	826	641	6,050	4,970	7,160	1,540	784
16	1,440	1,060	670	690	573	767	605	4,760	4,760	6,940	1,590	730
17	1,390	1,020	659	672	553	695	614	4,700	4,760	6,750	1,590	720
18	1,440	1,020	650	628	549	686	601	4,800	4,220	6,600	1,540	710
19	1,440	1,020	605	636	569	778	605	5,300	4,580	5,590	1,540	710
20	1,390	980	614	593	565	902	610	5,800	3,870	4,920	1,440	705
21	1,490	980	623	597	573	1,020	610	6,240	3,400	4,980	1,340	710
22	1,440	1,060	597	650	581	1,340	628	6,600	3,870	4,350	1,340	715
23	1,340	1,020	593	569	614	1,690	605	7,340	4,580	4,350	1,150	730
24	1,240	865	581	561	565	1,690	646	8,820	4,580	3,690	1,290	720
25	1,290	720	614	557	529	1,690	628	10,100	4,940	3,210	1,290	720
26	1,150	806	573	553	504	1,340	705	11,200	5,500	4,740	1,200	715
27	1,150	940	565	545	600	1,290	839	13,200	7,160	5,220	1,150	720
28	2,260	940	545	545	511	980	1,200	13,900	7,900	5,510	1,100	725
29	1,200	902	565	597	529	865	1,690	14,700	8,460	3,730	1,100	725
30	1,240	745	589	597	-----	846	2,030	14,800	9,010	3,940	1,150	725
31	1,150	-----	575	623	-----	800	-----	13,900	-----	3,650	1,020	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet					
October	2,280		1,150		1,520		93,500					
November	1,150		720		992		59,000					
December	865		415		622		38,200					
January	756		508		612		37,600					
February	641		500		578		33,200					
March	1,690		549		892		54,800					
April	2,030		601		762		45,300					
May	14,800		1,590		6,420		395,003					
June	11,600		3,400		5,740		342,000					
July	7,510		3,210		5,520		339,000					
August	3,490		1,020		1,720		106,000					
September	1,020		705		773		46,000					
The year	14,800		415		2,190		1,590,000					

BIG HORN RIVER AT KANE, WYO.

LOCATION.—Chain gage in sec. 4, T. 56 N., R. 93 W., half a mile east of Kane.

Zero of gage is 3,610.23 feet above mean sea level.

DRAINAGE AREA.—15,900 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		1,620	11.....		1,130	21.....		1,290
2.....		1,540	12.....		1,160	22.....		1,190
3.....		1,480	13.....		1,180	23.....		1,190
4.....		1,420	14.....		1,210	24.....		1,290
5.....		1,350	15.....		1,230	25.....		1,280
6.....		1,280	16.....		1,290	26.....		1,330
7.....		1,210	17.....		1,400	27.....		1,340
8.....		1,180	18.....		1,400	28.....		1,330
9.....		1,130	19.....		1,360	29.....	2,240	1,250
10.....		1,080	20.....		1,310	30.....	1,710	1,270
						31.....	1,690	-----
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
September.....			1,620	1,080	1,290	76,800		

BIG HORN RIVER NEAR HARDIN, MONT.

LOCATION.—Chain gage in NW. ¼ sec. 19, T. 1 S., R. 34 E., on Crow Indian

Reservation, about half a mile above mouth and 2 miles northeast of Hardin.

DRAINAGE AREA.—20,700 square miles.

RECORDS AVAILABLE.—June, 1904, to May, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 3,500 second-feet August 30 (gage height, 4.5 feet); minimum, 2,160 second-feet September 11–14 (gage height, 3.5 feet).

1904–1925, 1928: Maximum discharge, 42,300 second-feet October 1, 1923 (gage height, 10.65 feet); minimum, 516 second-feet July 15–18, 1919 (gage height, 2.28 feet).

REMARKS.—Records good. Numerous diversions for irrigation upstream. Some storage on tributary streams.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		2,890	11.....		2,160	21.....		2,330
2.....		2,890	12.....		2,160	22.....		2,330
3.....		2,700	13.....		2,160	23.....		2,330
4.....		2,700	14.....		2,160	24.....		2,330
5.....		2,330	15.....		2,330	25.....	3,090	2,510
6.....		2,330	16.....		2,330	26.....	3,090	2,510
7.....		2,330	17.....		2,510	27.....	3,090	2,510
8.....		2,510	18.....		2,510	28.....	2,890	2,330
9.....		2,510	19.....		2,510	29.....	3,090	2,330
10.....		2,330	20.....		2,330	30.....	3,500	2,330
						31.....	2,890	-----
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
August 25–31.....			3,500	2,890	3,090	42,900		
September.....			2,890	2,160	2,420	144,000		
The period.....						187,000		

DINWOODY CREEK NEAR BURRIS, WYO.

LOCATION.—Water-stage recorder in sec. 10, T. 5 N., R. 5 W., 6 miles northwest of Burris and a quarter of a mile above mouth. Zero of gage is 6,195.39 feet above mean sea level.

DRAINAGE AREA.—114 square miles.

RECORDS AVAILABLE.—January to October, 1909; May, 1918, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,000 second-feet July 19 (gage height, 3.35 feet); minimum, 14 second-feet several days in March and April (gage height, 0.68 foot).

1918-1928: Maximum discharge, 1,710 second-feet July 25, 1923 (gage height, 3.75 feet); minimum, 8 second-feet April 17, 1922.

REMARKS.—Records good except those for winter, which are fair. Practically no diversion. Natural regulation to some extent by numerous small lakes on headwaters.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	41	23	21	31	15	15	20	506	558	662	135
2	113	43	22	21	28	16	15	24	415	514	608	131
3	105	38	21	20	25	15	15	40	398	454	508	133
4	102	49	21	20	23	15	15	53	360	420	393	142
5	100	41	21	20	19	14	15	64	341	448	366	152
6	95	40	21	21	15	14	14	74	304	564	350	158
7	91	39	18	21	20	14	14	73	283	640	341	168
8	91	37	16	20	24	14	14	76	270	569	312	186
9	86	36	19	20	24	14	14	98	265	454	317	195
10	79	35	20	20	25	14	14	160	255	448	360	198
11	79	33	20	20	26	16	14	218	255	508	426	177
12	76	32	20	20	24	17	14	205	270	596	470	147
13	73	30	20	20	21	16	14	215	295	696	498	135
14	74	29	21	20	18	14	15	262	295	811	514	129
15	74	27	21	20	16	15	14	266	295	811	508	118
16	74	26	20	21	15	16	14	222	295	806	481	112
17	74	24	19	21	16	15	14	195	270	844	470	110
18	73	23	19	21	17	15	14	192	243	928	448	109
19	71	21	20	20	19	14	14	198	215	976	398	109
20	68	20	20	20	20	14	14	218	195	728	350	103
21	66	17	20	22	21	16	14	251	177	701	322	99
22	66	27	20	24	22	17	14	317	185	646	304	94
23	64	29	19	33	23	17	14	432	255	574	295	89
24	62	31	19	30	21	17	14	530	325	525	274	78
25	59	31	19	27	19	16	14	580	355	564	247	73
26	59	31	19	24	17	15	14	640	470	640	218	66
27	56	32	19	30	15	20	14	712	514	734	205	63
28	56	33	19	36	14	36	14	772	547	740	192	59
29	49	29	20	33	14	20	15	767	615	718	186	65
30	44	28	20	27	15	16	16	701	605	723	174	68
31	43	21	21	21	15	15	15	618	618	706	152	---

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	113	43	75.3	4,630
November	49	17	31.7	1,890
December	23	16	19.9	1,220
January	36	20	23.0	1,410
February	31	14	20.4	1,170
March	36	14	16.2	996
April	16	14	14.3	851
May	772	20	297	18,300
June	618	177	336	20,000
July	976	420	647	39,800
August	662	152	366	22,500
September	198	59	120	7,140
The year	976	14	165	120,000

* Estimated or interpolated.

DRY CREEK NEAR BURRIS, WYO.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 12, T. 4 N., R. 5 W., above head of Dry Creek ditch, 2 miles south of Burris, and 2 miles above Little Dry Creek.

DRAINAGE AREA.—73 square miles.

RECORDS AVAILABLE.—May, 1921, to September, 1928.

EXTREMES.—1921-1928: Maximum discharge, 1,100 second-feet about June 12, 1921 (gage height, 3.9 feet); minimum, 2 second-feet February 23, 1921.

REMARKS.—Records good, but incomplete. One small ditch diverts above station.

Daily discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	60	20				220		34
2	58	28			167	192		33
3	55	27				178		32
4	54	27						32
5	51	26		40				30
6	47			37				30
7	46					216		29
8	45					190	78	30
9	46					161		29
10	45				190	176		28
11	44				222	185		26
12	39			97	242	206		25
13	39			139	220	266		
14	39			119	237			
15	41			98	248			22
16	41				147			
17	42				128			
18	42				111		60	
19	42			135				
20	42							
21	41							
22	41							22
23	37				143			
24	35				149	132		
25	34				192		45	
26	33			135	245			
27	33							
28	34		41					
29	34		36					16
30	33		34		222			
31	30							

SURFACE WATER SUPPLY, 1928, PART VI

WILLOW CREEK NEAR CROWHEART, WYO.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 20, T. 3 N., R. 4 W., 2 miles southwest of Crowheart and 12 miles above mouth.

RECORDS AVAILABLE.—May to October, 1909; May, 1921, to June, 1923; April, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 214 second-feet May 28 (gage height, 2.64 feet); minimum occurred during winter.

1921–1923, 1925–1928: Maximum discharge, 750 second-feet July 26, 1923 (gage height, 4.50 feet old datum); minimum 7 second-feet January 14, 1921.

REMARKS.—Records fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	13	12	-----	10	98	102	28	13
2	13	12	-----	9.8	99	81	26	12
3	13	12	-----	10	98	84	24	12
4	13	12	-----	9.8	93	84	22	12
5	12	12	-----	9.2	95	86	22	12
6	12	-----	-----	9.2	89	89	20	12
7	12	-----	-----	9.2	87	71	18	12
8	12	-----	-----	9.2	78	58	17	12
9	12	-----	-----	27	78	58	16	12
10	12	-----	-----	32	78	63	16	12
11	12	-----	-----	22	89	62	15	12
12	12	-----	-----	20	80	62	15	12
13	12	-----	-----	36	74	65	14	12
14	12	-----	-----	27	78	59	14	12
15	12	-----	-----	22	91	55	14	12
16	12	-----	-----	20	92	53	14	12
17	12	-----	-----	25	85	46	14	12
18	12	-----	-----	29	80	59	13	12
19	12	-----	-----	45	74	56	13	12
20	12	-----	-----	52	77	41	12	12
21	12	-----	-----	64	95	36	13	12
22	12	-----	-----	85	92	37	14	12
23	12	-----	-----	102	95	35	15	12
24	13	-----	-----	110	108	38	15	11
25	13	-----	-----	128	127	36	14	11
26	13	-----	-----	150	140	38	13	12
27	13	-----	-----	170	134	36	13	12
28	13	-----	8.6	178	121	35	14	11
29	12	-----	9.5	155	115	30	14	11
30	12	-----	10	143	107	30	13	11
31	12	-----	-----	105	-----	28	13	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	13	12	12.3	756
May	178	9.2	58.8	3,620
June	140	74	94.9	5,850
July	102	28	55.3	3,400
August	28	12	16.1	990
September	13	11	11.9	708

BULL LAKE CREEK NEAR LENORE, WYO.

LOCATION.—Water-stage recorder near north line of sec. 17, T. 3 N., R. 2 W., 14 miles southeast of Lenore and a quarter of a mile above mouth.

DRAINAGE AREA.—132 square miles.

RECORDS AVAILABLE.—May, 1918, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,110 second-feet May 28 (gage height, 6.38 feet); minimum occurred during winter.

1918-1928: Maximum discharge, 3,990 second-feet June 16, 1928 (gage height, 4.3 feet old datum); minimum, 17.8 second-feet February 1, 1919.

REMARKS.—Records excellent except those for estimated periods which are fair. Two small ditches divert above station. Flow naturally regulated by Bull Lake. Gage-height record furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	151	98		25	40	164	1,340	1,390	1,020	266
2	366	128	103		26	44	218	1,120	1,290	953	250
3	348	128	103		28	43	250	1,040	1,130	889	228
4	330	128	102		30	41	246	1,040	1,040	810	229
5	310	126	100		30	40	236	994	1,040	722	230
6	298	124			30	37	260	897	1,180	659	230
7	274	123			31	35	282	818	1,330	582	230
8	250	120			32	34	334	758	1,210	516	231
9	239	128			32	35	474	729	1,040	458	232
10	232	123			32	36	659	708	945	469	220
11	221	126			33	38	722	765	969	498	208
12	214	128			33	40	659	889	1,080	516	197
13	200	137			33	42	687	899	1,190	540	190
14	197	137			33	42	701	818	1,840	561	183
15	197	184			33	43	652	743	1,380	575	177
16	197	134			33	44	640	715	1,370	568	170
17	197	131			33	45	504	666	1,360	547	164
18	200	128			32	45	510	638	1,350	516	164
19	197	126			32	46	547	561	1,560	492	163
20	197	126		27	33	46	631	498	1,650	469	168
21	194	120			35	47	694	516	1,410	452	162
22	190	118			37	47	833	652	1,200	430	162
23	187	115			37	48	1,060	687	1,050	405	161
24	180	110			37	48	1,250	701	961	380	161
25	170	108			32	51	1,460	750	921	362	158
26	170	110			24	54	1,700	929	945	344	156
27	164	108			24	62	1,860	1,190	969	322	154
28	164	110			24	82	2,030	1,440	977	306	146
29	170	103			25	98	2,060	1,480	977	294	138
30	167	101			26	120	1,890	1,460	985	282	130
31	154				30		1,650		1,030	270	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	366	154	224	13,800
November	151	101	123	7,320
December	103		70.4	4,336
January			48.9	3,010
February			30.8	1,770
March	37	24	30.8	1,890
April	120	34	49.1	2,920
May	2,060	164	831	51,100
June	1,480	498	881	52,400
July	1,650	921	1,170	71,900
August	1,020	270	523	32,200
September	266	130	188	11,200
The year	2,060		350	264,000

* Estimated.

LITTLE WIND RIVER NEAR FORT WASHAKIE, WYO.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 1, T. 1 S., R. 2 W., above Ray ditch and $2\frac{1}{2}$ miles above mouth of North Fork at Fort Washakie.

DRAINAGE AREA.—134 square miles.

RECORDS AVAILABLE.—May, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,330 second-feet May 28 (gage height, 4.94 feet); minimum occurred during winter.

1921-1928: Maximum discharge, 5,220 second-feet July 9, 1926; minimum, 14 second-feet February 22, 1921.

REMARKS.—Records excellent except those for periods of missing gage heights, April 1-30, May 1-5, 6-11, 13-20, June 10-15, August 17-17, 26-31, and September 15-21, which are fair. A few small ditches divert above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	152	68		135	508	524	220	72
2	146	75	27	110	494	444	206	70
3	139	74		85	480	393	193	67
4	137	70		70	424	412	177	65
5	125	69		68	362	472	175	65
6		87		90	327	520	158	63
7	103	69		120	537	480	143	62
8	97	64		180	309	362	135	61
9	104	74		210	303	337	133	60
10	104	69		300	300	362	133	58
11	89	72		250	400	393	133	58
12	88	81		215	410	420	130	57
13	94			300	390	468	127	56
14	94		25	260	350	472	124	56
15	100			250	349	424	121	55
16	100			250	348	400	118	54
17	99			260	303	368	115	54
18	96			240	276	396	112	53
19	95			300	249	440	112	52
20	92			350	225	362	106	51
21	92			404	300	318	102	50
22	90			538	358	294	99	49
23	83		31	646	327	276	96	49
24	76			735	389	267	93	49
25	76			816	480	258	93	49
26	80	58		959	614	267	90	47
27	82			986	730	273	87	46
28	79		108	1,100	680	258	84	46
29	79			1,000	606	243	81	46
30	76			942	500	238	78	46
31	73			660		235	75	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	152	73	98.5	6,000
November 1-12	81	64	71.0	1,600
April			45	3,680
May	1,100	68	414	25,560
June	730	225	406	24,200
July	524	235	267	22,680
August	220	75	124	7,600
September	72	46	55.6	3,810

NORTH FORK OF LITTLE WIND RIVER AT FORT WASHAKIE, WYO.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 33, T. 1 N., R. 1 W., at Fort Washakie, a quarter of a mile above mouth.

DRAINAGE AREA.—138 square miles.

RECORDS AVAILABLE.—May, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,300 second-feet May 28 (gage height, 3.59 feet); minimum occurred during winter.

1921–1928: Maximum discharge, 2,640 second-feet July 9, 1926; minimum, 16 second-feet January 9, 1922.

REMARKS.—Records excellent except those for estimated periods, which are fair. Several small ditches divert above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.....	208	88		155	585	540	217	65
2.....	° 201	86		129	512	503	200	64
3.....	194	86		100	530	444	189	61
4.....	192	88	° 25	88	512	404	178	58
5.....	181	88		88	444	400	168	56
6.....	170	88		113	396	440	155	55
7.....	165	86	25	155	364	480	148	50
8.....	160	86	25	178	339	432	136	47
9.....	158	86	26	259	325	380	127	° 46
10.....	155	88	28	400	322	350	118	46
11.....	140	92	24	332	436	346	109	45
12.....	134	94	24	290	436	346	° 104	42
13.....	131		24	396	384	392	° 100	39
14.....	134		24	339	353	420	° 96	37
15.....	134		24	290	350	408	° 92	35
16.....	134		24	273	353	392	° 88	° 34
17.....	134		27	280	336	372	° 84	° 34
18.....	131		25	266	318	364	80	° 33
19.....	129		24	311	283	376	80	° 32
20.....	127		24	° 355	259	364	77	° 31
21.....	124		26	400	336	346	74	° 30
22.....	122		° 28	535	380	° 310	70	30
23.....	° 107		30	685	372	° 295	66	29
24.....	92		39	799	400	° 280	65	29
25.....	92		51	898	458	° 275	66	29
26.....	92		66	1,080	560	° 285	° 66	29
27.....	92		109	1,090	662	° 290	° 66	28
28.....	92		127	1,190	646	244	° 66	27
29.....	92		104	1,070	615	237	° 65	27
30.....	92		109	854	580	228	° 65	27
31.....	92			733		222	° 65	
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October.....	208		92		186		8,360	
November 1–12.....	94		86		88.0		2,090	
April.....	127		24		89.3		2,340	
May.....	1,190		88		437		26,100	
June.....	652		259		428		25,560	
July.....	540		222		360		22,100	
August.....	217		65		166		6,320	
September.....	65		27		39.8		2,370	

° Estimated.

NOWOOD CREEK AT BONANZA, WYO.

LOCATION.—Chain gage in sec. 13, T. 49 N., R. 91 W., at Bonanza, some distance below Paintrock Creek.

DRAINAGE AREA.—1,790 square miles.

RECORDS AVAILABLE.—July, 1910, to September, 1928 (discontinued).

EXTREMES.—Maximum discharge during year, 3,760 second-feet July 7 (gage height, 7.03 feet); minimum probably occurred during winter.

1910-1928: Maximum discharge, 5,160 second-feet June 15, 1924 (gage height, 8.09 feet); minimum, 1.5 second-feet July 27-31, 1919 (gage height, 1.55 feet).

REMARKS.—Records good. Discharge interpolated September 18-21. Diversion for irrigation of several thousand acres above and below station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	338	257		241	602	1,680	2,150	402	225
2	319	251		257	805	1,520	1,860	402	212
3	338	264		244	745	1,280	1,520	380	206
4	319	264		244	495	1,280	1,520	319	206
5	319			238	448	1,140	1,680	575	212
6	300			231	470	865	1,860	402	206
7	293			219	658	898	3,260	338	206
8	289			219	805	865	1,860	319	197
9	286			222	1,070	745	1,360	300	194
10	286			231	1,210	685	1,360	293	188
11	278			231	1,210	685	1,520	271	191
12	271			228	1,360	775	1,280	251	188
13	271			219	1,770	898	1,280	244	212
14	275			219	1,520	830	1,210	222	271
15	271			216	1,210	930	1,140	200	268
16	271			219	1,000	1,000	1,000	194	271
17	278			228	1,070	930	1,000	188	275
18	278			228	1,360	898	1,000	183	261
19	271			219	1,680	865	1,140	180	287
20	275		685	231	1,600	835	898	174	293
21	278		520	225	1,520	775	745	166	299
22	278		548	219	2,050	805	630	155	304
23	278		520	216	2,470	835	575	200	293
24	271		448	212	2,690	865	520	338	289
25	271		380	231	3,020	930	495	278	278
26	264		319	275	3,380	1,210	470	251	278
27	264		300	448	3,500	1,770	448	254	264
28	264		286	548	3,500	2,360	495	338	251
29	261		271	775	3,380	2,050	575	286	244
30	264		264	745	3,020	2,250	495	282	231
31	261		251		2,580		425	251	
Month				Maximum	Minimum	Mean		Run-off in acre-feet	
October				338	261	283		17,400	
March 20-31				685	251	399		9,500	
April				775	212	283		16,800	
May				3,500	448	1,680		103,000	
June				2,360	685	1,120		66,600	
July				3,260	425	1,150		70,700	
August				575	155	279		17,200	
September				304	188	244		14,500	

GREYBULL RIVER AT MEETEETSE, WYO.

LOCATION.—Water-stage recorder in sec. 4, T. 48 N., R. 100 W., at Meeteetse, 3 miles above Meeteetse Creek. Zero of gage is 5,718.63 feet above mean sea level.

DRAINAGE AREA.—690 square miles.

RECORDS AVAILABLE.—June to September, 1897; April to October, 1903; July, 1920, to September, 1928.

EXTREMES.—Maximum discharge during year, 3,350 second-feet May 27 and June 27 (gage height, 6.69 feet); minimum occurred during winter.

1920-1928: Maximum discharge, 6,350 second-feet July 9, 1926 (gage height, 8.35 feet); minimum, 63 second-feet March 4, 1922.

REMARKS.—Records fair. Discharge estimated June 24, 25, July 8 and 9. Many diversions above Meeteetse.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1.....	332	130	559	1,980	1,660	-----	275
2.....	337	122	467	1,910	1,370	-----	279
3.....	324	106	300	1,600	1,320	-----	276
4.....	332	90	222	1,420	1,370	-----	274
5.....	314	90	226	1,260	1,490	-----	271
6.....	292	74	439	1,080	1,470	-----	275
7.....	288	63	625	1,210	1,560	-----	275
8.....	306	78	692	1,100	1,500	-----	271
9.....	314	126	789	1,060	1,470	-----	271
10.....	314	102	643	1,030	1,440	-----	271
11.....	310	78	547	1,190	1,470	-----	267
12.....	301	94	565	1,130	1,540	-----	267
13.....	301	78	724	1,100	1,490	-----	267
14.....	306	86	529	1,190	1,430	-----	267
15.....	301	90	466	1,220	1,330	-----	267
16.....	301	106	439	1,220	1,190	-----	267
17.....	301	126	559	1,150	1,260	-----	256
18.....	324	118	649	1,070	1,150	-----	256
19.....	350	106	815	978	955	-----	271
20.....	350	106	864	1,020	857	-----	287
21.....	346	94	1,000	1,040	822	-----	283
22.....	346	106	1,170	1,040	-----	-----	275
23.....	332	126	1,180	1,180	-----	-----	271
24.....	328	186	1,640	1,300	-----	-----	271
25.....	324	226	1,730	1,650	-----	-----	271
26.....	324	260	1,890	2,060	-----	-----	263
27.....	324	400	2,330	1,830	-----	-----	263
28.....	324	483	2,460	1,430	-----	-----	260
29.....	324	351	2,540	1,440	-----	-----	260
30.....	306	362	2,500	1,250	-----	-----	256
31.....	301	-----	2,150	-----	-----	283	-----
Month	Maximum		Minimum	Mean		Run-off in acre-feet	
October.....	350		288	319		19,600	
April.....	483		63	152		9,040	
May.....	2,540		222	1,020		62,700	
June.....	2,060		978	1,300		77,400	
July 1-21.....	1,660		822	1,340		55,800	
September.....	287		256	269		16,000	

SHOSHONE RIVER BELOW SHOSHONE RESERVOIR, WYO.

LOCATION.—Water-stage recorder in lot 76, T. 52 N., R. 102 W., $3\frac{1}{2}$ miles below Shoshone Dam and about $4\frac{1}{4}$ miles west of Cody.

DRAINAGE AREA.—1,470 square miles.

RECORDS AVAILABLE.—January, 1921, to September, 1928.

REMARKS.—No diversions between station and Shoshone Dam. Flow completely regulated by storage in Shoshone Reservoir having capacity of 456,000 acre-feet. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	903	642	591	454	373	404	663	738	8,950	7,260	2,790	1,190
2.....	897	642	586	450	373	404	663	799	7,960	7,100	2,650	1,170
3.....	897	642	581	445	369	409	658	867	6,880	6,360	2,410	1,140
4.....	897	642	581	441	369	404	637	897	5,950	6,330	2,220	1,110
5.....	835	648	576	431	373	400	632	932	5,160	6,700	2,110	1,090
6.....	879	648	576	441	395	395	606	999	4,710	7,100	1,960	1,080
7.....	867	653	566	441	409	391	601	1,170	4,670	7,350	1,850	1,000
8.....	860	653	551	436	418	391	601	1,340	4,520	6,620	1,790	1,030
9.....	844	658	546	441	418	404	601	1,610	4,270	6,080	1,750	1,020
10.....	833	658	541	436	409	409	591	1,860	3,960	5,920	1,740	1,000
11.....	827	653	527	441	409	409	586	2,220	3,870	6,230	1,720	975
12.....	815	658	522	436	409	404	576	3,470	4,060	6,480	1,700	962
13.....	804	658	512	436	427	400	566	4,540	3,830	6,860	1,660	932
14.....	793	653	507	436	436	391	551	4,420	3,620	7,020	1,640	908
15.....	787	653	497	436	427	391	541	4,240	3,490	6,890	1,600	892
16.....	782	653	489	437	431	400	541	3,810	3,460	6,620	1,570	885
17.....	771	653	489	422	422	404	546	3,710	3,420	6,200	1,530	867
18.....	776	648	469	418	418	404	546	3,810	3,400	5,920	1,500	856
19.....	765	648	473	418	422	395	546	4,320	3,280	5,500	1,460	838
20.....	749	648	489	409	436	404	551	5,030	3,200	4,930	1,420	815
21.....	743	642	478	404	431	413	536	6,120	3,210	4,370	1,400	799
22.....	733	637	478	400	422	450	536	7,140	3,270	4,140	1,370	782
23.....	722	627	478	395	418	517	527	8,530	3,440	3,830	1,360	776
24.....	711	622	473	395	413	596	517	9,660	3,800	3,480	1,340	765
25.....	700	616	473	395	404	679	522	11,200	4,230	3,380	1,300	749
26.....	690	611	469	387	404	700	532	12,600	5,450	3,300	1,300	738
27.....	679	611	469	382	404	695	556	13,800	6,790	3,200	1,280	717
28.....	674	606	464	378	404	684	606	14,500	7,500	3,330	1,260	706
29.....	669	606	464	378	404	679	658	13,900	7,960	3,330	1,260	695
30.....	658	601	454	373	-----	679	700	12,900	7,590	3,260	1,240	690
31.....	653	-----	454	373	-----	674	-----	11,500	-----	3,190	1,210	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	903	653	782	48,100
November.....	658	601	640	38,100
December.....	591	454	510	31,400
January.....	454	373	418	25,700
February.....	486	369	409	23,500
March.....	700	391	477	29,300
April.....	700	517	583	34,700
May.....	14,500	738	5,570	342,000
June.....	8,930	3,200	4,860	289,000
July.....	7,350	3,100	5,430	334,000
August.....	2,790	1,210	1,660	102,000
September.....	1,190	690	908	54,000
The year.....	14,500	369	1,860	1,350,000

LITTLE HORN RIVER NEAR CROW AGENCY, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 13, T. 3 S., R. 34 E., at Chicago, Burlington & Quincy Railroad bridge, 2 miles south of Crow Agency.

DRAINAGE AREA.—1,190 square miles.

RECORDS AVAILABLE.—September, 1911, to September, 1924; August to September, 1928. March, 1905, to June, 1906, at Crow Agency about 2 miles below present site; Crow Agency ditch diverts between stations.

EXTREMES.—Maximum discharge during year, 246 second-feet August 28 (gage height, 4.93 feet); minimum, 185 second-feet September 21 (gage height, 4.79 feet).

1905-6, 1911-1924, 1928: Maximum discharge, 8,200 second-feet July 23, 1923 (gage height, 14.0 feet); no flow July 28 to August 6, 1921.

REMARKS.—Records fair. Several diversions above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		232	11		205	21		189
2		223	12		201	22		189
3		210	13		197	23		189
4		189	14		193	24		193
5		197	15		193	25		193
6		210	16		193	26	223	197
7		210	17		189	27	232	197
8		197	18		193	28	241	197
9		189	19		197	29	241	197
10		193	20		197	30	232	197
						31	241	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 26-31	241	223	235	2,800
September	232	189	193	11,800
The period				14,600

TONGUE RIVER NEAR DAYTON, WYO.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 2, T. 56 N., R. 87 W., above Highline ditch, at mouth of canyon $3\frac{1}{2}$ miles southwest of Dayton, and $1\frac{1}{2}$ miles above Amsden Creek.

DRAINAGE AREA.—204 square miles.

RECORDS AVAILABLE.—November, 1918, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,940 second-feet May 26 (gage height, 4.96 feet); minimum occurred during winter.

1918-1928: Maximum discharge, 2,460 second-feet June 15, 1924 (gage height, 5.57 feet); minimum, 15 second-feet November 29, 1919 (gage height, 1.00 foot).

REMARKS.—Records good. Discharge interpolated October 25-29, September 18-22 and 24-26.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	79	-----	79	349	1,050	975	335	171
2	147	83	-----	85	375	975	870	328	165
3	137	81	-----	83	307	1,160	766	317	165
4	140	81	-----	76	266	1,050	718	307	165
5	137	77	-----	76	277	940	671	314	157
6	97	72	-----	77	375	828	779	290	154
7	127	-----	-----	68	613	828	1,160	273	147
8	124	-----	-----	69	940	807	940	263	144
9	137	-----	-----	81	1,080	766	800	249	142
10	137	-----	-----	86	975	724	772	246	137
11	120	-----	-----	77	940	828	786	240	137
12	120	-----	-----	79	1,050	905	779	230	132
13	132	-----	-----	74	1,120	940	671	228	140
14	137	-----	-----	76	849	940	626	226	144
15	134	-----	-----	77	800	870	589	230	144
16	137	-----	66	77	807	940	583	226	132
17	140	-----	68	77	905	940	560	214	130
18	137	-----	69	76	1,010	905	566	201	130
19	132	-----	69	76	1,240	849	522	192	130
20	130	-----	76	77	1,240	786	490	189	130
21	127	-----	81	69	1,280	772	475	183	131
22	124	-----	86	83	1,400	842	456	183	132
23	122	-----	94	88	1,440	849	441	217	132
24	122	-----	90	103	1,480	752	424	204	131
25	120	-----	86	134	1,560	772	411	192	130
26	118	-----	74	171	1,680	856	387	183	128
27	112	-----	81	220	1,680	905	379	198	127
28	110	-----	85	297	1,720	940	383	195	127
29	100	-----	76	304	1,520	905	375	192	127
30	94	-----	76	266	1,440	905	387	183	127
31	112	-----	77	-----	1,280	-----	349	171	-----
Month	Maximum			Minimum		Mean		Run-off in acre-feet	
October	150			94		126		7,750	
November 1-6	83			72		78.8		938	
March 16-31	94			66		78.4		2,490	
April	304			68		109		6,490	
May	1,720			266		1,030		63,300	
June	1,160			724		884		52,600	
July	1,160			349		616		37,900	
August	335			171		232		14,300	
September	171			127		140		8,330	

TONGUE RIVER NEAR DECKER, MONT.

LOCATION.—Chain gage in sec. 23, T. 9 S., R. 40 E., $1\frac{1}{2}$ miles east of Decker and 2 miles north of Wyoming State line.

DRAINAGE AREA.—1,610 square miles.

RECORDS AVAILABLE.—April to September, 1928.

EXTREMES.—Maximum discharge during year, 3,730 second-feet May 28. (gage height, 5.25 feet); minimum, 210 second-feet several days during August (gage height, 1.31 feet).

REMARKS.—Records good. Discharge interpolated July 19–21, September 27, 28, and 30.

Daily and monthly discharge, in second-feet, 1928

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1-----		1,000	2,580	2,380	675	335	16-----		2,490	2,000	1,720	228	285
2-----		1,050	2,100	2,380	595	335	17-----		2,490	2,100	1,620	228	302
3-----		962	2,100	2,190	580	335	18-----	403	2,490	2,100	1,720	228	308
4-----		835	2,380	2,000	565	328	19-----	438	2,680	2,190	1,600	228	302
5-----		835	2,100	1,900	542	321	20-----	410	2,780	2,000	1,460	218	291
6-----		920	1,810	2,980	542	308	21-----	396	2,780	1,900	1,300	223	279
7-----		1,180	1,530	3,280	505	302	22-----	396	3,080	2,000	1,130	232	279
8-----		1,810	1,530	2,980	424	302	23-----	396	2,890	2,000	1,130	348	273
9-----		2,280	1,530	2,280	375	302	24-----	375	3,080	2,000	1,090	368	273
10-----		2,480	1,480	2,190	321	302	25-----	302	3,280	2,000	1,000	355	285
11-----		2,280	1,440	2,100	296	296	26-----	410	3,380	2,000	920	362	285
12-----		2,280	1,900	2,100	273	285	27-----	528	3,500	2,190	835	368	290
13-----		2,780	2,100	2,000	262	285	28-----	651	3,680	2,480	835	368	300
14-----		2,480	2,280	1,900	246	291	29-----	1,090	3,580	2,680	795	365	308
15-----		2,480	2,100	1,720	232	285	30-----	962	3,280	2,880	795	348	300
							31-----		2,980		765	348	
Month						Maximum	Minimum	Mean	Run-off in acre-feet				
April 18-30-----						1,000	362	524	13,500				
May-----						3,680	835	2,396	147,000				
June-----						2,880	1,440	2,056	122,000				
July-----						3,280	755	1,716	105,000				
August-----						675	218	363	22,300				
September-----						335	273	296	17,800				
The period-----									428,000				

POWDER RIVER AT ARVADA, WYO.

LOCATION.—Chain gage in sec. 16, T. 54 N., R. 77 W., at highway bridge at Arvada, a quarter of a mile above Wildhorse Creek. Zero of gage is 3,623.8 feet above mean sea level.

DRAINAGE AREA.—6,050 square miles.

RECORDS AVAILABLE.—May, 1919, to September, 1928. From July, 1915, to April, 1919, just above mouth of Clear Creek, 16 miles downstream.

EXTREMES.—Maximum discharge during year, 5,450 second-feet October 2 (gage height, 5.2 feet); minimum, 16 second-feet August 23 (gage height, 0.26 foot).

1919-1928: Maximum discharge, about 95,000 second-feet September 29, 1923 (gage height, 23.7 feet); no flow during part of summers of 1919, 1921, 1922, and 1923.

REMARKS.—Records good. Discharge estimated March 1-11. Divisions from tributaries upstream.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	825	938	180	321	995	437	632	188	57
2	3,880	566	180	277	803	421	1,900	347	50
3	1,120	421	200	265	847	469	485	193	43
4	594	405	200	243	938	700	391	104	34
5	445	376	300	243	690	1,380	308	2,150	34
6	369	347	400	271	485	1,190	265	792	38
7	333	321	500	277	383	700	508	347	38
8	333	308	1,000	243	376	503	642	171	32
9	355	308	4,000	271	660	362	826	107	31
10	314	302	5,000	271	613	302	521	73	31
11	271	302	4,900	290	632	333	814	53	31
12	290	296	3,880	296	604	1,360	521	42	30
13	265	296	2,990	321	485	3,580	283	34	28
14	265	314	2,290	265	539	2,020	296	30	36
15	277	314	1,810	283	594	1,120	347	28	61
16	277	302	938	290	770	770	221	26	327
17	254	321	995	260	690	660	243	23	102
18	254	321	938	296	651	575	3,430	22	96
19	249	-----	995	283	632	494	1,240	21	84
20	249	-----	1,240	302	548	557	1,420	20	77
21	243	-----	1,240	271	557	429	503	20	68
22	249	-----	995	277	512	453	254	18	64
23	243	-----	847	254	405	347	166	17	55
24	243	-----	632	265	405	355	128	18	66
25	237	-----	566	265	391	321	107	760	88
26	232	-----	575	243	376	340	188	347	77
27	249	-----	521	314	539	1,880	176	226	68
28	249	-----	512	530	613	938	110	176	86
29	277	-----	421	604	700	740	112	124	81
30	283	-----	355	938	660	847	176	112	84
31	1,060	-----	355	-----	521	-----	182	86	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,880	232	477	29,300
November 1-18	938	296	375	13,400
March	5,000	180	1,290	79,300
April	938	243	318	18,900
May	995	376	600	36,900
June	3,580	302	818	48,700
July	3,430	107	542	33,300
August	2,150	17	215	13,200
September	327	28	66.2	3,940

POWDER RIVER NEAR MIZPAH, MONT.

LOCATION.—Wire gage near center of sec. 30, T. 6 N., R. 52 E., 2 miles southeast of Mizpah and 36 miles southeast of Miles City.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 775 second-feet August 28 (gage height, 3.66 feet); minimum, 115 second-feet September 13 (gage height, 2.68 feet).

REMARKS.—Records good. No large diversions.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		294	11		121	21		273
2		273	12		121	22		241
3		262	13		115	23		188
4		223	14		164	24		196
5		196	15		188	25		188
6		192	16		156	26		188
7		188	17		142	27		214
8		188	18		142	28	314	196
9		156	19		135	29	426	196
10		156	20		283	30	356	214
						31	384	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
September				294	115	193	11,500	

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CLEAR CREEK NEAR ARVADA, WYO.

LOCATION.—Chain gage in sec. 1, T. 56 N., R. 77 W., 16 miles north of Arvada and 2 miles above mouth.

DRAINAGE AREA.—1,110 square miles.

RECORDS AVAILABLE.—April to September, 1928. From July, 1915, to April, 1919, at station three-quarters of a mile downstream.

EXTREMES.—Maximum discharge during year, 3,420 second-feet July 17 (gage height, 7.17 feet); minimum, 55 second-feet August 22 (gage height, 0.84 foot).

1915-1919, 1928: Maximum discharge, that of July 17, 1928; minimum, 1 second-foot on several days during September, 1916.

REMARKS.—Records good. Numerous diversions between Buffalo and Arvada stations for irrigation.

Daily and monthly discharge, in second-feet, 1928

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1-----	-----	344	854	1,400	302	125	16-----	218	940	607	714	80	110
2-----	-----	412	660	1,110	221	117	17-----	221	940	607	2,120	84	105
3-----	-----	483	582	998	207	110	18-----	224	882	582	1,460	77	98
4-----	-----	344	582	770	218	105	19-----	235	940	582	1,170	72	93
5-----	-----	290	607	714	242	91	20-----	214	998	532	1,350	71	88
6-----	-----	278	532	742	254	88	21-----	207	1,060	483	687	65	91
7-----	-----	344	294	1,640	214	95	22-----	214	998	483	607	55	100
8-----	-----	582	278	1,350	184	107	23-----	207	1,060	483	532	61	110
9-----	-----	770	262	1,110	150	107	24-----	194	1,110	483	507	68	107
10-----	-----	882	221	826	133	115	25-----	214	1,110	483	436	125	110
11-----	-----	854	250	742	112	128	26-----	290	1,170	459	366	115	110
12-----	-----	798	582	1,060	100	112	27-----	389	1,290	582	366	122	105
13-----	-----	826	770	798	93	110	28-----	507	1,350	768	378	128	103
14-----	-----	1,110	607	826	82	98	29-----	556	1,350	940	389	141	105
15-----	200	940	607	798	84	100	30-----	556	1,170	1,110	389	136	117
							31-----	-----	1,060	-----	389	133	-----
Month						Maximum	Minimum	Mean	Run-off in acre-feet				
April 15-30-----						556	194	290	9,200				
May-----						1,350	278	861	52,900				
June-----						1,110	221	563	33,500				
July-----						2,120	366	863	53,100				
August-----						302	55	133	8,180				
September-----						128	88	105	6,250				
The period-----						-----	-----	-----	163,000				

LITTLE MISSOURI RIVER BASIN

LITTLE MISSOURI RIVER NEAR ALZADA, MONT.

LOCATION.—Chain gage near southwest corner of T. 8 S., R. 60 E., 3 miles below mouth of Thompson Creek and 4 miles below Alzada.

DRAINAGE AREA.—780 square miles.

RECORDS AVAILABLE.—June, 1911, to September, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 760 second-feet September 14 (gage height, 5.48 feet); minimum, 0.1 second-foot September 4-9 (gage height, 2.04 feet).

1911-1925, 1928: Maximum discharge, 4,550 second-feet April 6, 1912 (gage height, 15.3 feet); no flow at times.

REMARKS.—Some small diversions. Small storage in coulees.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		8.6	11.....		0.2	21.....		0.5
2.....		.7	12.....		5.1	22.....		.4
3.....		.4	13.....		.7	23.....		.3
4.....		.2	14.....		709.0	24.....		.5
5.....		.2	15.....		305.0	25.....		.3
6.....		.1	16.....		164.0	26.....		.3
7.....		.2	17.....		38.0	27.....		.3
8.....		.2	18.....		16.0	28.....		.4
9.....		.1	19.....		5.7	29.....		.3
10.....		.2	20.....		2.6	30.....	46	.3
						31.....	14	
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
September.....			709	0.1	42.0	2,500		

LITTLE MISSOURI RIVER AT MEDORA, N. DAK.

LOCATION.—Wire gage in T. 140 N., R. 102 W., 150 feet downstream from Northern Pacific Railway Co.'s bridge and a third of a mile west of Medora.

DRAINAGE AREA.—6,190 square miles.

RECORDS AVAILABLE.—May, 1903, to October, 1908; October, 1921, to September, 1924; August to September, 1928.

EXTREMES.—1903-1908, 1921-1924, 1928: Maximum discharge, 22,200 second-feet June 24, 1907 (gage height, 16.0 feet); minimum, 2 second-feet September 28, 1905 (gage height, 2.4 feet).

REMARKS.—Records fair. No large diversions upstream.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		71	11.....		130	21.....		456
2.....		76	12.....		76	22.....		456
3.....		55	13.....		65	23.....		366
4.....		34	14.....		55	24.....		288
5.....		28	15.....		51	25.....		236
6.....		23	16.....		41	26.....		204
7.....		13	17.....		31	27.....		168
8.....		94	18.....		28	28.....		146
9.....		76	19.....		114	29.....		135
10.....		59	20.....		480	30.....		130
						31.....	67	
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
September.....			480	13	140	8,330		

HEART RIVER BASIN

HEART RIVER AT SUNNY, N. DAK.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 25, T. 39 N., R. 82 W. at highway bridge three-quarters of a mile west of Sunny.

DRAINAGE AREA.—3,320 square miles.

RECORDS AVAILABLE.—April to September, 1924; March to September, 1928.

EXTREMES.—Maximum discharge during year, 1,700 second-feet July 12 (gage height, 10.5 feet); minimum, 8 second-feet June 8-11 and September 29 and 30 (gage height, 4.20 feet).

1924, 1928: Maximum discharge, 3,120 second-feet April 7, 1924; maximum gage height, 13.6 feet June 19, 1924; minimum discharge, 2 second-feet September 8 and 25, 1924.

REMARKS.—Records fair. No diversions. Discharge interpolated March 27, April 9 and 23.

Daily and monthly discharge, in second-feet, 1928

Day	Mar.	Apr.	May	June	Jul 7	Aug.	Sept.
1		318	77	24	334	148	137
2		306	77	24	343	158	97
3		294	77	24	233	158	87
4		282	77	16	224	148	77
5		258	73	16	224	137	68
6		247	73	16	334	127	58
7		224	73	16	233	201	58
8		212	68	8	1,310	1,550	58
9		201	58	8	1,049	1,010	58
10		190	54	8	833	668	58
11		179	44	8	1,239	528	58
12		179	49	58	1,610	501	54
13		168	49	49	1,239	612	49
14		168	49	40	1,340	247	58
15		168	40	44	698	224	58
16		168	37	49	571	179	68
17		158	37	49	447	168	49
18		158	32	49	394	158	32
19		158	27	87	334	117	32
20		148	27	127	578	107	24
21		148	97	148	1,250	97	24
22		137	168	188	1,490	97	24
23		132	107	168	950	87	49
24		127	77	179	724	68	40
25		117	49	190	501	77	32
26	1,380	107	44	168	234	97	24
27	1,050	97	40	148	247	68	21
28		724	40	168	212	58	16
29		474	77	32	190	231	54
30		394	77	27	368	168	148
31		368		24		158	179
Month	Maximum		Minimum		Mean		Run-off in inches
March 26-31	1,380		368		732		8,710
April	318		77		176		10,500
May	168		24		58.2		3,580
June	368		8		86.8		5,160
July	1,610		158		644		39,600
August	1,550		54		264		16,200
September	137		8		49.5		2,950
The period							86,700

CANNONBALL RIVER BASIN

CANNONBALL RIVER NEAR TIMMER,¹ N. DAK.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 21, T. 133 N., R. 82 W., 4 miles southeast of Timmer and 4 miles above mouth of Dogtooth Creek.

DRAINAGE AREA.—3,650 square miles.

RECORDS AVAILABLE.—June, 1903, to November, 1908; August, 1911, to September, 1918; October, 1921, to September, 1922; March to September, 1928.

EXTREMES.—Maximum discharge during year, 2,500 second-feet August 5 (gage height, 7.6 feet); minimum, 1.5 second-feet June 9 (gage height, 2.4 feet).
1903–1908, 1911–1918, 1921–22, 1928: Maximum discharge, 6,360 second-feet April 2, 1921 (gage height, 21.05 feet, old gage); no flow during periods each year 1904–1908 and 1913.

REMARKS.—Records fair, except for periods when staff gage was read, June 20–27, July 15 to August 4, August 7–18, August 25 to September 13, and September 17–30. Discharge interpolated August 19–25. No diversions.

Daily and monthly discharge, in second-feet, 1928

Day	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....		178	31	4	1,020	101	43
2.....		136	31	4	2,420	101	43
3.....		136	31	4	1,220	85	43
4.....		118	31	4	960	85	43
5.....		118	31	4	790	2,500	43
6.....		101	21	4	680	845	43
7.....		101	21	4	527	228	43
8.....		85	21	4	323	156	31
9.....		85	21	2	289	118	31
10.....		101	31	4	527	306	31
11.....		70	21	2	397	156	31
12.....		70	21	12	359	136	31
13.....		70	12	78	359	156	31
14.....		56	12	56	323	136	2,180
15.....		56	12	56	397	118	1,280
16.....		56	12	31	323	101	289
17.....		56	12	31	257	85	156
18.....		56	12	21	202	70	101
19.....		56	21	12	359	70	70
20.....		70	81	12	273	68	56
21.....		43	12	12	178	66	56
22.....		43	12	93	136	64	43
23.....		43	12	70	156	62	43
24.....		43	12	70	136	60	43
25.....		43	12	118	118	58	43
26.....		43	12	85	136	56	31
27.....	359	81	12	418	118	85	21
28.....	323	31	12	960	118	70	21
29.....	257	31	12	680	118	56	21
30.....	257	43	12	960	118	43	21
31.....	202		4		101	43	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
March 27–31.....	359	202	280	2,780
April.....	178	31	72.3	4,300
May.....	31	4	18.1	1,110
June.....	960	2	127	7,560
July.....	2,420	101	433	26,600
August.....	2,500	43	203	12,500
September.....	2,180	21	165	9,820
The period.....				64,700

¹ Previously published as "at Stevenson."

GRAND RIVER BASIN

GRAND RIVER NEAR WAKPALA, S. DAK.

LOCATION.—Chain gage in sec. 26, T. 19 N., R. 29 E., at bridge on Yellowstone highway, 5 miles south of Wakpala, and 4 miles below Snake Creek.

DRAINAGE AREA.—5,640 square miles.

RECORDS AVAILABLE.—August to September, 1928. September, 1911, to March, 1918, at point about 5 miles upstream.

EXTREMES.—Maximum discharge during year, 4,960 second-feet September 16 (gage height, 10.08 feet); minimum, 17 second-feet September 8 (gage height, 0.68 foot).

1911-1918, 1928: Maximum discharge, 7,130 second-feet June 17, 1915; minimum, 0.1 second-foot September 24, 1913.

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		21	11.....		17	21.....		522
2.....		17	12.....		17	22.....		345
3.....		20	13.....		17	23.....		300
4.....		21	14.....		660	24.....		270
5.....		21	15.....		3,350	25.....		230
6.....		20	16.....		4,820	26.....	64	198
7.....		18	17.....		3,420	27.....	43	173
8.....		17	18.....		1,810	28.....	32	158
9.....		17	19.....		1,040	29.....	31	141
10.....		17	20.....		740	30.....	26	130
						31.....	24	
Month			Maximum		Minimum	Mean		Run-off in acre-feet
August 26-31.....			64		24	36.7		437
September.....			4,820		17	618		36,800
The period.....								37,200

MOREAU RIVER BASIN

MOREAU RIVER AT PROMISE, S. DAK.

LOCATION.—Chain gage in sec. 17, T. 16 N., R. 29 E., three-quarters of a mile north of Promise and half a mile below Virgin Creek.

DRAINAGE AREA.—5,220 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 13,400 second-feet September 17 (gage height, 14.6 feet); minimum, 8 second-feet September 9 (gage height, 0.75 foot).

REMARKS.—Records good. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		18	11.....		14	21.....		549
2.....		14	12.....		14	22.....		434
3.....		13	13.....		13	23.....		292
4.....		12	14.....		14	24.....		215
5.....		12	15.....		435	25.....		173
6.....		12	16.....		2,720	26.....		142
7.....		10	17.....		13,400	27.....		117
8.....		9	18.....		6,920	28.....	20	100
9.....		8	19.....		1,990	29.....	22	87
10.....		12	20.....		1,040	30.....	18	95
						31.....	14	
Month			Maximum		Minimum	Mean		Run-off in acre-feet
September.....			13,400		8	963		57,300

CHEYENNE RIVER BASIN

CHEYENNE RIVER AT EDMONT, S. DAK.

LOCATION.—Chain gage in sec. 36, T. 8 S., R. 2 E., at Edgemont, 300 feet below Chicago, Burlington & Quincy Railroad Co.'s bridge and above Cottonwood Creek. Zero of gage is 3,416.2 feet above sea level.

DRAINAGE AREA.—6,050 square miles.

RECORDS AVAILABLE.—June, 1903, to November, 1906; April to September, 1928.

EXTREMES.—Maximum discharge during year, 4,290 second-feet July 7 (gage height, 5.10 feet); minimum, 1 second-foot September 10 and 11 (gage height, 1.44 feet).

Maximum flood known, 12.0 feet about May 1, 1922; no flow several days in August and September, 1904.

REMARKS.—Records fair. Few diversions above Edgemont.

Daily and monthly discharge, in second-feet, 1928

Day	Apr.	May	June	July	Aug.	Sept.	Day	Apr.	May	June	July	Aug.	Sept.
1-----		8	64	327	1,150	2	16-----	56	107	298	218	27	480
2-----		53	34	154	568	1	17-----	59	146	208	39	68	136
3-----		82	50	142	379	2	18-----	50	133	133	3,190	68	55
4-----		66	501	103	1,440	2	19-----	50	171	99	2,900	45	20
5-----		56	315	75	1,030	2	20-----	53	203	56	1,690	42	42
6-----		41	260	16	472	2	21-----	47	142	34	2,110	42	156
7-----		25	190	2,350	286	2	22-----	47	167	89	1,320	27	82
8-----		14	125	3,770	216	1	23-----	44	110	167	430	20	75
9-----		9	85	1,200	225	1	24-----	44	66	99	437	8	65
10-----		6	72	314	176	1	25-----	28	41	59	559	7	65
11-----	59	5	85	140	140	1	26-----	20	38	38	385	4	72
12-----	66	4	568	65	75	1	27-----	17	25	25	240	3	58
13-----	59	4	2,430	125	62	1	28-----	16	14	501	180	3	58
14-----	59	31	1,520	172	45	3	29-----	9	11	438	1,230	2	58
15-----	63	75	559	199	30	8	30-----	12	11	1,040	800	2	55
							31-----		16		1,830	2	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
April 11-30-----	66	9	42.9	1,700
May-----	203	4	60.6	3,730
June-----	2,430	25	338	20,100
July-----	3,770	16	861	52,900
August-----	1,440	2	215	13,200
September-----	480	1	50.2	2,900
The period-----				94,600

CHEYENE RIVER NEAR WASTA, S. DAK.

LOCATION.—Chain gage in sec. 2, T. 1 N., R. 14 E. at highway bridge 3 miles east of Wasta. Zero of gage is 2,263.4 feet above sea level.

DRAINAGE AREA.—11,700 square miles.

RECORDS AVAILABLE.—July, 1914, to June, 1915; August to September, 1928.

EXTREMES.—1914-15, 1928: Maximum discharge, 34,200 second-feet June 13, 1915 (gage height, 12.5 feet); minimum, 56 second-feet September 28 to October 1, 1915.

REMARKS.—Records good. Few small diversions for irrigation between Edgemont and Wasta.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		105	11.....		100	21.....	146	269
2.....		105	12.....		98	22.....	152	241
3.....		105	13.....		100	23.....	146	194
4.....		94	14.....		114	24.....	136	198
5.....		103	15.....		415	25.....	127	194
6.....		108	16.....		107	26.....	121	194
7.....		100	17.....	225	119	27.....	121	202
8.....		107	18.....	229	186	28.....	119	198
9.....		100	19.....	225	225	29.....	119	194
10.....		98	20.....	163	278	30.....	114	198
						31.....	112	-----
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 17-31.....				229	112	150	4,460	
September.....				415	94	161	9,580	
The period.....							14,000	

CHEYENNE RIVER NEAR CARLIN, S. DAK.

LOCATION.—Chain gage in sec. 31, T. 9 N., R. 24 E., 2½ miles northeast of Carlin and 1 mile above Hermaphrodite Creek.

DRAINAGE AREA.—23,400 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records fair. Few small diversions above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		691	11.....		422	21.....	610	1,340
2.....		640	12.....		366	22.....	660	1,400
3.....		590	13.....		580	23.....	553	1,090
4.....		610	14.....		1,820	24.....	526	1,080
5.....		562	15.....		2,390	25.....	517	948
6.....		562	16.....		1,640	26.....	517	907
7.....		544	17.....		1,320	27.....	508	855
8.....		544	18.....		907	28.....	490	816
9.....		526	19.....		934	29.....	508	816
10.....		475	20.....	610	1,140	30.....	660	842
						31.....	640	-----
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 20-31.....				660	490	567	13,500	
September.....				2,390	366	910	54,100	
The period.....							67,600	

BELLE FOURCHE RIVER NEAR MOORCROFT, WYO.

LOCATION.—Chain gage in sec. 36, T. 50 N., R. 68 W., $1\frac{1}{2}$ miles west of Moorcroft and 1 mile above Donkey Creek. Elevation of zero of gage is 4,133.4 feet above sea level.

DRAINAGE AREA.—1,380 square miles.

RECORDS AVAILABLE.—September, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 5,770 second-feet July 19 (gage height, 8.5 feet); no flow September 10–13.

1923–1928: Maximum discharge, 12,500 second-feet April 7, 1924 (gage height, 12.6 feet); minimum, that of September 10–13, 1928.

REMARKS.—Records good. Chicago, Burlington & Quincy Railroad diverts 30,000 gallons daily just above station.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28		33	10	5.5	4	65	5.0
2	18		31	9.5	6.4	4	42	3.5
3	14		29	10	7.7	3.2	36	1.8
4	10		28	10	7.7	2.9	28	1.2
5	9.5		26	10	6.8	2.6	26	.6
6	8.1		25	10	6.8	2.4	21	.5
7	6.8		31	9.5	12	4.3	20	.4
8	6.4		23	9.5	11	31	18	.2
9	5.5		20	9.5	10	20	17	.2
10	5.1		23	9.5	9.5	12	16	0
11	4.6		23	8.1	10	7.7	12	0
12	4.0		21	8.1	14	5.9	12	0
13	4.0		21	8.1	72	4.6	11	0
14	4.0		19	13	42	3.5	9.0	.2
15	4.0		20	13	21	2.9	7.7	5.0
16	4.0		19	17	15	2.4	4.6	14
17	4.0		18	16	12	6.8	4.3	8.1
18	4.0		18	17	11	420	4.0	7.2
19	4.0		19	15	15	2,960	3.8	5.0
20	4.0		17	13	17	350	1.8	2.6
21	3.5		16	12	13	190	1.5	1.8
22	3.5		15	11	16	125	1.4	1.3
23	3.5		15	11	12	98	.5	.5
24	3.5		14	10	9.5	76	.4	.4
25	3.5	81	13	8.6	7.7	66	.4	.3
26	3.5	67	13	8.1	6.8	59	.4	.2
27	3.5	55	12	7.2	5.5	50	.4	.2
28	3.5	50	12	7.2	4.6	45	.3	.2
29	3.3	41	11	6.8	4.6	42	39	.1
30	5.5	42	11	6.4	4.3	38	20	.1
31	4.6	37		6.4		41	9.5	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	28	3.5	6.25	384
March 25–31	81	37	53.3	740
April	33	11	19.9	1,180
May	17	6.4	10.3	633
June	72	4.3	13.2	786
July	2,960	2.4	151	9,280
August	65	.3	14.0	861
September	14	0	2.02	120

BELLE FOURCHE RIVER NEAR BELLE FOURCHE, S. DAK.

LOCATION.—Staff gage in sec. 2, T. 8 N., R. 2 E., at diversion dam of Belle Fourche irrigation project, $1\frac{1}{2}$ miles below Belle Fourche.

DRAINAGE AREA.—4,310 square miles.

RECORDS AVAILABLE.—May to November, 1906; January, 1912, to September, 1928.

EXTREMES.—Maximum discharge during year, 9,660 second-feet March 12; minimum, 32 second-feet August 31.

1912-1928: Maximum discharge, 22,400 second-feet April 9, 1924 (gage height, 7.8 feet); no flow several days during 1914 and 1919.

REMARKS.—Records fair. Adjudicated diversions for irrigation of 980 acres from Belle Fourche River, and 18,000 acres from tributaries in Wyoming, and extensive diversion from Redwater River in South Dakota. Complete records furnished by Bureau of Reclamation. Records include amount diverted at Belle Fourche diversion dam.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	258	233	208	108	297	297	777	553	290	550	576	59
2.....	258	233	236	182	298	311	623	587	263	297	477	59
3.....	322	233	238	168	298	312	588	553	277	224	389	73
4.....	447	238	238	208	298	298	581	540	277	539	333	86
5.....	521	250	238	224	312	312	760	646	283	457	326	108
6.....	397	287	238	368	312	312	738	610	317	434	305	184
7.....	292	278	238	385	312	349	864	610	238	2,520	296	91
8.....	330	273	238	311	340	375	718	608	238	602	136	110
9.....	336	273	238	321	340	453	651	560	277	438	179	150
10.....	323	273	238	2,240	368	528	649	557	257	760	174	188
11.....	253	265	238	1,340	382	4,860	660	509	270	550	213	104
12.....	349	240	238	888	438	8,170	686	512	844	456	162	156
13.....	328	245	238	888	396	4,640	663	330	692	421	117	222
14.....	230	240	238	663	386	3,560	667	444	595	519	78	550
15.....	228	259	238	1,340	513	2,240	760	497	873	483	78	547
16.....	228	271	238	2,500	438	1,540	807	489	782	347	78	320
17.....	216	253	238	1,590	458	1,000	746	512	655	282	78	469
18.....	211	251	238	1,688	468	1,730	750	605	583	547	78	501
19.....	212	263	238	888	558	1,420	750	623	530	1,160	78	352
20.....	209	257	238	458	410	849	755	732	500	1,360	72	349
21.....	209	265	238	213	410	933	670	638	462	2,720	68	298
22.....	207	261	238	213	588	2,230	436	558	410	1,940	63	300
23.....	207	265	238	213	410	2,760	418	542	425	1,040	57	328
24.....	201	261	238	190	326	2,230	446	467	462	630	57	240
25.....	201	323	238	190	333	1,760	449	445	440	571	57	240
26.....	201	126	238	228	368	1,330	614	387	730	488	57	289
27.....	204	315	238	298	453	1,060	492	367	580	864	60	279
28.....	204	315	238	528	368	937	542	616	475	489	67	272
29.....	217	189	238	438	326	776	580	359	415	1,520	67	266
30.....	248	298	238	368	-----	679	684	318	400	612	32	260
31.....	228	-----	238	318	-----	762	-----	317	-----	437	32	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	521	201	267	16,400
November.....	323	126	258	15,400
December.....	298	236	240	14,800
January.....	2,500	108	611	37,600
February.....	588	297	386	22,200
March.....	8,170	297	1,580	97,900
April.....	864	418	649	38,600
May.....	732	317	516	31,700
June.....	878	238	462	27,500
July.....	2,720	224	782	48,100
August.....	576	32	156	9,590
September.....	580	59	244	14,500
The year	8,170	32	515	374,000

BELLE FOURCHE RIVER NEAR ELM SPRINGS, S. DAK.

LOCATION.—Chain gage about sec. 26, T. 5 N., R. 13 E., 6 miles northeast of Elm Springs and 15 miles above mouth.

DRAINAGE AREA.—7,130 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. Diversion for storage and irrigation near Belle Fourche.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		480	11.....		412	21.....	342	707
2.....		501	12.....		466	22.....	329	663
3.....		460	13.....		393	23.....	323	634
4.....		480	14.....		453	24.....	310	627
5.....		453	15.....		1,080	25.....	354	634
6.....		453	16.....		1,160	26.....	393	613
7.....		419	17.....		908	27.....	412	571
8.....		367	18.....		758	28.....	460	446
9.....		316	19.....	348	810	29.....	501	406
10.....		323	20.....	399	721	30.....	585	412
						31.....	529	-----
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 19-31.....				585	310	407	10,500	
September.....				1,160	316	571	34,000	
The period.....							44,500	

BAD RIVER BASIN**BAD RIVER NEAR FORT PIERRE, S. DAK.**

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 10, T. 4 N., R. 31 E., $2\frac{1}{2}$ miles south of Fort Pierre and 1 mile above Willow Creek. Zero of gage is 1,427.83 feet above mean sea level.

DRAINAGE AREA.—3,170 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—No flow during period of record. No diversions or regulation.

WHITE RIVER BASIN

WHITE RIVER NEAR INTERIOR, S. DAK.

LOCATION.—Staff gage in sec. 7, T. 4 S., R. 18 E., 3 miles southwest of Interior and 3 miles below Potato Creek.

DRAINAGE AREA.—4,120 square miles.

RECORDS AVAILABLE.—June, 1904, to November, 1906; August, 1911, to September, 1918; August to September, 1928.

EXTREMES.—1904-1906, 1911-1918, 1928: Maximum discharge. 16,500 second-feet March 8, 1905 (gage height, 14 feet); no flow July 15-18, 19-29, and September 26 to October 4, 1914.

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		14	11.....	23	8	21.....	42	32
2.....		10	12.....	34	12	22.....	49	42
3.....		9	13.....	34	10	23.....	46	30
4.....		9	14.....	31	342	24.....	38	20
5.....		9	15.....	30	217	25.....	28	17
6.....		9	16.....	550	81	26.....	27	14
7.....		9	17.....	206	49	27.....	24	14
8.....		8	18.....	150	27	28.....	23	14
9.....	64	8	19.....	108	22	29.....	25	14
10.....	29	7	20.....	53	22	30.....	21	13
						31.....	17	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 9-31.....				550	17	74.4	3,390	
September.....				342	7	36.4	2,170	
The period.....							5,560	

WHITE RIVER NEAR OACOMA, S. DAK.

LOCATION.—Chain gage about sec. 21, T. 103 N., R. 72 W., 6 miles southwest of Oacoma and 2½ miles above mouth.

DRAINAGE AREA.—10,100 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		88	11.....		68	21.....		352
2.....		88	12.....		64	22.....		270
3.....		295	13.....		68	23.....		212
4.....		228	14.....		64	24.....	236	172
5.....		212	15.....		57	25.....	270	140
6.....		164	16.....		64	26.....	188	128
7.....		122	17.....		61	27.....	164	164
8.....		101	18.....		57	28.....	128	134
9.....		76	19.....		54	29.....	110	128
10.....		76	20.....		490	30.....	101	122
						31.....	92	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 24-31.....				270	92	161	2,550	
September.....				490	54	144	8,570	
The period.....							11,100	

NIOBRARA RIVER BASIN

NIOBRARA RIVER NEAR GORDON, NEBR.

LOCATION.—Staff gage in sec. 15, T. 31 N., R. 41 W., 14 miles southeast of Gordon.

DRAINAGE AREA.—3,050 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 121 second-feet September 21 (gage height, 0.80 foot); minimum, 93 second-feet September 13 (gage height, 0.56 foot).

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		100	11.....		100	21.....		120
2.....		96	12.....		97	22.....		118
3.....		96	13.....		94	23.....		116
4.....		99	14.....		100	24.....	95	113
5.....		99	15.....		108	25.....	97	111
6.....		100	16.....		104	26.....	100	108
7.....		100	17.....		104	27.....	98	106
8.....		97	18.....		106	28.....	100	106
9.....		98	19.....		101	29.....	97	111
10.....		99	20.....		111	30.....	94	113
						31.....	96	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 24-31.....				100	94	97.1	1,540	
September.....				120	94	104	6,190	
The period.....							7,730	

NIOBRARA RIVER NEAR VALENTINE, NEBR.

LOCATION.—Chain gage in sec. 30, T. 33 N., R. 28 W., 7 miles southwest of Valentine and a short distance below Gordon Creek.

DRAINAGE AREA.—6,160 square miles.

RECORDS AVAILABLE.—August to September, 1928. At station 8 miles downstream from July to October, 1897, April to September, 1899, and June, 1901, to November, 1906.

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		720	11.....		760	21.....		750
2.....		740	12.....		790	22.....	660	750
3.....		725	13.....		800	23.....	700	750
4.....		720	14.....		800	24.....	700	740
5.....		710	15.....		780	25.....	670	730
6.....		690	16.....		740	26.....	660	730
7.....		680	17.....		700	27.....	660	720
8.....		680	18.....		670	28.....	680	711
9.....		690	19.....		680	29.....	720	720
10.....		710	20.....		720	30.....	730	750
						31.....	710	
Month			Maximum	Minimum	Mean	Run-off in acre-feet		
August 22-31.....			730	660	679	13,700		
September.....			800	670	729	43,400		
The period.....						57,100		

NIOBRARA RIVER NEAR SPENCER, NEBR.

LOCATION.—At power plant of Northern Nebraska Power Co. in N. $\frac{1}{2}$ sec. 30, T. 33 N., R. 11 W., 5 miles southeast of Spencer.

DRAINAGE AREA.—10,800 square miles.

RECORDS AVAILABLE.—May to December, 1908; August, 1927, to September, 1928.

EXTREMES.—Maximum discharge during period, 6,720 second-feet June 6; minimum, 20 second-feet leakage through gates.

REMARKS.—Records good except during winter, for which they are fair. Flow regulated by Spencer Reservoir; capacity, 2,300 acre-feet. Discharge computed from flow over dam and through gates and turbines. Base data furnished by Northern Nebraska Power Co.

Daily discharge, in second-feet, 1927-28

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1927			1927			1927		
1-----	737	867	11-----	1,120	746	21-----	782	841
2-----	973	848	12-----	1,280	841	22-----	828	907
3-----	1,070	790	13-----	1,010	1,030	23-----	1,120	830
4-----	1,060	797	14-----	960	812	24-----	1,030	890
5-----	1,020	742	15-----	1,410	765	25-----	1,030	847
6-----	1,020	763	16-----	1,310	806	26-----	965	1,030
7-----	748	825	17-----	1,140	844	27-----	1,070	990
8-----	1,060	839	18-----	1,140	824	28-----	972	1,070
9-----	989	766	19-----	1,140	876	29-----	882	1,260
10-----	969	808	20-----	994	842	30-----	810	1,040
						31-----	842	-----

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1927-28												
1-----	973	1,250	747	893	1,200	1,580	2,040	971	1,180	1,120	1,220	1,020
2-----	1,040	1,250	467	845	1,200	1,470	2,040	1,140	1,150	1,450	935	756
3-----	1,150	1,270	290	788	1,210	1,640	1,980	1,140	1,020	1,580	1,260	964
4-----	1,120	1,330	221	678	1,320	1,720	2,020	1,740	1,160	895	1,100	789
5-----	1,200	1,270	342	827	1,250	1,380	1,940	1,670	1,150	1,160	1,020	750
6-----	1,160	1,260	447	791	1,540	1,960	1,880	1,090	1,210	954	1,110	765
7-----	1,160	872	431	1,010	1,690	2,240	1,840	1,230	1,250	924	827	859
8-----	1,090	866	269	939	1,790	3,090	1,760	979	970	1,180	981	1,010
9-----	953	885	186	1,110	1,760	3,080	1,640	1,300	1,030	911	880	670
10-----	1,250	869	240	1,240	1,900	3,610	1,640	1,120	1,050	775	885	808
11-----	1,230	967	165	1,280	1,900	3,660	1,560	1,230	1,260	858	923	1,370
12-----	1,250	818	175	1,440	2,030	3,090	1,560	1,220	1,680	1,320	760	1,430
13-----	998	835	319	1,800	1,750	2,500	1,640	1,130	1,320	1,110	706	1,440
14-----	1,170	911	373	1,900	1,720	1,980	1,640	1,140	1,090	936	689	1,100
15-----	1,220	552	433	1,440	1,540	1,680	1,520	1,520	981	739	670	1,200
16-----	979	324	510	1,100	1,560	1,680	1,520	1,800	1,260	1,150	678	818
17-----	1,090	529	604	1,140	1,650	1,740	1,420	1,920	1,000	987	1,010	1,060
18-----	1,170	545	750	1,420	1,360	1,620	1,610	1,540	1,240	1,550	1,220	1,020
19-----	1,220	640	880	1,490	1,200	1,600	1,140	1,470	1,620	1,500	872	716
20-----	1,130	868	886	1,200	1,200	1,660	1,330	1,470	1,400	1,480	948	1,010
21-----	1,150	1,060	826	1,250	1,190	1,690	1,360	1,560	1,390	1,380	815	1,090
22-----	1,200	897	891	1,040	1,410	1,420	1,300	1,330	1,700	1,850	864	1,330
23-----	1,080	854	873	1,310	1,310	1,940	1,360	1,220	1,660	1,130	917	1,150
24-----	1,170	762	924	1,190	1,080	1,860	1,190	1,210	1,420	1,110	761	1,230
25-----	1,230	994	759	1,060	977	2,100	1,090	980	1,400	1,240	918	1,130
26-----	1,270	1,120	863	1,300	998	2,040	1,110	991	1,370	1,070	676	1,200
27-----	1,200	1,020	917	1,200	1,070	1,830	1,460	885	1,240	1,140	792	1,140
28-----	1,180	940	917	1,150	1,190	2,060	1,470	1,040	2,080	1,060	748	1,130
29-----	1,240	975	944	1,110	1,420	2,110	1,550	1,060	1,470	1,350	740	1,200
30-----	1,260	764	918	1,170	-----	1,950	1,040	817	1,330	1,860	1,050	919
31-----	1,280	-----	1,050	1,210	-----	1,640	-----	1,090	-----	1,410	920	-----

Monthly discharge of Niobrara River near Spencer, Nebr., 1927-28

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
1927				
August.....	1,410	737	1,020	62,700
September.....	1,260	742	871	51,800
1927-28				
October.....	1,280	953	1,160	71,300
November.....	1,330	324	917	54,600
December.....	1,050	165	601	37,000
January.....	1,900	678	1,170	71,900
February.....	2,030	977	1,430	82,200
March.....	3,660	1,380	2,050	126,000
April.....	2,040	1,040	1,550	92,200
May.....	1,920	817	1,250	76,900
June.....	2,080	970	1,300	77,400
July.....	1,860	775	1,200	73,800
August.....	1,260	670	900	55,300
September.....	1,440	670	1,030	61,300
The year.....	3,660	165	1,210	880,000

JAMES RIVER BASIN

JAMES RIVER AT JAMESTOWN, N. DAK.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 36, T. 140 N., R. 64 W., 1 mile southeast of the Northern Pacific Railway depot at Jamestown.

DRAINAGE AREA.—2,140 square miles.

RECORDS AVAILABLE.—June to September, 1928.

EXTREMES.—Maximum discharge during year, 786 second-feet July 5 (gage height, 12.4 feet); minimum, 15 second-feet June 20-22 (gage height, 6.6 feet).

REMARKS.—Records fair. No diversions. Discharge measurements and gage-height record furnished by State engineer of North Dakota.

Daily and monthly discharge, in second-feet, 1928

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1.....		80	70	34	16.....		113	42	27
2.....		148	60	34	17.....		113	42	27
3.....		332	60	34	18.....		102	42	27
4.....		505	60	34	19.....		102	42	27
5.....		714	51	34	20.....	15	113	42	20
6.....		714	51	27	21.....	15	113	42	20
7.....		482	51	27	22.....	15	113	42	20
8.....		409	51	27	23.....	20	113	42	20
9.....		423	51	27	24.....	20	102	42	20
10.....		353	51	27	25.....	24	91	42	20
11.....		248	42	27	26.....	42	80	42	20
12.....		196	42	27	27.....	70	70	42	20
13.....		160	42	27	28.....	70	70	42	20
14.....		136	42	34	29.....	80	70	42	20
15.....		124	42	27	30.....	70	60	42	20
					31.....		60	34	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
June 20-30.....	80	15	40.1	875
July.....	714	60	210	12,900
August.....	70	34	46.1	2,830
September.....	34	20	25.8	1,540
The period.....				18,100

BIG SIOUX RIVER BASIN

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JAMES RIVER AT HURON, S. DAK.

LOCATION.—Staff gage in sec. 6, T. 110 N., R. 61 W., at Huron, 6 miles above Cain Creek. Zero of gage is 1,228.70 feet above sea level.

DRAINAGE AREA.—11,500 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records fair. Discharge estimated August 31 to September 8. Few small diversions above station for city water supplies.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....			11.....		170	21.....		209
2.....			12.....		168	22.....		207
3.....			13.....		166	23.....		205
4.....			14.....		223	24.....		205
5.....		174	15.....		221	25.....		185
6.....			16.....		179	26.....		185
7.....			17.....		177	27.....		185
8.....			18.....		215	28.....		186
9.....		174	19.....		193	29.....	166	185
10.....		172	20.....		191	30.....	174	196
						31.....	174	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
September.....	223	166	186	11, 100

BIG SIOUX RIVER BASIN

BIG SIOUX RIVER NEAR FLANDREAU, S. DAK.

LOCATION.—Chain gage in sec. 9, T. 107 N., R. 48 W., 2 miles north of Flandreau and 2 miles below Spring Creek.

DRAINAGE AREA.—2,520 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		44	11.....		29	21.....		36
2.....		41	12.....		34	22.....		36
3.....		38	13.....		32	23.....		35
4.....		38	14.....		34	24.....		36
5.....		42	15.....		32	25.....		34
6.....		34	16.....		31	26.....		32
7.....		34	17.....		30	27.....		28
8.....		32	18.....		30	28.....		29
9.....		30	19.....		29	29.....		29
10.....		29	20.....		29	30.....		29
						31.....	48	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
September.....	44	28	33.2	1, 980

PLATTE RIVER BASIN

GRIZZLY CREEK NEAR WALDEN, COLO.

LOCATION.—Water-stage recorder in sec. 29, T. 8 N., R. 80 W., 10 miles south of Walden and half a mile above Little Grizzly Creek.

DRAINAGE AREA.—234 square miles.

RECORDS AVAILABLE.—May, 1904, to October, 1905; May to September, 1923; October, 1926, to September, 1928.

EXTREMES.—Maximum discharge during year, 762 second-feet May 10 (gage height, 4.7 feet); minimum probably occurred during winter.

1904-5, 1923, 1926-1928: Maximum discharge, 1,340 second-feet June 10, 1923 (gage height, 4.8 feet); minimum, 1 second-foot August 24-28, 1905.

REMARKS.—Records good. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.....	28	36	-----	412	494	84	44	26
2.....	28	55	-----	458	482	70	42	24
3.....	30	51	-----	590	470	54	40	25
4.....	26	46	-----	542	506	46	43	25
5.....	22	48	-----	518	424	43	44	25
6.....	21	46	-----	482	345	42	45	24
7.....	22	-----	-----	542	282	40	45	23
8.....	22	-----	-----	614	292	24	43	23
9.....	22	-----	-----	662	302	22	42	21
10.....	21	-----	-----	712	302	23	34	19
11.....	20	-----	-----	700	324	22	33	22
12.....	22	-----	-----	600	313	19	36	25
13.....	20	-----	-----	494	282	19	37	26
14.....	19	-----	-----	506	239	19	35	25
15.....	20	-----	-----	530	228	18	33	26
16.....	19	-----	-----	458	208	19	33	24
17.....	19	-----	-----	401	199	25	34	24
18.....	19	-----	-----	367	292	26	37	24
19.....	20	-----	-----	367	356	26	34	23
20.....	19	-----	-----	345	262	27	31	23
21.....	19	-----	-----	345	204	35	30	24
22.....	20	-----	143	356	156	41	29	26
23.....	19	-----	156	378	143	39	29	24
24.....	19	-----	208	436	117	46	28	22
25.....	19	-----	252	482	117	51	29	17
26.....	22	-----	208	494	114	56	28	17
27.....	22	-----	252	494	112	60	27	17
28.....	24	-----	334	482	111	56	27	18
29.....	31	-----	390	482	104	54	27	18
30.....	36	-----	412	494	96	49	25	18
31.....	35	-----	-----	494	-----	46	24	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	36	19	22.7	1,400
November 1-6.....	55	36	47.0	1,560
April 22-30.....	412	143	262	4,680
May.....	712	345	492	30,300
June.....	506	96	263	15,600
July.....	84	18	38.7	2,380
August.....	45	24	34.5	2,120
September.....	26	17	22.6	1,340

NORTH PLATTE RIVER NEAR WALDEN, COLO.

LOCATION.—Water-stage recorder in sec. 5, T. 8 N., R. 80 W., 8 miles southwest of Walden and 2½ miles below Roaring Fork.

DRAINAGE AREA.—446 square miles.

RECORDS AVAILABLE.—May, 1904, to October, 1905; October, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,930 second-feet June 1 (gauge height, 5.33 feet); minimum, 46 second-feet September 28 (gauge height, 0.95 foot).

1904-5, 1923-1928: Maximum discharge, that of June 1, 1928; minimum 15 second-feet September 13-18, 1905.

REMARKS.—Records good except those for estimated periods, which are fair. Numerous small ditches divert above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.	126	120		940	1,910	503	159	79
2.	134	104		1,120	1,700	451	* 170	78
3.	130	122	* 420	1,230	1,670	408	* 165	75
4.	* 132	113		* 1,150	1,460	338	* 160	* 70
5.	* 135	111		* 1,090	1,040	306	* 155	* 63
6.	132	104	* 340	* 1,060	815	276	* 145	* 60
7.	122	104	* 310	* 1,160	815	243	144	* 61
8.	111	101	* 280	* 1,300	965	199	144	* 62
9.	104		* 250	* 1,450	990	174	142	* 65
10.	* 94		204	1,640	1,020	165	* 140	* 70
11.	84		204	1,580	1,040	163	* 135	* 73
12.	85		* 200	1,520	915	152	* 125	* 72
13.	90		* 200	1,230	765	136	117	* 70
14.	82		* 210	1,260	602	144	* 110	* 74
15.	85		* 220	1,150	602	196	* 105	* 75
16.	84		* 240	915	* 700	* 210	* 100	* 71
17.	86		* 270	* 760	840	* 215	* 95	* 65
18.	96		300	692	1,040	218	* 95	* 62
19.	97		* 290	670	865	235	* 90	* 60
20.	96		* 290	670	580	226	* 85	* 58
21.	97		* 290	715	475	212	85	* 60
22.	99		* 300	* 800	* 500	226	* 82	* 65
23.	92		* 340	* 940	602	235	* 80	* 60
24.	84		* 420	* 1,180	670	252	* 80	* 52
25.	82		740	* 1,400	670	226	* 80	48
26.	84		602	1,550	715	* 200	* 80	48
27.	84		715	1,640	765	* 200	* 75	47
28.	86		915	1,700	765	* 190	74	46
29.	126		940	1,700	670	184	75	48
30.	119		915	1,770	562	177	78	48
31.	117			1,840		170	85	---

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	135	82	103	6,270
November 1-8			110	1,740
April	940	200	403	24,000
May	1,840	670	1,223	75,000
June	1,910	475	893	53,000
July	503	136	233	14,300
August	170	74	111	6,820
September	79	48	62.8	3,740

* Estimated or interpolated.

NORTH PLATTE RIVER NEAR NORTEGATE, COLO.

LOCATION.—Water-stage recorder in sec. 11, T. 11 N., R. 80 W., 6 miles south of Colorado-Wyoming line and 6 miles northwest of Northgate.

DRAINAGE AREA.—1,440 square miles.

RECORDS AVAILABLE.—May, 1915, to September, 1928.

EXTREMES.—Maximum discharge during year, 5,050 second-feet June 3 (gage height, 5.2 feet); minimum, 106 second-feet September 24 (gage height, 1.17 feet).

1915-1928: Maximum discharge, 6,720 second-feet June 11, 1923 (gage height, 6.24 feet); minimum, 67 second-feet October 7 and 20, 1922 (gage height, 1.17 feet).

REMARKS.—Records good except those for estimated periods, which are fair. Numerous diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1.....	360	-----	1,660	4,810	1,110	463	• 185
2.....	325	-----	1,970	4,850	1,060	440	• 190
3.....	335	-----	2,330	4,900	1,070	434	• 200
4.....	340	-----	1,960	4,060	1,010	412	176
5.....	• 338	-----	1,760	2,870	903	446	• 165
6.....	335	-----	1,660	2,180	865	451	• 160
7.....	335	-----	1,790	2,030	820	446	• 158
8.....	295	-----	2,060	2,080	743	440	• 157
9.....	277	-----	2,430	2,100	660	424	• 156
10.....	257	-----	2,820	2,460	624	390	• 153
11.....	242	-----	2,840	2,400	604	355	151
12.....	224	-----	• 2,680	2,130	584	335	• 142
13.....	220	-----	2,490	1,790	578	345	• 140
14.....	214	-----	2,660	1,570	578	340	• 135
15.....	• 216	-----	2,660	1,420	667	330	• 129
16.....	217	-----	2,260	1,550	720	325	• 127
17.....	217	-----	1,780	2,220	720	315	• 125
18.....	217	-----	1,480	2,430	784	315	123
19.....	217	922	1,390	1,890	784	310	• 122
20.....	217	• 870	1,370	1,420	793	295	• 120
21.....	217	• 840	1,380	1,220	784	277	• 116
22.....	214	• 775	1,440	1,190	743	• 270	• 113
23.....	214	• 740	1,660	1,180	• 725	• 250	• 110
24.....	207	• 755	1,960	1,250	• 701	• 230	106
25.....	200	• 1,000	2,410	1,260	689	• 245	116
26.....	200	1,480	2,890	1,410	624	• 235	113
27.....	200	1,520	3,500	1,410	604	• 215	113
28.....	210	1,930	4,190	1,400	578	203	118
29.....	265	2,120	4,270	1,301	578	• 200	118
30.....	340	1,920	4,310	1,230	552	• 195	118
31.....	360	-----	4,630	-----	528	• 188	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	360	200	258	15,900
April 19-30.....	2,120	740	1,240	29,500
May.....	4,630	1,370	2,410	148,000
June.....	4,900	1,180	2,130	127,000
July.....	1,110	528	735	45,200
August.....	463	188	328	20,000
September.....	200	106	138	8,210

• Estimated.

NORTH PLATTE RIVER AT SARATOGA, WYO.

LOCATION.—Chain gage in sec. 14, T. 17 N., R. 84 W., at Saratoga, 2 miles below Spring Creek. Elevation of gage zero is 6,773.8 feet above sea level.

DRAINAGE AREA.—2,880 square miles.

RECORDS AVAILABLE.—June, 1903, to October, 1906; April to December, 1909; April, 1911, to September, 1928.

EXTREMES.—Maximum discharge during year, 14,000 second-feet May 30 (gage height, 9.74 feet); minimum, 239 second-feet September 12 (gage height, 3.77 feet).

1903–1906, 1909, 1911–1928: Maximum discharge, about 18,000 second-feet June 8, 1909 (gage height, 11.06 feet); minimum, 87 second-feet September 7, 1924 (gage height, 3.3 feet).

REMARKS.—Records good except those for periods affected by ice, December 29 to January 2, January 18–31, February 7–29, and April 3–5, which are fair. A few diversions between Northgate and Saratoga.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	702	830	563	450	489	468	1,220	3,850	12,600	3,970	860	299
2.....	755	860	563		482	428	1,710	4,940	11,900	3,030	782	324
3.....	728	880	547	570	489	468	1,600	4,680	12,000	2,620	710	335
4.....	684	890	533	518	468	396		4,210	11,000	2,420	702	335
5.....	676	850	462	475	435	367	1,560	4,050	8,900	2,190	773	319
6.....	659	860	362	448	435	408		4,310	7,200	1,960	719	280
7.....	684	860	396	462		421	1,180	4,860	6,770	1,930	693	276
8.....	710	840	385	441	420	435	900	5,760	6,200	1,640	676	261
9.....	676	810	563	448		570	830	7,130	5,810	1,470	625	261
10.....	659	773	602	435	402	402	810	8,140	5,540	1,280	586	252
11.....	625	791	625	455		402	791	8,370	5,160	1,250	563	261
12.....	594	773	594	462	376	421	764	7,940	4,640	1,160	518	243
13.....	547	728	594	448		420	810	7,970	5,400	1,090	475	285
14.....	518	684	602	489	563	442	710	7,840	4,910	1,020	462	248
15.....	482	676	617	462		563	728	6,950	4,680	1,040	421	290
16.....	497	642	650	462	511	525	820	6,560	4,340	1,010	448	319
17.....	497	617	570	468		511	1,060	6,030	4,340	820	442	290
18.....	489	594	570	408	378	563	1,620	5,370	5,240	1,050	421	299
19.....	525	578	578			547	1,470	5,370	4,940	1,190	408	294
20.....	518	764	594	463	366	504	1,450	5,590	4,480	1,270	362	294
21.....	518	755	578			668	1,430	6,110	3,950	1,290	340	314
22.....	518	728	570	463	366	850	1,430	6,650	3,780	1,240	324	290
23.....	511	642	555			900	1,290	7,840	3,350	1,190	330	280
24.....	489	518	533	436	349	810	2,050	8,140	3,350	1,270	319	280
25.....	504	489	533			710	2,290	9,380	3,470	1,360	340	276
26.....	475	462	525	436	349	1,060	2,590	10,500	3,450	1,340	350	271
27.....	489	489	511			1,270	2,700	12,500	3,930	1,030	330	271
28.....	489	625	518	436	349	2,150	3,640	13,060	4,020	890	330	271
29.....	840	617	450			1,950	3,880	13,200	3,850	922	324	271
30.....	850	609	450	349	1,540	3,780	13,400	3,590	988	319	280	
31.....	810	450				1,400	13,000	13,000	944	309	280	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	850	475	604	37,400
November.....	890	462	708	42,100
December.....	650	362	537	38,000
January.....	570	396	455	28,000
February.....	489		396	22,800
March.....	2,150	367	728	44,800
April.....	3,880	710	1,610	95,800
May.....	13,400	3,850	7,540	464,000
June.....	12,600	3,350	5,760	343,000
July.....	3,970	820	1,480	91,000
August.....	860	309	492	30,300
September.....	335	243	286	17,000
The year.....	13,400	243	1,720	1,250,000

NORTH PLATTE RIVER BELOW PATHFINDER RESERVOIR, WYO.

LOCATION.—Chain gage in sec. 24, T. 29 N., R. 84 W., a quarter of a mile below Pathfinder Dam and 2 miles below Canyon Creek.

DRAINAGE AREA.—10,700 square miles.

RECORDS AVAILABLE.—May, 1905, to September, 1928.

EXTREMES.—Maximum discharge, 18,900 second-feet June 25-27, 1917; minimum, leakage through gate during winter probably as low as 5 second-feet.

REMARKS.—A few diversions from North Platte River between Saratoga and Pathfinder Reservoir and numerous diversions from tributaries. Pathfinder Reservoir, having a capacity of 1,070,000 acre-feet, completely regulates the flow. Complete records furnished by Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	100	100	410	100	100	100	3,980	11,500	4,860	4,980	5,990
2	100	100	100	410	100	100	100	3,980	12,200	4,750	5,010	6,040
3	100	100	100	410	100	100	100	2,250	12,400	4,580	5,010	6,020
4	100	100	100	410	100	100	100	2,030	12,400	4,370	5,010	5,990
5	100	100	100	410	100	100	100	630	12,400	4,130	5,010	5,370
6	100	100	100	410	100	100	100	490	12,200	3,860	5,000	5,070
7	100	100	100	410	100	100	100	500	11,000	3,670	4,990	5,040
8	100	100	100	410	100	100	100	500	10,700	3,450	4,980	5,020
9	100	100	100	410	100	100	100	500	9,780	3,180	4,970	5,010
10	100	100	100	410	100	100	100	500	9,000	2,950	4,960	5,000
11	100	100	100	410	100	100	100	500	8,570	2,710	4,950	5,030
12	100	100	100	410	100	100	100	500	8,200	2,500	4,930	4,990
13	130	100	100	410	100	100	100	500	7,670	4,860	5,020	5,060
14	70	100	160	410	100	100	100	510	7,740	5,570	4,990	5,050
15	100	100	100	410	100	100	100	1,080	7,480	5,570	4,960	5,030
16	100	100	100	410	100	100	100	2,270	7,200	5,760	5,090	5,020
17	100	100	100	400	100	100	100	4,110	6,800	5,580	5,070	4,980
18	100	100	160	310	100	100	100	5,670	6,430	5,560	5,040	5,080
19	100	100	410	410	100	100	100	6,610	6,370	5,560	5,010	5,040
20	100	100	410	410	100	100	100	7,150	6,490	5,560	4,990	5,030
21	100	100	410	410	100	100	100	7,590	6,450	5,550	5,940	5,010
22	100	100	390	410	100	100	100	7,730	6,370	5,550	6,020	4,980
23	100	100	410	410	100	100	100	7,880	6,140	5,550	6,020	5,030
24	100	100	410	410	100	100	100	8,070	5,700	5,720	6,040	5,010
25	100	100	410	410	100	100	100	8,380	5,440	5,550	6,010	4,900
26	100	80	410	410	100	100	100	8,740	5,200	5,550	5,970	3,140
27	100	100	410	410	100	100	100	9,170	5,000	5,550	5,940	2,050
28	100	100	440	410	100	100	100	9,740	4,900	5,550	6,010	2,040
29	100	100	360	130	100	100	1,020	10,400	4,900	4,470	5,990	2,080
30	100	100	410	100	100	100	3,890	11,000	4,900	4,990	5,960	2,020
31	100	100	410	100	100	100	11,500	11,500	4,980	4,980	6,020	2,020

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	130	70	100	6,150
November	100	80	90.3	5,910
December	410	100	232	14,800
January	410	100	377	23,200
February	100	100	100	5,750
March	100	100	100	6,150
April	3,890	100	257	15,800
May	11,500	490	4,660	287,000
June	12,400	4,960	8,110	483,000
July	5,760	2,500	4,780	294,000
August	6,040	4,950	5,350	329,000
September	6,040	2,020	4,700	280,000
The year	12,400	70	2,410	1,750,000

NORTH PLATTE RIVER BELOW GUERNSEY RESERVOIR, WYO.

LOCATION.—Water-stage recorder about sec. 35, T. 27 N., R. 66 W., three-quarters of a mile below Guernsey Dam and 1 mile northwest of Guernsey.

DRAINAGE AREA.—16,200 square miles.

RECORDS AVAILABLE.—January to September, 1928. From June, 1900, to November, 1908, and March to October, 1912, at station a short distance downstream.

REMARKS.—Flow regulated by storage reservoirs upstream. Complete records furnished by Bureau of Reclamation. Only a few minor diversions for irrigation between this station and the diversion dam at Whalen.

Daily and monthly discharge, in second-feet, 1928

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	269	392	342	320	2,760	12,100	5,400	5,070	5,400
2	265	387	342	550	2,700	12,800	4,650	4,860	5,410
3	307	385	375	600	3,320	13,200	4,830	4,640	4,600
4	290	366	300	540	5,110	14,400	4,200	4,710	4,400
5	302	246	328	610	4,820	12,800	4,800	4,580	4,940
6	292	344	336	610	3,800	12,600	4,800	4,620	5,300
7	282	340	350	620	4,020	14,100	5,100	4,650	5,600
8	214	336	365	600	3,490	13,600	5,650	4,800	5,650
9	290	348	366	640	3,270	12,900	5,390	5,180	5,300
10	315	326	427	640	3,280	11,600	5,110	4,880	5,400
11	330	359	340	520	3,490	10,600	4,990	4,920	5,220
12	297	275	405	510	3,550	7,950	5,200	5,550	5,220
13	250	313	460	485	3,630	10,000	5,300	5,920	4,550
14	242	345	350	485	4,010	9,850	5,400	5,700	4,500
15	212	345	360	430	4,280	9,350	5,450	5,780	4,380
16	383	342	324	545	4,300	9,100	5,500	5,740	4,190
17	378	350	340	700	4,120	8,750	5,480	5,750	4,190
18	242	365	275	740	4,120	7,320	5,390	5,800	4,200
19	295	315	290	870	4,350	7,180	5,400	5,650	4,500
20	303	332	350	860	4,550	7,180	5,400	5,880	4,400
21	292	355	390	820	5,150	6,740	5,320	5,750	4,390
22	257	338	360	1,100	6,820	6,550	5,060	5,750	4,280
23	268	335	370	1,200	7,320	6,730	5,240	5,840	4,199
24	240	350	375	1,090	7,160	6,650	5,090	5,550	4,310
25	246	355	290	1,280	7,000	6,740	5,100	5,620	4,190
26	236	252	320	1,600	7,200	5,850	5,220	5,560	3,750
27	234	326	720	1,650	6,150	5,150	5,110	5,740	3,350
28	257	355	1,400	2,100	12,000	5,400	4,990	5,580	3,490
29	185	345	1,960	2,500	12,400	5,400	4,900	5,450	3,300
30	280	-----	760	2,630	12,100	5,620	4,880	5,500	2,650
31	396	-----	270	-----	12,200	-----	5,000	5,560	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
January	396	185	279	17,200
February	392	246	339	19,500
March	1,960	270	459	25,200
April	2,630	320	928	55,200
May	12,400	2,700	5,560	342,000
June	14,400	5,150	9,270	552,000
July	5,650	4,200	5,140	316,000
August	5,920	4,580	5,360	330,000
September	5,650	2,650	4,500	268,000
The period	-----	-----	-----	1,980,000

NORTH PLATTE RIVER ABOVE AND BELOW WHALEN, WYO.

LOCATION.—In sec. 11, T. 26 N., R. 65 W., at diversion dam at Whalen, 1½ miles above Cottonwood Canyon Creek.

DRAINAGE AREA.—16,300 square miles.

RECORDS AVAILABLE.—May, 1909, to September, 1928.

REMARKS.—Discharge computed from flow over weir, through sluice gates in dam, and through headgates of Interstate and Fort Laramie Canals. Several small diversions between Pathfinder and Whalen gaging stations and numerous diversions from tributaries. Records above Whalen represent discharge above dam and those below Whalen, quantity passing over dam. Difference between two records represents amount diverted by Interstate and Fort Laramie Canals. Flow regulated by storage in Pathfinder and Guernsey Reservoirs. Complete records furnished by Bureau of Reclamation.

Daily and monthly discharge, in second-feet, of North Platte River above Whalen, Wyo., 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	219	300	400	275	411	324	167	2,780	12,100	5,170	5,150	5,450
2-----	170	325	360	187	467	315	303	2,800	12,800	4,610	4,720	5,380
3-----	149	300	300	281	316	352	423	3,420	13,100	4,440	4,440	4,720
4-----	183	350	350	269	339	280	417	4,950	13,400	3,900	4,510	5,080
5-----	781	900	275	365	279	240	454	4,980	14,500	4,340	4,280	4,820
6-----	701	600	233	283	220	290	566	3,510	12,300	4,880	4,330	5,070
7-----	1,400	350	359	257	280	300	596	3,880	14,100	5,250	4,600	5,290
8-----	1,580	500	389	179	256	320	592	3,340	13,800	6,070	4,660	5,650
9-----	1,160	400	408	345	250	300	800	2,840	13,200	5,340	4,850	5,190
10-----	830	350	339	396	300	330	679	3,070	11,600	5,610	4,420	5,280
11-----	450	300	201	377	275	290	691	3,410	10,700	5,480	4,320	5,130
12-----	250	300	261	331	200	330	642	3,660	7,800	5,660	5,090	5,060
13-----	150	275	375	218	250	356	495	3,910	12,200	5,710	5,820	4,800
14-----	250	350	303	179	260	348	544	4,450	9,900	5,490	5,520	4,870
15-----	266	400	369	121	300	345	484	4,750	9,300	5,820	5,660	4,570
16-----	2,620	400	453	350	326	330	488	4,760	8,900	5,670	5,700	4,280
17-----	4,140	425	309	323	327	250	765	4,610	8,400	5,730	5,710	4,280
18-----	826	450	221	219	415	220	706	4,460	6,900	5,720	5,650	4,460
19-----	500	425	301	154	200	225	815	4,680	6,900	5,400	5,540	4,490
20-----	300	1,400	408	261	270	220	788	4,890	7,700	5,220	5,860	4,460
21-----	250	600	422	197	300	180	826	5,610	7,400	5,240	5,840	4,220
22-----	250	500	404	132	290	200	1,240	7,820	7,200	4,830	5,820	3,990
23-----	300	500	416	81	320	190	1,190	8,740	7,000	4,920	5,680	3,870
24-----	250	450	328	164	315	235	940	8,600	7,200	4,900	5,720	3,790
25-----	300	400	199	128	300	180	1,080	8,770	6,600	4,900	5,800	3,610
26-----	300	500	178	146	225	200	1,500	8,960	6,600	4,990	5,640	3,860
27-----	265	550	256	161	275	800	1,540	5,870	5,500	4,770	5,710	3,150
28-----	300	500	377	158	320	695	2,010	9,680	5,630	4,690	5,710	3,350
29-----	300	490	299	112	290	2,270	2,500	11,000	5,450	5,440	5,590	3,230
30-----	285	500	194	237	-----	1,860	2,660	10,600	5,370	5,190	5,520	2,160
31-----	300	-----	115	387	-----	150	-----	11,100	-----	5,270	5,580	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	4,140	149	646	39,700
November-----	1,400	275	467	27,800
December-----	453	115	316	19,400
January-----	896	81	235	14,400
February-----	467	200	296	17,000
March-----	2,270	150	417	25,600
April-----	2,660	167	897	53,400
May-----	11,100	2,780	5,670	349,000
June-----	14,500	5,370	9,400	559,000
July-----	6,070	3,900	5,180	319,000
August-----	5,860	4,280	5,270	324,000
September-----	5,650	2,160	4,440	264,000
The year-----	14,500	81	2,770	2,010,000

Daily and monthly discharge, in second-feet, of North Platte River below Whalen, Wyo., 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	169	300	400	121	397	324	167	1,120	9,050	3,420	2,560	1,890
2	170	325	360	49	457	313	303	1,120	8,780	2,690	2,116	1,840
3	149	300	360	127	283	352	423	1,730	10,100	2,320	1,660	3,170
4	133	350	350	115	283	290	417	3,260	16,760	1,290	1,880	2,440
5	731	900	175	211	265	240	454	3,300	12,000	1,260	1,670	1,770
6	651	600	152	145	220	290	566	1,830	9,940	1,510	1,720	1,800
7	1,350	350	181	335	280	300	596	2,150	11,800	1,720	1,870	1,870
8	1,530	500	235	73	250	320	592	1,570	11,400	2,440	1,790	2,140
9	1,100	400	270	253	250	300	800	959	10,800	1,870	1,850	1,680
10	755	350	217	295	300	330	679	1,160	9,320	2,090	1,540	1,880
11	450	300	79	265	275	290	691	1,400	8,490	1,920	991	1,730
12	250	300	139	229	200	330	642	1,520	5,780	2,100	1,670	1,830
13	150	275	253	145	230	356	495	1,710	8,440	2,150	2,350	1,850
14	250	350	181	115	260	348	544	2,240	8,180	1,940	2,000	1,690
15	265	400	247	73	300	345	189	2,800	7,530	2,240	2,150	1,610
16	2,620	400	381	350	312	330	65	2,640	7,840	2,090	2,190	1,800
17	4,140	425	187	285	297	250	232	2,490	7,640	2,150	2,140	1,800
18	826	450	109	145	405	220	121	2,540	6,120	2,190	2,080	1,490
19	500	425	205	91	200	225	205	2,490	5,560	2,010	1,940	1,410
20	300	1,400	307	163	270	220	81	2,690	6,140	1,930	2,250	1,400
21	250	600	349	97	300	180	100	3,440	5,670	2,270	2,240	1,280
22	250	508	331	35	290	200	320	5,590	5,440	1,800	2,220	1,170
23	300	500	348	25	320	190	275	6,390	5,330	1,890	2,000	1,070
24	250	450	217	67	315	235	100	6,120	5,440	1,890	2,080	1,150
25	300	400	98	25	300	180	180	6,260	4,900	2,020	2,240	941
26	309	509	67	55	225	200	120	6,330	5,040	2,120	2,080	735
27	265	560	145	67	275	800	125	3,160	3,870	1,960	2,140	561
28	300	500	223	55	320	695	580	6,850	4,170	2,090	2,150	790
29	300	400	145	25	290	2,270	990	8,040	3,900	3,310	2,030	800
30	285	500	67	175	-----	1,890	1,120	7,520	3,740	3,290	1,950	180
31	300	-----	25	373	-----	150	-----	7,890	-----	3,340	2,010	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	4,140	133	637	38,900
November	1,400	275	467	27,800
December	400	25	216	13,300
January	373	25	141	8,670
February	457	200	287	16,600
March	2,270	150	417	25,600
April	1,120	65	405	24,100
May	8,040	959	3,497	215,000
June	12,000	3,740	7,477	444,000
July	3,610	1,260	2,187	134,000
August	2,560	991	1,987	122,000
September	3,170	180	1,487	88,100
The year	12,000	25	1,597	1,160,000

PLATTE RIVER NEAR ASHLAND, NEBR.

LOCATION.—Chain gage in sec. 29, T. 13 N., R. 10 E., 3 miles northeast of Ashland and 3 miles above Clear Creek. Zero of gage is 1,021.1 feet above sea level.

DRAINAGE AREA.—83,800 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records good. No large diversion above station.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.-----		1,810	11.-----		2,250	21.-----	2,350	1,870
2.-----		2,250	12.-----		2,370	22.-----	2,290	1,860
3.-----		2,070	13.-----		2,170	23.-----	2,230	1,910
4.-----		1,980	14.-----		2,290	24.-----	2,010	1,890
5.-----		2,010	15.-----		2,450	25.-----	2,000	2,000
6.-----		2,010	16.-----		2,470	26.-----	2,210	2,150
7.-----		2,000	17.-----		2,350	27.-----	2,620	2,190
8.-----		1,980	18.-----		2,230	28.-----	2,430	2,210
9.-----		2,000	19.-----		2,170	29.-----	2,090	2,330
10.-----		1,920	20.-----	2,470	1,980	30.-----	2,000	2,370
						31.-----	1,860	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 20-31.-----	2,620	1,860	2,210	52,600
September.-----	2,470	1,810	2,120	126,000
The period.-----				179,000

NORTH FORK OF NORTH PLATTE RIVER NEAR WALDEN, COLO.

LOCATION.—Water-stage recorder in sec. 29, T. 9 N., R. 80 W., a quarter of a mile above mouth and 7 miles west of Walden.

DRAINAGE AREA.—168 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1928 (discontinued).

EXTREMES.—Maximum discharge during year, 502 second-feet June 3 (gage height, 1.80 feet); minimum probably occurred during winter.

1923-1928: Maximum discharge, 694 second-feet April 19, 1926 (gage height, 2.63 feet); minimum, 19 second-feet September 29 and 30, 1926.

REMARKS.—Records fair. A few small diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.....	84	80	-----	223	445	236	153	112
2.....	88	-----	-----	258	436	234	178	110
3.....	86	-----	-----	200	464	226	165	106
4.....	99	-----	-----	172	417	210	153	108
5.....	83	-----	-----	168	287	221	141	106
6.....	78	-----	-----	180	236	215	123	106
7.....	83	-----	-----	205	242	208	123	104
8.....	77	-----	-----	223	261	190	119	110
9.....	74	-----	-----	302	261	165	112	110
10.....	67	-----	-----	272	270	152	106	100
11.....	64	-----	-----	275	284	155	108	83
12.....	58	-----	-----	* 250	253	158	108	77
13.....	63	-----	-----	223	234	170	110	72
14.....	63	-----	-----	344	198	175	110	* 74
15.....	64	-----	-----	247	* 204	228	112	* 80
16.....	66	-----	-----	172	* 225	210	117	* 62
17.....	63	-----	-----	117	* 260	234	121	* 62
18.....	63	-----	-----	81	* 210	208	119	* 58
19.....	62	-----	-----	92	* 165	213	114	65
20.....	56	-----	-----	98	* 140	261	110	* 55
21.....	53	-----	-----	102	132	218	106	* 55
22.....	57	-----	287	110	150	208	104	* 58
23.....	57	-----	290	139	160	234	100	* 48
24.....	53	-----	305	146	198	242	100	* 36
25.....	51	-----	308	188	244	208	106	31
26.....	52	-----	284	242	293	178	108	* 32
27.....	51	-----	311	278	332	192	108	* 32
28.....	57	-----	356	338	296	180	110	* 34
29.....	92	-----	287	374	267	178	108	* 34
30.....	82	-----	228	374	239	168	104	* 32
31.....	82	-----	-----	405	-----	162	104	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October.....	99		51		68.6		4,220	
April 22-30.....	356		223		295		5,290	
May.....	405		81		219		13,500	
June.....	464		132		260		15,500	
July.....	242		152		201		12,400	
August.....	178		100		118		7,260	
September.....	112		31		71.4		4,250	

* Estimated or interpolated.

ROARING FORK NEAR WALDEN, COLO.

LOCATION.—Water-stage recorder in sec. 10, T. 8 N., R. 81 W., $1\frac{1}{2}$ miles above mouth and 11 miles southwest of Walden.

DRAINAGE AREA.—84 square miles.

RECORDS AVAILABLE.—May, 1904, to October, 1905; October, 1928 to September, 1928.

EXTREMES.—Maximum discharge during year, 594 second-feet June 2 (gauge height, 3.35 feet); minimum probably occurred during winter.

1904-5, 1923-1928: Maximum discharge, 790 second-feet June 15, 1924 (gauge height, 3.73 feet); minimum, 2 second-feet August 15, 1904 (gauge height, 1.02 feet, old datum).

REMARKS.—Records fair. Discharge interpolated October 1-5 and estimated because of ice April 1-11. Diversions for irrigation of several hundred acres.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1	54	48		166	520	211	88	45
2	52	37		206	562	215	112	48
3	51	43	34	170	529	194	105	42
4	50	38		144	357	168	99	35
5	49	36		150	253	156	107	34
6	48	32	32	168	226	148	87	32
7	47	33		204	271	132	90	31
8	45	38		226	338	112	87	32
9	40	36		299	311	96	80	35
10	36		80	330	328	90	80	35
11	35			335	306	90	85	42
12	35		29	251	264	80	80	41
13	33		88	233	217	80	76	39
14	30		43	267	183	100	74	47
15	29		44	175	185	134	76	50
16	27		38	128	239	128	66	42
17	26		64	80	330	130	64	40
18	27		114	66	318	138	64	37
19	29		87	62	183	154	60	32
20	32		87	71	134	140	57	30
21	32		96	87	124	132	54	33
22	32		85	138	181	136	53	36
23	32		96	224	224	138	50	31
24	25		140	290	258	136	48	28
25	30		154	382	278	120	53	21
26	35		154	452	302	103	48	22
27	36		192	470	335	105	48	22
28	36		226	490	330	103	48	23
29	36		185	516	278	92	42	28
30	45		154	550	239	90	39	22
31	45			540		90	37	
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
October	56		25		38.0		2,340	
November 1-9	48		32		37.9		676	
April	226		29		79.3		4,739	
May	550		62		254		15,600	
June	562		124		287		17,100	
July	215		80		127		7,810	
August	112		37		69.5		4,270	
September	50		21		34.3		2,040	

MICHIGAN CREEK AT WALDEN, COLO.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 21, T. 9 N., R. 79 W., half a mile north of Walden and $1\frac{1}{2}$ miles above Illinois Creek.

DRAINAGE AREA.—185 square miles.

RECORDS AVAILABLE.—May, 1904, to October, 1905; May, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 831 second-feet June 3 (gage height, 2.92 feet); minimum, 13 second-feet September 24 (gage height, 0.78 foot).

1904-5, 1923-1928: Maximum discharge, 1,070 second-feet June 10, 1923 (gage height, 3.3 feet); minimum, 4 second-feet August 28-31, 1924.

REMARKS.—Records good except those for periods of missing gage heights, May 1-9, June 7-12, July 11-16, and 19-24, which are fair. Diversions for irrigation of several thousand acres above station. During 1928, 4,580 acre-feet diverted from Michigan Creek to Cache la Poudre Basin above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	May	June	July	Aug.	Sept.
1.....	43	46	220	760	250	127	26
2.....	45	46	230	772	228	127	26
3.....	45	-----	235	818	211	133	22
4.....	45	-----	240	710	184	130	18
5.....	50	-----	220	554	174	127	18
6.....	48	-----	200	510	155	122	16
7.....	50	-----	170	450	142	119	15
8.....	42	-----	200	400	122	81	15
9.....	40	-----	230	350	113	77	17
10.....	38	-----	269	370	113	70	18
11.....	36	-----	317	390	112	64	20
12.....	34	-----	339	370	112	58	21
13.....	29	-----	277	348	112	57	20
14.....	30	-----	321	304	120	52	20
15.....	30	-----	339	262	130	38	19
16.....	30	-----	281	218	140	38	18
17.....	30	-----	254	222	152	40	16
18.....	30	-----	218	357	208	40	15
19.....	30	-----	208	450	220	35	15
20.....	30	-----	222	334	240	31	16
21.....	30	-----	222	243	200	31	18
22.....	30	-----	254	197	170	26	18
23.....	29	-----	296	174	160	25	15
24.....	29	-----	343	167	150	25	13
25.....	28	-----	381	164	136	26	13
26.....	28	-----	456	171	116	24	14
27.....	34	-----	572	228	103	24	15
28.....	35	-----	662	285	93	25	15
29.....	45	-----	704	273	105	24	16
30.....	46	-----	740	254	105	26	17
31.....	40	-----	792	-----	108	26	-----
Month	Maximum		Minimum		Mean	Run-off in acre-feet	
October.....	50		28		36.4	2,240	
May.....	792		170		336	20,760	
June.....	818		164		370	22,000	
July.....	250		93		151	9,280	
August.....	133		24		59.6	3,660	
September.....	26		13		17.5	1,040	

ILLINOIS CREEK AT WALDEN, COLO.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 29, T. 9 N., R. 79 W., half a mile southwest of Walden and $1\frac{1}{2}$ miles above mouth.

DRAINAGE AREA.—254 square miles.

RECORDS AVAILABLE.—May, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 544 second-feet June 4 (gage height, 2.62 feet); minimum, 0.6 second-foot September 2ⁿ (gage height, 0.36 foot).

1923-1928: Maximum discharge, 2,520 second-feet May 28, 1926 (gage height, 6.4 feet); minimum, 0.3 second-foot September 7 and 8, 1924.

REMARKS.—Records good. Discharge estimated April 1-14. Diversions for irrigation of several thousand acres above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	27	80	250	500	77	23	2.2
2	25		264	540	64	37	2.6
3	26		276	540	63	31	2.6
4	23		279	520	61	35	3.0
5	20	75	215	480	50	25	2.6
6	18		209	386	41	23	2.6
7	23		183	221	35	25	2.2
8	26		229	189	31	22	1.0
9	25	70	267	175	25	18	1.0
10	16		297	186	27	16	1.4
11	16		285	238	25	18	1.4
12	9		332	215	21	16	1.0
13	10	75	350	198	20	15	2.0
14	16		350	175	16	12	4.2
15	15		386	150	18	10	4.2
16	15	80	405	131	16	7.8	3.0
17	10	74	244	108	14	5.4	3.0
18	10	69	206	180	72	3.0	2.6
19	12	92	192	297	235	7.8	2.6
20	12	163	166	291	241	6.6	1.8
21	13	180	169	169	50	3.0	.8
22	15	200	189	120	47	2.6	.6
23	13	218	247	101	44	2.6	4.2
24	12	310	285	64	37	1.4	5.4
25	12	500	350	61	30	1.0	4.2
26	13	500	368	57	27	1.8	3.0
27	12	461	442	51	25	2.6	3.0
28	10	520	480	51	16	2.2	2.6
29	10	500	500	77	18	1.4	2.6
30	12	350	540	78	23	2.6	2.2
31	8	-----	520	-----	22	2.2	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	27	8	15.6	959
April	520	69	177	10,500
May	540	166	306	18,800
June	540	51	218	13,000
July	241	14	48.1	2,960
August	37	1.0	12.3	756
September	5.4	.6	2.52	150

ROCK CREEK NEAR ROCK RIVER, WYO.

LOCATION.—Water-stage recorder in sec. 4, T. 20 N., R. 76 W., at bridge on Lincoln Highway, $1\frac{1}{2}$ miles southeast of Rock River.

DRAINAGE AREA.—184 square miles.

RECORDS AVAILABLE.—May to September, 1928.

EXTREMES.—Maximum discharge during year, 1,180 second-feet May 29 and 30 (gage height, 4.53 feet); minimum 2.7 second-feet September 30. (gage height, 0.26 foot).

REMARKS.—Records excellent. Diversions above station for irrigation of several thousand acres. Partial regulation owing to operation of two reservoirs having combined capacity of 5,000 acre-feet.

Daily and monthly discharge, in second-feet, 1927-28

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....	70	1,140	269	10	6.6	16.....	173	267	34	18	4.2
2.....	77	1,100	243	10	7	17.....	272	495	36	14	4.2
3.....	89	1,120	215	9	7	18.....	226	570	33	11	4.2
4.....	91	920	183	8	8	19.....	160	313	32	9	3.5
5.....	79	513	163	9	7	20.....	207	254	30	8	4.2
6.....	69	348	139	7	6.0	21.....	220	197	28	7	4.2
7.....	69	348	115	7	4.2	22.....	245	230	28	6	4.2
8.....	73	406	91	6	4.6	23.....	306	269	29	5.6	4.2
9.....	98	348	70	6	4.9	24.....	423	286	41	7	3.8
10.....	154	334	61	6	4.2	25.....	630	281	46	6.3	3.5
11.....	170	348	53	5.6	3.8	26.....	650	376	31	5.6	3.1
12.....	150	390	51	4.9	4.6	27.....	852	390	25	4.6	3.1
13.....	162	298	50	6.6	3.8	28.....	1,120	376	21	3.8	3.8
14.....	220	252	57	12	8	29.....	1,140	348	19	3.5	3.1
15.....	213	204	41	15	6.6	30.....	1,140	303	19	3.8	2.9
						31.....	1,140		15	4.2	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May.....	1,140	69	345	21,200
June.....	1,140	197	434	25,800
July.....	269	15	73.2	4,500
August.....	18	3.3	7.71	474
September.....	8	2.9	4.73	281
The period.....				52,800

DEER CREEK AT GLENROCK, WYO.

LOCATION.—Staff gage in sec. 4, T. 33 N., R. 75 W., at railroad bridge in Glenrock, a quarter of a mile above mouth.

DRAINAGE AREA.—216 square miles.

RECORDS AVAILABLE.—April, 1916, to September, 1924; May to September, 1928.

EXTREMES.—Maximum discharge during year, 267 second-feet June 13 (gage height, 3.04 feet); minimum, 0.2 second-foot September 15 (gage height, 1.45 feet).

1916-1924, 1928: Maximum discharge, 4,600 second-feet April 15, 1924 (gage height, 6.5 feet); no flow during summers of 1919 and 1922.

REMARKS.—Records excellent. Diversions above station for irrigation of several thousand acres.

Daily and monthly discharge, in second-feet, 1927-28

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1		126	40	3.5	3.8	16		217	1.5	0.5	0.6
2		103	30	4.0	3.8	17		217	1.5	.5	1.3
3		144	21	6.4	3.5	18		217	5.5	.5	1.7
4		172	18	5.8	3.5	19		194	4.0	.5	1.5
5		174	10	5.5	3.5	20		174	2.7	.5	3.1
6		150	36	5.0	3.3	21		152	3.8	.5	4.5
7		118	27	4.2	3.1	22		129	4.2	.5	7.9
8		82	27	1.3	3.1	23		129	5.0	20	9.4
9		68	24	1.0	2.3	24		123	3.3	9.4	9.8
10		87	13	.5	.9	25		113	1.4	9.0	9.0
11		90	11	.5	.5	26	242	100	1.5	9.0	9.0
12		147	7.9	.5	.5	27	229	87	1.5	9.0	9.8
13		245	3.5	.5	.5	28	203	73	20	3.7	11
14		245	1.5	.5	.4	29	177	59	6.4	8.3	11
15		220	1.5	.5	.3	30	161	50	5.0	5.5	10
						31	168		3.1	3.8	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 26-31	242	158	195	2,330
June	245	50	140	8,330
July	40	1.4	11.0	676
August	20	.5	4.06	250
September	11	.3	4.42	263
The period				11,800

BOXELDER CREEK NEAR CAREYHURST, WYO.

LOCATION.—Staff gage in sec. 13, T. 33 N., R. 74 W., 2 miles upstream from mouth at Careyhurst.

DRAINAGE AREA.—202 square miles.

RECORDS AVAILABLE.—May to October, 1911; April, 1916, to September, 1924; May to September, 1928.

EXTREMES.—Maximum discharge during year, 260 second-feet June 13 (gage height, 3.50 feet); minimum, 1 second-foot during several days in August, 1911, 1916-1924, 1928: Maximum discharge, 2,050 second-feet May 22, 1922; no flow during summer of 1922.

REMARKS.—Records fair. Discharge estimated August 11-25. Diversions above station for irrigation of several thousand acres.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		96	64	8.5	3.6	16.....		228	22		
2.....		91	72	8.5	2.2	17.....		202	17		
3.....		94	72	8.5	2.2	18.....		202	17		
4.....		96	74	8.1	3.6	19.....		191	17		
5.....		96	72	7.6	4.0	20.....		121	17		
6.....		124	77	7.6	3.6	21.....		96	17	1.0	
7.....		96	72	3.6	3.0	22.....		91	13		
8.....		96	24	3.6	4.0	23.....		91	13		
9.....		198	26	3.0		24.....		96	13		
10.....		101	23	3.0		25.....		121	12		
11.....		96	22			26.....	231	96	12	3.6	
12.....		121	24			27.....	237	91	13	3.3	
13.....		260	24	1.0		28.....	231	91	12	3.6	
14.....		231	25			29.....	231	121	9.4	3.6	
15.....		231	23			30.....	228	96	8.5	4.0	
						31.....	147		8.5	3.6	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 26-31.....	237	147	218	2,590
June.....	260	91	129	7,680
July.....	77	8.5	29.5	1,810
August.....	8.5		3.18	196
September 1-8.....	4.0	2.2	3.28	52
The period.....				12,300

16187-31-10

LA PRELE CREEK NEAR DOUGLAS, WYO.

LOCATION.—Water-stage recorder in sec. 6, T. 31 N., R. 73 W., just above high-water line of La Prele Reservoir, 16 miles southwest of Douglas.

DRAINAGE AREA.—146 square miles.

RECORDS AVAILABLE.—August, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 658 second-feet May 17 (gage height, 8.76 feet); minimum, 4.0 second-feet August 18, 19, and 20 (gage height, 3.40 feet).

1919-1928: Maximum discharge, 1,220 second-feet May 11, 1920 (gage height, 11.4 feet); minimum, 0.4 second-foot October 2, 1919 (gage height, 3.29 feet).

REMARKS.—Records excellent except for periods of missing gage heights (June 17-22, July 1-6 and 9-15) and when affected by ice (December 1 to March 13), for which they are fair. Several small diversions above station. Gage-height record and discharge measurements furnished by Douglas Reservoirs Water Users Association.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	25	13	70	311	90	37	7.3	5.5
2	11	21	13	97	436	83	35	6.5	5.5
3	11	21	13	98	375	102	34	6.7	5.9
4	11	27	14	88	318	112	32	6.7	6.1
5	12	35	14	74	297	118	30	7.8	6.1
6	13	31	15	68	276	103	25	6.9	6.1
7	15	32	15	49	297	83	21	6.5	6.3
8	14	37	16	62	360	72	20	5.7	6.3
9	12	35	17	58	420	62	19	5.5	6.3
10	12	35	19	53	405	70	18	5.5	6.1
11	12	34	20	49	332	76	17	5.5	5.7
12	12	30	20	50	290	140	16	4.9	5.9
13	12	30	16	52	318	204	15	4.6	5.9
14	12	30	14	49	452	190	13	4.4	6.1
15	11	27	14	49	486	171	10	4.4	5.9
16	10	27	15	51	382	148	8.0	4.3	5.7
17	10	27	15	90	452	135	8.2	4.2	5.5
18	10	24	15	146	489	120	8.5	4.0	5.4
19	10	24	16	121	405	110	7.1	4.0	5.5
20	10	24	24	103	360	100	6.9	4.0	6.1
21	10	23	47	101	318	90	7.5	4.2	6.1
22	11	22	96	101	283	83	6.7	4.6	6.1
23	11	17	116	112	269	77	5.7	5.9	6.1
24	11	20	122	158	269	71	6.3	5.5	6.1
25	11	19	162	204	282	65	5.4	5.5	6.1
26	11	19	156	230	223	59	5.2	5.4	5.9
27	11	19	121	256	204	55	6.1	5.4	6.1
28	13	17	129	318	210	50	9.0	5.2	6.1
29	46	18	92	311	161	44	6.3	5.2	6.5
30	32	18	75	276	132	40	8.0	5.4	6.5
31	28		65		111		9.0	5.4	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	46	10	13.7	842
November	37	17	25.6	1,520
December			14.3	879
January			13.9	855
February			12.8	736
March	162	13	48.4	2,980
April	318	49	118	7,020
May	486	111	319	19,600
June	204	40	97.4	5,800
July	37	5.2	14.7	904
August	7.8	4.0	5.39	331
September	6.5	5.4	5.98	356
The year	486	4.0	57.6	41,800

LA PRELE CREEK NEAR ORPHA, WYO.

LOCATION.—Staff gage about sec. 16, T. 33 N., R. 72 W., just below railroad bridge 1 mile south of Orpha and three-quarters of a mile above mouth.

DRAINAGE AREA.—227 square miles.

RECORDS AVAILABLE.—May to September, 1928. From April to August, 1916; April to September, 1918; April, 1923, to September, 1924, at station near Fetterman, 1,500 feet downstream.

EXTREMES.—Maximum discharge during year, 209 second-feet May 26 (gage height, 2.88 feet); minimum, 4.4 second-feet July 26 (gage height, 0.63 foot).

1916, 1918, 1923–24, 1928: Maximum discharge, 437 second-feet May 10, 1918 (gage height, 3.5 feet); minimum, 1 second-foot during summer of 1919.

REMARKS.—Records good. Diversions above station for irrigation of several thousand acres. Flow regulated by storage in La Prele Reservoir with a capacity of 20,000 acre-feet.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		67	22	50	12	16.....		55	12	5.8	7.4
2.....		36	29	73	13	17.....		50	14	6.2	7.0
3.....		44	26	72	12	18.....		48	11	6.6	56
4.....		57	15	78	13	19.....		49	8.0	6.6	74
5.....		47	15	71	12	20.....		60	7.0	9.0	81
6.....		43	27	60	10	21.....		58	6.2	11	101
7.....		46	136	49	8.2	22.....		55	7.0	11	156
8.....		43	86	32	7.8	23.....		71	6.2	13	178
9.....		26	32	30	7.4	24.....		58	5.4	16	178
10.....		23	21	20	7.4	25.....		47	5.8	18	178
11.....		27	19	13	9.0	26.....	189	39	4.6	21	146
12.....		35	16	9.0	10	27.....	126	30	5.4	20	86
13.....		49	14	6.6	9.0	28.....	96	24	6.6	19	49
14.....		47	18	7.4	8.2	29.....	136	21	10	19	39
15.....		48	15	5.8	8.2	30.....	121	26	20	14	29
						31.....	91		40	14	
Month						Maximum	Minimum	Mean	Run-off in acre-feet		
May 26-31.....						189	91	126	1,500		
June.....						71	21	44.3	2,640		
July.....						136	4.6	21.3	1,310		
August.....						78	5.8	25.4	1,560		
September.....						178	7.0	50.4	3,000		
The period.....									10,000		

LA BONTE CREEK NEAR LA BONTE, WYO.

LOCATION.—Staff gage about in sec. 21, T. 31 N., R. 71 W., 3 miles east of La Bonte and $1\frac{1}{2}$ miles above mouth.

DRAINAGE AREA.—302 square miles.

RECORDS AVAILABLE.—April, 1916, to September, 1924, May to September, 1928.

EXTREMES.—Maximum discharge during year, 660 second-feet May 27 and June 11 (gage height, 3.00 feet); minimum, 5 second-feet September 9–27 (gage height, 0.00 foot).

1916–1924, 1928: Maximum discharge, 2,750 second-feet May 22 and 23, 1923 (gage height, 7.5 feet); no flow during summer of 1917 and 1918.

REMARKS.—Records good. Diversions above station for irrigation of several thousand acres.

Daily and monthly discharge, in second-feet, 1923

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		200	88	30	8.2	16.....		244	32	14	4.2
2.....		214	82	29	7.8	17.....		229	28	13	4.2
3.....		229	78	28	7.4	18.....		241	26	13	4.6
4.....		241	68	41	7.4	19.....		211	33	13	4.6
5.....		211	58	33	6.6	20.....		192	37	12	4.6
6.....		203	49	28	6.2	21.....		203	27	11	5.0
7.....		186	50	26	5.0	22.....		192	30	11	5.0
8.....		186	45	23	5.0	23.....		169	20	12	5.4
9.....		184	48	22	5.0	24.....		146	26	11	5.4
10.....		179	35	20	5.0	25.....	430	135	30	11	5.8
11.....		367	40	18	5.4	26.....	347	119	28	10	6.2
12.....		498	37	17	5.0	27.....	498	113	26	10	6.6
13.....		430	35	14	4.6	28.....	430	146	22	10	7.0
14.....		329	35	14	4.6	29.....	347	117	26	9	7.4
15.....		278	36	14	4.6	30.....	294	102	40	9	7.4
						31.....	223		37	9	
Month						Maximum	Minimum	Mean	Run-off in acre-feet		
May 25–31.....						498	223	367	5,100		
June.....						498	102	216	12,000		
July.....						88	20	40.4	2,400		
August.....						41	9	17.3	1,000		
September.....						8.2	4.2	5.71	300		
The period.....									21,000		

HORSESHOE CREEK NEAR GLENDO, WYO.

LOCATION.—Staff gage about sec. 26, T. 29 N., R. 68 W., 4 miles southeast of Glendo and 2 miles above mouth of creek.

DRAINAGE AREA.—203 square miles.

RECORDS AVAILABLE.—April, 1916, to September, 1919; April, 1921, to September, 1924; May to September, 1928.

EXTREMES.—Maximum discharge during year, 1,120 second-feet May 9 (gage height, 6.8 feet); minimum, 2.6 second-feet August 30 to September 1 (gage height, 0.50 foot).

1916-1919, 1921-1924, 1928: Maximum discharge, that of May 9, 1928; no flow during summer of 1918 and 1919.

REMARKS.—Records good. Diversions above station for irrigation of several thousand acres.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1		162	52	5.9	2.6	16		123	8.0	7.4	3.8
2		144	48	5.6	2.8	17		138	8.0	7.1	3.8
3		171	42	5.6	3.8	18		123	8.0	5.9	4.0
4		168	38	5.6	3.6	19		111	8.0	5.6	4.0
5		159	38	5.6	3.1	20		95	14	5.0	3.8
6		146	33	5.5	3.6	21		96	8.0	5.0	3.8
7		132	29	6.2	3.6	22		94	7.7	5.0	3.8
8		114	22	6.2	3.3	23		85	7.4	4.5	3.8
9		104	25	5.6	3.6	24		78	8.0	4.5	4.3
10		125	16	5.5	3.8	25	236	71	7.4	4.3	4.0
11		128	16	5.3	4.0	26	216	66	6.5	4.0	4.0
12		160	11	5.0	4.3	27	199	60	6.5	4.0	4.0
13		133	8.0	5.0	4.0	28	183	60	7.1	3.8	4.0
14		134	8.0	5.0	3.8	29	196	58	6.2	3.3	4.0
15		181	8.0	5.0	3.8	30	180	56	7.4	2.6	4.0
						31	177		7.4	2.6	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 25-31	236	177	198	2,755
June	193	56	117	6,960
July	52	6.2	16.8	1,030
August	7.4	2.6	5.08	313
September	4.3	2.6	3.76	233
The period				11,305

LARAMIE RIVER NEAR GLENDEVY, COLO.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 25, T. 10 N., R. 76 W., 3 miles east of Glendevy and just below Nunn Creek.

DRAINAGE AREA.—101 square miles.

RECORDS AVAILABLE.—June, 1904, to October, 1905; August, 1910, to September, 1928.

EXTREMES.—Maximum discharge during year, 942 second-feet May 31 (gage height, 3.27 feet); minimum occurred during winter.

1904-5, 1910-1928: Maximum discharge, 2,240 second-feet June 9, 1923 (gage height, 4.55 feet old datum); minimum, 5 second-feet February 14 and 15, 1911 (gage height, 1.5 feet).

REMARKS.—Records good. Discharge estimated April 22-25. A few small diversions above station for irrigation. In addition 41,607 acre-feet was diverted into the Cache la Poudre Basin.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.....	51	41	35	86	786	278	67	38-
2.....	48	33	38	140	756	251	72	37
3.....	48	40	39	129	714	214	67	31
4.....	51	40	35	121	620	187	66	27
5.....	52	-----	34	111	530	180	63	25-
6.....	50	-----	30	119	455	175	61	21-
7.....	45	-----	33	155	415	168	57	20
8.....	40	-----	31	209	410	150	55	22-
9.....	38	-----	30	261	383	140	53	22-
10.....	34	-----	26	271	388	142	52	20-
11.....	30	-----	27	226	392	142	52	25-
12.....	31	-----	23	209	331	133	51	25-
13.....	36	-----	26	217	278	131	49	23-
14.....	34	-----	26	203	248	133	49	23-
15.....	33	-----	28	182	223	127	47	23
16.....	33	-----	27	175	261	121	45	22
17.....	33	-----	23	173	340	148	44	22
18.....	33	-----	22	178	361	127	42	21
19.....	34	-----	27	190	258	113	40	22
20.....	34	-----	30	214	223	111	35	24
21.....	34	-----	30	254	212	103	35	26-
22.....	34	-----	31	336	239	100	34	26
23.....	35	-----	36	420	261	123	34	25-
24.....	33	-----	48	460	271	113	33	24
25.....	33	-----	56	560	282	99	34	22
26.....	33	-----	57	666	282	86	37	26
27.....	32	-----	63	738	254	84	37	19
28.....	32	-----	70	750	261	81	33	20
29.....	39	-----	69	774	271	81	30	25
30.....	43	-----	74	864	275	81	27	22
31.....	53	-----	-----	858	-----	73	30	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	53	30	38.4	2,360
April.....	74	22	37.5	2,230
May.....	864	86	331	20,400
June.....	786	212	366	21,800
July.....	278	73	135	8,300
August.....	72	27	46.2	2,840
September.....	38	19	24.1	1,430

LARAMIE RIVER NEAR JELM, WYO.

LOCATION.—Water-stage recorder in sec. 15, T. 12 N., R. 77 W., a quarter of a mile below Colorado-Wyoming line, 4 miles south of old Jelm and 1 mile below Stuck Creek.

DRAINAGE AREA.—297 square miles.

RECORDS AVAILABLE.—May, 1911, to September, 1928. From June, 1904, to October, 1905, at station half a mile south of State line.

EXTREMES.—Maximum discharge during year, 2,180 second-feet May 31 (gage height, 3.55 feet); minimum occurred during winter.

1904-5, 1911-1928: Maximum discharge, 4,200 second-feet June 9, 1923 (gage height, 4.15 feet); minimum, 22 second-feet September 22-24. October 4-8, 18-23, and 28-31, 1905 (gage height, 1.8 feet).

REMARKS.—Records good. A few diversions for irrigation between Jelm and Glendevey stations.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Apr.	May	June	July	Aug.	Sept.
1	91	90	210	1,980	552	137	66
2	88	88	315	1,800	528	137	73
3	80	85	305	1,870	462	145	64
4	84	77	254	1,420	434	137	59
5	97	71	241	1,180	428	132	55
6	97	58	233	1,010	412	124	51
7	93	59	290	976	390	119	49
8	84	79	395	986	346	107	50
9	78	81	596	898	320	95	50
10	76	83	705	889	300	93	50
11	71	71	691	946	305	93	55
12	62	70	635	810	281	91	58
13	64	68	670	737	272	87	51
14	67	70	635	713	300	85	49
15	78	73	602	635	290	81	51
16	78	73	576	691	258	77	51
17	76	83	546	810	320	77	48
18	74	85	583	836	258	75	43
19	71	75	602	691	241	70	42
20	69	73	649	596	229	64	43
21	65	81	729	546	214	61	54
22	67	77	908	583	218	59	54
23	67	81	1,140	590	233	59	49
24	62	93	1,270	564	263	59	45
25	64	104	1,440	596	222	59	44
26	62	104	1,560	622	196	61	43
27	60	119	1,640	596	186	63	40
28	65	154	1,800	616	210	63	41
29	86	172	1,890	609	199	55	46
30	82	172	1,960	590	172	50	46
31	84		2,070		154	52	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	97	60	75.5	4,640
April	172	58	89.0	5,300
May	2,070	210	844	51,900
June	1,980	546	880	52,408
July	552	154	297	18,300
August	145	50	86.0	5,290
September	73	40	50.7	3,020

LARAMIE RIVER AT FORT LARAMIE, WYO.

LOCATION.—Staff gage in sec. 25, T. 26 N., R. 65 W., at siphon crossing of Fort Laramie Canal, 3 miles west of Fort Laramie.

DRAINAGE AREA.—4,580 square miles.

RECORDS AVAILABLE.—April, 1915, to September, 1928.

REMARKS.—Many diversions for irrigation above station. During the winter water is diverted 4 miles upstream for use of the Lingle power plant; discharge is corrected for this diversion. Flow regulated by Wheatland Reservoir having a capacity of 110,000 acre-feet. Complete records furnished by Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	246	170	170	140	190	135	440	360	1,370	180	180	67
2	232	170	160	140	265	135	440	320	1,270	275	145	60
3	212	170	170	140	360	153	800	360	1,270	180	128	92
4	165	170	170	140	217	260	740	400	1,530	145	128	75
5	175	170	170	140	217	325	516	466	1,879	112	112	67
6	185	170	155	140	190	217	465	360	1,390	100	112	67
7	218	190	85	140	203	217	445	360	1,670	92	112	67
8	185	190	110	140	203	207	385	320	1,570	85	112	67
9	223	190	140	160	190	222	345	320	1,370	75	92	67
10	215	190	140	160	190	218	310	275	1,370	75	92	67
11	190	190	140	160	190	195	325	275	1,440	75	100	57
12	185	190	140	160	175	195	310	275	1,570	100	85	60
13	180	190	140	160	190	200	277	240	1,070	92	85	60
14	180	190	140	180	190	200	263	200	950	92	85	128
15	175	190	140	190	159	205	263	400	870	85	70	162
16	170	190	140	210	115	200	263	400	640	145	70	52
17	170	190	140	210	120	200	263	555	670	100	75	55
18	170	190	140	210	120	200	263	865	715	85	70	55
19	170	190	140	180	120	205	310	1,280	555	162	70	75
20	170	190	140	175	300	200	310	1,280	575	162	162	75
21	170	190	140	170	185	200	280	1,280	470	180	92	85
22	170	190	140	160	185	195	290	1,280	470	180	70	110
23	170	190	140	160	180	228	370	1,230	470	600	67	112
24	170	190	140	160	180	795	490	1,150	470	400	67	112
25	170	170	140	155	145	710	435	1,110	575	320	67	112
26	170	170	140	150	212	1,100	400	1,110	470	320	67	112
27	160	170	140	150	135	1,160	310	1,110	370	320	145	145
28	160	170	140	150	160	905	265	1,190	370	360	92	138
29	170	170	140	170	190	810	310	1,028	240	400	75	132
30	170	170	140	170	---	740	332	1,190	170	320	75	112
31	170	---	140	190	---	510	---	1,190	---	210	67	---

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	246	160	183	11,300
November	190	170	182	10,800
December	170	84	142	8,730
January	210	140	163	10,000
February	360	115	199	16,990
March	1,160	135	369	22,740
April	800	263	374	22,300
May	1,280	200	713	43,400
June	1,620	180	880	52,400
July	600	75	194	11,410
August	180	67	95.8	5,290
September	162	60	90.5	3,570
The year	1,620	60	298	214,000

BAWHIDE CREEK NEAR LINGLE, WYO.

LOCATION.—Staff gage in sec. 17, T. 25 N., R. 62 W., 1 mile east of Lingle and 2 miles above mouth.

DRAINAGE AREA.—510 square miles.

RECORDS AVAILABLE.—May to September, 1928.

EXTREMES.—Maximum discharge during year, 273 second-feet July 19 (gage height, 4.99 feet); minimum not determined.

REMARKS.—Records incomplete May 10 to July 18 and good July 19 to September 30. Mean discharge for May, June, and July partly estimated. Practically no diversion and no regulation.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1		27		131	36	16	34	177		34	68
2		29		59	36	17				37	47
3				54	227	18	36	59		29	41
4				137	83	19			273	26	36
5		37	25	137	34	20	39		156	30	35
6				137	36	21			96	30	39
7		45		96	50	22		166	67	39	49
8				53	110	23			69	38	50
9				104	94	24	21		64	37	42
10	25			50	72	25		40	63	37	44
11		82		45	39	26			197	35	46
12	22			39	82	27	29		161	34	49
13	24		46	25	43	28			173	32	45
14				30	47	29			173	30	34
15			29	41	70	30	28		64	33	52
						31			125	38	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May			27	1,780
June			69	4,110
July	273	25	75	4,610
August	137	25	54	3,320
September	227	34	58	3,450
The period				17,300

KATZER DRAIN NEAR HENRY, NEBR.

LOCATION.—Staff gage in sec. 12, T. 23 N., R. 60 W., 3 miles southwest of Henry and 2 miles above mouth.

RECORDS AVAILABLE.—June to September, 1928.

REMARKS.—Records poor. Records show return flow from area under Fort Laramie Canal. Prior to August 25 station was situated just above mouth and within influence of backwater from North Platte River. Katzer Drain enters North Platte River in Wyoming, 1 mile above Nebraska line

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		24			54	16.....				33	38
2.....		29			54	17.....				34	36
3.....					58	18.....				36	38
4.....					50	19.....				37	34
5.....					52	20.....				38	29
6.....			10		52	21.....				40	29
7.....					49	22.....		23		41	30
8.....					46	23.....				42	28
9.....					44	24.....				44	26
10.....					49	25.....				43	25
11.....	29				50	26.....		31		42	24
12.....					50	27.....				46	23
13.....			20		51	28.....				40	25
14.....		41			54	29.....				44	26
15.....				32	52	30.....				56	26
						31.....				56	
Month						Maximum	Minimum	Mean	Run-off in acre-feet		
August 15-31.....						56	32	41.4	1,400		
September.....						58	23	40.1	2,390		
The period.....									3,790		

HORSE CREEK NEAR YODER, WYO.

LOCATION.—Staff gage in sec. 13, T. 22 N., R. 62 W., half a mile southeast of Fort Laramie Canal siphon under Horse Creek and 6 miles southeast of Yoder.

DRAINAGE AREA.—1,320 square miles.

RECORDS AVAILABLE.—May to September, 1928.

EXTREMES.—Maximum discharge during year, 46 second-feet August 2 (gage height, 1.40 feet); minimum, 0.5 second-foot August 21 (gage height, 0.08 foot).

REMARKS.—Records good. Discharge estimated May 1–10 and September 26–30. Practically entire flow is diverted above station for irrigation. Flow regulated by Hawk Springs Reservoir; capacity, 19,400 acre-feet.

Daily and monthly discharge, in second-feet, 1928

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....	1.2	1.0	12	1.0	5.9	16.....	1.5	1.2	1.2	1.7	.9
2.....		.9	11	24	3.5	17.....	1.4	1.4	4.3	1.4	1.0
3.....		1.4	11	12	3.5	18.....	1.3	1.4	11	.9	1.1
4.....		1.7	4.2	16	2.6	19.....	1.2	1.4	3.2	.6	1.4
5.....		1.2	1.6	15	2.0	20.....	1.1	1.4	1.6	.6	1.4
6.....		1.1	1.4	8.7	1.8	21.....	1.1	1.5	1.4	.5	1.4
7.....		1.0	1.4	6.6	2.5	22.....	1.0	1.2	1.4	.6	1.4
8.....		1.0	1.5	6.2	2.5	23.....	1.0	1.0	3.5	1.0	1.4
9.....		1.0	1.4	6.4	2.3	24.....	1.0	1.0	2.3	1.3	1.4
10.....		1.0	1.4	6.4	1.7	25.....	1.0	.9	1.4	1.7	1.4
11.....	1.1	1.1	1.4	5.7	1.5	26.....	1.0	1.0	1.2	1.8	1.5
12.....	1.1	1.5	1.4	3.0	1.2	27.....	.9	1.4	1.0	2.5	1.5
13.....	1.0	1.6	1.7	1.5	1.0	28.....	1.0	10	1.1	3.3	1.5
14.....	1.4	1.5	1.6	1.4	.9	29.....	.9	13	1.1	4.0	1.5
15.....	2.0	1.4	1.4	1.4	.7	30.....	.8	13	1.0	4.7	1.6
						31.....	1.0		1.0	4.9	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May.....	2.0	0.8	1.15	71
June.....	13	.9	2.31	137
July.....	12	1.0	2.97	183
August.....	24	.5	4.74	291
September.....	5.9	.7	1.80	107
The period.....				789

SOUTH PLATTE RIVER AT SOUTH PLATTE, COLO.

LOCATION.—Water-stage recorder in sec. 25, T. 7 S., R. 70 W., 375 feet below mouth of North Fork of South Platte River at South Platte. Zero of gage is 6,078.43 feet above mean sea level.

DRAINAGE AREA.—2,550 square miles.

RECORDS AVAILABLE.—March, 1902, to September, 1928.

EXTREMES.—Maximum discharge during year, 1,930 second-feet May 30 (gage height, 4.42 feet); minimum occurred during winter.

1902-1928: Maximum discharge, 6,320 second-feet June 7, 1921 (gage height, 8.95 feet); minimum, 21 second-feet August 4, 1902.

REMARKS.—Records fair. Discharge estimated December 4 to March 22. Extensive diversions above station for irrigation. Flow regulated chiefly by Cheesman Reservoir, having a capacity of 79,000 acre-feet.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	304	216	140	132	359	1,760	577	746	340
2	298	203		138	509	1,690	568	549	294
3	292	201		142	581	1,840	544	587	209
4	298	190		142	452	1,870	415	591	205
5	292	184		130	444	1,700	339	577	205
6	271	175	125	118	444	1,350	582	460	180
7	274	173		116	496	1,150	606	469	171
8	262	184		116	563	1,060	601	446	164
9	244	184		116	540	989	587	402	153
10	229	180		124	572	945	582	381	147
11	283	176	106	130	522	967	535	357	148
12	310	164		124	484	912	331	342	126
13	317	178		139	362	923	310	335	121
14	324	182		127	705	967	346	377	218
15	310	171		127	820	978	530	385	223
16	307	162	175	127	780	895	424	402	225
17	314	184		127	790	776	469	460	223
18	310	178		134	770	688	516	606	225
19	304	175		169	720	649	925	615	280
20	292	178		198	705	611	920	544	225
21	265	173	164	210	730	587	850	530	255
22	250	169		195	680	549	905	525	267
23	262	169		187	700	511	805	539	264
24	259	150		195	680	478	732	554	245
25	253	164		202	870	455	751	455	228
26	247	142	179	191	1,020	446	800	335	221
27	247	130	164	250	1,170	659	693	281	21
28	244	130	157	307	1,350	693	596	261	223
29	247	131	138	310	1,730	786	611	270	228
30	244	115	130	328	1,880	625	732	294	225
31	238	-----	130	-----	1,840	-----	880	261	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	324	229	277	17,000
November	216	115	170	10,110
December	-----	-----	68	4,180
January	-----	-----	105	6,460
February	-----	-----	106	6,100
March	-----	-----	135	8,300
April	328	116	168	10,000
May	1,880	359	783	48,100
June	1,870	446	950	58,500
July	925	310	615	37,800
August	746	261	450	27,700
September	349	121	214	12,700
The year	1,880	-----	338	245,000

NORTH FORK OF SOUTH PLATTE RIVER AT SOUTH PLATTE, COLO.

LOCATION.—Water-stage recorder in sec. 25, T. 7 S., R. 70 W., a third of a mile above railroad station and mouth of South Platte. Zero of gage is 6,090.55 feet above mean sea level.

DRAINAGE AREA.—484 square miles.

RECORDS AVAILABLE.—June, 1909, to September, 1910; April, 1913, to September, 1928.

EXTREMES.—Maximum discharge during year, 964 second-feet May 30 (gage height, 4.14 feet); minimum, 35 second-feet April 9 (gage height, 1.34 feet). 1909-10, 1913-1928: Maximum discharge, 1,910 second-feet June 8, 1921 (gage height, 5.9 feet); minimum, 12 second-feet December 18, 1922 (gage height, 1.50 feet).

REMARKS.—Records fair. Diversions for irrigation of several hundred acres above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	97	88		63	150	790	309	212	127
2	131	93	85		70	217	718	300	212	120
3	124	92	116		71	207	675	298	217	109
4	135	97			73	200	592	284	205	76
5	138	98			62	205	540	277	200	70
6										
7	119	93			55	210	492	274	183	68
8	124	92			52	252	492	264	172	68
9	119	92			49	262	528	280	165	72
10	110	89			48	334	500	254	161	72
11	107	90			68	369	473	247	152	72
12										
13	107	87			62	320	448	224	150	72
14	105	83			59	274	428	237	152	72
15	105	85			59	272	417	230	150	68
16	111	89			44	346	392	230	183	65
17	104	85			53	396	356	217	210	67
18										
19	104	73			60	459	340	244	202	67
20	108	90			63	512	356	284	205	65
21	110	90			68	608	340	306	188	65
22	107	92			70	484	330	375	170	67
23	103	96			66	500	310	331	111	70
24										
25	97	94			71	524	298	284	100	83
26	97	90			62	564	303	300	96	78
27	101	89			73	572	303	292	98	74
28	104	74			82	548	309	306	107	70
29	104	78			85	538	317	309	132	65
30										
31	105	88			88	605	331	264	139	65
2	107	84			97	736	334	260	137	65
3	104	85				742	323	254	132	64
4	100	84			127	796	328	262	129	60
5	98	73		58	131	796	328	262	129	60
6				55	133	802	326	254	125	59
7	96			58		772		230	122	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	138	96	110	6,760
November	98	73	88.1	5,240
December	133	44	72.1	4,290
January	802	150	441	27,100
February	790	298	423	25,200
March	375	217	273	16,800
April	217	96	159	9,780
May	127	59	73.8	4,390

CLEAR CREEK NEAR GOLDEN, COLO.

LOCATION.—Water-stage recorder in sec. 32, T. 3 S., R. 70 W., $1\frac{1}{2}$ miles above Golden and 12 miles above Ralston Creek.

DRAINAGE AREA.—392 square miles.

RECORDS AVAILABLE.—May, 1919, to September, 1928. From December, 1908, to December, 1909; June to September, 1911; January, 1912, to May 3, 1919, at station half a mile upstream.

EXTREMES.—Maximum discharge during year, 1,560 second-feet May 30 (gage height, 4.66 feet); minimum, 37 second-feet April 9 (gage height, 2.02 feet). 1909, 1911–1928: Maximum discharge, 4,420 second-feet July 31, 1921 (gage height, 5.1 feet); minimum, 18 second-feet January 11, 1918.

REMARKS.—Records excellent. Discharge estimated October 20–22 and April 1–7. Only diversion above station is Golden ditch. Gage-height record furnished by Farmers Reservoir & Irrigation Co.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Apr.	May	June	July	Aug.	Sept.
1	116	107	55	51	194	1,400	926	318	171
2	112	81	64	52	284	1,340	892	332	154
3	112	83	88	52	275	1,230	850	322	151
4	119	79	81	54	240	1,030	790	318	132
5	116	88		52	244	918	798	322	124
6	122	92		52	284	850	758	280	122
7	129	85		60	358	884	742	266	103
8	132	85		49	402	978	702	224	110
9	126	72		56	513	1,030	665	209	116
10	116	66		76	607	1,030	628	217	122
11	112	66		60	532	987	579	232	116
12	101	74		56	459	875	552	232	110
13	116	92		54	453	774	579	224	99
14	110	78		52	532	734	579	220	74
15	114	74		64	482	688	539	198	78
16	112	78		52	500	790	546	232	119
17	107	81		66	494	875	628	240	71
18	107	79		62	513	832	547	213	92
19	107	85		58	526	710	579	194	94
20	108	88		56	579	650	547	213	142
21	109	76		72	593	642	532	198	110
22	110	85		65	685	750	520	191	112
23	110	83		65	726	798	500	198	126
24	114	65		70	734	900	494	178	90
25	132	74		90	866	926	470	191	116
26	112	71		87	1,050	935	391	198	79
27	94	70		90	1,240	926	413	228	119
28	90	64		134	1,280	943	396	194	81
29	96	85		156	1,380	996	419	178	79
30	78	78		151	1,430	969	424	166	110
31	72				1,450		385	162	
Month	Maximum			Minimum		Mean		Run-off in acre-feet	
October	132			72		110		6,760	
November	107			64		79.5		4,730	
April	156			49		70.1		4,170	
May	1,450			194		641		39,400	
June	1,400			642		913		54,300	
July	926			385		593		36,500	
August	332			156		228		14,000	
September	171			71		111		6,600	

NORTH ST. VRAIN CREEK NEAR ALLENS PARK, COLO.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 14, T. 3 N., R. 73 W., and $2\frac{1}{2}$ miles north of Allens Park and a few hundred yards below Copeland Lake outlet.

DRAINAGE AREA.—33 square miles.

RECORDS AVAILABLE.—October, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 499 second-feet May 30 (gage height, 3.05 feet); minimum, 6 second-feet April 19 (gage height, 0.51 foot).
1925-1928: Maximum discharge, that of May 30, 1928; minimum, that of April 19, 1928.

REMARKS.—Records fair. Practically no diversions above station.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Apr.	May	June	July	Aug.	Sept.
1.....	31	19	8	39	353	337	128	29
2.....	28	16	9	55	353	324	115	28
3.....	29	18	9	44	306	296	107	28
4.....	28	15	9	37	232	292	105	27
5.....	29	15	9	37	196	296	93	26
6.....	29	15	8	41	194	292	87	28
7.....	28	15	10	54	218	264	85	25
8.....	26	15	9	87	232	242	76	26
9.....	25	14	8	90	230	234	71	29
10.....	22	13	11	117	215	234	73	29
11.....	20	13	8	71	215	232	71	32
12.....	25	13	8	64	187	196	70	29
13.....	23	12	7	59	160	213	65	28
14.....	20	12	9	56	164	232	66	25
15.....	20	12	7	56	162	208	65	22
16.....	20	13	7	58	225	208	68	24
17.....	21	13	7	54	266	249	66	25
18.....	22	12	7	55	246	218	62	25
19.....	22	12	6	59	191	237	59	27
20.....	22	12	7	68	171	222	56	31
21.....	22	12	9	91	175	201	55	30
22.....	22	12	9	113	218	210	55	29
23.....	21	13	9	149	232	189	56	26
24.....	20	11	9	153	242	187	51	25
25.....	20	11	10	191	259	158	49	25
26.....	20	11	10	266	282	140	44	25
27.....	20	11	12	299	319	140	44	25
28.....	19	11	22	397	337	136	39	35
29.....	19	12	22	420	381	149	34	29
30.....	21	18	22	433	348	153	30	27
31.....	22	-----	-----	405	-----	136	27	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	31	19	23.1	1,420
November.....	19	11	13.4	797
April.....	22	6	9.9	589
May.....	433	37	133	8,180
June.....	381	160	244	14,500
July.....	337	136	220	13,500
August.....	128	27	66.8	4,110
September.....	35	22	27.3	1,620

MIDDLE ST. VRAIN CREEK NEAR ALLENS PARK, COLO.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 3, T. 2 N., R. 72 W., 9 miles southeast of Allens Park and 2 miles below Cave Creek.

DRAINAGE AREA.—28 square miles.

RECORDS AVAILABLE.—April, 1926, to September, 1928.

EXTREMES.—Maximum discharge during year, 290 second-feet May 27 (gage-height, 2.7 feet); minimum probably occurred during winter.

1926-1928: Maximum discharge, 322 second-feet June 6, 1926; minimum, 3.9 second-feet January 13, 1927.

REMARKS.—Discharge interpolated or estimated October 12-17, November 2-4, December 1 to January 31, February 1-5, May 22 and 23. Practically no diversion above station. Records good.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	18	15	4.5	4.8	13	47	210	159	72	16
2.....	14	14	4.5	4.8	14	59	204	155	64	16
3.....	15	15	4.5	4.8	14	52	191	152	60	15
4.....	16	13	4.0	4.8	13	53	148	145	59	14
5.....	16	12	3.6	4.8	11	60	130	143	53	14
6.....	16	12	3.2	4.8	11	62	137	143	52	14
7.....	15	12	4.9	4.8	11	66	147	135	50	14
8.....	13	11	4.9	4.9	10	93	150	122	48	15
9.....	13	10	4.9	4.8	11	118	147	119	48	17
10.....	12	9	4.8	4.9	12	154	143	122	49	15
11.....	12	6	4.8	5.1	13	135	143	116	53	15
12.....	14	12	4.9	5.0	11	119	127	100	53	14
13.....	14	10	4.6	4.4	11	100	108	119	50	12
14.....	13	8	5.3	4.8	12	105	113	126	50	12
15.....	12	9	4.8	5.3	11	114	116	113	48	12
16.....	12	12	4.6	5.3	12	124	148	118	50	11
17.....	13	12	4.6	5.3	13	118	162	134	51	11
18.....	13	11	4.7	5.3	14	113	150	114	50	12
19.....	13	11	4.8	5.3	13	110	114	127	47	12
20.....	12	10	4.8	5.6	13	111	102	116	44	14
21.....	12	10	4.8	6.4	15	121	108	110	41	13
22.....	12	10	4.8	8.5	14	142	134	111	43	13
23.....	12	9	4.9	9.6	17	164	142	100	40	12
24.....	11	10	4.7	9.0	19	185	142	89	33	11
25.....	11	12	4.6	11	21	189	148	75	31	11
26.....	12	10	4.2	12	20	226	154	70	29	10
27.....	12	10	4.6	9.2	23	245	162	75	26	10
28.....	11	10	4.6	9.0	31	238	168	76	22	13
29.....	11	10	4.8	9.0	33	235	179	85	19	12
30.....	12	10	-----	9.2	35	231	166	87	17	12
31.....	13	-----	-----	9.6	-----	224	-----	78	16	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	18	11	13.1	806
November.....	15	6	10.8	643
December.....	-----	-----	7	430
January.....	-----	-----	6	369
February.....	5.3	3.2	4.61	265
March.....	12	4.4	6.52	401
April.....	35	10	15.7	934
May.....	245	47	133	8,180
June.....	210	102	146	8,690
July.....	159	70	114	7,010
August.....	72	16	44.1	2,710
September.....	17	10	13.1	780
The year.....	245	-----	43.0	31,200

NORTH BOULDER CREEK AT SILVER LAKE, COLO.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 28, T. 1 N., R. 73 W., a short distance below outlet of Silver Lake.

DRAINAGE AREA.—8.7 square miles.

RECORDS AVAILABLE.—August, 1913, to September, 1928.

REMARKS.—Discharge interpolated August 17–20. No diversions above station. Flow regulated by storage in Silver Lake; capacity, 2,080 acre-feet. Records of daily discharge furnished by city engineer of Boulder.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30.6	20.8	6.30	5.28	5.78	5.61	6.65	6.65	122	122	71.5	16.4
2	39.6	19.6	5.95	5.28	5.78	5.44	6.65	6.65	115	119	74.7	16.4
3	47.2	18.9	5.78	6.65	5.11	5.44	6.65	6.65	101	115	73.1	16.4
4	47.2	19.8	5.78	5.78	5.11	5.78	6.65	6.65	88.1	112	71.5	15.9
5	47.2	19.6	5.78	16.0	5.44	5.78	6.65	6.65	73.1	113	70.7	15.9
6	47.2	18.4	5.78	6.30	5.95	5.61	6.83	6.65	67.5	120	65.9	15.4
7	47.2	17.9	5.78	5.28	5.95	5.61	6.83	6.83	60.4	115	60.5	14.4
8	48.6	17.6	5.78	7.03	5.95	5.44	6.65	7.19	59.7	108	58.2	14.9
9	48.6	17.6	5.78	8.12	5.78	5.44	6.65	7.55	59.7	100	56.0	15.4
10	48.6	17.2	5.78	8.12	5.78	5.44	6.65	8.12	59.7	101	54.5	15.4
11	22.9	18.4	5.78	8.12	5.61	5.78	6.65	8.31	59.7	96.8	54.5	15.4
12	27.4	17.2	5.44	8.12	5.95	5.78	6.83	8.31	56.0	84.7	45.8	15.4
13	23.4	16.0	5.78	12.95	5.95	5.78	6.65	16.0	54.5	78.8	45.1	14.4
14	23.4	16.5	5.78	8.12	5.95	5.78	6.65	16.0	53.7	85.5	45.1	11.6
15	23.4	16.5	5.78	5.28	5.95	5.78	6.65	15.3	53.0	90.7	45.1	12.0
16	20.8	18.4	5.78	5.28	5.95	5.78	6.65	24.0	53.0	88.1	22.8	12.4
17	19.6	14.8	5.78	5.28	6.13	5.78	6.65	24.0	56.0	95.0	30.0	12.6
18	20.3	14.2	5.78	4.94	6.13	5.78	6.65	24.0	59.7	97.7	30.0	12.8
19	20.8	14.4	5.78	4.94	5.78	5.78	6.65	24.0	73.1	101	30.0	12.8
20	20.8	10.5	5.44	4.60	5.78	5.78	6.65	22.8	66.7	104	30.0	13.5
21	20.8	9.48	5.11	4.94	5.78	5.78	6.65	24.0	63.5	103	33.7	13.9
22	20.8	9.48	4.94	5.44	5.78	5.78	6.65	25.2	62.8	96.8	53.0	13.9
23	21.6	9.48	4.65	5.44	5.78	5.78	6.65	25.7	62.8	96.8	17.4	13.7
24	21.6	9.48	5.11	5.44	5.78	5.61	6.65	38.3	64.3	94.2	17.4	13.5
25	21.6	9.48	4.94	5.44	5.95	5.78	6.65	41.6	69.1	78.0	17.4	13.3
26	21.6	9.48	4.94	5.44	5.61	5.78	6.65	43.7	91.6	69.9	15.4	13.0
27	21.3	5.78	4.94	5.28	5.61	5.95	6.65	56.7	89.8	64.3	16.4	12.8
28	21.3	5.95	4.94	5.28	5.61	5.95	6.65	75.6	115	65.1	14.4	10.1
29	22.1	5.78	4.94	4.30	5.61	6.13	5.77	75.6	115	66.7	15.4	9.9
30	22.1	5.95	4.94	4.46	-----	6.47	5.77	106	124	65.9	14.9	9.8
31	20.3	-----	4.94	5.28	-----	6.47	-----	114	-----	69.1	14.9	-----
Month	Maximum				Minimum				Mean		Run-off in acre-feet	
October	48.6				19.6				29.4		1,810	
November	20.8				5.78				14.2		845	
December	6.30				4.65				5.48		337	
January	16.0				4.30				6.27		386	
February	6.13				5.11				5.77		332	
March	6.47				5.44				5.77		355	
April	6.83				5.77				6.61		393	
May	114				6.65				28.3		1,740	
June	124				53.0				75.0		4,460	
July	122				64.3				94.1		5,790	
August	74.7				14.4				40.8		2,510	
September	16.4				9.5				13.8		821	
The year	124				4.30				27.2		19,800	

THOMPSON RIVER AT MOUTH OF CANYON, NEAR DRAKE, COLO.

LOCATION.—Water-stage recorder in sec. 4, T. 5 N., R. 70 W., 1 mile above mouth of canyon, 6 miles east of Drake, and 2 miles below Cedar Creek.

DRAINAGE AREA.—301 square miles.

RECORDS AVAILABLE.—March, 1927, to September, 1928. From September, 1917, to December, 1926, at station 5 miles upstream.

EXTREMES.—Maximum discharge during year, 1,800 second-feet May 31 (gage height, 6.00 feet); minimum, 18 second-feet December 9.

1917-1928: Maximum discharge, about 8,000 second-feet July 31, 1919 (gage height, 9.5 feet); minimum (estimated), 5 second-feet November 28, 1919.

REMARKS.—Discharge December 6 to March 24 computed from records at power plant $3\frac{1}{2}$ miles upstream; interpolated November 29 to December 4, February 12 and 13. Complete records furnished by State engineer from gage-height record and discharge measurements furnished by city of Loveland.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	65	40	32	27	24	41	130	1,310	967	400	112
2	98	52	40	33	27	23	43	228	1,250	885	377	106
3	95	52	38	32	27	22	45	243	1,150	822	343	96
4	100	40	38	31	28	22	45	209	901	758	311	86
5	97	60	38	33	28	26	39	222	758	797	274	81
6	98	56	48	33	28	26	40	214	701	807	252	76
7	102	58	33	32	27	26	34	255	772	758	228	73
8	95	57	25	30	26	25	36	336	757	656	222	73
9	88	56	18	31	25	25	32	498	848	643	217	78
10	86	52	19	31	25	26	41	724	772	647	217	82
11	80	45	36	33	26	25	38	634	807	626	222	87
12	69	41	42	33	26	28	36	510	715	592	222	82
13	76	52	39	33	25	26	34	482	552	643	222	73
14	74	50	39	32	24	26	31	605	654	762	212	65
15	74	43	33	31	24	23	37	575	552	665	206	58
16	73	37	30	30	24	23	38	550	654	643	265	55
17	74	57	29	30	25	26	40	550	706	885	268	59
18	73	52	31	29	25	25	40	522	748	715	222	60
19	73	51	27	28	24	27	38	510	600	724	196	61
20	73	54	26	28	25	27	37	510	550	715	180	62
21	72	52	26	27	24	34	40	550	522	669	173	63
22	71	48	26	26	24	47	38	605	654	584	169	59
23	68	42	26	28	24	60	42	734	715	558	162	56
24	63	29	24	26	23	54	42	812	758	542	158	53
25	61	48	24	25	22	46	47	901	772	502	146	49
26	60	51	27	25	20	42	51	1,110	848	442	133	47
27	59	50	28	24	23	53	53	1,220	917	446	119	47
28	58	44	28	24	23	43	76	1,500	955	458	116	49
29	63	44	29	24	24	41	98	1,520	1,100	474	113	47
30	64	42	30	27	-----	36	101	1,500	1,100	502	108	47
31	63	-----	31	27	-----	35	-----	1,540	-----	450	108	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	102	58	77.3	4,750
November	65	29	49.3	2,930
December	48	18	31.2	1,920
January	33	24	29.3	1,800
February	28	20	24.9	1,430
March	60	22	32.0	1,970
April	101	31	45.1	2,680
May	1,540	130	661	40,600
June	1,310	522	867	48,000
July	967	442	656	40,300
August	400	108	212	13,000
September	112	47	68.1	4,050
The year	1,540	18	225	163,000

MIDDLE LOUP RIVER AT ST. PAUL, NEBR.¹

LOCATION.—Chain gage in sec. 10, T. 14 N., R. 10 W., at St. Paul, 6 miles above North Loup River. Zero of gage is 1,778.4 feet above mean sea level.

DRAINAGE AREA.—7,320 square miles.

RECORDS AVAILABLE.—May, 1895, to October, 1897; April to October, 1899; April to November, 1903; August to September, 1928.

EXTREMES.—Maximum discharge during year, 1,440 second-feet August 24 (gage height, 1.97 feet); minimum, 608 second-feet August 16 (gage height, 1.46 feet).

1895-1897, 1899, 1903, 1928: Maximum discharge, 16,000 second-feet June 6, 1896; minimum, 547 second-feet June 10, 1899.

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		960	11		1,040	21	750	1,050
2		930	12		975	22	720	1,050
3		990	13		1,130	23	870	945
4		900	14		1,050	24	1,150	990
5		900	15	664	1,120	25	870	1,120
6		855	16	622	960	26	825	990
7		930	17	692	810	27	780	1,040
8		840	18	780	840	28	735	960
9		825	19	900	810	29	780	870
10		765	20	810	900	30	765	840
						31	840	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 15-31	1,150	622	797	26,900
September	1,130	765	946	56,300
The period				83,200

¹ Records prior to 1928 published as "near St. Paul."

LOUP RIVER NEAR GENOA, NEBR.

LOCATION.—Chain gage in sec. 25, T. 17 N., R. 4 W., 2 miles south of Genoa and 2 miles above Beaver Creek. Zero of gage is 1,542.0 feet above mean sea level.

DRAINAGE AREA.—13,400 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 3,250 second-feet August 25 (gage height, 2.10 feet); minimum, 1,370 second-feet August 17 (gage height, 1.44 feet).

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		1,760	11		1,690	21	1,600	1,820
2		2,070	12		2,350	22	1,570	1,920
3		1,820	13		2,700	23	1,870	2,000
4		1,760	14		2,750	24	2,500	2,110
5		1,630	15		2,400	25	2,750	2,220
6		1,690	16		2,400	26	1,640	2,290
7		2,070	17	1,400	2,070	27	1,450	1,870
8		1,740	18	1,510	1,690	28	1,470	1,820
9		1,620	19	1,710	1,690	29	1,440	1,820
10		1,490	20	1,630	1,690	30	1,510	1,660
						31	1,540	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 17-31	2,800	1,400	1,710	50,900
September	2,750	1,490	1,950	116,000
The period				167,000

NORTH LOUP RIVER NEAR ST. PAUL, NEBR.

LOCATION.—Chain gage in sec. 22, T. 15 N., R. 10 W., 3 miles north of St. Paul and 4 miles above mouth.

DRAINAGE AREA.—4,040 square miles.

RECORDS AVAILABLE.—August to September, 1928. At station near this site from May, 1895, to October, 1897; April to October, 1899; April to December, 1903.

EXTREMES.—Maximum known discharge (estimated), 90,000 second-feet June 6, 1896; minimum, 400 second-feet November 17, 1903.

REMARKS.—Records good. No diversions. Natural regulation afforded by very sandy character of discharge basin.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		830	11.....		840	21.....	682	870
2.....		840	12.....		922	22.....	675	820
3.....		756	13.....		870	23.....	1 040	840
4.....		720	14.....		956	24.....	922	820
5.....		720	15.....		880	25.....	690	830
6.....		720	16.....	668	846	26.....	652	830
7.....		690	17.....	810	712	27.....	660	801
8.....		675	18.....	792	660	28.....	675	747
9.....		690	19.....	729	690	29.....	810	756
10.....		705	20.....	720	820	30.....	870	830
						31.....	705	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 16-31.....	1,040	652	756	24,000
September.....	956	660	789	46,900
The period.....				70,900

ELK HORN RIVER AT WATERLOO, NEBR.

LOCATION.—Chain gage in sec. 10, T. 15 N., R. 10 E., at Waterloo, 15 miles above mouth. Zero of gage is 1,110.1 feet above mean sea level.

DRAINAGE AREA.—6,390 square miles.

RECORDS AVAILABLE.—May, 1911, to July, 1913; August to September, 1928.

REMARKS.—Records fair. No diversions.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		303	11.....		285	21.....	308	273
2.....		298	12.....		285	22.....	323	264
3.....		290	13.....		333	23.....	338	256
4.....		281	14.....		534	24.....	323	248
5.....		277	15.....		516	25.....	323	252
6.....		264	16.....		455	26.....	323	260
7.....		273	17.....		384	27.....	323	269
8.....		264	18.....	338	338	28.....	364	264
9.....		252	19.....	313	303	29.....	353	269
10.....		256	20.....	338	294	30.....	353	281
						31.....	313	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 18-31.....	364	308	331	9,100
September.....	534	248	304	18,100
The period.....				27,300

TARKIO RIVER BASIN

TARKIO RIVER AT FAIRFAX, MO.

LOCATION.—Chain gage on line between secs. 22 and 27, T. 64 N., R. 40 W., half a mile west of Fairfax.

DRAINAGE AREA.—508 square miles.

RECORDS AVAILABLE.—March, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,090 second-feet September 12 (gage height, 16.71 feet); minimum discharge, 9 second-feet December 5-13, 16-22, 29-31, and January 1-3; minimum gage height, 0.49 foot November 18. 1922-1928: Maximum discharge, 7,940 second-feet September 4, 1926 (gage height, 19.3 feet); minimum, 1 second-foot December 21, 1924, to January 4, 1925.

REMARKS.—Records fair except those for periods of ice effect, December 1 to January 31, February 1-4 and 23-25, which are poor. No diversions.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	568	29	17	9	25	42	24	24	17	116	70	32
2	729	30	16	9	25	35	20	25	15	82	60	28
3	319	29	16	9	34	38	19	29	35	70	476	27
4	94	30	16	16	53	35	20	88	36	63	361	25
5	64	29	9	16	82	33	476	64	88	55	146	25
6	453	27	9	16	1,250	33	729	43	40	51	88	23
7	319	27	9	25	591	33	190	35	30	49	62	21
8	172	28	9	43	228	52	101	30	101	70	57	21
9	88	30	9	53	131	50	88	30	35	53	51	23
10	70	32	9	64	82	44	82	24	35	49	49	21
11	62	29	9	64	88	43	64	24	20	47	43	5,960
12	55	26	9	75	82	43	58	22	61	131	41	7,090
13	51	26	9	75	108	41	70	22	30	64	38	1,870
14	47	31	16	64	54	36	48	24	22	51	37	683
15	45	32	16	64	50	31	54	44	17	45	34	591
16	40	27	9	53	44	24	54	124	14	43	34	319
17	41	19	9	43	38	20	48	82	3,340	38	208	190
18	39	15	9	34	53	26	45	266	476	38	108	154
19	38	30	9	25	43	25	40	208	337	49	61	124
20	38	30	9	25	138	24	40	64	135	3,060	45	124
21	37	35	9	25	154	28	42	48	94	4,720	38	108
22	34	32	9	25	61	25	40	38	195	752	36	94
23	34	32	16	16	43	24	31	31	266	228	591	88
24	34	27	16	16	34	23	35	30	591	163	64	88
25	33	30	16	16	25	25	31	24	315	116	39	82
26	32	30	16	16	42	24	33	20	85	94	298	75
27	30	29	16	16	52	24	32	19	85	430	43	94
28	30	29	16	16	32	26	30	20	752	277	34	88
29	30	31	9	16	53	26	30	20	361	108	34	82
30	29	26	9	16	-----	26	26	17	175	75	34	82
31	29	-----	9	16	-----	24	-----	15	-----	75	32	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	729	29	119	0.234	0.27
November	35	15	28.6	.056	.06
December	17	9	11.7	.023	.03
January	75	9	31.5	.062	.07
February	1,250	25	127	.250	.27
March	52	20	31.7	.062	.07
April	729	19	86.7	.171	.19
May	266	15	50.1	.099	.11
June	3,340	14	261	.514	.57
July	4,720	38	363	.715	.82
August	591	32	107	.211	.24
September	7,090	21	608	1.20	1.34
The year	7,090	9	152	.299	4.04

NODAWAY RIVER BASIN

NODAWAY RIVER NEAR BURLINGTON JUNCTION, MO.

LOCATION.—Chain gage in sec. 17, T. 65 N., R. 37 W., $1\frac{1}{2}$ miles west of Burlington Junction and 3 miles above Mill Creek.

DRAINAGE AREA.—1,240 square miles.

RECORDS AVAILABLE.—March, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 12,800 second-feet July 21 (gage height, 15.70 feet); minimum 11 second-feet December 31 to January 5.

1922-1928: Maximum discharge, 18,200 second-feet September 3, 1926 (gage height, 19.5 feet); minimum discharge, 6 second-feet June 1 and July 26, 1925; minimum gage height, 1.80 feet July 26, 1923.

ACCURACY.—Records fair except those for periods of ice effect, December 2 to January 31, February 1-4, and 19-27, which are poor. Discharge estimated October 16, March 23, and April 4. No regulation.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	1,520	25	26	11	16	117	33	21	39	585	250	220
2.....	2,640	25	24	11	16	113	31	19	22	282	206	170
3.....	1,380	25	24	11	16	109	23	22	21	193	206	143
4.....	850	23	16	11	24	85	23	32	24	147	1,240	125
5.....	266	29	16	11	51	88	540	82	32	117	790	109
6.....	206	22	16	16	2,280	56	630	44	21	158	480	98
7.....	910	18	16	24	2,640	73	440	30	24	193	298	88
8.....	790	25	16	34	2,280	206	250	24	7,580	129	220	80
9.....	206	25	16	46	1,520	95	193	24	2,820	129	182	74
10.....	115	29	16	46	730	158	170	19	1,880	102	282	69
11.....	107	23	16	59	440	158	138	21	850	82	170	790
12.....	100	27	24	59	480	125	117	22	440	170	129	4,200
13.....	69	20	34	59	630	95	88	19	440	88	121	1,100
14.....	55	29	34	59	385	82	86	18	350	73	109	2,200
15.....	50	35	34	59	206	70	62	30	220	51	95	2,120
16.....	42	46	34	59	193	62	65	59	182	46	82	1,960
17.....	47	34	34	59	73	46	67	125	8,180	41	385	585
18.....	40	32	24	59	44	43	56	76	3,450	44	282	282
19.....	38	34	24	46	34	43	56	282	2,640	105	235	235
20.....	35	32	16	46	34	39	56	206	1,590	4,800	129	206
21.....	35	41	16	34	34	39	54	147	730	11,800	95	158
22.....	35	36	16	34	34	36	51	79	3,180	6,330	91	158
23.....	31	32	16	24	34	34	46	67	2,640	7,340	158	147
24.....	33	28	16	24	34	32	39	49	2,910	3,000	158	145
25.....	29	28	16	24	34	30	36	36	2,370	910	91	136
26.....	27	34	16	24	34	25	32	30	850	540	76	123
27.....	29	30	16	16	46	35	32	24	500	630	206	119
28.....	29	32	16	16	65	38	30	22	2,200	1,170	4,900	103
29.....	29	29	16	16	125	38	30	21	1,030	540	2,460	119
30.....	27	28	16	16	-----	38	28	19	970	368	550	111
31.....	25	-----	11	16	-----	40	-----	26	-----	282	298	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	2,640	25	316	0.255	0.29
November.....	46	18	29.2	.024	.03
December.....	34	11	20.4	.016	.02
January.....	59	11	33.2	.027	.03
February.....	2,640	16	432	.348	.38
March.....	206	25	72.5	.058	.07
April.....	630	23	117	.094	.10
May.....	282	18	54.7	.044	.05
June.....	8,180	21	1,610	1.30	1.45
July.....	11,800	41	1,300	1.05	1.21
August.....	4,900	76	493	.398	.46
September.....	4,200	69	539	.435	.49
The year.....	11,800	11	416	.335	4.58

PLATTE RIVER BASIN (IOWA-MISSOURI)

PLATTE RIVER AT CONCEPTION JUNCTION, MO.

LOCATION.—Chain gage on line between NW. $\frac{1}{4}$ sec. 14 and SW. $\frac{1}{4}$ sec. 11, T. 63 N., R. 34 W., at county highway bridge, half a mile west of Conception Junction.

DRAINAGE AREA.—492 square miles.

RECORDS AVAILABLE.—July, 1921, to May, 1925; August and September, 1928.

EXTREMES.—Maximum discharge during year, 5,470 second-feet September 14 (gage height, 16.80 feet); minimum, 29 second-feet September 6 and 8 (gage height, 5.29 feet).

1921-1925: Maximum discharge, 8,730 second-feet July 10, 1922; minimum, 0.48 second-foot January 30, 1922.

REMARKS.—Records good. Discharge estimated August 30 to September 3.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		40	11.....	47	1,050	21.....	43	66
2.....		38	12.....	43	1,810	22.....	31	66
3.....		36	13.....	39	1,370	23.....	59	60
4.....		84	14.....	39	4,430	24.....	81	56
5.....		81	15.....	36	3,270	25.....	59	54
6.....	137	29	16.....	36	780	26.....	36	49
7.....	91	30	17.....	47	219	27.....	144	48
8.....	62	29	18.....	51	112	28.....	91	47
9.....	53	32	19.....	34	81	29.....	45	47
10.....	49	30	20.....	41	71	30.....	43	45
						31.....	41	

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
August 6-31.....	144	31	56.8	0.115	0.11
September.....	4,430	29	460	.953	1.06

PLATTE RIVER AT AGENCY, MO.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 29, T. 56 N., R. 34 W., at Agency, 600 feet below Atchison, Topeka & Santa Fe Railway bridge.

DRAINAGE AREA.—1,790 square miles.

RECORDS AVAILABLE.—May, 1924, to September, 1928.

EXTREMES.—Maximum discharge during year, 15,300 second-feet September 14 (gage height, 22.67 feet); minimum, 24 second-feet December 18–27 and January 29.

1924–1928: Maximum discharge, 22,600 second-feet September 18, 1926 (gage height, 26.83 feet); minimum, 24 second-feet several days during September and December, 1927, and January, 1928; minimum gage height, 1.42 feet January 30 and 31, 1928.

Maximum stage known, 31.4 feet July, 1915.

REMARKS.—Records good except those for periods of ice effect, December 8–31, January 1–8, 25–31, February 1 and 2, which are poor. No diversions.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	512	74	63	81	35	109	86	66	43	1,450	282	98
2.....	968	77	62	63	48	109	84	58	33	590	248	81
3.....	1,130	77	60	63	64	109	83	53	37	379	644	74
4.....	1,350	77	54	63	84	98	81	70	49	339	2,260	72
5.....	860	70	60	63	88	88	196	67	50	265	2,210	67
6.....	1,620	70	54	63	109	92	444	64	47	248	1,290	61
7.....	4,640	68	47	63	590	92	1,130	74	54	184	617	56
8.....	3,450	67	35	81	2,210	105	1,240	64	5,070	173	379	53
9.....	563	67	35	94	2,800	114	968	74	8,300	144	154	51
10.....	334	74	35	98	1,670	132	563	77	9,900	248	214	105
11.....	563	68	35	102	698	162	320	64	3,830	265	190	4,530
12.....	1,620	67	35	107	488	157	248	58	806	214	162	9,600
13.....	860	67	35	98	444	147	231	55	1,620	248	142	14,500
14.....	441	63	35	102	422	137	196	62	1,080	466	132	15,000
15.....	258	104	35	107	400	132	176	61	466	563	123	13,900
16.....	186	358	35	116	358	123	168	132	248	339	105	12,800
17.....	142	276	35	107	265	118	154	190	2,700	248	92	10,000
18.....	140	145	24	120	152	101	137	231	9,230	162	466	5,560
19.....	125	104	24	123	127	101	123	132	11,300	130	301	1,780
20.....	116	104	24	107	132	96	114	123	8,960	114	140	806
21.....	109	98	24	98	184	92	116	120	4,420	698	140	617
22.....	102	91	24	85	152	88	109	101	1,940	4,320	109	536
23.....	96	85	24	76	114	88	98	81	1,400	6,630	118	422
24.....	94	77	24	67	92	84	96	70	2,100	8,960	488	320
25.....	89	77	24	48	118	88	92	64	1,890	11,600	644	214
26.....	111	76	24	35	105	88	84	54	1,510	11,500	590	202
27.....	87	70	24	35	101	92	81	53	1,290	5,500	512	190
28.....	77	85	35	35	109	96	77	48	3,450	1,780	444	184
29.....	67	77	102	24	109	101	74	44	2,320	698	339	173
30.....	81	70	125	35	-----	96	68	43	2,430	512	160	176
31.....	77	-----	102	35	-----	92	-----	43	-----	339	132	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	4,640	67	673	0.376	0.43
November.....	353	63	95.9	.054	.06
December.....	125	24	43.7	.024	.03
January.....	123	24	77.2	.043	.05
February.....	2,800	35	423	.236	.27
March.....	162	84	107	.060	.07
April.....	1,240	68	255	.142	.16
May.....	231	43	80.5	.045	.05
June.....	11,300	33	2,890	1.61	1.80
July.....	11,600	114	1,910	1.07	1.23
August.....	2,260	92	446	.246	.29
September.....	15,000	51	3,070	1.72	1.92
The year.....	15,000	24	834	.466	6.36

KANSAS RIVER BASIN

REPUBLICAN RIVER AT MAX, NEBR.

LOCATION.—Staff gage in sec. 32, T. 2 N., R. 36 W., three-quarters of a mile south of Max and 40 miles above Frenchman Creek. Zero of gage is 2,873.6 feet above mean sea level.

DRAINAGE AREA.—6,220 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during year, 158 second-feet August 13 (gage height, 1.36 feet); minimum, 46 second-feet August 31 (gage height, 0.96 foot).

REMARKS.—Records fair. Diversions for irrigation of several thousand acres above station. Flow regulated by large springs on headwaters.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		58	11		119	21	68	77
2		122	12		122	22	62	80
3		70	13	158	96	23	56	83
4		60	14	145	77	24	60	77
5		62	15	122	72	25	60	72
6		66	16	102	72	26	72	70
7		62	17	99	75	27	68	70
8		54	18	91	72	28	62	64
9		51	19	86	77	29	54	75
10		60	20	75	75	30	49	77
						31	49	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 13-31	158	49	80.9	3,050
September	122	51	75.6	4,500
The period				7,550

REPUBLICAN RIVER AT SCANDIA, KANS.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 17, T. 3 S., R. 4 W., at Scandia, 4 miles below Dry Creek.

DRAINAGE AREA.—23,000 square miles.

RECORDS AVAILABLE.—August, 1919, to July, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 3,560 second-feet September 7 (gage height, 5.1 feet); minimum, 292 second-feet September 30 (gage height, 2.06 feet).

1919–1925, 1928: Maximum discharge, 16,700 second-feet June 12, 1923 (gage height, 11.4 feet); minimum, 2 second-feet October 9, 15, and 16, 1923.

Maximum stage known, 14.2 feet June 20, 1915.

REMARKS.—Records good. Some water is diverted for irrigation in western Nebraska. Flow regulated by operation of power plant at Superior, Nebr.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		418	11.....		570	21.....	920	418
2.....		350	12.....		830	22.....	710	372
3.....		395	13.....		710	23.....	710	350
4.....		440	14.....	1,450	600	24.....	750	350
5.....		515	15.....	1,160	570	25.....	635	330
6.....		600	16.....	1,110	540	26.....	600	310
7.....		2,240	17.....	1,260	515	27.....	490	310
8.....		1,700	18.....	1,960	515	28.....	465	310
9.....		635	19.....	1,700	465	29.....	465	292
10.....		570	20.....	1,110	465	30.....	440	292
						31.....	418	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 14–31.....				1,960	418	908	32,400	
September.....				2,240	292	566	33,700	
The period.....							66,100	

REPUBLICAN RIVER AT WAKEFIELD, KANS.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 5, T. 10 S., R. 4 E., a quarter of a mile north of Wakefield and 25 miles above confluence with Smoky Hill River.

DRAINAGE AREA.—24,700 square miles.

RECORDS AVAILABLE.—June, 1917, to September, 1928.

EXTREMES.—Maximum discharge during year, 12,000 second-feet August 4 (gage height, 10.24 feet); minimum, 300 second-feet October 31 (gage height, 2.69 feet).

1917-1928: Maximum discharge, 20,100 second-feet June 4, 1923 (gage height, 12.86 feet); minimum, 16 second-feet October 21, 1922.

REMARKS.—Records fair. Discharge estimated because of ice December 8 to January 15 and January 23-31. Flow is slightly affected by operation of power plant at Clay Center.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	980	352	450		650	810	742	522	845	2,500	4,040	650
2	1,830	335	410		680	845	710	710	810	2,140	7,930	775
3	720	352	410	300	680	810	742	522	810	1,900	9,840	775
4	490	335	390		810	810	710	545	960	1,800	12,000	595
5	450	335	430		775	742	710	500	2,250	1,680	9,400	650
6	3,400	352	410		810	775	742	522	1,370	2,020	6,510	622
7	1,610	352	335		1,370	810	845	500	1,370	1,580	5,940	630
8	565	352			1,180	882	845	522	1,580	7,100	8,350	680
9	490	352			1,130	810	742	522	1,580	4,890	4,890	1,000
10	450	352		400	960	810	710	545	2,370	2,910	3,220	1,680
11	370	370			1,000	810	680	595	1,470	5,400	2,770	1,080
12	410	370			1,040	742	742	522	1,300	5,060	2,630	810
13	390	390			1,130	775	650	545	1,580	6,130	2,910	775
14	410	370			1,080	742	680	570	1,300	7,720	2,500	680
15	390	370		570	1,040	810	680	570	1,370	6,510	2,140	845
16	390	370		595	845	882	650	595	1,370	8,560	1,900	742
17	370	352		622	845	845	680	595	2,370	5,760	1,800	680
18	370	370		545	845	810	680	595	4,040	5,760	2,140	622
19	370	370	350	500	742	775	650	570	4,550	6,700	2,020	622
20	370	390		480	920	775	622	570	7,510	4,040	2,140	522
21	352	410		440	650	775	680	595	8,560	3,380	2,020	480
22	370	410		322	920	775	622	545	5,060	3,060	1,580	522
23	352	390			882	775	595	545	5,060	5,060	1,370	480
24	352	410			650	810	570	1,680	5,760	3,540	1,270	500
25	335	390			545	810	570	1,800	9,840	4,040	1,180	440
26	352	410		400	545	775	570	1,370	6,900	4,210	1,000	440
27	352	430			680	775	595	1,270	5,580	2,770	960	440
28	335	430			650	742	545	1,080	4,380	2,500	882	440
29	335	430			650	742	545	1,000	3,540	2,370	920	440
30	335	430				742	545	920	2,770	8,560	845	404
31	300					742		845		6,510	775	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,400	300	600	36,900
November	430	335	378	22,500
December	450		362	22,300
January	622		412	25,300
February	1,370	545	852	49,000
March	882	742	791	48,600
April	845	545	668	39,700
May	1,800	500	735	45,200
June	9,840	810	3,310	197,000
July	8,560	1,580	4,390	270,000
August	12,000	775	3,480	214,000
September	1,680	404	669	39,800
The year	12,000		1,390	1,010,000

KANSAS RIVER AT OGDEN, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 12, T. 11 S., R. 6 E., three-quarters of a mile south of Ogden and a quarter of a mile below Sevenmile Creek.

DRAINAGE AREA.—45,200 square miles.

RECORDS AVAILABLE.—June, 1917, to September, 1928.

EXTREMES.—Maximum discharge during year, 25,700 second-feet August 4 (gage height, 16.93 feet); minimum probably occurred during winter.

1917-1928: Maximum discharge, 42,300 second-feet June 10, 1923 (gage height, 18.15 feet); minimum, 103 second-feet October 30, 1922.

REMARKS.—Records good. Flow slightly affected by operation of power plants on tributaries. Discharge estimated because of ice December 7-27, January 1-10, and 21-28.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,860	1,430	1,140	700	1,220	1,320	1,220	1,040	1,520	9,320	14,300	3,260
2	4,560	1,330	1,140		1,220	1,420	1,220	1,130	2,700	6,800	15,100	3,030
3	5,070	1,330	1,140		1,130	1,420	1,220	1,130	1,930	5,420	18,700	3,030
4	4,100	1,330	1,140		1,130	1,320	1,130	1,130	1,930	4,740	24,700	2,920
5	3,400	1,430	1,140		1,320	1,420	1,930	1,040	2,920	4,430	24,000	2,810
6	2,960	1,230	1,140	900	1,420	1,320	2,260	1,040	3,870	4,140	19,800	2,700
7	6,400	1,330	1,100		1,620	1,320	2,700	1,130	2,810	4,140	18,400	2,590
8	3,680	1,330			2,040	1,420	2,370	1,040	2,700	13,300	20,200	2,810
9	2,860	1,330			2,150	1,420	2,480	1,040	2,770	16,700	21,400	2,810
10	2,730	1,330			2,260	1,320	2,810	1,040	2,810	15,100	18,400	3,030
11	2,860	1,330	800	1,140	2,150	1,320	2,700	1,130	3,380	17,200	18,400	3,260
12	2,490	1,330		1,140	2,040	1,420	2,480	1,040	3,500	20,200	19,600	2,810
13	2,050	1,230		885	2,150	1,320	2,260	1,040	4,140	15,900	21,100	3,140
14	1,940	1,330		885	2,150	1,320	1,930	1,130	4,140	19,600	21,400	3,380
15	1,940	1,230		1,040	2,040	1,420	1,720	1,130	4,430	17,800	19,600	3,140
16	1,730	1,140	600	1,040	1,930	1,420	1,620	1,130	3,870	19,300	14,600	2,590
17	1,730	1,230		1,040	1,820	1,420	1,520	1,220	7,220	18,100	8,360	2,370
18	1,730	1,140		965	1,720	1,420	1,520	1,130	12,800	15,400	7,660	2,370
19	1,730	1,230		965	1,520	1,420	1,420	1,130	8,360	17,600	7,010	2,150
20	1,630	1,230		885	1,620	1,520	1,320	1,130	9,560	12,500	6,000	2,150
21	1,630	1,230	770		1,520	1,520	1,320	1,220	12,360	8,600	5,800	2,040
22	1,630	1,230			1,520	1,520	1,220	1,220	10,800	8,120	5,610	1,930
23	1,530	1,230			1,520	1,520	1,220	1,130	11,000	10,000	5,610	1,820
24	1,630	1,140			1,420	1,520	1,220	1,930	13,300	11,300	5,240	1,820
25	1,530	1,230			1,220	1,520	1,130	3,740	15,600	10,800	4,580	1,720
26	1,530	1,140	700		1,130	1,520	1,130	3,260	15,400	12,500	4,140	1,720
27	1,430	1,140	900		1,130	1,420	1,130	2,480	12,000	9,800	3,870	1,720
28	1,430	1,230	925		1,320	1,320	1,130	2,150	12,000	6,400	3,740	1,610
29	1,430	1,230	845	960	1,420	1,320	1,040	1,820	11,300	5,610	3,500	1,620
30	1,330	1,230	925	1,130		1,320	1,130	1,620	11,000	7,010	3,100	1,620
31	1,430		885	1,130		1,320		1,620		17,500	3,380	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	6,400	1,330	2,420	149,000
November	1,430	1,140	1,260	75,000
December	1,140		830	51,000
January	1,140		883	54,300
February	2,260	1,130	1,670	96,100
March	1,520	1,320	1,400	86,100
April	2,810	1,040	1,650	98,200
May	3,740	1,040	1,430	87,900
June	15,600	1,520	7,070	421,000
July	20,200	4,140	11,600	726,000
August	24,700	3,380	12,500	769,000
September	3,380	1,620	2,470	147,000
The year	24,700		3,800	2,760,000

KANSAS RIVER AT WAMEGO, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 9, T. 10 S., R. 10 E., in Wamego, 3 miles below Antelope Creek.

DRAINAGE AREA.—54,900 square miles.

RECORDS AVAILABLE.—January, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 28,200 second-feet July 11 (gage height, 11.6 feet); minimum, 1,270 second-feet January 25 (gage height, 2.2 feet).

1919-1928: Maximum discharge, 46,600 second-feet June 10, 1923 (gage height, 15.8 feet); minimum, 330 second-feet several days in October, 1922 (gage height, 1.6 feet).

REMARKS.—Records fair. Discharge estimated December 10 to January 14. Low flow may be affected by operation of power plants on tributaries. Gage-height record furnished by the United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	4,690	2,000	1,560	1,500	1,380	2,680	1,900	1,760	2,680	10,800	23,600	4,620
2-----	11,000	2,000	1,560		1,380	2,050	1,760	1,760	2,350	9,250	13,500	4,420
3-----	13,200	2,000	1,560		1,380	1,900	1,760	1,760	3,420	6,860	18,300	4,220
4-----	9,240	2,000	1,560		1,380	2,050	1,760	2,050	2,850	5,480	24,800	4,020
5-----	6,020	1,920	1,420		1,560	2,050	1,760	2,050	3,220	5,480	26,400	4,020
6-----	6,480	1,920	1,420	1,800	1,760	2,050	4,020	1,760	4,620	5,040	24,800	3,620
7-----	13,500	2,000	1,420		3,030	2,200	4,020	1,760	5,040	4,830	22,800	3,820
8-----	8,950	1,920	1,420		5,480	2,350	4,020	1,760	4,020	9,770	25,600	3,820
9-----	6,020	1,780	1,420		5,480	2,200	4,830	1,760	3,820	20,800	22,400	3,820
10-----	4,470	1,700			4,420	2,050	5,040	1,630	3,620	19,400	20,100	3,620
11-----	4,250	1,700		2,200	3,820	2,050	4,620	1,760	3,820	24,800	19,000	3,620
12-----	4,250	1,700			3,620	2,050	4,220	1,760	4,620	27,300	20,100	4,420
13-----	3,430	1,700			3,220	2,050	4,220	1,760	5,040	18,600	20,500	4,220
14-----	3,430	1,700			3,220	2,050	3,620	1,760	5,260	18,600	21,600	6,400
15-----	3,430	1,700	1,300		3,030	2,050	5,040	1,760	5,260	20,500	20,500	7,090
16-----	3,430	1,700		2,050	2,850	1,900	3,820	1,760	5,480	19,700	17,600	5,940
17-----	3,230	1,700			1,900	2,850	1,900	1,760	5,040	20,100	12,600	4,620
18-----	2,670	1,700			1,760	2,680	1,900	1,900	11,400	17,200	11,700	3,420
19-----	2,320	1,700			1,760	2,350	2,200	1,900	18,600	19,000	11,100	3,420
20-----	2,320	1,630			1,760	2,350	2,200	2,350	13,200	18,600	9,000	3,030
21-----	2,320	1,560	1,400	1,760	2,350	2,200	2,200	2,050	13,200	10,800	8,270	2,850
22-----	2,320	1,560		1,560	2,350	2,050	2,050	1,760	13,800	9,250	8,030	2,850
23-----	2,160	1,560		1,380	2,350	2,050	2,050	2,050	12,600	9,770	7,790	2,850
24-----	2,160	1,560		1,320	2,510	1,900	2,050	2,510	17,900	11,700	7,320	2,350
25-----	2,000	1,560		1,270	2,200	1,900	2,050	3,420	19,700	11,700	6,860	2,350
26-----	2,000	1,560	1,500	1,500	2,200	2,050	1,760	4,830	19,700	11,400	6,400	2,200
27-----	2,000	1,560		1,380	2,510	2,050	1,760	3,820	15,800	13,800	6,170	2,200
28-----	2,000	1,560		1,380	3,620	2,050	1,760	3,220	13,800	9,510	5,480	2,050
29-----	2,000	1,560		1,380	3,820	2,050	1,760	3,030	12,300	9,510	5,040	2,050
30-----	1,920	1,560		1,380		2,050	1,900	2,680	12,600	10,800	5,040	2,050
31-----	1,850			1,380		1,900		2,510		17,200	5,040	
Month				Maximum		Minimum		Mean		Run-off in acre-feet		
October-----				13,500		1,850		4,490		276,000		
November-----				2,000		1,560		1,730		103,000		
December-----								1,410		86,700		
January-----								1,270		104,000		
February-----						5,480		1,380		161,000		
March-----						2,680		1,900		127,000		
April-----						5,040		1,760		170,000		
May-----						4,830		1,630		136,000		
June-----						19,700		2,350		525,000		
July-----						27,300		4,830		848,000		
August-----						26,400		5,040		910,000		
September-----						7,090		2,050		218,000		
The year-----				27,300				5,040		3,660,000		

KANSAS RIVER AT TOPEKA, KANS.

LOCATION.—Chain gage in Topeka, $1\frac{1}{2}$ miles above Soldier Creek.

DRAINAGE AREA.—56,400 square miles.

RECORDS AVAILABLE.—April to August, 1904; June, 1917, to September, 1928.

EXTREMES.—Maximum discharge, 37,800 second-feet August 12 (gage height, 15.9 feet); minimum, 1,620 second-feet January 27 and 28 (gage height, 3.4 feet).

1917-1928: Maximum discharge, 73,700 second-feet June 10, 1923 (gage height, 21.5 feet); minimum, about 480 second-feet during January, 1925.

Maximum stage known, 32.7 feet May 30, 1903, from records of United States Weather Bureau.

REMARKS.—Records fair. Discharge estimated because of ice December 8, 14, 18-29, 31, and January 1-13. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	4,250	2,500	2,500	1,900	1,890	2,340	2,340	2,500	3,180	12,700	18,000	4,440
2.....	7,770	2,500	2,500		1,890	2,340	2,340	2,500	3,180	11,200	16,100	4,070
3.....	13,700	2,500	2,500		1,890	2,190	2,340	2,500	3,180	9,170	13,900	3,710
4.....	13,600	2,500	2,340		1,890	2,340	2,340	2,670	4,070	7,570	26,700	3,530
5.....	9,380	2,340	2,340		1,890	2,340	2,500	3,180	3,710	6,170	26,700	3,350
6.....	6,970	2,500	2,340	2,000	1,890	2,340	5,580	3,010	3,890	5,580	27,800	3,180
7.....	8,570	2,670	2,190		2,500	2,340	12,400	2,670	4,630	5,390	24,100	3,180
8.....	16,700	2,670	1,780		3,530	2,500	6,770	2,500	5,390	5,390	29,300	2,670
9.....	8,570	2,670	1,360		4,070	2,340	6,970	2,500	4,440	18,000	25,600	3,010
10.....	6,570	2,500	1,750		4,630	2,340	5,970	2,500	3,890	21,500	22,600	3,010
11.....	5,770	2,500	1,890	2,200	4,630	2,340	5,770	2,190	3,980	19,400	20,100	3,010
12.....	8,970	2,500	2,500		4,070	2,340	5,580	2,500	3,890	34,600	18,700	3,710
13.....	6,870	2,500	2,500		3,180	2,500	5,390	2,500	4,540	27,100	19,800	4,070
14.....	5,770	2,500	2,400		3,180	2,340	5,580	2,340	5,350	20,100	21,500	4,440
15.....	4,440	2,500	2,340		3,180	2,340	5,770	2,340	5,200	21,200	22,600	7,370
16.....	4,070	2,500	1,750	2,840	3,180	2,340	6,170	2,500	5,200	22,300	21,200	5,970
17.....	3,530	2,500	1,120	2,500	3,180	2,500	5,200	2,500	4,820	20,800	17,400	5,200
18.....	3,180	2,500		2,340	3,010	2,340	4,250	2,500	7,170	21,200	16,400	3,890
19.....	3,530	2,500		2,340	3,010	2,340	3,710	2,500	13,900	18,000	12,700	3,710
20.....	3,530	2,500		2,500	2,670	2,670	3,710	2,670	19,400	20,100	9,590	2,670
21.....	3,180	2,500		2,040	2,500	2,670	3,350	3,180	13,900	16,100	8,370	2,500
22.....	3,180	2,500		2,190	2,500	2,670	3,180	2,340	14,500	15,800	7,770	2,190
23.....	3,010	2,500		1,890	2,670	2,340	3,010	2,340	15,200	8,770	7,170	2,190
24.....	2,840	2,500		1,890	2,340	2,500	2,840	2,340	15,800	8,970	7,370	2,040
25.....	2,840	2,500		1,750	2,500	2,340	2,840	3,010	19,800	11,500	7,170	2,040
26.....	2,840	2,500		1,750	2,340	2,840	2,670	3,180	21,200	11,200	6,970	2,040
27.....	2,840	2,500		1,620	2,190	2,670	2,670	3,180	21,200	11,500	6,170	1,890
28.....	2,670	2,500		1,620	2,040	2,500	2,500	4,630	16,100	12,400	5,580	2,040
29.....	2,670	2,500		1,750	2,040	2,500	2,340	3,710	14,800	12,700	5,010	1,890
30.....	2,670	2,500		2,190	1,750	2,500	2,500	3,350	13,600	7,170	4,630	1,890
31.....	2,500		2,000	1,750		2,340		3,180		7,170	4,440	
Month				Maximum		Minimum		Mean		Run-off in acre-feet		
October.....				18,700		2,500		5,850		360,000		
November.....				2,670		2,340		2,510		149,000		
December.....				2,500		1,120		2,000		123,000		
January.....				2,840		1,620		2,050		126,000		
February.....				4,630		1,890		2,770		159,000		
March.....				2,840		2,190		2,450		151,000		
April.....				12,400		2,340		4,290		255,000		
May.....				4,680		2,340		2,810		173,000		
June.....				21,200		3,180		9,300		553,000		
July.....				34,600		5,390		14,500		892,000		
August.....				29,300		4,440		15,600		959,000		
September.....				7,370		1,890		3,300		196,000		
The year.....				34,600		1,120		5,650		4,100,000		

KANSAS RIVER AT BONNER SPRINGS, KANS.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 32, T. 11 S., R. 23 E., at Bonner Springs, half a mile below Atchison, Topeka & Santa Fe Railway bridge and Wolf Creek.

DRAINAGE AREA.—59,600 square miles.

RECORDS AVAILABLE.—July, 1917, to September, 1928.

EXTREMES.—Maximum discharge during year, 38,100 second-feet October 3 (gage height, 13.37 feet); minimum, 2,000 second-feet December 10 (gage height, 3.80 feet).

1917-1928: Maximum discharge, 109,000 second-feet March 17, 1919 (gage height, 22.2 feet); minimum, less than 650 second-feet during January, 1925.

REMARKS.—Records good. Discharge estimated December 9, December 17 to January 15, and August 17.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,490	3,470	2,840	2,300	2,060	2,750	2,270	2,840	3,280	17,000	9,210	5,490
2	24,200	3,570	2,660		2,270	2,920	2,270	2,580	3,100	14,000	15,700	5,260
3	32,000	3,570	2,750		2,270	2,920	2,270	2,860	2,920	11,200	14,000	5,040
4	28,000	3,470	2,750		2,270	2,920	2,270	2,750	2,920	9,210	20,600	4,820
5	13,200	3,380	2,750		2,270	2,920	3,010	2,840	3,380	7,730	30,800	4,500
6	10,200	3,380	2,580	2,500	3,770	2,840	4,720	3,470	3,670	6,770	28,000	4,490
7	10,700	3,380	2,270		8,210	2,750	10,700	3,470	3,870	6,300	32,000	4,300
8	29,700	3,380	2,000		11,000	2,750	14,000	3,100	4,400	6,070	32,000	4,190
9	25,300	3,280	2,000		9,710	2,840	8,710	2,750	4,940	6,300	35,600	4,080
10	14,000	3,190	2,000		6,770	2,840	6,770	2,660	4,080	18,800	25,300	3,980
11	10,200	3,190	2,340	2,500	6,300	2,920	6,300	2,660	3,770	23,700	22,100	4,080
12	14,900	3,280	2,580		5,710	2,920	6,300	2,580	3,570	30,800	19,700	8,320
13	11,800	3,190	2,840		5,270	2,840	5,840	2,500	3,670	32,000	18,400	8,320
14	8,710	3,470	2,920		5,050	2,750	6,070	2,550	4,500	26,900	20,600	7,840
15	6,770	4,080	2,580		4,830	2,750	6,300	2,750	3,870	20,200	21,100	7,600
16	6,300	4,080	2,200	2,200	3,280	4,830	2,660	6,070	3,280	5,050	20,600	9,050
17	5,500	3,670			3,100	4,720	2,660	6,070	3,100	4,830	19,700	7,360
18	5,160	3,870			2,920	4,400	2,660	5,610	3,010	6,770	19,700	5,950
19	5,050	3,670			2,840	3,950	2,660	4,610	3,010	11,800	18,400	4,820
20	4,940	3,100			2,750	3,670	2,660	4,180	2,660	18,400	18,400	4,080
21	4,720	3,010		2,200	2,750	3,470	2,660	3,870	2,750	14,900	18,400	9,800
22	4,500	3,010			2,130	3,100	2,580	3,670	2,920	12,500	12,500	8,560
23	4,400	2,920			2,580	3,190	2,580	3,770	2,920	14,900	10,200	8,080
24	4,290	3,010			2,420	3,470	2,580	3,570	2,750	19,700	9,460	7,840
25	4,080	3,010			2,420	3,380	2,580	3,380	2,840	20,200	9,460	7,840
26	4,080	3,010		2,200	2,200	2,920	2,580	3,190	2,750	19,700	11,000	7,600
27	3,980	3,010			1,870	2,840	2,580	3,100	2,840	19,700	11,000	6,880
28	3,980	3,010			1,750	2,840	2,580	3,010	3,980	17,500	11,800	6,640
29	3,870	2,920			1,940	2,750	2,580	2,840	4,080	15,300	10,500	6,410
30	3,470	2,840			2,060		2,500	2,840	3,280	17,500	8,460	5,840
31	3,670			2,340	2,420		2,420		3,100		7,970	5,600

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	32,000	3,470	10,300	633,000
November	4,050	2,840	3,310	197,000
December	2,920		2,360	145,000
January	3,250		2,410	148,000
February	11,000	2,060	4,390	253,000
March	2,920	2,420	2,710	167,000
April	14,000	2,270	4,920	293,000
May	4,080	2,580	2,950	181,000
June	20,200	2,920	9,160	545,000
July	32,000	6,070	14,700	904,000
August	35,600	5,600	16,400	1,010,000
September	8,320	2,800	4,850	289,000
The year	35,600		6,560	4,760,000

SMOKY HILL RIVER AT JEROME, KANS.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 23, T. 15 S., R. 29 W., half a mile south of Jerome and 5 miles above Plum Creek.

DRAINAGE AREA.—3,900 square miles.

RECORDS AVAILABLE.—August to September, 1928.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		11	11.....		8	21.....	20	4
2.....		12	12.....		8	22.....	18	3
3.....		11	13.....	31	8	23.....	16	4
4.....		11	14.....	29	8	24.....	16	3
5.....		11	15.....	26	7	25.....	15	4
6.....		11	16.....	24	11	26.....	14	3
7.....		11	17.....	430	11	27.....	14	3
8.....		10	18.....	36	9	28.....	15	3
9.....		9	19.....	28	9	29.....	13	3
10.....		8	20.....	24	2	30.....	12	3
						31.....	11	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 13-31.....				430	11	41.7	1,570	
September.....				12	2	7.3C	434	
The period.....							2,000	

SMOKY HILL RIVER AT ELLSWORTH, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 20, T. 15 S., R. 8 W., at Ellsworth, 2 miles below Turkey Creek.

DRAINAGE AREA.—7,580 square miles.

RECORDS AVAILABLE.—April, 1895, to October, 1905; July, 1918, to September, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, about 18,800 second-feet August 4 (gage height, 22.0 feet); minimum, 107 second-feet September 22-30.

1895-1905, 1918-1925, 1928: Maximum discharge, 21,000 second-feet July 5, 1895; minimum, 1.6 second-feet October 9 and 10, 1922.

A flood stage of 25.0 feet was reached in August, 1927 (discharge, about 24,000 second-feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....	10,600	211	11.....	1,520	161	21.....	440	116
2.....	3,860	234	12.....	1,080	152	22.....	380	107
3.....	3,120	222	13.....	840	152	23.....	350	107
4.....	11,600	222	14.....	760	142	24.....	320	107
5.....	8,460	211	15.....	615	142	25.....	307	107
6.....	3,050	200	16.....	545	133	26.....	282	107
7.....	1,990	190	17.....	1,210	124	27.....	270	107
8.....	1,720	180	18.....	1,080	124	28.....	270	107
9.....	1,210	170	19.....	580	116	29.....	270	107
10.....	1,480	161	20.....	475	116	30.....	246	107
						31.....	222	
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August.....				11,600	222	1,910	117,000	
September.....				234	107	148	8,810	
The period.....							126,000	

SMOKY HILL RIVER NEAR MENTOR, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 18, T. 15 S., R. 2 W., $1\frac{1}{2}$ miles east of Mentor and 26 miles above Saline River.

DRAINAGE AREA.—8,210 square miles.

RECORDS AVAILABLE.—December, 1923, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,150 second-feet August 4 (gage height, 25.5 feet); minimum, 107 second-feet May 9 and 13 (gage height, 3.4 feet).

1923-1928: Maximum discharge, 7,450 second-feet August 17, 1927 (gage height, 25.8 feet); minimum, 12 second-feet several days in August, 1926 (gage height, 1.2 feet).

REMARKS.—Records fair. Discharge estimated December 31 to January 11 because of ice. Flow slightly affected by storage in mill dam upstream. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	500	248	179		143	143	143	125	152	666	2,800	459
2.....	650	248	179		134	143	134	125	218	520	3,730	433
3.....	1,320	238	179		134	143	134	116	228	682	5,580	420
4.....	682	238	179		143	143	134	125	208	650	7,150	407
5.....	500	238	179		143	134	143	116	279	530	6,850	446
6.....	446	228	179	150	143	134	152	116	486	459	6,030	486
7.....	420	228	179		152	134	161	116	500	370	5,940	394
8.....	394	228	179		218	134	323	116	394	615	6,750	382
9.....	382	228	179		334	134	970	107	1,010	2,360	6,120	370
10.....	382	238	170		268	134	605	116	1,460	2,970	3,410	370
11.....	370	238	170		198	134	382	116	698	1,960	1,880	358
12.....	358	238	170	143	188	152	290	116	590	893	893	334
13.....	346	208	179	152	188	143	238	107	990	605	1,650	312
14.....	334	208	179	143	179	134	218	143	1,280	666	1,440	301
15.....	323	208	170	152	218	143	198	152	545	650	1,250	290
16.....	312	208	170	161	228	143	170	143	420	433	1,140	290
17.....	301	198	170	161	218	152	161	152	1,510	370	1,010	268
18.....	301	198	170	161	198	198	161	161	2,800	323	950	268
19.....	290	198	161	161	188	208	152	161	3,200	312	912	279
20.....	290	198	161	161	179	290	143	170	3,120	290	1,580	268
21.....	290	188	152	161	170	279	143	170	1,750	301	931	248
22.....	279	188	152	152	170	248	143	161	990	323	766	238
23.....	279	188	152	143	161	218	143	170	893	446	749	228
24.....	268	188	152	143	161	198	134	228	1,580	407	666	228
25.....	268	188	161	143	161	198	143	218	1,580	312	620	218
26.....	268	188	152	143	161	198	134	188	1,070	290	590	218
27.....	268	179	152	134	152	188	134	179	950	279	560	218
28.....	268	179	161	134	152	161	134	170	893	268	530	208
29.....	258	179	170	134	152	161	125	170	732	290	515	208
30.....	258	179	161	125		152	125	161	698	650	530	218
31.....	248		161	134		143		161		990	500	
Month	Maximum			Minimum			Mean			Run-off in acre-feet		
October.....	1,320			248			381			23,400		
November.....	248			179			210			12,500		
December.....	179			152			168			10,300		
January.....	161			125			148			9,100		
February.....	334			152			180			10,400		
March.....	290			134			168			10,300		
April.....	970			125			212			12,600		
May.....	228			107			148			9,100		
June.....	3,200			152			1,040			61,900		
July.....	2,970			268			680			41,800		
August.....	7,150			500			2,390			147,000		
September.....	486			208			312			18,600		
The year.....	7,150			107			515			367,000		

SMOKY HILL RIVER AT SOLOMON, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 19, T. 13 S., R. 1 E., a quarter of a mile below Solomon River and 1 mile south of Solomon.

DRAINAGE AREA.—18,700 square miles.

RECORDS AVAILABLE.—April to July, 1904; October, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 18,400 second-feet August 10 (gage height, 28.0 feet); minimum, 284 second-feet May 9 and 10 (gage height, 4.2 feet).

1904, 1922–1928: Maximum discharge, that of August 10, 1928; minimum, 25 second-feet October 14, 1925.

Maximum stage known, about 35.0 feet during flood of 1903.

REMARKS.—Records fair. Discharge estimated because of ice December 8–14, 18–29, and January 1–10. Flow is affected by operation of mills and power plants upstream. Gage-height record furnished by the United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,550	709	574	350	381	381	381	332	406	2,600	10,400	1,800
2	2,450	709	601		381	381	356	356	456	2,150	11,300	1,720
3	2,980	709	574		431	381	356	284	612	1,900	12,600	1,620
4	1,900	709	574		381	381	356	456	508	1,580	14,100	1,540
5	1,760	682	601		406	406	381	332	482	1,400	15,100	1,440
6	1,310	682	574	380	456	406	431	356	826	1,180	15,600	1,540
7	1,130	682	547		431	356	718	332	745	1,050	16,100	1,670
8	1,990	655	495		826	406	1,220	332	745	2,700	16,900	1,670
9	1,270	628	470		964	406	1,670	284	880	8,370	17,700	1,580
10	1,070	628	445		772	456	1,310	284	1,020	11,200	18,400	1,540
11	1,010	655	470	406	691	431	1,080	332	2,450	13,300	17,200	1,760
12	908	655	480	406	612	406	853	381	1,720	13,500	14,600	1,760
13	984	655	490	406	638	431	691	381	2,820	12,900	13,200	1,800
14	927	628	500	431	612	381	534	381	2,200	12,600	10,400	1,800
15	899	628	520	431	534	406	508	381	1,900	10,900	5,820	1,360
16	844	628	547	406	560	381	456	381	1,260	10,900	4,390	1,310
17	844	601	547	431	560	431	431	381	992	11,200	4,000	1,180
18	817	601	480	431	534	482	406	381	3,040	10,200	3,780	1,150
19	790	628		431	534	534	381	381	2,870	4,580	3,670	1,080
20	817	628		406	508	612	356	482	2,980	2,650	3,450	1,050
21	817	628		431	482	534	356	406	4,200	10,900	3,720	1,020
22	790	628		431	456	560	356	456	6,340	5,240	4,460	992
23	763	601	480	456	431	534	356	2,250	6,900	6,550	3,890	964
24	763	601		456	431	534	356	2,050	6,480	7,110	3,120	964
25	736	601		431	406	482	332	1,670	4,390	7,250	2,740	936
26	709	601		406	431	456	356	664	6,280	3,640	2,400	936
27	736	601		381	406	431	356	508	6,970	1,950	2,250	908
28	709	574	480	406	381	431	356	456	7,320	1,620	2,150	908
29	709	574		406	381	406	332	431	7,700	1,580	2,050	880
30	709	574		420	406	406	332	406	5,170	2,250	1,950	880
31	709	574		400	381	431	381	381	7,460	1,900	1,900	880

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,980	709	1,140	70,100
November	709	574	636	37,800
December	601	508	553	30,900
January	456	406	431	24,700
February	964	381	512	29,800
March	612	356	441	27,100
April	1,670	332	545	32,400
May	2,250	284	545	33,500
June	7,700	406	3,022	180,000
July	13,500	1,050	6,212	382,000
August	18,400	1,900	8,370	515,000
September	1,800	880	1,320	79,100
The year	18,400	284	1,960	1,440,000

SALINE RIVER AT TESCOTT, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 16, T. 12 S., R. 5 W., half a mile south of Tescott and half a mile above Dry Creek.

DRAINAGE AREA.—2,800 square miles.

RECORDS AVAILABLE.—September, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 6,150 second-feet July 12 (gage height, 29.48 feet); minimum, 38 second-feet June 4 (gage height, 4.09 feet).

1919-1928: Maximum discharge, that of July 12, 1928; minimum, 0.5 second-foot during July, 1926.

REMARKS.—Records fair. Discharge estimated or interpolated December 7 to January 10 and April 8-14. Flow is affected by operation of mills at Shady Bend and Lincoln.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	167	80	80		75	70	70	62	58	362	3,840	446
2	175	85	80		70	62	70	62	50	295	5,160	362
3	202	85	85	65	70	62	66	62	66	252	5,990	374
4	128	80	80		75	70	62	70	42	193	6,150	374
5	135	85	80		80	75	66	70	54	167	6,070	374
6	96	80	75		85	75	66	62	62	151	6,070	362
7	96	80			108	62	66	62	66	121	6,070	328
8	102	90		70	108	46		58	175	1,800	5,990	339
9	108	85			121	50		62	317	2,380	5,230	306
10	114	85			108	54		58	306	4,220	3,340	284
11	114	80	75	85	90	66	66	66	262	5,990	1,800	262
12	108	85		85	85	66		70	295	6,150	1,410	306
13	121	85		80	85	66		70	167	5,670	1,210	284
14	90	80		75	85	62		62	114	2,740	1,140	262
15	102	85		85	80	70	66	58	90	1,530	1,040	284
16	96	85		90	80	70	54	66	90	1,240	930	262
17	102	85		85	80	66	62	75	90	720	915	242
18	108	80		85	75	70	66	75	121	446	885	242
19	102	85		80	75	80	62	70	242	386	960	262
20	108	85		75	75	90	58	66	735	510	1,100	202
21	108	85		80	70	75	58	222	795	458	1,190	202
22	108	85		75	62	54	54	135	471	575	1,160	202
23	102	80	70	66	62	70	58	80	562	497	1,100	151
24	85	80		70	70	66	58	75	440	422	960	151
25	96	85		58	70	66	70	66	855	398	690	151
26	96	85		62	66	66	66	58	1,800	350	549	151
27	85	80		62	70	66	62	62	1,610	328	523	167
28	80	80		70	75	70	58	46	885	242	458	151
29	85	85		66	75	66	62	42	589	362	458	151
30	80	80		70		70	66	58	446	2,140	446	151
31	80			75		70		46		3,370	422	

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	202	80	109	6,700
November	90	80	83.2	4,960
December	85		73.4	4,510
January	90		72.7	4,470
February	121	62	80.3	4,620
March	90	46	66.8	4,110
April	70	54	63.6	3,780
May	222	42	70.8	4,350
June	1,800	42	408	24,300
July	6,150	121	1,450	89,200
August	6,150	422	2,360	145,000
September	446	151	260	15,500
The year	6,150	42	429	311,000

SOUTH FORK OF SOLOMON RIVER AT ALTON, KANS.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 12, T. 7 S., R. 15 W., three-quarters of a mile south of Alton.

DRAINAGE AREA.—1,720 square miles.

RECORDS AVAILABLE.—August, 1919, to June, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 509 second-feet August 18 (gage height, 5.11 feet); minimum, 110 second-feet September 30 (gage height, 2.80 feet).

1919-1925, 1928: Maximum discharge, 9,340 second-feet September 19, 1919 (gage height, 19.5 feet); minimum, 0.1 second-foot September 7 and 27, 1922.

Maximum stage known, 24.5 feet August 1, 1928.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		220	11.....		196	21.....	307	140
2.....		204	12.....	433	188	22.....	307	132
3.....		204	13.....	415	172	23.....	289	125
4.....		204	14.....	397	172	24.....	271	125
5.....		289	15.....	379	172	25.....	271	118
6.....		271	16.....	361	156	26.....	254	110
7.....		254	17.....	452	148	27.....	254	118
8.....		237	18.....	471	164	28.....	237	118
9.....		204	19.....	379	156	29.....	237	110
10.....		204	20.....	343	148	30.....	220	110
						31.....	220	-----

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
August 12-31.....	471	220	325	12,900
September.....	289	110	172	10,200
The period.....				23,100

SOLOMON RIVER AT NILES, KANS.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 31, T. 12 S., R. 1 W., three-quarters of a mile west of Niles and 7 miles above mouth.

DRAINAGE AREA.—6,710 square miles.

RECORDS AVAILABLE.—May, 1897, to November, 1903; May, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 10,200 second-feet August 9 (gage height, 27.53 feet); minimum, 82 second-feet May 2 (gage height, 3.44 feet).

1897–1903, 1919–1928: Maximum discharge, 10,600 second-feet June 3, 1903 (gage height, 33.8 feet, old datum); minimum, 1 second-foot September 4, 1926.

REMARKS.—Records good. Discharge estimated because of ice December 8–24 and December 26 to January 15. Flow affected by operation of power plants upstream.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	220	191	120	139	155	125	132	200	890	4,930	595
2	2,080	220	191		182	132	118	85	173	710	5,920	573
3	785	220	182		125	147	125	118	147	618	6,140	530
4	490	220	200		132	164	139	118	147	573	7,040	530
5	417	200	200		155	164	147	104	155	551	8,090	530
6	383	200	147	125	164	132	182	118	220	435	8,870	510
7	1,430	200	125		510	132	164	118	220	383	9,620	641
8	860	182	85		400	164	164	118	367	7,040	10,100	641
9	471	182	100		268	173	220	111	400	5,940	10,200	641
10	322	191			268	164	191	104	1,460	5,340	8,870	810
11	308	220		128	231	147	173	191	890	5,420	4,630	1,040
12	294	200			210	155	164	200	1,160	7,960	8,280	860
13	294	200			210	147	164	164	1,520	7,900	2,270	618
14	294	191			130	210	147	147	530	5,280	1,730	551
15	268	164	125		122	210	147	139	308	5,230	1,520	510
16	255	200		130	118	200	164	139	322	5,820	1,370	471
17	243	200			147	200	164	132	367	5,260	1,810	417
18	243	200			164	191	164	104	322	5,860	1,190	400
19	268	191			164	191	164	132	231	1,460	1,160	400
20	268	191			164	182	147	104	294	1,940	1,100	383
21	255	191		135	147	155	155	104	322	5,950	1,940	367
22	243	173			210	173	155	111	1,800	5,700	1,940	351
23	231	173			200	164	164	118	2,120	5,280	1,240	351
24	220	182			182	173	173	111	860	2,590	1,010	308
25	210	191			139	155	155	111	367	2,790	860	308
26	220	182		120	164	155	139	132	268	4,380	1,400	308
27	220	200			200	132	155	132	231	4,930	1,040	735
28	220	191			155	132	132	118	191	5,380	835	294
29	220	173			164	132	164	125	182	4,000	890	687
30	220	182			164		155	132	164	1,310	710	294
31	220				155		147		182		641	

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
October	2,080	220	441	27,100
November	220	173	194	11,500
December	200		135	8,300
January	210		145	8,920
February	510	125	198	11,400
March	173	132	154	9,470
April	220	104	138	8,210
May	2,120	85	295	18,100
June	5,280	147	1,620	96,400
July	9,340	383	3,930	242,000
August	10,200	641	3,570	220,000
September	1,040	294	494	29,400
The year	10,200	85	951	691,000

NORTH FORK OF SOLOMON RIVER AT KIRWIN, KANS.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 34, T. 4 S., R. 16 W., half a mile south of Kirwin and three-quarters of a mile below Bow Creek.

DRAINAGE AREA.—1,290 square miles.

RECORDS AVAILABLE.—August, 1919, to June, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 1,340 second-feet August 17 (gage height, 8.59 feet); minimum, 35 second-feet September 30 (gage height, 3.08 feet).

1919-1925, 1928: Maximum discharge, about 15,500 second-feet September 18, 1919 (gage height, 22.5 feet); minimum, 0.5 second-foot December 5, 1922.

REMARKS.—Records fair. Flow is regulated by operation of milldam upstream.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		62	11	182	114	21	146	62
2		61	12	155	74	22	130	61
3		80	13	155	67	23	107	57
4		114	14	138	60	24	107	37
5		173	15	138	62	25	86	49
6		222	16	130	61	26	86	50
7		560	17	685	59	27	80	52
8		202	18	365	59	28	80	43
9		233	19	212	51	29	74	44
10		164	20	164	56	30	68	36
						31	67	

Month	Discharge in second-feet			Run-off in acre-feet
	Maximum	Minimum	Mean	
August 11-31.....	685	67	167	6,660
September.....	560	36	161	6,010
The period.....				12,700

BIG BLUE RIVER AT HULL, KANS.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 3, T. 2 S., R. 7 E., a quarter of a mile west of Hull and 2 miles above Deer Creek.

DRAINAGE AREA.—4,510 square miles.

RECORDS AVAILABLE.—August, 1919, to July, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during year, 2,440 second-feet September 13 (gage height, 8.40 feet); minimum, 59 second-feet September 4 (gage height, 2.40 feet).

1919-1925, 1928: Maximum discharge, 14,500 second-feet October 3, 1923 (gage height, 20.8 feet); minimum, 2 second-feet September 8 and 14, 1922 (gage height, 1.20 feet).

Maximum stage known, 31.7 feet, May, 1903.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		305	11.....	305	186	21.....	458	350
2.....		280	12.....	292	943	22.....	427	320
3.....		122	13.....	292	2,180	23.....	480	278
4.....		122	14.....	292	985	24.....	585	186
5.....		85	15.....	166	595	25.....	490	148
6.....	823	108	16.....	208	524	26.....	458	139
7.....	365	157	17.....	186	524	27.....	458	166
8.....	280	186	18.....	292	396	28.....	396	186
9.....	595	219	19.....	305	365	29.....	365	157
10.....	280	176	20.....	458	350	30.....	219	230
						31.....	292	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
August 6-31.....	823	166	376	19,400
September.....	2,180	85	366	21,700
The period.....				41,100

BIG BLUE RIVER AT RANDOLPH, KANS.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 12, T. 7 S., R. 6 E., half a mile above Fancy Creek and three-quarters of a mile east of Randolph.

DRAINAGE AREA.—8,860 square miles.

RECORDS AVAILABLE.—April, 1918, to September, 1928.

EXTREMES.—Maximum discharge during year, 13,800 second-feet October 6 (gage height, 16.14 feet); minimum, 252 second-feet, September 29 (gage height, 2.77 feet).

1918-1928: Maximum discharge, 22,300 second-feet June 11, 1919; minimum, 175 second-feet August 9, 1926.

Maximum stage known, 31.7 feet May 31, 1903.

REMARKS.—Records good. Discharge estimated because of ice December 7-14, 16-31, January 1-17, 21, and 22. Low flow slightly affected by operation of power plants upstream.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	3,700	665	615	500	765	665	425	565	515	1,200	765	492
2.....	9,560	665	590		715	515	405	540	615	970	765	492
3.....	5,480	665	590		715	615	425	565	715	865	865	470
4.....	1,820	665	590		515	515	425	565	785	815	1,820	425
5.....	1,200	665	615		590	540	470	590	815	765	2,490	405
6.....	11,800	665	565	550	715	540	590	640	915	640	2,140	385
7.....	4,450	665			2,780	540	1,400	590	815	615	9,560	365
8.....	2,460	715			2,380	540	1,540	615	715	7,160	2,220	365
9.....	1,270	715			1,540	540	1,270	590	765	4,450	1,470	385
10.....	1,080	665			1,080	615	1,020	615	765	4,450	1,140	425
11.....	1,140	665	600	550	915	615	915	590	665	7,880	1,020	448
12.....	1,080	665			865	615	970	615	590	2,060	915	1,080
13.....	1,140	640			765	615	970	590	515	2,620	815	2,140
14.....	970	640			765	540	2,540	549	565	1,820	665	2,780
15.....	815	640			765	590	1,080	540	515	1,200	665	1,900
16.....	815	640	615	580	765	515	1,020	565	448	1,140	665	865
17.....	815	640			600	665	865	590	565	1,080	1,200	665
18.....	815	640			615	640	615	970	7,160	1,540	1,610	615
19.....	815	640			665	590	615	765	1,140	7,040	1,470	865
20.....	815	665			540	765	515	715	970	3,320	1,020	865
21.....	765	665	500	750	615	515	715	915	1,900	1,080	765	492
22.....	715	640			850	615	492	640	1,080	915	1,080	865
23.....	715	640			915	615	492	615	1,140	5,480	1,080	765
24.....	715	640			915	915	565	615	970	7,640	1,840	615
25.....	715	640			915	915	540	590	865	5,720	1,540	765
26.....	715	640	550	915	492	515	640	765	3,700	1,140	970	345
27.....	715	640			915	540	492	590	765	3,040	970	815
28.....	665	615			765	615	470	565	715	2,060	865	590
29.....	715	615			815	492	515	565	640	1,470	815	715
30.....	715	615			715	-----	470	590	640	1,270	1,270	665
31.....	665	-----	-----	715	-----	515	-----	665	-----	715	590	-----
Month					Maximum	Minimum	Mean	Run-off in acre-feet				
October.....					11,800	665	1,930	119,000				
November.....					715	615	652	38,800				
December.....					-----	-----	557	34,200				
January.....					915	-----	651	40,000				
February.....					2,780	492	886	49,800				
March.....					665	470	550	33,800				
April.....					2,540	405	846	50,300				
May.....					1,140	540	714	43,900				
June.....					7,640	448	2,076	123,000				
July.....					7,880	615	1,806	111,000				
August.....					9,560	590	1,316	80,600				
September.....					2,780	305	655	39,000				
The year.....					11,800	305	1,056	763,000				

LITTLE BLUE RIVER AT WATERVILLE, KANS.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 16, T. 4 S., R. 6 E., half a mile north of Waterville and 5 miles above Big Blue River.

DRAINAGE AREA.—3,390 square miles.

RECORDS AVAILABLE.—June, 1922, to June, 1925; August to September, 1928.

EXTREMES.—Maximum discharge during period, 710 second-feet August 6 (gage height, 4.18 feet); minimum, 112 second-feet September 25 (gage height, 1.96 feet).

1922-1925, 1928: Maximum stage, 15.4 feet July 13, 1923; minimum discharge, 76 second-feet December 19 and 20, 1924.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		132	11.....	266	164	21.....	242	132
2.....		140	12.....	231	156	22.....	200	132
3.....		132	13.....	210	266	23.....	182	118
4.....		132	14.....	200	200	24.....	305	118
5.....		132	15.....	182	191	25.....	318	118
6.....	959	132	16.....	182	164	26.....	242	125
7.....	630	132	17.....	360	148	27.....	156	125
8.....	556	125	18.....	332	140	28.....	156	125
9.....	360	132	19.....	231	132	29.....	164	118
10.....	430	132	20.....	200	132	30.....	148	118
						31.....	140	-----
Month				Maximum	Minimum	Mean	Run-off in acre-feet	
August 6-31.....				959	140	292	15,100	
September.....				266	118	141	8,390	
The period.....							23,500	

DELAWARE RIVER AT VALLEY FALLS, KANS.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 18, T. 8 S., R. 18 E., 300 feet above Atchison, Topeka & Santa Fe Railway bridge and a quarter of a mile north of Valley Falls.

DRAINAGE AREA.—922 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 14,500 second-feet October 7 (gage height, 22.02 feet); minimum, 4 second-feet June 15.

1922-1928: Maximum discharge, 30,000 second-feet June 16, 1925 (gage height, 29.72 feet); minimum, 1.4 second-feet September 13, 1923 (gage height, 1.04 feet).

REMARKS.—Records fair. Discharge interpolated August 30, September 2, 5, and 25.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	600	330	250	202	94	168	91	156	18	532	636	26
2.....	5,150	330	237	169	120	156	94	156	14	344	498	22
3.....	3,400	330	213	89	89	145	96	168	22	250	58	19
4.....	710	330	169	22	180	145	114	350	64	213	3,150	17
5.....	498	344	280	11	275	145	260	470	260	280	466	20
6.....	6,390	330	225	56	945	134	3,150	275	275	139	250	22
7.....	11,400	330	225	129	4,500	145	2,700	180	193	104	3,250	22
8.....	11,000	330	191	202	1,210	206	1,010	168	94	250	1,880	19
9.....	1,840	316	180	250	575	275	540	134	31	566	466	11
10.....	566	302	169	316	470	246	505	134	14	250	111	14
11.....	2,200	316	180	344	435	246	400	134	6	280	825	202
12.....	1,340	316	180	359	382	206	418	120	8	865	169	1,700
13.....	865	344	149	374	435	168	470	112	156	1,120	88	1,790
14.....	566	389	129	404	418	145	470	102	16	374	55	1,160
15.....	498	374	111	389	382	145	435	232	4	330	34	1,920
16.....	466	344	88	330	305	134	418	365	8	466	26	466
17.....	434	330	78	302	246	124	365	690	810	169	985	225
18.....	434	302	68	288	156	124	335	232	5,000	120	865	280
19.....	434	288	62	316	180	118	305	145	825	109	566	159
20.....	404	288	59	213	180	106	305	134	404	109	466	129
21.....	404	275	58	202	206	100	305	156	316	129	344	111
22.....	404	275	63	180	305	108	275	134	1,200	600	250	97
23.....	404	262	66	159	232	100	275	94	672	202	237	81
24.....	374	275	69	169	206	89	219	58	1,020	149	169	63
25.....	389	275	72	180	206	85	219	31	905	102	101	59
26.....	374	275	76	149	219	74	206	31	374	70	91	55
27.....	374	275	80	139	206	65	193	27	262	55	84	50
28.....	359	275	498	111	193	64	180	14	1,840	48	48	45
29.....	359	262	600	81	193	69	168	14	2,200	42	38	43
30.....	344	250	532	74	-----	71	168	14	748	39	36	43
31.....	330	-----	330	84	-----	83	-----	18	-----	42	33	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	11,400	330	1,720	106,000
November.....	389	250	300	18,400
December.....	600	58	183	11,300
January.....	404	11	200	12,500
February.....	4,500	89	467	26,900
March.....	275	64	137	8,300
April.....	3,150	91	490	29,200
May.....	690	14	163	10,000
June.....	5,000	4	592	35,200
July.....	1,120	39	260	16,500
August.....	3,250	26	527	32,300
September.....	1,790	11	290	17,600
The year.....	11,400	4	446	324,000

GRAND RIVER BASIN.

GRAND RIVER NEAR GALLATIN, MO.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 16, T. 59 N., R. 27 W., 1,000 feet above Chicago, Rock Island & Pacific Railway bridge and 2 miles northeast of Gallatin. Zero of gage is 712.83 feet above mean sea level.

DRAINAGE AREA.—2,250 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 32,600 second-feet July 24 (gage height, 33.00 feet); minimum, 24 second-feet December 24, 25, and January 28 to February 2.

1921-1928: Maximum discharge, 53,200 second-feet September 17, 1926 (gage height, 36.80 feet); minimum, 10 second-feet while river was dammed upstream May 15, 1924 (gage height, 1.55 feet).

Maximum stage known, 39.3 feet in July, 1909.

REMARKS.—Records good except those for period of ice effect, December 11 to January 31, February 1-6, and 14-27, which are poor. Discharge interpolated May 14.

Daily and monthly discharge, in second-feet, 1927-28?

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	86	81	262	24	190	206	123	66	1,040	530	104
2	1,110	86	86	206	24	206	206	116	58	678	426	92
3	2,150	86	60	158	32	166	190	110	64	426	378	60
4	648	86	60	144	41	166	174	116	64	330	8,450	70
5	648	86	54	130	50	166	174	110	68	233	9,350	70
6	1,040	76	64	116	70	144	306	116	68	206	3,400	68
7	8,220	76	62	116	4,640	144	4,100	104	70	144	1,640	68
8	2,500	76	86	116	5,090	144	2,200	104	1,380	144	772	66
9	970	81	81	116	3,290	190	1,110	92	7,720	137	530	66
10	378	76	61	158	1,460	233	678	92	2,550	116	402	52
11	836	76	50	144	740	273	476	92	1,040	151	330	8,300
12	4,040	81	50	144	648	233	402	92	558	242	262	15,400
13	1,870	76	41	144	558	242	330	92	2,550	144	215	16,700
14	648	86	41	144	402	233	330	92	1,870	502	198	14,100
15	378	158	41	158	306	233	378	92	476	402	174	18,000
16	262	284	41	158	224	182	306	98	273	206	166	14,200
17	206	206	41	158	190	174	232	558	1,870	158	190	7,290
18	182	130	32	158	158	158	242	330	13,400	116	450	1,600
19	166	110	32	116	130	166	206	198	18,800	98	306	900
20	151	104	32	92	104	151	198	144	12,400	104	215	648
21	137	98	32	81	81	144	190	137	2,250	5,220	158	530
22	130	98	32	70	81	137	182	130	1,420	14,000	137	402
23	116	104	32	60	70	130	182	123	2,050	25,800	130	354
24	110	104	24	50	81	130	174	104	1,600	8,600	174	306
25	104	92	24	41	104	144	158	98	2,200	8,380	618	262
26	98	92	32	32	130	1,420	144	86	1,510	1,600	306	242
27	98	86	41	32	158	1,040	130	81	740	1,110	158	233
28	92	86	60	24	174	354	130	70	970	1,640	130	215
29	98	86	224	24	198	306	130	70	6,460	1,420	123	206
30	92	86	558	24	-----	284	116	68	1,920	1,000	130	206
31	86	-----	402	24	-----	215	-----	68	-----	648	92	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,220	86	893	0.397	0.46
November	284	76	102	.045	.06
December	558	24	82.5	.037	.04
January	262	24	110	.049	.06
February	5,090	24	664	.295	.32
March	1,420	130	261	.116	.13
April	4,100	116	466	.207	.23
May	558	68	126	.056	.06
June	18,800	58	2,880	1.28	1.43
July	31,600	98	3,160	1.40	1.61
August	9,350	92	985	.438	.50
September	18,000	52	3,360	1.49	1.66
The year	31,600	24	1,090	.484	6.55

GRAND RIVER BASIN

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GRAND RIVER NEAR SUMNER, MO.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 29, T. 56 N., R. 21 W., 80 feet below Chicago, Burlington & Quincy Railroad bridge, and 2 miles southwest of Sumner. Zero of gage is 630.77 feet above mean sea level.

DRAINAGE AREA.—6,880 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1928.

EXTREMES.—Maximum discharge during year, 46,900 second-feet September 17 (gage height, 30.70 feet); minimum, 162 second-feet December 23–27.

1924–1928: Maximum discharge, 56,400 second-feet September 21, 1926 (gage height, 32.42 feet); minimum discharge, that of December 23–27, 1927; minimum gage height, 2.80 feet December 2, 1924.

Maximum known stage, 36.7 feet. July 9, 1909 (discharge, about 150,000 second-feet).

REMARKS.—Records good except those for period of ice effect, December 8 to February 2, which are poor.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	4,660	500	412	930	240	1,020	890	570	378	6,860	1,560	570
2.....	21,800	500	395	890	240	1,020	890	570	345	3,530	1,230	570
3.....	28,800	500	378	850	300	980	810	570	330	3,160	1,070	500
4.....	28,000	500	345	730	315	890	810	570	315	2,140	3,530	430
5.....	20,000	500	315	610	395	850	1,020	535	330	1,500	18,200	412
6.....	14,400	465	315	535	430	810	2,140	500	345	1,400	21,800	378
7.....	11,600	448	315	430	9,260	810	6,860	500	345	1,180	14,400	360
8.....	16,600	430	300	430	21,600	810	11,100	500	2,330	1,070	5,050	345
9.....	12,000	430	270	430	24,100	810	7,820	500	7,200	975	2,400	330
10.....	3,830	430	270	430	19,200	1,070	3,980	500	10,900	890	3,600	330
11.....	2,000	412	240	975	8,100	1,280	2,600	500	7,380	1,400	2,140	1,940
12.....	11,400	395	240	930	4,130	1,280	2,000	465	3,230	8,460	1,400	21,800
13.....	18,800	395	240	890	3,090	1,180	1,620	465	1,740	6,350	1,280	30,400
14.....	14,400	395	210	890	5,850	1,280	1,810	448	3,830	3,460	930	36,300
15.....	5,690	1,070	210	850	7,740	1,620	2,530	430	3,900	1,500	810	41,500
16.....	2,740	1,450	210	810	6,010	1,450	2,200	500	1,940	1,560	1,180	45,200
17.....	1,680	1,400	210	770	3,680	1,180	1,740	660	1,120	1,120	1,180	46,900
18.....	1,280	1,020	210	770	2,330	975	1,400	810	17,600	975	810	46,000
19.....	1,070	810	185	690	1,740	890	1,230	890	30,000	890	850	39,100
20.....	975	570	185	650	1,280	810	1,070	730	35,300	890	890	21,600
21.....	890	535	185	610	1,400	810	975	650	39,100	2,000	730	9,540
22.....	810	500	185	570	1,340	810	975	535	37,300	8,640	730	2,810
23.....	730	500	162	535	1,280	730	975	500	32,800	20,000	650	1,810
24.....	690	465	162	500	1,120	730	890	500	23,800	24,400	570	1,500
25.....	650	465	162	430	890	730	810	465	17,300	26,800	1,880	1,280
26.....	610	448	162	395	930	1,620	810	430	9,080	29,200	1,620	1,180
27.....	570	448	162	360	1,020	4,130	730	490	5,850	23,300	1,620	1,020
28.....	570	430	270	330	1,070	2,950	730	395	3,900	12,200	2,000	975
29.....	535	430	1,400	270	1,070	1,500	650	378	7,200	3,530	1,070	890
30.....	500	412	2,530	270	-----	1,120	650	360	10,700	2,810	975	890
31.....	500	-----	975	240	-----	975	-----	395	-----	2,140	730	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	28,800	500	7,380	1.07	1.23
November.....	1,450	395	575	.084	.09
December.....	2,530	162	381	.055	.06
January.....	975	240	613	.089	.10
February.....	24,100	240	4,490	.653	.70
March.....	4,130	730	1,200	.174	.20
April.....	11,100	650	2,090	.30	.34
May.....	890	360	524	.076	.09
June.....	39,100	315	10,500	1.53	1.71
July.....	29,200	890	6,590	.958	1.10
August.....	21,800	570	3,130	.455	.52
September.....	46,900	330	11,900	1.73	1.93
The year.....	46,900	162	4,100	.596	8.07

THOMPSON RIVER AT TRENTON, MO.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 18, T. 61 N., R. 24 W., 1 mile northwest of Trenton. Zero of gage is about 737.15 feet above mean sea level.

DRAINAGE AREA.—1,670 square miles.

RECORDS AVAILABLE.—August to September, 1928.

EXTREMES.—Maximum discharge during period, 18,100 second-feet September 15 (gage height, 18.64 feet); minimum discharge, 48 second-feet September 8-10. Minimum gage height, 2.04 feet September 9 and 10.

Maximum stage known, 30.7 feet July 6, 1909.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1928

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....	334	99	11.....	194	4,860	21.....	104	228
2.....	259	72	12.....	178	16,800	22.....	94	194
3.....	238	67	13.....	137	13,400	23.....	109	164
4.....	11,800	59	14.....	125	13,400	24.....	548	150
5.....	5,420	56	15.....	114	17,800	25.....	144	131
6.....	1,580	52	16.....	114	11,700	26.....	90	125
7.....	570	52	17.....	104	3,500	27.....	120	114
8.....	320	48	18.....	109	715	28.....	80	109
9.....	295	48	19.....	104	410	29.....	76	120
10.....	219	48	20.....	114	282	30.....	85	120
						31.....	99	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
August.....	11,800	76	770	0.461	0.53
September.....	17,800	48	2,830	1.69	1.89

MEDICINE CREEK NEAR GALT, MO.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 34, T. 62 N., R. 22 W., at Quincy, Omaha & Kansas City Railroad bridge 1 mile above West Medicine Creek and $1\frac{1}{2}$ miles east of Galt.

DRAINAGE AREA.—225 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 6,260 second-feet September 12 (gage height, 14.20 feet); minimum, 1 second-foot several days during December, January, and February.

1921-1928: Maximum discharge, that of September 12, 1928; maximum gage height, 19.0 feet September 17, 1926; minimum discharge, less than 1 second-foot August 22 and 29, 1922.

REMARKS.—Records fair except those for period of ice effect, December 9 to February 6, which are poor.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	10	7	19	1	30	32	19	9	56	8	5
2	148	19	5	15	1	28	32	17	8	38	7	5
3	112	10	5	15	1	40	29	17	8	28	7	5
4	107	10	* 8	15	3	37	29	15	8	25	840	5
5	137	10	10	15	3	35	68	15	8	21	1,530	4
6	500	10	10	15	7	27	229	15	8	16	1,050	4
7	670	10	10	15	1,530	29	205	15	8	18	422	4
8	214	10	9	15	660	56	217	15	157	16	181	3
9	112	10	7	11	259	91	96	14	38	15	101	3
10	32	10	7	11	181	81	96	14	30	10	29	2
11	1,030	8	7	15	112	76	60	12	21	205	20	306
12	480	8	7	15	* 115	72	52	12	21	157	12	6,260
13	154	5	7	15	118	128	52	12	23	52	9	3,900
14	64	7	3	15	466	157	64	12	30	35	8	1,470
15	32	60	3	15	340	91	68	14	24	32	7	625
16	29	32	3	11	205	64	64	21	23	30	7	240
17	22	37	3	11	112	64	52	18	* 1,200	27	7	171
18	19	17	3	7	72	56	48	21	5,090	23	6	126
19	15	10	3	7	* 64	43	40	27	4,140	20	5	104
20	13	12	3	7	56	40	37	25	440	14	5	93
21	11	10	1	3	46	36	27	23	225	12	5	75
22	13	10	1	3	52	32	29	20	1,090	582	3	52
23	11	10	1	1	29	29	29	13	306	1,170	20	45
24	11	* 11	1	1	25	25	27	12	* 223	112	12	45
25	11	12	1	1	30	112	27	11	140	64	11	38
26	11	12	1	1	42	181	24	9	76	31	10	36
27	10	12	1	1	49	360	23	9	56	25	169	36
28	10	12	76	1	45	181	21	9	181	20	38	45
29	10	10	68	1	41	81	21	9	157	15	12	45
30	10	10	40	1	-----	42	19	9	20	13	9	45
31	10	-----	29	1	-----	35	-----	9	-----	9	7	-----
Month	Maximum		Minimum		Mean		Per square mile		Run-off, in inches			
October	1,030		10		133		0.591		0.68			
November	60		5		13.8		.061		.07			
December	76		1		11.0		.049		.06			
January	19		1		9.0		.040		.05			
February	1,530		1		161		.716		.77			
March	360		25		76.1		.338		.39			
April	229		19		60.6		.269		.30			
May	27		9		14.9		.066		.08			
June	5,090		8		459		2.04		2.28			
July	1,170		9		93.3		.415		.48			
August	1,530		3		147		.653		.75			
September	6,260		2		460		2.04		2.28			
The year	6,260		1		135		.600		8.19			

* Estimated.

LOCUST CREEK NEAR MILAN, MO.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ sec. 8, T. 62 N., R. 20 W., at bridge on State highway No. 6, $3\frac{1}{2}$ miles southwest of Milan.

DRAINAGE AREA.—225 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 2,980 second-feet June 19 (gage height, 17.30 feet); minimum, 1 second-foot December 23–27 and January 27 to February 3.

1921–1928: Maximum discharge, 3,260 second-feet September 16 and 17, 1926 (gage height, 18.10 feet); minimum, 0.8 second-foot October 1, 1922.

REMARKS.—Records fair except those for period of ice effect, December 7 to February 5, and for estimated periods, November 9–11, August 5–14, and July 1–10, which are poor.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	7	14	115	1	25	22	30	3	70	45	6
2	686	7	14	94	1	25	22	26	3	50	48	5
3	271	7	9	66	1	24	22	22	3	30	548	3
4	57	7	8	54	5	66	22	18	2	22	548	3
5	87	7	8	48	10	66	28	12	2	19	2,000	3
6	300	8	8	48	32	66	548	9	2	16	1,400	3
7	916	8	7	48	1,480	66	1,010	9	2	13	1,000	3
8	612	6	7	54	1,080	70	850	9	51	10	500	2
9	108	6	5	60	666	73	580	6	115	7	250	2
10	101	7	5	66	320	73	580	6	30	6	150	40
11	630	8	5	87	176	76	476	6	28	5	75	122
12	490	8	5	94	168	73	70	6	27	4	40	2,890
13	208	6	5	94	108	73	63	6	32	2	25	2,710
14	136	7	3	87	596	73	57	6	32	4	15	2,710
15	73	20	3	73	320	73	57	6	32	5	10	1,890
16	37	20	3	66	160	73	63	7	32	7	9	244
17	84	19	2	54	101	73	45	9	580	5	3	192
18	34	18	2	32	63	73	45	9	2,060	4	42	108
19	24	18	2	27	63	73	42	10	2,980	4	14	152
20	20	17	2	18	37	73	45	11	1,060	6	13	51
21	17	17	2	14	34	63	45	11	152	8	13	51
22	13	15	2	10	40	63	34	11	420	160	13	51
23	14	14	1	7	32	63	32	8	320	564	10	22
24	12	13	1	5	32	63	28	6	490	564	48	22
25	10	13	1	3	32	22	25	6	226	300	42	22
26	9	11	1	2	31	22	26	4	129	262	184	20
27	9	10	1	1	31	22	20	4	70	244	115	20
28	9	10	144	1	31	22	20	4	70	45	101	18
29	6	10	208	1	31	22	40	4	51	6	54	18
30	5	11	200	1	-----	22	37	3	40	5	30	18
31	6	-----	152	1	-----	22	-----	3	-----	6	10	-----

Month	Maximum	Minimum	Mean	Pe- square mile	Run-off in inches
October	916	5	165	0.733	0.85
November	20	6	11.2	.050	.06
December	208	1	26.8	.119	.14
January	115	1	42.9	.191	.22
February	1,480	1	196	.871	.94
March	76	22	54.6	.243	.28
April	1,010	20	165	.733	.82
May	30	3	9.26	.041	.05
June	2,980	2	301	1.34	1.50
July	564	2	79.1	.352	.41
August	2,000	3	237	1.05	1.21
September	2,890	2	378	1.68	1.87
The year	2,980	1	138	.613	8.35

CHARITON RIVER BASIN

CHARITON RIVER AT ELMER, MO.

LOCATION.—Chain gage in SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 2, T. 59 N., R. 16 W., at Atchison, Topeka & Santa Fe Railway bridge three-quarters of a mile southwest of Elmer. Zero of gage is 687.85 feet above mean sea level.

DRAINAGE AREA.—1,660 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 17,800 second-feet October 2 (gage height, 22.67 feet); minimum, 38 second-feet December 18–26.

1921–1928: Maximum discharge, 21,800 second-feet April 21, 1927; maximum gage height, 27.56 feet September 21, 1926; minimum discharge, 14 second-feet September 26, 1927 (gage height, 2.81 feet).

REMARKS.—Records good except those for periods of ice effect, December 6–31, January 1–17, and 23–31, which are poor.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	9,540	105	105	578	161	223	191	154	53	1,840	214	147
2.....	17,200	84	98	524	147	223	223	147	53	1,590	206	140
3.....	14,600	84	91	498	140	214	223	133	45	790	191	140
4.....	7,300	84	91	446	91	206	206	126	45	606	1,350	183
5.....	1,740	105	91	446	168	198	312	126	48	606	8,110	123
6.....	860	112	91	446	980	176	3,760	119	48	372	4,190	126
7.....	3,290	105	91	498	5,090	140	4,430	112	50	312	3,970	119
8.....	3,760	84	91	524	5,900	119	3,480	105	900	274	2,480	112
9.....	3,170	77	77	550	3,480	272	2,590	105	1,220	240	825	105
10.....	1,180	67	77	550	1,540	374	2,200	91	1,260	191	860	105
11.....	5,270	78	68	524	900	350	1,220	91	394	4,670	524	1,490
12.....	7,780	140	68	524	1,440	446	360	91	257	980	274	3,170
13.....	5,360	147	68	498	3,970	472	325	84	214	606	240	6,500
14.....	1,990	133	50	472	5,000	498	1,140	84	790	578	223	6,820
15.....	790	126	50	446	5,000	550	758	84	274	350	223	7,180
16.....	758	524	50	420	4,670	578	606	77	184	274	257	8,480
17.....	726	498	50	394	3,830	446	550	91	176	223	223	9,220
18.....	662	240	38	394	3,550	350	524	119	11,500	191	198	8,760
19.....	634	206	38	394	2,320	331	524	240	9,060	168	198	8,900
20.....	606	184	38	394	1,440	293	350	257	11,890	176	184	8,760
21.....	524	161	38	394	350	240	350	240	10,700	223	191	8,820
22.....	498	147	38	372	498	191	350	223	7,540	1,300	293	6,200
23.....	472	119	38	350	446	161	312	98	5,900	3,480	312	4,916
24.....	446	105	38	331	446	126	498	77	4,350	3,170	372	1,260
25.....	420	98	38	312	394	119	257	63	4,750	740	257	694
26.....	372	126	38	293	372	105	223	50	3,050	790	214	498
27.....	312	119	50	274	331	161	198	53	2,700	578	550	446
28.....	257	119	91	257	257	176	191	55	2,870	420	420	420
29.....	154	112	1,060	240	240	274	184	53	2,200	350	293	394
30.....	140	119	860	206	-----	331	176	50	1,180	274	257	578
31.....	126	-----	694	191	-----	350	-----	50	-----	223	191	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	17,200	126	2,930	1.77	2.04
November.....	524	67	147	.086	.10
December.....	1,060	38	142	.086	.10
January.....	578	191	411	.248	.29
February.....	5,900	91	1,830	1.10	1.19
March.....	578	105	280	.160	.19
April.....	4,430	176	924	.557	.62
May.....	257	50	111	.067	.06
June.....	11,800	45	2,790	1.68	1.87
July.....	4,670	168	858	.517	.60
August.....	4,190	184	751	.453	.52
September.....	9,220	105	3,090	1.86	2.07
The year.....	17,200	38	1,180	.711	9.67

LAMINE RIVER BASIN

LAMINE RIVER AT CLIFTON CITY, MO.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 16, T. 46 N., R. 19 W., 300 feet above Missouri, Kansas & Texas Railway bridge, and three-quarters of a mile east of Clifton City. Zero of gage is 622.60 feet above mean sea level.

DRAINAGE AREA.—598 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 7,620 second-feet October 3 (gage height, 18.11 feet); minimum, 7 second-feet September 30 (gage height, 1.50 feet).

1922-1928: Maximum discharge, 25,000 second-feet April 1, 1927 (gage height, 27.85 feet); minimum, 1 second-foot September 27, 1924.

Maximum stage known, 35.3 feet September 18, 1905.

REMARKS.—Records good. Discharge estimated January 2-5 because of ice effect.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	440	31	2,780	388	132	162	44	90	177	2,880	2,060	19
2.....	4,290	29	1,600	368	122	157	41	82	74	545	3,840	16
3.....	7,050	27	650	348	118	137	36	74	51	288	212	15
4.....	3,940	27	405	328	132	127	36	66	47	184	198	14
5.....	354	27	337	308	147	118	4,090	58	41	127	650	13
6.....	212	27	304	288	510	108	6,060	55	59	99	288	12
7.....	800	29	440	1,160	6,160	99	1,480	51	77	78	168	11
8.....	440	31	1,560	3,640	2,020	99	615	47	3,017	60	2,380	10
9.....	242	86	371	2,600	1,120	95	388	44	6,467	49	475	10
10.....	162	78	257	1,680	650	99	272	39	2,367	48	212	10
11.....	127	55	227	880	510	95	242	39	337	39	90	9
12.....	108	44	212	545	388	99	198	36	242	422	62	118
13.....	104	39	242	405	388	95	650	33	447	142	44	650
14.....	95	36	3,640	337	2,600	86	3,190	31	277	86	36	192
15.....	78	47	960	272	960	78	685	31	184	55	29	74
16.....	70	422	510	242	510	74	465	41	137	41	27	36
17.....	62	242	304	212	405	74	288	580	889	33	27	27
18.....	51	142	198	198	288	70	227	272	3,281	29	22	82
19.....	47	108	184	242	212	70	184	152	1,447	27	20	16
20.....	44	90	152	257	198	66	162	104	2,961	23	19	14
21.....	41	78	122	184	184	62	152	82	4,041	22	66	30
22.....	39	66	104	152	179	70	198	90	1,081	20	82	31
23.....	36	337	99	142	184	66	510	74	1,201	184	95	10
24.....	33	475	90	510	140	58	304	51	547	132	108	9
25.....	31	304	86	1,240	142	99	212	36	547	51	122	9
26.....	29	198	82	510	137	113	179	29	287	37	142	9
27.....	27	152	82	304	142	74	147	25	187	25	66	8
28.....	27	227	2,830	179	152	58	127	23	3,061	18	41	8
29.....	27	720	5,140	184	157	51	118	22	2,021	31	31	8
30.....	27	1,600	880	157	-----	47	99	20	615	17	33	7
31.....	29	-----	475	142	-----	44	-----	33	-----	150	25	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	7,050	27	615	1.03	1.19
November.....	1,600	27	192	.321	.86
December.....	5,140	82	817	1.37	1.98
January.....	3,640	142	594	.993	1.84
February.....	6,160	118	655	1.10	1.29
March.....	162	44	88.4	.148	.17
April.....	6,060	36	711	1.19	1.83
May.....	880	20	77.7	.130	.16
June.....	6,400	41	1,200	2.01	2.24
July.....	2,880	17	192	.321	.87
August.....	3,840	19	376	.629	.73
September.....	650	7	45.0	.075	.08
The year.....	7,050	7	462	.773	10.53

BLACKWATER RIVER AT BLUE LICK, MO.

LOCATION.—Chain gage on line between secs. 27 and 34, T. 49 N., R. 21 W., three-quarters of a mile below Finney Creek and 1 mile south of Blue Lick.

DRAINAGE AREA.—1,120 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 21,800 second-feet October 4 (gage height, 34.17 feet); minimum, 1 second-foot September 6 (gage height, 1.64 feet).

1922–1928: Maximum discharge, that of October 4, 1927; minimum discharge, 0.6 second-foot June 12 and September 1, 1925; minimum gage height, 0.96 foot July 6, 1926.

REMARKS.—Records fair except those for periods of ice effect December 21–25 and January 1–10, which are poor.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	4,580	43	348	1,200	95	458	70	46	85	2,830	914	55
2.....	12,000	39	378	700	90	334	66	40	100	1,940	1,020	48
3.....	18,600	34	218	442	85	196	57	43	95	896	145	26
4.....	21,600	34	172	306	13	207	49	37	46	490	175	20
5.....	18,600	24	125	229	250	196	80	37	83	251	229	3
6.....	14,700	22	100	185	1,220	185	155	36	22	145	125	1
7.....	9,380	20	115	1,000	3,700	175	860	34	12	125	29	37
8.....	4,580	30	1,270	1,700	7,530	145	550	33	554	110	950	8
9.....	1,000	27	680	2,400	11,200	155	240	29	3,180	80	2,900	4
10.....	155	33	196	1,800	7,950	185	145	26	1,220	75	554	10
11.....	334	30	148	1,670	4,480	196	125	22	284	1,490	155	7
12.....	1,310	31	100	1,440	1,800	155	110	25	120	3,990	55	1,470
13.....	1,670	42	362	1,060	588	135	334	20	135	2,830	44	3,380
14.....	806	53	878	914	1,720	135	1,620	20	572	896	34	3,040
15.....	251	155	490	710	1,200	110	1,040	16	175	207	24	334
16.....	193	135	348	506	734	105	306	334	70	145	24	75
17.....	135	662	135	348	608	100	196	788	46	105	7	62
18.....	125	165	110	348	362	125	155	115	1,180	90	1,580	52
19.....	125	85	85	320	312	100	135	90	3,000	135	662	30
20.....	115	75	70	320	262	95	100	95	2,320	85	240	23
21.....	85	70	57	175	251	95	115	43	2,150	75	125	12
22.....	95	66	48	175	251	85	110	29	1,740	1,670	218	10
23.....	82	70	49	175	251	90	100	22	1,420	2,460	474	8
24.....	68	384	50	175	251	80	105	10	1,640	626	698	6
25.....	55	698	56	145	218	80	90	7	3,780	175	506	7
26.....	53	273	62	229	212	75	75	9	1,620	165	145	3
27.....	51	512	62	135	207	100	62	8	262	165	80	5
28.....	40	752	2,460	135	262	66	62	5	4,170	90	52	3
29.....	36	680	3,660	122	554	62	57	5	4,820	57	20	4
30.....	86	572	3,180	110	-----	57	52	4	5,080	320	1,200	4
31.....	135	-----	2,200	95	-----	53	-----	6	-----	842	1,620	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	21,600	36	3,580	3.20	3.69
November.....	752	20	194	.173	.19
December.....	3,660	48	587	.524	.80
January.....	2,400	95	622	.555	.64
February.....	11,200	13	1,610	1.44	1.55
March.....	458	53	140	.125	.14
April.....	1,620	49	240	.214	.24
May.....	788	4	65.6	.059	.07
June.....	5,080	12	1,330	1.15	1.33
July.....	3,990	57	760	.679	.78
August.....	2,900	7	484	.452	.50
September.....	3,380	1	262	.261	.29
The year.....	21,600	1	825	.737	10.02

• Estimated.

OSAGE (MARAIS DES CYGNES) RIVER FASIN

OSAGE RIVER NEAR QUENEMO, KANS.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 7, T. 17 S., R. 18 E., $2\frac{1}{2}$ miles below Dagoon Creek and 3 miles east of Quenemo.

DRAINAGE AREA.—1,030 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 12,900 second-feet June 2 (gage height, 32.70 feet); minimum, 8 second-feet September 30 (gage height, 2.62 feet).

1922-1928: Maximum discharge, 17,700 feet June 11, 1923; maximum gage height, 34.98 feet April 19, 1927; no flow during July and August, 1926 (gage height, 2.20 feet).

REMARKS.—Records good. Discharge estimated because of ice December 6-9, 13-16, and January 1-8.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	679	65	40	60	26	140	73	102	7,250	3,200	637	26
2	7,000	58	38	32	27	124	66	94	12,500	1,060	265	22
3	3,120	53	38	32	28	124	65	80	7,730	455	148	20
4	596	47	35	32	31	124	61	102	5,550	301	805	19
5	416	41	39	32	37	116	358	157	4,720	175	1,400	20
6	211	36	34	32	436	109	2,900	132	2,640	124	396	17
7	175	32	30	46	3,690	94	4,050	116	784	94	596	21
8	140	35	30	62	1,300	94	1,040	94	576	157	339	18
9	124	38	32	109	576	109	436	80	847	124	301	16
10	109	37	31	124	358	109	339	69	516	116	265	28
11	94	35	29	124	320	109	283	80	301	436	247	28
12	87	33	30	109	265	102	247	109	247	4,640	229	536
13	80	31	32	109	436	109	283	80	124	1,820	60	496
14	72	30	32	109	576	94	1,020	69	247	320	54	61
15	67	64	32	94	416	140	516	77	184	247	54	54
16	60	109	32	80	436	396	358	87	157	637	44	64
17	56	116	31	79	436	436	247	94	2,680	784	637	44
18	54	87	32	76	301	247	229	80	6,250	265	1,400	34
19	50	69	30	73	193	193	211	69	7,400	169	339	26
20	48	50	31	76	157	109	193	62	2,500	124	124	20
21	44	58	28	73	157	102	175	62	868	109	94	15
22	41	63	28	64	157	124	247	62	700	132	69	14
23	37	58	26	53	157	140	202	66	1,430	416	58	12
24	32	62	22	48	175	124	193	67	2,100	211	54	10
25	30	60	20	43	140	124	175	29	1,320	102	50	10
26	29	55	17	38	124	116	157	28	516	77	46	9
27	33	50	19	28	140	109	283	157	377	66	42	9
28	31	47	42	16	148	94	211	148	247	52	47	9
29	29	43	94	25	132	87	157	140	175	42	77	8
30	38	42	102	34	-----	94	116	132	1,200	301	48	8
31	52	-----	80	29	-----	80	-----	157	-----	1,250	31	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	7,000	29	440	27,100
November	116	30	53.1	3,160
December	102	17	36.6	2,250
January	124	16	62.6	3,850
February	3,690	26	406	23,400
March	436	80	138	8,480
April	4,050	61	496	29,500
May	157	28	93.3	5,740
June	12,500	124	2,400	143,000
July	4,640	42	581	35,700
August	1,400	31	289	17,800
September	536	8	55.8	3,320
The year	12,500	8	417	303,000

OSAGE RIVER NEAR OTTAWA, KANS.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 6, T. 17 S., R. 20 W., $\frac{1}{4}$ miles southeast of Ottawa and three-quarters of a mile below Skunk Creek.

DRAINAGE AREA.—1,250 square miles.

RECORDS AVAILABLE.—October, 1918, to September, 1928. August, 1902, to October, 1905, at Main Street Bridge $\frac{1}{4}$ miles upstream.

EXTREMES.—Maximum discharge during year, 10,900 second-feet October 2 (gauge height, 24.92 feet); minimum, 7 second-feet September 30 (gauge height, 1.38 feet).

1918-1928: Maximum discharge, 17,400 second-feet April 10, 1922 (gauge height, 32.9 feet); no flow June 27 and 28, 1920.

Highest known stage, about 37 feet July, 1909.

REMARKS.—Records good. Discharge estimated because of ice December 5-18 and December 28 to January 11. Diversions for city of Ottawa water supply upstream. Low-water flow regulated by dams upstream.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,910	93	57		44	207	95	119	1,630	3,090	824	52
2	10,600	91	49		44	183	94	107	8,360	2,000	281	37
3	7,430	82	45		46	165	89	102	9,770	632	167	30
4	1,310	69	43		45	161	89	105	5,550	344	600	23
5	522	64		30	46	161	94	123	4,720	257	1,590	23
6					958	161	1,910	147	2,910	205	712	20
7	372	67			4,770	151	3,670	147	1,170	163	712	23
8	299	63		64	2,470	151	1,960	123	696	173	1,280	21
9	238	61		112	992	155	664	100	958	140	289	18
10	208	60		172	600	163	461	87	554	141	254	33
11	177	58										
11	168	57	35	196	461	163	386	81	344	240	173	63
12	159	61		184	386	161	281	73	281	2,120	167	856
13	142	58		172	446	143	372	75	259	2,300	94	507
14	130	69		161	824	133	890	79	319	507	56	127
15	119	83		150	680	163	958	97	228	252	39	69
16												
16	109	132		132	522	401	522	119	205	205	30	56
17	96	179		108	401	538	386	109	1,870	890	330	51
18	91	130		116	299	386	330	95	5,960	358	1,960	38
19	86	99	38	112	257	302	271	78	7,210	183	886	30
20	82	85	32	104	240	254	228	63	3,620	147	163	23
21												
21	78	80	33	88	228	228	235	59	1,310	109	114	19
22	72	72	32	75	233	198	276	59	744	91	73	8
23	64	67	32	70	250	179	286	58	1,710	86	65	14
24	61	69	31	64	252	165	279	53	2,170	127	81	14
25	63	67	33	58	216	163	228	43	1,550	95	62	12
26												
26	54	69	32	60	198	151	190	35	696	66	55	12
27	51	67	42	54	203	139	223	29	416	46	44	12
28	50	57	45	56	207	121	233	26	316	39	37	11
29	49	61	40	50	216	112	159	23	271	45	238	8
30	38	78	35	48		105	137	21	1,030	401	135	8
31	99		30	44		99		25		958	86	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	10,600	49	806	49,600
November	179	57	78.3	4,660
December	57		36.7	2,260
January	196		85.8	5,280
February	4,770	44	570	32,800
March	538	99	192	11,800
April	3,670	89	533	31,700
May	147	21	79.4	4,880
June	9,770	205	2,230	133,000
July	3,090	39	529	32,500
August	1,960	30	358	22,000
September	856	8	73.9	4,400
The year	10,600	8	461	335,000

OSAGE RIVER AT OSCEOLA, MO.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 20, T. 38 N., R. 25 W., at Osceola, three-quarters of a mile above Gallinipper Creek. Zero of gage is 682.7 feet above mean sea level.

DRAINAGE AREA.—8,180 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 56,100 second-feet October 8 (gage height, 26.2 feet); minimum, 84 second-feet September 28 (gage height, 1.13 feet).

1921-1928: Maximum discharge, 70,900 second-feet April 11, 1927 (gage height 30.4 feet); minimum, 40 second-feet September 4, 1925 (gage height, 0.60 foot).

Maximum stage known, 45.3 feet in June, 1844.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	9,600	1,630	10,200	6,400	2,380	3,430	2,980	6,400	1,140	33,800	10,200	1,400
2-----	41,800	1,350	9,600	3,280	2,380	3,280	2,680	5,280	1,780	20,900	8,200	1,420
3-----	43,400	1,350	5,820	2,680	2,380	3,130	2,680	4,630	2,980	14,800	3,880	1,280
4-----	44,300	1,490	4,630	3,880	2,380	3,130	2,980	4,180	7,400	11,100	3,430	1,140
5-----	42,000	1,490	3,730	4,030	2,530	2,980	6,800	3,880	11,300	7,600	5,460	1,000
6-----	45,100	1,490	3,730	3,580	4,630	2,980	16,300	3,580	14,400	4,780	4,780	720
7-----	51,100	1,420	3,730	3,580	25,000	2,680	20,300	3,280	15,800	3,730	4,480	510
8-----	55,400	1,630	3,580	5,280	27,700	2,530	16,700	3,130	19,000	3,130	7,200	510
9-----	55,400	2,230	3,280	6,600	23,700	2,380	12,500	2,980	32,200	2,680	7,800	552
10-----	52,900	2,380	2,830	6,600	22,800	2,530	10,200	2,830	34,800	2,380	8,000	380
11-----	48,600	2,080	2,830	5,820	23,300	2,530	7,400	2,680	47,200	3,280	7,400	380
12-----	43,100	2,080	2,680	5,100	23,700	2,530	5,280	2,380	36,800	4,030	5,640	650
13-----	35,400	1,930	3,580	4,630	25,000	2,680	4,780	2,230	21,700	4,030	4,030	3,280
14-----	26,600	2,080	9,400	4,180	22,800	2,680	7,800	2,080	16,300	3,130	2,530	4,780
15-----	14,600	4,480	10,000	4,030	15,600	3,130	10,200	2,080	12,300	3,880	1,780	4,780
16-----	4,180	8,000	6,800	3,580	10,200	7,600	9,200	4,780	10,800	4,180	1,420	4,180
17-----	2,980	10,000	4,780	3,430	7,800	17,100	7,200	7,800	13,400	3,130	1,490	1,210
18-----	2,680	6,600	4,180	3,130	6,200	18,400	5,460	5,460	28,400	2,230	860	664
19-----	2,530	4,480	3,580	3,130	5,280	19,000	4,630	4,940	30,800	1,860	748	335
20-----	2,380	3,880	2,980	3,130	4,330	17,300	4,480	3,880	25,500	1,780	1,070	245
21-----	2,230	3,430	2,830	3,280	3,880	15,000	4,330	3,130	25,000	1,930	2,680	200
22-----	2,080	3,130	2,830	3,130	3,730	11,700	10,400	2,680	27,500	1,560	3,130	166
23-----	1,930	2,830	2,530	2,830	3,730	8,200	15,800	2,530	30,400	1,860	7,800	180
24-----	1,930	2,530	2,380	2,980	3,580	5,640	20,100	2,830	30,000	2,830	9,600	117
25-----	1,780	2,380	2,230	2,830	3,580	4,940	17,500	2,530	30,000	1,930	10,200	97
26-----	1,700	2,380	2,230	2,830	3,430	4,330	11,300	2,080	27,500	1,350	4,480	97
27-----	1,630	2,230	2,380	2,830	3,280	4,030	10,200	1,630	24,800	1,140	3,130	97
28-----	1,490	2,230	6,600	2,680	3,280	3,580	14,800	1,420	26,100	1,140	2,380	84
29-----	1,490	2,230	13,800	2,680	3,280	3,430	11,100	1,280	34,800	902	2,080	97
30-----	1,560	3,130	13,800	2,530	-----	3,280	8,400	1,210	37,300	734	1,780	97
31-----	1,780	-----	11,100	2,530	-----	2,980	-----	1,210	-----	734	1,560	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October-----	55,400	1,490	20,800	2.54	2.93
November-----	10,000	1,350	2,950	.361	.40
December-----	13,800	2,230	5,310	.649	.75
January-----	6,600	2,530	3,780	.462	.58
February-----	27,700	2,380	10,100	1.23	1.38
March-----	19,000	2,380	6,100	.746	.86
April-----	20,300	2,680	9,480	1.16	1.29
May-----	7,800	1,210	3,260	.399	.46
June-----	47,200	1,140	22,600	2.76	3.08
July-----	33,800	734	4,920	.601	.69
August-----	10,200	748	4,490	.549	.63
September-----	4,780	84	1,020	.125	.14
The year-----	55,400	84	7,870	.962	113.09

OSAGE RIVER AT WARSAW, MO.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 17, T. 40 N., R. 22 W., at Warsaw.
Zero of gage is 631.54 feet above mean sea level.

DRAINAGE AREA.—11,500 square miles.

RECORDS AVAILABLE.—October, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 66,900 second-feet October 9 (gage height, 28.2 feet); minimum, 400 second-feet September 27–30 (gage height, 2.0 feet).

1925–1928: Maximum discharge, 88,300 second-feet April 17, 1927 (gage height, 34.45 feet); minimum, 90 second-feet August 12, 1926 (gage height, 1.2 feet).

Maximum stage known, 44.4 feet in June, 1844 (discharge, about 135,000 second-feet).

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

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,560	1,940	16,300	13,100	2,700	4,800	3,960	9,980	1,610	44,800	8,000	2,340
2	47,800	1,770	19,800	8,440	2,500	4,800	3,540	7,780	1,460	39,200	22,400	1,800
3	61,500	1,610	12,600	5,850	2,120	4,380	3,330	6,480	1,770	25,800	22,900	1,640
4	61,500	1,460	8,440	5,010	2,310	4,170	3,120	5,640	2,700	17,000	8,000	1,490
5	60,200	1,610	6,900	6,270	2,310	3,960	8,880	5,220	7,780	12,600	7,340	1,240
6	60,200	1,610	5,850	6,270	2,700	3,540	28,400	4,800	11,300	8,220	9,100	1,120
7	62,500	1,610	5,220	6,480	24,300	3,330	32,900	4,380	14,500	5,850	6,270	1,000
8	64,200	2,910	5,220	7,780	35,400	3,330	30,400	4,170	16,100	4,590	6,480	890
9	66,900	2,700	5,640	8,220	37,200	3,330	21,200	3,750	26,700	3,960	12,600	780
10	65,200	3,960	4,800	9,980	35,600	2,120	14,900	3,540	41,200	3,540	12,000	780
11	56,900	3,540	4,170	9,760	34,400	2,120	12,000	3,330	49,300	5,850	11,300	780
12	50,800	3,120	3,750	8,880	32,900	3,330	9,100	3,120	48,100	5,850	10,200	780
13	45,300	2,700	3,960	7,560	27,700	3,120	7,120	2,910	42,300	6,480	7,560	2,180
14	38,600	2,500	12,200	6,900	29,200	3,120	9,980	2,700	25,300	5,640	5,220	4,500
15	29,200	4,170	19,500	6,060	26,700	2,910	13,100	2,500	17,200	4,170	3,120	7,580
16	14,000	9,320	14,500	5,640	19,500	3,960	13,600	5,640	14,200	4,800	2,310	8,030
17	6,060	17,700	10,400	5,010	13,100	12,400	11,300	14,000	12,000	5,220	1,940	6,920
18	4,800	13,100	7,340	4,590	10,200	20,500	8,660	10,200	23,600	3,960	1,940	3,400
19	4,170	8,440	5,850	4,380	7,780	22,400	6,900	7,560	38,900	2,910	1,460	1,490
20	3,750	6,270	5,010	4,590	6,270	22,200	5,850	6,480	38,900	2,120	3,120	1,000
21	3,330	5,220	4,170	4,800	5,640	19,500	5,430	4,800	32,900	1,940	2,500	780
22	3,120	4,800	3,960	4,380	5,220	16,500	9,980	3,960	27,900	2,310	2,910	680
23	2,910	4,380	3,750	4,170	5,010	12,900	20,300	3,330	29,900	2,310	5,010	580
24	2,500	3,960	3,540	3,960	5,010	9,100	24,300	3,120	32,400	3,540	23,400	485
25	2,310	3,540	3,120	4,170	4,800	6,900	23,900	3,540	32,400	4,170	17,000	485
26	2,120	3,330	2,700	4,170	4,590	6,060	18,800	3,120	32,400	2,700	12,200	485
27	1,940	3,330	2,700	3,750	4,380	5,640	14,000	2,700	28,900	1,770	4,280	400
28	1,940	3,120	8,440	3,750	4,380	5,010	15,400	2,120	25,300	1,460	4,060	400
29	1,770	3,540	15,400	3,750	4,380	4,590	16,500	1,770	30,900	1,460	3,180	400
30	1,610	3,960	21,000	3,120	4,380	4,380	13,100	1,610	41,800	1,320	2,340	400
31	1,940	-----	18,800	2,910	-----	4,170	-----	1,460	-----	1,190	4,940	-----
Month	Maximum					Minimum		Mean		Per square mile	Run-off in inches	
October	66,900					1,610		27,000		2.35	2.71	
November	17,700					1,460		4,370		.38	.42	
December	21,000					2,700		8,550		.743	.86	
January	13,100					2,910		5,930		.516	.60	
February	37,200					2,120		13,700		1.19	1.28	
March	22,400					2,120		7,370		.641	.74	
April	32,900					3,120		13,700		1.19	1.33	
May	14,000					1,460		4,700		.409	.47	
June	49,300					1,460		25,000		2.17	2.42	
July	44,800					1,190		7,640		.664	.77	
August	23,400					1,460		7,910		.688	.79	
September	8,030					400		1,830		.159	.18	
The year	66,900					400		10,600		.922	12.57	

OSAGE RIVER NEAR BAGNELL, MO.

LOCATION.—Staff gage in N. $\frac{1}{2}$ SE. $\frac{1}{4}$ sec. 21, T. 40 N., R. 15 W., $1\frac{1}{2}$ miles above Bagnell. Zero of gage is 549.75 feet above mean sea level.

DRAINAGE AREA.—14,000 square miles.

RECORDS AVAILABLE.—May, 1925, to September, 1928.

EXTREMES.—Maximum discharge during year, 70,600 second-feet October 11 (gage height, 27.51 feet); minimum, 1,020 second-feet September 30 (gage height, 5.25 feet).

1925-1928: Maximum discharge, 106,000 second-feet April 17, 1927 (gage height, 36.61 feet); minimum, 324 second-feet September 10-12, 1925.

Maximum stage known, 43.1 feet in June, 1844 (discharge, about 150,000 second-feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	11,300	2,430	23,000	20,100	3,810	5,800	5,560	15,700	3,480	47,500	2,680	5,090
2.....	37,600	2,760	28,300	15,500	3,570	6,040	5,320	12,800	3,260	49,500	11,400	3,940
3.....	61,000	2,650	25,300	10,500	3,570	6,040	4,860	10,500	3,250	43,400	25,300	3,250
4.....	67,400	2,430	16,700	5,010	3,570	5,560	4,630	8,860	3,020	27,600	18,700	3,020
5.....	68,100	2,320	13,700	4,530	3,570	5,320	12,200	7,800	3,710	19,000	10,000	2,900
6.....	66,600	2,320	8,580	7,020	3,570	4,860	34,900	7,020	8,860	13,900	10,800	2,370
7.....	65,900	2,760	8,580	8,320	8,580	4,630	46,100	6,520	13,900	10,200	10,000	2,280
8.....	66,300	5,250	8,060	8,840	31,900	4,630	48,100	6,040	17,800	7,280	8,320	2,060
9.....	68,400	6,250	7,800	9,660	39,300	4,630	36,900	5,560	28,300	5,800	9,400	2,060
10.....	69,900	6,250	7,280	11,100	40,700	4,400	25,300	5,090	43,700	5,090	13,900	1,820
11.....	70,200	6,000	6,500	11,900	39,300	4,400	18,700	4,860	59,200	4,630	13,100	1,740
12.....	67,000	5,500	5,750	11,600	37,600	4,400	15,100	4,860	60,300	6,040	12,500	1,740
13.....	60,300	4,770	5,750	10,500	35,600	4,400	12,200	4,400	56,100	7,280	10,800	1,740
14.....	57,200	4,290	12,800	9,380	32,200	4,400	11,100	4,170	47,800	7,280	8,320	3,480
15.....	43,000	9,100	22,100	8,580	33,900	4,400	14,500	3,940	30,200	6,760	4,630	5,800
16.....	29,600	15,800	24,000	7,540	30,200	4,630	16,600	5,090	19,900	5,090	4,170	8,320
17.....	14,900	20,100	18,200	7,020	21,100	7,020	16,300	10,200	17,500	5,090	3,250	8,860
18.....	8,060	22,700	13,700	6,250	15,100	19,300	13,600	18,400	18,700	5,800	3,020	7,540
19.....	5,750	16,100	9,940	6,000	12,200	25,600	11,100	13,400	34,200	5,800	3,020	4,860
20.....	5,010	11,600	8,060	6,000	10,000	26,300	9,130	10,200	49,800	3,710	2,680	3,020
21.....	4,530	8,840	6,760	6,000	8,320	26,600	8,320	8,860	49,200	3,250	3,250	2,280
22.....	4,290	7,280	5,750	6,000	7,540	23,000	13,400	7,020	40,000	3,250	3,480	1,820
23.....	3,810	6,500	5,250	5,500	6,760	19,600	26,300	6,040	33,500	3,480	3,940	1,580
24.....	3,570	6,250	5,010	5,250	6,520	15,400	30,600	5,320	34,500	3,480	8,860	1,420
25.....	3,570	5,500	4,530	5,250	6,280	11,900	30,900	5,560	36,200	3,940	22,100	1,280
26.....	3,330	5,010	4,290	5,500	6,040	9,700	28,000	5,090	36,200	4,860	19,900	1,200
27.....	3,100	5,010	4,050	5,500	6,040	8,320	22,100	4,630	34,900	3,940	13,600	1,140
28.....	2,870	4,770	4,770	5,250	5,800	7,540	18,400	4,170	32,200	3,250	8,060	1,060
29.....	2,760	4,530	13,700	4,770	5,560	7,020	19,900	3,710	30,900	2,580	5,560	1,060
30.....	2,540	11,300	20,500	4,290	-----	6,280	19,300	3,480	39,000	2,370	4,630	1,020
31.....	2,430	-----	23,300	4,050	-----	5,800	-----	3,250	-----	2,370	3,710	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	70,200	2,430	31,600	2.26	2.61
November.....	22,700	2,820	7,210	.515	.57
December.....	28,300	4,050	12,000	.867	.99
January.....	20,100	4,050	7,830	.559	.64
February.....	40,700	3,570	16,100	1.15	1.24
March.....	26,600	4,400	9,610	.686	.79
April.....	48,100	4,630	19,300	1.38	1.64
May.....	18,400	3,250	7,180	.513	.59
June.....	60,300	3,020	29,700	2.12	2.86
July.....	49,500	2,370	10,400	.743	.86
August.....	25,300	2,680	9,130	.652	.75
September.....	8,860	1,020	2,990	.214	.24
The year.....	70,200	1,020	13,600	.971	13.18

SAC RIVER NEAR STOCKTON, MO.

LOCATION.—Chain gage in W. ½ sec. 11, T. 34 N., R. 26 W., 2½ miles east of Stockton.

DRAINAGE AREA.—1,160 square miles.

RECORDS AVAILABLE.—July, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 19,300 second-feet June 29 (gage height, 20.98 feet); minimum, 174 second-feet September 28–30 (gage height, 2.80 feet).

1921–1928: Maximum discharge, 34,800 second-feet April 1, 1927 (gage height, 24.95 feet); minimum, 25 second-feet September 10, 1925 (gage height, 1.62 feet).

Maximum stage known, 29.3 feet in July, 1909.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,500	373	3,000	1,710	444	481	875	2,310	630	6,980	3,850	675
2	6,980	481	2,490	1,710	426	462	820	2,070	770	4,720	1,950	585
3	5,860	462	2,130	1,710	426	444	770	1,770	770	3,000	1,830	585
4	4,020	426	2,070	1,710	426	435	1,950	1,590	770	2,430	3,320	562
5	2,550	408	1,950	1,470	408	426	4,230	1,470	990	1,950	2,430	540
6	1,230	390	1,710	1,350	1,410	426	8,220	1,350	990	1,650	1,650	520
7	3,600	444	1,530	820	3,060	408	7,140	1,230	930	1,470	2,430	500
8	3,600	1,170	1,290	770	2,930	408	4,650	1,110	2,490	1,350	1,710	481
9	2,430	1,050	1,110	720	1,710	390	2,670	990	12,600	1,230	1,170	408
10	2,190	930	990	675	1,530	562	2,310	930	17,100	1,050	820	373
11	1,830	770	875	675	1,350	462	1,950	875	9,200	1,290	675	356
12	1,410	675	820	675	1,230	444	1,710	770	4,160	1,110	630	1,110
13	1,110	630	2,670	630	1,110	426	1,710	770	3,950	930	540	373
14	1,050	540	3,950	585	1,110	400	1,650	770	2,430	820	500	322
15	930	1,890	3,600	630	1,050	1,000	1,470	770	2,250	770	481	290
16	820	3,530	3,190	630	990	2,200	1,290	3,190	1,110	720	444	275
17	770	3,390	2,070	630	875	3,400	1,110	1,590	3,740	675	426	260
18	675	1,950	1,950	630	820	4,580	1,050	1,170	11,200	630	481	245
19	675	1,230	1,830	630	770	4,580	990	990	3,740	585	520	230
20	675	875	1,710	630	770	3,880	930	820	3,060	562	408	216
21	585	875	1,170	630	770	3,190	3,060	720	6,340	520	390	216
22	562	990	1,110	608	720	2,550	4,440	675	7,320	500	1,710	216
23	531	980	990	585	675	2,310	10,400	1,230	5,140	481	4,790	216
24	500	875	990	585	630	1,830	6,580	1,110	3,810	481	5,420	216
25	481	820	875	585	585	1,710	4,160	770	2,740	462	3,190	202
26	462	770	770	562	562	1,590	3,060	675	1,770	462	2,930	202
27	444	770	675	540	540	1,470	6,020	675	1,110	444	1,350	202
28	426	675	1,830	520	520	1,350	4,440	540	8,800	426	1,110	174
29	408	675	1,710	462	500	1,230	3,060	520	19,300	408	990	174
30	408	4,440	1,470	462	-----	1,050	2,930	481	6,180	408	875	174
31	390	-----	1,350	444	-----	990	-----	585	-----	408	720	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	6,980	390	1,750	1.51	1.74
November	4,440	373	1,120	.966	1.08
December	3,950	675	1,740	1.50	1.73
January	1,710	444	806	.695	.80
February	3,060	408	977	.842	.91
March	4,580	390	1,450	1.25	1.44
April	10,400	770	3,210	2.77	3.09
May	3,190	481	1,110	.957	1.10
June	19,300	630	4,850	4.18	4.26
July	6,980	408	1,260	1.09	1.66
August	5,420	390	1,610	1.39	1.60
September	1,110	174	363	.313	.35
The year	19,300	174	1,680	1.45	19.76

• Estimated.

LITTLE SAC RIVER NEAR SPRINGFIELD, MO.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 26, T. 30 N., R. 22 W., $\frac{1}{2}$ mile above South Dry Sac Creek and 6 miles northwest of Springfield. Zero of gage is about 1,162 feet above mean sea level.

DRAINAGE AREA.—40 square miles.

RECORDS AVAILABLE.—May, 1927, to September, 1928.

EXTREMES.—Maximum discharge during year, about 7,000 second-feet June 28 (gage height, 12.30 feet); minimum, 2 second-feet September 25–30.

1927–1928: Maximum discharge, that of June 28, 1928; minimum discharge, that of September 25–30, 1928; minimum gage height, 1.15 feet September 26, 1927.

REMARKS.—Records fair for discharges below 3,000 second-feet and poor for those above.

Daily and monthly discharge, in second-feet, 1927–28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	12	11	194	50	33	28	46	76	50	160	15	7
2.....	540	31	140	47	33	28	45	67	39	122	12	8
3.....	86	23	104	43	32	29	43	60	53	82	10	6
4.....	55	21	86	42	34	30	52	55	98	70	62	6
5.....	42	18	76	40	34	28	610	51	81	55	25	5
6.....	31	17	69	40	37	28	530	47	69	45	21	6
7.....	266	21	66	39	45	28	164	43	55	40	31	5
8.....	111	55	57	37	47	36	110	39	132	39	21	5
9.....	72	43	53	36	46	50	81	39	1,720	37	17	4
10.....	55	34	50	35	45	50	66	36	312	35	17	5
11.....	46	28	49	34	45	49	56	33	204	30	15	4
12.....	47	26	46	34	43	46	51	32	156	35	12	5
13.....	36	24	450	33	44	45	50	31	91	24	10	3
14.....	31	23	264	32	43	42	43	33	98	24	10	3
15.....	28	860	174	31	43	156	39	31	81	22	8	4
16.....	26	158	124	30	42	204	36	28	81	18	10	4
17.....	23	111	98	33	41	214	32	91	276	18	9	4
18.....	22	81	81	35	40	254	30	43	132	16	8	6
19.....	20	68	70	40	38	244	32	37	104	14	8	4
20.....	19	59	64	40	36	184	30	34	224	12	6	4
21.....	18	53	59	40	35	132	184	32	410	12	4	4
22.....	16	47	56	40	34	110	1,090	184	288	12	27	4
23.....	15	42	51	39	33	91	236	71	174	11	27	3
24.....	15	40	48	39	32	81	174	56	124	8	64	3
25.....	14	36	46	41	30	76	132	46	98	8	32	2
26.....	13	33	43	40	30	69	326	42	86	22	24	2
27.....	13	33	42	39	30	61	224	38	69	17	19	2
28.....	12	31	58	38	29	58	147	32	3,280	14	17	2
29.....	12	29	57	37	28	55	117	30	340	13	15	2
30.....	12	690	57	36	-----	50	91	45	225	13	11	2
31.....	11	-----	54	34	-----	48	-----	43	-----	14	8	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	540	11	55.5	1.39	1.60
November.....	890	11	91.5	2.29	2.56
December.....	450	42	93.1	2.33	2.69
January.....	50	30	37.9	.948	1.09
February.....	47	28	37.3	.932	1.01
March.....	254	28	84.0	2.10	2.42
April.....	1,090	30	162	4.05	4.52
May.....	184	28	49.2	1.23	1.42
June.....	3,280	39	305	7.62	8.50
July.....	160	8	33.3	.882	.96
August.....	64	4	18.5	.462	.53
September.....	8	2	4.13	.103	.11
The year.....	3,280	2	80.6	2.02	27.41

SOUTH GRAND RIVER NEAR BROWNINGTON, MO.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 17, T. 40 N., R. 25 W., 300 feet below St. Louis-San Francisco Railway bridge, 500 feet below Deepwater Creek, and 1 mile north of Brownington.

DRAINAGE AREA.—1,660 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 18,600 second-feet October 5 (gage height, 28.52 feet); minimum, 12 second-feet May 31 (gage height, 1.50 feet).

1921-1928: Maximum discharge, 21,100 second-feet April 9, 1922; maximum gage height, 28.52 feet October 5, 1927; minimum discharge, 0.5 second-foot several days during September, 1925.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,160	104	475	860	170	710	85	185	29	1,310	1,710	268
2	9,240	63	332	410	148	542	91	155	58	2,220	255	230
3	12,500	58	242	350	148	370	85	140	41	910	170	170
4	10,700	58	205	255	185	332	85	132	36	315	1,360	74
5	18,500	54	170	205	205	268	4,480	125	35	162	255	54
6	18,000	50	155	205	565	255	5,420	110	33	118	110	45
7	14,300	68	148	520	6,240	230	2,500	97	36	85	390	38
8	11,100	91	430	1,360	9,000	230	1,360	97	74	63	1,010	28
9	7,620	74	370	2,220	10,800	218	760	85	3,220	51	2,940	23
10	810	74	242	2,220	10,200	218	452	80	760	40	2,830	20
11	370	58	195	1,860	7,680	218	315	80	268	2,120	2,500	16
12	565	68	298	1,460	3,820	195	255	74	125	1,560	1,210	315
13	1,260	68	2,840	1,310	1,310	185	298	74	148	1,210	255	3,160
14	760	58	2,780	1,060	3,000	170	2,780	68	255	452	155	2,880
15	410	1,210	860	960	2,120	185	1,560	68	110	205	110	3,880
16	255	1,710	410	710	1,260	410	860	1,810	132	110	80	3,880
17	195	1,160	230	542	810	542	520	660	710	80	68	2,220
18	185	475	195	452	660	332	370	268	3,000	63	58	710
19	170	242	170	475	370	242	280	162	2,830	54	1,260	205
20	155	185	140	452	350	205	242	140	2,830	47	1,260	132
21	140	155	118	315	350	178	230	104	810	35	410	110
22	132	132	97	185	350	170	565	85	430	298	242	63
23	118	132	91	205	370	148	610	68	635	1,160	1,310	58
24	110	140	91	315	390	148	810	63	1,360	760	2,560	49
25	97	315	91	498	280	140	390	52	2,560	255	1,260	41
26	91	315	85	430	268	132	332	43	1,260	140	588	30
27	80	332	91	280	332	125	1,260	32	520	125	195	30
28	80	760	3,440	205	498	118	542	28	230	85	140	28
29	74	350	3,980	195	910	97	280	24	255	52	80	25
30	74	475	3,440	195	-----	97	218	16	280	45	1,610	21
31	125	-----	1,760	178	-----	91	-----	12	-----	36	268	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	18,500	74	3,720	2.24	2.58
November	1,710	50	301	.181	.20
December	3,980	85	764	.460	.53
January	2,220	178	674	.406	.47
February	10,800	148	2,170	1.31	1.41
March	710	91	242	.146	.17
April	5,420	85	934	.563	.63
May	1,310	12	186	.100	.12
June	3,220	20	769	.463	.52
July	2,220	35	457	.275	.32
August	2,940	58	860	.518	.60
September	3,880	16	610	.367	.41
The year	18,500	12	969	.584	7.96

NIANGUA RIVER NEAR ROACH, MO.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 20, T. 38 N., R. 17 W., 4 miles northeast of Roach and $2\frac{1}{2}$ miles above Little Niangua River.

DRAINAGE AREA.—About 698 square miles.

RECORDS AVAILABLE.—November, 1922, to September, 1928.

EXTREMES.—Maximum discharge during year, 23,600 second-feet June 10 (gage height, 15.80 feet); minimum, 300 second-feet September 29 (gage height, 1.87 feet).

1922-1928: Maximum discharge, 27,200 second-feet August 9, 1927 (gage height, 17.00 feet); minimum, 160 second-feet August 26 to September 2, 1923.

Maximum known stage, 23.8 feet in September, 1914.

REMARKS.—Records good for discharge below 4,000 second-feet and fair for those above.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	760	575	3,350	820	550	500	760	1,370	650	1,930	600	500
2.....	1,150	475	5,620	760	525	475	700	1,220	625	2,010	600	475
3.....	1,930	475	2,780	625	500	475	700	1,080	650	1,610	600	475
4.....	1,220	500	2,010	650	500	450	2,420	1,010	625	1,220	575	450
5.....	1,080	575	1,610	600	500	450	2,420	940	625	1,010	625	425
6.....	1,080	550	1,290	600	525	450	5,500	880	650	940	600	400
7.....	1,150	525	1,220	600	650	450	11,900	880	700	940	600	400
8.....	1,610	1,010	1,150	600	760	450	6,100	760	650	880	575	400
9.....	3,150	2,090	1,010	575	760	475	2,870	700	1,550	820	525	425
10.....	1,690	1,930	880	575	820	475	2,250	700	19,500	760	525	380
11.....	1,150	2,250	820	575	760	500	1,850	650	18,100	760	550	380
12.....	1,450	1,290	760	575	700	575	1,610	625	3,250	700	500	380
13.....	1,150	1,080	880	550	650	575	1,450	600	2,330	700	500	380
14.....	1,150	940	2,870	550	700	550	1,290	600	2,090	650	475	360
15.....	940	1,370	2,690	550	700	525	1,150	575	1,930	650	450	360
16.....	820	3,350	2,510	525	700	700	1,150	940	1,770	625	450	360
17.....	760	8,140	1,850	525	650	1,450	1,080	1,370	2,330	575	425	360
18.....	650	2,690	1,450	525	650	2,420	1,080	1,150	2,330	575	425	340
19.....	650	1,930	1,220	575	625	2,780	1,010	940	7,620	550	475	340
20.....	600	1,530	820	600	600	3,150	880	760	6,340	550	450	320
21.....	550	1,290	760	650	600	2,960	1,370	700	2,510	550	450	320
22.....	550	1,150	760	650	575	2,420	2,010	650	1,610	550	450	320
23.....	550	1,010	760	625	575	1,930	4,810	650	1,930	525	450	320
24.....	525	860	760	650	550	1,610	5,260	1,770	1,930	525	550	320
25.....	525	820	700	650	550	1,370	2,170	1,150	1,770	525	1,450	320
26.....	500	760	650	650	550	1,220	2,090	880	1,610	500	3,150	320
27.....	500	760	700	650	525	1,150	1,930	700	1,450	500	1,010	320
28.....	475	700	700	650	500	1,080	1,930	650	1,290	475	760	320
29.....	475	650	820	600	475	1,010	1,930	625	1,770	475	650	300
30.....	475	1,610	1,010	575	-----	880	1,610	600	3,050	475	600	320
31.....	475	-----	1,010	550	-----	820	-----	600	-----	450	550	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	3,150	475	959	1.37	1.58
November.....	8,140	475	1,430	2.05	2.29
December.....	5,620	650	1,470	2.11	2.43
January.....	820	525	608	.871	1.00
February.....	820	475	611	.875	.94
March.....	3,150	450	1,110	1.59	1.83
April.....	11,900	700	2,440	3.50	3.90
May.....	1,770	575	862	1.23	1.42
June.....	19,500	625	3,120	4.47	4.99
July.....	2,010	450	774	1.11	1.28
August.....	3,150	425	664	.951	1.10
September.....	500	300	370	.530	.69
The year.....	19,500	300	1,200	1.72	23.35

GASCONADE RIVER BASIN

GASCONADE RIVER NEAR WAYNESVILLE, MO.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 3, T. 36 N., R. 12 W., $2\frac{1}{2}$ miles below Roubidou Creek and 4 miles north of Waynesville. Zero of gage is 739.34 feet above mean sea level.

DRAINAGE AREA.—1,680 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 27,300 second-feet June 10 (gage height, 18.20 feet); minimum, 177 second-feet September 23 (gage height, 2.34 feet).

1921-1928: Maximum discharge, that of June 10, 1928; minimum, 77 second-feet September 27, 1922.

Maximum stage known, 25 feet August 22, 1915.

REMARKS.—Records good. Discharge interpolated December 26 and 27.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	480	539	6,660	1,180	1,020	745	1,270	3,180	1,960	6,120	427	508
2	640	640	6,660	940	980	710	1,180	2,900	1,640	4,260	379	480
3	2,340	1,020	4,900	860	980	710	1,100	2,340	1,540	3,320	379	452
4	5,760	1,180	3,620	900	900	710	1,360	2,080	1,740	2,480	356	427
5	4,420	1,100	2,620	1,020	900	710	12,900	1,840	2,340	2,080	379	402
6	2,340	940	2,200	940	1,020	710	23,900	1,740	3,780	1,740	402	356
7	2,340	1,100	1,960	900	1,540	745	24,100	1,540	3,620	1,540	402	334
8	4,420	3,940	1,840	900	1,640	860	20,500	1,450	3,460	1,360	452	312
9	1,360	4,740	1,740	820	1,860	900	7,020	1,360	20,300	1,180	508	312
10	3,460	5,760	1,540	860	2,080	980	4,900	1,270	26,100	1,020	640	291
11	2,620	3,940	1,450	780	1,840	1,020	3,780	1,270	24,900	1,020	940	291
12	2,760	2,760	1,360	745	1,540	1,270	3,180	1,100	9,900	980	820	291
13	3,180	2,200	1,360	745	1,450	1,270	2,620	1,020	6,840	860	605	270
14	7,590	2,080	9,300	745	1,360	1,180	2,620	1,020	9,300	820	539	270
15	3,460	5,940	14,900	710	1,360	1,450	2,480	940	8,920	745	539	270
16	2,480	11,300	13,900	710	1,360	1,740	1,960	940	5,220	675	427	262
17	1,840	14,300	5,580	640	1,360	3,040	1,740	940	5,940	640	402	255
18	1,640	6,660	3,940	710	1,360	4,420	1,640	1,020	8,350	640	402	261
19	1,450	4,260	3,040	860	1,270	5,940	1,450	1,020	15,300	605	402	240
20	1,270	3,180	2,480	1,180	1,180	7,210	1,450	1,020	12,100	605	402	228
21	1,100	2,620	1,960	1,740	1,100	5,580	2,480	1,100	7,400	605	452	221
22	1,020	1,840	1,740	1,840	1,020	4,420	8,730	4,100	9,700	539	427	203
23	940	1,960	1,740	1,540	1,020	3,460	17,700	15,300	8,920	508	427	183
24	860	1,640	1,450	1,540	940	2,900	17,700	15,300	7,400	508	570	193
25	780	1,540	1,360	1,180	860	2,480	10,700	5,220	6,120	480	1,270	203
26	710	1,540	1,300	1,540	860	1,960	5,940	3,320	4,580	480	1,360	203
27	710	1,270	1,240	1,540	860	1,960	5,060	2,760	3,620	452	1,020	193
28	640	1,180	1,180	1,450	820	1,740	5,580	2,080	2,760	452	940	190
29	605	1,180	1,180	1,360	780	1,540	4,900	1,740	2,480	427	780	193
30	570	4,260	1,180	1,360	-----	1,360	3,940	1,540	10,700	402	710	186
31	539	-----	1,360	1,100	-----	2,340	-----	1,450	-----	402	605	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	7,590	480	2,070	1.23	1.42
November	14,300	539	3,220	1.92	2.14
December	14,900	1,180	3,440	2.05	2.36
January	1,840	640	1,080	.643	.74
February	2,080	780	1,220	.726	.78
March	7,210	710	2,180	1.27	1.46
April	24,100	1,100	6,800	4.05	4.52
May	15,300	940	2,710	1.61	1.86
June	26,100	1,540	7,900	4.70	5.24
July	6,120	402	1,220	.726	.84
August	1,360	356	592	.352	.41
September	508	183	282	.168	.19
The year	26,100	183	2,710	1.61	21.06

GASCONADE RIVER AT JEROME, MO.

LOCATION.—Staff gage in S. $\frac{1}{2}$ sec. 13, T. 37 N., R. 10 W., 500 feet north of St. Louis-San Francisco Railway station at Jerome and half a mile below Little Piney Creek. Zero of gage is 657.93 feet above mean sea level.

DRAINAGE AREA.—2,840 square miles.

RECORDS AVAILABLE.—January, 1923, to September, 1928. From April, 1903, to July, 1906, at Arlington, Mo.

EXTREMES.—Maximum discharge during year, 51,800 second-feet June 10 (gage height, 23.25 feet); minimum, 680 second-feet September 23-30.

1903-1906, 1923-1928: Maximum discharge, that of June 10, 1928; minimum, 300 second-feet June 15, 1905.

Maximum stage known, about 31 feet January 5, 1897.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	1,570	1,200	10,200	2,280	2,040	1,680	2,280	5,460	2,760	12,700	1,250	1,250
2-----	2,160	1,460	8,700	2,160	1,920	1,570	2,160	4,660	2,890	6,640	1,150	1,150
3-----	2,280	1,680	7,900	1,920	1,800	1,570	2,040	4,080	2,640	5,780	1,100	1,100
4-----	4,980	2,040	5,780	2,040	1,800	1,570	3,020	3,670	2,640	4,360	1,100	1,100
5-----	7,720	2,040	4,660	1,680	1,800	1,570	17,500	3,410	3,150	3,670	1,350	1,060
6-----	3,940	1,800	3,940	1,800	1,920	1,570	35,000	3,150	5,300	3,280	1,250	1,000
7-----	4,360	3,280	3,670	1,800	2,280	1,570	38,700	2,890	5,620	2,890	1,150	950
8-----	4,960	6,100	3,150	1,680	2,890	1,680	35,500	2,760	4,820	2,640	1,150	960
9-----	6,640	9,560	3,020	1,680	3,150	1,800	17,360	2,520	23,800	2,400	1,250	950
10-----	5,460	8,100	2,890	1,680	3,280	1,920	8,500	2,400	45,500	2,280	1,200	900
11-----	3,940	6,460	2,640	1,570	3,150	2,040	6,640	2,280	41,000	2,160	1,460	850
12-----	4,220	4,820	2,520	1,570	2,760	2,160	5,460	2,160	27,900	2,040	1,470	900
13-----	6,460	4,220	3,800	1,570	2,640	2,280	4,820	2,040	11,800	1,920	1,560	800
14-----	8,500	3,670	11,500	1,460	2,520	2,160	4,500	1,920	13,800	1,800	1,250	880
15-----	5,780	7,900	22,400	1,460	2,400	2,040	4,080	1,920	13,600	1,680	1,200	850
16-----	3,940	15,800	21,000	1,460	2,520	2,520	3,670	1,920	8,900	1,680	1,150	805
17-----	3,150	14,500	10,700	1,460	2,520	3,940	3,280	1,920	7,720	1,570	1,100	805
18-----	2,640	13,400	6,640	1,460	2,400	6,100	3,020	2,040	9,780	1,570	1,100	780
19-----	2,400	6,820	5,140	1,680	2,280	7,900	2,890	1,920	17,000	1,460	1,100	780
20-----	2,160	5,140	4,220	2,280	2,160	8,500	2,640	2,040	19,700	1,460	1,100	780
21-----	2,040	4,220	3,670	3,020	2,040	8,900	3,300	2,280	12,000	1,460	1,100	760
22-----	1,920	3,670	3,280	3,150	1,920	7,180	17,500	4,820	14,000	1,460	1,100	720
23-----	1,680	3,280	2,890	2,890	1,920	5,620	23,500	13,600	13,400	1,350	1,100	720
24-----	1,680	2,890	2,640	2,890	1,800	4,660	24,800	17,300	11,100	1,360	1,460	720
25-----	1,570	2,640	2,520	2,890	1,800	4,080	19,400	11,100	9,120	1,250	1,800	720
26-----	1,460	2,520	2,280	2,890	1,680	3,670	10,200	5,460	7,360	1,250	2,400	680
27-----	1,460	2,400	2,160	2,760	1,680	3,280	8,100	4,080	5,780	1,250	2,040	680
28-----	1,350	2,160	2,280	2,640	1,680	3,020	7,720	3,410	4,820	1,200	1,800	680
29-----	1,250	2,160	2,280	2,400	1,680	2,890	7,900	3,020	4,980	1,150	1,570	680
30-----	1,250	7,720	2,280	2,280	-----	2,640	6,460	2,640	7,720	1,150	1,460	680
31-----	1,250	-----	2,400	2,160	-----	2,400	-----	2,640	-----	1,150	1,350	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October-----	8,500	1,250	3,360	1.18	1.36
November-----	15,900	1,200	5,120	1.80	2.01
December-----	22,400	2,160	5,590	1.97	2.27
January-----	3,150	1,460	2,090	.736	.85
February-----	3,280	1,650	2,220	.782	.84
March-----	8,900	1,570	3,370	1.19	1.37
April-----	38,700	2,040	11,100	3.91	4.36
May-----	17,300	1,920	4,050	1.43	1.65
June-----	45,500	2,640	12,100	4.26	4.75
July-----	12,700	1,150	2,520	.887	1.02
August-----	2,400	1,100	1,840	.472	.54
September-----	1,250	680	854	.301	.34
The year-----	45,500	680	4,460	1.57	21.36

GASCONADE RIVER NEAR RICH FOUNTAIN, MO.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 16, T. 42 N., R. 8 W., just above Swan Creek and 4 miles east of Rich Fountain. Zero of gage is 554.24 feet above mean sea level.

DRAINAGE AREA.—3,180 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 51,000 second-feet June 11 (gage height, 22.83 feet); minimum, 710 second-feet September 23-30.

1921-1928: Maximum discharge, that of June 11, 1928; minimum, 410 second-feet September 29 and 30, 1922.

REMARKS.—Records good. Discharge interpolated January 2-8 because of ice effect; estimated September 28-30.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,520	1,320	11,200	2,720	2,480	1,820	2,720	6,550	3,440	10,400	1,320	1,420
2	3,320	1,420	11,200	2,650	2,260	1,820	2,600	5,520	3,440	10,300	1,320	1,320
3	3,820	1,620	9,720	2,680	2,150	1,820	2,870	4,990	3,320	6,870	1,320	1,140
4	3,440	1,820	7,960	2,510	2,040	1,820	2,260	4,470	2,960	6,800	1,230	1,100
5	5,880	2,150	6,400	2,440	2,260	1,820	19,200	4,080	3,200	4,600	1,140	1,100
6	6,400	2,260	5,250	2,360	2,260	1,820	25,900	3,690	4,340	3,950	1,420	1,050
7	6,100	2,480	4,600	2,290	3,080	1,720	32,700	3,440	6,550	3,440	1,420	1,600
8	4,990	10,400	4,210	2,220	3,200	1,720	35,600	3,320	6,870	3,200	1,520	960
9	5,800	8,660	3,690	2,150	3,560	2,150	33,300	2,960	12,200	2,840	1,420	960
10	7,080	10,400	3,560	1,980	3,820	2,260	16,600	2,940	26,200	2,600	1,320	918
11	5,250	8,490	3,320	1,820	3,820	2,260	8,660	2,720	45,100	2,370	1,320	875
12	5,260	6,710	3,060	1,820	3,440	2,480	7,030	2,480	41,690	2,370	1,720	875
13	5,260	5,260	4,060	1,820	3,200	2,480	6,100	2,370	26,400	2,150	1,620	960
14	6,710	4,470	8,320	1,720	3,080	2,480	5,380	2,260	12,200	2,040	1,420	875
15	8,660	10,100	15,600	1,720	2,840	2,480	4,990	2,150	14,100	1,930	1,320	875
16	5,520	13,600	20,800	1,720	2,720	2,960	4,730	3,690	12,800	1,820	1,230	875
17	4,080	16,400	19,400	1,620	2,840	3,690	5,520	2,600	8,490	1,720	1,230	832
18	3,320	15,600	9,860	1,820	2,840	5,660	3,690	2,370	9,000	1,620	1,140	790
19	2,840	11,600	6,560	2,040	2,720	7,030	3,560	2,260	11,500	1,620	1,140	790
20	2,600	6,400	5,520	2,370	2,600	9,000	3,820	3,320	20,000	1,620	1,140	790
21	2,370	5,380	4,600	2,840	2,370	9,720	3,440	3,320	20,000	1,620	1,230	750
22	2,150	4,600	4,340	3,440	2,260	8,490	7,670	3,200	13,600	1,620	1,140	750
23	2,040	3,950	3,690	3,320	2,150	7,030	19,400	7,990	14,700	1,520	1,140	710
24	1,820	4,210	3,440	3,560	2,040	5,800	23,100	14,900	13,400	1,420	1,930	710
25	1,820	3,820	3,200	4,060	2,040	4,990	23,600	17,000	10,600	1,420	1,720	710
26	1,720	3,200	2,960	3,690	1,930	4,470	18,000	9,000	9,000	1,420	1,930	710
27	1,620	3,060	2,720	3,440	1,980	4,080	10,100	5,800	7,350	1,320	2,370	710
28	1,520	2,720	2,840	3,200	1,820	3,690	8,490	4,340	8,660	1,230	2,040	716
29	1,420	2,480	2,840	3,080	1,820	3,440	8,320	3,690	5,520	1,230	1,820	710
30	1,420	9,720	2,840	2,840	-----	3,200	7,670	3,320	6,870	1,230	1,720	710
31	1,320	-----	2,720	2,600	-----	2,960	-----	4,210	-----	1,230	1,520	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	8,660	1,320	3,760	1.18	1.36
November	16,400	1,320	6,140	1.93	2.15
December	20,800	2,720	6,490	2.08	2.34
January	4,080	1,620	2,530	.796	.92
February	3,820	1,820	2,610	.821	.89
March	9,720	1,720	3,780	1.19	1.37
April	35,600	2,260	11,900	3.74	4.17
May	17,000	2,150	4,670	1.47	1.70
June	45,100	2,960	12,800	4.03	4.50
July	10,400	1,230	2,860	.899	1.04
August	2,370	1,140	1,460	.459	.53
September	1,420	710	890	.280	.31
The year	45,100	710	4,970	1.56	21.28

PINEY CREEK NEAR BIG PINEY, MO.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 8, T. 34 N., R. 10 W., 3 miles east of Big Piney and 14 miles above Spring Creek.

DRAINAGE AREA.—560 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1928.

EXTREMES.—Maximum discharge during year, 15,200 second-feet June 9 (gage height, 16.30 feet); minimum, 192 second-feet September 22 and 30 (gage height, 2.10 feet).

1921-1928: Maximum discharge, that of June 9, 1928; minimum, 76 second-feet July 30 and 31 (gage height, 1.60 feet).

REMARKS.—Records rather poor until April 30 on account of somewhat unreliable gage readings; good after that date. Discharge interpolated May 11 and September 2-6.

Daily and monthly discharge, in second-feet, 1927-28

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1.....	440	224	3,100	465	720	440	415	880	490	2,060	292	257
2.....	600	224	1,400	465	690	440	415	810	440	1,480	257	264
3.....	1,640	240	1,090	465	690	415	415	750	5 ⁵	1,090	257	251
4.....	1,090	292	810	440	680	415	415	750	5 ⁵	810	370	248
5.....	1,020	292	600	440	660	415	2,240	690	1,480	750	370	246
6.....	810	370	570	415	630	370	8,560	570	1,640	690	292	243
7.....	750	330	490	392	600	370	4,000	570	1,160	630	274	240
8.....	810	3,800	465	392	570	370	1,970	570	2,000	570	257	224
9.....	750	3,400	465	370	440	330	1,400	542	15,200	542	257	211
10.....	570	2,330	440	370	440	330	1,240	515	11,800	490	257	211
11.....	515	2,240	570	370	415	311	1,090	490	3,400	465	292	211
12.....	440	1,880	542	370	415	311	950	465	2,420	415	292	211
13.....	370	1,480	600	350	370	311	810	440	3,300	415	274	211
14.....	330	1,400	12,300	330	370	292	720	415	3,800	392	274	211
15.....	240	3,000	3,400	330	350	292	660	392	2,150	370	257	211
16.....	240	2,800	1,480	330	330	630	570	415	1,560	350	257	218
17.....	240	2,420	1,320	311	330	1,160	1,020	465	1,560	350	257	211
18.....	224	1,580	630	750	311	1,400	1,020	440	3,200	350	257	202
19.....	224	1,720	570	750	292	1,400	950	415	2,300	350	257	198
20.....	224	1,560	490	720	292	1,240	950	415	1,880	392	257	198
21.....	214	1,560	750	810	440	1,090	7,420	490	4,400	350	257	198
22.....	205	1,480	750	720	440	1,090	7,300	4,660	3,600	350	257	192
23.....	218	1,480	720	690	415	950	7,530	1,400	4,600	330	257	198
24.....	211	1,160	690	720	392	880	2,800	1,020	2,300	330	330	198
25.....	257	1,090	660	720	370	880	2,060	750	1,880	311	570	198
26.....	292	950	630	690	370	880	1,880	570	1,460	292	415	198
27.....	274	570	630	660	370	810	1,720	542	1,160	292	350	198
28.....	257	465	600	630	350	810	1,560	465	1,020	292	330	198
29.....	257	415	570	600	392	950	1,090	440	3,900	274	311	198
30.....	257	415	490	600	-----	1,020	950	415	1,480	274	292	192
31.....	240	-----	465	720	-----	465	-----	370	-----	274	257	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	1,640	205	458	0.818	0.94
November.....	3,800	224	1,380	2.46	2.74
December.....	12,300	440	1,240	2.21	2.55
January.....	810	311	529	.945	1.09
February.....	720	292	452	.807	.87
March.....	1,400	292	680	1.21	1.40
April.....	8,560	415	2,140	3.82	4.26
May.....	4,660	370	714	1.28	1.48
June.....	15,200	440	2,890	5.16	5.76
July.....	2,060	274	527	.941	1.06
August.....	570	257	296	.529	.61
September.....	257	192	214	.382	.43
The year.....	15,200	192	955	1.71	23.21

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements in Missouri River drainage basin during the year ending September 30, 1928

Date	Stream	Tributary to—	Locality	Gage height	Discharge
Apr. 12	Wind River	Yellowstone River	In sec. 2, T. 1 S., R. 4 E., three-quarters of a mile east of Riverton, Wyo.	5.47	348
24	do.	do.	do.	5.39	307
25	do.	do.	do.	5.68	410
June 19	do.	do.	do.	8.04	2,560
Sept. 2	do.	do.	do.	5.95	748
June 23	Shoshone River	Big Horn River	At mouth at Kane, Wyo.		3,640
29	Little Goose Creek	Goose Creek	In sec. 30, T. 54 N., R. 84 W., Wyo.	2.31	198
Apr. 17	Clear Creek	Powder River	In sec. 6, T. 50 N., R. 82 W., 4 miles west of Buffalo, Wyo.	1.10	7.7
June 28	do.	do.	do.	3.46	526
1	North Platte River	Platte River	Torrington, Nebr.	2.68	2,190
30	Bates Creek	North Platte River	Sec. 1, T. 31 N., R. 82 W., Wyo.		2.1
May 25	Wagon Hound Creek	do.	Sec. 16, T. 31 N., R. 71 W., Wyo.		37.1
June 6	do.	do.	do.	2.20	18.3
19	do.	do.	do.	2.52	49.4
July 1	do.	do.	do.	1.50	12.3
Aug. 8	do.	do.	do.	1.20	1.5
June 5	Cottonwood Creek	do.	Sec. 16, T. 27 N., R. 67 W., Wyo.		66
18	do.	do.	do.		40
July 2	do.	do.	do.		3.8
10	do.	do.	do.		.7
Aug. 8	do.	do.	do.		.3
July 27	Lucerne Canal	do.	Sec. 21, T. 26 N., R. 64 W., Wyo.		68
27	Torrington ditch	do.	Sec. 28, T. 25 N., R. 62 W., Wyo.		24
26	Rock ranch ditch	do.	Sec. 31, T. 25 N., R. 62 W., Wyo.		66
Aug. 3	Grant Drain	Rock ranch ditch	Sec. 12, T. 24 N., R. 62 W., Wyo.		4.2
25	do.	do.	do.		4.1
May 31	Arnold Drain	North Platte River	Sec. 14, T. 24 N., R. 61 W., Wyo.	1.00	4.9
June 13	do.	do.	do.	1.30	15.1
22	do.	do.	do.	1.00	5.9
26	do.	do.	do.	1.25	11.3
July 6	do.	do.	do.	1.09	8.6
13	do.	do.	do.	1.09	9.0
Aug. 4	do.	do.	do.	1.33	18.6
28	do.	do.	do.	1.21	12.6
May 31	Cherry Creek	do.	Sec. 22, T. 24 N., R. 61 W., Wyo.	2.20	18.6
June 13	do.	do.	do.	2.24	17.3
26	do.	do.	do.	2.26	15.7
July 7	do.	do.	do.	2.31	24.2
13	do.	do.	do.	2.41	28.4
31	do.	do.	do.	2.50	33.0
Aug. 4	do.	do.	do.	2.60	75
18	do.	do.	do.	2.66	62
20	do.	do.	do.	2.72	67
25	do.	do.	do.	2.80	67
28	do.	do.	do.	2.80	55
June 25	Pullen Drain	do.	Sec. 15, T. 24 N., R. 61 W., Wyo.		.3
Aug. 16	do.	do.	do.		.8
28	do.	do.	do.		1.7
May 11	Katzer Drain	do.	Sec. 4, T. 23 N., R. 60 W., Wyo.	.70	29.3
June 1	do.	do.	do.	1.37	24.1
2	do.	do.	do.	1.96	28.8
14	do.	do.	do.	1.25	40.7
22	do.	do.	do.	.92	23.2
26	do.	do.	do.	1.09	31.2
July 6	do.	do.	do.	.88	9.7
13	do.	do.	do.	1.06	20.1

Miscellaneous discharge measurements in Missouri River drainage basin during the year ending September 30, 1928—Continued

Date	Stream	Tributary to—	Locality	Gage height	Discharge
Aug. 15	Katzer Drain.....	North Platte River...	Sec. 15, T. 23 N., R. 60 W., Wyo.	1.68	31.4
24	do.....	do.....	do.....	2.10	43.8
27	do.....	do.....	do.....	2.11	45.6
Sept. 1	do.....	do.....	do.....	2.26	52
6	do.....	do.....	do.....	2.41	53
July 6	Horse Creek.....	do.....	Lyman in sec. 33, T. 23 N., R. 58 W., Wyo.		36.6
13	do.....	do.....	do.....		5.8
31	do.....	do.....	do.....		77
Aug. 12	Osage River.....	Missouri River.....	Sec. 2, T. 39 N., R. 33 W., 6 miles southeast of Armoret, Mo.	6.74	1,170
13	do.....	do.....	do.....	4.28	647
Nov. 20	Turnback Creek.....	Sac River.....	Sec. 25, T. 28 N., R. 27 W., 6 miles west of Republic, Mo.		17

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