Magnitude and Frequency of Floods in the United States

Part 6–A. Missouri River Basin above Sioux City, Iowa

By JAMES L. PATTERSON

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1679

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1966

UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

William T. Pecora, *Director*

Library of Congress catalog-card No. GS 64–192

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

CONTENTS

Flood records at gaging stations and miscellaneous sites—Continued

219-848 O - 66 - 2

ILLUSTRATIONS

TABLES

MAGNITUDE AND FREQUENCY OF FLOODS IN THE UNITED STATES

PART 6-A. MISSOURI RIVER BASIN ABOVE SIOUX CITY, IOWA

By JAMES L. PATTERSON

ABSTRACT

The magnitude and frequency of expected floods of any recurrence interval between 1.1 and 50 years can be determined for most streams in the Missouri River basin above Sioux City, Iowa, by methods outlined in this report.

Composite frequency curves were drawn showing the relation of the mean annual flood to floods having recurrence intervals from 1.1 to 50 years. Other curves express the relation of the mean annual flood to basin characteristics. In the mountainous areas of northern Wyoming and southern Montana both drainage-basin size and mean altitude were found to be important factors influencing the magnitude of the mean annual flood. Only drainage-basin size was used as an independent variable in the remainder of the report area.

By combining data from the composite frequency curves and curves showing the relation of mean annual flood to basin characteristics, flood-frequency curves can be drawn for streams in the report area whose peak flows are not materially affected by regulation or diversion. The curves should not be extrapolated beyond the range defined by base data. Some of the large streams do not lend themselves to regional analysis. These streams are given special treatment in this report.

INTRODUCTION

PURPOSE AND SCOPE

This report is one of a series covering flood frequency in the conterminous United States. The purpose of the report is (1) to present methods by which the magnitude and frequency of floods for gaged or ungaged sites in the report area can be predicted and (2) to present all known significant peak flood data.

The area covered by this report (fig. 1) is the Missouri River basin above Sioux City, Iowa, and includes parts of Montana, Wyoming, North and South Dakota, Nebraska, Minnesota, and Iowa. Each of these States has published flood-frequency reports covering parts of the report area. A list of the publications of these States is included in the section on "Selected references."

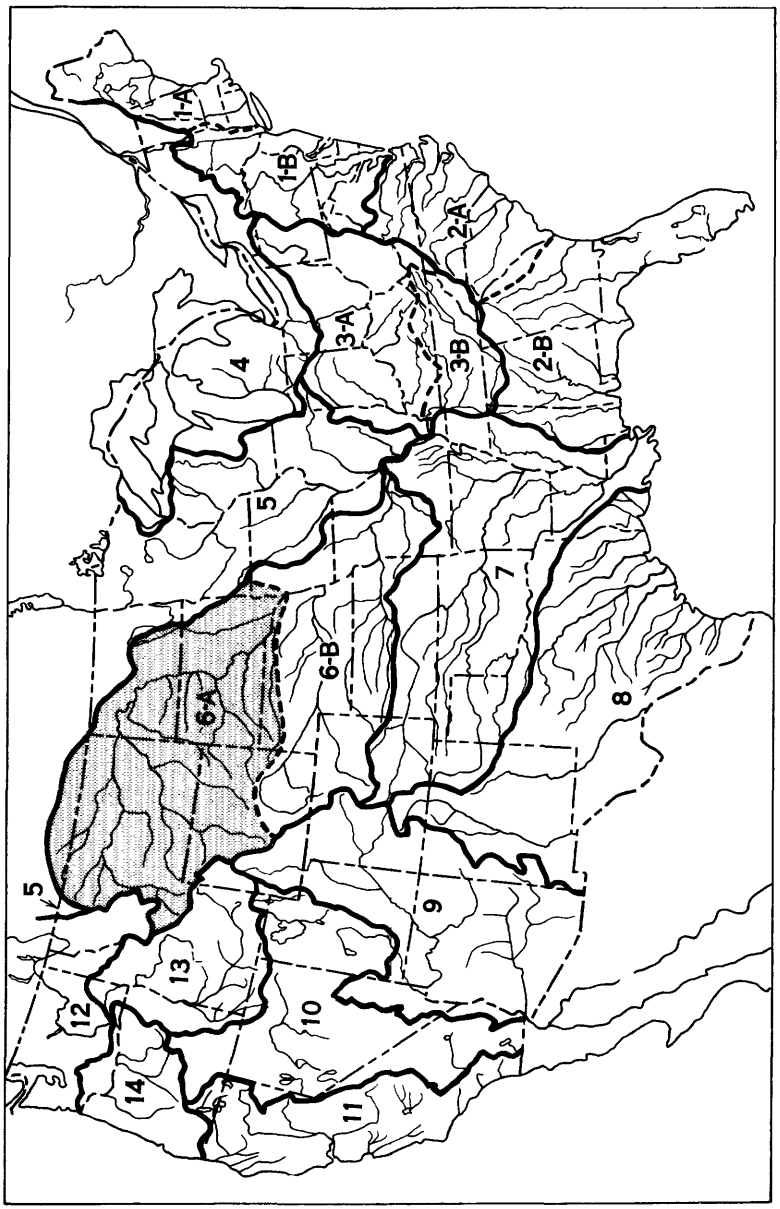

FIGURE 1.—Map of conterminous United States. The area covered by this report is shaded.

ACKNOWLEDGMENTS

This report was prepared under the general supervision of Francis J. Flynn, chief, Basic Records Section, Surface Water Branch, Water Resources Division, U.S. Geological Survey. Technical guidance was provided by A. Rice Green, hydraulic engineer, U.S. Geological Survey. Basic data were compiled by Geological Survey personnel in the district offices of the Surface Water Branch under the supervision of their respective district engineers.

Unless otherwise noted in individual station descriptions, the data were collected by the U.S. Goelogical Survey with the assistance of many Federal and State agencies, municipalities, corporations, and private individuals. Credit has been given for cooperation in the annual series of water-supply papers of the Geological Survey entitled "Surface Water Supply of the United States," and since 1960, in the annual Geological Survey surface-water reports of the various States.

APPLICATION OF FLOOD-FREQUENCY DATA

The method of analysis used in this report is explained by Dalrymple (1960) and Benson (1962). A brief description of the method used is given in the section entitled "Method of analysis."

The method for estimating the magnitude of floods having recurrence intervals from 1.1 to 50 years is based upon two sets of curves: a composite curve (fig. 2) showing as ordinate the ratio of peak discharges to an index flood (mean annual flood) and as abscissa the recurrence interval, in years, and a curve showing the relation of the mean annual flood to size of the drainage basin for all except mountainous areas in northern Wyoming and southern Montana where a family of curves showing the relation of mean annual flood to size and mean altitude of the basin is used.

Results based on extrapolation of the curves beyond the indicated range in drainage-basin size and altitude and beyond recurrence intervals of 50 years are not dependable. In mountainous areas where mean altitude is used in estimating the magnitude of the index flood, most of the small streams for which records are available are at high altitudes where flood peaks are mostly due to snowmelt. Small-area floods resulting from intense rainstorms occur at lower altitudes. Peak flows for such storms may be considerably greater than those defined by frequency curves based on snowmelt peaks. Extrapolation of curves to small areas at low altitudes may lead to serious errors.

Flood-frequency relations are shown for virtually natural drainage

conditions. There are relatively few gaged streams in the Montana and Wyoming part of the report area whose peak flows are not affected to some extent by diversion or regulation. Records at stations for which peak flows were not believed to be materially affected were used in the analysis.

REGIONAL APPLICATION

The following procedure is not applicable to some of the large streams in the area. Streams in the excepted category are listed in the section entitled "Special application." The general procedure for application of flood-frequency data is as follows:

1. If the selected site is not in the excepted category, determine from plate 1 the flood-frequency region (A–E) and hydrologic area (1–15) in which the site is located.
2. Determine the size of the drainage area above the site from the best available map.
3. For areas 6–7, determine the mean altitude of the basin. Mean altitudes used in this report were determined by placing a transparent rectangular grid system overlay on contour maps of the Army Map Series, scale 1:250,000. The altitude at each grid intersection was recorded, and the arithmetic average of recorded altitudes was used as the mean altitude of the basin. The grid scale should be such that, except for very small areas, a minimum of 30 intersections fall within the basin.
4. Determine the discharge of the mean annual flood from the appropriate hydrologic-area curve (figs. 3–7). For hydrologic areas 6 and 7 the discharge must be obtained by interpolating between curves or by solving mean-annual-flood equations.
5. From flood-frequency curves (fig. 2) determine the ratio of the flood of the selected recurrence interval to the mean annual flood.
6. Multiply the ratio obtained in step 5 by the discharge of the mean annual flood (step 4). A complete frequency curve up to a 50-year recurrence interval can be defined by repeating steps 5 and 6 for several selected recurrence intervals.

The mean annual flood for areas 6 and 7 can be computed by solution of equations $Q_{2.33}=0.183A^{.85}H^{2.34}$ and $Q_{2.33}=0.111A^{.85}H^{2.34}$, respectively; $Q_{2.33}$ is the mean annual flood in cubic feet per second, A is the drainage area in square miles, and H is the mean altitude of the basin in thousands of feet above mean sea level.

These mean-annual-flood equations should not be used indiscriminately for all basin altitudes and sizes. The user should be guided by the range indicated by curves in figures 3 and 4.

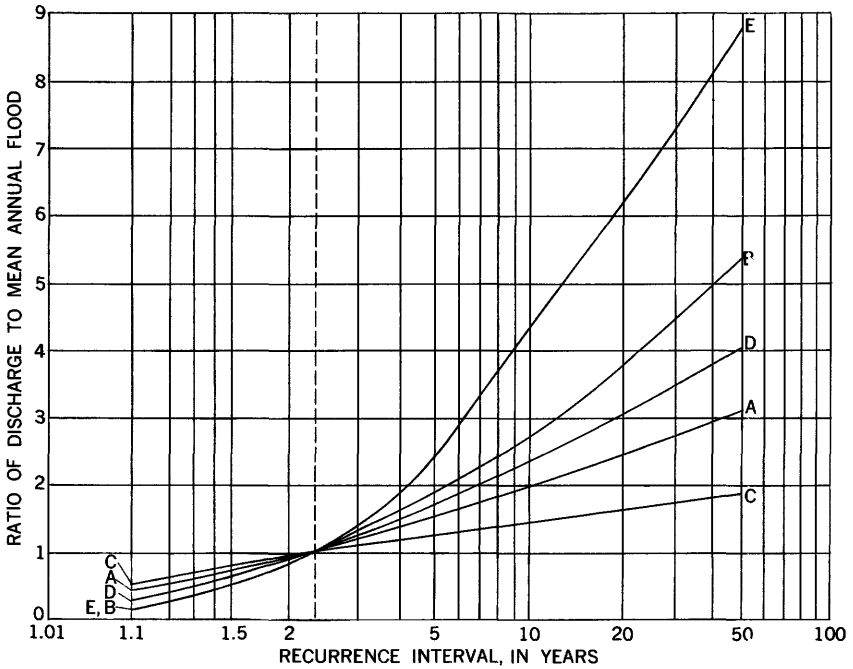

FIGURE 2.—Composite frequency curves for regions A–E.

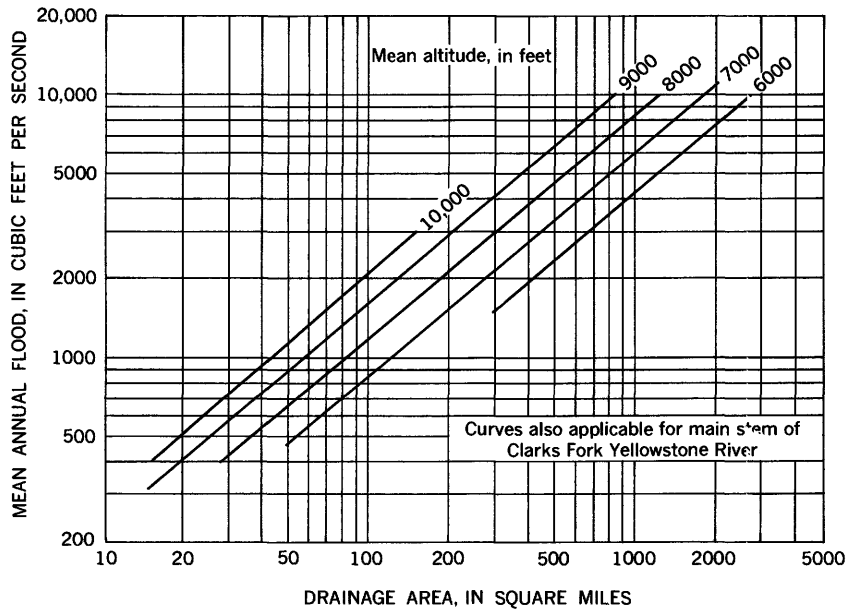

FIGURE 3.—Variation of mean annual flood with drainage area and mean altitude in hydrologic area 6.

ILLUSTRATIVE PROBLEM

Assume that a bridge is to be built across North Fork Shoshone River at a point 1 mile upstream from the high-water line of Buffalo Bill Reservoir and that the bridge will be designed to pass a flood having a recurrence interval of 50 years. The discharge for the 50-year flood is computed as follows:

1. An examination of the main stem stations listed under "Special applications" indicates that North Fork Shoshone River is not in the excepted category. Although water from this stream is used for irrigation to some extent, peak flows are not materially affected.
2. The site is in hydrologic area 7 and region C (pl. 1).
3. The drainage area measured from the best available maps is 800 square miles.
4. Mean altitude of the basin computed by using a transparent grid overlay on a 1:250,000 Army Map Service map is 8,510 feet.
5. The discharge of the mean annual flood is 4,900 cfs if interpolated between the 8,000- and 9,000-foot altitude curves (fig. 4) or if solved by the equation

$$Q_{2.33}=0.111A^{.85}H^{2.43}=0.111(800)^{.85}(8.51)^{2.34}=4{,}900 \text{ cfs.}$$

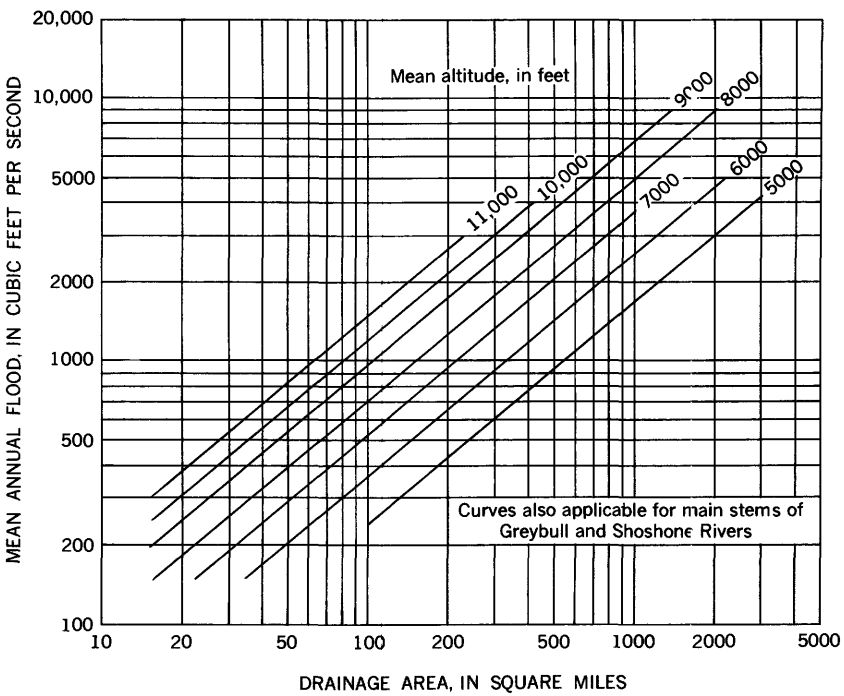

FIGURE 4.—Variation of mean annual flood with drainage area and mean altitude in hydrologic area 7.

6. The ratio of the 50-year flood to the mean annual flood is 1.85 (fig. 2).
7. The discharge of the 50-year flood is $4{,}900 \times 1.85 = 9{,}060$ cfs.

If the recurrence interval of a known flood is desired for the above site, compute the ratio of the discharge of the flood to that of the mean annual flood (4,900 cfs) and, using the computed ratio as ordinate, read the recurrence interval from the abscissa scale, figure 2, curve C.

SPECIAL APPLICATION

Some of the large streams in the area covered by this report flow through regions having diverse climate and physiographic characteristics. These streams integrate floodflow characteristics of all the area through which they flow and have flood-frequency relations different from those of the smaller tributary streams. Curves defined on the basis of flood-frequency regions and hydrologic areas are not applicable to these streams, and separate treatment is necessary. The streams may be placed in two categories: those for which a composite frequency curve (fig. 2) is applicable, whereas mean annual flood curves are not, and those for which neither composite nor mean annual flood curves are applicable.

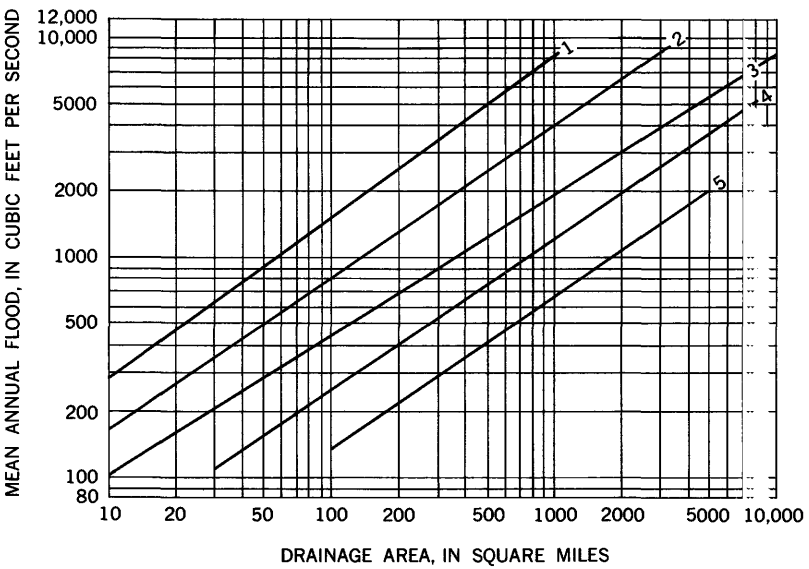

FIGURE 5.—Variation of mean annual flood with drainage area in hydrologic areas 1–5.

Streams in the first category are Belle Fourche River below Willow Creek, Cheyenne River below Belle Fourche River, Niobrara River below Bone Creek, James River, and Big Sioux River.

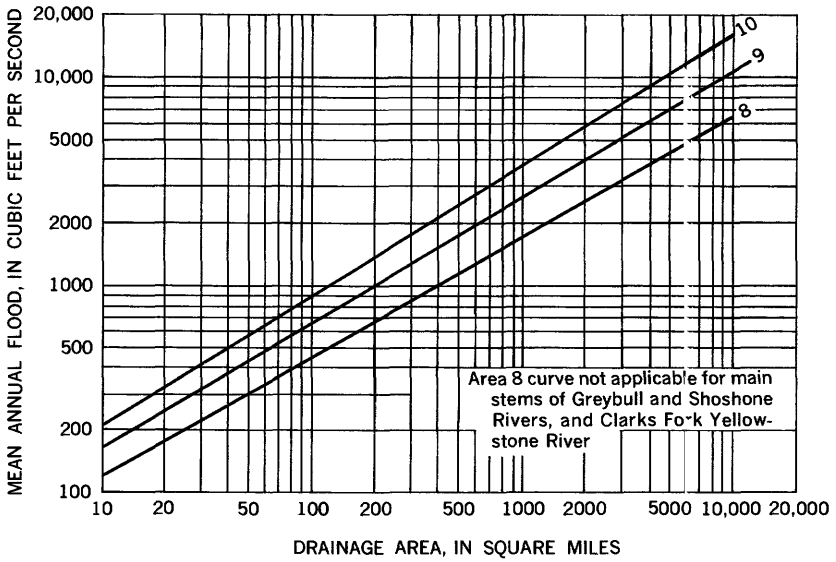

FIGURE 6.—Variation of mean annual flood with drainage area in hydrologic areas 8–10.

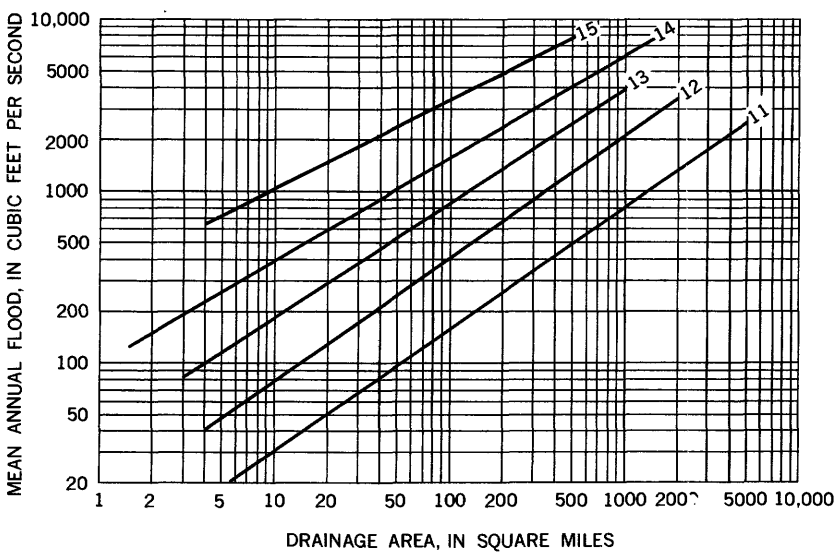

FIGURE 7.—Variation of mean annual flood with drainage area in hydrologic areas 11–15.

Individual curves (fig. 8) showing the relation of the mean annual flood to drainage area have been drawn for these streams. Flood magnitudes for sites lying within the stream reaches can be determined as outlined under "Regional application," except that values of the mean annual flood are taken from figure 8.

Streams in the second category are Missouri River above Fort Peck Reservoir and Yellowstone River below Yellowstone Lake. For these rivers, families of curves (figs. 9, 10) were drawn showing the relation of discharges for selected flood frequencies to drainage area. Flood magnitudes for selected recurrence intervals at sites on these rivers can be taken directly from the family of curves by first determining the drainage area for the site.

ILLUSTRATIVE PROBLEM

Assume that a frequency curve must be prepared for Yellowstone River just downstream from Prior Creek at Huntley, Mont.

1. The drainage area for this site is 12,840 square miles.

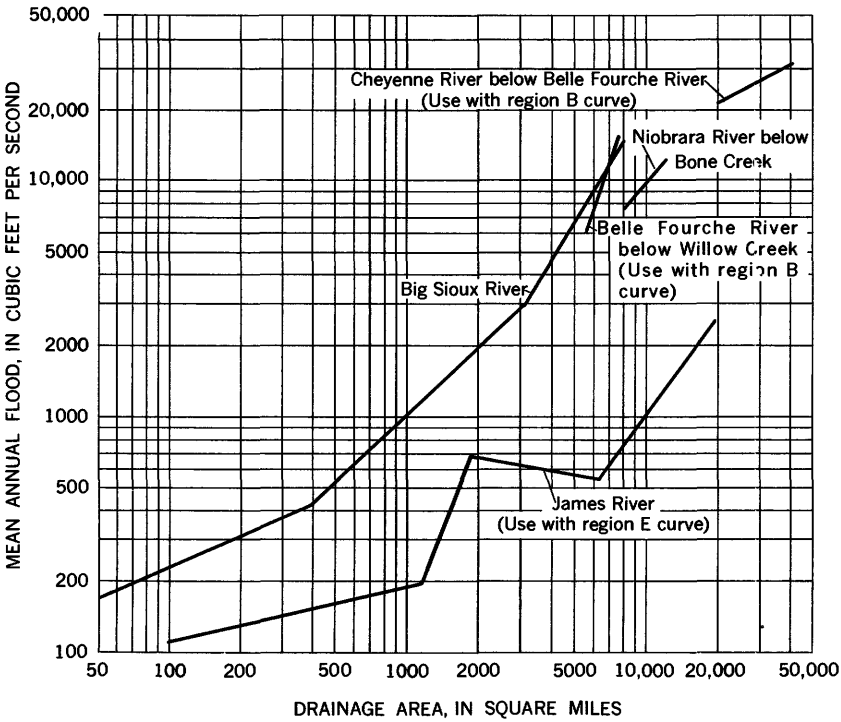

FIGURE 8.—Variation of mean annual flood with drainage area on main stem of Belle Fourche River below Willow Creek, Cheyenne River below Belle Fourche River, Niobrara River below Bone Creek, James River, and Big Sioux River.

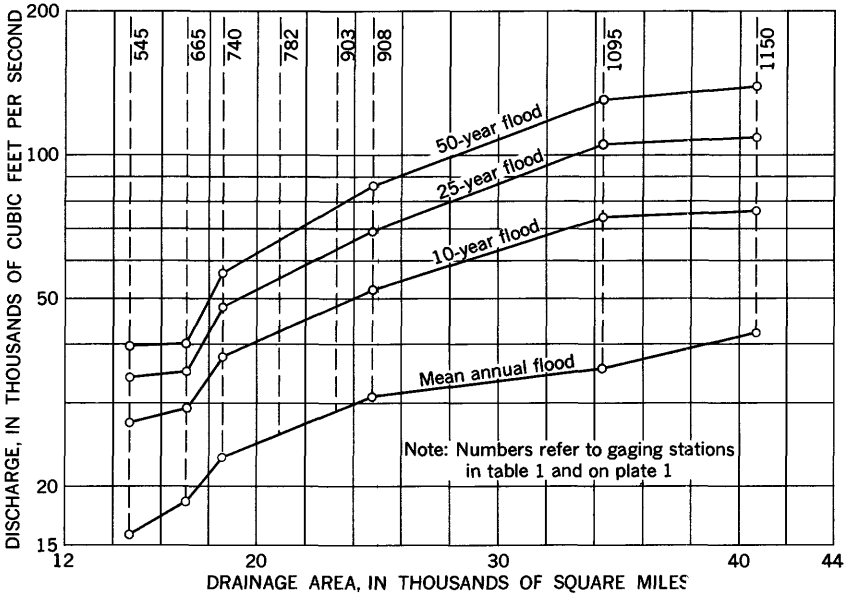

FIGURE 9.—Relation of discharge for selected flood frequencies to drainage area, Missouri River main stem below Gallatin River.

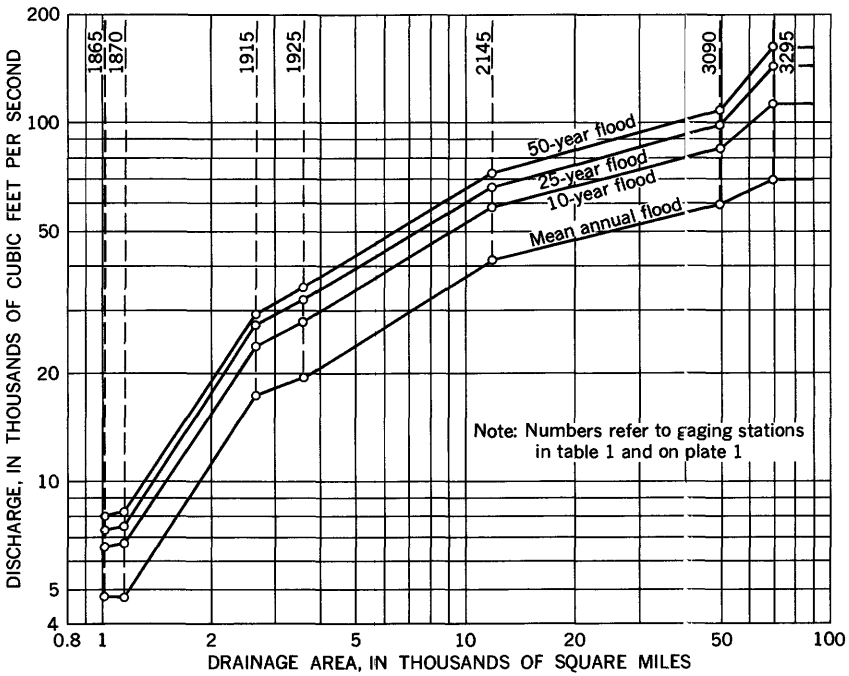

FIGURE 10.—Relation of discharge for selected flood frequencies to drainage area, Yellowstone River main stem below Yellowstone Lake.

2. As determined from figure 10, the magnitudes of floods having recurrence intervals of 2.33, 10, 25, and 50 years at this site are 42,500, 60,000, 68,000, and 74,200 cfs, respectively.
3. Discharges determined in step 2 are then plotted against corresponding recurrence intervals on suitable plotting paper to give the flood-frequency curve. Plotting paper shown in figure 2 is satisfactory.
4. If the magnitude of a flood having a specific recurrence interval (25 years, for example) is desired, the value can be taken directly from figure 10 as 68,000 cfs.
5. Recurrence intervals of known floods can be obtained by interpolating between curves in figure 10 or by using the peak discharge of the flood in conjunction with the frequency curve plotted in step 3.

STREAMS AFFECTED BY REGULATION OR DIVERSION

Peak-flow records used to regionalize flood-frequency relations should ideally be unaffected by regulation or diversion. Owing to the paucity of peak-flow data completely unaffected by manmade changes, records for many streams whose peak flows are affected to a minor degree have been used in the analysis. Records for many other streams could not be used because of the excessive effect of regulation and (or) diversion nor can regional frequency curves be used to predict probable peak flows on streams similarly affected without first making allowances for manmade changes.

Peak flows for some of the large streams in the report area have been materially affected throughout the period for which records have been collected. As the effects of storage and diversion projects have been gradually increasing over the years, it is not feasible to define flood-frequency relations for either natural or affected conditions, nor can they be safely predicted from relations defined by smaller tributary streams. Streams falling in this category are

Missouri River below Fort Peck Reservoir
Milk River below Battle Creek
Frenchman River
Bighorn River below Boysen Reservoir
Powder River below Clear Creek
Belle Fourche River above Indian Creek
Niobrara River above Bone Creek.

DESCRIPTION OF THE AREA

RIVER BASINS

The area covered by this report is about 315,000 square miles and includes that part of the Missouri River basin above Sioux City, Iowa. The Missouri River is formed by the confluence of the Jefferson, Madison, and Gallatin Rivers, which head in the Northern Rocky Mountain province in southwestern Montana and northwestern Wyoming. It flows generally north through Montana until entering the Great Plains province near Great Falls; from this point it flows east through Montana to the Montana-North Dakota State line where it turns southeast and flows through North and South Dakota and northeastern Nebraska and forms the boundry between southeastern South Dakota and northeastern Nebraska just upstream from Sioux City. The principal tributary of the Missouri is the Yellowstone River which drains about 70,000 square miles in northern Wyoming and southern Montana and joins the Missouri River just east of the Montana-North Dakota State line. Other major tributaries are the Marias and Milk Rivers, draining northwestern Montana and extreme southern Canada; the Cheyenne and White Rivers in South Dakota; the Niobrara River in northern Nebraska; the James River in North and South Dakota.

TOPOGRAPHY

The topography of the upper Missouri basin varies from the flat terrain of the central lowlands in North and South Dakota to the rugged peaks of the Rocky Mountains in the west. Altitudes range from about 1,100 feet in the vicinity of Sioux City to over 13,000 feet for some peaks in Wyoming. Many peaks in Wyoming and Montana exceed 10,000 feet in altitude. Fenneman (1931) gives a detailed description of the physiographic divisions in the basin.

The headwaters of the Missouri and Yellowstone Rivers drain the rugged mountainous areas lying in the Northern and Middle Rocky Mountain provinces and the Wyoming Basin province of the Rocky Mountain system in western Montana and northwestern Wyoming.

About two-thirds of the report area, including the eastern two-thirds of Montana, northwestern Wyoming, eastern North and South Dakota, and northern Nebraska, is in the Great Plains province. This area is characterized by broadly terraced river valleys, smoothly rolling plains, and isolated mountains. The largest mountain range in the area is the Black Hills in South Dakota. Spectacular examples of stream erosion in the area are demonstrated by the "Badlands" between Cheyenne and White Rivers in South Dakota and badlands along the Little Missouri River in North Dakota.

The extreme eastern part of the area lies in the Central Lowlands province and has little topographic relief. The drainage pattern in the James and upper Big Sioux River basins, which comprises most of this area, is poorly defined, and much of it does not contribute directly to surface runoff. There are many closed basins in this area.

CLIMATE

Average annual temperatures in the report area are relatively low, ranging from more than 45°F in the southeast to about 35°F at West Yellowstone, Mont. There is a wide range in maximum and minimum temperatures. Temperatures exceeding 100°F have frequently been recorded in some localities. A low of −70°F was recorded at Rogers Pass in Montana on January 20, 1954.

Annual precipitation in the part of the report area in the Central Lowlands and Great Plains decreases in a northwesterly direction from about 25 inches in the vicinity of Sioux City, Iowa, to 16 inches in the mid-Dakotas and ranges from about 16 to 12 inches over the remainder of the area. No definite geographical pattern of variation is evident except in the Black Hills in South Dakota where annual precipitation is about 25 inches. Rainfall in the Rocky Mountain part of the area varies greatly; heavier precipitation occurs at higher altitudes. Rainfall in the Rocky Mountains ranges from less than 8 inches in the central Big Horn River basin to more than 30 inches in the Big Horn Mountains and at high altitudes along the Continental Divide in Wyoming and Montana.

Flood peaks in the western and northern part of the report area are generally caused by snowmelt and usually occur from March to June. In the southeastern part of the area, flood peaks are most often caused by rainfall either as general storms or as intense small-area thunderstorms and may occur from spring through fall. Some of the greatest floods have resulted from heavy rainfall on snow and frozen ground; such a situation caused the great flood of June 1964 in northwestern Montana.

FLOOD-FREQUENCY ANALYSIS

METHOD OF ANALYSIS

Methods used in analyzing data for this report are published in Water-Supply Paper 1543–A (Dalrymple, 1960). Peak discharge data collected at a single point on a stream (a gaging station) are used to define flood-frequency relations at the gaging station. These point relations defined at many sites are then combined to define regional frequency relations which can be applied to both gaged and ungaged sites over a broad area. Using data collected on many

219-848 O - 66 - 3

streams of varying types and sizes of drainage basins in the Missouri River basin, two basic relations were defined: a composite curve showing as ordinate the ratio of peak discharges to the mean annual flood and as abscissa the recurrence interval in years and a curve showing the relation between the mean annual flood and the physical characteristics of the basin.

RECORDS USED

Peak data for 673 gaging stations on streams in the upper Missouri River basin are included in this report. Records for only 347 of these stations were used in the regional analysis. Records for 13 other stations were used to define flood-frequency relations for main stems of Missouri and Yellowstone Rivers. In general, only records for stations having 10 or more years of peak-flow record not materially affected by regulation or diversion were used. Records for 80 crest-stage partial-record gaging stations having less than 10 years record were used to help define the mean-annual-flood relations for small drainage basins.

FLOOD FREQUENCY AT A GAGING STATION

TYPES OF FLOOD SERIES

Flood-frequency data at a gaging station can be analyzed either as an annual flood series or as a partial-duration flood series. In the annual flood series, only the highest peak discharge during each water year (Oct. 1 to Sept. 30) is used. The partial-duration series includes all peaks above a selected base. Although the annual flood series does not take into consideration some high floods that are not the highest for the year, it has the advantage of being a complete duration series and is adaptable to mathematical analysis. The annual flood series has been used for analysis in this report.

Langbein (1949) has shown by statistical principles that the two methods give practically the same results for recurrence intervals of 10 years or more. The relation between the values in the two series is shown in the following table:

Recurrence intervals, in years

Annual flood series	*Partial-duration series*	*Annual flood series*	*Partial-duration series*
1.16	0.5	10.5	10
1.58	1.0	20.5	20
2.00	1.45	50.5	50
2.54	2.0	100.5	100
5.52	5.0		

The preceding table can be used to compute values for the partial-duration series from curves shown in this report. There is a distinction in the meaning of "recurrence interval" between the two series.

In the annual flood series, the recurrence interval is the average interval of time within which a given flood will be equaled or exceeded once as an annual maximum. In the partial-duration series, the recurrence interval is the average interval of time within which a given flood will be equaled or exceeded once without regard to the relationship to the water year or any other period of time.

FLOOD-FREQUENCY CURVES

A flood-frequency curve shows the relation between the annual peak discharge and the recurrence interval. Data were plotted on a special form based on the theory of extreme values (Powell, 1943). Recurrence interval is computed by the formula $T=(n+1)/m$, where T is the recurrence interval in years, n is the number of years of record, and m is the order number, beginning with the largest flood as number 1. The frequency curve for White River near Oacoma, S. Dak., is shown in figure 11. This curve is based on records for the period 1929–63 (35 years). The greatest flood during this period was 51,900 cfs. By substituting this discharge in the formula given above, the recurrence interval was computed as $T=(35+1)/1=36$ years. The recurrence intervals for other annual peaks were computed in the same manner and plotted against the corresponding discharge. A smooth curve was fitted to the plotted points by visual inspection. This method gives less weight to extreme values whose indicated recurrence intervals may not be representative of the long-term average.

From the definition given for recurrence interval in the annual flood series, it is evident that the probability of occurrence of a flood of a selected magnitude during a given year is the inverse of the recurrence interval. Thus, a 10-year flood has a 10-percent chance of occurring in any year, and a 50-year flood has a 2-percent chance of occurring in any year. It should be emphasized that there is no implication that a 10-year flood will occur once every 10 years or that one 50-year flood will occur every 50 years. The relations between selected recurrence intervals and probability of occurrence during selected time periods are shown below.

Recurrence interval of flood (years)	Probability of a flood of indicated recurrence interval being exceeded one or more times during indicated time periods (years)			
	10	25	50	100
10	0. 65	0. 928	0. 9948	0. 9997
25	. 34	. 64	. 87	. 983
50	. 18	. 40	. 64	. 87
100	. 10	. 22	. 40	. 63

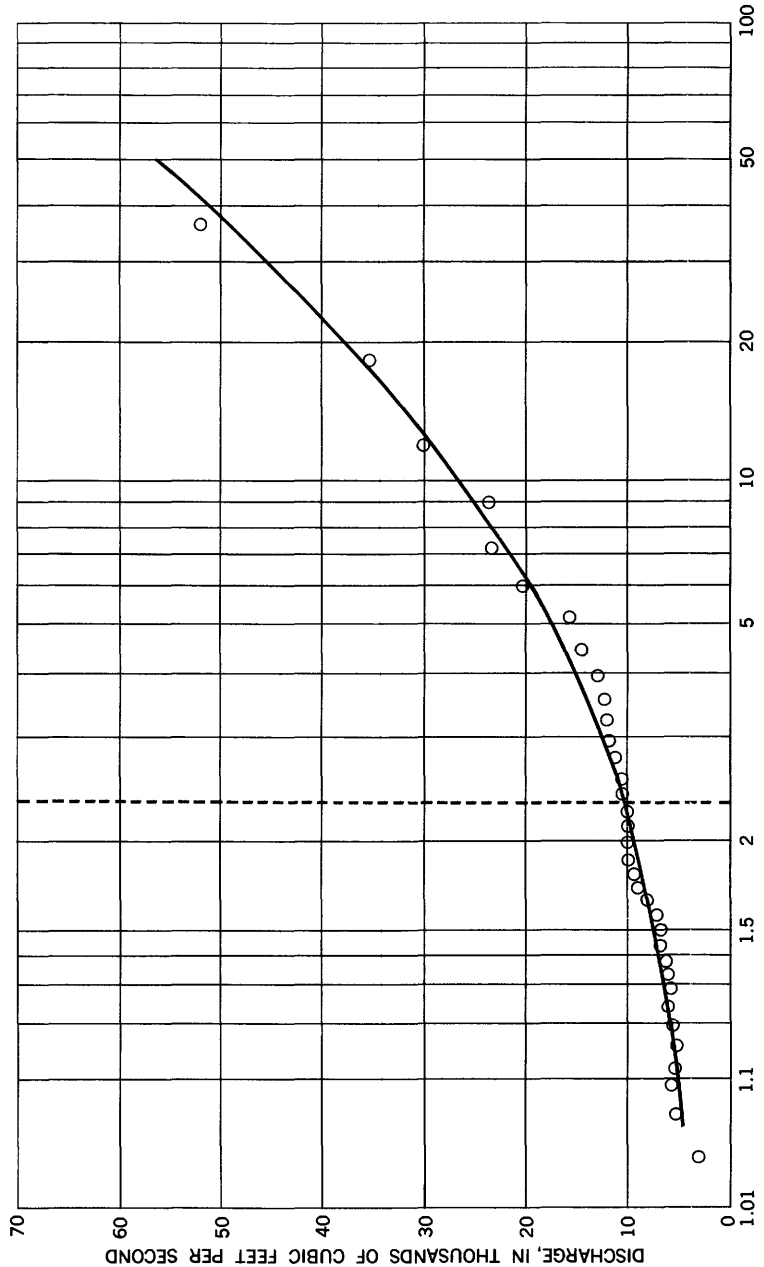

FIGURE 11.—Flood-frequency curve for White River near Oacoma, S. Dak.

REGIONAL FLOOD FREQUENCY

To permit regional application of flood-frequency relations defined at individual gaging sites, flood-frequency curves have been combined in two ways. First, the records were combined on the basis of similarity of the slopes of the individual frequency graphs. This step defined a composite dimensionless curve representing the ratio of the discharge of a flood of any frequency to that of an index flood (the mean annual flood). Secondly, a curve based on gaging-station records was defined that shows the relation between the mean annual flood and significant basin characteristics.

MEAN ANNUAL FLOOD

The mean annual flood is, by definition, a flood having a recurrence interval of 2.33 years in the annual flood series. According to the theory of extreme values, the arithmetic means of all the annual floods has a value corresponding to the flood of a 2.33-year recurrence interval. The mean annual flood is not seriously influenced by floods of extreme magnitude; it is largely determined from floods of average magnitude. The mean annual flood has been found to be a good index of geographical variation of floodflow and has been used as the index flood in this report. It can be defined from a shorter period of record than can floods of greater recurrence interval.

The mean annual flood for each of the 347 gaging stations used in the regional analysis was computed. These data were graphically correlated with drainage basin size as the independent variable. In the mountainous areas of northern Wyoming and southern Montana, the use of mean basin altitude as a second variable was found to improve the correlation. On the basis of these correlations, 15 hydrologic areas were defined. These areas are outlined on plate 1, and curves of relation are shown in figures 3–8. Mean annual floods used to define areas 1–7 were adjusted to a standard period 1921–63. Those used to define areas 8–15 were adjusted only to the period 1929–63 owing to the lack of long-term records in the eastern part of the report area. Data from the 80 short-term crest-stage partial-record gaging stations were used without time adjustment.

COMPOSITE FREQUENCY CURVES

The upper Missouri River basin has been divided into five homogeneous regions on the basis of the slopes of the individual frequency curves for all the 347 gaging stations used in the regional analysis except the 80 short-term partial-record stations whose records were not long enough to define a definite slope. The five regions are outlined on plate 1. Before combining a group of stations into a region,

a homogeneity test was made to determine whether the slope of the individual curves differ more than might be expected in random sampling. The composite frequency curves shown in figure 2 show the relation of flood peaks to the mean annual flood in each of the five regions. These curves were derived by computing ratios of floods to the mean annual flood at recurrence intervals of 1.1, 1.5, 2.33, 5, 10, 25, and 50 years and by taking the median ratio at each recurrence interval for each of the five regions.

SUMMARY

Curves presented in this report can be used to predict the magnitude of floods having recurrence intervals from 1.1 to 50 years for streams in the Missouri River basin above Sioux City, Iowa. Flood-frequency relations are for virtually natural conditions and are not applicable to streams whose peaks are materially affected by regulation or diversion. The composite frequency curves (fig. 2) should not be extrapolated to recurrence intervals beyond 50 years nor should mean-annual-flood curves (figs. 3–8) be extended above or below the ranges in drainage basin sizes or mean altitudes indicated.

Both drainage basin size and mean altitude have been used as independent variables in determining the mean annual flood in hydrologic areas 6 and 7. Only drainage basin size has been used in other hydrologic areas. The geographical delineation of hydrologic areas recognizes indirectly the effect of other variables.

FLOOD RECORDS AT GAGING STATIONS AND MISCELLANEOUS SITES

A summary of maximum known stages and discharges for the 673 gaging stations for which records are included in this report are contained in table 1. Table 2 contains similar data for outstanding floods at miscellaneous sites and at gaging stations having less than 5 years peakflow record through 1963. The data are listed in the downstream order currently being used by the U.S. Geological Survey. The station numbers shown in table 1 are permanent reference numbers used in Geological Survey water-supply papers since 1958. The station number and location of stations included in table 1 are shown on plate 1. Because all stations are in Part 6–A, the prefix denoting the "Part" has been omitted. Sites for data listed in table 2 have been numbered consecutively beginning with number 1 as the most upstream site. The period of known floods is the period, in water years, during which the listed peak is believed to be the maximum and does not necessarily indicate that all the annual floods are known for the period.

Following the tables of maximum known floods is a compilation of flood peaks for the 673 gaging stations given in table 1. A brief description of each gaging station is accompanied by a tabulation of peaks. Both peak stages and discharges are usually given, but in some places, only peak stage or discharge is given. Frequently the peak stage for the year is caused by backwater from ice and occurs on a different day than the peak discharge. For such events, both peak stage and discharge are given with date of corresponding occurrence.

Peak discharges, unless otherwise noted, are instantaneous peaks expressed in cubic feet per second. The peaks are arranged by the water year which begins October 1 and ends September 30 and is identified by the year in which it ends; thus, a peak occuring in October, November, or December 1949, would be given in the 1950 water year. Peaks are generally given for period of record through 1963. Annual peaks are given for 1964 in that area covered by the unprecedented flood of June 1964 in northwestern Montana and for short-term crest-stage gages.

Underlines in the tables of peak stages and discharges have the following significance:

1. Line in "Water year" column mean a discontinuous record.
2. Line beginning at "Date" column and continuing through "Discharge" column means a change in site and datum.
3. Line in "Date" and "Discharge" column means a change in site only.
4. Line in "Gage height" column means a change in datum.
5. No underlines are used for changes in site or datum if records have been adjusted to present conditions.

Gaging-station records of less than 5 years in length, records on irrigation or diversion ditches, and records for gaging stations just downstream from major reservoirs that have completely regulated peak flows for the entire period of record are not included in this report.

MAXIMUM KNOWN FLOODS

Table 1.--Maximum stages and discharges at gaging stations

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Missouri River main stem									
110	Red River at Kennedy Ranch, near Lakeview, Mont.	C3	323	-	1937-42,1945-54, 1956-63	930	Apr. 30, 1952 Apr. 19, 1954	5.24 a 5.4	1,360 -	11 -
	Sheep Creek basin									
135	Sheep Creek below Muddy Creek near Dell, Mont.	C5	280	-	1946-53,1960-63	265	Apr. 18, 1952	7.72	909	*1.86
	Missouri River main stem									
140	Red Rock River near Dell, Mont.....	-	1,421	-	1943-63	-	June 9, 1944	4.85	1,480	-
	Horse Prairie Creek basin									
150	Horse Prairie Creek near Grant, Mont.....	C3	325	-	1946-53	930	June 2, 1953	6.47	1,360	11
	Grasshopper Creek basin									
155	Grasshopper Creek near Dillon, Mont.....	A5	348	-	1921-33,1946-53, 1955-58,1960-63	310	Mar. 24, 1956	b 6.47	1,870	*1.98
	Missouri River main stem									
160	Beaverhead River at Barratts, Mont.....	C5	2,737	-	1908-63	1,320	June 20, 1908	6.1	3,720	*1.52
	Blacktail Creek basin									
175	Blacktail Creek near Dillon, Mont.....	C5	312	-	1946-53,1955-63	285	June 11, 1947 Feb. 22, 1952	2.83 a 4.62	399 -	9.0 -
	Missouri River main stem									
182	Beaverhead River tributary No. 2 near Dillon, Mont.	C5	0.40	-	1958-63	-	June 24, 1958	5.04	170	-
185	Beaverhead River at Blaine, Mont.....	C5	3,619	-	1936-63	1,600	June 12, 1944	6.76	3,130	*1.06
	Ruby River basin									
190	Ruby River above Warm Springs Creek, near Alder Mont.	C7	145	8,000	1948-53	994	May 3, 1952	4.36	1,230	5.0
195	Ruby River above reservoir, near Alder, Mont.	C3	538	-	1938-63	1,280	May 21, 1948 May 13, 1960	- 5.20	1,230 -	2.1 -
200	Ruby River at damsite, near Alder, Mont...	C3	592	-	1911-12,1914, 1935-36	1,360	Aug. 14, 1936	8.00	1,800	6.7
210	Ruby River near Alder, Mont.....	-	614	-	1929-33,1935-39, 1947-60	-	June 11, 1947	5.35	1,380	-
215	Ruby River at Laurin, Mont.....	-	650	-	1947-60	-	June 11, 1947	6.43	980	-

220	Ruby River below Ramshorn Creek, near Sheridan, Mont.	-	843	-	1947-53	-	June 14, 1947	6.32	1,340	-
230	Ruby River near Twin Bridges, Mont.....	-	935	-	1942-43,1947-63	-	June 12, 1947	6.89	1,500	-
				Big Hole River basin						
235	Big Hole River near Jackson, Mont.....	A2	44.0	-	1948-53	450	May 29, 1948	4.45	938	12
240	Miner Creek near Jackson, Mont.....	A2	17.6	-	1948-53	235	June 22, 1950	-	336	4.3
							June 13, 1953	3.57	-	-
245	Trail Creek near Wisdom, Mont.....	A2	71.4	-	1948-53	630	June 2, 1953	5.89	1,070	6.5
255	Big Hole River near Melrose, Mont.....	A2	2,476	-	1924-63	7,600	June 14, 1927	14.0	c 23,000	-
							June 3, 1948	7.76	14,100	8.5
260	Birch Creek near Glen, Mont.....	-	36.0	-	1946-53,1955-63	-	Nov. 15, 1959	a 5.33	-	-
							June 21, 1963	-	362	-
				Missouri River main stem						
265	Jefferson River near Twin Bridges, Mont...	A3	7,632	-	1942-43,1958-63	7,100	May 28, 1942	12.53	d 13,200	8.5
270	Jefferson River near Silverstar, Mont.....	A3	7,683	-	1911-16,1921-39	7,150	June 15, 1927	10.0	e 20,300	37
				Fish Creek basin						
277	Fish Creek near Silverstar, Mont.....	A3	39.5	-	1959-63	240	June 6, 1959	-	166	1.4
							June 11, 1963	1.16	-	-
				Pipestone Creek basin						
285	Little Pipestone Creek near Whitehall, Mont.	A3	30.7	-	1935-40	205	July 1, 1938	3.0	175	1.8
				Unnamed tributary basin						
303	Jefferson River tributary No. 2 near Whitehall, Mont.	A3	4.50	-	1958-63	-	June 24, 1958	4.45	169	-
				Boulder River basin						
305	Boulder River above Rock Creek, near Basin, Mont.	A3	19.4	-	1946-53,1955-57	155	May 19, 1948	3.72	582	*1.22
330	Boulder River near Boulder, Mont.....	A3	381	-	1929-32,1934-63	1,030	May 22, 1948	10.37	2,620	24
				South Boulder River basin						
340	South Boulder River near Jefferson Island, Mont.	C3	27.5	-	1926-33	192	June 16, 1929	3.50	434	*1.22
				Missouri River main stem						
345	Jefferson River at Sappington, Mont.....	A3	9,277	-	1895,1897-1905, 1939-63	8,000	June 23, 1899	9.65	d 21,000	27
				Willow Creek basin						
350	Willow Creek near Harrison, Mont.....	-	83.8	-	1938-63	-	Feb. 3, 1963	4.24	813	-
355	Norwegian Creek near Harrison, Mont.....	-	22.4	-	1938-43,1947-51	-	Jan. 29, 1947	a 3.36	-	-
							July 20, 1948	2.24	28	-
365	Willow Creek near Willow Creek, Mont.....	-	165	-	1920-29,1931-32, 1947-53,1955-56	- -	July 31, 1948	5.20	d 650	-

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Madison River basin									
375	Madison River near West Yellowstone, Mont.	C3	420	-	1913-17,1919-63	1,080	Jan. 8, 1937	a 10.0	-	-
							May 24, 1956	3.44	2,150	*1.08
400	Madison River near Cameron, Mont.....	-	1,669	-	1952-58,1960-63	-	June 7, 1952	4.61	6,670	-
							Jan. 10, 1962	a8.83	-	-
420	Madison River below Cherry Creek, near Norris, Mont.	-	2,387	-	1898-1905	-	June 16, 1899	3.9	d 10,275	-
425	Madison River near Three Forks, Mont.....	-	2,511	-	1894-96,1929-32, 1942-50	-	June 19, 1896	3.2	d 8,175	-
							Feb. 8, 1948	a10.48	-	-
	Gallatin River basin									
430	Taylor Creek near Grayling, Mont.....	C7	98.0	8,320	1947-53,1955-57	777	June 6, 1952	4.32	1,020	6.5
432	Squaw Creek near Gallatin Gateway, Mont...	C7	40.4	-	1959-63	-	June 7, 1959	2.20	f 420	-
433	Logger Creek near Gallatin Gateway, Mont..	C7	2.48	-	1959-63	-	June 7, 1959	1.03	20	-
435	Gallatin River near Gallatin Gateway, Mont.	C7	825	7,960	1890-94,1931-63	4,280	June 20, 1892, June 2, 1894	7.70	d 8,060	*1.02
440	Gallatin River near Salesville, Mont.....	C7	833	-	1896-1905, 1912-13,1921-23	-	June 20, 1899	8.55	10,000	-
465	East Gallatin River near Bozeman, Mont....	A8	49.0	6,210	1952-53,1959-63	290	June 3, 1953	4.65	608	12
470	Bear Canyon Creek near Bozeman, Mont.....	A8	17.0	6,820	1952-53,1959-63	157	June 3, 1953	3.40	450	37
480	East Gallatin River at Bozeman, Mont.....	A8	148	6,230	1951-61	550	June 4, 1953	6.09	1,240	15
485	Bridger Creek near Bozeman, Mont.....	A8	62.5	6,540	1946-63	330	May 22, 1948	5.23	-	-
							June 8, 1953	-	902	32
500	Hyalite Creek at Hyalite ranger station, near Bozeman, Mont.	A8	48.2	7,710	1898-99, 1902,1935-63	290	June 14, 1898	2.10	d 956	*1.08
							Dec. 31, 1936	a 5.43	-	-
525	Gallatin River at Logan, Mont.....	C7	1,795	6,750	1895-1900, 1902-5, 1929-33,1936-63	5,640	June 21, 1899	6.25	d 9,840	34
	Missouri River main stem									
545	Missouri River at Toston, Mont.....	-	14,669	-	1890,1910-16, 1941-64	15,800	June 6, 1948	11.77	32,000	19
	Crow Creek basin									
555	Crow Creek near Radersburg, Mont.....	A4	78.0	-	1901,1920-29	205	July 14, 1920	g 5.0	g 1,000	*1.59
	Deep Creek basin									
566	Deep Creek below North Fork Deep Creek, near Townsend, Mont.	A4	87.7	-	1959-63	224	June 7, 1959	2.15	290	3.5

					Missouri River main stem					
570	Missouri River near Townsend, Mont.....	-	15,343	-	1892-1904	16,500	June 3-5,1894 June 24, 1899	- 95.75	d 38,400 -	44 -
					Spokane Creek basin					
587	Mitchell Gulch near East Helena, Mont.....	A4	8.09	-	1959-63	-	Feb. 4, 1963	1.41	107	-
					Prickly Pear Creek basin					
610	Lump Gulch Creek at Zastrow's ranch, near Clancy, Mont.	A4	43.4	-	1909-13	136	June 9, 1909	2.5	d 106	1.4
615	Prickly Pear Creek near Clancy, Mont.....	A4	192	-	1911-16,1923-33, 1946-53,1955-64	385	June 9, 1927	-	g 900	18
620	Prickly Pear Creek at East Helena, Mont...	A4	251	-	1909-13	465	June 19, 1909	2.5	d 535	2.8
625	Tenmile Creek near Rimini, Mont.....	A4	32.7	-	1915-64	112	May 27, 1917	4.98	781	*2.28
627	Little Porcupine Creek tributary near Helena, Mont.	A4	.48	-	1959-63	-	May 20, 1963	.57	2.2	-
630	Tenmile Creek near Helena, Mont.....	A4	102	-	1909-54	250	May 28, 1917 June 11, 1927	- 6.58	995 -	*1.30 -
					Missouri River main stem					
655	Missouri River below Hauser Lake Dam, near Helena, Mont.	-	16,876	-	1923-42	18,300	June15,18,1927	78.8	h 33,300	20
665	Missouri River below Holter Dam, near Wolf Creek, Mont.	-	17,149	-	1946-64	18,500	June 8, 1948	11.70	34,800	24
					Little Prickly Pear Creek basin					
685	Little Prickly Pear Creek near Marysville, Mont.	A4	44.4	-	1913-32	140	May 25,26,1917	3.8	d 454	*1.06
710	Little Prickly Pear Creek near Canyon Creek, Mont.	A4	183	-	1909-11,1913-24	375	May 15,16, 1917	-	gh 800	13
712	Lyons Creek near Wolf Creek, Mont.....	A4	29.4	-	1959-63	103	June 8, 1964	3.80	490	*1.58
					Dearborn River basin					
730	Dearborn River near Clemons, Mont.....	B2	123	-	1921-64	920	June 9, 1964	9.15	17,400	*3.55
735	Dearborn River near Craig, Mont.....	B2	325	-	1946-64	1,800	June 9, 1964	13.50	15,400	*1.61
					Missouri River main stem					
740	Missouri River at Cascade, Mont.....	-	18,493	-	1903-15	23,000	June 5, 1908	16.7	54,250	42
					Smith River basin					
745	Smith River near White Sulphur Springs, Mont.	A4	30.7	-	1923-31,1924-36	108	Apr. 11, 1936	4.20	770	*2.33
760	Newland Creek near White Sulphur Springs, Mont.	A4	6.74	-	1946-53,1960-63	-	June 4, 1953	3.50	56	-
765	Newland Creek near damsite, near White Sulphur Springs, Mont.	A4	44.8	-	1951-57	140	June 5, 1953	3.83	227	5.8
768	Nuggett Creek near Neihart, Mont.....	A4	1.48	-	1959-63	-	June 7, 1959	1.05	14	-
770	Sheep Creek near White Sulphur Springs, Mont.	A4	54.4	-	1942-64	159	June 4, 1953	5.80	460	40
775	Smith River near Eden, Mont.....	A4	1,594	-	1951-64	1,690	June 4, 1953 Feb. 4, 1963	10.46 a 12.50	12,300 -	*2.38 -

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
				Smith River basin--Continued						
778	Goodman Coulee near Eden, Mont.	A4	21.8	-	1959-63	-	Mar. 19, 1962	4.17	127	-
780	Smith River at Truly, Mont.	A4	2,006	-	1905-7,1929-32, 1953	2,000	June 4, 1953	-	30,300	*4.97
				Missouri River main stem						
782	Missouri River near Ulm, Mont.	-	20,941	-	1948,1953,1958-64	25,500	June 1953	a 17	-	-
					1958-64	-	June 22, 1964	14.44	27,500	2.7
				Sun River basin						
785	North Fork Sun River near Augusta, Mont.	A1	258	-	1911-12,1946-64	3,020	June 8, 1964	15.82	51,100	*5.55
796	Beaver Creek at Gibson Dam, near Augusta, Mont.	B1	20.3	-	1959-64	460	June 8, 1964	-	4,360	*1.78
800	Sun River near Augusta, Mont.	B1	609	-	1890,1905-29, 1964	5,700	June 9, 1964	15.7	59,700	*1.96
815	Willow Creek near Augusta, Mont.	B1	96.1	-	1905-10,1912-25	1,450	June 23, 1916	10.8	1,150	1.9
825	Smith Creek near Augusta, Mont.	B1	25.0	-	1906-12	530	June 4, 1908	5.5	1,500	11
835	Ford Creek near Augusta, Mont.	B1	19.4	-	1906-12,1964	445	June 19, 1909	5.5	-	-
							June 8, 1964	-	2,700	*1.14
840	Smith Creek below Ford Creek, near Augusta, Mont.	B2	74.0	-	1946-52,1964	640	June 8, 1964	13.4	6,140	*1.80
845	Elk Creek at Augusta, Mont.	B2	157	-	1905-24,1964	1,090	June 8, 1964	-	f 12,000	*2.07
860	Sun River at Fort Shaw, Mont.	-	1,417	-	1913-28	-	June 21, 1916	11.5	20,000	-
875	Sun River at Sun River, Mont.	-	1,454	-	1906-12	-	June 7, 1908	13.4	27,200	-
885	Muddy Creek at Vaughn, Mont.	B3	314	-	1908-64	910	June 1908	f 24	-	-
					1925,1934-64		June 4, 1953	16.7	7,600	*1.57
890	Sun River near Vaughn, Mont.	-	1,854	-	1934-64	-	June 9, 1964	23.4	53,500	-
893	Sun River tributary near Great Falls, Mont.	B3	21.1	-	1956-64	160	June 8, 1964	5.46	470	12
				Missouri River main stem						
903	Missouri River near Great Falls, Mont.	-	23,292	-	1909-63	28,700	June 4, 1953	-	66,600	30
				Belt Creek basin						
905	Belt Creek near Monarch, Mont.	A2	368	-	1908-64	1,990	June 4, 1953	10.12	11,000	*1.81
				Missouri River main stem						
908	Missouri River at Fort Benton, Mont.	-	24,749	-	1891-99,1901-64	31,000	June 6, 1908	i 18.5	f 140,000	*1.62

					Marias River basin					
920	Two Medicine Creek near Browning, Mont....	-	317	-	1907-12,1914-24, 1951-64	-	June 8, 1964	14.0	f100,000	-
925	Badger Creek near Browning, Mont.....	A1	133	-	1951-64	1,850	June 8, 1964	10.37	49,700	*8.81
935	Badger Creek near Family, Mont.....	-	239	-	1910-13,1915-24	-	June 21, 1916	6.7	2,500	-
950	Birch Creek near Dupuyer, Mont.....	A1	105	-	1908-37	1,550	June 21, 1916	10.0	7,000	*1.48
							June 8, 1964	-	c 881,000	-
980	Dupuyer Creek near Valier, Mont.....	B3	137	-	1913-30,1932-37, 1948,1964	535	June 8, 1964	-	21,600	*7.58
985	Cut Bank Creek near Browning, Mont.....	B3	123	-	1918,1920-24	500	June 5, 1922	4.82	1,270	9.0
990	Cut Bank Creek at Cut Bank, Mont.....	B3	1,065	-	1906-12,1914-17, 1919-24,1951-64	2,020	June 9, 1964	14.2	16,600	*1.54
995	Marias River near Shelby, Mont.....	B3	3,242	-	1902-4,1906-7, 1911-26,1928-63	4,180	June 18, 1948	17.75	40,000	*1.79
					1902-64		June 9, 1964	23.64	e 241,000	-
1005	Dry Fork Marias River at Fowler, Mont.....	-	314	-	1920-31	-	Apr. 14, 1920	6.5	1,450	-
1010	Willow Creek near Devon, Mont.....	-	310	-	1921-25	-	July 14, 1921	5.5	d 430	-
1020	Marias River near Brinkman, Mont.....	B3	6,425	-	1908-56	6,400	1908	f124.0	f 70,000	*2.05
1021	Dry Fork Coulee tributary near Loma, Mont.	B3	.84	-	1959-63	-	Mar. 1, 1959	4.02	71	-
1022	Marias River tributary at Loma, Mont.....	B3	1.62	-	1956-63	-	Mar. 1, 1959	a 2.9	-	-
							May 21, 1962	2.11	f 20	-
1023	Marias River tributary No. 2 at Loma, Mont.	B3	.25	-	1956-63	-	May 27, 1956	2.97	f 20	-
1025	Teton River near Farmington, Mont.....	A1	105	-	1948-54	1,550	June 3, 1948	5.32	2,780	7.5
							Jan. 6, 1950	a 7.34	-	-
					1948-64		June 8, 1964	-	54,600	*11.5
1030	Teton River at Strabane, Mont.....	-	128	-	1908-25	-	June 21, 1916	7.8	d 3,810	-
1035	Spring Creek near Strabane, Mont.....	A1	5.17	-	1913,1917-20	-	May 31, 1917	2.44	d 66	-
1045	Teton River near Choteau, Mont.....	-	221	-	1906,1913, 1915-16,1918	-	June 22, 1916	8.7	4,500	-
1055	Willow Creek near Choteau, Mont.....	A1	88.2	-	1912-17	1,360	June 21, 1916	6.60	d 880	1.4
1060	Deep Creek near Choteau, Mont.....	A1	223	-	1911-24	2,700	June 21, 1916	10.5	3,700	4.0
					1911-64		June 8, 1964	-	41,800	*5.07
1065	Muddy Creek near Bynum, Mont.....	B3	71.1	-	1913-18,1920, 1922-24	350	June 21, 1916	6.9	976	11
1070	North Fork Muddy Creek near Bynum, Mont...	-	61.3	-	1913-17,1919-24	-	June 21, 1916	5.85	600	-
1080	Teton River near Dutton, Mont.....	-	1,308	-	1955-64	-	June 9, 1964	19.8	71,300	-
					Missouri River main stem					
1095	Missouri River at Virgelle, Mont.....	-	34,379	-	1935-64	35,500	June 5, 1953	i 23.4	122,000	41
					Judith River basin					
1098	South Fork Judith River near Utica, Mont..	A4	58.7	-	1959-63	169	May 25, 1962	4.90	277	6.0
1100	Judith River near Utica, Mont.....	A4	328	-	1920-32,1934-63	560	June 11,12,1927	5.70	d 1,120	10
1110	Ross Fork near Hobson, Mont.....	B4	337	-	1947-62	570	May 21, 1962	9.26	2,640	34
1121	Cottonwood Creek near Moore, Mont.....	B4	47.9	-	1958-63	148	May 22, 1962	6.77	683	34
1140	Wolf Creek at Neubert Ranch, near Stanford, Mont.	-	79.2	-	1920-26	-	June 16, 1920	3.35	d 322	-
1145	Wolf Creek near Stanford, Mont.....	A4	112	-	1950-53,1955-58, 1960-62	264	June 4, 1953	4.51	j 628	18

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Missouri River main stem									
1150	Missouri River at powerplant ferry, near Zortman, Mont.	-	40,763	-	1934-64	42,000	June 6, 1953	22.20	137,000	45
	Musselshell River basin									
1155	North Fork Musselshell River near Delpine, Mont.	A4	31.4	-	1941-63	110	Apr. 1, 1950	4.63	423	*1.26
1160	North Fork Musselshell River at Delpine, Mont.	-	48.6	-	1909-11,1922-32	-	July 21, 1923	4.50	d 545	-
1169	Checkerboard Creek near Delpine, Mont.....	A4	21.1	-	1909-11,1913-14	-	May 4, 1909	2.0	d 146	-
1170	Checkerboard Creek at Delpine, Mont.....	-	23.9	-	1922-30,1932	-	July 16, 1923	3.1	d 167	-
1180	North Fork Musselshell River near Martinsdale, Mont.	-	233	-	1908-14	-	Apr. 12,1913 f	6.8	d 668	-
1185	South Fork Musselshell River above Martinsdale, Mont.	A8	287	-	1942-63	805	June 5, 1948	6.56	1,240	5.2
1195	South Fork Musselshell River near Martinsdale, Mont.	A8	300	-	1908-14,1932	850	June 2, 1911	6.0	1,380	5.8
1205	Musselshell River at Harlowton, Mont.....	-	1,125	-	1909-63	-	June 24, 1938	8.72	d 4,530	-
1206	Antelope Creek tributary near Harlowton, Mont.	B8	.47	-	1956-63	-	June 15, 1956	-	13	-
							Mar. 18, 1960	2.04	-	-
1207	Antelope Creek tributary near mouth, near Harlowton, Mont.	B8	1.92	-	1956-63	4	Mar. 17, 1956	1.60	207	-
1208	Antelope Creek tributary No. 2 near Harlowton, Mont.	B8	21.2	-	1956-63	180	June 16, 1962	5.56	3,230	*3.37
1209	Antelope Creek at Harlowton, Mont.....	B8	88.7	-	1950-63	406	June 17, 1950	16.73	24,400	*11.3
1210	American Fork near Harlowton, Mont.....	-	94.6	-	1908-11,1913, 1924-30,1932	-	June 1, 1908	4.60	d 980	-
1215	Lebo Creek near Harlowton, Mont.....	-	59.1	-	1908-10,1913, 1924-32	-	June 6, 1928	6.90	d 417	-
1220	American Fork below Lebo Creek, near Harlowton, Mont.	A8	166	-	1947-63	580	July 11, 1948	5.67	956	6.1
							Mar. 19, 1949	a 6.86	-	-
1235	Musselshell River near Rygate, Mont.....	-	1,982	-	1947-63	-	June 17, 1948	10.92	6,260	-
1255	Careless Creek at Wallum, Mont.....	B8	471	-	1934-42	1,080	June 19, 1938	12.0	(k)	-
1257	Big Coulee near Lavina, Mont.....	B8	232	-	1958-63	720	Jan. 29, 1962	a 4.50	-	-
							June 19, 1962	4.32	250	-
1263	Currant Creek near Roundup, Mont.....	B8	220	-	1958-59,1961-63	695	Mar. 1, 1959	6.65	780	2.5
1265	Musselshell River near Roundup, Mont.....	-	4,023	-	1946-48,1950-63	-	June 18, 1948	11.0	7,460	-
1275	Musselshell River at Musselshell, Mont....	-	4,568	-	1917-63	-	May 19, 1917	fm12	-	-
					1929-30,1932, 1946-63		June 19, 1948	8.5	4,790	-
1279	Flatwillow Creek near Flatwillow, Mont....	-	188	-	1911-32,1934-56	-	June 4-11,1917	9.0	d 954	-

1282	Flatwillow Creek near Winnett, Mont.....	B8	642	-	1923-29,1931-32, 1948-51	1,290	July 5, 1923	12.94	d 3,770	12
1289	Box Elder Creek tributary near Winnett, Mont.	B8	16.2		1955-63	152	Mar. 1, 1959	3.86	412	10
							June 15, 1962	a 8.3	-	-
1290	Box Elder Creek near Winnett, Mont.....	-	684	-	1931-32,1934-38, 1959-63	-	June 16, 1962	15.34	9,910	-
1295	McDonald Creek at Winnett, Mont.....	B8	421	-	1931-32,1934-45, 1953-63	1,010	May 15 or 16, 1942	i 8.48	900	2.0
1297	Gorman Coulee near Cat Creek, Mont.....	B8	2.32	-	1955-59,1961-63	-	Aug. 23, 1955	5.59	385	-
1298	Gorman Coulee tributary near Cat Creek, Mont.	B8	.81	-	1955-63	-	Aug. 23, 1955	3.02	159	-
1305	Musselshell River at Mosby, Mont.....	B8	7,846	-	1929,1931-32, 1934-63	5,500	June 18, 1944	14.43	18,000	15
					Dry Creek basin					
1306	Cat Creek near Cat Creek, Mont.....	B8	36.5	-	1958-63	242	June 16, 1962	6.19	748	13
1307	Sand Creek near Jordan, Mont.....	-	317	-	1958-63	-	Mar. 17, 1959	7.95	2,120	-
							Mar. 19, 1960	a 8.07	-	-
1309.5	Little Dry Creek near Van Norman, Mont....	B8	1,224	-	1958-63	1,870	Mar. 18, 1959	6.80	5,200	11
							Mar. 20, 1960	a 7.6	-	-
1310	Dry Creek near Van Norman, Mont.....	B9	2,554	-	1940-48,1950-63	4,650	Mar. 21, 1947	a 15.26	-	-
							Mar. 21, 1947	13.39	24,600	49
					Missouri River main stem					
1320	Missouri River below Fort Peck Dam, Mont..	-	57,556	-	1934-63	-	Mar. 10, 1936	a 12.30	-	-
							Aug. 8, 1946	-	51,000	-
					Milk River basin					
1327	Milk River near Del Bonita, Mont.....	B3	325	-	1906-8,1911, 1913-17,1919, 1923-24,1927, 1929-30,1962-64	940	June 8, 1964	9.0	17,300	*3.45
1330	Milk River at western crossing of international boundary.	B3	397	-	1931-64	1,050	June 9, 1964	9.77	8,800	*1.57
1335	North Fork Milk River above St. Mary Canal, near Browning, Mont.	B3	61.8	-	1911-12,1924-64	320	Apr. 22, 1953	7.55	2,120	*1.24
1340	North Milk River near international boundary.	B3	91.8	-	1911,1913-64	410	June 17, 1948	6.47	2,950	*1.35
1345	Milk River at Milk River, Alberta.....	-	1,036	-	1909,1913-64	-	May 22, 1927	11.41	8,730	-
1350	Milk River at eastern crossing of international boundary.	B4	2,588	-	1910-64	2,350	Mar. 28, 1952	a 13.65	-	-
							Mar. 31, 1952	9.34	9,530	24
1355	Sage Creek at "Q" Ranch, near Wildhorse, Alberta.	B3	175	-	1936-41,1943, 1946-63	600	Apr. 11, 1937	15.87	e 3,500	*1.09
1370	Milk River above Havre, Mont.....	-	3,826	-	1928-33	-	June 21, 1928	-	2,540	-
							June 17, 1932	6.15	-	-
1380	Sage Creek near Kremlin, Mont.....	-	914	-	1946-52	-	April 1952	11.84	3,520	-
1385	Big Sandy Creek near Box Elder, Mont.....	B4	1,629	-	1927-32,1934-36, 1938	1,700	May 24, 1927	5.85	d 2,000	2.8
1395	Big Sandy Creek near Assinniboine, Mont...	B4	1,805	-	1946-53,1955-63	1,850	Apr. 3, 1952	14.70	5,570	13

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
					Milk River basin--Continued					
1405	Milk River at Havre, Mont.	B4	n 5,174	-	1899-1922, 1952-63	3,800	Apr. 12, 1899	i 19.3	f 20,000	48
1430	Milk River at Lohman, Mont.	-	6,166	-	1919,1923, 1925,1934-51, 1952	-	Mar. 21, 1939	12.08	3,450	-
							Mar. 22, 1947	a 14.63	-	-
							1952	17.9	(k)	-
1445	Lodge Creek at international boundary.	B3	753	-	1911-52	1,600	Mar. 30, 1943	13.83	5,110	14
1450	McRae Creek at international boundary.	B3	59.0	-	1927-52	312	Apr. 7, 1952	8.75	1,160	20
1455	Lodge Creek below McRae Creek, at international boundary.	B3	818	-	1910-63	1,680	June 14, 1962	14.40	7,760	34
1480	Battle Creek above Cypress Lake west inflow canal, near West Plains, Saskatchewan.	B3	270	-	1939-63	830	Apr. 14, 1952	10.00	p 3,020	19
1495	Battle Creek at international boundary.	-	931	-	1917-63	-	Apr. 15, 1952	10.56	5,820	-
1500	Woodpile Coulee near international boundary.	B3	60.2	-	1927-63	318	Mar. 30, 1943	8.6	3,090	*1.83
1505	East Fork Battle Creek near international boundary.	B3	89.5	-	1927-63	410	July 12, 1955	11.24	2,300	*1.05
1510	Lyons Creek at international boundary.	B3	66.7	-	1927-63	339	July 6, 1955	8.38	1,220	18
1515	Battle Creek near Chinook, Mont.	B3	1,539	-	1905-14,1917-21, 1952	2,550	June 8, 1906	16.63	d 10,960	28
1545	Peoples Creek near Dodson, Mont.	B4	670	-	1952-63	925	Mar. 29, 1952	a 17.05	-	-
							Mar. 30, 1952	-	h 3,500	20
1552	Alkali Creek near Malta, Mont.	B4	162	-	1956-59,1961-63	340	Mar. 13, 1959	-	f 800	7.7
							Feb. 5, 1963	a 3.09	-	-
1553	Disjardin Coulee near Malta, Mont.	B4	3.42	-	1956-63	-	July 18, 1962	2.23	f 200	-
							Feb. 5, 1963	a 3.25	-	-
1554	South Fork Taylor Creek near Malta, Mont.	B4	5.08	-	1956-63	-	July 13, 1959	1.94	84	-
1555	Milk River at Malta, Mont.	-	11,762	-	1903-9,1911-22	-	Mar. 26, 1918	20.22	d 11,500	-
1560	Whitewater Creek near international boundary.	B4	458	-	127-63	700	Mar. 25, 1943	6.62	-	-
							Apr. 14, 1952	-	3,500	42
1580	Frenchman River above Eastend Reservoir, near Ravenscrag, Saskatchewan.	B3	n 442	-	1913-17,1937-63	1,130	Apr. 16, 1952	12.25	12,600	*2.09
1595	Frenchman River below Eastend Reservoir, near Eastend, Saskatchewan.	-	n 478	-	1909-15,1918-31, 1940-63	-	Apr. 16, 1952	19.10	11,500	-
1605	Frenchman River at Morrisons, near Eastend, Saskatchewan.	-	n 641	-	1939-52	-	Apr. 16, 1952	17.77	f 12,000	-
1610	Frenchman River at 50-Mile, near Bracken, Saskatchewan.	-	n 1,089	-	1914-17,1919-31, 1936-52	-	Apr. 17, 1952	16.28	14,000	-
1635	Frenchman River below Val Marie, Saskatchewan.	-	1,725	-	1937-52,1962-63	-	Apr. 14, 1952	19.7	17,700	-
1640	Frenchman River at international boundary.	-	2,299	-	1917-63	-	Apr. 15, 1952	19.90	22,700	-

1650	Beaver Creek near Malta, Mont.....	B4	1,010	-	1917-21	1,220	June 18, 1920	21.0	d 6,040	41
1685	Rock Creek at international boundary.....	B8	241	-	1927-61	730	Apr. 15, 1952	11.91	3,310	32
1690	Horse Creek at international boundary.....	B8	73.5	-	1915-33,1935-61	365	Apr. 15, 1952	11.79	1,800	40
1695	Rock Creek below Horse Creek, near international boundary.	B8	328		1917,1919-26, 1952,1957-63	870	Apr. 15, 1952	12.6	5,110	*1.10
1700	McEachern Creek at international boundary.	B8	182	-	1924-63	620	Apr. 15, 1952	13.85	7,080	*2.15
1710	Rock Creek near Hinsdale, Mont.....	-	1,313	-	1906-7,1912, 1914-20	-	June 8, 1906	18.4	d 6,220	-
1720	Milk River near Vandalia, Mont.....	-	20,926	-	1915-25,1929-39	-	Apr. 1, 1925	35.35	d 27,200	-
1723	Unger Creek near Vandalia, Mont.....	B8	11.1	-	1958-63	123	July 14, 1962	3.28	575	35
1740	Willow Creek near Glasgow, Mont.....	-	538	-	1954-63	-	July 14, 1962	21.70	12,400	-
1745	Milk River at Nashua, Mont.....	-	22,332	-	1940-63	-	Apr. 18, 1952	31.38	45,300	-
1750	Porcupine Creek at Nashua, Mont.....	-	725	-	1909,1912-21, 1923-24,1939	-	Mar. 24, 1939	-	c 35,500	-
					Wolf Creek basin					
1765	Wolf Creek near Wolf Point, Mont.....	E9	251	-	1910-12,1950-63	1,130	Apr. 4 or 5, 1954	12.9	9,780	48
					Missouri River main stem					
1770	Missouri River near Wolf Point, Mont.....	-	82,290	-	1908-63	-	June 14, 1908	f120	-	-
					1929-63	-	Mar. 25, 1939	-	66,800	-
							Mar. 27, 1960	a 15.64	-	-
					Redwater Creek basin					
1770.5	East Fork Duck Creek near Brockway, Mont..	B9	12.4	-	1955-63	180	June 6, 1963	4.30	650	18
1771	Duck Creek near Brockway, Mont.....	B9	54.0	-	1957-63	440	Mar. 18, 1959	5.15	1,000	7.1
1771.5	Redwater Creek at Brockway, Mont.....	B9	216	-	1957-63	1,020	Mar. 20, 1960	a 6.94	-	-
							June 6, 1963	5.45	1,520	3.5
1772	Tusler Creek near Brockway, Mont.....	B9	90.2	-	1957-63	600	July 19, 1962	3.36	430	1.8
1773	Redwater Creek tributary near Brockway, Mont.	B9	.29	-	1954,1957-63	-	July 14, 1957	9.40	83	-
1773.5	South Fork Dry Ash Creek near Circle, Mont.	B9	5.74	-	1955-63	-	Aug. 16, 1960	2.40	85	-
1774	McCune Creek near Circle, Mont.....	B9	29.9	-	1955-63	305	July 19, 1962	7.26	-	-
							June 6, 1963	-	f 450	3.4
1775	Redwater Creek at Circle, Mont.....	B9	547	-	1929-30,1932-63	1,800	July 14, 1957	12.77	6,730	20
					Poplar River basin					
1780	Middle Fork Poplar River at international boundary.	E8	362	-	1931,1933-63	920	Apr. 6, 1954	10.25	12,700	*1.57
1785	East Poplar River at international boundary.	B8	534	-	1931-32,1935-63	1,160	Mar. 22, 1939	12.40	2,760	7.8
							Mar. 25, 1943	a 12.8	-	-
1795	West Poplar River at international boundary.	E8	139	-	1931-52	530	Apr. 17, 1950	a 5.17	-	-
							Apr. 14, 1952	5.15	5,450	*1.17
1800	West Fork Poplar River near Richland, Mont.	E8	428	-	1935-49	1,010	Mar. 23, 1939	f 8.0	f 3,600	7.6
							Mar. 29, 1943	a 8.24	-	-
1805	Poplar River near Bredette, Mont.....	E8	2,940	-	1934-47	3,200	July 9, 1946	17.18	40,000	*1.42
1810	Poplar River near Poplar, Mont.....	E8	3,174	-	1909,1915, 1921,1923, 1946-63	3,250	July 10, 1946	18.1	40,000	*1.40

* See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Big Muddy Creek basin									
1825	Big Muddy Creek at Daleview, Mont.....	B9	279	-	1948-63	1,210	Apr. 7, 1952	17.15	6,360	48
1830	Big Muddy Creek at Plentywood, Mont.....	B9	850	-	1948-53,1955-63	2,390	June 30, 1953	19.40	8,000	16
1831	Box Elder Creek near Plentywood, Mont.....	B9	9.40	-	1956-63	152	July 23, 1957	7.24	328	6.4
1832	Box Elder Creek at damsite, near Plentywood, Mont.	B9	19.9	-	1953,1955-63	240	June 30, 1953	6.52	6,530	*5.10
1833	Spring Creek near Plentywood, Mont.....	B9	7.05	-	1955-63	-	Mar. 21, 1960	5.19	240	-
1834	Spring Creek at Highway 16, near Plentywood, Mont.	B9	16.9	-	1955-63	215	June 26, 1959	3.70	660	13
1835	Big Muddy Creek at Reserve, Mont.....	B9	1,044	-	1920-21,1923-24, 1950-53	2,660	Apr. 8, 1952	-	6,300	7.7
1850	Big Muddy Creek near Culbertson, Mont.....	B9	2,447	-	1909-21	4,450	Mar. 31, 1916	11.4	d 1,550	-
	Missouri River main stem									
1855	Missouri River near Culbertson, Mont.....	-	91,557	-	1942-51,1959-63	-	Mar. 26, 1943	14.80	78,200	-
							Mar. 23, 1960	a 19.14	-	-
	Yellowstone River basin									
1865	Yellowstone River at Yellowstone Lake Outlet, Yellowstone National Park.	-	1,006	-	1923-63	4,800	June 21, 1956	7.55	7,610	32
1870	Yellowstone River near Canyon Hotel, Yellowstone National Park.	-	1,157	-	1913-18,1921-51	4,800	June 27, 1918	4.50	d q 8,550	*1.03
1875	Tower Creek at Tower Falls, Yellowstone National Park.	C7	50.4	8,340	1923-43	-	May 30, 1925	-	d 642	-
							May 28, 1928	6.27	-	-
1880	Lamar River near Tower Falls ranger station, Yellowstone National Park.	C6	660	8,690	1923-63	7,200	May 25, 1928	9.75	13,600	*1.02
1890	Blacktail Deer Creek near Mammoth, Yellowstone National Park.	C7	15.0	7,900	1938-45	140	June 1, 1943	3.17	168	4.3
1905	Gardner River at Mammoth, Yellowstone National Park.	C7	200	-	1923-38	-	May 28, 1928	3.59	1,790	-
1910	Gardner River near Mammoth, Yellowstone National Park.	C7	202	7,940	1939-63	1,280	June 4, 1956	-	2,080	21
							June 16, 1962	4.78	-	-
1915	Yellowstone River at Corwin Spring, Mont..	-	2,623	-	1890-93,1911-63	17,700	June 14,15,1918	11.5	d 32,000	*1.07
1920	Mill Creek near Pray, Mont.....	C6	148	-	1948-56	-	May 1948	f 6.0	(k)	-
					1951-56		June 6, 1952	3.20	2,300	-
							Nov. 17, 1955	a 4.6	-	-
1925	Yellowstone River near Livingston, Mont...	-	3,551	-	1897-1905, 1929-32,1938-63	19,700	June 20, 1943	9.34	d 30,600	17
1930	Shields River near Wilsall, Mont.....	A8	87.8	-	1936-57	404	June 4 or 5, 1948	-	1,770	*1.43
							June 3, 1953	5.15	-	-
1935	Shields River at Clyde Park, Mont.....	A8	543	-	1921-23,1929-63	1,180	June 5, 1948	7.39	4,500	*1.25

1940	Brackett Creek near Clyde Park, Mont.....	A8	57.9	-	1921-23,1934-57	320	May 22, 1948	4.9	1,400	*1.43
1960	North Fork Big Timber Creek, near Big Timber, Mont.	A6	36.6	-	1907-11	-	June 1, 1908	4.05	d 897	-
1965	South Fork Big Timber Creek, near Big Timber, Mont.	A6	28.1	-	1907-11	-	June 1, 1908	2.5	d 550	-
1970	Big Timber Creek near Big Timber, Mont....	A6	74.9	-	1912-16,1918-24	-	July 15, 1918	6.9	1,960	-
1975	Boulder River near Contact, Mont.....	C6	226	8,510	1910-16,1929, 1951-63	2,740	June 14, 1911	8.8	d 5,100	50
1985	West Fork Boulder River near Bruffeys, Mont.	C6	91.6	-	1904-8,1910	-	June 18, 1904, June 2, 1910	4.00	d 1,670	-
1990	West Fork Boulder River at McLeod, Mont...	C6	135	-	1907-14	-	June 3, 4, 17, 1909	4.6	d 1,990	-
2000	Boulder River at Big Timber, Mont.....	C6	523	7,570	1947-53,1955-63	4,260	May 28, 1956	7.84	9,840	*1.25
2004	Sweet Grass Creek near Melville, Mont.....	A6	46.3	-	1907-11	-	June 10, 1909	5.6	d 1,960	-
2005	Sweet Grass Creek above Melville, Mont....	A6	63.8	7,630	1914-24,1937-63	726	May 28, 1956	3.93	2,060	37
2010	Sweet Grass Creek below Melville, Mont....	-	143	-	1907-24,1937-42, 1946-52	-	July 26, 1923	6.0	3,000	-
2045	Rosebud Creek near Absarokee, Mont.....	C6	394	7,630	1935-63	3,420	June 22, 1937	6.36	d 4,850	9.5
2050	Stillwater River near Absarokee, Mont.....	C6	975	7,220	1911-14,1935-63	6,480	June 3, 1948	6.63	10,600	21
2055	Clarks Fork Yellowstone River above Squaw Creek, near Painter, Wyo.	C6	194	-	1946-51	-	June 22, 1950	6.75	4,920	-
2060	Clarks Fork Yellowstone River below Crandall Creek, near Painter, Wyo.	C6	446	8,880	1930-32,1950-57	5,440	June 4, 1957	9.78	7,850	10
2065	Sunlight Creek near Painter, Wyo.....	C7	135	8,500	1918-63	1,080	1918	5.8	f 4,000	*2.00
2070	Clarks Fork Yellowstone River near Clark, Wyo.	C6	912	-	1919-24	-	June 12, 1921	7.35	10,500	-
2075	Clarks Fork Yellowstone River at Chance, Mont.	C6	1,154	7,430	1922-63	8,000	May 26, 1928	6.5	d10,900	7.5
2080	Clarks Fork Yellowstone River at Fromberg, Mont.	C6	1,940	-	1905-13	-	July 3, 1909	9.9	d 12,700	-
2085	Clarks Fork Yellowstone River at Edgar, Mont.	C6	2,032	6,110	1922-32,1934-63	8,190	June 8, 1932	9.20	-	-
							June 2, 1936	-	d 10,900	7.0
2095	Rock Creek near Red Lodge, Mont.....	A8	124	9,540	1932,1934-63	500	June 16, 1937	4.80	-	-
							June 4, 1957	-	3,110	*2.05
2100	West Fork Rock Creek below Basin Creek, near Red Lodge, Mont.	A8	63.1	9,640	1938-56	335	June 6, 1952	3.88	933	34
2105	West Fork Rock Creek near Red Lodge, Mont.	A8	66.9	9,200	1932,1934-44	345	June 22, 1937	6.10	1,850	*1.76
2110	Red Lodge Creek above Cooney Reservoir, near Boyd, Mont.	A8	143	5,570	1937-63	540	June 17, 1957	6.56	r 1,360	23
2115	Willow Creek near Boyd, Mont.....	A8	53.3	5,250	1937-63	305	June 17, 1957	6.66	848	34
2135	Rock Creek at Joliet, Mont.....	-	539	-	1946-53	-	Dec. 30, 1948	a5.25	-	-
							June 6, 1952	4.60	1,930	-
2140	Rock Creek at Rockvale, Mont.....	-	569	-	1921-22,1932, 1934-40	-	June 8, 1932	8.10	d 2,310	-
2145	Yellowstone River at Billings, Mont.....	-	11,783	-	1904-5,1929-63	41,000	June 27, 1944	12.5	d64,800	19
2162	Wets Creek near Billings, Mont.....	A8	8.14	-	1955-63	-	Feb. 22, 1956	3.23	-	-
							Mar. 9, 1962	-	76	-
2163	West Buckeye Creek near Billings, Mont....	A8	1.54	-	1955-63	-	May 29, 1956	2.24	-	-
							May 12, 1957	-	185	-
2165	Prior Creek near Billings, Mont.....	A8	435	-	1912-24,1938-53, 1955-63	1,030	May 2, 1960	-	1,700	6.2

* See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Yellowstone River basin--Continued									
2170	Prior Creek at Huntley, Mont.....	A8	606	-	1905-6,1908, 1910-15	1,260	June 5, 1905	16.0	d 2,300	8.0
2175	Yellowstone River at Huntley, Mont.....	-	12,840	-	1908-16	42,000	June 20, 1916	12.8	d 60,000	8.6
2185	Wind River near Dubois, Wyo.....	C7	232	8,920	1946-63	1,890	June 2, 1956	5.66	1,910	2.4
2205	East Fork Wind River near Dubois, Wyo.....	C7	427	9,110	1951-57	3,440	June 26, 1954	-	5,700	23
							June 30, 1957	9.27	-	-
2214	Dinwoody Creek above lakes, near Burris, Wyo.	C7	88.2	-	1958-63	-	June 16, 1963	4.57	1,270	-
2215	Dinwoody Creek near Burris, Wyo.....	C7	100	10,200	1909,1918-30, 1950-58	1,270	July 25, 1923	3.75	1,710	7.4
2220	Wind River near Burris, Wyo.....	C7	1,236	9,030	1947-53	8,020	June 17, 1951	7.72	-	-
							June 14, 1953	-	9,900	5.0
2225	Dry Creek near Burris, Wyo.....	C7	53.2	10,100	1921-27,1929-40	773	June 12, 1921	3.9	1,400	44
2235	Willow Creek near Crowheart, Wyo.....	A7	55.4	8,720	1909,1921-23, 1925-40	491	May 31, 1939	5.40	1,100	15
2240	Bull Lake Creek above Bull Lake, Wyo.....	A7	179	10,300	1941-53	2,120	June 7, 1952	6.69	3,030	4.4
2250	Bull Lake Creek near Lenore, Wyo.....	A7	n 201	-	1918-63	-	Aug. 8, 1951	-	6,200	-
2255	Wind River near Crowheart, Wyo.....	A7	n 1,873	8,320	1927,1946-63	9,520	June 16, 1963	9.16	13,000	3.9
2280	Wind River at Riverton, Wyo.....	-	2,309	-	1906,1908, 1911-63	-	June 15, 1935	-	13,300	-
							June 17, 1963	9.49	-	-
2285	Little Wind River near Fort Washakie, Wyo.	-	118	-	1921-40	-	July 9, 1926	1 8.89	5,220	-
2290	North Fork Little Wind River at Fort Washakie, Wyo.	A7	127	9,620	1921-40	1,360	July 9, 1926	4.85	2,640	9.5
2310	Little Wind River above Arapahoe, Wyo.....	-	716	-	1906,1908-9, 1911-18	-	June 17, 1911	6.6	d 3,840	-
2315	Middle Popo Agie River near Lander, Wyo...	A7	86	10,050	1911-12,1918-24, 1926	1,070	July 9, 1926	6.0	2,900	31
2320	North Popo Agie River near Milford, Wyo...	A7	98.4	9,890	1946-63	1,170	June 16, 1963	9.44	4,500	*1.26
2325	North Popo Agie River near Lander, Wyo....	A7	134	8,970	1938-53	1,260	June 14, 1953	5.54	1,900	4.9
2330	Little Popo Agie River near Lander, Wyo...	A7	125	8,020	1946-63	881	June 16, 1963	6.64	2,010	16
2335	Little Popo Agie River at Hudson, Wyo.....	-	384	-	1908-9,1911-12, 1913-17,1938-53	-	June 22, 1947	7.60	d 1,540	-
2340	Little Wind River below Arapahoe, Wyo.....	-	1,530	-	1906-18	-	June 23,24,26, 1917	9.3	11,500	-
2355	Little Wind River near Riverton, Wyo.....	-	1,851	-	1941-63	-	June 17, 1963	10.85	14,700	-
2390	Muskrat Creek near Shoshoni, Wyo.....	E8	733	-	1923-63	1,400	Feb. 10, 1962	6.44	13,300	*1.08
2445	Fivemile Creek above Wyoming Canal, near Pavillion, Wyo.	-	118	-	1948,1950-63	-	September1948	6.10	f 2,600	-
2500	Fivemile Creek near Riverton, Wyo.....	-	356	-	1950-58,1960-63	-	July 25, 1950	11.0	1,690	-
2515	Sand Gulch near Shoshoni, Wyo.....	-	18.6	-	1949-53	-	July 25, 1950	3.36	203	-

2530	Fivemile Creek near Shoshoni, Wyo.....	A9	n 285	-	1923,1941-42, 1948-63	1,210	July 24, 1923	-	g 3,500	40
2560	Badwater Creek at Lybyer Ranch, near Lost Cabin, Wyo.	E8	131	-	1949-63	515	July 8, 1949 Mar. 30, 1952	7.35 a 8.88	445 -	2.0 -
2570	Badwater Creek at Booneville, Wyo.....	E8	808	-	1923-63	1,480	July 24, 1923	-	18,600	*1.43
2575	Muddy Creek near Pavillion, Wyo.....	D9	267	-	1949-53,1955-58, 1960-63	1,150	June 5, 1949	9.70	2,300	7.0
2580	Muddy Creek near Shoshoni, Wyo.....	D9	332	-	1923-63	1,370	July 24, 1923	-	16,300	*2.97
2595	Bighorn River at Thermopolis, Wyo.....	-	8,020	-	1900-1905, 1911-53	-	July 24, 1923	16.2	29,800	-
2600	South Fork Owl Creek near Anchor, Wyo.....	D9	86.3	-	1932,1940-43, 1959-63	585	July 25, 1941	7.59	1,940	27
2605	South Fork Owl Creek above Curtis Ranch, near Thermopolis, Wyo.	D9	144	-	1945-59	800	June 24, 1945	4.25	1,520	6.2
2610	South Fork Owl Creek at Curtis Ranch, near Thermopolis, Wyo.	-	149	-	1932,1938-43	-	Aug. 11, 1941	6.16	1,070	-
2620	North Fork Owl Creek near Anchor, Wyo.....	D9	54.8	-	1941-45,1947-62	445	July 23, 1955	8.0	3,200	*1.80
2640	Owl Creek near Thermopolis, Wyo.....	-	478	-	1911-12,1915-17, 1932,1938-63	-	June 15, 1963	8.73	7,030	-
2645	Owl Creek near Lucerne, Wyo.....	-	505	-	1932,1938-53	-	May 27, 1942 May 4, 1947	i 6.80 -	- d 928	- -
2650	Kirby Creek near Lucerne, Wyo.....	E8	240	-	1936-45	730	June 1936	12.0	1,090	3.2
2655	Cottonwood Creek at Winchester, Wyo.....	D8	416	-	1941-45	1,000	July 27, 1941	7.40	d 4,120	*1.03
2658	Gooseberry Creek at Dickie, Wyo.....	D8	95.0	-	1958-63	425	June 15, 1963	5.66	1,130	14
2660	Gooseberry Creek near Grass Creek, Wyo....	D8	142	-	1946-57	565	June 22, 1948	i 4.97	593	2.4
2670	Gooseberry Creek at Neiber, Wyo.....	-	361	-	1941-44,1946-53	-	May 18, 1944	7.13	1,650	-
2685	Fifteen Mile Creek near Worland, Wyo.....	D8	518	-	1951-63	1,150	May 22, 1952	5.77	3,300	17
2690	Bighorn River near Manderson, Wyo.....	-	11,020	-	1948-53,1956	-	Feb. 19, 1948 June 1, 1951	a 16.45 10.15	- d 10,600	- -
2695	Bighorn River at Manderson, Wyo.....	-	11,048	-	1941-49	-	June 4, 1944 Feb. 19, 1948	12.60 a 15.00	d 17,900 -	- -
2700	Nowood Creek near Tensleep, Wyo.....	E8	803	-	1938-43,1950-55	1,480	June 16, 1955	12.3	3,330	4.8
2705	Canyon Creek near Tensleep, Wyo.....	A7	66.3	-	1939-44	-	May 18, 1944	3.44	248	-
2710	Tensleep Creek near Tensleep, Wyo.....	A7	247	8,190	1911-12,1915-24, 1944-63	1,590	June 15, 1924	7.05	2,890	8.0
2715	Paintrock Creek below Lake Solitude, Wyo..	A7	16.0	11,100	1947-53	313	June 11, 1953	6.0	543	6.8
2725	Paintrock Creek near Hyattville, Wyo.....	A7	164	9,120	1921-26,1941-53	1,490	June 24, 1945	9.80	8,200	*1.81
2730	Medicine Lodge Creek near Hyattville, Wyo.	A7	86.8	8,070	1943-63	648	June 24, 1945	4.10	1,160	7.5
2735	Paintrock Creek near Bonanza, Wyo.....	-	398	-	1911-13,1915-22	-	June 12, 1918	5.3	d 3,390	-
2740	Nowood Creek at Bonanza, Wyo.....	-	1,790	-	1911-28	-	June 2, 1912 June 15, 1924	8.3 -	- d 5,160	- -
2745	Greybull River near Pitchfork, Wyo.....	D7	282	9,740	1946-49,1951-63	2,770	June 15, 1963	7.68	8,610	22
2750	Wood River at Sunshine, Wyo.....	D7	194	9,100	1946-63	1,710	June 15, 1963	7.00	5,080	19
2755	Wood River near Meeteetse, Wyo.....	D7	218	-	1911-12,1915-16, 1930-49	-	June 24, 1945	-	2,150	-
2765	Greybull River at Meeteetse, Wyo.....	D7	681	7,070	1921-63	2,760	June 15, 1963	9.20	13,600	*1.24
2775	Greybull River near Basin, Wyo.....	D7	1,115	5,580	1930-63	2,410	June 16, 1963	8.83	19,400	*2.01
2780	Dry Creek at Greybull, Wyo.....	D8	433	-	1951-53,1956-60	1,030	Sept.19, 1961	-	7,200	*1.75
2783	Shell Creek above Shell Creek Reservoir, Wyo.	A6	23.1	-	1957-63	-	June 15, 1963	7.84	1,870	-
2785	Shell Creek near Shell, Wyo.....	A7	145	8,810	1941-63	1,240	June 24, 1945	7.49	3,020	20

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Yellowstone River basin--Continued									
2790	Shell Creek at Shell, Wyo.	-	256	-	1913-23	-	June 11, 1918	i 5.55	1,910	-
2795	Bighorn River at Kane, Wyo.	-	15,765	-	1923-63	-	Sept.30, 1923	s14.8	-	-
					1929-63	-	June 16, 1935	11.10	25,200	-
2800	North Fork Shoshone River near Wapiti, Wyo.	C7	800	8,510	1921-26	4,900	July 22, 1923	7.2	-	-
							June 23, 1925	-	9,250	*1.02
2803	South Fork Shoshone River near Valley, Wyo.	C7	297	9,250	1957-58,1960-63	2,540	June 15, 1963	8.83	6,610	*1.40
2805	South Fork Shoshone River near Ishawooa, Wyo.	C7	532	-	1915-23	4,430	June 14, 1918	7.0	d 7,740	34
2810	South Fork Shoshone River above Buffalo Bill Reservoir, Wyo.	C7	674	8,670	1903,1905-7, 1921-26	-	July 4, 1907	-	g 5,300	-
2825	Shoshone River at Cody, Wyo.	D7	1,600	-	1902-9	-	July 3, 1909	9.1	d 22,200	-
2830	Shoshone River at Corbett Dam, Wyo.	-	1,740	-	1909-25	-	July 4, 1909	5.15	-	-
							June 15, 1918	-	d 18,700	-
2845	Bitter Creek near Garland, Wyo.	-	80.5	-	1950-54,1958-60	-	June 10, 1960	4.48	1,510	-
2850	Shoshone River at Byron, Wyo.	-	2,345	-	1929-63	-	Jan. 29, 1949	a 8.12	-	-
							Sept.19, 1961	7.57	16,000	-
2855	Sage Creek near Lovell, Wyo.	-	381	-	1951-60	-	July 31, 1958	6.43	1,290	-
2862	Shoshone River at Kane, Wyo.	-	2,989	-	1958-63	-	Sept.19, 1961	10.34	13,200	-
2870	Bighorn River near St. Xavier, Mont.	-	19,667	-	1935-63	-	June 16, 1935	-	37,400	-
2875	Soap Creek near St. Xavier, Mont.	D8	98.3	-	1939-53	435	May 13, 1942	13.4	1,300	19
2877	Soap Creek near mouth, near St. Xavier, Mont.	D8	110	-	1914-16,1918, 1920-24	460	May 11, 1920	11.2	d 750	4.7
2885	Bighorn River near Hardin, Mont.	-	20,722	-	1904-24,1929-33	-	Mar. 11, 1929	11.1	d 45,900	-
2890	Little Bighorn River at State line, near Wyola, Mont.	A7	193	7,980	1939-63	1,250	June 3, 1944	-	2,730	14
							June 9, 1944	5.93	-	-
2895	Little Bighorn River near Wyola, Mont.	A7	251	-	1912-24	750	June 16, 1924	5.00	d 1,610	-
2900	Pass Creek near Wyola, Mont.	A7	111	5,570	1935-49,1951-56	329	Mar. 25, 1943	a 6.22	-	-
							June 4, 1944	4.82	d 1,150	*1.15
2905	Little Bighorn River below Pass Creek, near Wyola, Mont.	A7	428	6,140	1939-58,1960-63	1,330	June 14, 1963	7.43	3,630	33
2910	Owl Creek near Lodgegrass, Mont.	D8	161	-	1939-45	580	Mar. 18, 1944	a 14.50	-	-
							June 18, 1944	14.18	1,020	5.3
2915	Lodgegrass Creek above Willow Creek diversion, near Wyola, Mont.	D8	80.7	-	1939-63	390	June 4, 1944	5.68	972	22
2925	Lodgegrass Creek near Lodgegrass, Mont.	D8	143	-	1912-15,1921-24	540	Apr.7 or 8,1924	7.25	d 1,000	8.5
2930	Lodgegrass Creek at Lodgegrass, Mont.	-	170	-	1916-20	-	Apr. 9, 1917	4.2	-	-
							June 15, 1918	-	d 624	-
2935	Little Bighorn River near Crow Agency, Mont.	D8	1,181	-	1912,1914-24, 1929-32,1938-60	1,850	July 23, 1923	14.0	d 6,200	1.14

2940	Little Bighorn River near Hardin, Mont....	D8	1,294	-	1953-63	1,960	Mar. 20, 1960	a11.78	-	-
							Apr. 30, 1963	8.76	3,750	6.4
2947	Bighorn River at Bighorn, Mont.....	-	22,885	-	1945-63	-	Mar. 20, 1947	a10.65	-	-
							June 24, 1947	8.79	26,200	-
2950.5	Little Porcupine Creek near Forsyth, Mont.	B8	614	-	1958-63	1,260	Sept.20, 1961	8.14	3,320	9.6
2955	Rosebud Creek near Rosebud, Mont.....	B8	1,193	-	1938-43	1,850	May 31, 1941	9.74	d 827	1.4
2960	Rosebud Creek near Forsyth, Mont.....	B8	1,260	-	1948-53,1956-57, 1959,1961-63	1,920	Mar. 5, 1949	a10.72	-	-
							May 30, 1953	10.27	d 596	1.2
2965	North Fork Tongue River near Dayton, Wyo..	A7	32.4	9,270	1946-57	390	May 21, 1948 f	2.55	560	4.4
2970	South Fork Tongue River near Dayton, Wyo..	A7	85.0	8,920	1946-63	810	June 15, 1963	6.24	1,670	12
2980	Tongue River near Dayton, Wyo.....	A7	204	8,330	1919-29,1941-63	1,460	June 3, 1944	6.45	3,400	17
2985	Little Tongue River near Dayton, Wyo.....	A7	25.1	7,280	1951-53,1955-63	178	June 20, 1957	2.31	263	4.6
2995	Wolf Creek at Wolf, Wyo.....	A7	37.8	7,700	1944-63	289	May 18, 1944	5.0	-	-
							June 15, 1963	-	1,130	*1.28
3005	East Goose Creek near Big Horn, Wyo.....	A6	20.3	9,560	1954-63	465	May 27, 1961	4.21	-	-
							June 15, 1963	-	1,230	28
3010	Cross Creek near Big Horn, Wyo.....	A6	9.63	-	1954-60	-	May 21, 1954	-	178	-
							June 7, 1957	f 3.2	-	-
3015	West Goose Creek near Big Horn, Wyo.....	A6	24.4	-	1954-63	-	June 15, 1963	5.37	1,030	-
3020	Goose Creek near Sheridan, Wyo.....	-	120	-	1930-63	-	June 15, 1963	5.83	3,160	-
3035	Little Goose Creek in canyon, near Big Horn, Wyo.	A6	55	7,480	1941-63	613	June 15, 1963	6.78	1,350	14
3055	Goose Creek below Sheridan, Wyo.....	-	392	-	1942-63	-	June 16, 1963	7.82	5,450	-
3060	Tongue River near Acme, Wyo.....	-	894	-	1939-57	-	June 4, 1944	10.50	9,110	-
3065	Tongue River near Decker, Mont.....	B9	1,610	-	1928-38	3,460	June 2, 1929	i 9.25	d 7,220	6.0
3069.5	Leaf Rock Creek near Kirby, Mont.....	B9	6.04	-	1958,1960-63	-	June 7, 1958, June 15, 1963	6.77	222	-
3082	Basin Creek tributary near Volborg, Mont..	B9	.14	-	1955-63	-	July 2, 1958	-	390	-
							June 22, 1963	9.38	-	-
3083	Basin Creek near Volborg, Mont.....	B9	10.9	-	1955-63	168	July 2, 1958	5.79	965	*1.08
3085	Tongue River at Miles City, Mont.....	-	5,379	-	1938-41,1946-63	-	Mar. 19, 1960	a12.27	-	-
							June 15, 1962	11.33	13,300	-
3090	Yellowstone River at Miles City, Mont.....	-	48,253	-	1923,1929-63	60,500	Mar. 20, 1944	a121.7	-	-
							June 19, 1944	12.74	96,300	21
3095	Middle Fork Powder River above Kaycee, Wyo.	A8	450	-	1949-63	1,050	-	11.7	-	-
							June 15, 1963	8.45	2,480	18
3100	Red Fork near Barnum, Wyo.....	A8	142	-	1927-53	540	April 1927	i 10.3	-	-
					1929-53		May 14, 1932	i 5.15	d 768	4.3
3110	North Fork Powder River near Hazelton, Wyo.	A7	25.0	8,990	1947-63	291	June 15, 1953	4.34	886	50
3115	North Fork Powder River near Mayoworth, Wyo.	A8	106	-	1941-63	450	Aug. 11, 1941	7.64	1,270	36
3125	Powder River near Kaycee, Wyo.....	-	980	-	1923-63	-	Sept.30, 1923	18	-	-
					1934-36,1938-63	-	Aug. 11, 1941	12.57	5,230	-
3130	South Fork Powder River near Kaycee, Wyo..	E9	1,150	-	1938-40,1950-63	2,850	May 22, 1962	13.17	35,500	*1.41
3135	Powder River at Sussex, Wyo.....	E9	3,090	-	1923-57	5,200	Sept.30, 1923	i 13.6	-	-
					1938-40,1950-57	-	May 23, 1952	12.6	32,500	20
3140	North Fork Crazy Woman Creek near Buffalo, Wyo.	E8	44.9	-	1944-49	275	June 6, 1949	5.56	611	4.7
3145	North Fork Crazy Woman Creek below Spring Draw, near Buffalo, Wyo.	E8	51.7	-	1949-63	298	June 15, 1963	5.83	1,020	7.3

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Yellowstone River basin--Continued									
3150	North Fork Crazy Woman Creek near Greub, Wyo.	-	174	-	1949-63	-	June 13, 1962	9.05	1,050	-
3155	Middle Fork Crazy Woman Creek near Greub, Wyo.	E8	82.7	-	1942-63	390	May 2, 1947	5.77	4,520	*1.32
3165	Crazy Woman Creek near Arvada, Wyo.....	-	956	-	1940-43,1950-63	-	July 14, 1962	12.79	2,900	-
3170	Powder River at Arvada, Wyo.....	E9	6,050	-	1919-63	7,800	Sept.29, 1923	23.7	f 100,000	*1.46
3175	North Fork Clear Creek near Buffalo, Wyo..	-	29.0	-	1949-63	-	Apr. 7, 1952	a 4.91	-	-
							June 15, 1963	3.95	675	-
3185	Clear Creek near Buffalo, Wyo.....	-	120	-	1894,1896-99, 1917-27,1938-63	-	June 15, 1963	6.19	3,420	-
3200	Rock Creek near Buffalo, Wyo.....	-	60.0	-	1941-63	-	June 15, 1963	7.98	1,860	-
3205	South Piney Creek at Willow Park, Wyo.....	A7	33.6	10,100	1946,1948-57, 1960-63	429	June 15, 1963	4.68	1,620	*1.24
3210	South Piney Creek near Story, Wyo.....	-	70.5	-	1951-63	-	June 15, 1963	5.30	-	-
							June 15, 1963	4.37	2,090	-
3215	North Piney Creek near Story, Wyo.....	A7	37.7	7,920	1951-63	308	June 15, 1963	5.04	1,820	*1.93
3230	Piney Creek at Kearney, Wyo.....	-	106	-	1903-6,1911-17, 1919-23,1941-63	-	June 15, 1963	6.05	3,410	-
3235	Piney Creek at Ucross, Wyo.....	B9	267	-	1917-63	1,170	June 1, 1929	i 10.9	-	-
					1917-23,1950-63		June 16, 1963	7.33	3,570	13
3240	Clear Creek near Arvada, Wyo.....	-	1,110	-	1916-18,1928-29, 1940-63	-	Aug. 5, 1954	10.45	9,600	-
3245	Powder River at Moorhead, Mont.....	-	8,088		1923-63	-	Sept.30, 1923	19	(k)	-
					1929-63	-	Mar. 21, 1956	a17.7	-	-
							June 17, 1962	12.77	23,000	-
3247	Sand Creek near Broadus, Mont.....	B8	10.6	-	1955-63	120	May 18, 1959	4.79	236	5.5
3255	Little Powder River near Broadus, Mont....	D8	1,974	-	1947-53,1956-63	2,480	Mar. 16, 1948	a 10.59	-	-
							June 15, 1953	8.94	2,340	2.2
3265	Powder River near Locate, Mont.....	-	13,189	-	1938-63	-	Feb. 19, 1943	11.23	d 31,000	-
							Mar. 23, 1956	a 12.3	-	-
3275	Yellowstone River at Glendive, Mont.....	-	66,788	-	1903-10,1932-34	-	June 8, 1909	12.7	d 118,000	-
							Mar. 23, 1932	a 14.50	-	-
3278	Griffith Creek near Glendive, Mont.....	B9	15.5	-	1955-63	205	June 29, 1961	3.96	(k)	-
3292	Burns Creek near Savage, Mont.....	B9	233	-	1958-63	1,070	Mar. 20, 1960	5.31	2,100	5.4
3295	Yellowstone River near Sidney, Mont.....	B9	68,812	-	1911-31,1934-63	70,400	June 21, 1921	12.6	d 159,000	39
							Mar. 22, 1947	a 21.85	-	-
	Painted Woods Creek basin (upper)									
3297	Painted Woods Creek tributary near Williston, N. Dak.	D8	0.35	-	1955-63	-	June 26, 1959	4.36	47.8	-
							March 1960	a 8.76	-	-
3299	Painted Woods Creek tributary No. 2 near Williston, N. Dak.	D8	8.30	-	1955-64	-	Mar. 19, 1959	7.96	207	-

					Missouri River main stem					
3300	Missouri River near Williston, N. Dak.....	-	164,500	-	1912-63 1929-63	-	April 1912 Apr. 4, 1930 Mar. 22, 1960	f 28 18.0 a 20.8	(k) 231,000 -	- - -
					Sand Creek basin					
3301	Sand Creek near Williston, N. Dak.....	D8	38.2		1955-64	250	March 1960	9.00	(k)	-
					Little Muddy Creek basin					
3310	Little Muddy Creek below Cow Creek, near Williston, N. Dak.	D8	n 775	-	1955-63	1,450	Mar. 27, 1960	13.57	6,910	*1.19
3315	Little Muddy Creek near Williston, N. Dak.	D8	n 910	-	1904-55	1,580	Mar. 30, 1955	-	3,640	10
					White Earth River basin					
3320	White Earth River at White Earth, N. Dak..	D8	n 320	-	1929-64 1955-64	830	1929 Mar. 28, 1960	21.8 a18.02	(k) 2,300	- 16
					Little Missouri River basin					
3329	North Creek near Alzada, Mont.....	D9	0.68	-	1951,1956-63	-	May 21, 1962	5.47	f 1,100	-
3340	Little Missouri River near Alzada, Mont...	D9	904	-	1912-25,1929-32, 1935-63	2,450	Apr. 4, 1944	-	h 6,000	11
3341	Wolf Creek near Hammond, Mont.....	D9	9.09	-	1955-63	150	June 3, 1958	5.76	550	36
3342	Willow Creek near Alzada, Mont.....	D9	123	-	1958-63	720	May 21, 1962	11.98	f 1,700	10
3345	Little Missouri River at Camp Crook, S. Dak.	D9	1,970	-	1952-63 1956-63	3,900	1952 May 28, 1962	f 16 13.07	(k) 7,600	- 6.6
3350	Little Beaver Creek near Marmarth, N. Dak.	B10	615	-	1939-46,1948-63	2,700	Apr. 6, 1952	13.9	12,700	35
3355	Little Missouri River at Marmarth, N. Dak.	B10	4,570	-	1939-63	9,700	Mar. 23, 1947 Mar. 31, 1952	21.7 a 23.4	45,000 -	34 -
3357	Deep Creek near Bowman, N. Dak.....	B10	.20	-	1955-64	-	June 26, 1955	8.90	57.0	-
3360	Little Missouri River at Medora, N. Dak...	B10	6,190	-	1904-63	11,700	Mar. 23, 1947	20.5	65,000	*1.04
3361	Sheep Creek tributary near Medora, N. Dak.	B10	.29	-	1955-64	-	June 20, 1960	6.55	147	-
3362	Sheep Creek tributary No. 2 near Medora, N. Dak.	B10	.42	-	1955-64	-	June 20, 1960	5.40	139	-
3363	Little Missouri River tributary near Medora, N. Dak.	B10	.32	-	1955-64	-	June 20, 1960	10.9	200	-
3364	Jules Creek near Medora, N. Dak.....	B10	3.80	-	1955-64	-	June 20, 1960	9.49	619	-
3364.5	Spring Creek near Wibaux, Mont.....	B10	3.88	-	1956-63	-	July 19, 1962	3.34	438	-
3365	Beaver Creek at Wibaux, Mont.....	B10	351	-	1872-1963	1,920	1872, June 7, 1929	-	30,000	*2.94
3370	Little Missouri River near Watford City, N. Dak.	B10	8,490	-	1921-63	14,400	Mar. 25, 1947	24.0	110,000	*1.43
					Missouri River main stem					
3375	Missouri River near Elbowoods, N. Dak.....	-	179,800	-	1940-53	-	Apr. 5, 1952	25.20	360,000	-
					Douglas Creek basin					
3376	East Branch Douglas Creek tributary near Garrison, N. Dak.	D8	1.39	-	1957,1959-64	-	July 1957	8.54	76	-

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Snake Creek basin									
3379	Snake Creek tributary near Garrison, N. Dak.	D8	1.22	-	1959-64	-	April 1960	6.18	(k)	-
	Knife River basin									
3395	Knife River near Golden Valley, N. Dak....	B9	1,230	-	1903-63	3,000	Mar.26,27,1943	26.7	11,500	21.0
3400	Spring Creek at Zap, N. Dak.....	B9	545	-	1924,1947-63	1,800	Apr. 7, 1952	20.03	6,130	16
3405	Knife River at Hazen, N. Dak.....	B9	2,350	-	1884-1963	4,400	Mar.26,27,1943	26.3	26,500	*1.13
	Turtle Creek basin									
3414	Turtle Creek near Turtle Lake, N. Dak.....	-	n115	-	1957-63	-	Feb. 27, 1957	4.86	91	-
							Mar. 25, 1960	a 5.04	-	-
	Painted Woods Creek basin									
3418	Painted Woods Creek near Wilton, N. Dak...	D8	n 117	-	1958-64	480	Mar. 27, 1960	a7.44	650	3.4
	Square Butte Creek basin									
3420.5	Square Butte Creek at Center, N. Dak.....	E9	56.8	-	1956-64	4 5	Mar. 28, 1960	a 7.00	(k)	-
3421	Square Butte Creek tributary No. 2 near Center, N. Dak.	E9	13.0	-	1955-64	185	July 16, 1957	7.98	2,500	*1.53
3421.5	Square Butte Creek tributary near Center, N. Dak.	E9	.19	-	1955-64	-	July 16, 1957	6.34	50.8	-
3422.5	Square Butte Creek tributary No. 3 near Center, N. Dak.	E9	1.68	-	1955-64	-	June 1963	6.79	88	-
	Burnt Creek basin									
3423	Burnt Creek tributary near Baldwin, N. Dak.	E9	2.98	-	1956-64	-	May 6, 1964	7.85	966	-
3423.5	Burnt Creek tributary No. 2 near Baldwin, N. Dak.	E9	2.12	-	1956-64	-	May 6, 1964	7.18	652	-
	Missouri River main stem									
3425	Missouri River at Bismarck, N. Dak.....	-	186,400	-	1881-1963	-	Mar. 31, 1881	a131.6	(k)	-
					1927-63		Apr. 6, 1952	27.90	500,000	-
	Heart River basin									
3430	Heart River near South Heart, N. Dak.....	B10	315	-	1947-64	1,800	June 23, 1957	21.79	5,090	11
3432	Heart River tributary near South Heart, N. Dak.	B10	.13	-	1955-64	-	June 26, 1955	12.37	62	-
3442	Heart River tributary near Dickinson, N. Dak.	B10	1.72	-	1955-64	-	June 26, 1955	5.85	90	-
3445	Heart River at Lehigh, N. Dak.....	B10	443	-	1943-55	2,200	Apr. 15, 1950	17.90	5,980	10

3450	Green River near Gladstone, N. Dak.....	B10	356	-	1943-63	1,940	March 1943	f 20	-	-
					1946-63		Apr. 15, 1950	18.3	5,260	10
3451	Antelope Creek near Dickinson, N. Dak.....	B10	69.2	-	1955-64	680	June 21 or 22, 1957	11.98	6,100	*1.68
3452	Antelope Creek tributary near New England, N. Dak.	B10	13.0	-	1955-64	240	June 12, 1960	10.93	1,360	*1.06
3453	Antelope Creek tributary (site No. 2) near New England, N. Dak.	B10	22.4	-	1955-64	330	June 21 or 22, 1957	6.34	1,200	19
3455	Heart River near Richardton, N. Dak.....	B10	1,240	-	1905-21,1938, 1943-63	4,250	Apr. 16, 1950	28.05	23,400	*1.04
3457	Government Creek near Richardton, N. Dak..	E9	33.4	-	1950,1955-64	330	Apr. 16, 1950	15.05	4,300	*1.48
3465	Heart River below Heart Butte Dam, near Glen Ullin, N. Dak.	E9	1,710	-	1904-63	3,600	Mar. 24, 1947	a 21.5	25,000	26
3470	Antelope Creek near Carson, N. Dak.....	E9	221	-	1943-63	1,040	Apr. 16, 1950	17.95	11,100	*1.21
3475	Muddy Creek near Almont, N. Dak.....	E9	456	-	1895-1963	1,620	Apr. 17, 1950	30.7	20,200	*1.41
3480	Heart River near Lark, N. Dak.....	-	2,750	-	1947-63	-	Apr. 17, 1950	20.70	29,200	-
3485	Sweetbriar Creek near Judson, N. Dak.....	E9	157	-	1950-63	840	Apr. 17, 1950	12.5	5,910	27
3490	Hart River near Mandan, N. Dak.....	E9	3,310	-	1924,1929-33, 1938-63	5,400	Apr. 19, 1950	23.64	30,500	17
							Apr. 4, 1952	a 25.75	-	-
	Apple Creek basin									
3492	West Branch Long Lake Creek near Hazelton, N. Dak.	E8	16.5	-	1955-64	155	June 6, 1956	7.92	798	14
3495	Apple Creek near Menoken, N. Dak.....	E8	n 1,180	-	1946-63	1,850	Apr. 18, 1950	17.07	6,750	7.9
	Cannonball River basin									
3500	Cannonball River at Regent, N. Dak.....	E9	580	-	1950-63	1,860	Apr. 16, 1950	26.1	20,300	*1.24
3510	Cannonball River below Bentley, N. Dak....	E9	1,140	-	1889-1963	2,850	Apr. 17, 1950	34.0	51,800	*2.06
3520	Cedar Creek near Hayes, N. Dak.....	E9	553	-	1950-63	1,800	Apr. 16, 1950	f 23	27,400	*1.73
3525	Cedar Creek near Pretty Rock, N. Dak.....	E9	1,340	-	1943-63	3,100	Apr. 17, 1950	26.5	48,000	*1.76
3536	Louise Creek tributary near Brisbane, N. Dak.	E9	.29	-	1955-64	-	March 1959	a 4.69	-	-
							June 18 or 19, 1964	4.68	18	
3537	Louise Creek tributary near Lark, N. Dak..	E9	.76	-	1956-64	-	March 1959	a 4.77	-	-
							March 1960	4.20	60	-
3538	Louise Creek tributary No. 2 near Lark, N. Dak.	E9	7.70	-	1956-64	-	March 1960	3.30	(k)	-
3539	Louise Creek above Flasher, N. Dak.....	E9	110	-	1955-64	680	Mar. 30, 1956	10.40	946	3.0
3540	Cannonball River at Breien, N. Dak.....	E9	4,100	-	1900-63	6,100	Apr. 19, 1950	22.30	94,800	*1.77
	Beaver Creek basin									
3545	Beaver Creek at Linton, N. Dak.....	E8	n 617	-	1943-63	1,260	Apr. 8, 1952	17.50	9,800	35
3547	Spring Creek near Linton, N. Dak.....	E8	22.9	-	1955-64	188	June 6, 1956	8.18	2,790	*1.69
3548	Sand Creek near Temvik, N. Dak.....	E8	23.3	-	1955-64	190	Mar. 22, 1959	a 5.65	-	-
							June 18, 1962	4.42	1,670	50
	Grand River basin									
3549	Spring Creek near Bowman, N. Dak.....	E9	51.2	-	1955-64	424	June 18, 1964	5.80	265	1.7
3549.5	Spring Creek tributary near Bowman, N. Dak.	E9	11.4	-	1955-64	172	July 1958	-	80	1.4
							June 18, 1964	6.78	-	-

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
	Grand River basin--Continued									
3550	North Fork Grand River at Haley, N. Dak...	E9	509	-	1912-15,1917, 1946-63	1,750	Apr. 15, 1950 Apr. 7, 1952	17.10 -	- 14,100	- 39
3552	Buffalo Creek tributary near Buffalo Springs, N. Dak.	E9	3.39	-	1955-64	82	June 9, 1958	6.17	389	-
3555	North Fork Grand River near White Butte, S. Dak.	E9	1,190	-	1946-63	2,850	Apr. 16, 1950	20.0	30,900	*1.23
3560	South Fork Grand River at Buffalo, S. Dak.	E9	148	-	1956-64	805	June 14, 1963	9.01	2,780	7.3
3560.5	Wide Sandy Creek near Buffalo, S. Dak.....	E9	38.8	-	1956,1958-64	360	June 1962	6.66	400	2.5
3565	South Fork Grand River near Cash, S. Dak..	E9	1,350	-	1946-63	3,100	Apr. 15, 1950	15.40	27,000	48
3575	Grand River at Shadehill, S. Dak.....	E9	3,120	-	1943-55	5,200	Apr. 16, 1950	19.06	58,000	*1.27
3580	Grand River near Wakpala, N. Dak.....	E9	5,510	-	1914-16,1929-55	7,400	Apr. 18, 1950	22.75	82,200	*1.26
3584	Claymore Creek tributary No. 2 near Trail City, S. Dak.	E9	.11	-	1956-64	-	May 18, 1962	4.61	(k)	-
	Deadman Creek basin									
3585.2	Deadman Creek tributary near Mobridge, S. Dak.	E9	0.31	-	1956-64	-	June 17, 1964	12.07	180	-
	Moreau River basin									
3587.5	North Fork Moreau River tributary near Redig, S. Dak.	E9	4.00	-	1956,1958-64	-	May 1962	5.95	(k)	-
3590	Moreau River at Bixby, S. Dak.....	E9	1,570	-	1949-53,1955-63	3,400	Apr. 1, 1952	17.8	15,300	11
3595	Moreau River near Faith, S. Dak.....	E9	2,660	-	1944-63	4,700	Apr. 9, 1944	20.9	26,000	16
3600	Moreau River near Eagle Butte, S. Dak.....	E9	4,320	-	1944-58	6,300	Apr. 9, 1944 June 15, 1953	23.0 -	- 30,300	- 12
3605	Moreau River near Whitehorse, S. Dak.....	E9	4,880	-	1953-63 1955-63	6,800	June 1953 May 22, 1962	26.2 21.0	- 17,500	- 5.3
3610	Moreau River at Promise, S. Dak.....	E9	5,223	-	1929-58	7,100	Mar. 25, 1947 Apr. 5, 1952	24.4 -	- 36,900	- 14
	Cheyenne River basin									
3860	Lance Creek at Spencer, Wyo.....	B8	2,070	-	1948-54,1957-63	2,550	June 28, 1952	8.3	5,250	5.9
3865	Cheyenne River near Spencer, Wyo.....	B8	5,270	-	1949-63	4,450	May 27, 1962	8.74	16,000	18
3940	Beaver Creek near Newcastle, Wyo.....	-	1,320	-	1943,1945-63	-	June 16, 1962	19.98	11,900	-
3950	Cheyenne River at Edgemont, S. Dak.....	B8	7,143	-	1905-63 1905,1929-32, 1947-63	5,200	May 1, 1922 June 17, 1962	12.0 -	(k) 13,500	- 9.4
3997	Pine Creek near Ardmore, S. Dak.....	B8	5.47	-	1956-64	-	June 16, 1962	7.72	1,440	-
4000	Hat Creek near Edgemont, S. Dak.....	B8	1,044	-	1905,1951-63	1,750	May 23, 1954	11.98	9,430	50
4005	Cheyenne River near Hot Springs, S. Dak...	B8	8,710	-	1915-20,1943-63	5,900	May 12, 1920	29.2	114,000	*3.63

4020	Fall River at Hot Springs, S. Dak.....	E8	137	-	1938-63	520	Sept. 4, 1938	18.4	13,100	*2.86
4025	Beaver Creek near Buffalo Gap, S. Dak.....	E8	130	-	1927-63	510	1927	18.0	(k)	-
					1938-63	-	Sept. 4, 1938	16.46	11,700	*2.61
4060	Battle Creek at Hermosa, S. Dak.....	E8	178	-	1950-63	610	May 2, 1952	14.00	2,950	12
4067.5	Sunday Gulch near Hill City, S. Dak.....	E11	5.72	-	1956-64	20	April 1957	3.55	(k)	-
4085	Spring Creek near Hermosa, S. Dak.....	-	199	-	1950-64	-	May 23, 1952	4.56	580	-
4090	Castle Creek above Deerfield Reservoir, near Hill City, S. Dak.	E11	83	-	1949-64	134	May 22, 1952	5.81	615	11
4105	Rapid Creek above Pactola Reservoir, at Silver City, S. Dak.	E11	292	-	1954-64	330	July 28, 1955	8.90	1,520	11
4115	Rapid Creek below Pactola Dam, S. Dak.....	E11	320	-	1920	350	May 12, 1920	t 7.75	(k)	-
					1929-42,1947-63	-	May 22, 1952	6.74	2,190	22
4125	Rapid Creek above Canyon Lake, near Rapid City, S. Dak.	E11	371	-	1947-64	390	May 23, 1952	8.08	2,600	24
4140	Rapid Creek at Rapid City, S. Dak.....	E11	410	-	1905-6,1920-63	420	May 12,13,1920	13.6	(k)	-
					1905-6,1943-63	-	July 13, 1962	8.37	3,300	36
4215	Rapid Creek near Farmingdale, S. Dak.....	E11	602	-	1947-58,1960-63	560	June 21, 1947	-	2,640	12
							May 21, 1962	9.77	-	-
4235	Cheyenne River near Wasta, S. Dak.....	B9	12,800	-	1915-63	12,300	May 1920	f 16	(k)	-
					1915,1929-32, 1934-63	-	May 6, 1932	11.28	d 46,300	20
4255	Elk Creek near Elm Springs, S. Dak.....	E9	540	-	1920-63	1,800	May 1920	f 17	(k)	-
					1950-63	-	Mar. 29, 1952	10.61	8,540	12
4260	Belle Fourche River near Moorcroft, Wyo...	E8	1,380	-	1908-32	-	June 1908	f 15.0	(k)	-
					1924-32	2,040	Apr. 7, 1924	-	g 12,500	19
4265	Belle Fourche River below Moorcroft, Wyo..	-	1,670	-	1944-63	1,950	May 27, 1962	14.33	4,420	-
4280	Belle Fourche River at Hulett, Wyo.....	-	2,800	-	1882-1951	-	Apr. 8, 1924	18.7	(k)	-
					1929-32,1938-51	2,500	May 31, 1929	8.90	-	-
							Mar. 26, 1943	-	d 6,320	-
4285	Belle Fourche River at Wyoming-South Dakota State line.	-	3,280	-	1947-63	2,700	June 18, 1962	15.59	4,400	-
4305	Redwater Creek at Wyoming-South Dakota State line.	E11	471	-	1929-31,1936-37, 1955-64	460	June 16, 1962	11.95	2,340	13.1
4315	Spearfish Creek at Spearfish, S. Dak.....	E11	168	-	1904-64	222	June 5, 1904	7.00	f 5,000	*2.56
4322.3	Miller Creek near Whitewood, S. Dak.....	E11	6.72	-	1956-64	23	June 9, 1964	3.48	275	*1.36
4330	Redwater Creek above Belle Fourche, S. Dak.	E11	920	-	1946-63	740	June 16, 1962	11.69	16,400	*2.51
4335	Hay Creek at Belle Fourche, S. Dak.....	E11	121	-	1954-64	178	June 22, 1964	7.05	530	6.2
4355	Belle Fourche River near Belle Fourche, S. Dak.	-	4,310	-	1924,1927-43	3,000	Apr. 9, 1924	-	d 22,400	-
4360	Belle Fourche River near Fruitdale, S. Dak.	-	4,540	-	1946-58,1960-63	-	June 16, 1962	11.25	7,840	-
4370	Belle Fourche River near Sturgis, S. Dak..	B	5,870	-	1946-63	7,200	May 24, 1946	-	17,900	8.5
							June 16, 1962	14.32	-	-
4371	Boulder Creek near Deadwood, S. Dak.....	E9	1.69	-	1956-63	-	June 15, 1962	8.46	210	-
4375	Bear Butte Creek near Sturgis, S. Dak.....	E9	192	-	1946-64	950	June 16, 1962	12.45	12,700	*1.52
4380	Belle Fourche River near Elm Springs, S. Dak.	B	7,210	-	1927-63	-	May 1927	21.8	(k)	-
					1929-63	12,500	May 28, 1962	14.31	37,900	13
4385	Cheyenne River near Plainview, S. Dak.....	B	21,600	-	1920-63	-	May 1920	f 17.50	(k)	-
					1951-63	22,800	May 26, 1957	-	41,700	4.8
							May 22, 1962	11.65	-	-

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
Cheyenne River basin--Continued										
4390	Cherry Creek near Plainview, S. Dak.....	E9	1,190	-	1946-63	2,850	Apr. 1, 1952	22.63	17,500	20
4390.8	Cherry Creek tributary No. 3 near Avance, S. Dak.	E9	4.58	-	1956-64	-	May 21, 1962	6.96	2,280	-
4391	Beaver Creek near Faith, S. Dak.....	E9	37.1	-	1956-64	350	May 21, 1962	11.85	3,080	50
4395	Cheyenne River near Eagle Butte, S. Dak...	B	24,500	-	1920-63	-	May 13, 1920	18.9	-	-
					1929-63	24,500	May 24, 1933	15.0	104,000	27
Missouri River main stem										
4400	Missouri River at Pierre, S. Dak.....	-	243,500	-	1930-63	-	Apr. 10, 1952	25.35	440,000	-
Bad River basin										
4405	North Fork Bad River at Philip, S. Dak....	E9	164	-	1927-44	860	May 1927	18.2	(k)	-
					1939-44		June 4, 1942	14.7	1,640	4.1
4410	Bad River near Midland, S. Dak.....	E9	1,500	-	1946-63	3,300	Apr. 2, 1952	14.00	11,200	7.2
4415	Bad River near Fort Pierre, S. Dak.....	E9	3,107	-	1905-63	5,200	July 1905	f 32.9	f 70,000	*1.53
Mush Creek basin										
4416.5	Mush Creek near Pierre, S. Dak.....	E9	14.6	-	1956-64	198	Aug. 10, 1956	7.49	3,620	*2.08
Unnamed Missouri River tributaries										
4416.7	Missouri River tributary near Pierre, S. Dak.	E9	0.42	-	1956-64	-	Aug. 10, 1956	10.38	705	-
4417.5	Missouri River tributary near Canning, S. Dak.	E9	.20	-	1956-64	-	May 18, 1960	7.40	284	-
Medicine Knoll Creek basin										
4420	Medicine Knoll Creek near Blunt, S. Dak...	E11	455	-	1917	450	1917	f 15	-	-
					1950-63		Apr. 5, 1952	-	1,830	9.1
Unnamed Missouri River tributaries										
4420.5	Missouri River tributary near DeGrey, S. Dak.	E9	1.64	-	1956-64	-	Aug. 7, 1956	6.99	976	-
Medicine Creek basin										
4423.5	North Fork Medicine Creek near Vivian, S. Dak.	E9	45.9	-	1956-64	396	Apr. 3, 1960	7.05	1,080	5.7
4423.8	Medicine Creek tributary near Vivian, S. Dak.	E9	.30	-	1956-64	-	June 15, 1962	9.72	302	-
4424	Medicine Creek tributary No. 2 near Vivian, S. Dak.	E9	8.62	-	1956-64	-	Mar. 19, 1956	a 6.67	-	-
							Mar. 26, 1960	4.80	475	..

4425	Medicine Creek at Kennebec, S. Dak.....	E9	465	-	1952-64	1,620	April 1952 Mar. 28, 1960	17.0 16.71	(k) 8,970	- 16
	Missouri River main stem									
4430	Missouri River at Chamberlain, S. Dak.....	-	250,800	-	1929,1943, 1945-54	-	Apr. 11, 1952	25.55	440,000	-
	White River basin									
4432	White River tributary near Glen, Nebr.....	B8	7.97	-	1953-63	-	July 31, 1962	14.40	435	-
4433	Deep Creek near Glen, Nebr.....	B8	10.9	-	1953-63	121	Aug. 15, 1953	14.92	3,050	*4.73
4437	Soldiers Creek near Crawford, Nebr.....	B8	52.6	-	1955-63	302	July 10, 1958	21.90	3,970	*2.47
4439	White River tributary No. 2 near Crawford, Nebr.	B8	5.45	-	1953-63	-	July 10, 1958 May 24, 1960	11.29 -	- 698	- *1.62
4440	White River at Crawford, Nebr.....	B8	313	-	1918-44,1948-63	850	Aug. 20, 1944	14.4	f 1,700	5.6
4450	White River below Cottonwood Creek, near Whitney, Nebr.	B8	676	-	1949-61	1,340	May 20, 1957	20.09	4,480	16
4455	White River near Chadron, Nebr.....	B8	750	-	1931-43,1947, 1949-52	1,420	June 22, 1947	19.1	5,500	22
4455.3	Chadron Creek at Chadron State Park, near Chadron, Nebr.	B8	3.35	-	1953-63	-	July 13, 1963	12.12	188	-
4455.6	Chadron Creek near Chadron, Nebr.....	B8	14.9	-	1953-63	144	June 11, 1962	14.47	2,740	*3.57
4460	White River near Oglala, S. Dak.....	B8	2,200	-	1944-63	2,650	June 21, 1947	23.50	5,200	5.5
4464	Cain Creek tributary at Imlay, S. Dak.....	B9	14.0	-	1956-64	194	June 15, 1962	11.57	(k)	-
4465	White River near Interior, S. Dak.....	B9	4,120	-	1905-6,1912-18, 1929-32,1940-42	6,200	May 1, 1942	12.4	17,100	11
4465.5	White River tributary near Interior, S. Dak.	B9	.14	-	1956-64	-	June 8, 1964	8.76	558	-
4470	White River near Kadoka, S. Dak.....	B9	5,000	-	1942-63	6,950	June 4, 1942	16.24	f 32,000	33
4495	South Fork White River near Rosebud, S. Dak.	B8	n 760	-	1944-63	1,430	May 17, 1944	13.92	4,470	14
4497	South Fork White River tributary near Mission, S. Dak.	B9	2.62	-	1956-64	-	June 1962	10.15	646	-
4505	South Fork White River below White River, S. Dak.	-	n1,310	-	1930-32,1939-40, 1950-63	-	Mar. 28, 1952 Mar. 22, 1960	a 10.90 6.66	- 6,050	- -
4515	White River at Westover, S. Dak.....	B9	7,850	-	1913-18	9,200	Apr. 4, 1915 Mar. 22, 1917	13.0 ad15.1	d 15,200 -	4.0 -
4520	White River near Oacoma, S. Dak.....	B9	10,200	-	1929-63	10,800	Mar. 31, 1950 Mar. 30, 1952	a 17.6 15.40	- 51,900	- 38
	Missouri River main stem									
4530	Missouri River below Fort Randall Dam, S. Dak.	-	263,500	-	1881-1963 1948-63	- -	April 1881 Apr. 12, 1952	f 21.5 20.82	(k) 447,000	- -
	Ponca Creek basin									
4535	Ponca Creek at Anoka, Nebr.....	B13	410	-	1949-63	2,150	Mar. 27, 1960	16.86	9,810	32
4536	Ponca Creek at Verdel, Nebr.....	B13	820	-	1958-63	3,400	Mar. 27, 1960	15.10	15,700	34
	Niobrara River basin									
4540	Niobrara River at Wyoming-Nebraska State line.	-	-	-	1956-63	-	June 17, 1962 Jan.31or Feb.1, 1963	5.84 a 6.47	465 -	- -

See footnotes at end of table.

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
				Niobrara River basin--Continued						
4541	Niobrara River at Agate, Nebr.	-	-	-	1958-63	-	June 23, 1959	5.00	181	-
4545	Niobrara River above Box Butte Reservoir, Nebr.	-	-	-	1947-63	-	July 28, 1951	10.30	461	-
4559	Niobrara River near Dunlap, Nebr.	-	1,550	-	1931-42,1962	1,080	July 30, 1962	-	3,230	-
4562	Pebble Creek near Esther, Nebr.	B8	3.07	-	1953-63	-	July 28, 1953	18.67	2,000	-
4563	Pebble Creek near Dunlap, Nebr.	B8	23.5	-	1953-63	188	July 28, 1953	12.88	2,740	*2.74
4564	Cottonwood Creek near Dunlap, Nebr.	B8	82.2	-	1948,1951-63	390	July 28, 1951	20.10	28,100	*13.5
4565	Niobrara River near Hay Springs, Nebr.	-	-	-	1950-63	-	July 28, 1951	7.2	7,330	-
4572	Berea Creek near Alliance, Nebr.	-	34.0	-	1953-63	74	Mar. 18, 1960	11.87	107	-
4575	Niobrara River near Gordon, Nebr.	-	2,595	-	1929-32,1946-63	1,550	May 21, 1962	5.25	9,130	-
4577	Antelope Creek at Gordon, Nebr.	B8	61.1	-	1953-63	330	May 24, 1958	17.86	444	3.0
4578	Antelope Creek tributary near Gordon, Nebr.	B8	26.6	-	1953-63	205	June 17, 1955	16.69	1,900	*1.74
4585	Bear Creek near Eli, Nebr.	A11	n 78	-	1948-53	130	May 20, 1951	5.07	d 145	2.6
							Mar. 14, 1953	da5.20	-	-
4590	Niobrara River near Cody, Nebr.	-	-	-	1948-57	-	July 29, 1951	6.22	4,170	-
4595	Snake River near Burge, Nebr.	A8	n 100	-	1948-63	440	June 30, 1962	5.39	1,830	*1.36
							Feb. 7, 1963	6.96	u 3,170	-
4610	Minnechaduza Creek at Valentine, Nebr.	B8	n 200	-	1948-63	660	Mar. 22, 1960	8.00	1,100	4.1
4615	Niobrara River near Sparks, Nebr.	-	6,406	-	1946-63	-	Mar. 5, 1949	6.73	10,200	-
							Mar. 1, 1963	a 9.07	-	-
4620	Niobrara River near Norden, Nebr.	-	-	-	1953-63	-	July 1, 1962	7.10	7,380	-
							Feb. 8, 1963	a 7.83	-	-
4631	Bone Creek tributary near Ainsworth, Nebr.	B13	.39	-	1956-63	-	June 27, 1960	11.85	202	-
4632	Bone Creek tributary No. 2 near Ainsworth, Nebr.	B13	2.18	-	1958-63	-	June 30, 1962	13.29	640	-
4633	Sand Draw tributary near Ainsworth, Nebr.	B13	1.07	-	1956-63	-	June 30, 1962	14.4	747	-
4635	Long Pine Creek near Riverview, Nebr.	B13	390	-	1949-53,1955-63	2,050	July 1, 1962	15.68	9,650	35
4640	Keya Paha River near Hidden Timber, S. Dak.	B8	320	-	1948-53	860	Mar. 24, 1950	10.87	-	-
							Mar. 30, 1952	-	2,710	14
4645	Keya Paha River at Wewela, S. Dak.	B8	1,070	-	1939-40,1950-63	1,760	Mar. 25, 1950	a 13.5	-	-
							Mar. 31, 1952	13.08	5,430	13
4649	Keya Paha River near Naper, Nebr.	B13	-	-	1958-63	-	Mar. 23, 1960	a 13.34	-	-
							July 1, 1962	10.91	9,280	-
4650	Niobrara River near Spencer, Nebr.	B	10,400	-	1908,1914-15, 1928-36,1938-63	10,800	Mar. 12, 1955	12.16	27,400	8.8
4652	Honey Creek near O'Neill, Nebr.	B13	2.54	-	1958-63	-	Mar. 27, 1960	14.74	-	-
							July 11, 1962	-	85	-
4653	Camp Creek near O'Neill, Nebr.	B13	1.65	-	1958-63	-	Mar. 27, 1960	a 12.80	-	-
							July 11, 1962	10.68	68.9	-
4654	Blackbird Creek tributary near O'Neill, Nebr.	B13	.60	-	1958-63	-	July 26, 1958	12.81	94	-
4655	Niobrara River near Verdel, Nebr.	B	10,900	-	1938-40,1959-63	11,000	Mar. 27, 1960	10.10	39,000	18

Bazile Creek basin

4665	Bazile Creek near Niobrara, Nebr.....	B15	440	-	1951-63	7,500	June 16, 1957	19.96	68,600	*1.72
				Missouri River main stem						
4675	Missouri River at Yankton, S. Dak.....	-	279,500	-	1881-1963	-	Apr. 5, 1881	a30.5	(k)	-
					1931-63	-	Apr. 13, 1952	15.5	480,000	-
				James River basin						
4676	James River near Manfred, N. Dak.....	E11	n50	-	1950,1955-64	95	Mar. 27, 1960	6.15	555	18
4676.5	James River tributary near Manfred, N. Dak.	E11	n37.2	-	1955-64	76	March 1960	2.70	(k)	-
4678	James River tributary No. 3 near Manfred, N. Dak.	E11	n 20	-	1955-64	50	April 1956	a3.98	-	-
							March 1960	2.70	70	3.0
4680	James River at New Rockford, N. Dak.....	E	n406	-	1925-63	-	April 1948	f13	-	-
					1951-63	160	Apr. 12, 1951	-	840	14
							Apr. 3, 1960	10.16	-	-
4685	James River near Pingree, N. Dak.....	E	n1,140	-	1953-63	200	Apr. 13, 1960	37.62	293	3.1
4695	Pipestem Creek near Buchanan, N. Dak.....	E11	n 475	-	1950-64	470	Apr. 9, 1950	a11.89	-	-
							Apr. 17, 1950	10.77	4,480	*1.08
4696	Minneapolis Flats Creek tributary near Eldridge, N. Dak.	E11	9.91	-	1955-64	30	July 6 or 7, 1962	3.36	60	4.2
4700	James River at Jamestown, N. Dak.....	E	n1,890	-	1897-1963	600	May 13, 1950	15.82	6,390	*1.21
4702	Beaver Creek tributary near Eldridge, N. Dak.	E11	.19	-	1955-64	-	July 19 or 20, 1962	5.55	45	-
4703	Beaver Creek near Sydney, N. Dak.....	E11	92.2	-	1955-64	143	July 8, 1962	7.66	700	12
4704	Buffalo Creek tributary near Sydney, N. Dak.	E11	26.2	-	1955-64	60	June 6, 1956	6.16	130	4.6
							Feb. 28, 1958	a6.58	-	-
4705	James River at La Moure, N. Dak.....	E	2,940	-	1882-1963	600	May 16, 1950	15.34	5,730	*1.09
4710	James River at Columbia, S. Dak.....	E	n4,050	-	1946-63	600	May 24,25,1950	16.89	5,420	*1.03
4710.5	Elm River tributary near Leola, S. Dak....	E11	14.7	-	1956-64	40	May 3, 1964	8.62	418	*1.19
4712	Maple River at North Dakota-South Dakota State line.	E11	n 480	-	1957-64	470	July 9, 1962	10.97	2,030	10
4713.5	Maple River at Frederick, S. Dak.....	E11	552	-	1956-64	520	July 10, 1962	9.72	2,800	15
4714	Willow Creek tributary near Leola, S. Dak.	E11	3.74	-	1956-64	-	May 3, 1964	2.58	33	-
4714.5	Willow Creek tributary near Barnard, S. Dak.	E11	.18	-	1956-64	-	Apr. 5, 1960	2.59	20	-
4715	Elm River at Westport, S. Dak.....	E11	n1,170	-	1947-63	890	Apr. 8, 1952	20.10	7,520	45
4720	James River near Stratford, S. Dak.....	E	n6,070	-	1950-63	600	May 14 or 15, 1950	-	5,580	*1.06
							Apr.19,20,1952	18.13	-	-
4725	Mud Creek near Stratford, S. Dak.....	E11	n 470	-	1956-63	460	Mar. 28, 1962	10.53	637	3.0
4730	James River at Ashton, S. Dak.....	E	n6,810	-	1946-63	600	May 19, 1950	-	5,170	47
							Apr.23,24,1952	19.59	-	-
4735	West Branch Snake Creek near Athol, S. Dak.	E11	n1,090	-	1950-63	840	Apr. 9, 1952	a16.42	2,200	5.4
4737	Snake Creek near Ashton, S. Dak.....	E11	n1,770	-	1956-63	1,190	Apr. 9, 1960	12.87	1,150	2.1
4738	Matter Creek tributary near Orient, S. Dak.	E11	5.41	-	1956-64	20	Mar. 30, 1960	7.41	325	*1.85
4738.2	Shaefer Creek near Orient, S. Dak.....	E11	45.1	-	1956-64	88	Mar. 30, 1960	5.12	870	*1.12
							Mar. 27, 1962	a5.47	-	-

Table 1.--Maximum stages and discharges at gaging stations--Continued

No.	Gaging station	Flood region and hydrologic area	Drainage area (sq mi)	Mean elevation (feet)	Period of known floods (water years)	Areal Q2.33 (cfs)	Maximum flood			
							Date	Gage height (feet)	Discharge	
									Cfs	Recurrence interval (years)
James River basin--Continued										
4738.5	Shaefer Creek tributary near Orient, S. Dak.	E11	6.08	-	1956-64	21	Mar. 30, 1960	6.12	221	*1.19
4738.8	Shaefer Creek tributary near Miller, S. Dak.	E11	5.75	-	1956-64	20	Mar. 30, 1960	4.61	(k)	-
4745	Turtle Creek at Redfield, S. Dak.....	E11	1,540	-	1946-63	1,080	Apr. 10, 1952	15.51	6,420	18
4750	James River near Redfield, S. Dak.....	E	n10,200	-	1950-63	1,040	Apr. 11, 1952	22.12	6,100	18
4755	Dry Run near Frankfort, S. Dak.....	E11	225	-	1956-64	275	Mar. 29, 1962	9.16	772	5.7
4760	James River at Huron, S. Dak.....	E	n12,010	-	1881-1963		April 1881	19.8	(k)	-
					1929-32,1944-63	1,330	Apr. 2, 1962	15.80	6,250	12
4765	Sand Creek near Alpena, S. Dak.....	B12	240	-	1950-64	750	Mar. 28, 1950	a14.1	-	-
							Mar. 28, 1960	13.35	2,240	12
4770	James River near Forestburg, S. Dak.....	E	n13,810	-	1920-63	-	March 1920, March 1922	f18	(k)	-
					1950-63	1,600	Mar. 31, 1962	16.40	12,000	32
4775	Firesteel Creek near Mount Vernon, S. Dak.	B12	540	-	1956-63	1,340	Mar. 28, 1960	15.13	5,780	28
							Mar. 31, 1962	a 16.85	-	-
4782.5	North Branch Dry Creek tributary near Parkston, S. Dak.	B13	3.19	-	1956-64	86	Mar. 27, 1960	6.52	340	23
4782.6	North Branch Dry Creek near Parkston, S. Dak.	B13	37.0	-	1956-64	430	July 1962	8.76	1,540	18
4782.8	South Branch Dry Creek near Parkston, S. Dak.	B13	17.1	-	1956-64	260	Mar. 27, 1960	7.37	920	18
4783	Dry Creek near Parkston, S. Dak.....	B13	76.8	-	1956-64	700	Mar. 27, 1960	12.70	4,210	*1.13
4785	James River near Scotland, S. Dak.....	E	n 16,760	-	1929-63	2,120	Apr. 3, 1962	18.74	15,200	29
Vermillion River basin										
4788	Saddlerock Creek near Canton, S. Dak.....	B12	14.8	-	1956-64	103	Apr. 1, 1960	7.83	650	*1.18
4788.2	Saddlerock Creek tributary near Beresford, S. Dak.	B12	2.32	-	1956-64	-	May 18, 1962	6.69	94	-
4788.4	Saddlerock Creek near Beresford, S. Dak...	B12	26.3	-	1956-64	156	Apr. 1, 1960	-	1,100	*1.32
4790	Vermillion River near Wakonda, S. Dak.....	B12	1,680	-	1946-63	3,000	Apr. 1, 1960	16.94	-	-
							Mar. 31, 1962	-	8,660	12
Big Sioux River basin										
4792	Big Sioux River near Ortley, S. Dak.....	B	53.8	-	1956-64	175	July 1, 1962	5.73	950	*1.02
4792.3	Big Sioux River tributary near Summit, S. Dak.	B12	1.27	-	1956-64	-	Apr. 2, 1956	a 4.99	-	-
							Apr. 6, 1956	3.10	(k)	-
4792.4	Big Sioux River tributary No. 2 near Summit, S. Dak.	B12	.26	-	1956-64	--	July 1, 1962	5.16	(k)	-
4792.6	Big Sioux River tributary No. 3 near Summit, S. Dak.	B12	6.60	-	1956-64	58	July 1, 1962	10.68	(k)	-

4795	Big Sioux River at Watertown, S. Dak.....	B	n400	-	1946-63	440	Apr. 4, 1952	a 10.35	-	-
							Apr. 9, 1952	-	2,220	43
4797.5	Peg Munky Run near Estelline, S. Dak.....	B13	25.4	-	1956-64	340	Apr. 6, 1960	6.68	1,080	14
4798	North Deer Creek near Estelline, S. Dak...	B13	48.3	-	1956-64	520	July 4, 1962	7.61	590	2.5
4799	Sixmile Creek tributary near Brookings, S. Dak.	B13	9.42	-	1956-64	176	July 4, 1962	6.68	820	34
4799.5	Deer Creek near Brookings, S. Dak.....	B13	4.21	-	1956-64	104	June 7, 1961	5.83	194	5.0
4800	Big Sioux River near Brookings, S. Dak....	B	n 2,450	-	1954-64	2,400	Mar. 29, 1962	12.95	10,600	30
4810	Big Sioux River near Dell Rapids, S. Dak..	B	n 3,090	-	1891-1963	3,000	Mar. 30, 1962	15.14	18,400	*1.15
4815	Skunk Creek near Sioux Falls, S. Dak.....	B13	520	-	1949-63	2,500	June 17, 1957	17.78	29,400	*2.21
4821	Big Sioux River near Brandon, S. Dak.....	B	n 3,840	-	1881-1963	4,300	Mar. 31, 1962	19.93	17,100	23
4828.7	Little Beaver Creek tributary near Canton, S. Dak.	B13	.22	-	1956-64	-	May 21, 1959	3.78	(k)	-
4834.1	Otter Creek north of Sibley, Iowa.....	B14	11.9	-	1952-63	430	Mar. 31, 1962	8.49	1,410	15
4834.2	Schutte Creek near Sibley, Iowa.....	B14	1.43	-	1952-63	123	June 7, 1953	5.15	503	24
4834.3	Otter Creek at Sibley, Iowa.....	B14	29.9	-	1952-63	750	June 7, 1953	9.82	5,400	*1.35
4834.4	Dawson Creek near Sibley, Iowa.....	B14	4.35	-	1952-63	235	June 7, 1953	6.21	4,290	*3.43
4834.5	Wagner Creek near Ashton, Iowa.....	B14	7.09	-	1952-63	320	June 7, 1953	5.37	2,840	*1.66
4834.6	Otter Creek near Ashton, Iowa.....	B14	88.0	-	1952-63	1,420	June 7, 1953	12.16	17,400	*2.30
4835	Rock River near Rock Valley, Iowa.....	B14	1,600	-	1897-1963	-	1897	17.0	(k)	-
					1948-63	8,000	Mar. 30, 1962	16.91	28,400	18
4840	Dry Creek at Hawarden, Iowa.....	B14	48.4	-	1926-63	-	September 1926	18.0	(k)	-
					1948-63	1,000	June 7, 1953	17.57	10,900	*2.40
4855	Big Sioux River at Akron, Iowa.....	B	n 7,060	-	1929-63	12,200	Mar. 31, 1962	22.08	54,300	30
	Missouri River main stem									
4860	Missouri River at Sioux City, Iowa.....	-	314,000	-	1879-1963	-	Apr. 14, 1952	24.28	441,000	-

* Ratio of peak discharge to that of 50-year flood.
a Backwater from ice.
b In gage well; 7.33 ft, from outside gage.
c Result of dam failure.
d Maximum observed.
e Affected by dam failure.
f About.
g Estimated.
h Maximum daily
i At present site and datum.
j Includes an estimated 50 cfs in bypass channel.
k Not determined.
m At site and datum used 1945 to 1949.
n Does not include noncontributing drainage area.
p Does not include about 700 to 1,000 cfs overflow into Lodge Creek.
q Was probably higher several days earlier.
r Does not include some possible bypass flow.
s Site and datum used 1932-56.
t At site and datum used 1932-42.
u Caused by release of storage behind temporary construction dike.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal Q2.33 (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
Missouri River main stem								
1	C3	Red Rock River at dam on Lower Red Rock Lake, 5 miles northwest of Lakeview, Mont.	190	660	May 1, 1933	a 1,010	5.32	14
Sheep Creek basin								
2	C3	Sand Creek, three-quarters of a mile southeast of Sappington, Mont.	9.41	-	Aug. 25, 1962	2,130	226	-
Jefferson River basin								
3	C3	Dry Wash at junction of U.S. Highways 10 and 12, 2 miles west of Three Forks, Mont.	-	-	Aug. 22, 1951	660	-	-
Madison River basin								
4	C3	Madison River at Hebgen Dam near West Yellowstone, Mont.....	904	1,800	Aug. 17, 1959	b 14,000	15.5	-
5	C3	Madison River 1500 ft downstream from Hebgen Dam and 8 miles northwest of Grayling, Mont.	905	1,800	Aug. 17, 1959	b 10,200	11.3	-
Prickly Pear Creek basin								
6	A4	Leggerini Creek in SE¼NW¼ sec.31, T.10 N., R.4 W., 5 miles west of Helena, Mont.	1.37	-	June 8, 1958	290	212	-
7	A4	Spring Gulch a quarter of a mile upstream from mouth and 2 miles west of Birdseye, Mont.	.42	-	July 7, 1958	449	1,070	-
Little Prickly Pear Creek basin								
8	A4	Little Prickly Pear Creek at Wolf Creek, 150 ft south of Wolf Creek post office, and half a mile downstream from Wolf Creek, Mont.	381	620	June 9, 1964	2,550	6.69	*1.35
Rock Creek basin								
9	A4	Spring Creek tributary just upstream from bridge on State Highway 33, 3½ miles north of Wolf Creek, Mont.	0.69	-	June 6, 1958	1,320	1,910	-
Dog Creek basin								
10	A4	Dog Creek 400 ft upstream from bridge on county road 2 miles west of Craig, Mont.	15.9	-	May 1961	1,160	73.0	-
Wegner Creek basin								
11	A4	Wegner Creek about 300 ft upstream from bridge on U.S. Highway 91, 0.9 mile east of Craig, Mont.	35.0	190	July 6, 1961	408	11.7	13
Dearborn River basin								
12	B2	Dearborn River half a mile upstream from Falls Creek, 2½ miles southwest of former post office of Clemons, and 16 miles south of Augusta, Mont.	69.6	620	June 2, 1908c/	c4,000	57.5	*1.20

13	B2	South Fork Dearborn River near Craig, Mont., lat 47°09'40", long 112°13'00".	32.0	360	June 8, 1964	1,230	38.4	16
		Smith River basin						
14	A4	Smith River a quarter of a mile upstream from Fivemile Creek and 8 miles northeast of White Sulphur Springs, Mont.	73.2	198	Apr. 11, 1936	1,860	25.4	*3.08
15	A4	Hound Creek at county bridge, 1 mile upstream from mouth and about 7 miles southwest of Eden, Mont.	232	440	June 4, 1953	7,500	32.3	*5.60
		Hardy Creek basin						
16	B2	Hardy Creek near Cascade, Mont., lat 47°11'00", long 111°48'40"	9.46	-	June 8, 1964	440	46.5	-
		Sun River basin						
17	A1	South Fork Sun River 1 mile upstream from confluence with North Fork Sun River and 24 miles northwest of Augusta, Mont.	252	2,970	June 8, 1964	28,800	114	*3.04
18	A1	South Fork Willow Creek near Augusta, Mont., lat 47°30'58", long 112°31'05".	26.9	570	June 8, 1964	2,790	104	*1.61
19	B1	Sun River north of Augusta, Mont., lat 47°32'40", long 112°21'50".	827	7,150	June 9, 1964	46,700	56.5	*1.23
		Belt Creek basin						
20	A2	Belt Creek in SE¼ sec.25, T.20 N., R.6 E., about 5½ miles north of Belt, Mont.	678	3,050	June 4, 1953	15,600	23.0	*1.68
		Highwood Creek basin						
21	A4	Highwood Creek near center of sec.24, T.21 N., R.7 E., 2 miles southeast of Highwood, Mont.	-	-	June 4, 1953	9,210	-	-
		Marias River basin						
22	A1	Two Medicine Creek above Trick Falls, near East Glacier, Mont., lat 48°30', long 113°22'.	26.8	560	June 8, 1964	13,600	507	*7.95
23	A1	Dry Fork Two Medicine Creek near East Glacier, Mont., lat 48°30'45", long 113°23'30".	7.66	-	June 8, 1964	3,940	514	-
24	A1	Two Medicine Creek near East Glacier, Mont., lat 48°29'30", long 113°15'40".	51.1	910	June 8, 1964	63,500	1,240	*22.8
25	A1	South Fork Two Medicine Creek near East Glacier, Mont., lat 48°24'15", long 113°09'45".	78.2	1,240	June 8, 1964	25,600	327	*6.77
26	A1	North Fork Birch Creek near Dupuyer, Mont., lat 48°10'00", long 112°55'40".	19.0	435	June 8, 1964	8,890	468	*6.68
27	A1	South Fork Birch Creek near Dupuyer, Mont., lat 48°07', long 112°54'.	25.3	540	June 8, 1964	9,770	386	*5.92
28	A1	Blacktail Creek 1 mile upstream from bridge on U.S. Highway 89, 12 miles northwest of Dupuyer, Mont.	62.7	1,060	(d)	4,680	74.6	*1.15
29	B3	Cartwright Coulee at highway bridge on Valier-Dupuyer road 8 miles west of Valier, Mont.	21.8	165	(d)	3,580	164	*4.02
30	B3	Laughlin Coulee in SW¼ sec.2, T.29 N., R.6 W., 4 miles west of Valier, Mont.	8.4	-	June 8, 1964	912	109	-

See footnotes at end of table.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations--Continued

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
		Marias River basin--Continued						
31	B3	Woods Coulee at culvert on county road 7 miles southwest of Dupuyer, Mont.	3.7	-	(d)	227	61.4	-
32	B3	Two Medicine Creek below Birch Creek near Ethridge, Mont., lat 48°18'50", long 112°13'40".	1,288	2,250	June 9, 1964	e 204,000	-	-
33	B3	Willow Creek at Browning, Mont., lat 48°33'40", long 113°02'00".	23.6	170	June 8, 1964	1,230	52.1	*1.36
34	B3	North Fork Dry Fork Marias River near Dupuyer, Mont., lat 48°09', long 112°28'.	20.2	157	June 8, 1964	4,240	210	*5.07
35	B3	Heines Coulee tributary near Valier, Mont., lat 48°15', long 112°14'.	.60	-	June 8, 1964	64	107	-
36	B3	Lone Man Coulee in NE¼ sec.34, T.29 N., R.5 W., upstream from Miller's Coulee and 6 miles south of Valier, Mont.	11.4	108	(d)	1,820	160	*2.53
37	B3	Millers Coulee in SE¼ sec.27, T.29 N., R.5 W., 5 miles south of Valier, Mont.	1.7	-	(d)	197	116	-
38	-	Dry Fork Marias River at bridge on U.S. Highway 91, 3 miles north of Conrad, Mont.	264	-	(d)	13,000	49.2	-
39	B3	Inflow to Tiber Reservoir, Mont., lat 48°19', long 111°06'.	f 4,405	5,000	June 9, 1964	e g 153,000	-	-
40	B3	Pondera Coulee near Chester, Mont., lat 48°16'10", long 111°08'30".	598	1,380	June 8, 1964	1,950	3.26	3
41	B3	Bruce Coulee tributary near Choteau, Mont., lat 47°44', long 112°15'.	1.7	-	June 8, 1964	148	87.1	-
42	B3	Teton River below Deep Creek, near Choteau, Mont., lat 47°49'15", long 112°04'30".	448	1,140	June 8, 1964	64,300	144	*10.6
43	B3	Muddy Creek near Collins, Mont., lat 47°57'40", long 111°51'45".	385	1,030	June 8, 1964	13,900	36.1	*2.53
44	B3	Teton River near Carter, Mont., lat 47°51'15", long 110°58'20".	1,762	2,750	June 9, 1964	84,300	47.8	*5.73
		Judith River basin						
45	B4	Big Spring Creek in SW¼ sec.23, T.15 N., R.18 E., about three-quarters of a mile south of Lewiston, Mont.	103	250	May 30, 1953	1,200	11.7	37
		Armells Creek basin						
46	B4	Armells Creek 6 miles upstream from mouth and 20 miles northeast of Roy, Mont.	370	610	June 16, 1962	14,600	39.4	*4.47
		Musselshell River basin						
47	A8	Jawbone Creek at culvert just north of football field in Harlowton, Mont.	2.14	-	July 12, 1962	749	350	-
48	B8	Alkali Creek at bridge on county road 7½ miles northeast of Heath, Mont.	3.76	-	July 15, 1962	757	201	-

49	B8	Musselshell River tributary 100 ft above mouth and half a mile north of State Highway 6 at Ryegate, Mont.	.082	-	July 18, 1958	352	4,290	-
		Dry Creek basin						
50	B8	Second Creek tributary at culvert on State Highway 22, 11 miles south of Jordan, Mont.	0.75	-	Aug. 8, 1954	281	375	-
		Milk River basin						
51	B3	Livermore Creek at bridge on State Secondary Highway 464, 13½ miles southeast of Babb, Mont.	25.0	180	June 8, 1964	4,880	195	*5.09
52	B3	South Fork Milk River below Livermore Creek, near Babb, Mont., lat 48°45'00", long 113°07'30".	101	440	June 8, 1964	14,900	148	*6.34
53	B3	Middle Fork Milk River at culvert on State Secondary Highway 464, 10 miles east of Babb, Mont.	14.0	123	June 8, 1964	558	39.9	32
54	B3	Dry Fork Milk River at bridge on State Secondary Highway 464, 11 miles east of Babb, Mont.	17.4	142	June 8, 1964	1,880	108	*2.48
55	B4	Sage Creek tributary at culvert on farm road, ½ mile northeast of Hingham, Mont.	1.08	-	June 14, 1962	299	277	-
56	B4	Spring Coulee at culverts on county road, 13 miles southwest of Havre, Mont.	17.8	-	Mar. 11, 1959	257	14.4	
57	B4	Beaver Creek 6 miles southwest of Havre, Mont., and 10 miles upstream from mouth.	95	240	July 13, 1920	1,500	15.8	*1.17
58	B3	Red Rock Coulee in sec.2, T.33 N., R.17 E., 6 miles northwest of Lohman, Mont.	338	960	Apr. 3 or 4, 1952	2,040	6.04	6
59	B3	Middle Creek about 2 miles upstream from Middle Creek Reservoir and 18 miles northwest of Govenlock, Saskatchewan.	116	480	Apr. 15, 1952	4,980	42.9	*1.93
60	B3	Lodge Creek in SE¼ sec.32, T.34 N., R.19 E., 4½ miles northwest of Chinook, Mont.	1,260	2,220	April 1952	6,100	4.84	10
61	B4	Thirty Mile Creek in NW¼ sec.1, T.32 N., R.22 E., 3 miles northwest of Harlem, Mont.	180	370	Apr. 8 or 9, 1952	1,450	8.06	22
62	B4	Balanger Creek half a mile upstream from Lonepine Creek and 15 miles northwest of Palisade, Saskatchewan.	52	156	April 1952	1,700	32.7	*2.04
63	B4	Danniel Creek at Highway 4 crossing 6 miles north of Vol Maire, Saskatchewan.	94	230	April 1952	6,000	63.8	*4.88
64	B4	Frenchman River in sec.27, T.33 N., R.34 E., just downstream from headgates for Frenchman Canal, near Saco, Mont.	-	-	April 1952	43,400	-	-
65	B4	Beaver Creek 9 miles southwest of Saco, and 16 miles east of Malta, Mont.	1,315	1,460	June 9, 1906	6,650	5.06	32
66	B8	Lime Creek 100 ft downstream from bridge on U.S. Highway 2, 4 miles upstream from mouth, and 4 miles northeast of Tampico, Mont.	105	450	July 14, 1962	2,140	20.4	36
67	B8	Spring Coulee tributary 300 ft south of NE corner sec.18, T.30 N., R.40 E., 13.8 miles northeast of Glasgow, Mont.	.70	-	Aug. 26, 1954	144	206	-
68	B9	Willow Creek 17 miles southeast of Glasgow, Mont.....	-	-	April 1952	6,150	-	-
69	B8	Dry Fork Creek tributary in SW¼NW¼ sec.20, T.32 N., R.40 E., at culvert on State Secondary Highway 247, 23.5 miles north of Glasgow, Mont.	.71	-	Aug. 26, 1954	163	230	-

See footnotes at end of table.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations--Continued

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal $Q_{2.33}$ (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
		Wolf Creek basin						
70	E9	Wolf Creek tributary No. 2 at bridge on county road 9½ miles northwest of Wolf Point, Mont.	6.54	--	June 20, 1959	979	150	-
		Poplar River basin						
71	E8	Poplar River at bridge on U.S. Highway 2, half a mile east of Poplar, Mont.	3,270	3,350	Apr. 7, 1954	34,600	10.6	*1.17
		Red Boy Coulee basin						
72	B9	Red Boy Coulee half a mile west of Brocton, Mont.....	1.54	-	May 2, 1955	968	629	-
		Big Muddy Creek basin						
73	B9	Beaver Creek 500 ft downstream from Little Beaver Creek and 6 miles northwest of Daleview, Mont.	185	930	Apr. 7, 1952	4,020	21.7	50
74	B9	Big Muddy Creek tributary at culvert on State Highway 5, 2 miles northwest of Plentywood, Mont.	1.27	-	July 26, 1954	64.5	50.8	-
75	B9	Big Muddy Creek tributary at culvert on State Highway 5, 1.6 miles northwest of Plentywood, Mont.	.46	-	July 26, 1954	82.9	180	-
76	B9	Big Muddy Creek tributary at culvert on State Highway 5, 1 mile northwest of Plentywood, Mont.	1.02	-	July 26, 1954	45.5	44.6	-
77	B9	Big Muddy Creek tributary at culvert on State Highway 16, 2.7 miles north of Antelope, Mont.	.65	-	July 21, 1954	411	632	-
78	B9	Clark Coulee at culvert on State Highway 16, 1.8 miles north of Antelope, Mont.	1.54	-	July 21, 1954	480	312	-
		Yellowstone River basin						
79	C6	Stillwater River above Woodbine Creek, 7½ miles southwest of Nye, Mont.	160	-	June 27, 1927	6,520	40.8	-
80	A8	Crooked Creek tributary at bridge on county road 1.7 miles west of U.S. Highway 87 between Billings and Roundup and 12 miles northwest of Shepherd, Mont.....	-	-	June 4, 1962	5,120	-	-
81	C7	Crow Creek 300 ft above mouth of Crow Creek Canyon, 5 miles north of Tipperary, Wyo.	30	-	June 15, 1963	340	11.3	-
82	A7	Little Wind River, 4,600 ft downstream from confluence of North and South Forks and 1 mile east of Fort Washakie, Wyo.	250	-	June 6, 1909	2,950	11.8	-
83	A7	Trout Creek at bridge on Blue Trail, 5.0 miles southwest of Fort Washakie, Wyo.	16.1	-	May 20, 1964	112	6.96	-
84	A7	Little Wind River at highway bridge, 5.7 miles west of Arapahoe, Wyo.	618	-	June 8, 1952	c 3,200	5.18	-

85	A7	Middle Popo Agie River 1.2 miles downstream from the Sinks and 6.5 miles southwest of Lander, Wyo.	87.5	-	June 16, 1963	4,180	47.8	-
86	E8	Beaver Creek 1 mile upstream from mouth and 3¾ miles east of Arapahoe, Wyo.	354	920	July 13, 1952	1,680	4.75	4
87	E8	Kirby Draw, 1.5 miles upstream from mouth and 7.0 miles northeast of Riverton, Wyo.	129	510	June 2, 1961	7,390	57.3	*1.64
88	E8	Kirby Draw, 1 mile downstream from Riverton-Gas Hills Road and 6.1 miles east of Riverton, Wyo.	144	540	June 2, 1961	7,290	50.6	*1.53
89	A9	Five Mile Creek, 100 ft downstream from Wyoming Canal siphon and 4 miles north of Pavillion, Wyo.	145	800	Sept.19, 1948	2,600	17.9	*1.06
90	E8	Poison Creek, ½ mile above normal high-water line of Boysen Reservoir and 1 mile west of Shoshoni, Wyo.	519	1,150	Feb. 11, 1962	c 2,200	4.24	4
91	E8	South Bridger Creek at bridge on Bridger Creek Road, 12.5 miles northwest of Lysite, Wyo.	10.0	116	Sept.22, 1962	330	33.0	6
92	D9	Dry Cottonwood Creek, 2.1 miles upstream from high-water line of Boysen Reservoir and 12.5 miles northwest of Booneville, Wyo.	165	870	May 22, 1952	2,120	12.8	11
93	E8	Bighorn River tributary in NW¼ sec.3, T.42 N., R.59 W., 1.4 miles west of Thermopolis, Wyo.	.4	-	June 16, 1960	361	902	-
94	D9	Middle Fork Owl Creek, three-quarters of a mile upstream from mouth and 33 miles west of Thermopolis, Wyo.	33.6	330	July 26, 1962	538	16.0	5
95	D9	North Fork Owl Creek, 50 ft below culverts on Anchor Dam Road and 2 miles northeast of Anchor, Wyo.	60	465	June 15, 1963	1,370	22.8	18
96	D9	North Fork Owl Creek, 1 mile upstream from South Fork and 21 miles northwest of Thermopolis, Wyo.	100	640	Aug. 15, 1930	3,380	33.8	*1.32
97	D9	Cold Draw tributary at culvert on State Highway 120, 12 miles northwest of Thermopolis, Wyo.	3.8	-	June 16, 1960	1,740	458	-
98	D8	Sand Draw at culvert on State Highway 120, 19 miles northwest of Thermopolis, Wyo.	6.33	-	June 9, 1960	2,490	393	-
99	D8	Gooseberry Creek 5 miles downstream from Sand Draw and 14 miles east of Dickie, Wyo.	303	840	June 23, 1938	13,000	42.9	*3.87
100	E8	Sand Creek at culvert on U.S. Highway 16, 8.9 miles east of Worland, Wyo.	24.4	195	September 1963	3,740	153	*2.18
101	D8	Dry Creek 600 ft upstream from bridge on U.S. Highways 14 and 16, 12 miles east of Cody, Wyo.	249	740	Sept.19, 1961	2,060	8.27	16
102	D7	Shoshone River at bridge on county road, 300 ft downstream from Penrose Dam and 4 miles southeast of Garland, Wyo.	2,036	-	Sept.19, 1961	9,550	4.69	-
103	D8	Whistle Creek 1.2 miles upstream from Emblem secondary road and 12.9 miles northwest of Emblem, Wyo.	70	355	Sept.19, 1961	4,260	60.9	*3.00
104	D8	Coon Creek 1 mile downstream from Emblem secondary road and 9.7 miles northwest of Emblem, Wyo.	47	282	Sept.19, 1961	2,360	50.2	*2.08
105	D8	Sage Creek 300 ft downstream from Pole Cat Creek and 2½ miles east of Deaver, Wyo.	341	900	June 8, 1958	2,250	6.60	12
106	D7	Shoshone River at Lovell, Wyo.....	2,720	-	May 28, 1898	12,300	4.52	-
107	A7	Tongue River at highway bridge at Dayton, Wyo.....	259	-	June 7, 1903	960	3.71	-
108	A7	Tongue River at highway bridge at Carneyville, Wyo.....	495	-	June 12, 1915	3,000	6.06	-
109	A6	Cross Creek above Big Horn Reservoir, near Big Horn, Wyo....	9.29	-	June 15, 1963	285	30.7	-
110	A6	Goose Creek at West Loucks Street Bridge in Sheridan, Wyo...	182	-	June 9, 1912	4,000	22.0	-
111	B9	Cow Siphon at culvert on U.S. Highway 10, 9.3 miles northeast of Miles City, Mont.	.59	-	Sept. 5, 1954	321	544	-

See footnotes at end of table.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations--Continued

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal Q2.33 (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
		Yellowstone River basin--Continued						
112	B9	Deep Creek at culvert on Interstate Highway 94, 2 miles southeast of Kinsey, Mont.	-	-	June 5, 1963	2,420	-	-
113	B9	Meadow Creek at culvert on State Highway 333, 10 miles southwest of Locate, Mont.	-	-	June 14, 1962	1,400	-	-
114	A8	Middle Fork Powder River, 13 miles southwest of Barnum, Wyo.	46	280	June 15, 1963	7,110	155	*8.33
115	E9	Salt Creek in sec.28, T.43 N., R.79 W., 4 miles southwest of Sussex, Wyo.	-	-	May 23, 1952	21,600	-	-
116	E9	Coal Draw at bridge on State Highway 387, 3.4 miles northeast of Midwest, Wyo.	11.4	176	May 21, 1962	1,060	93.0	19
117	E9	Hay Draw at culvert on U.S. Highway 87, 5.5 miles northeast of Midwest, Wyo.	1.60	-	July 1958	970	606	-
118	E9	Dead Horse Creek at bridge on dirt road 1.2 miles upstream from Interstate Highway 90, 31 miles southeast of Buffalo, Wyo.	155	840	June 22, 1959	1,640	10.6	4
119	E8	Crazy Woman Creek at bridge 7 miles downstream from confluence of North and South Forks and 20 miles southeast of Buffalo, Wyo.	464	1,080	June 2, 1929	2,640	5.69	5
120	E9	Deadman Creek at bridge on State secondary highway, 1.2 miles north of Arvada, Wyo.	-	-	June 1962	16,600	-	-
121	E9	Powder River at highway bridge, 1,500 ft upstream from Clear Creek and 17 miles north of Arvada, Wyo.	6,580	8,100	July 14, 1918	10,800	1.64	3
122	A7	Clear Creek at highway bridge at Buffalo, Wyo.....	130	-	June 11, 1912	c 16,000	123	-
123	D9	Mason Creek at bridge on county road 8.3 miles southeast of Mizpah, Mont.	10	160	Sept. 5, 1954	3,040	304	*4.75
124	D9	Meyers Creek at culvert on county road on east side of Powder River 3 miles southeast of Locate, Mont.	-	-	June 6, 1963	1,370	-	-
125	B9	Lame Jones Creek tributary at culvert on State Highway 7, half a mile south of Willard, Mont.	.40	-	Sept. 5, 1954	149	372	-
126	B9	Sandstone Creek at county road bridge, 4 miles southeast of Plevna, Mont.	106	670	June 26, 1955	c 10,000	94.3	*2.79
127	B9	Charbonneau Creek tributary No. 2 at culvert on State Highway 23, 4 miles east of Cartwright, N. Dak.	.17	-	Aug. 1, 1963	1,320	7,760	-
128	B9	Charbonneau Creek tributary at culvert on county road north of State Highway 23 at Cartwright, N. Dak.	3.8	-	Aug. 1, 1963	2,040	537	-
		Little Missouri River basin						
129	B10	Little Missouri River tributary near Marmarth, N. Dak., lat 46°11'25", long 103°57'10".	1.52	-	June 9, 1964	289	190	-
130	D9	Corral Creek tributary in SE¼ sec.35, T.7 N., R.60 E., 6½ miles southeast of Baker, Mont.	.50	-	Sept. 5, 1954	1,680	3,360	-

131	B10	Lone Tree Creek in sec.24, T.11 N., R.60 E., near Wibaux, Mont.	23	340	June 7, 1929	4,100	178	*2.25
132	B10	Duck Creek in NE¼ sec.36, T.13 N., R.60 E., near Wibaux, Mont.	-	-	June 7, 1929	1,700	-	-
133	B10	Sand Creek tributary near Amidon, N. Dak., lat 46°29', long 103°22'.	-	-	June 21, 1929	1,740	-	-
134	B10	Davis Creek, 3½ miles south of Medora, N. Dak.	51.8	570	June 26, 1955	5,480	106	*1.80
135	B10	Sully Creek at road bridge 1.6 miles south of Medora, N. Dak.	29.5	400	June 26, 1955	3,270	111	*1.53
		Baker Pond basin						
136	E9	Baker Pond tributary No. 2 at north side of municipal golf course at Bismark, N. Dak.	0.47	-	June 26, 1954	86.5	184	-
		Heart River basin						
137	B10	Norwegian Creek at road bridge 4½ miles southeast of Fryburg, N. Dak.	16.7	280	June 26, 1955	5,170	310	*3.45
138	B10	Norwegian Creek at bridge on U.S. Highway 85, 2.7 miles south of Belfield, N. Dak.	33.8	430	June 26, 1955	5,860	173	*2.55
139	E9	Antelope Creek tributary near Elgin, N. Dak., lat 46°27', long 101°50'.	.11	-	June 13, 1961	72.5	659	-
140	E9	Antelope Creek tributary No. 2 near Elgin, N. Dak., lat 46°25', long 101°50'.	6.87	-	June 13, 1961	554	80.6	-
		Little Heart River basin						
141	E9	Little Heart River at State Highway 6 near St. Anthony, N. Dak.	190	950	Apr. 16, 1950	8,770	46.2	*1.05
		Apple Creek basin						
142	E8	East Branch Apple Creek tributary at culvert on county road, 9 miles north of McKenzie, N. Dak.	0.49	-	June 5, 1963	1,080	2,200	-
		Missouri River tributary						
143	E9	Missouri River tributary at county road, 2 miles northwest of Huff, N. Dak.	2.6	-	June 5, 1956	1,890	727	-
		Cannonball River basin						
144	E9	Thirty Mile Creek, 3 miles northeast of Bently, N. Dak.	258	1,180	Apr. 16, 1950	11,400	44.2	*1.09
145	E9	Cannonball River, ¼ mile upstream from Cedar Creek, near Wade, N. Dak.	1,650	3,550	Apr. 18, 1950	44,000	26.7	*1.40
146	E9	Cedar Creek, 2 miles northeast of Swastika, N. Dak.	1,650	3,550	Apr. 18, 1950	43,800	26.5	*1.40
		Grand River basin						
147	E9	North Fork Grand River tributary in SE¼SE¼ sec.10, T.129 N., R.103 W., 14 miles southwest of Bowman, N. Dak.	14.9	200	July 28, 1951	3,600	242	*2.05
148	E9	North Fork Grand River at bridge on U.S. Highway 85, 14.6 miles south of Bowman, N. Dak.	114	700	July 28, 1951	5,300	46.5	33

See footnotes at end of table.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations--Continued

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal Q2.33 (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
		Grand River basin--Continued						
149	E9	Middle Fork Crooked Creek, 5 miles southwest of Korinen, N. Dak.	3.9	-	July 28, 1951	5,700	1,460	-
150	E9	Crooked Creek at bridge on U.S. Highway 85, 5 miles north of Ludlow, S. Dak.	67.4	500	July 28, 1951	6,800	101	*1.54
151	E9	Buffalo Creek near Scranton, N. Dak., lat 46°09', long 103°08'.	-	-	June 9, 1958	1,470	-	-
152	E9	North Fork Grand River at bridge on Hettinger-Lodgepole road, 5 miles south of North Dakota-South Dakota State line.	1,060	2,700	Apr. 7, 1952	21,300	20.1	37
153	E9	Camel (Middle) Creek, 6 miles east and 1½ miles north of Ladner, S. Dak.	5.2	-	July 28, 1951	7,500	1,440	-
		Moreau River basin						
154	E9	Little Moreau River 6½ miles south of Timberlake, S. Dak....	-	-	June 19, 1960	10,600	-	-
		Cheyenne River basin						
155	B8	Sand Creek in sec.7, T.39 N., R.74 W., 35 miles north of Glenrock, Wyo.	-	-	May 22, 1952	1,750	-	-
156	B8	Wyatt Creek tributary, in sec.11, T.33 N., R.65 W., at highway bridge, 5 miles north of Manville, Wyo.	-	-	June 27, 1952	181	-	-
157	B8	Old Woman Creek tributary No. 1, in sec.26, T.38 N., R.62 W., on old U.S. Highway 85, at Redbird, Wyo.	-	-	June 28, 1952	156	-	-
158	B8	Old Woman Creek tributary No. 2, in sec.22, T.38 N., R.62 W., on U.S. Highway 85 at Redbird, Wyo.	-	-	June 28, 1952	1,140	-	-
159	B8	Rush Creek tributary No. 2 at culvert on U.S. Highway 16, 1.9 miles southeast of Moorcroft, Wyo.	0.5	-	May 24, 1960	336	672	-
160	B8	Rush Creek tributary at culvert on U.S. Highway 16, 1.6 miles southeast of Moorcroft, Wyo.	.2	-	May 24, 1960	136	680	-
161	E8	Grace Coolidge Creek tributary in NW¼NE¼ sec.10, T.3 S., R.7 E., 4 miles southwest of Hermosa, S. Dak.....	3.44	-	July 28, 1957	2,660	773	-
162	E8	Dry Creek, ¾ mile upstream from mouth and 1 mile south of Hermosa, S. Dak.	5.25	-	July 28, 1957	1,150	219	-
163	E11	Castle Creek tributary No. 1, site No. 1, at road 1.4 miles upstream from Castle Creek and 6.5 miles southwest of Rochford, S. Dak.	1.25	-	July 28, 1955	2,130	1,750	-
164	E11	Castle Creek tributary No. 1, site No. 2, 1.1 miles upstream from mouth and 6.4 miles southwest of Rochford, S. Dak.	1.75	-	July 28, 1955	1,720	983	-
165	E11	Castle Creek tributary No. 1, site No. 3, 0.4 mile upstream from mouth and 6.2 miles southwest of Rochford, S. Dak.	2.20	-	July 28, 1955	5,620	2,550	-

166	E11	Castle Creek tributary No. 2, at culvert 5¾ miles southwest of Rochford, S. Dak.	.019	-	July 28, 1955	98.9	5,200	-
167	E11	Iron Creek above 300 ft upstream from mouth and 4.2 miles southwest of Rochford, S. Dak.	1.25	-	July 28, 1955	2,410	1,930	-
168	E11	North Fork Castle Creek about ½ mile upstream from mouth and 4 miles southwest of Rochford, S. Dak.	14.6	40	July 28, 1955	4,490	308	-
169	E11	Castle Creek, 2 miles downstream from North Fork Castle Creek and 3 miles south of Rochford, S. Dak.	h 32.6	70	July 28, 1955	8,500	261	*13.8
170	E11	Castle Creek at Chicago, Burlington, and Quincy RR. bridge, 0.4 mile south of Mystic, S. Dak.	h 52.2	98	July 28, 1955	2,360	45.2	*2.74
171	E11	Rapid Creek tributary, on road to Nameless Cave, 0.8 mile upstream from mouth and 2 miles southwest of city limits of Rapid City, S. Dak.	1.67	-	July 13, 1962	2,130	1,280	-
172	E11	Claghorn Canyon, 900 ft upstream from mouth and 1 mile southwest of city limits of Rapid City, S. Dak.	6.96	24	July 13, 1962	2,920	420	*13.8
173	E11	South Canyon 300 ft upstream from small tributary and 2 miles west of city limits of Rapid City, S. Dak.	.92	-	July 13, 1962	1,310	1,420	-
174	E11	South Canyon near intersection of Nordbye Lane and Hall Street in Rapid City and 1½ miles upstream from mouth.	6.06	21	July 13, 1962	2,960	488	*16.0
175	E11	Rapid Creek tributary in NW¼NE¼ sec.7, T.1 N., R.8 E., in southeast Rapid City, S. Dak., 1 mile upstream from mouth.	2.84	-	July 14, 1957	256	90.1	-
176	E11	Rapid Creek at highway bridge at Creston, S. Dak., about 4 miles upstream from mouth.	710	620	May 6, 1932	16,000	22.5	*2.92
177	E8	Freda Creek just upstream from bridge on U.S. Highway 16, 7.4 miles southeast of Moorcroft, Wyo.	5.6	-	June 1962	1,990	355	-
178	E8	Inyan Kara Creek at bridge on State Highway 116, 13 miles northeast of Upton, Wyo.	96.5	430	July 1, 1959	4,660	48.3	*1.23
179	E8	Belle Fourche River tributary No. 2 at culvert on State Highway 24, 3.2 miles east of Hulett, Wyo.	10.2	116	July 13, 1962	1,630	160	*1.60
180	E9	Whitewood Creek at Chicago and Northwestern Railway bridge, 1 mile east of Whitewood, S. Dak.	59.0	464	July 15, 1962	8,460	143	*2.07
181	E9	Bear Butte Creek tributary three-quarters of a mile upstream from mouth and 4 miles southwest of Sturgis, S. Dak.	1.63	-	June 15, 1962	1,940	1,190	-
182	E9	Bear Butte Creek at State Highway 79, 3½ miles northeast of Sturgis, S. Dak.	101	640	June 16, 1962	5,980	59.2	*1.06
		Medicine Creek basin						
183	E9	Medicine Creek tributary No. 1, 3¼ miles northeast of Lyman and 5¾ miles northwest of Reliance, S. Dak.	4.2	-	July 9, 1955	377	89.8	-
184	E9	Medicine Creek tributary No. 2, 3½ miles northeast of Lyman and 4¼ miles northwest of Reliance, S. Dak.	.4	-	July 9, 1955	530	1,320	-
		White River basin						
185	B8	White Clay Creek, half a mile upstream from Wolf Creek and half a mile west of Pine Ridge, S. Dak.	-	-	May 20, 1962	1,880	-	-
186	B9	White River tributary at culvert on U.S. Highway 16A, 8¼ miles northwest of Conata, S. Dak.	0.17	-	Sept.20, 1955	305	1,790	-
		Marne Creek basin						
187	B13	Marne Creek, 400 ft downstream from 12th Street Bridge in Yankton, S. Dak.	30.7	380	June 16, 1957	4,450	145	*2.19

See footnotes at end of table.

Table 2.--Peak discharge at miscellaneous sites and outstanding floods at short-term gaging stations--Continued

No.	Flood region and hydrologic area	Stream and place of determination	Contributing drainage area (sq mi)	Areal Q2.33 (cfs)	Maximum flood			
					Date	Discharge		
						Cfs	Cfs per sq mi	Recurrence interval (years)
		Marne Creek basin--Continued						
188	B13	Marne Creek tributary, 80 ft downstream from culvert on State Highway 50 and 2 miles northwest of Yankton, S. Dak.	1	-	May 30, 1959	510	510	-
		Vermillion River basin						
189	B12	West Fork Vermillion River tributary in SW¼ sec.36, T.109 N., R.56 W., 13½ miles north of Howard, S. Dak.	0.87	-	June 4, 1956	817	939	-
190	B12	West Fork Vermillion River tributary in NW¼ sec.12, T.108 N., R.56 W., at culvert on highway, 12 miles north of Howard, S. Dak.	2.56	-	June 4, 1956	780	305	-
		Big Sioux River basin						
191	B13	Big Sioux River tributary, at culvert on highway, 3½ miles southwest of Dell Rapids, S. Dak.	0.68	-	June 16, 1957	948	1,390	-
192	B13	Skunk Creek tributary at culvert on highway, 2 miles southeast of Colton, S. Dak.	5.80	128	June 16, 1957	2,550	440	*3.72
193	B13	Mound Creek tributary at culvert on U.S. Highway 75, half a mile upstream from mouth and 1 mile southwest of Hardwick, Minn.	.23	-	Apr. 28, 1959	260	1,130	-
194	B13	Mound Creek at lower damsite in Mound Springs State Park, 4½ miles north of Luverne, Minn.	16	248	May 28, 1959	1,480	92.5	*1.11
195	B13	Kanaranzi Creek tributary at culvert on private road, a quarter of a mile upstream from mouth and 3 miles east of Adrian, Minn.	.76	-	Apr. 30, 1959	323	425	-
196	B13	North Branch Kanaranzi Creek tributary at culvert on county road adjacent to State Highway 91, 60 ft upstream from mouth and 1¼ miles northeast of Lismore, Minn.	-	-	June 9, 1963	240	-	-

* Ratio of peak discharge to that of the 50-year flood.
a Observed.
b Result of earthquake (landslide into reservoir).
c About.
d During flood of June 16-18, 1948.
e Affected by failure of Swift Dam Reservoir.
f Does not include noncontributing area.
g Average inflow of a 2.62-hour period, furnished by U.S. Bureau of Reclamation.
h Does not include area above Deerfield Dam.

110. Red Rock River at Kennedy Ranch, near Lakeview, Mont.

Location.--Lat 44°39', long 112°03', near center of sec.2, T.14 S., R.4 W., on right bank at Kennedy Ranch, 4 miles upstream from Long Creek and 14 miles northwest of Lakeview.

Drainage area.--323 sq mi.

Gage.--Recording. At site 1 mile upstream at different datum prior to Aug. 28, 1942. Datum of gage is 6,596.37 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs at former site and below 1,300 cfs at present site.

Remarks.--No winter records after 1942. Natural storage in Red Rock Lake. Diversions for irrigation of about 6,000 acres above gage. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	Apr. 28, 1937	3.52	964	1951	Apr. 23, 1951	3.96	640
1938	Apr. 27, 1938	3.92	1,030	1952	Apr. 30, 1952	5.24	1,360
1939	Apr. 19, 1939	3.56	820	1953	May 5, 1953	4.10	a715
1940	Apr. 14, 1940	3.00	590	1954	Apr. 19, 1954	ab5.4	-
					Apr. 23, 1954	3.54	546
1941	Apr. 11, 1941	2.59	430				
1942	Apr. 12, 1942	3.67	883	1956	Apr. 24, 1956	3.77	a596
				1957	May 6, 1957	4.77	1,020
1945	May 4, 1945	3.99	681	1958	Apr. 30, 1958	3.77	a590
				1959	Apr. 22, 1959	2.81	a352
1946	Apr. 21, 1946	4.75	961	1960	Apr. 8, 1960	b4.52	c800
1947	May 2, 1947	4.28	a781				
1948	Apr. 30, 1948	4.41	a820	1961	Apr. 5, 1961	-	c300
1949	Apr. 27, 1949	4.14	a726	1962	Apr. 27, 1962	-	c900
1950	Apr. 22, 1950	4.30	781	1963	Apr. 20, 1963	3.20	486
1951	Apr. 15, 1951	ab4.47	-				

a Maximum recorded; might have been exceeded during periods of no winter records.
b Backwater from ice.
c About.

SHEEP CREEK BASIN

135. Sheep Creek below Muddy Creek near Dell, Mont.
(Published as "Sheep Creek near Dell" in 1936)

Location.--Lat 44°39', long 112°47', in SW¼ sec.35, T.13 S., R.10 W., on left bank 2 miles downstream from Muddy Creek and 6 miles southwest of Dell.

Drainage area.--280 sq mi.

Gage.--Recording prior to Oct. 1, 1953; crest-stage gage since 1960. Altitude of gage is 6,530 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 270 cfs and extended above by logarithmic plotting.

Remarks.--Diversions for irrigation of about 6,600 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 130 cfs. Only annual peaks are shown subsequent to 1953.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946 a/	May 28, 1946	5.54	379	1947	May 12, 1947	4.57	177
	June 24, 1946	4.78	229		June 3, 1947	4.94	233
					June 9, 1947	5.66	349
1947	Mar. 18, 1947	5.54	379		June 11, 1947	5.00	220
	Mar. 22, 1947	5.46	359		June 21, 1947	4.98	229
	Mar. 30, 1947	4.87	242		July 10, 1947	4.33	142
	Apr. 15, 1947	5.36	329		Aug. 22, 1947	4.50	183
	May 3, 1947	4.47	159				

a Period May 24 to Sept. 30.

Peak stages and discharges of Sheep Creek below Muddy Creek near Dell, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Apr. 17, 1948	5.08	285	1951	Apr. 9, 1951	4.62	197
	Apr. 18, 1948	5.03	276		Apr. 13, 1951	4.55	184
	May 8, 1948	4.25	136		Aug. 4, 1951	4.82	234
	May 18, 1948	4.40	161				
	May 20, 1948	4.75	224	1952	Apr. 6, 1952	4.54	179
	June 3, 1948	4.58	193		Apr. 18, 1952	7.72	909
	June 10, 1948	4.25	137		Apr. 25, 1952	4.94	270
	June 22, 1948	4.95	266		May 4, 1952	4.62	217
	June 26, 1948	4.69	219		May 21, 1952	4.34	163
	July 3, 1948	4.27	146		June 20, 1952	5.50	380
	Aug. 1, 1948	5.49	369		June 24, 1952	5.40	358
					June 27, 1952	5.46	371
1949	Apr. 6, 1949	5.13	295				
	Apr. 12, 1949	6.02	477	1953	Apr. 23, 1953	4.95	258
	May 17, 1949	5.16	291		May 29, 1953	4.35	148
	May 21, 1949	5.31	321		June 2, 1953	5.23	313
	June 6, 1949	4.55	183		June 7, 1953	4.90	249
				1960	Mar. 26, 1960	4.44	168
1950	Apr. 1, 1950	5.68	406				
	Apr. 7, 1950	4.93	257	1961	Apr. 4, 1961	3.98	84
	Apr. 14, 1950	4.58	193	1962	Apr. 2, 1962	4.83	236
	Apr. 17, 1950	4.38	158	1963	June 15, 1963	5.38	343

MISSOURI RIVER MAIN STEM

140. Red Rock River near Dell, Mont.

Location.--Lat 44°47', long 112°44', in NW¼ sec.20, T.12 S., R.9 W., on right bank half a mile downstream from Sage Creek and 4½ miles northwest of Dell.

Drainage area.--1,421 sq mi.

Gage.--Recording. Altitude of gage is 5,870 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs.

Remarks.--No winter records. Some regulation by Lima Reservoir (usable capacity, 84,050 acre-ft). Natural storage in Red Rock Lake. Diversions for irrigation of about 35,000 acres above station. Regulation and diversions materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	July 28, 1943	2.84	206	1954	June 10, 1954	2.86	223
1944	June 9, 1944	4.85	1,480	1955	June 30, 1955	2.74	185
1945	Aug. 14, 1945	2.97	268				
				1956	Aug. 5, 1956	2.83	182
1946	May 28, 1946	3.26	449	1957	Sept. 7, 1957	2.77	188
1947	June 10, 1947	3.74	724	1958	Apr. 17, 1958	-	a339
1948	May 20, 1948	3.26	438	1959	June 30, 1959	2.71	170
1949	Apr. 12, 1949	3.25	449	1960	July 9, 1960	2.82	194
1950	Apr. 2, 1950	3.42	562				
				1961	June 13, 1961	2.45	106
1951	Apr. 9, 1951	2.99	268	1962	July 14, 1962	2.88	231
1952	July 28, 1952	3.66	676	1963	June 15, 1963	2.92	284
1953	June 7, 1953	2.94	256				

a Maximum daily.

150. Horse Prairie Creek near Grant, Mont.

Location.--Lat 45°00'50", long 113°13'30", in NE¼NW¼ sec.32, T.9 S., R.13 W., on left bank a quarter of a mile downstream from Bloody Dick Creek, 7½ miles west of Grant, and 17½ miles west of Armstead.

Drainage area.--325 sq mi.

Gage.--Recording. Altitude of gage is 6,050 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Diversions for irrigation of about 14,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 350 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 28, 1946	4.60	a550	1950	June 12, 1950	4.18	532
					June 14, 1950	4.16	526
1947	Mar. 15, 1947	b6.15	-		June 22, 1950	4.33	576
	Mar. 17, 1947	4.58	585				
	May 11, 1947	6.14	1,240	1951	Mar. 22, 1951	-	(c)
	June 3, 1947	4.40	489		Apr. 2, 1951	4.25	533
	June 11, 1947	4.39	489		May 13, 1951	4.36	568
	June 21, 1947	3.91	360		May 31, 1951	4.99	782
					June 5, 1951	4.53	624
1948	Apr. 17, 1948	5.16	828		June 18, 1951	3.65	355
	May 7-8, 1948	3.78	417				
	May 30, 1948	5.96	1,140	1952	May 4, 1952	3.86	420
	June 16, 1948	4.79	712		May 9, 1952	3.96	448
	June 22, 1948	4.98	778		May 15, 1952	4.39	578
	July 3, 1948	3.79	394		June 7, 1952	3.74	387
					June 28, 1952	3.97	451
1949	May 17, 1949	4.97	774				
	May 31, 1949	4.26	539	1953	June 2, 1953	6.47	1,360
					June 14, 1953	5.74	1,090
1950	June 7, 1950	5.07	810				

a Maximum for period May to September.
b Backwater from ice.
c Not known; exceeded base discharge.

GRASSHOPPER CREEK BASIN

155. Grasshopper Creek near Dillon, Mont.

Location.--Lat 45°06'40", long 112°48'00", in SW¼NW¼ sec.26, T.8 S., R.10 W., on left bank 1¼ miles upstream from mouth and 11 miles southwest of Dillon.

Drainage area.--348 sq mi.

Gage.--Nonrecording at site 1,000 ft downstream at different datum prior to June 30, 1933, and 150 ft upstream at different datum Oct. 11, 1945, to May 15, 1946. Recording at present site and datum May 16, 1946, to Sept. 30, 1961. Crest-stage gage since September 1961. Altitude of gage is 5,350 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs at present site and extended above on basis of slope-area measurement at 1,870 cfs.

Remarks.--Diversions for irrigation of about 12,500 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 150 cfs. Only annual observed peaks are shown prior to 1946.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 10, 1921	6.60	516	1927	June 12, 1927	6.2	355
1922	May 28, 1922	6.48	543	1928	May 13, 1928	6.10	327
1923	June 23, 1923	5.68	283	1929	June 18, 1929	5.45	172
1924	Apr. 13, 1924	5.05	120	1930	Apr. 25, 1930	5.08	90
1925	June 5, 1925	6.52	557				
				1931	Apr. 4, 1931	5.02	85
1926	July 8, 1926	5.52	197	1932	June 7, 1932	6.06	322

Peak stages and discharges of Grasshopper Creek near Dillon, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	June 10, 1933	5.36	170	1952	May 5, 1952	3.14	241
					May 16, 1952	3.20	257
1946	May 29, 1946	2.78	160		June 28, 1952	2.95	190
1947	Mar. 16, 1947	a4.79	-	1953	June 3, 1953	4.51	719
	Mar. 17, 1947	4.44	640		June 8, 1953	3.63	370
	May 11, 1947	3.61	353		June 15, 1953	3.58	352
	June 10, 1947	3.46	310				
				1955	June 30, 1955	3.39	c328
1948	Mar. 29, 1948	-	b200	1956	Mar. 24, 1956	6.47	1,870
	Apr. 3, 1948	3.11	234		Apr. 11, 1956	2.93	154
	Apr. 16, 1948	3.18	255		May 28, 1956	4.49	679
	May 8, 1948	3.09	228				
	May 22, 1948	4.01	559	1957	May 5, 1957	3.11	228
	May 30, 1948	4.27	623		May 13, 1957	3.36	307
	June 4, 1948	4.51	719		May 21, 1957	3.75	433
	June 23, 1948	3.67	394		June 9, 1957	3.57	360
					June 16, 1957	3.22	246
1949	Apr. 8, 1949	3.00	170		June 21, 1957	3.00	190
	May 18, 1949	3.26	258				
	May 21, 1949	3.25	255	1958	May 25, 1958	2.99	208
	June 2, 1949	3.46	324		June 5, 1958	4.16	579
	June 9, 1949	2.90	165		June 14, 1958	3.60	377
					June 25, 1958	3.90	475
1950	Apr. 2, 1950	3.15	222				
	June 9, 1950	3.23	249	1960	Mar. 25, 1960	4.06	539
	June 23, 1950	3.22	252		May 14, 1960	2.84	165
					June 11, 1960	3.22	263
1951	Feb. 11, 1951	3.18	324		June 16, 1960	2.78	151
	Mar. 22, 1951	4.11	559				
	Mar. 26, 1951	3.63	380	1961	June 14, 1961	3.14	252
	Apr. 5, 1951	2.93	168				
	May 14, 1951	3.22	258	1962	Mar. 27, 1962	3.83	c450
	June 2, 1951	3.41	324	1963	Feb. 3, 1963	a4.61	c465
	June 7, 1951	3.38	314				
1952	Apr. 7, 1952	3.02	200				

a Backwater from ice.
b About.
c Annual peak only.

MISSOURI RIVER MAIN STEM

160. Beaverhead River at Barratts, Mont.

Location.--Lat 45°06'59", long 112°45'00", in SE¼ sec.19, T.8 S., R.9 W., on left bank 1 mile upstream from Barratts, 1½ miles downstream from Grasshopper Creek, and 8¼ miles southwest of Dillon.

Drainage area.--2,737 sq mi.

Gage.--Nonrecording prior to Oct. 19, 1934; recording thereafter. Datum of gage is 5,268.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs.

Remarks.--Some regulation by Lima Reservoir (usable capacity, 84,050 acre-ft). Diversions for irrigation of about 90,000 acres above station. Peaks are principally from snowmelt. Base for partial-duration series, 800 cfs. Only annual peaks are shown prior to 1935.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 20, 1908	6.1	3,720	1917	May 16, 1917	5.70	3,200
1909	June 10, 1909	3.25	1,510	1918	July 12, 1918	2.20	878
1910	Mar. 5, 1910	3.9	2,170	1919	Apr. 27, 1919	2.30	938
				1920	May 17, 1920	2.69	1,130
1911	June 21, 1911	2.75	1,340				
1912	June 10, 1912	5.3	3,220	1921	June 17, 1921	4.20	2,070
1913	June 13, 1913	4.3	2,280	1922	May 28, 1922	4.77	2,360
1914	May 11, June 6, 1914	3.15	1,440	1923	June 24, 1923	2.90	1,200
				1924	Apr. 15, 1924	2.39	912
1915	June 12, 1915	3.5	1,660	1925	June 5, 1925	3.50	1,670
1916	June 22, 1916	4.2	2,150	1926	Apr. 19, 1926	2.40	1,010

Peak stages and discharges of Beaverhead River at Barratts, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	June 12, 1927	3.30	1,550	1948	July 4, 1948	2.65	1,200
1928	Mar. 23, 1928	2.97	1,350				
1929	June 17, 1929	2.40	1,010	1949	Apr. 12, 1949	2.42	1,060
1930	Apr. 9, 1930	1.84	702		May 22, 1949	2.86	1,330
					June 2, 1949	2.68	1,220
1931	Apr. 8, 1931	1.50	535				
1932	June 7, 1932	2.89	1,300	1950	Apr. 2, 1950	2.10	896
1933	May 18, 1933	2.87	1,300		June 9, 1950	2.66	1,100
1934	Mar. 3, June 8, 1934	1.04	316		June 23, 1950	2.22	902
				1951	Feb. 12, 1951	2.38	1,000
1935	June 2, 1935	1.92	810		Mar. 22, 1951	2.86	1,270
					Mar. 26, 1951	2.26	900
1936	June 3, 1936	2.29	962		Apr. 5, 1951	2.33	972
	Aug. 12, 1936	3.00	1,360		May 14, 1951	2.10	806
					June 2, 1951	2.77	1,210
1937	July 9, 1937	.95	398		June 7, 1951	2.55	1,090
1938	July 4, 1938	2.64	1,170	1952	Apr. 7, 1952	2.00	835
					Apr. 20, 1952	2.37	1,040
1939	Mar. 21, 1939	2.76	1,250		Apr. 30, 1952	2.11	896
	Mar. 26, 1939	2.39	1,060		May 5, 1952	2.05	862
	May 24, 1939	3.86	1,880		May 16, 1952	2.57	1,150
					June 27, 1952	3.09	1,460
1940	June 6, 1940	1.42	560				
				1953	June 4, 1953	3.63	1,710
1941	May 29, 1941	1.97	802		June 17, 1953	3.42	1,570
	June 9, 1941	2.22	926				
	Aug. 12, 1941	2.28	976	1954	Dec. 25, 1953	a1.64	-
					Apr. 6, 1954	1.45	515
1942	Apr. 5, 1942	2.69	1,070				
	Apr. 12, 1942	2.86	1,160	1955	Dec. 30, 1954	a3.66	-
	May 28, 1942	4.06	1,970		June 30, 1955	2.57	1,100
	June 11, 1942	4.09	1,970				
				1956	Mar. 25, 1956	3.74	1,770
1943	Mar. 30, 1943	3.21	1,460		May 30, 1956	3.67	1,730
	Apr. 4, 1943	2.39	1,000				
	June 3, 1943	3.38	1,570	1957	May 16, 1957	2.93	1,290
	June 15, 1943	3.90	1,850		May 21, 1957	3.27	1,490
					June 9, 1957	3.24	1,470
1944	June 5, 1944	2.48	1,060		June 17, 1957	3.34	1,530
	June 10, 1944	5.80	3,060				
	June 28, 1944	5.00	2,540	1958	June 5, 1958	3.07	1,370
	July 11, 1944	2.64	1,140		June 14, 1958	2.65	1,130
	Aug. 4, 1944	2.38	1,000		June 25, 1958	2.55	1,070
1945	June 7, 1945	2.66	1,000	1959	June 29, 1959	2.83	1,240
1946	May 29, 1946	2.60	1,140	1960	Mar. 26, 1960	2.72	1,210
1947	Mar. 17, 1947	3.46	1,570	1961	Dec. 31, 1960	a1.67	-
	May 13, 1947	3.60	1,570		June 14, 1961	1.21	398
	June 5, 1947	3.40	1,420				
	June 10, 1947	3.64	1,570	1962	May 22, 1962	2.23	900
					June 6, 1962	2.55	1,060
1948	Apr. 19, 1948	2.82	1,300		June 17, 1962	2.34	940
	May 9, 1948	2.21	940				
	June 5, 1948	4.18	2,150	1963	Feb. 7, 1963	2.64	1,180
	June 17, 1948	3.13	1,490		June 9, 1963	3.29	1,500
	June 23, 1948	3.61	1,780		June 23, 1963	2.98	1,330

a Backwater from ice.

BLACKTAIL CREEK BASIN

175. Blacktail Creek near Dillon, Mont.

Location.--Lat 45°03', long 112°33', in SE¼ sec.14, T.9 S., R.8 W., or left bank 12½ miles southeast of Dillon and 14 miles upstream from mouth.

Drainage area.--312 sq mi.

Gage.--Recording. Datum of gage is 5,667.59 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 370 cfs.

Remarks.--Diversions for irrigation of about 4,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Blacktail Creek near Dillon, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 7, 1946	2.30	218	1956	Mar. 7, 1956	a3.87	-
1947	Feb.14-28, 1947	a3.31	-		May 29, 1956	-	144
	June 11, 1947	-	399	1957	Feb. 24, 1957	a2.96	-
1948	June 22, 1948	2.75	378		June 7, 1957	-	236
1949	Feb. 11, 1949	a3.48	-	1958	Feb. 2, 1958	a2.92	-
	May 21, 1949	-	226		June 3, 1958	-	208
1950	Feb. 14, 1950	a3.44	-	1959	Feb. 21, 1959	a2.85	-
	June 25, 1950	-	159		June 28, 1959	-	156
1951	Feb. 14, 1951	a2.77	-	1960	Feb. 24, 1960	a3.38	-
	Mar. 21, 1951	-	130		May 13, 1960	-	148
1952	Feb. 26, 1952	a4.62	-	1961	Jan. 2, 1961	a3.02	-
	June 25, 1952	-	169		June 10, 1961	-	71
1953	Jan. 4, 1953	a3.01	-	1962	Mar. 11, 1962	a2.95	-
	June 20, 1953	-	304		June 17, 1962	-	145
				1963	Feb. 4, 1963	a3.38	-
1955	June 17, 1955	2.17	166		June 9, 1963	-	157

a Backwater from ice.

MISSOURI RIVER MAIN STEM

182. Beaverhead River tributary No. 2 near Dillon, Mont.

Location.--Lat 45°19', long 112°32', in NW¼ sec.13, T.6 S., R.8 W., at culvert on State Highway 41, 9 miles northeast of Dillon.

Drainage area.--0.40 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 5,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5 cfs and extended above on basis of computed flow through culvert using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 24, 1958	5.04	170	1961	June 12, 1961	0.36	2.5
1959	-	-	(a)	1962	-	-	(a)
1960	Mar. 19, 1960	.41	3	1963	Sept. 2, 1963	.30	2

a No evidence of flow during year.

185. Beaverhead River at Blaine, Mont.

Location.--Lat 45°23', long 112°27', in NW¼SE¼ sec.22, T.5 S., R.7 W., on left bank at downstream side of bridge on State Highway 41, 11½ miles upstream from Ruby River and 14½ miles northeast of Dillon.

Drainage area.--3,619 sq mi.

Gage.--Nonrecording prior to June 29, 1951; recording thereafter. At bridge half a mile upstream at different datum prior to Feb. 17, 1949. Altitude of gage is 4,810 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,200 cfs at former site and below 1,500 cfs at present site.

Remarks.--Some regulation by Lima Reservoir (usable capacity, 84,050 acre-ft). Diversions for irrigation of about 115,000 acres above station. Only annual peaks are shown.

Peak stages and discharges of Beaverhead River at Blaine, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Aug. 12, 1936	3.48	720	1951	Feb. 12, 1951	5.76	1,110
1937	Nov. 14, 1936	3.03	472	1952	June 28, 1952	6.47	1,440
1938	July 5, 1938	4.26	1,000	1953	June 10, 1953	6.17	1,240
1939	Mar. 27, 1939	4.15	1,170	1954	Nov. 29, 1953	5.05	714
1940	Feb. 8, 1940	a4.26	-	1955	July 1, 1955	4.62	587
	Sept.29, 1940	-	860				
				1956	Nov. 20, 1955	a7.23	-
1941	June 10, 1941	4.09	1,090		Mar. 26, 1956	-	1,430
1942	Feb. 20, 1942	a4.86	-	1957	Jan. 11, 1957	a6.96	-
	June 12, 1942	-	1,300		June 19, 1957	-	1,630
1943	Jan. 24, 1943	a5.20	-	1958	July 5, 1958	6.00	1,140
	June 16, 1943	-	1,320	1959	Jan. 12, 1959	a6.58	-
1944	June 12, 1944	6.76	3,130		July 1, 1959	-	1,220
1945	(b)	3.51	620	1960	Mar. 27, 1960	6.38	1,370
1946	May 30, 1946	3.94	900	1961	Nov. 26, 1960	4.84	599
1947	June 12, 1947	5.25	1,710	1962	June 7, 1962	6.05	1,040
1948	June 26, 1948	5.75	2,180	1963	Feb. 8, 1963	7.05	1,430
1949	Apr. 8, 1949	5.80	1,100				
1950	Sept.30, 1950	5.29	848				

a Backwater from ice.
b Nov. 25-27, Dec. 5-7, 1944.

RUBY RIVER BASIN

190. Ruby River above Warm Springs Creek, near Alder, Mont.

Location.--Lat 44°59'40", long 111°57'50", in NW¼ sec.3, T.10 S., R.3 W., on right bank 2½ miles upstream from Warm Springs Creek and 24 miles scuth of Alder.

Drainage area.--145 sq mi.

Gage.--Nonrecording at bridge 1 mile downstream at different datum prior to July 20, 1948; recording at present site and datum thereafter. Altitude of gage is 6,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 640 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 21, 1948	4.0	1,050	1950	June 11, 1950	3.02	535
1949	May 11, 1949	3.05	660	1951	May 23, 1951	3.08	558
	May 17, 1949	3.34	776				
	May 22, 1949	2.73	532	1952	May 3, 1952	4.36	1,230
	May 28, 1949	2.83	572		May 13, 1952	3.05	568
	June 6, 1949	2.71	524		May 29, 1952	2.92	536
					June 5, 1952	2.90	536
1950	May 17, 1950	3.01	531				
	May 23, 1950	3.07	554	1953	June 2, 1953	2.88	542
	May 28, 1950	3.18	597		June 13, 1953	4.20	1,150
	June 6, 1950	3.45	706		June 17, 1953	3.30	730

195. Ruby River above reservoir, near Alder, Mont.

Location.--Lat 45°11', long 112°09', in SW¼SW¼ sec.31, T.7 S., R.4 W., on left bank at Puller Hot Springs, a quarter of a mile upstream from Cottonwood Creek, 6 miles upstream from Ruby Dam, and 10 miles south of Alder.

Drainage area.--538 sq mi.

Gage.--Nonrecording at bridge 1,500 ft downstream at datum 5.2 ft lower prior to Oct. 1, 1938; recording thereafter. At site 500 ft downstream at datum 0.5 ft lower Oct. 1, 1938, to Aug. 5, 1955. Datum of gage is 5,440.2 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 3,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 560 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938 a/	May 29, 1938	3.86	940	1951	Jan. 28, 1951	b3.44	-
	June 25, 1938	4.00	990		May 24, 1951	3.33	654
1939	May 5, 1939	3.29	645	1952	May 4, 1952	4.12	1,090
					May 14, 1952	3.33	694
1940	May 13, 1940	3.33	668		June 6, 1952	3.22	644
1941	May 27, 1941	3.04	537	1953	June 2, 1953	3.17	623
					June 8, 1953	3.17	623
1942	Apr. 22, 1942	3.28	680		June 14, 1953	4.12	1,090
	May 27, 1942	4.15	1,140				
	June 8, 1942	3.95	1,020	1954	May 22, 1954	2.99	539
1943	May 30, 1943	3.09	575	1955	May 22, 1955	3.50	825
	June 19, 1943	3.07	565		May 31, 1955	3.20	690
					June 16, 1955	3.75	950
1944	May 15, 1944	3.12	610				
	June 9, 1944	3.34	730	1956	May 28, 1956	4.70	960
	June 13, 1944	3.09	605				
				1957	May 12, 1957	4.34	811
1945	June 5, 1945	2.98	560		May 20, 1957	4.26	777
	June 22, 1945	3.25	705		June 3, 1957	4.47	867
	Aug. 3, 1945	3.49	805				
				1958	May 12, 1958	3.97	603
1946	Apr. 30, 1946	3.20	645		May 24, 1958	4.55	885
	May 6, 1946	3.06	622				
	May 23, 1946	3.02	564	1959	June 7, 1959	5.05	1,140
	May 28, 1946	3.26	668		June 10, 1959	4.57	895
	June 6, 1946	3.41	735		June 14, 1959	4.70	960
1947	May 10, 1947	3.91	930	1960	Mar. 22, 1960	3.88	576
	June 3, 1947	3.41	685		Mar. 27, 1960	4.17	706
	June 10, 1947	4.42	1,210		Apr. 7, 1960	3.98	621
	June 20, 1947	3.69	830		May 13, 1960	5.20	1,210
					June 3, 1960	4.39	783
1948	Apr. 17, 1948	3.59	805				
	May 21, 1948	4.38	1,230	1961	May 27, 1961	4.05	644
	June 24, 1948	3.3	640		May 30, 1961	3.97	608
1949	May 12, 1949	3.17	646	1962	Apr. 25, 1962	4.21	720
	May 17, 1949	3.40	755		May 10, 1962	4.15	698
	May 22, 1949	3.09	610		May 21, 1962	3.94	603
	May 29, 1949	3.02	579		June 4, 1962	4.22	729
					June 11, 1962	4.10	675
1950	May 18, 1950	3.20	660				
	May 24, 1950	3.24	678	1963	May 25, 1963	4.07	662
	May 28, 1950	3.28	696		June 5, 1963	4.00	634
	June 7, 1950	3.63	800		June 10, 1963	3.97	626
	June 12, 1950	3.14	633				
	June 25, 1950	3.17	646				

a Period May 10 to Sept. 30, 1938.
b Backwater from ice.

200. Ruby River at damsite, near Alder, Mont.
(Published as Ruby River near Alder, 1911, and Passamari River near Alder, 1912-14)

Location.--Lat 45°14', long 112°07', in SE¼ sec.8, T.7 S., R.4 W., 1,500 ft above damsite and 6 miles south of Alder.

Drainage area.--592 sq mi.

Gage.--Nonrecording. At site 2 miles upstream at different datum Apr. 28, 1911, to June 30, 1914. Altitude of gage is 5,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 720 cfs at site used 1911-14 and below 550 cfs at last site used.

Remarks.--Diversions for irrigation of about 3,500 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 4, 9, 1911	6.3	920	1935	June 9, 1935	3.02	740
1912	May 31, June 3, 1912	6.7	1,060	1936	Aug. 14, 1936	8.00	1,800
1914	May 23, June 4, 1914	6.4	935				

210. Ruby River near Alder, Mont.

Location.--Lat 45°17'30", long 112°06'00", in NW¼NE¼ sec.28, T.6 S., R.4 W., on left bank 200 ft upstream from highway bridge, 2½ miles south of Alder, 3 miles downstream from Ruby River Reservoir, and 6 miles upstream from Alder Creek.

Drainage area.--614 sq mi.

Gage.--Nonrecording prior to July 1946; recording thereafter. At site 1,200 ft downstream at different datum prior to Apr. 28, 1932. At bridge 200 ft downstream at different datum Apr. 28, 1932, to June 30, 1939. Altitude of gage is 5,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs and extended above by logarithmic plotting.

Remarks.--Regulation by Ruby River Reservoir since 1937 (total capacity, 38,950 acre-ft). Diversions for irrigation of about 9,500 acres, of which about 5,000 acres are below station. Regulation and diversions materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	May 25, 1929	3.55	745	1949	Mar. 22-25, 1949	-	248
1930	Apr. 8, 1930	2.55	409	1950	June 25, 1950	3.52	470
1931	May 17, 1931	2.78	470	1951	Nov. 14, 1950	-	165
1932	May 20, 1932	2.60	512		Jan. 31, 1951	a2.95	-
1933	June 3, 1933	2.76	586	1952	May 9, 1952	3.36	386
				1953	June 15, 1953	4.42	830
1935	July 9, 1935	2.58	530	1954	July 3, 1954	2.82	212
				1955	June 17, 1955	3.98	554
1936	Aug. 11, 14, 1936	3.70	965				
1937	May 10, 1937	1.58	204	1956	Dec. 30, 1955	a3.76	-
1938	June 9, 1938	2.32	450		May 29, 1956	-	389
1939	May 7, 1939	2.64	510	1957	June 4, 1957	4.03	564
				1958	Nov. 17, 1957	3.57	270
1947	June 11, 1947	5.35	1,380	1959	June 15, 1959	4.05	566
1948	May 31, 1948	4.85	1,080	1960	May 14, 1960	4.82	814
1949	Jan. 13, 1949	a3.88	-				

a Backwater from ice.

215. Ruby River at Laurin, Mont.

Location.--Lat 45°21', long 112°07', in SW¼SE¼ sec.32, T.5 S., R.4 W., on right bank 200 ft downstream from highway bridge in Laurin and three-quarters of a mile upstream from Alder Creek.

Drainage area.--650 sq mi.

Gage.--Recording. Altitude of gage is 5,045 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 670 cfs.

Remarks.--Flow regulated by Ruby River Reservoir (total capacity, 38,950 acre-ft). Diversions for irrigation of about 13,000 acres. Bypass flow of Clear Creek (secondary channel of Ruby River) not included in discharge. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 11, 1947	6.43	980	1954	July 20, 1954	3.27	117
1948	June 5, 1948	5.64	737	1955	June 17, 1955	4.67	473
1949	Jan. 29, 1949	a3.88	-				
	Apr. 12, 1949	-	230	1956	Nov. 17, 1955	a4.13	-
1950	June 25, 1950	4.57	442		May 29, 1956	-	250
				1957	May 21, 1957	4.51	352
1951	Nov. 12, 1950	-	143	1958	Nov. 20, 1957	-	227
	Jan. 8, 1951	a3.86	-		Nov. 21, 1957	a3.89	-
1952	May 9, 1952	4.38	382	1959	June 15, 1959	4.32	367
1953	June 16, 1953	5.05	568	1960	May 14, 1960	5.17	564

a Backwater from ice.

220. Ruby River below Ramshorn Creek, near Sheridan, Mont.

Location.--Lat 45°25', long 112°12', near east line of SW¼ sec.10, T.5 S., R.5 W., on downstream end of right abutment of highway bridge, half a mile downstream from Ramshorn Creek and 3 miles south of Sheridan.

Drainage area.--843 sq mi.

Gage.--Nonrecording prior to Nov. 27, 1951; recording thereafter. Altitude of gage is 4,890 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Flow regulated by Ruby River Reservoir (total capacity, 58,950 acre-ft). Diversions for irrigation of about 15,000 acres above station. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 14, 1947	6.32	1,340	1951	Aug. 28, 1951	2.89	262
1948	June 4, 1948	5.62	1,050	1952	June 7, 1952	3.96	472
1949	Oct. 30, 1948	3.25	338	1953	June 16, 1953	4.88	763
1950	June 25, 1950	4.07	501				

230. Ruby River near Twin Bridges, Mont.

Location.--Lat 45°30'30", long 112°19'50", in NE¼NW¼ sec.10, T.4 S., R.6 W., on right bank at upstream side of county bridge, 1¼ miles upstream from mouth and 2½ miles south of Twin Bridges.

Drainage area.--935 sq mi.

Gage.--Nonrecording at different datum prior to June 30, 1943; recording thereafter. Altitude of gage is 4,670 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs.

Remarks.--Some regulation by Ruby River Reservoir (total capacity, 38,950 acre-ft). Diversions for irrigation of about 28,500 acres. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Jan. 9, 1942	a4.0	-	1955	January 1955	a5.56	-
	June 12, 1942	-	1,040		June 19, 1955	-	473
1943	Jan.29,30, 1943	a2.60	-				
	June 21, 1943	-	466	1956	May 30, 1956	4.87	475
				1957	June 9, 1957	5.86	754
1947	June 12, 1947	6.89	1,500	1958	Jan. 8, 1958	a6.40	-
1948	June 4, 1948	6.84	1,470		June 25, 1958	-	536
1949	Mar. 23, 1949	4.35	395	1959	Jan. 3, 1959	a5.74	-
1950	Dec. 16, 1949	a5.77	-		June 27, 1959	-	524
	June 26, 1950	-	547	1960	Jan. 22, 1960	a5.50	-
					May 15, 1960	-	637
1951	Oct. 6, 1950	-	294				
	Feb. 1, 1951	a5.40	-	1961	Dec. 10, 1960	a4.98	-
1952	Jan. 2, 1952	a5.95	-		July 6, 1961	-	262
	June 7, 1952	-	839	1962	Jan. 25, 1962	a6.22	-
1953	June 19, 1953	5.65	903		June 17, 1962	-	779
1954	Nov. 26, 1953	-	235	1963	June 22, 1963	6.61	944
	Jan. 21, 1954	a5.72	-				

a Backwater from ice.

BIG HOLE RIVER BASIN

235. Big Hole River near Jackson, Mont.

Location.--Lat 45°14'20", long 113°27'30", in NW¼NW¼ sec.9, T.7 S., R.15 W., on right bank 1 mile downstream from Pioneer Creek and 9 miles southwest of Jackson.

Drainage area.--44.0 sq mi.

Gage.--Nonrecording at site 100 ft upstream at datum approximately 1.0 ft higher prior to June 20, 1948; recording at present site and datum thereafter. Altitude of gage is 6,970 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs and extended above by logarithmic plotting.

Remarks.--Natural storage in lakes at headwaters. No winter records after 1951. Peaks are principally from snowmelt. Base for partial-duration series, 120 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 29, 1948	4.45	938	1950	June 12, 1950	2.95	214
					June 22, 1950	4.41	520
1949	Apr. 29, 1949	-	140		July 2, 1950	3.26	281
	May 16, 1949	3.64	352		July 11, 1950	2.78	178
	May 30, 1949	3.22	273				
	June 8, 1949	3.11	250	1951	May 12, 1951	3.17	271
					May 24, 1951	3.70	377
1950	Apr. 14, 1950	-	(a)		June 17, 1951	3.62	361
	May 23, 1950	2.78	178		July 4, 1951	2.97	227
	June 7, 1950	3.24	277				

a Unknown; probably exceeded base discharge.

Peak stages and discharges of Big Hole River near Jackson, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 3, 1952	3.04	234	1953	May 20, 1953	2.66	145
	May 14, 1952	3.07	241		June 2, 1953	3.48	313
	June 7, 1952	3.79	381		June 14, 1953	4.17	465
	June 21, 1952	2.63	149		June 19, 1953	4.33	484
	June 24, 1952	2.72	166		July 1, 1953	3.33	283

240. Miner Creek near Jackson, Mont.

Location.--Lat 45°20', long 113°33', in SW¼ sec.3, T.6 S., R.16 W., on right bank 1 mile downstream from Miner Lake, 7 miles southwest of Jackson, and 7½ miles upstream from mouth.

Drainage area.--17.6 sq mi.

Gage.--Recording. Altitude of gage is 6,960 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 300 cfs.

Remarks.--Natural storage in Miner Lake. Peaks are principally from snowmelt. Base for partial-duration series, 80 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 29 or June 3, 1948	3.34	a300	1951	May 24, 1951	3.02	248
					May 28, 1951	2.92	231
					June 16, 1951	3.04	250
1949	Apr. 29, 1949	1.83	87		July 5, 1951	2.39	150
	May 14, 1949	2.74	207		July 20, 1951	1.95	93
	May 29, 1949	2.51	182				
	June 11, 1949	2.49	178	1952	Apr. 8, 1952	a3.17	-
					May 4, 1952	2.36	153
1950	Apr. 14, 1950	-	(b)		May 14, 1952	2.40	158
	May 24, 1950	2.18	133		June 5, 1952	3.02	248
	May 28, 1950	2.18	132		June 22, 1952	2.13	123
	June 6, 1950	2.74	210		June 25, 1952	2.20	132
	June 12, 1950	2.28	139				
	June 22, 1950	3.47	336	1953	May 19, 1953	2.11	104
	July 2, 1950	2.69	208		June 2, 1953	2.87	204
	July 11, 1950	2.24	142		June 13, 1953	3.57	310
					June 18, 1953	3.50	299
1951	Apr. 7, 1951	3.08	(b)		June 23, 1953	2.84	200
	May 14, 1951	2.38	150		July 1, 1953	2.72	183

a About; maximum for period May 24 to Sept. 30.
b Not known; probably exceeded base discharge.

245. Trail Creek near Wisdom, Mont.

Location.--Lat 45°39', long 113°43', in SW¼ sec.16, T.2 S., R.17 W., on left bank 100 ft downstream from Runaway Creek, 4 miles upstream from Ruby Creek, and 13 miles west of Wisdom.

Drainage area.--71.4 sq mi.

Gage.--Recording. Altitude of gage is 6,250 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 850 cfs.

Remarks.--No winter records collected after 1951. Peaks are principally from snowmelt. Base for partial-duration series, 200 cfs.

Peak stages and discharges of Trail Creek near Wisdom, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	-	4.27	a694	1951	May 12, 1951	4.62	779
					May 24, 1951	4.57	765
1949	Apr. 29, 1949	3.07	405		June 5, 1951	3.06	379
	May 15, 1949	4.90	858		June 13, 1951	2.89	332
1950	Apr. 3, 1950	2.64	288	1952	Apr. 29, 1952	4.42	725
	Apr. 15, 1950	2.56	267		May 14, 1952	4.47	739
	Apr. 18, 1950	2.60	277		May 26, 1952	4.16	655
	May 18, 1950	3.58	524				
	May 24, 1950	3.93	601	1953	May 7, 1953	2.78	219
	June 7, 1950	4.28	689		May 20, 1953	3.85	493
	June 17, 1950	4.27	686		June 2, 1953	5.89	1,070
					June 13, 1953	5.47	973
1951	Apr. 29, 1951	2.51	254				

a Annual peak only.

255. Big Hole River near Melrose, Mont.

Location.--Lat 45°32', long 112°42', in SW¼ sec.34, T.3 S., R.9 W., on left bank at downstream side of bridge on Interstate Highway 15 and U.S. Highway 91, an eighth of a mile downstream from Rock Creek and 7 miles south of Melrose.

Drainage area.--2,476 sq mi.

Gage.--Recording prior to June 14, 1927, and since Sept. 30, 1931; nonrecording July 17, 1927, to Sept. 30, 1931. At site 1½ miles upstream at different datum prior to Oct. 1, 1931. Datum of gage is 5,032.87 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 8,000 cfs at former site and below 14,000 cfs at present site.

Remarks.--Diversions for irrigation of about 136,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 3,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	May 19, 1924	6.00	4,600	1937	May 20, 1937	3.43	2,390
1925	May 23, 1925	6.42	5,710	1938	Apr. 19, 1938	4.89	5,590
	June 5, 1925	7.05	6,960		May 3, 1938	4.18	3,920
	June 23, 1925	5.91	4,770		May 30, 1938	5.73	7,170
					July 3, 1938	6.39	8,760
1926	Apr. 12, 1926	5.38	3,880				
	Apr. 19, 1926	5.10	3,460	1939	Apr. 14, 1939	3.99	3,700
					May 6, 1939	5.00	6,290
1927	June 14, 1927	14.0	a23,000		May 25, 1939	4.43	5,200
1928	May 26, 1928	7.6	b9,230	1940	May 28, 1940	3.96	3,380
1929	June 19, 1929	6.38	b7,100	1941	May 29, 1941	4.28	3,910
					June 7, 1941	4.82	5,200
1930	Apr. 9, 1930	5.70	b5,690				
				1942	Apr. 12, 1942	6.19	8,990
1931	June 5, 1931	3.60	b2,160		Apr. 22, 1942	4.12	4,120
					May 14, 1942	3.99	3,700
1932	June 17, 1932	4.88	6,290		May 27, 1942	7.72	12,500
					June 10, 1942	6.83	10,100
1933	June 5, 1933	5.95	8,550				
				1943	Apr. 10, 1943	4.32	4,120
1934	Apr. 25, 1934	3.95	3,380		May 31, 1943	6.47	9,500
					June 22, 1943	6.26	8,910
1935	June 3, 1935	4.16	3,920				
	June 13, 1935	4.47	4,520	1944	May 20, 1944	4.16	3,550
					June 11, 1944	5.99	7,830
1936	Apr. 15, 1936	5.37	6,790		June 29, 1944	4.79	4,940
	Apr. 25, 1936	5.10	6,070				
	May 16, 1936	4.94	5,710	1945	June 8, 1945	4.61	4,490
	June 4, 1936	5.50	7,030		June 27, 1945	4.46	4,270

a Annual peak only; result of failure of Wise River Reservoir dam.
b Annual peak only (observed).

Peak stages and discharges of Big Hole River near Melrose, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 9, 1946	4.63	4,600	1956	Apr. 23, 1956	4.72	4,680
	May 30, 1946	5.16	5,750		May 12, 1956	4.36	3,900
					May 27, 1956	7.19	11,800
1947	Apr. 20, 1947	4.44	4,240		June 18, 1956	4.35	3,880
	May 10, 1947	7.45	13,600				
	June 11, 1947	5.17	5,630	1957	May 21, 1957	6.13	8,940
					June 5, 1957	5.71	7,410
1948	Apr. 18, 1948	6.5	9,500				
	June 3, 1948	7.76	14,100	1958	May 13, 1958	4.64	4,600
	July 4, 1948	4.0	3,810		May 25, 1958	6.05	8,270
					June 6, 1958	5.48	6,740
1949	Apr. 19, 1949	4.91	5,430		June 13, 1958	5.34	6,420
	Apr. 28, 1949	4.61	4,680		June 25, 1958	4.30	4,050
	May 17, 1949	5.78	7,760				
	June 2, 1949	5.88	8,040	1959	Apr. 16, 1959	-	(c)
					May 18, 1959	4.04	3,500
1950	June 22, 1950	6.16	8,860		June 9, 1959	5.83	7,900
					June 16, 1959	5.44	6,900
1951	Apr. 9, 1951	4.33	3,810		June 27, 1959	4.80	5,300
	Apr. 13, 1951	4.13	3,400				
	May 13, 1951	5.66	6,670	1960	Mar. 28, 1960	5.17	6,180
	May 25, 1951	5.80	7,060		Apr. 5, 1960	4.59	4,710
	June 16, 1951	5.01	5,120		Apr. 7, 1960	4.40	4,250
					May 13, 1960	4.53	4,760
1952	Apr. 20, 1952	5.75	7,680		June 5, 1960	4.99	5,840
	May 17, 1952	5.62	7,320				
	June 27, 1952	4.01	3,540	1961	May 30, 1961	4.88	5,350
					June 13, 1961	4.92	5,450
1953	June 4, 1953	7.02	11,500				
	June 14, 1953	6.57	9,490	1962	Apr. 17, 1962	4.94	5,500
					May 22, 1962	4.74	4,920
1954	May 21, 1954	5.11	5,710		June 4, 1962	4.60	4,470
	June 12, 1954	4.32	3,960		June 15, 1962	5.17	5,950
	June 28, 1954	5.01	5,580				
				1963	June 5, 1963	5.57	7,200
1955	May 23, 1955	4.29	3,760		June 24, 1963	5.08	6,020
	June 16, 1955	5.37	6,240				
	July 2, 1955	4.57	4,350				

c Unknown; probably exceeded base discharge.

260. Birch Creek near Glen, Mont.

Location.--Lat 45°22'45", long 112°47'50", in SE¼SE¼ sec.23, T.5 S., R.10 W., on left bank 2¼ miles downstream from Sheep Creek and 8 miles southwest of Glen.

Drainage area.--36.0 sq mi.

Gage.--Recording. At site 1½ miles upstream at different datum prior to Nov. 16, 1949. Altitude of gage is 5,860 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 160 cfs.

Remarks.--Some regulation at lakes in headwaters. Water diverted from Willow Creek basin into Birch Creek above station materially affects peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 28, 1946	3.26	90	1956	June 6, 1956	-	246
1947	June 18, 1947	3.42	140	1957	Nov. 17, 1956	a3.97	-
1948	Dec. 12, 1947	a4.75	-		June 6, 1957	-	200
	June 3, 1948	-	175	1958	Mar. 12, 1958	a4.41	-
1949	Dec. 9, 1948	a4.14	-		May 23, 1958	-	228
	May 16, 1949	-	139	1959	Mar. 14, 1959	a4.48	-
1950	Mar. 13, 1950	a4.09	-		June 16, 1959	-	b180
	June 22, 1950	-	206	1960	Nov. 15, 1959	a5.33	-
					June 3, 1960	-	130
1951	June 16, 1951	3.25	144				
1952	June 7, 1952	3.32	173	1961	May 26, 1961	4.13	-
1953	June 13, 1953	3.65	223		June 12, 1961	-	195
				1962	June 16, 1962	-	147
1955	June 29, 1955	3.71	166		Aug. 10, 1962	4.43	-
				1963	June 14, 1963	4.51	-
1956	Jan. 30, 1956	a4.50	-		June 21, 1963	-	362

a Backwater from ice. b Maximum daily discharge.

265. Jefferson River near Twin Bridges, Mont.

Location.--Lat 45°36'50", long 112°19'45", in SE¼SW¼ sec.34, T.2 S., R.6 W., on left bank 250 ft upstream from private bridge, an eighth of a mile upstream from Hell Canyon Creek, 4 miles downstream from confluence of Beaverhead and Big Hole Rivers, and 5 miles north of Twin Bridges.

Drainage area.--7,632 sq mi.

Gage.--Nonrecording at site 250 ft downstream at datum 4.46 ft lower August 1940 to September 1943; recording at present site and datum since October 1957. Altitude of gage is 4,560 ft (from topographic map).

Stage-discharge relation.--Fairly stable at high flows. Defined by current-meter measurements below 11,000 cfs at former site and below 7,900 cfs at present site.

Remarks.--Diversions for irrigation of about 300,000 acres above station. Some regulation by Lima Reservoir (usable capacity, 84,050 acre-ft) and Ruby River Reservoir (total capacity, 38,950 acre-ft). Diversions and regulations do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	May 28, 1942	12.53	13,200	1960	Mar. 29, 1960	-	6,270
1943	June 1, 1943	11.94	10,200				
				1961	June 13, 1961	5.89	5,460
1958	May 27, 1958	7.04	8,140	1962	June 16, 1962	6.42	6,820
1959	June 10, 1959	6.94	8,040	1963	Feb. 4, 1963	a7.28	-
1960	Jan. 18, 1960	a6.31	-		June 25, 1963	-	8,240

a Backwater from ice.

270. Jefferson River near Silverstar, Mont.

Location.--Lat 45°39', long 112°18', in SW¼ sec.23, T.2 S., R.6 W., on highway bridge half a mile west of Ironrod, 4 miles southwest of Silverstar, and 7 miles downstream from confluence of Beaverhead and Big Hole Rivers.

Drainage area.--7,683 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,550 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs.

Remarks.--Diversions for irrigation of about 300,000 acres above station. Peaks are principally from snowmelt. Base for partial-duration series, 4,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 16, 1911	6.4	9,280	1916	June 23, 1916	7.75	13,500
1912	June 15, 1912	7.9	13,400	1921	June 11, 1921	7.8	13,500
1913	Apr. 16, 1913	5.6	7,260	1922	May 8, 1922	5.2	6,220
	May 13, 1913	6.1	8,610		May 27, 1922	7.1	11,400
	May 30, 1913	8.5	15,600		June 11, 1922	7.8	13,500
	June 15, 1913	9.0	17,100		June 17, 1922	7.5	12,600
	June 29, 1913	6.1	8,610				
				1923	May 29, 1923	5.65	7,400
1914	May 11, 1914	4.9	5,440		June 14, 1923	5.20	6,220
	May 24, 1914	5.75	7,660		June 27, 1923	5.70	7,530
	June 6, 1914	6.25	9,030				
				1924	May 19, 1924	4.80	5,240
1915	Apr. 22, 1915	4.4	4,320				
	May 2, 1915	4.5	4,550	1925	May 24, 1925	5.60	7,260
	May 21, 1915	4.7	5,010		June 6, 1925	6.20	8,890
	June 7, 1915	5.1	5,970		June 23, 1925	5.40	6,730
	June 15, 1915	5.6	7,260				
	July 11, 1915	5.1	5,970	1926	Apr. 20, 1926	4.65	4,900
1916	May 7, 1916	5.55	7,120	1927	Apr. 30, 1927	5.10	5,970

Peak stages and discharges of Jefferson River near Silverstar, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 20, 1927	5.30	6,470	1934	May 11, 1934	3.98	3,410
	June 15, 1927	10.0	a20,300				
				1935	June 14, 1935	4.70	4,960
1928	Apr. 28, 1928	5.40	9,730				
	May 13, 1928	7.10	11,400	1936	Apr. 16, 1936	4.80	5,200
	May 28, 1928	6.80	10,600		Apr. 20, 1936	4.80	5,200
					Apr. 25, 1936	5.20	6,210
1929	Apr. 30, 1929	4.40	4,550		May 16, 1936	5.20	6,210
	May 26, 1929	4.80	5,480		June 5, 1936	5.47	7,000
	June 19, 1929	5.80	8,070				
				1937	Mar. 6, 1937	b5.50	-
1930	Apr. 10, 1930	5.40	7,480		May 8, 1937	3.39	2,090
	Apr. 26, 1930	4.20	4,210				
				1938	May 30, 1938	5.50	6,730
1931	Apr. 14, 1931	3.40	2,460		June 25, 1938	4.90	5,200
					July 4, 1938	7.50	12,400
1932	May 15, 1932	4.20	4,210				
	May 23, 1932	4.80	5,700	1939	Apr. 5, 1939	4.50	4,350
	June 8, 1932	5.20	6,700		May 6, 1939	5.00	5,470
	June 19, 1932	5.30	6,960		May 24, 1939	4.95	5,360
1933	June 11, 1933	6.1	9,130				

a Affected by failure of Wise River Reservoir.
b Backwater from ice.

FISH CREEK BASIN

277. Fish Creek near Silverstar, Mont.

Location.--Lat 45°46', long 112°15', in NW¼ sec.8, T.1 S., R.5 W., at bridge on county road, 6 miles north of Silverstar.

Drainage area.--39.5 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,800 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 6, 1959	1.15	166	1962	June 3, 1962	0.95	115
1960	May 13, 1960	.91	105	1963	June 11, 1963	1.16	141
1961	Apr. 4, 1961	1.13	160				

PIPESTONE CREEK BASIN

285. Little Pipestone Creek near Whitehall, Mont.

Location.--Lat 45°50', long 112°17', in NE¼ sec.13, T.1 N., R.6 W., 500 ft downstream from Rader Creek and 9 miles west of Whitehall.

Drainage area.--30.7 sq mi.

Gage.--Nonrecording. At different datum prior to Oct. 1, 1938. Altitude of gage is 4,820 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs.

Remarks.--Diversions for irrigation of about 250 acres do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	July 4, 1935	2.30	74	1938	July 1, 1938	3.0	175
				1939	Mar. 19, 1939	1.22	12.2
1936	June 25, 1936	1.10	8.8	1940	May 4, 1940	.87	7.7
1937	Apr. 20, 1937	1.05	7.2				

303. Jefferson River tributary No. 2 near Whitehall, Mont.

Location.--Lat 45°53', long 111°59', in SE¼ sec.33, T.2 N., R.3 W., at culvert on State Highway 281, 6 miles east of Whitehall.

Drainage area.--4.50 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,330 ft (from topographic map).

Stage-discharge relation.--Defined by computation of flow through culvert using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 24, 1958	4.45	169	1961	Sept.11, 1961	1.32	34
1959	Apr. 6, 1959	2.37	71	1962	-	-	(a)
1960	-	-	(a)	1963	Feb. 2, 1963	1.38	39

a No evidence of flow during year.

BOULDER RIVER BASIN

305. Boulder River above Rock Creek, near Basin, Mont.
(Published as "at CCC camp, near Bernice" April to September 1936)

Location.--Lat 46°15'10", long 112°30'10", in SW¼ sec.20, T.6 N., R.7 W., on left bank half a mile upstream from Rock Creek, 2 miles upstream from Thunderbolt Creek, and 12 miles west of Basin.

Drainage area.--19.4 sq mi.

Gage.--Recording. Altitude of gage is 6,260 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 270 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 10, 1947	2.84	a143	1952	May 15, 1952	2.38	100
					June 6, 1952	1.93	50
1948	Apr. 22, 1948	-	(b)				
	Apr. 30, 1948	-	(b)	1953	May 26, 1953	2.16	70
	May 19, 1948	3.72	582		May 30, 1953	2.62	128
	June 3, 1948	3.12	253		June 3, 1953	3.39	334
	June 9, 1948	2.60	110		June 8, 1953	3.34	285
	June 11, 1948	2.88	170				
				1955	May 8, 1955	c2.88	-
1949	Apr. 27, 1949	2.13	54		May 12, 1955	2.70	a112
	May 15, 1949	2.16	62		May 20, 1955	2.40	78
					May 28, 1955	2.20	62
1950	May 16, 1950	2.50	95		June 17, 1955	2.10	54
	May 19, 1950	2.42	85		June 30, 1955	2.08	52
	May 21, 1950	2.22	64		July 5, 1955	2.08	52
	May 28, 1950	2.10	55		July 10, 1955	2.19	61
	June 12, 1950	2.19	61		July 12, 1955	2.16	59
	June 17, 1950	2.03	51				
				1956	Apr. 21, 1956	2.52	87
1951	May 8, 1951	2.53	108		May 10, 1956	2.48	81
	May 12, 1951	2.58	115		May 22, 1956	2.47	106
	May 24, 1951	2.51	104				
	June 7, 1951	2.40	90	1957	May 1, 1957	2.37	97
					May 6, 1957	1.94	52
1952	Apr. 20, 1952	-	(b)		May 20, 1957	2.65	140
	Apr. 26, 1952	3.34	321		June 8, 1957	2.02	59
	May 4, 1952	2.51	118				

a Annual peak only.
b Not known; probably exceeded base discharge.
c Backwater from ice.

330. Boulder River near Boulder, Mont.

Location.--Lat 46°12'40", long 112°05'25", in NE¼SW¼ sec.3, T.5 N., R.4 W., on left bank at downstream side of highway bridge, three-quarters of a mile downstream from Muskrat Creek and 2 miles southeast of Boulder.

Drainage area.--381 sq mi.

Gage.--Nonrecording prior to Aug. 29, 1946; recording thereafter. Altitude of gage is 4,810 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs.

Remarks.--Diversions for irrigation of about 3,500 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 420 cfs. Only annual observed peaks are shown prior to 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	May 25, 1929	9.90	1,480	1952	May 16, 1952	8.90	935
1930	Apr. 26, 1930	8.60	778		June 6, 1952	7.96	479
1931	May 18, 1931	7.86	418	1953	June 3, 1953	9.91	1,900
1932	May 14, 1932	9.02	962		June 13, 1953	9.74	1,660
1934	Apr. 25, 1934	8.06	468	1954	May 20, 1954	8.26	634
1935	May 24, 1935	8.12	488		June 5, 1954	7.96	487
					June 11, 1954	8.05	515
1936	June 7, 1936	8.12	448				
1937	May 10, 1937	7.86	430	1955	May 6, 1955	8.00	495
1938	May 28, 1938	10.24	1,830		May 22, 1955	8.29	598
1939	Apr.30, May 4, 1939	-	769		June 17, 1955	8.71	839
					July 1, 1955	7.77	430
1940	May 11, 1940	8.46	662		July 5, 1955	7.78	438
					July 11, 1955	8.21	616
1941	June 6, 1941	8.36	592				
1942	May 26, 1942	9.98	1,640	1956	Apr. 22, 1956	7.88	441
1943	May 29, 1943	9.78	1,630		May 11, 1956	8.14	551
1944	June 16, 1944	8.94	790		May 22, 1956	9.71	1,760
1945	June 4,7,10, 11, 1945	8.56	595				
				1957	May 6, 1957	8.47	706
					May 14, 1957	8.85	923
1946	May 28, 1946	8.43	555		May 20, 1957	9.01	1,030
					June 17, 1957	7.80	438
1947	Apr. 15, 1947	8.15	554				
	May 9, 1947	9.69	1,620	1958	Apr. 19, 1958	8.02	503
	June 3, 1947	8.34	635		May 7, 1958	8.78	911
	June 11, 1947	9.01	995		May 12, 1958	9.10	1,100
	June 28, 1947	7.87	455		May 21, 1958	9.37	1,280
					June 4, 1958	8.36	647
1948	Apr. 18, 1948	8.25	612		June 12, 1958	8.68	804
	Apr. 22, 1948	8.36	662		June 24, 1958	7.84	434
	Apr. 30, 1948	8.28	626				
	May 22, 1948	10.37	2,620	1959	Apr. 6, 1959	7.95	467
	June 4, 1948	10.18	2,340		May 16, 1959	8.35	620
	July 2, 1948	7.90	462		June 7, 1959	9.39	1,260
					June 26, 1959	8.11	539
1949	Apr. 20, 1949	7.90	529				
	Apr. 29, 1949	7.81	492	1960	Mar. 28, 1960	8.07	531
	May 17, 1949	8.64	878		Apr. 6, 1960	8.11	555
	June 2, 1949	7.76	431		May 13, 1960	9.21	1,180
					June 3, 1960	9.07	1,080
1950	May 18, 1950	8.09	560				
	May 23, 1950	8.55	800	1961	May 27, 1961	9.37	1,220
	May 28, 1950	8.79	944				
	June 6, 1950	8.94	1,040	1962	Apr. 20, 1962	8.37	620
	June 16, 1950	8.95	1,040		May 11, 1962	8.28	580
					May 24, 1962	8.82	839
1951	May 12, 1951	8.89	929		June 14, 1962	8.31	593
	May 24, 1951	9.33	1,250				
	June 15, 1951	8.53	725	1963	May 1, 1963	8.00	467
					May 8, 1963	8.21	551
1952	Apr. 20, 1952	8.69	810		May 26, 1963	9.42	1,320
	Apr. 28, 1952	8.85	905		June 21, 1963	8.06	511
	May 4, 1952	9.08	1,060				

340. South Boulder River near Jefferson Island, Mont.
(Previously published as "South Boulder Creek")

Location.--Lat 45°39', long 112°01', in SW¼ sec.18, T.2 S., R.3 W., 200 ft upstream from diversion dam of Liberty-Montana Mines Co. and 14 miles south of Jefferson Island.

Drainage area.--27.5 sq mi.

Gage.--Recording, except nonrecording at about 7 ft lower datum Oct. 1, 1931, to May 10, 1933. Altitude of gage is 5,400 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Remarks.--No diversions or regulation above station. Peaks are principally from snowmelt. Base for partial-duration series, 140 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	May 5, 1926	-	(a)	1929	June 16, 1929	3.50	434
	May 20, 1926	2.62	227		June 28, 1929	2.76	215
	May 24, 1926	2.68	243				
	June 5, 1926	2.50	195	1930	May 30, 1930	2.32	150
	July 8, 1926	2.52	200		June 11, 1930	2.50	195
					June 17, 1930	2.32	150
1927	June 26, 1927	3.08	359				
	July 4, 1927	2.81	281	1931	June 2, 1931	2.35	157
1928	May 26, 1928	2.91	253	1932	June 18-22,24, 1932	9.40	135
	June 26, 1928	2.41	143				
1929	May 24, 1929	2.41	143	1933	June 10, 1933	2.84	305

a Not determined; probably exceeded base discharge.

MISSOURI RIVER MAIN STEM

345. Jefferson River at Sappington, Mont.

Location.--Lat 45°48'15", long 111°45'05", in SE¼ sec.29, T.1 N., R.1 W., on right bank at upstream side of bridge on State Highway 287, 1 mile northeast of Sappington and 5½ miles upstream from Willow Creek.

Drainage area.--9,277 sq mi.

Gage.--Nonrecording at railroad bridge 1½ miles upstream at different datum 1895 to 1905; recording at present site and datum since August 1938. Altitude of gage is 4,170 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs and extended above by logarithmic plotting at former site. Defined by current-meter measurements below 17,000 cfs at present site.

Remarks.--Diversions for irrigation of about 345,000 acres above station. Regulation by Lima Reservoir (usable capacity, 84,050 acre-ft) and since 1938 by Ruby River Reservoir (total capacity, 38,950 acre-ft) do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 6,000 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1895	May 24, 1895	2.01	3,330	1940	Mar. 1, 1940	a6.90	-
					May 29, 1940	5.84	4,060
1897	May 19, 1897	4.50	11,040				
1898	May 30, 1898	6.05	10,130	1941	Dec. 13, 1940	a8.29	-
1899	June 23, 1899	9.65	21,000		June 8, 1941	7.33	6,680
1900	May 16, 1900	6.60	10,300				
				1942	Apr. 14, 1942	7.86	8,700
1901	May 20, 1901	6.30	9,325		May 30, 1942	9.79	14,500
1902	May 31, 1902	6.60	10,300		June 13, 1942	9.43	13,400
1903	June 7, 1903	6.40	9,770				
1904	May 26, 1904	6.65	10,400	1943	Apr. 22, 1943	7.21	7,150
1905	June 28, 1905	4.70	5,485		June 3, 1943	9.09	12,700
					June 22, 1943	8.56	11,000
1939	May 26, 1939	6.91	6,000				

a Backwater from ice.

Peak stages and discharges of Jefferson River at Sappington, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	June 13, 1944	8.50	10,900	1954	July 1, 1954	6.37	5,580
	July 1, 1944	7.85	9,070				
				1955	Mar. 30, 1955	a7.57	-
1945	Dec. 28, 1944	a7.17	-		June 18, 1955	6.98	6,910
	June 10, 1945	6.75	6,200				
				1956	Dec. 23, 1955	a10.12	-
1946	May 31, 1946	7.05	6,600		May 29, 1956	9.37	13,300
1947	May 12, 1947	9.68	12,800	1957	May 23, 1957	8.35	10,500
	June 13, 1947	8.47	9,830		June 7, 1957	7.79	8,880
1948	Apr. 20, 1948	-	8,670	1958	May 14, 1958	6.54	6,020
	June 6, 1948	10.97	19,900		May 27, 1958	7.76	8,780
					June 14, 1958	7.51	8,140
1949	Dec. 26, 1948	a8.98	-		June 26, 1958	6.52	6,100
	May 19, 1949	7.68	8,040				
	June 4, 1949	7.91	8,540	1959	June 9, 1959	7.77	8,650
					June 17, 1959	7.25	7,380
1950	June 22, 1950	8.29	10,200		June 28, 1959	6.86	6,540
1951	Jan. 24, 1951	a9.53	-	1960	Nov. 19, 1959	a10.17	-
	May 26, 1951	7.85	8,410		June 6, 1960	6.57	5,960
	June 18, 1951	6.70	6,020				
				1961	Jan. 6, 1961	a6.82	-
1952	Apr. 21, 1952	7.06	6,960		May 31, 1961	6.48	5,790
	May 17, 1952	7.80	8,730				
				1962	June 17, 1962	7.02	7,190
1953	Dec. 2, 1952	a11.66	-				
	June 16, 1953	9.00	12,200	1963	Feb. 3, 1963	a9.22	-
					June 8, 1963	7.42	8,110
1954	Jan. 20, 1954	a6.64	-				

a Backwater from ice.

WILLOW CREEK BASIN

350. Willow Creek near Harrison, Mont.

Location.--Lat 45°43'20", long 111°44'20", in SW¼NW¼ sec.28, T.1 S., R.1 W., on right bank 1¾ miles upstream from Willow Creek Dam, 2½ miles northeast of Harrison, and 11 miles upstream from mouth.

Drainage area.--83.8 sq mi.

Gage.--Recording. At datum 0.22 ft higher prior to Oct. 8, 1946. Altitude of gage is 4,750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 300 cfs and extended above by logarithmic plotting.

Remarks.--Diversions for irrigation of about 12,500 acres materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	July 3, 1938	2.52	196	1952	July 12, 1952	-	201
1939	May 5, 1939	1.78	80	1953	Apr. 11, 1953	a2.59	-
1940	June 7, 1940	2.38	158		June 19, 1953	-	198
				1954	Apr. 1, 1954	a1.90	-
1941	June 18, 1941	2.68	174		May 22, 1954	-	118
1942	June 10, 1942	2.95	265	1955	Jan. 2, 1955	a2.33	-
1943	June 22, 1943	3.09	246		June 17, 1955	-	143
1944	June 27, 1944	4.05	725				
1945	June 27, 1945	2.66	162	1956	Feb. 26, 1956	a2.71	-
					May 29, 1956	-	242
1946	June 6, 1946	2.51	175	1957	June 9, 1957	2.57	259
1947	Jan. 4, 1947	a2.89	-	1958	June 25, 1958	2.52	251
	June 21, 1947	-	264	1959	June 26, 1959	2.17	204
1948	June 4, 1948	2.83	301	1960	Mar. 18, 1960	a2.84	-
1949	Dec. 28, 1948	a2.65	-		May 13, 1960	-	146
	May 17, 1949	-	188				
1950	June 22, 1950	2.07	182	1961	June 14, 1961	2.04	177
				1962	Dec. 19, 1961	a2.32	-
1951	Feb. 2, 1951	a2.42	-		June 21, 1962	-	174
	June 17, 1951	-	115	1963	Feb. 3, 1963	4.24	813
1952	Dec. 19, 1951	a2.37	-				

a Backwater from ice.

355. Norwegian Creek near Harrison, Mont.

Location.--Lat 45°40'40", long 111°43'10", in SW¼ sec.10, T.2 S., R.1 W., on left bank 3 miles upstream from Willow Creek Reservoir and mouth and 3 miles southeast of Harrison.

Drainage area.--22.4 sq mi.

Gage.--Recording. Cone-type weir at datum 0.27 ft higher Apr. 22, 1938, to July 4, 1943. Concrete weir at present datum since Sept. 4, 1946. Altitude of gage is 4,750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 20 cfs.

Remarks.--Diversions into and out of basin may materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	June 29, 1938	1.43	19	1947	Jan. 29, 1947	a3.36	-
1939	Nov. 3, 1938	1.56	22	1948	Jan. 15, 1948	a2.53	-
1940	Apr. 24, 1940	1.58	19		July 20, 1948	-	28
				1949	Nov. 8, 1948	a2.27	-
1941	Aug. 30, 1941	-	19		Apr. 12, 1949	-	22
	Sept.23, 1941	1.51	-	1950	Dec. 29, 1949	a3.32	-
1942	May 12,16,27, 29, 1942	1.58	21		Sept. 9, 1950	-	19
1943	June 2, 1943	1.48	23	1951	Nov. 17, 1950	a2.41	-
					Apr. 1, 1951	-	21
1947	Oct. 5, 1946	-	26				

a Backwater from ice.

365. Willow Creek near Willow Creek, Mont.

Location.--Lat 45°45'00", long 111°39'30", in SW¼NW¼ sec.18, T.1 S., R.1 E., on left bank at upstream side of highway bridge, 4 miles downstream from Willow Creek Reservoir, 5½ miles south of town of Willow Creek, and 6 miles upstream from mouth.

Drainage area.--165 sq mi.

Gage.--Nonrecording prior to Nov. 29, 1949; recording thereafter. At different datum prior to Dec. 10, 1932. At site half a mile downstream at different datum Oct. 1, 1947, to Nov. 28, 1949. Altitude of gage is 4,340 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2°0 cfs at present site. Defined by current-meter measurements below 140 cfs and extended above by logarithmic plotting at site used Oct. 1, 1947, to Nov. 28, 1949.

Remarks.--Flow regulated since 1937 by Willow Creek Reservoir (total capacity, 18,000 acre-ft). Diversions for irrigation of about 12,800 acres above station. Regulation and diversions materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	June 17, 1920	4.80	295	1947	Jan. 28, 1947	4.04	246
				1948	July 31, 1948	5.20	650
1921	June 9, 1921	4.72	280	1949	Nov. 26, 1948	-	114
1922	June 21, 1922	3.40	456		Feb. 20, 1949	a3.42	-
1923	June 19, 1923	2.96	388	1950	July 8, 1950	3.74	132
1924	Apr. 8, 1924	2.11	143				
1925	June 22, 1925	2.54	247	1951	May 31, 1951	3.71	129
				1952	Dec. 9, 1951	a3.98	-
1926	May 8,11, 1926	2.08	149		June 10, 1952	-	149
1927	June 13, 1927	3.32	330	1953	June 20, 1953	4.29	204
1928	May 29, 1928	2.74	191				
1929	June 24, 1929	3.00	251	1955	July 28, 1955	3.63	118
1931	June 2, 1931	2.18	99	1956	June 4, 1956	4.43	211
1932	June 16, 1932	3.16	192				

a Backwater from ice.

375. Madison River near West Yellowstone, Mont.
(Published as "near Yellowstone" prior to 1925)

Location.--Lat 44°39'20", long 111°04'00", in SW¼ sec.36, T.13 S., R.5 E. (unsurveyed), on left bank a quarter of a mile upstream from Riverside ranger station, 1½ miles east of West Yellowstone, and 12½ miles downstream from confluence of Firehole and Gibbon Rivers.

Drainage area.--420 sq mi.

Gage.--Nonrecording prior to Oct. 20, 1918, and recording or nonrecording Oct. 20, 1918, to June 29, 1930, at sites 2½ miles upstream at different datums; recording at present site and datum thereafter. Altitude of gage is 6,650 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 950 cfs. Only annual peaks are shown prior to 1919.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 21, 1914	2.25	1,400	1936	May 15, 1936	2.75	1,320
1915	June 1, 1915	1.9	1,040		June 1, 1936	2.65	1,190
1916	June 13, 1916	2.5	1,770	1937	Jan. 8, 1937	c10.0	-
1917	June 10, 1917	2.64	1,950		May 16, 1937	2.23	780
1919	May 11, 1919	4.35	1,110	1938	May 29, 1938	2.82	1,440
1920	May 24, 1920	2.04	1,220	1939	May 5, 1939	2.41	951
	June 9, 1920	4.58	1,510	1940	May 13, 1940	2.46	1,020
1921	June 11, 1921	4.55	1,440	1941	Dec. 17, 1940	c2.83	-
1922	June 2, 1922	4.46	1,300		May 14, 1941	2.42	973
	June 14, 1922	4.40	1,230	1942	Jan. 8, 1942	c3.31	-
1923	May 26, 1923	4.47	1,270		May 11, 1942	2.63	1,220
	June 23, 1923	4.23	966		June 5, 1942	2.38	973
1924	May 16, 1924	1.75	864	1943	Apr. 29, 1943	2.50	962
1925	Jan. 3, 1925	2.07	1,220		May 5, 1943	2.60	1,080
	June 23, 1925	4.23	954		June 1, 1943	3.43	2,090
	July 6, 1925	4.27	990		June 20, 1943	3.02	1,580
1926	May 4, 1926	-	(a)	1944	Jan. 8, 1944	c2.81	-
	May 21, 1926	4.27	1,010		May 19, 1944	2.46	951
1927	Apr. 3, 1927	-	(a)		June 9, 1944	2.62	1,130
	May 18, 1927	2.07	1,410	1945	May 11, 1945	2.57	1,060
	June 9, 1927	2.36	1,770		June 7, 1945	2.59	1,090
	Sept.10, 1927	1.80	1,000	1946	Apr. 30, 1946	2.63	1,110
1928	Nov. 10, 1927	1.75	968		May 9, 1946	2.65	1,130
	May 12, 1928	2.22	1,580		May 22, 1946	2.57	1,040
	May 27, 1928	2.25	1,550	1947	May 9,10, 1947	2.84	1,380
1929	May 25, 1929	2.02	1,330		June 10, 1947	2.70	1,210
1930	May 21, 1930	1.82	992		June 21, 1947	2.64	1,140
	May 30, 1930	-	b930	1948	May 22, 1948	2.86	1,400
1931	May 16, 1931	2.39	902	1949	May 16,17, 1949	2.74	1,280
1932	May 15, 1932	2.68	1,260	1950	May 24, 1950	2.67	1,190
	May 22, 1932	2.82	1,450		May 28, 1950	2.82	1,370
	June 9, 1932	2.52	1,050		June 7, 1950	2.92	1,490
	June 16, 1932	2.60	1,150		June 25, 1950	2.81	1,350
1933	June 2, 1933	2.63	1,160	1951	Feb. 3, 1951	c4.36	-
	June 10, 1933	2.59	1,110		May 12, 1951	2.53	979
1934	June 8, 1934	2.14	661		May 24, 1951	3.02	1,550
1935	May 26, 1935	2.54	1,060		May 28, 1951	3.10	1,660
	June 8, 1935	2.52	1,040	1952	May 4, 1952	2.86	1,400
					May 21, 1952	2.78	1,310
					June 25, 1952	2.61	1,110

a Not known; probably exceeded base discharge.
b Maximum daily.
c Backwater from ice.

Peak stages and discharges of Madison River near West Yellowstone, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 20, 1953	2.78	1,310	1958	May 24, 1958	2.68	1,160
	May 29, 1953	3.07	1,660				
	June 3, 1953	2.79	1,320	1959	May 16, 1959	2.52	1,010
					June 7, 1959	2.67	1,180
1954	May 17, 1954	2.89	1,440				
	June 11, 1954	2.62	1,120	1960	May 13, 1960	2.60	1,100
	June 16, 1954	2.88	1,430		June 14, 1960	2.55	1,040
1955	May 22, 1955	2.64	1,090	1961	May 26, 1961	2.67	1,180
	May 31, 1955	2.70	1,160				
	June 13, 1955	2.53	968	1962	May 13, 1962	2.95	1,410
					May 21, 1962	2.80	1,250
1956	Dec. 24, 1955	2.58	1,060				
	May 11, 1956	2.57	1,030	1963	May 9, 1963	2.78	1,240
	May 24, 1956	3.44	2,150		May 20, 1963	2.84	1,320
					June 11, 1963	2.79	1,220
1957	May 14, 1957	2.84	1,320				
	May 30, 1957	2.72	1,170				

400. Madison River near Cameron, Mont.

Location.--Lat 45°14'00", long 111°45'00", at center of south line of sec.8, T.7 S., R.1 W., on right bank 30 ft downstream from Varney Bridge, 1½ miles downstream from Wigwam Creek, and 4 miles northwest of Cameron.

Drainage area.--1,669 sq mi.

Gage.--Recording. Altitude of gage is 5,135 ft (from topographic map).

Stage-discharge relation.--Fairly stable. Defined by current-meter measurements below 5,500 cfs.

Remarks.--Peak flows are materially affected by regulation by Hebgen Lake (capacity, 344,700 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	June 7, 1952	4.61	6,670	1957	June 7, 1957	-	4,040
1953	June 13, 1953	4.18	5,240	1958	May 24, 1958	3.42	3,110
1954	June 28, 1954	3.80	4,150				
1955	Feb. 27, 1955	a8.37	-	1960	Oct. 24, 1959	4.09	4,890
	June 17, 1955	-	3,700				
				1961	May 30, 1961	2.75	1,730
1956	Feb. 23, 1956	a8.11	-	1962	Jan. 10, 1962	a8.83	-
	June 2, 1956	-	5,980		June 21, 1962	-	3,330
1957	Feb. 20, 1957	a8.69	-	1963	June 15, 1963	3.87	4,430

a Backwater from ice.

420. Madison River below Cherry Creek, near Norris, Mont.
(Published as near "Red Bluff" 1897-1902)

Location.--Lat 45°38'50", long 111°31'20", in SE¼ sec.19, T.2 S., R.2 E., 2 miles downstream from Cherry Creek, 7 miles northeast of Red Bluff, and 10 miles northeast of Norris.

Drainage area.--2,387 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,400 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 8,500 cfs.

Remarks.--Flow regulated by Ennis Lake since 1900 (usable capacity, 41,000 acre-ft); peak flows are materially affected since that date. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Madison River below Cherry Creek, near Norris, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1898	June 18, 1898	3.2	8,000	1902	June 1, 1902	3.0	6,140
1899	June 16, 1899	3.9	10,275	1903	June 10, 1903	2.93	6,145
1900	May 29, 1900	3.0	5,655	1904	May 25, June 3, 1904	3.2	6,735
1901	May 19, 1901	3.7	8,325	1905	June 6, 1905	2.34	3,974

425. Madison River near Three Forks, Mont.
(Published as "at Three Forks" prior to Oct. 1, 1928)

Location.--Lat 45°49'25", long 111°29'50", in SW¼NE¼ sec.20, T.1 N., R.2 E., 5 miles south of Three Forks and 8 miles upstream from mouth.

Drainage area.--2,511 sq mi.

Gage.--Nonrecording at site 6 miles downstream at different datums Aug. 24, 1893, to May 1, 1897, and Nov. 8, 1928, to Sept. 30, 1932; recording at described site and datum thereafter. Altitude of gage is 4,160 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,300 cfs at site 6 miles downstream and below 7,500 cfs at last site used.

Remarks.--Diversions for irrigation of about 31,000 acres above station. Flow regulated by Ennis Lake since 1900 (usable capacity, 41,000 acre-ft) and by Hebgen Lake since 1915 (usable capacity, 344,700 acre-ft). Peak flows are materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	June 1-4,1894	2.8	6,980	1942	June 10, 1942	5.83	6,650
1895	May 22-27,1895	1.3	3,880	1943	Jan. 18, 1943	b7.67	-
					June 2, 1943	6.42	7,840
1896	June 19, 1896	3.2	8,175	1944	June 28, 1944	5.63	5,940
				1945	June 22, 1945	4.81	4,040
1929	Sept. 4, 1929	3.58	3,280				
1930	Nov. 17, 1929	3.01	a1,780	1946	May 28, 1946	4.52	3,450
	Feb. 1, 1930	b6.63	-	1947	June 11, 1947	5.89	6,540
				1948	Feb. 8, 1948	b10.48	-
1931	Apr. 25, 1931	3.08	2,320		June 4, 1948	5.41	5,410
1932	May 18-21, 1932	3.62	3,600	1949	June 3, 1949	4.43	3,320
				1950	Jan. 7, 1950	b7.84	-
1942	Feb. 17, 1942	b9.98	-		June 17, 1950	4.96	4,170

a Maximum peak observed; maximum observed, 2,200 cfs Oct. 1, 1929 (stage falling).
b Backwater from ice.

GALLATIN RIVER BASIN

430. Taylor Creek near Grayling, Mont.

Location.--Lat 45°04'15", long 111°12'15", in NW¼NW¼ sec.11, T.9 S., R.4 E., on right bank half a mile upstream from mouth and 17 miles north of Grayling.

Drainage area.--98.0 sq mi.

Gage.--Recording. Altitude of gage is 6,600 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 830 cfs.

Remarks.--Small diversion for irrigation of 10 acres above station. Natural storage at lakes in headwaters. Diversion does not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 300 cfs.

Peak stages and discharges of Taylor Creek near Grayling, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 1, 1947	3.63	587	1952	May 4, 1952	3.65	630
	June 8, 1947	3.80	662		May 13, 1952	3.25	449
	June 20, 1947	3.99	753		May 21, 1952	2.96	339
	July 17, 1947	3.42	527		May 29, 1952	3.52	585
1948	May 21, 1948	3.84	735		June 6, 1952	4.32	1,020
	May 29, 1948	4.17	877		July 2, 1952	3.00	360
	June 3, 1948	4.23	905		July 11, 1952	3.26	476
	July 2, 1948	3.01	415	1953	May 28, 1953	2.88	346
1949	May 17, 1949	3.39	506		June 2, 1953	2.97	368
	May 21, 1949	3.13	405		June 13, 1953	4.12	884
	May 30, 1949	3.48	542		June 18, 1953	4.00	786
	June 6, 1949	3.55	570		June 23, 1953	3.57	580
	June 10, 1949	3.52	558		June 30, 1953	3.43	530
	June 18, 1949	3.08	388	1955	June 15, 1955	3.81	a715
1950	June 6, 1950	3.56	570	1956	May 26, 1956	4.11	878
	June 21, 1950	3.54	566		June 1, 1956	4.15	902
	July 1, 1950	3.32	478		June 10, 1956	3.89	750
	July 10, 1950	3.25	450		June 21, 1956	3.19	424
1951	May 23, 1951	3.58	566	1957	May 13, 1957	2.87	322
	May 28, 1951	3.53	546		June 4, 1957	3.93	872
	June 16, 1951	3.65	594		June 20, 1957	2.99	420
	July 4, 1951	2.86	308		June 30, 1957	3.22	503
	Aug. 4, 1951	3.16	416				

a Annual peak only.

432. Squaw Creek near Gallatin Gateway, Mont.

Location.--Lat 45°26', long 111°13', in SW¼ sec.34, T.4 S., R.4 E., at private bridge 10 miles south of Gallatin Gateway.

Drainage area.--40.4 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 5,460 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 7, 1959	2.20	420	1962	June 13, 1962	1.34	168
1960	May 12, 1960	1.66	147	1963	June 15, 1963	1.49	208
1961	May 26, 1961	1.47	200				

433. Logger Creek near Gallatin Gateway, Mont.

Location.--Lat 45°27', long 111°14', in SW¼ sec.28, T.4 S., R.4 E., at culvert on U.S. Highway 191, 10 miles south of Gallatin Gateway.

Drainage area.--2.48 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 5,340 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 15 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 7, 1959	1.03	20	1962	June 13, 1962	0.73	18
1960	May 12, 1960	.69	9	1963	May 27, 1963	.38	11
1961	May 26, 1961	.34	6				

435. Gallatin River near Gallatin Gateway, Mont.
(Published as West Gallatin River near Bozeman, 1889-94)

Location.--Lat 45°29'50", long 111°16'10", in SE¼SE¼ sec.7, T.4 S., R.4 E., on left bank a quarter of a mile downstream from Spanish Creek and 7½ miles south of Gallatin Gateway.

Drainage area.--825 sq mi.

Gage.--Nonrecording prior to Oct. 20, 1932, at several different sites and datums within three-quarters of a mile of present site; recording at present site thereafter. Datum of gage is 5,167.7 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs and extended above by logarithmic plotting at site used in 1892. Defined by current-meter measurements below 5,200 cfs at present site.

Remarks.--Diversions for irrigation of about 1,400 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 2,900 cfs. Only annual maximum observed peaks are shown prior to 1931.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	June 10, 1890	5.20	3,800	1948	June 4, 1948	5.77	6,740
					June 22, 1948	3.96	3,350
1891	June 7, 1891	4.45	2,975				
1892	June 20, 1892	7.70	8,060	1949	May 17, 1949	4.32	4,110
1893	June 12, 1893	7.00	6,800		May 29, 1949	4.07	3,560
1894	June 2, 1894	7.70	8,060		June 11, 1949	3.91	3,190
1931	June 2, 1931	4.23	2,940	1950	June 7, 1950	4.28	3,840
					June 22, 1950	4.89	5,030
1932	June 16, 1932	4.60	5,780		June 30, 1950	4.23	3,750
					July 11, 1950	3.95	3,240
1933	June 13, 1933	5.03	4,270	1951	May 24, 1951	4.69	3,940
1934	May 8, 1934	3.03	1,740		May 28, 1951	4.63	3,830
					June 17, 1951	4.52	3,640
1935	June 13, 1935	5.09	4,340	1952	May 4, 1952	4.57	4,580
1936	May 15, 1936	4.58	3,660		May 14, 1952	3.96	3,390
	June 1, 1936	4.11	2,990		June 6, 1952	5.71	6,910
1937	June 17, 1937	4.22	3,120	1953	June 13, 1953	5.28	6,010
					June 18, 1953	4.77	4,980
1938	May 29, 1938	4.90	4,400				
	June 6, 1938	5.00	4,550	1954	May 22, 1954	4.11	3,660
					June 27, 1954	4.21	3,790
1939	May 17, 1939	4.02	3,100				
	May 30, 1939	4.04	3,170	1955	June 16, 1955	4.42	4,480
					June 22, 1955	4.03	3,700
1940	June 1, 1940	4.17	3,310				
	June 13, 1940	4.39	3,660	1956	May 28, 1956	5.57	7,030
					June 2, 1956	5.49	6,820
1941	May 27, 1941	3.74	2,820		June 10, 1956	4.51	4,600
1942	May 26, 1942	4.42	4,450	1957	June 7, 1957	5.59	5,970
	June 9, 1942	5.32	6,050		June 21, 1957	4.05	3,220
1943	May 31, 1943	5.05	5,250	1958	May 24, 1958	5.08	5,010
	June 19, 1943	5.61	6,480				
				1959	June 7, 1959	5.46	5,720
1944	May 18, 1944	3.70	3,000		June 10, 1959	5.20	5,230
	May 30, 1944	3.84	3,240		June 15, 1959	6.23	7,230
	June 4, 1944	3.99	3,480				
	June 9, 1944	4.07	3,600	1960	May 13, 1960	4.28	3,710
	June 27, 1944	4.02	3,330		June 4, 1960	4.92	4,940
1945	June 6, 1945	3.75	2,970	1961	May 30, 1961	4.22	3,450
	June 24, 1945	4.55	4,450		June 4, 1961	4.32	3,670
1946	June 6, 1946	4.38	4,360	1962	May 10, 1962	3.82	2,950
					May 21, 1962	3.85	2,980
1947	May 9, 1947	4.30	3,980		June 3, 1962	4.32	3,760
	May 27, 1947	3.86	3,240		June 14, 1962	4.89	4,780
	June 9, 1947	4.46	4,240		July 14, 1962	4.08	3,380
	June 20, 1947	4.96	5,250				
				1963	May 30, 1963	4.61	4,170
1948	May 22, 1948	5.04	5,230		June 15, 1963	4.91	4,800
	May 29, 1948	5.63	6,440				

440. Gallatin River near Salesville, Mont.
(Published as "West Gallatin River" 1895-1905, 1910-13)

Location.--Lat 45°32', long 111°14', on north line of sec.33, T.3 S., R.4 E., at county road bridge, 4 miles south of Salesville (now called Gallatin Gateway) and 4 miles downstream from Spanish Creek.

Drainage area.--833 sq mi.

Gage.--Nonrecording. Altitude of gage is 5,050 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,900 cfs.

Remarks.--Diversions for irrigation of about 16,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1896	June 18, 1896	7.9	8,700	1904	May 24, 1904	7.2	5,775
1897	May 21, 1897	6.85	5,780	1905	June 13, 1905	5.3	2,700
1898	June 16, 1898	7.45	7,230				
1899	June 20, 1899	8.55	10,000	1912	June 12, 1912	7.2	5,860
1900	May 28, June 6, 1900	6.9	5,410	1913	May 28, 1913	7.8	6,940
				1921	June 11, 1921	8.32	6,390
1901	May 18, 1901	7.55	7,810	1922	May 25, 1922	8.5	7,460
1902	May 31, 1902	6.65	5,565	1923	June 9, 1923	7.2	5,120
1903	June 14, 1903	6.85	5,325				

465. East Gallatin River near Bozeman, Mont.

Location.--Lat 45°38'35", long 110°55'35", in SE¼ sec.24, T.2 S., R.6 E., on right bank 0.3 mile downstream from bridge on U.S. Highway 10 and 6 miles east of Bozeman.

Drainage area.--49.0 sq mi.

Gage.--Recording. Datum of gage is 5,044.1 ft above mean sea level, datum of 1929 (unadjusted).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs.

Remarks.--Diversions for irrigation of about 400 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 19, 1952	4.08	421	1961	May 2, 1961	3.03	90
1953	June 3, 1953	4.65	608	1962	Apr. 16, 1962	3.42	285
				1963	Apr. 27, 1963	4.11	400
1959	Apr. 1, 1959	3.9	337				
1960	May 8, 1960	3.64	248				

470. Bear Canyon Creek near Bozeman, Mont.

Location.--Lat 45°37'35", long 110°55'45", in NW¼ sec.36, T.2 S., R.6 E., on left bank 3 miles upstream from East Gallatin River and 6 miles southeast of Bozeman.

Drainage area.--17.0 sq mi.

Gage.--Recording. Datum of gage is 5,183.4 ft above mean sea level, datum of 1929 (unadjusted).

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs.

Remarks.--No regulation or diversion above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 26, 1952	2.84	149	1961	May 22, 1961	1.77	46
1953	June 3, 1953	3.40	450	1962	July 14, 1962	2.74	175
				1963	May 9, 1963	2.43	110
1959	May 1, 1959	2.2	150				
1960	May 12, 1960	2.62	202				

480. East Gallatin River at Bozeman, Mont.

Location.--Lat 45°42'00", long 111°01'45", near center of south line of sec.31, T.1 S., R.6 E., on left bank 100 ft upstream from highway bridge, 500 ft downstream from Bozeman Creek, half a mile upstream from Bridger Creek, and half a mile north of Bozeman.

Drainage area.--148 sq mi.

Gage.--Recording. Datum of gage is 4,701.6 ft above mean sea level, datum of 1929, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--Diversions for irrigation of about 4,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Apr. 21, 1940	3.92	320	1946	Apr. 20, 1946	3.90	329
	May 4, 1940	4.02	351				
	May 13, 1940	4.08	370	1947	Mar. 17, 1947	4.62	544
	June 9, 1940	4.41	482		Apr. 1, 1947	3.91	314
					Apr. 14, 1947	5.03	680
1941	Mar. 18, 1941	3.81	295		Apr. 21, 1947	4.32	405
					Apr. 30, 1947	4.28	377
1942	Apr. 15 1942	4.73	615		May 4, 1947	4.87	581
	Apr. 22, 1942	4.37	464		May 12, 1947	4.89	581
	May 24, 1942	4.12	384		June 10, 1947	6.06	1,070
	June 5, 1942	4.03	354				
				1948	Apr. 15, 1948	5.86	1,100
1943	Mar. 25, 1943	4.66	577		Apr. 23, 1948	5.56	852
	Mar. 28, 1943	4.04	369		Apr. 30, 1948	5.03	640
	Apr. 16, 1943	3.85	312		May 8, 1948	4.85	600
	June 3, 1943	4.29	454		May 21, 1948	6.04	1,170
					June 4, 1948	5.04	720
1944	Mar. 17, 1944	4.07	378		June 17, 1948	3.91	360
	Apr. 1, 1944	4.37	471		June 23, 1948	4.30	494
	June 10, 1944	4.22	410				
	June 17, 1944	3.99	329	1949	Jan. 17, 1949	a3.94	-
	June 27, 1944	4.82	577		Apr. 20, 1949	3.72	304
1945	Feb. 8, 1945	4.20	412	1950	Feb. 26, 1950	4.50	600
	May 14, 1945	3.87	305		Apr. 1, 1950	5.53	1,030
					Apr. 7, 1950	4.13	444
1946	Dec. 18, 1945	a4.69	-		May 18, 1950	4.60	592
	Mar. 28, 1946	4.03	367		May 23, 1950	3.96	363

a Backwater from ice.

Peak stages and discharges of East Gallatin River at Bozeman, Mont.--Cortinued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 28, 1950	3.78	307	1956	Dec. 19, 1955	a4.33	-
					Feb. 17, 1956	a4.33	-
1951	Feb. 10, 1951	a5.8	(b)		Apr. 10, 1956	4.06	413
	Apr. 3, 1951	4.50	592		May 12, 1956	3.74	322
	May 6, 1951	4.50	569		May 25, 1956	4.18	451
	May 18, 1951	4.41	535				
				1957	June 21, 1957	4.56	585
1952	Apr. 20, 1952	5.24	734				
	Apr. 29, 1952	5.32	762	1958	Apr. 18, 1958	3.61	308
	May 9, 1952	4.51	489		May 7, 1958	3.99	422
	May 22, 1952	5.85	895				
	May 25, 1952	5.52	781	1959	Apr. 1, 1959	5.14	816
					May 1, 1959	4.50	592
1953	May 30, 1953	4.67	628		May 17, 1959	3.73	341
	June 4, 1953	6.09	1,240		May 27, 1959	3.72	333
	June 20, 1953	3.89	369		June 7, 1959	3.90	372
1954	Jan. 18, 1954	a4.17	-	1960	Mar. 25, 1960	a6.12	c500
	June 5, 1954	3.55	285		May 13, 1960	4.77	605
1955	May 6, 1955	4.26	460	1961	Jan. 27, 1961	a3.89	-
	May 22, 1955	4.06	395		May 27, 1961	3.29	207
	June 4, 1955	4.09	422				
	June 17, 1955	-	(b)				

a Backwater from ice. b Not known; probably exceeded base discharge.
c Maximum daily.

485. Bridger Creek near Bozeman, Mont.

Location.--Lat 45°42'20", long 110°57'40", in NE¼SE¼ sec.34, T.1 S., R.6 E., on right bank 3 miles upstream from mouth and 3 miles northeast of Bozeman.

Drainage area.--62.5 sq mi.

Gage.--Nonrecording prior to June 28, 1946; recording thereafter. Altitude of gage is 4,960 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 380 cfs.

Remarks.--Diversions for irrigation of about 1,200 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 140 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Apr.20,27, 1946	2.90	a158	1954	June 11, 1954	2.09	143
1947	Mar. 21, 1947	3.15	252	1955	May 8, 1955	2.03	141
	Apr. 13, 1947	3.61	346		June 4, 1955	2.27	185
	Apr. 30, 1947	2.74	180		June 16, 1955	2.09	152
	May 4, 1947	3.97	430				
	June 10, 1947	3.99	446	1956	May 22, 1956	2.64	293
1948	Apr. 23, 1948	3.52	327	1957	May 5, 1957	2.06	147
	Apr. 30, 1948	3.45	312				
	May 9, 1948	3.60	344	1958	May 12, 1958	2.22	185
	May 22, 1948	5.23	776				
	June 4, 1948	4.73	697	1959	Apr. 2, 1959	2.42	208
					Apr. 5, 1959	2.08	145
1949	Apr. 20, 1949	1.81	109		May 1, 1959	2.98	306
					May 9, 1959	2.27	154
1950	Apr. 1, 1950	2.96	318		May 16, 1959	2.57	206
	May 18, 1950	2.74	279		June 7, 1959	2.84	280
	May 23, 1950	2.69	269				
	May 28, 1950	2.37	208	1960	Mar. 23, 1960	b2.79	-
					Mar. 24, 1960	2.75	391
1951	May 6, 1951	2.57	246		Apr. 10, 1960	1.99	160
	May 13, 1951	2.62	256		May 13, 1960	2.66	358
	May 19, 1951	2.63	258				
				1961	May 27 1961	1.82	124
1952	Apr. 19, 1952	2.46	236				
	Apr. 29, 1952	3.08	362	1962	Apr. 20, 1962	2.32	252
	May 4, 1952	2.63	272		Apr. 25, 1962	2.26	234
	May 24, 1952	3.17	374		May 5, 1962	2.03	169
1953	May 30, 1953	3.65	583	1963	Feb. 5, 1963	2.52	237
	June 3, 1953	4.90	902		May 1, 1963	2.17	186
					May 12, 1963	2.63	267
1954	Mar. 31, 1954	b2.43	-		June 4, 1963	2.38	212

a Annual maximum only; observed. b Backwater from ice.

500. Hyalite Creek at Hyalite ranger station, near Bozeman, Mont.
(Published as "Middle Creek near Bozeman" prior to 1934)

Location.--Lat 45°33'40", long 111°04'10", in NW¼SE¼ sec.23, T.3 S., R.5 E., on right bank three-quarters of a mile south of Hyalite ranger station, 7¾ miles south of Bozeman, and 20 miles upstream from mouth.

Drainage area.--48.2 sq mi.

Gage.--Nonrecording at two sites about half a mile upstream at different datums prior to September 1934; recording thereafter. At site a quarter of a mile downstream at different datum Sept. 13, 1934, to May 13, 1948. Datum of gage is 5,539.6 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Subject to considerable shifting. Defined by current-meter measurements below 290 cfs for site a quarter of a mile downstream and below 410 cfs for present site.

Remarks.--Peak flows materially affected by regulation in Middle Creek Reservoir since March 1951. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1898	June 14, 1898	2.10	956	1949	May 16, 1949	2.77	338
1899	June 4,20, 1899	1.70	760	1950	June 22, 1950	2.77	295
1902	June 11, 1902	1.90	500	1951	Jan. 29, 1951	a3.92	-
					May 27, 1951	-	350
1935	June 13, 1935	2.18	441	1952	Jan. 23, 1952	a3.48	-
					June 4,6,7,1952	-	422
1936	June 1, 1936	2.42	205	1953	Mar. 18, 1953	a2.84	-
1937	Dec. 31, 1936	a5.43	-		June 3, 1953	-	472
	June 12, 1937	-	330	1954	Mar. 23, 1954	a2.47	-
1938	May 28, 1938	3.11	502		June 28, 1954	-	344
1939	Dec. 17, 1938	a3.60	-	1955	June 16, 1955	2.44	-
	May 16, 1939	-	286		June 25, 1955	-	364
1940	Feb. 23, 1940	a3.12	-				
	June 14, 1940	-	360	1956	Dec. 31, 1955	a3.31	-
					Mar. 28, 1956	-	516
1941	Dec.15-18, 1940	a4.01	-	1957	Feb. 21, 1957	a2.87	-
	June 5, 1941	-	206		June 5, 1957	-	335
1942	Jan. 3, 1942	a4.00	-	1958	Mar. 2, 1958	a3.12	-
	May 27, 1942	-	375		May 26, 1958	-	301
1943	Jan. 12, 1943	a3.91	-	1959	Jan. 5, 1959	a3.45	-
	June 20, 1943	-	341		June 15, 1959	-	600
1944	Jan. 8, 1944	a2.98	-	1960	Feb. 27, 1960	a3.49	-
	June 4, 1944	-	375		June 16, 1960	-	348
1945	Dec. 19, 1944	a3.81	-				
	June 23, 1945	-	300	1961	Jan. 27, 1961	a2.86	-
					June 10, 1961	-	245
1946	Jan. 23, 1946	a3.39	-	1962	Feb. 6, 1962	a3.92	-
	June 6, 1946	-	222		June 27, 1962	-	285
1947	June 9, 1947	2.91	347	1963	Mar. 4, 1963	a2.86	-
1948	Dec. 13, 1947	a3.90	-		June 15, 1963	-	360
	May 20, 1948	-	641				

a Backwater from ice.

525. Gallatin River at Logan, Mont.

Location.--Lat 45°53'10", long 111°26'20", in NE¼ sec.35, T.2 N., R.2 E., on right bank at former county road bridge site, half a mile west of Logan and 6 miles upstream from mouth.

Drainage area.--1,795 sq mi.

Gage.--Nonrecording prior to Oct. 8, 1941; recording thereafter. At several sites within half a mile of present site at various datums prior to Aug. 10, 1928. Datum of gage is 4,082.3 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 5,300 cfs at site used in 1904 and below 7,800 cfs at present site.

Remarks.--Diversions for irrigation of about 110,000 acres above station might materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 2,700 cfs. Only annual peaks are shown prior to 1942.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1895	June 24, 1895	3.90	3,904	1949	Dec. 25, 1948	a7.23	-
					May 18, 1949	6.26	3,900
1896	June 18, 1896	5.60	6,550		May 30, 1949	5.71	3,060
1897	May 26, 1897	4.70	6,460				
1898	June 19, 1898	5.25	7,300	1950	June 7, 1950	5.72	3,080
1899	June 21, 1899	6.25	9,840		June 22, 1950	6.29	3,940
1900	May 28, 1900	4.00	4,850				
				1951	Mar. 27, 1951	5.46	2,720
1902	June 1,11,14, 1902	4.40	4,430		May 25, 1951	6.41	4,140
1903	June 14, 1903	4.60	4,500	1952	Jan. 24, 1952	a7.94	-
1904	May 24, 1904	5.15	5,400		Apr. 7, 1952	5.53	2,810
1905	June 9, 1905	3.25	3,090		May 5, 1952	7.39	5,880
					May 15, 1952	6.71	4,660
1929	June 17, 1929	6.60	4,970		June 7, 1952	7.78	6,640
1930	May 31, 1930	5.36	2,820				
				1953	June 5, 1953	6.24	4,080
1931	June 3, 1931	5.46	2,970		June 14, 1953	7.34	5,930
1932	June 16, 1932	6.42	4,570				
1933	June 13, 1933	5.94	3,700	1954	Jan. 23, 1954	a7.18	-
					June 28, 1954	5.74	3,380
1935	June 14, 1935	6.10	3,990				
				1955	Jan. 7, 1955	a7.48	-
1936	May 15, 1936	6.30	4,370		June 16, 1955	6.18	4,050
1937	June 17, 1937	5.95	3,650				
1938	May 30 1938	6.90	5,590	1956	Dec. 19, 1955	a8.83	-
1939	May 6, 1939	5.40	2,790		Mar. 25, 1956	-	b2,700
1940	June 14, 1940	5.92	3,500		May 29, 1956	7.97	7,190
1941	June 6, 1941	4.80	1,990	1957	Feb. 5, 1957	a7.29	-
					June 9, 1957	6.79	4,990
1942	Jan. 3, 1942	a7.23	-		June 21, 1957	5.87	3,490
	May 27, 1942	6.33	4,550				
	June 9, 1942	7.10	5,940	1958	May 26, 1958	5.90	3,620
1943	Feb. 10, 1943	a8.94	-	1959	June 8, 1959	7.27	5,440
	Mar. 26, 1943	5.80	3,420		June 15, 1959	7.65	6,120
	Mar. 29, 1943	6.55	4,580		June 27, 1959	6.19	3,760
	June 2, 1943	7.0	5,310				
	June 20, 1943	7.50	6,160	1960	Jan. 17, 1960	a8.83	-
					Mar. 24, 1960	5.19	2,730
1944	June 10, 1944	6.00	3,720		May 13, 1960	6.34	4,320
	June 27, 1944	6.68	4,820		June 4, 1960	6.16	4,040
					June 16, 1960	5.32	2,750
1945	Dec. 27, 1944	a7.30	-				
	June 6, 1945	5.56	3,060	1961	May 30, 1961	4.88	2,160
	June 24, 1945	5.83	3,500				
				1962	Dec. 11, 1961	a8.50	-
1946	June 6, 1946	6.04	3,730		Apr. 25, 1962	5.56	3,090
	June 11, 1946	5.57	3,000		May 10, 1962	5.53	3,040
					June 4, 1962	5.91	3,640
1947	May 10, 1947	6.87	5,090		June 15, 1962	6.64	4,830
	June 10, 1947	7.18	5,620		July 14, 1962	5.50	3,100
	June 21, 1947	7.46	6,160				
				1963	Feb. 5, 1963	a11.88	b4,000
1948	June 5, 1948	8.40	7,870		June 5, 1963	6.19	4,130
	June 24, 1948	6.19	3,950		June 15, 1963	6.56	4,750

a Backwater from ice.
b Maximum daily.

545. Missouri River at Toston, Mont.

Location.--Lat 46°08'45", long 111°25'15", in NW¼ sec.36, T.5 N., R.2 E., on left bank 2 miles southeast of Toston, 4½ miles upstream from Crow Creek, and 7 miles downstream from Sixteenmile Creek.

Drainage area.--14,669 sq mi.

Gage.--Nonrecording at site 2 miles downstream at different datum prior to April 1941; recording at present site and datum thereafter. Altitude of gage is 3,920 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 535,000 acres do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	May 30, 1890	5.77	18,600	1946	June 1, 1946	7.41	11,800
				1947	June 10, 1947	9.89	21,800
1910	May 12, 1910	7.2	18,300	1948	June 6, 1948	11.77	32,000
				1949	May 18, 1949	8.19	14,700
1911	June 15, 1911	8.4	24,900	1950	June 23, 1950	8.96	17,500
1912	June 15, 1912	8.9	27,600				
1913	June 1, 1913	9.4	29,800	1951	May 25, 1951	8.51	15,600
1914	Feb. 12, 1914	a10.5	-	1952	June 8, 1952	9.72	20,700
	May 26,June 6, 1914	-	19,900	1953	June 16, 1953	10.00	22,000
				1954	June 30, 1954	7.65	12,200
1915	Jan. 29, 1915	a9.8	-	1955	June 17, 1955	8.17	14,300
	June 14, 1915	-	13,100				
				1956	May 30, 1956	10.65	25,100
1916	Jan. 12, 1916	a10.0	-	1957	June 8,9, 1957	8.92	17,300
	June 21, 1916	-	23,500	1958	May 26, 1958	8.23	15,000
				1959	June 16, 1959	9.08	18,000
1941	June 10, 1941	6.97	11,600	1960	May 14, 1960	7.46	12,100
1942	June 11, 1942	10.46	26,600				
1943	June 3, 1943	10.70	26,000	1961	May 31, 1961	6.52	8,700
1944	June 28, 1944	9.39	19,300	1962	June 17, 1962	8.16	14,300
1945	June 12, 1945	7.46	12,200	1963	June 16, 1963	8.62	16,300
				1964	June 12, 1964	10.00	22,000

a Backwater from ice.

CROW CREEK BASIN

555. Crow Creek near Radersburg, Mont.

Location.--Lat 46°15'45", long 111°41'10", in NE¼ sec.23, T.6 N., R.1 W., at Glendale ranger station, 0.9 mile upstream from Slim Sam Creek and 5½ miles northwest of Radersburg.

Drainage area.--78.0 sq mi. At site used prior to Apr. 17, 1924, 90 sq mi, approximately.

Gage.--Nonrecording at sites about 1 mile downstream at different datums prior to Apr. 17, 1924; recording thereafter. Altitude of gage is 4,820 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 560 cfs at site used prior to Apr. 17, 1924, and below 420 cfs at described site.

Remarks.--No regulation or diversion above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1901	May 3, 1901	5.20	700	1924	May 16, 1924	3.57	566
				1925	May 21, 1925	2.92	340
1920	July 14, 1920	a5.0	a1,000				
				1926	May 20, 1926	2.87	323
1921	May 26, 1921	2.40	362	1927	June 11, 1927	4.12	772
1922	June 15, 1922	3.35	586	1928	May 8, 1928	2.91	350
1923	May 26, 1923	3.05	516	1929	May 24, 1929	3.42	537

a Estimated.

566. Deep Creek below North Fork Deep Creek, near Townsend, Mort.

Location.--Lat 46°20', long 111°17', in SE¼ sec.25, T.7 N., R.3 E., at bridge on county road, 11 miles east of Townsend.

Drainage area.--87.7 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,450 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 170 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 7, 1959	2.15	290	1962	May 22, 1962	1.66	175
1960	June 4, 1960	2.00	254	1963	June 2, 1963	1.89	170
1961	May 24, 1961	1.60	83				

MISSOURI RIVER MAIN STEM

570. Missouri River near Townsend, Mont.
(Published as "at Townsend" or as Townsend station on Missouri River prior to 1901)

Location.--Lat 46°26'10", long 111°31'55", in SW¼NW¼ sec.30, T.7 N., R.2 E., at highway bridge, 1 mile northwest of Townsend.

Drainage area.--15,343 sq mi.

Gage.--Nonrecording. Datum of gage is 3,785.0 ft above mean sea level, Missouri River Commission datum. A correction of +16.0 ft is necessary to correct to datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 25,000 cfs.

Remarks.--Diversion above station for irrigation. Some regulation by Ennis Lake (usable capacity, 41,000 acre-ft) since 1900. Regulation and diversions do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown. Maximum observed discharges do not differ greatly from instantaneous peaks.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1892	June 22, 1892	95.1	34,700	1899	June 24, 1899	95.75	38,000
1893	June 14, 1893	94.5	31,000	1900	May 14, 1900	92.40	17,340
1894	June 4, 1894	95.7	38,400				
1895	May 22, 1895	91.9	15,400	1901	May 20, 1901	93.00	22,150
				1902	June 1, 1902	93.18	23,600
1896	June 20, 1896	94.90	32,500	1903	June 9, 1903	92.90	21,445
1897	May 22, 1897	93.00	21,300	1904	May 25, 1904	8.40	a25,410
1898	June 18, 1898	93.64	25,010				

a For period through May 31, 1904.

SPOKANE CREEK BASIN

587. Mitchell Gulch near East Helena, Mont.

Location.--Lat 46°34', long 111°49', in NW¼ sec.2, T.9 N., R.2 W., at culvert on U.S. Highway 12, 4.7 miles east of East Helena.

Drainage area.--8.09 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,060 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 90 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Mitchell Gulch near East Helena, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	March 1959	0.96	53	1962	Mar. 20, 1962	0.43	12
1960	Mar. 19, 1960	.32	6	1963	Feb. 4, 1963	1.41	107
1961	June 29, 1961	.27	2				

PRICKLY PEAR CREEK BASIN

610. Lump Gulch Creek at Zastrow's ranch, near Clancy, Mont.
(Published as Lump Gulch Creek near Clancy, 1908-13)

Location.--Lat 46°28'55", long 111°59'45", in NW¼NW¼ sec.4, T.8 N., R.3 W., 1 mile upstream from mouth and 1¼ miles northwest of Clancy.

Drainage area.--43.4 sq mi.

Gage.--Nonrecording. At datum 1.00 ft higher prior to Nov. 12, 1910. Altitude of gage is 4,220 ft (from topographic map).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 53 cfs.

Remarks.--Small diversions for irrigation and regulation from placer mining operations do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 9, 1909	2.5	106	1912	May 21, 1912	2.5	94
1910	Mar. 23, 1910	1.9	38	1913	May 27, June 10, 1913	1.9	52
1911	June 10, 1911	2.0	52				

615. Prickly Pear Creek near Clancy, Mont.

Location.--Lat 46°31'05", long 111°56'45", in NE¼SW¼ sec.23, T.9 N., R.3 W., on right bank 100 ft upstream from bridge on U.S. Highway 91, 3½ miles downstream from Lump Gulch Creek, 4 miles northeast of Clancy, and 7 miles southeast of Helena.

Drainage area.--192 sq mi.

Gage.--Nonrecording prior to Aug. 13, 1933; recording since October 1945. At site 2¼ miles upstream at different datum July 12, 1910, to Sept. 30, 1916, and July 28, 1921, to Aug. 12, 1933. Datum of gage is 4,067.1 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 460 cfs at present site and below 440 cfs at site used 1921-33.

Remarks.--Diversions for irrigation of about 700 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 140 cfs. Only annual observed peaks are shown prior to 1946.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 8, 1911	3.18	310	1924	May 24, 1924	2.19	161
1912	May 21, 1912	3.45	358	1925	June 1, 1925	2.21	164
1913	June 11, 1913	3.5	420				
1914	June 5, 1914	3.3	306	1926	May 20, 1926	2.68	213
1915	June 17, 1915	4.0	465	1927	June 9, 1927	-	a900
				1928	July 17, 1928	2.34	174
1916	June 28, 1916	3.9	441	1929	May 23, 1929	2.61	273
				1930	Apr. 21-27, 1930	-	189
1923	May 26, 1923	2.47	196				

a Partly estimated.

Peak stages and discharges of Prickly Pear Creek near Clancy, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	May 26, 1931	1.36	63	1953	June 4, 1953	4.98	476
1932	June 9, 1932	2.56	260		June 13, 1953	4.11	318
1933	June 2, 1933	1.96	142	1955	Mar. 29, 1955	b3.65	-
1946	May 6, 1946	2.73	135		June 17, 1955	3.54	220
1947	May 9, 1947	3.92	263		July 19, 1955	2.98	151
	June 9, 1947	4.50	333		July 25, 1955	3.00	153
1948	May 8, 1948	2.94	163	1956	Feb. 23, 1956	b3.95	-
	May 22, 1948	4.33	326		Mar. 23, 1956	3.05	180
	June 5, 1948	6.35	778		May 22, 1956	3.05	180
	June 17, 1948	3.78	260	1957	June 17, 1957	2.92	154
	June 23, 1948	3.69	249	1958	May 7, 1958	3.65	251
1949	May 17, 1949	2.91	167		May 12, 1958	3.52	235
	May 20, 1949	2.92	168		May 22, 1958	3.28	207
	June 3, 1949	-	150		June 4, 1958	3.18	195
	June 21, 1949	2.81	157		June 12, 1958	3.05	178
1950	Apr. 1, 1950	2.81	156	1959	Feb. 23, 1959	b3.52	-
	May 18, 1950	3.04	178		June 7, 1959	3.39	210
	May 23, 1950	3.20	198		June 26, 1959	2.96	160
	May 28, 1950	3.06	181	1960	May 13, 1960	3.71	256
	June 7, 1950	3.18	195		June 4, 1960	2.97	157
	June 18, 1950	3.61	246	1961	Jan. 4, 1961	b3.10	-
1951	Mar. 21, 1951	3.62	247		May 27, 1961	2.64	120
	May 12, 1951	2.89	162	1962	May 16, 1962	2.91	147
	May 24, 1951	2.89	162		May 25, 1962	3.74	235
	June 13, 1951	3.08	183		June 14, 1962	3.20	192
1952	Feb. 26, 1952	b3.28	-	1963	Feb. 5, 1963	5.12	486
	Apr. 6, 1952	3.21	193		May 26, 1963	2.88	159
	Apr. 29, 1952	2.89	158		June 11, 1963	2.69	142
	May 4, 1952	3.20	192	1964	June 9, 1964	6.01	c700
	May 16, 1952	3.13	184				
	May 26, 1952	2.89	158				

b Backwater from ice.
c Annual peak only.

620. Prickly Pear Creek at East Helena, Mont.

Location.--Lat 46°35'15", long 111°55'05", in NE¼NE¼ sec.36, T.10 N., R.3 W., at Northern Pacific Railroad bridge at East Helena.

Drainage area.--251 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,880 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 340 cfs.

Remarks.--Diversions for irrigation of about 2,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 19, 1909	2.5	535	1912	May 21, 1912	2.1	326
1910	(a)	1.5	140	1913	June 12, 1913	2.4	450
1911	June 7, 1911	2.0	288				

a Mar. 19-22, Apr. 9, May 10, 1910.

625. Tenmile Creek near Rimini, Mont.

Location.--Lat 46°31'30", long 112°15'20", in SW¼NE¼ sec.20, T.9 N., R.5 W., on left bank at Moose Creek ranger station, 500 ft upstream from Moose Creek and 3 miles north of Rimini.

Drainage area.--32.7 sq mi.

Gage.--Recording. At site 40 ft downstream at different datum prior to Dec. 17, 1934. Altitude of gage is 4,850 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs.

Remarks.--Some regulation by Chessman and Scott Reservoirs on tributaries above station (combined capacity, 2,340 acre-ft). Small diversion above station for water supply for city of Helena. Regulation and diversion do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 80 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	May 9, 1915	2.76	114	1927	June 8, 1927	3.20	637
	May 26, 1915	-	(a)		June 11, 1927	3.36	703
	June 5, 1915	3.33	244				
	June 16, 1915	4.18	471	1928	Apr. 27, 1928	1.50	92
	July 7, 1915	2.57	80		May 9, 1928	2.16	249
					May 18, 1928	1.85	165
1916	Apr. 27, 1916	2.97	125				
	May 6, 1916	3.42	223	1929	May 23, 1929	2.58	400
	June 4, 1916	3.50	245		June 1, 1929	2.03	232
	June 8, 1916	3.52	251		June 6, 1929	1.82	173
	June 28, 1916	3.67	296		June 17, 1929	1.56	109
	July 9, 1916	2.97	125				
				1930	Apr. 24, 1930	1.84	179
1917	May 15, 1917	4.87	729		May 1, 1930	1.76	158
	May 27, 1917	4.98	781		May 18, 1930	1.54	105
	June 8, 1917	4.00	401				
	June 17, 1917	4.05	418	1931	May 13, 1931	1.18	41
1918	May 4, 1918	1.86	171	1932	May 13, 1932	1.90	195
	May 15, 1918	1.77	152		June 9, 1932	1.66	123
	June 7, 1918	1.84	172				
				1933	May 31, 1933	2.06	258
1919	May 20, 1919	1.35	80				
				1934	Apr. 13, 1934	1.40	85
1920	May 11, 1920	1.67	134		Apr. 23, 1934	1.52	111
	May 17, 1920	2.10	248		June 7, 1934	1.65	143
	May 21, 1920	2.12	254				
	May 27, 1920	2.17	269	1935	May 23, 1935	2.20	81
	June 7, 1920	2.27	299				
	June 16, 1920	2.23	287	1936	June 8, 1936	1.81	66
1921	May 8, 1921	1.88	186	1937	May 9, 1937	1.83	82
	May 17, 1921	2.51	373		May 20, 1937	2.15	134
	June 4, 1921	2.07	239				
	June 16, 1921	1.52	103	1938	May 1, 1938	2.57	130
					May 26, 1938	3.62	490
1922	May 21, 1922	2.15	262		June 18, 1938	2.42	93
	May 25, 1922	2.56	385		June 23, 1938	2.39	88
	June 4, 1922	2.18	271		July 3, 1938	2.43	97
	June 8, 1922	2.38	331				
	June 15, 1922	2.08	242	1939	Apr. 29, 1939	2.59	136
					May 3, 1939	2.57	131
1923	May 10, 1923	1.58	115				
	May 24, 1923	1.83	173	1940	May 3, 1940	2.28	82
	June 7, 1923	1.58	115		May 10, 1940	2.41	96
	June 27, 1923	1.65	130		June 8, 1940	2.39	94
1924	May 3, 1924	1.52	103	1941	May 12, 1941	2.44	101
	May 16, 1924	2.50	367		June 5, 1941	2.86	209
	June 3, 1924	1.57	113				
				1942	Apr. 21, 1942	2.62	141
1925	May 18, 1925	1.76	173		May 11, 1942	2.49	110
	June 3, 1925	1.73	164		May 25, 1942	2.96	242
					June 4, 1942	2.56	126
1926	Apr. 19, 1926	1.73	200				
	Apr. 29, 1926	1.71	192	1943	Apr. 20, 1943	2.60	158
	May 18, 1926	1.58	149		Apr. 23, 1943	2.49	122
					May 4, 1943	2.35	88
1927	Apr. 30, 1927	1.56	128		May 27, 1943	2.93	297
	May 17, 1927	2.06	252		June 9, 1943	2.86	260
	May 26, 1927	1.89	198		June 12, 1943	2.87	264

a Not known; probably exceeded base discharge.

Peak stages and discharges of Tenmile Creek near Rimini, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	May 18, 1944	2.86	242	1952	May 15, 1952	2.42	136
	June 3, 1944	2.79	216		May 19, 1952	2.34	112
	June 9, 1944	2.57	143				
	June 16, 1944	2.88	250	1953	May 7, 1953	2.24	84
	June 20, 1944	2.77	210		June 2, 1953	c3.56	469
	June 27, 1944	2.89	253		June 12, 1953	3.27	335
1945	May 5, 1945	2.49	129	1954	May 18, 1954	2.33	90
	May 10, 1945	2.50	132		June 10, 1954	2.40	111
	May 13, 1945	2.43	113				
	May 17, 1945	2.42	106	1955	May 21, 1955	2.52	145
	May 27, 1945	2.55	135		May 29, 1955	2.38	107
	May 31, 1945	2.63	152		June 1, 1955	2.40	115
	June 10, 1945	2.89	231		June 12, 1955	2.49	142
					June 16, 1955	2.50	145
1946	May 28, 1946	2.28	73		July 11, 1955	2.38	103
1947	Oct. 25, 1946	2.31	82	1956	May 20, 1956	2.73	219
	May 8, 1947	3.17	338				
	June 1, 1947	2.31	82	1957	May 14, 1957	2.28	85
	June 10, 1947	2.84	223		May 20, 1957	2.37	105
					May 26, 1957	2.47	145
1948	Apr. 29, 1948	2.31	82		June 16, 1957	2.26	85
	May 8, 1948	2.43	107				
	May 21, 1948	3.35	403	1958	May 11, 1958	2.69	216
	June 4, 1948	3.09	310		May 20, 1958	2.52	160
	June 23, 1948	2.58	142		June 4, 1958	2.37	118
					June 11, 1958	2.40	126
1949	May 13, 1949	2.49	107				
	June 2, 1949	-	b100	1959	June 6, 1959	2.53	202
	June 21, 1949	2.37	90		June 15, 1959	2.25	99
1950	May 17, 1950	2.79	226	1960	May 12, 1960	2.71	274
	May 22, 1950	2.94	294		June 2, 1960	2.50	190
	May 27, 1950	2.89	276				
	June 5, 1950	2.90	284	1961	May 25, 1961	2.49	186
	June 16, 1950	3.00	309				
	June 18, 1950	3.02	319	1962	May 26, 1962	2.51	222
					June 13, 1962	2.21	111
1951	May 12, 1951	2.91	260				
	May 17, 1951	2.81	222	1963	May 25, 1963	2.68	152
	May 23, 1951	2.84	236		June 3, 1963	2.32	169
	June 11, 1951	2.92	289		June 10, 1963	2.33	176
1952	Apr. 27, 1952	2.75	242	1964	June 9, 1964	3.77	d556
	May 3, 1952	2.56	178				

b About.
c Occurred on following day.
d Annual peak only.

627. Little Porcupine Creek tributary near Helena, Mont.

Location.--Lat 46°35', long 112°16', in SW¼ sec.29, T.10 N., R.5 W., at culvert on U.S. Highway 12, 11 miles west of Helena.

Drainage area.--0.48 sq mi.

Gage.-- Crest-stage gage. Altitude of gage is 5,360 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 6, 1959	0.45	1.5	1962	June 2, 1962	0.49	1.7
1960	May 12, 1960	.39	1.2	1963	May 20, 1963	.57	2.2
1961	May 22, 1961	.17	.4				

630. Tenmile Creek near Helena, Mont.

Location.--Lat 46°36'20", long 112°05'20", near center of SE¼ sec.22, T.10 N., R.4 W., on right bank at Broadwater Hotel, 1½ miles west of Helena and 2½ miles upstream from Sevenmile Creek.

Drainage area.--102 sq mi.

Gage.--Nonrecording prior to Sept. 18, 1925; recording thereafter. At site 100 ft downstream at different datum prior to Mar. 16, 1929. Altitude of gage is 3,960 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 710 cfs at site used prior to Mar. 16, 1929, and below 580 cfs at described site.

Remarks.--Diversions for irrigation of about 1,200 acres above station and for water supply of Helena do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	May 28, June 11, 1909	4.7	477	1932	May 14, 1932	1.91	140
				1933	May 31, 1933	2.21	250
1910	Apr. 20 1910	2.8	85	1934	June 7, 1934	1.83	129
				1935	May 24, 1935	1.95	106
1911	June 4, 1911	3.85	230				
1912	May 22, 1912	4.4	405	1936	June 8, 1936	1.80	83
1913	May 28, 1913	4.3	328	1937	May 20, 1937	1.86	86
1914	May 16, 1914	4.8	548	1938	May 26, 1938	3.55	654
1915	June 17, 1915	4.8	424	1939	Apr.29, May 4, 1939	2.33	108
1916	Mar. 10, 1916	a5.45	-	1940	June 9, 1940	2.28	95
	June 29, 1916	-	486				
1917	May 28, 1917	5.9	995	1941	June 5, 1941	2.58	169
1918	May 5,15, 1918	3.6	186	1942	May 26, 1942	2.81	248
1919	Apr.27,29, 1919	-	76	1943	Mar. 28, 1943	a3.14	-
1920	May 18, 1920	4.5	440		June 13, 1943	-	325
				1944	June 27, 1944	2.97	340
1921	May 19, 1921	4.7	456	1945	June 10, 1945	3.11	360
1922	June 9, 1922	4.5	398				
1923	May 26, 1923	3.8	211	1946	May 28, 1946	2.22	80
1924	May 17, 1924	3.9	236	1947	June 9, 1947	3.38	449
1925	June 10, 1925	3.6	165	1948	May 21, 1948	3.26	399
				1949	May 17, 1949	2.36	113
1926	Apr. 19, 1926	4.26	340	1950	June 18, 1950	3.06	355
1927	June 11, 1927	6.58	865				
1928	May 10, 1928	5.06	404	1951	June 12, 1951	3.06	329
1929	May 23, 1929	2.70	450	1952	Apr. 28, 1952	2.85	250
1930	Apr. 25, 1930	2.25	257	1953	June 3, 1953	3.91	774
				1954	June 11, 1954	2.47	132
1931	May 17, 1931	1.32	37				

a Backwater from ice.

MISSOURI RIVER MAIN STEM

655. Missouri River below Hauser Lake Dam, near Helena, Mont.

Location.--Lat 46°46', long 111°53', in SW¼ sec.29, T.12 N., R.2 W., a quarter of a mile downstream from Hauser Lake powerplant, 1½ miles upstream from Beaver Creek, and 15 miles northeast of Helena.

Drainage area.--16,876 sq mi.

Gage.--Recording. At site a quarter of a mile upstream at datum 3,500 ft above mean sea level (levels by Montana Power Co; add 16 ft to obtain datum of 1929) prior to Feb. 1, 1940. Datum of last used gage is 3,581 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--All gage-height records, numerous discharge measurements, and computed record for calendar year 1924 and water years 1927-40 furnished by the Montana Power Co. Many diversions for irrigation above station. Flow partly regulated by reservoirs and powerplants above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Missouri River below Hauser Lake Dam, near Helena, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	May 28, 1923	75.2	20,500	1933	June 20, 1933	73.20	a12,700
1924	May 21, 1924	74.32	17,900	1934	Apr. 20 1934	69.64	a5,500
1925	May 22, 1925	75.85	22,400	1935	June 13, 1935	72.46	a11,100
1926	May 26, 1926	72.73	13,300	1936	May 18, 1936	72.60	a11,100
1927	June 15,18,1927	78.8	a33,300	1937	July 2, 1937	69.02	a4,420
1928	May 14, 1928	-	a21,900	1938	July 6, 1938	75.04	a17,300
1929	June 19, 1929	74.2	18,000	1939	May 8, 1939	72.10	a10,100
1930	Apr. 17, 1930	71.47	a10,000	1940	May 16, 1940	6.48	a8,910
1931	Apr. 17, 1931	70.20	6,690	1941	June 11, 1941	6.60	a10,200
1932	June 20, 1932	73.46	a13,300	1942	June 10, 1942	11.75	25,000

a Maximum daily.

665. Missouri River below Holter Dam, near Wolf Creek, Mont.

Location.--Lat 46°59'40", long 112°00'50", in S½ sec.5, T.14 N., R.3 W., on left bank a quarter of a mile downstream from Holter Dam and 3 miles southeast of Wolf Creek.

Drainage area.--17,149 sq mi.

Gage.--Recording. Datum of gage is 3,464.11 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 574,000 acres above station. Flow regulated by nine smaller irrigation reservoirs and powerplants, and since 1953 by Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft). Annual peak flows not materially affected prior to 1953. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 3, 1946	6.82	16,000	1956	June 2, 1956	9.48	25,500
1947	June 12, 1947	9.75	27,200	1957	June 8, 1957	7.13	17,000
1948	June 8, 1948	11.70	34,800	1958	July 3, 1958	4.95	9,450
1949	June 6, 1949	7.80	19,600	1959	June 17, 1959	7.90	19,200
1950	June 21, 1950	7.82	18,700	1960	Dec. 13, 1959	6.61	14,900
1951	May 28, 1951	8.45	22,000	1961	Feb. 16, 1961	4.12	7,760
1952	June 9, 1952	8.90	23,700	1962	June 18, 1962	6.70	15,000
1953	June 19, 1953	6.10	13,500	1963	June 21, 1963	7.31	16,700
1954	Jan. 2, 1954	-	a5,500	1964	June 19, 1964	10.04	27,100
1955	July 18, 1955	-	a6,720				

a Maximum daily.

LITTLE PRICKLY PEAR CREEK BASIN

685. Little Prickly Pear Creek near Marysville, Mont.

Location.--Lat 46°47', long 112°24', in SW¼ sec.18, T.12 N., R.6 W., half a mile downstream from Deadman Creek and 6 miles northwest of Marysville.

Drainage area.--44.4 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,700 ft (from topographic map).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 340 cfs.

Remarks.--Diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Little Prickly Pear Creek near Marysville, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 28, 1913	3.2	315	1923	May 23-27, 1923	1.54	84
1914	May 17, 1914	2.5	196	1924	May 17, 1924	1.84	149
1915	June 16, 1915	2.4	180	1925	May 21, 1925	1.70	114
1916	June 5, 1916	2.55	204	1926	Apr. 20, 1926	1.84	149
1917	May 25, 1917	3.8	454	1927	June 8, 1927	2.30	303
1918	May 5, 1918	2.1	124	1928	May 9, 1928	2.05	238
1919	(a)	1.30	29	1929	May 24, 1929	1.64	146
1920	May 18, 1920	2.08	155	1930	Apr. 25, 1930	1.60	121
1921	May 21, 1921	2.08	160	1931	May 17, 1931	.92	29
1922	May 20, 1922	2.10	224	1932	May 14, 1932	1.44	110

a May 1-3, 22, 24-26, 29, 1919.

710. Little Prickly Pear Creek near Canyon Creek, Mont.

Location.--Lat 46°49', long 112°15', in NW¼ sec.9, T.12 N., R.5 W., half a mile downstream from Canyon Creek and 1 mile northeast of Canyon Creek Post Office.

Drainage area.--183 sq mi.

Gage.--Nonrecording. At site a quarter of a mile downstream at different datum prior to June 2, 1917. Altitude of gage is 4,240 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 560 cfs at site used prior to June 2, 1917, and below 500 cfs at described site.

Remarks.--Peak flows are materially affected by diversions for irrigation above station. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	May 28, 1909	4.4	485	1917	May 15,16,1917	-	a800
1910	Apr. 19, 1910	3.35	176	1918	May 7, 1918	3.1	372
				1919	Aug. 1, 1919	1.2	53
1911	June 1, 1911	3.1	129	1920	May 14, 1920	3.4	445
1913	May 29, 1913	4.8	665	1921	May 18-22,1921	2.8	319
1914	May 19, 1914	4.0	296	1922	May 20, 1922	3.42	498
1915	June 19, 1915	3.8	250	1923	May 10-13,25-27, 1923	2.3	195
1916	June 30, 1916	4.2	395	1924	May 17, 1924	2.60	276

a Maximum daily discharge; estimated.

712. Lyons Creek near Wolf Creek, Mont.

Location.--Lat 46°56', long 112°08', in NE¼ sec.29, T.14 N., R.4 W., 135 ft upstream from mouth and 5½ miles southwest of Wolf Creek.

Drainage area.--29.4 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,730 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 6, 1959	0.81	63	1962	May 22, 1962	1.57	158
1960	June 2, 1960	.81	63	1963	Feb. 4, 1963	1.3	120
				1964	June 8, 1964	3.80	490
1961	May 28, 1961	.12	13				

730. Dearborn River near Clemons, Mont.

Location.--Lat 47°17'30", long 112°27'00", in SE¼SE¼ sec.23, T.18 N., R.7 W., on right bank 300 ft upstream from highway bridge, half a mile southeast of former post office at Clemons, 2 miles downstream from Falls Creek, and 14 miles south of Augusta.

Drainage area.--123 sq mi.

Gage.--Nonrecording prior to Apr. 8, 1931; recording thereafter. Altitude of gage is 4,560 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 2,500 acres below station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 450 cfs. Only annual peaks are shown prior to 1931.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	May 25,27, 1921	3.22	965	1944	June 10, 1944	2.96	626
1922	June 6, 1922	3.70	1,340		June 17, 1944	4.12	1,400
1923	Aug. 21, 1923	3.28	1,010		June 28, 1944	3.35	868
1929	May 24, 1929	3.11	958	1945	June 5, 1945	3.97	1,260
1930	Apr. 25, 1930	2.72	625		June 22, 1945	2.95	590
1931	May 17, 1931	1.37	82	1946	May 28, 1946	3.44	891
1932	May 14, 1932	2.57	544	1947	May 5, 1947	3.69	968
	June 10, 1932	3.41	1,150		May 10, 1947	3.70	975
					May 27, 1947	2.87	489
1933	June 1, 1933	3.54	1,260		June 9, 1947	3.17	658
1934	Apr. 14, 1934	2.64	540	1948	May 22, 1948	4.25	1,350
	Apr. 23, 1934	2.94	698		June 4, 1948	5.97	2,970
	May 7, 1934	2.95	703		June 16, 1948	4.22	1,290
	June 7, 1934	5.58	2,450				
				1949	May 17, 1949	3.26	576
1935	May 24, 1935	2.86	655		May 27, 1949	3.32	612
1936	May 15, 1936	2.43	470	1950	May 18, 1950	3.66	790
					May 23, 1950	3.81	938
1937	June 13, 1937	2.58	515		May 28, 1950	3.50	720
					June 6, 1950	3.61	790
1938	May 28, 1938	4.57	1,890		June 15, 1950	4.64	1,690
	June 24, 1938	3.19	920				
				1951	Apr. 30, 1951	3.18	540
1939	May 5, 1939	2.24	368		May 12, 1951	3.69	839
					May 24, 1951	3.59	748
1940	May 12, 1940	2.14	317		June 15, 1951	4.34	1,420
					July 13, 1951	3.24	576
1941	June 1, 1941	2.78	648				
	June 5, 1941	2.67	584	1952	Apr. 28, 1952	3.43	684
					May 16, 1952	3.93	1,060
1942	May 26, 1942	3.51	1,260				
	June 8, 1942	3.36	1,150	1953	Apr. 28, 1953	3.24	535
					May 8, 1953	3.42	662
1943	Apr. 20, 1943	2.80	660		May 20, 1953	3.15	540
	May 29, 1943	3.14	878		June 4, 1953	6.20	3,200
	June 13, 1943	5.32	2,490		June 13, 1953	4.57	1,670
1944	May 19, 1944	3.99	1,320	1964	June 9, 1964	9.15	a17,400

a Annual peak only.

735. Dearborn River near Craig, Mont.

Location.--Lat 47°11'55", long 112°05'25", in NE¼SE¼ sec.27, T.17 N., R.4 W., on right bank a quarter of a mile downstream from bridge on State Highway 287, 5 miles downstream from South Fork, 10 miles northwest of Craig, and 12 miles upstream from mouth.

Drainage area.--325 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1946; recording thereafter. Altitude of gage is 3,790 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 6,400 cfs.

Remarks.--Diversions for irrigation of about 3,300 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 950 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 29, 1946	5.72	a1,170	1953	May 8, 1953	5.32	970
					May 25, 1953	7.55	3,880
1947	Mar. 15, 1947	b7.97	(c)		June 4, 1953	9.58	7,960
	May 3, 1947	5.75	1,400				
	June 10, 1947	5.24	954	1954	May 20, 1954	5.25	1,500
					June 12, 1954	4.90	1,210
1948	Mar. 28, 1948	5.32	1,190				
	May 9, 1948	5.13	986	1955	May 22, 1955	5.76	1,890
	May 14, 1948	5.46	1,190		June 14, 1955	4.71	1,010
	May 22, 1948	6.48	2,050				
	June 5, 1948	7.89	4,400	1956	Dec. 22, 1955	b5.06	-
	June 17, 1948	7.61	3,900		May 22, 1956	4.75	1,080
1949	Feb. 17, 1949	b5.52	-	1957	May 21, 1957	8.64	6,150
	May 28, 1949	5.21	798				
				1958	May 12, 1958	5.45	1,620
1950	May 18, 1950	5.82	1,280		June 4, 1958	6.16	2,430
	May 23, 1950	5.91	1,360		June 12, 1958	7.96	4,940
	May 28, 1950	5.53	1,010				
	June 7, 1950	5.84	1,290	1959	June 6, 1959	5.70	1,330
	June 16, 1950	6.43	1,990		June 15, 1959	5.33	1,010
1951	Mar. 21, 1951	b7.59	-	1960	May 13, 1960	6.12	1,820
	Apr. 30, 1951	6.18	1,710				
	May 12, 1951	5.88	1,510	1961	May 30, 1961	5.23	876
	May 24, 1951	5.57	1,230				
	June 13, 1951	6.20	1,830	1962	May 17, 1962	5.98	1,580
	July 10, 1951	5.35	1,080		May 26, 1962	7.50	3,470
					June 15, 1962	5.87	1,840
1952	Apr. 28, 1952	5.32	1,020				
	May 16, 1952	6.06	1,690	1963	June 11, 1963	5.42	1,400
1953	Apr. 28, 1953	5.38	1,030	1964	June 9, 1964	13.50	d15,400

a Annual maximum observed only. b Backwater from ice. c Not known; probably exceeded base discharge. d Annual peak only.

MISSOURI RIVER MAIN STEM

740. Missouri River at Cascade, Mont.

Location.--Lat 47°16', long 111°42', in SE¼NE¼ sec.35, T.18 N., R.1 W., at highway bridge at Cascade.

Drainage area.--18,493 sq mi.

Gage.--Nonrecording. Datum of gage is 3,337.8 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 37,000 cfs.

Remarks.--Diversions for irrigation of about 588,000 acres above station. Some regulation by Hauser Lake and Canyon Ferry powerplants. Peak flows are materially affected. Peaks are principally from snowmelt. Orly annual maximum observed stages and discharges are shown.

Peak stages and discharges of Missouri River at Cascade, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 9, 1903	9.3	22,700	1910	May 13, 1910	8.9	19,700
1904	May 27, 1904	9.5	21,710				
1905	June 30, 1905	6.65	10,410	1911	June 17, 1911	10.9	27,200
				1912	June 17, 1912	11.37	29,080
1906	June 19, 1906	8.0	17,180	1913	June 5, 1913	12.35	32,130
1907	June 23, 1907	13.2	39,240	1914	May 27, June 9, 1914	9.9	22,800
1908	June 5, 1908	16.7	54,250				
1909	June 9, 1909	13.5	39,850	1915	June 12, 1915	8.5	17,500

SMITH RIVER BASIN

745. Smith River near White Sulphur Springs, Mont.

Location.--Lat 46°40', long 110°44', near center of sec.33, T.11 N., R.8 E., at Meachen Ranch, 12 miles northeast of White Sulphur Springs.

Drainage area.--30.7 sq mi.

Gage.--Nonrecording. At site 150 ft downstream prior to June 27, 1927. Altitude of gage is 5,600 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs and extended above by logarithmic plotting.

Remarks.--Small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 21, 1923	3.05	224	1931	Mar. 23, 1931	b2.60	-
1924	May 19, 1924	2.08	111		May 16, 1931	2.43	33
1925	June 16, 1925	2.63	172				
				1934	June 7, 1934	2.52	54
1926	Apr. 15, 1926	3.5	216	1935	May 31, 1935	2.41	46
1927	May 27, 1927	3.20	a186				
1928	Apr. 26, 1928	3.4	234	1936	Apr. 11, 1936	4.20	770
1929	May 24, 1929	2.55	72				
1930	Apr. 9, 1930	2.83	117				

a Maximum observed; was higher about June 9, 1927.
b Maximum observed; backwater from ice.

760. Newland Creek near White Sulphur Springs, Mont.

Location.--Lat 46°44', long 110°50', near line between secs. 9 and 10, T.11 N., R.7 E., on left bank 13 miles north of White Sulphur Springs and 15 miles upstream from mouth.

Drainage area.--6.74 sq mi.

Gage.--Recording gage and artificial control. Altitude of gage is 5,590 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs.

Remarks.--Small diversions for irrigation of hay meadows above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 11,17,1946	0.72	4.9	1953	June 4, 1953	3.50	56
1947	May 6, 1947	2.18	18				
1948	May 8, 1948	2.64	29	1960	May 19, 1960	2.39	5.1
1949	June 1, 1949	1.48	6.2				
1950	May 28, 1950	1.64	9.5	1961	May 31, 1961	2.18	3.2
				1962	May 29, 1962	2.68	15
1951	May 13, 1951	1.62	11	1963	June 26, 1963	2.53	11
1952	May 4, 1952	1.66	14				

765. Newland Creek near damsite, near White Sulphur Springs, Mont.

Location.--Lat 46°38', long 110°57', in NW¼ sec.14, T.10 N., R.6 E., on right bank 50 ft upstream from farm bridge, 4 miles downstream from U.S. Highway 89, and 6 miles north of White Sulphur Springs.

Drainage area.--44.8 sq mi.

Gage.--Nonrecording. At site 50 ft downstream at datum 0.52 ft lower prior to June 14, 1951. Altitude of gage is 5,100 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Remarks.--Diversions for irrigation of about 200 acres above station. Flow may be supplemented by diversion from Sheep Creek, which enters 8 miles upstream. Peak flows are not materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 14, 1951	1.28	53	1955	June 16, 1955	1.22	28
1952	May 22, 1952	1.38	45				
1953	June 5, 1953	3.83	227	1956	Mar. 25, 1956	1.33	43
1954	July 1, 1954	1.04	21	1957	June 16, 1957	1.14	27

768. Nugget Creek near Neihart, Mont.

Location.--Lat 46°47', long 110°42', in NE¼ sec.27, T.12 N., R.8 E., at culvert on U.S. Highway 89, 11 miles south of Neihart.

Drainage area.--1.48 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 6,400 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7 cfs and by culvert computation at 14.3 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 7, 1959	1.05	14	1962	May 25, 1962	0.50	6
1960	May 12, 1960	.38	5	1963	June 2, 1963	.50	6
1961	May 27, 1961	.30	4				

770. Sheep Creek near White Sulphur Springs, Mont.

Location.--Lat 46°46', long 110°49', in SW¼SE¼ sec.26, T.12 N., R.7 E., on right bank 7 miles upstream from Moose Creek and 16 miles north of White Sulphur Springs.

Drainage area.--54.4 sq mi.

Gage.--Nonrecording prior to May 4, 1955; recording thereafter. At site 1,000 ft upstream at datum 7.03 ft higher prior to Oct. 1, 1942, and at site 700 ft upstream at datum 5.33 ft higher Oct. 1, 1942, to May 3, 1955. Altitude of gage is 5,820 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 220 cfs at present site and below 390 cfs at site used 1943 to 1955.

Remarks.--Diversions for irrigation of about 200 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 120 cfs. Only annual peaks are shown prior to 1955.

Peak stages and discharges of Sheep Creek near White Sulphur Springs, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	May 26, 1942	3.24	418	1957	May 20, 1957	3.54	134
1943	May 31, June 2, 1943	3.48	145		June 6, 1957	3.70	145
					June 21, 1957	3.49	123
1944	May 18, 1944	3.14	118				
1945	June 6, 1945	3.65	158	1958	May 11, 1958	3.45	122
1946	May 28, 1946	4.14	194	1959	June 7, 1959	4.77	270
1947	May 9, 1947	4.68	263				
1948	May 22, 1948	4.98	309	1960	May 13, 1960	3.68	149
1949	May 31, 1949	3.68	144		June 4, 1960	3.52	126
1950	June 18, 1950	3.84	168				
				1961	May 27, 1961	3.62	130
1951	May 26, 1951	4.12	206				
1952	May 4, 1952	4.60	217	1962	May 21, 1962	3.76	159
1953	June 4, 1953	5.80	460		June 3, 1962	3.66	149
1954	May 22, 1954	3.48	110		June 14, 1962	3.59	142
1955	June 15, 1955	4.00	192	1963	June 2, 1963	3.87	185
					June 14, 1963	3.44	132
1956	May 26, 1956	3.76	163				
				1964	June 9, 1964	4.93	b362
1957	Mar. 28, 1957	a3.87	-				

a Backwater from ice.
b Annual peak only.

775. Smith River near Eden, Mont.

Location.--Lat 47°12', long 111°23', in SW¼SW¼ sec.29, T.17 N., R.3 E., on left bank a quarter of a mile upstream from Mullens Creek, 2 miles upstream from Hound Creek, and 7 miles southwest of Eden.

Drainage area.--1,594 sq mi.

Gage.--Recording. Altitude of gage is 3,500 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and extended above on basis of slope-area measurement at 12,300 cfs.

Remarks.--Diversions for irrigation of about 24,500 acres above station. Slight effect by Smith River Reservoir (total capacity, 10,700 acre-ft). Peak flows are not materially affected by diversions and storage. Peaks are principally from snowmelt. Base for partial-duration series, 1,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 25, 1951	3.67	a1,710	1958	May 13, 1958	2.66	894
1952	Nov. 26, 1951	b4.35	-	1959	Mar. 20, 1959	b4.80	-
	Apr. 7, 1952	3.29	1,340		June 8, 1959	4.25	2,250
	Apr. 19, 1952	3.24	1,300		June 17, 1959	3.98	1,980
	May 5, 1952	3.94	1,980				
	May 23, 1952	3.94	1,980	1960	Mar. 24, 1960	b3.66	-
					Mar. 27, 1960	3.12	1,160
1953	May 30, 1953	5.83	4,200		May 13, 1960	3.17	1,230
	June 4, 1953	10.46	12,300				
				1961	June 1, 1961	2.45	719
1954	Dec. 12, 1953	b3.42	-				
	June 5, 1954	2.98	1,120	1962	May 22, 1962	3.64	1,580
	June 12, 1954	3.05	1,150		June 16, 1962	3.16	1,200
1955	June 17, 1955	3.73	1,730	1963	Feb. 4, 1963	b12.50	-
					Feb. 5, 1963	-	(c)
1956	Dec. 24, 1955	b4.12	-		June 5, 1963	3.66	1,690
	May 25, 1956	2.88	1,020				
				1964	June 10, 1964	5.48	d3,860
1957	Mar. 11, 1957	b3.07	-				
	June 7, 1957	2.98	1,040				

a Maximum for period April to September.
b Backwater from ice.
c Maximum peak discharge for year not determined.
d Annual peak only.

778. Goodman Coulee near Eden, Mont.

Location.--Lat 47°20', long 111°25', in center sec.12, T.18 N., R.2 E., at culvert on county road, 8 miles northwest of Eden.

Drainage area.--21.8 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,370 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 15 cfs and extended above on basis of computed flow through culvert, using head as indicated by crest-stage gages.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Apr. 22, 1959	1.57	49	1962	Mar. 19, 1962	4.17	127
1960	May 1, 1960	1.92	41	1963	Feb. 4, 1963	2.30	55
1961	-	-	(a)				

a No evidence of flow during year.

780. Smith River at Truly, Mont.

Location.--Lat 47°21', long 111°26', near center of sec.35, T.19 N., R.2 E., at highway bridge at former post office at Truly, 6 miles southeast of Ulm and 6 miles upstream from mouth.

Drainage area.--2,006 sq mi.

Gage.--Nonrecording. At different datum prior to June 30, 1907. Altitude of gage is 3,330 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended to 8,800 cfs on basis of logarithmic plotting, and at 30,300 cfs by slope-area measurement.

Remarks.--Diversions for irrigation of about 24,700 acres above station do not materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 12, 1905	2.65	534	1930	Apr. 26, 1930	4.00	1,640
1906	June 7, 1906	3.98	1,250	1931	Apr. 8, 1931	2.55	597
1907	June 24, 1907	9.0	8,800	1932	June 10, 1932	5.25	2,900
1929	May 25, 1929	4.90	3,500	1953	June 4, 1953	-	30,300

782. Missouri River near Ulm, Mont.

Location.--Lat 47°26'10", long 111°23'10", in NW¼NW¼ sec.5, T.19 N., R.3 E., on left bank 6 miles east of Ulm and 9 miles downstream from Smith River.

Drainage area.--20,941 sq mi.

Gage.--Recording. Altitude of gage is 3,310 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs.

Remarks.--Diversions for irrigation of about 610,000 acres above station. Flow regulated by 10 small irrigation reservoirs and powerplants and Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft). Diversions and regulation materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 1948	a16	-	1960	May 18, 1960	-	15,800
1953	June 1953	a17	-	1961	Jan. 27, 1961	-	6,700
					Feb. 1, 1961	a9.38	-
1958	June 15, 1958	7.98	11,800	1962	June 20, 1962	10.02	16,000
1959	June 19, 1959	11.26	19,100	1963	June 12, 1963	10.78	18,200
1960	Nov. 17, 1959	a12.20	-	1964	June 22, 1964	14.44	27,500

a Backwater from ice.

SUN RIVER BASIN

785. North Fork Sun River near Augusta, Mont.
(Published as "North Fork of North Fork Sun River" prior to October 1959)

Location.--Lat 47°38'30", long 112°51'30", in SW¼SW¼ sec.23, T.22 N., R.10 W., on left bank 400 ft upstream from Arsenic Creek, 1 mile upstream from confluence with South Fork, and 25 miles northwest of Augusta.

Drainage area.--258 sq mi.

Gage.--Nonrecording prior to July 23, 1946; recording thereafter. Near present site at different datum 1911-12. At site three-quarters of a mile downstream at different datum Oct. 1, 1945, to July 22, 1946. Datum of gage is 4,785.72 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 3,700 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 1,250 cfs. Only annual peaks are shown prior to 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 3, 1911	92.7	2,390	1950	May 23, 1950	5.26	2,180
1912	May 20, 1912	92.6	2,280		May 28, 1950	5.17	2,100
					June 5, 1950	6.00	3,340
1946	May 28, 1946	5.39	2,190		June 21, 1950	5.93	3,240
					July 1, 1950	5.30	2,220
1947	Apr. 28, 1947	4.57	1,800				
	May 9, 1947	6.28	3,520	1951	May 12, 1951	5.66	2,880
	May 27, 1947	4.92	2,130		May 18, 1951	5.02	1,970
	June 2, 1947	4.88	2,090		May 24, 1951	5.69	2,920
	June 10, 1947	4.91	2,120		June 16, 1951	5.88	3,170
					July 6, 1951	4.26	1,410
1948	May 22, 1948	6.78	4,460				
	June 3, 1948	7.03	4,840	1952	Apr. 27, 1952	4.84	1,900
	June 17, 1948	5.19	2,320		May 4, 1952	4.84	1,900
					May 15, 1952	5.11	2,140
1949	May 15, 1949	5.33	2,720		May 20, 1952	4.80	1,860
	May 30, 1949	5.13	2,520		May 26, 1952	4.59	1,690
	June 8, 1949	4.27	1,710		June 6, 1952	4.22	1,400
1950	May 15, 1950	4.72	1,720	1953	May 7, 1953	4.15	1,480

Peak stages and discharges of North Fork Sun River near Augusta, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 20, 1953	4.24	1,570	1957	June 9, 1957	5.12	2,330
	June 3, 1953	6.44	3,990				
	June 13, 1953	6.37	3,890	1958	May 12, 1958	5.37	2,560
	July 1, 1953	4.41	1,840		May 26, 1958	5.34	2,520
					June 10, 1958	5.61	2,830
1954	May 20, 1954	6.77	4,580				
	June 5, 1954	5.03	2,130	1959	May 16, 1959	4.62	1,810
	June 14, 1954	5.07	2,170		May 25, 1959	4.07	1,360
	June 24, 1954	5.57	2,920		June 6, 1959	6.26	3,650
	July 2, 1954	4.81	2,110		June 15, 1959	6.48	3,960
					July 3, 1959	4.12	1,400
1955	May 21, 1955	5.58	2,900				
	June 13, 1955	5.42	2,550	1960	May 13, 1960	5.20	2,280
	June 25, 1955	5.55	2,760		June 4, 1960	5.63	2,660
	June 29, 1955	4.49	1,720		June 16, 1960	4.69	1,740
1956	May 21, 1956	6.50	4,060	1961	May 27, 1961	6.07	3,400
	June 2, 1956	6.73	4,170				
	June 11, 1956	5.31	2,410	1962	Apr. 25, 1962	4.15	1,420
	June 16, 1956	5.44	2,520		May 25, 1962	5.71	2,830
					June 18, 1962	4.82	1,900
1957	May 6, 1957	5.37	2,700				
	May 15, 1957	5.03	2,330	1963	June 5, 1963	4.56	1,680
	May 21, 1957	5.92	3,330				
	June 4, 1957	5.06	2,230	1964	June 8, 1964	15.82	a49,400

a Annual peak only.

796. Beaver Creek at Gibson Dam, near Augusta, Mont.

Location.--Lat 47°36', long 112°45', in SE¼ sec.4, T.21 N., R.9 W., at bridge on county road 19 miles northwest of Augusta.

Drainage area.--20.3 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,560 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 70 cfs and by slope-area measurements at 496 and 4,360 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 6, 1959	0.78	110	1962	May 26, 1962	2.45	496
1960	May 12, 1960	2.28	458	1963	May 25, 1963	.85	122
				1964	June 8, 1964	-	4,360
1961	May 7, 1961	.37	55				

800. Sun River near Augusta, Mont.
(Published as "above Augusta" 1889-90 and as North Fork Sun River near Augusta 1904-40)

Location.--Lat 47°37', long 112°42', in NW¼ sec.36, T.22 N., R.9 W., 150 ft upstream from diversion dam and 18 miles northwest of Augusta.

Drainage area.--609 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1936; recording thereafter. At site 8 miles downstream at different datum prior to Jan. 1, 1916. At diversion dam 150 ft downstream at same datum Jan. 1, 1916, to Sept. 30, 1936. Datum of gage is 4,474 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs.

Remarks.--Records for 1916-36 and Pishkun Canal data furnished by Bureau of Reclamation. Flow since 1930 regulated by Gibson Dam (usable capacity, 105,000 acre-ft. Prior to 1939, usable capacity was 88,560 acre-ft). Records for 1916-40 include flow in Pishkun Canal. Peak flows not materially affected prior to 1930. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	May 9, 1890	4.35	4,085	1917	May 25, 1917	8.2	18,700
				1918	June 10, 1918	6.02	11,900
1905	June 6, 1905	4.1	4,070	1919	May 28, 1919	3.4	4,670
				1920	June 15, 1920	3.9	6,130
1906	June 5,13,1906	3.1	2,320				
1907	June 2, 1907	5.6	6,530	1921	May 26, 1921	4.40	7,280
1908	June 7, 1908	9.5	20,000	1922	June 5, 1922	4.40	7,350
1909	June 3,16,1909	6.0	7,030	1923	June 12, 1923	3.60	5,250
1910	May 8, 1910	5.1	5,040	1924	May 15, 1924	4.40	7,150
				1925	May 20, 1925	4.60	7,920
1911	June 15, 1911	4.8	5,690				
1912	May 21, 1912	4.8	5,670	1926	Apr. 30, 1926	2.80	3,540
1913	May 24, 1913	6.6	9,830	1927	June 9, 1927	5.95	11,400
1914	May 17, 1914	4.35	4,570	1928	May 23, 1928	5.60	10,700
1915	May 1, 1915	4.0	3,850	1929	May 24, 1929	3.6	5,290
1916	June 21, 1916	11.4	32,300	1964	June 9, 1964	15.7	59,700

815. Willow Creek near Augusta, Mont.

Location.--Lat 47°33', long 112°28', in NW¼SW¼ sec.26, T.21 N., R.7 W., just downstream from Little Willow Creek, 5 miles northwest of Augusta.

Drainage area.--96.1 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,150 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 650 cfs.

Remarks --Diversions for irrigation of about 2,000 acres above gage probably do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 26, 1905	3.15	103	1916	June 23, 1916	10.8	1,150
				1917	May 26, 1917	9.58	914
1906	May 29, 1906	3.47	116	1918	Dec. 26, 1917	3.2	127
1907	Feb. 8, 1907	6.08	347	1919	(a)	.8	16
1908	June 5, 1908	9.5	900	1920	May 12, 1920	4.75	272
1909	June 9, 1909	8.1	672				
1910	Mar. 3, 1910	5.8	312	1921	May 22, 1921	1.63	60
				1922	June 9, 1922	1.85	82
1912	May 22, 1912	5.9	338	1923	Aug. 21, 1923	1.45	50
1913	May 28, 1913	4.2	189	1924	(b)	1.70	64
1914	June 13, 1914	3.3	109	1925	June 4, 1925	1.37	50
1915	June 16, 1915	3.4	132				

a Oct. 1-6, 17, 1918, Mar. 29, 31, 1919.
b Apr. 5-7, May 8-12, 1924.

825. Smith Creek near Augusta, Mont.

Location.--Lat 47°25', long 112°39', in NE¼SE¼ sec.8, T.19 N., R.8 W., 5 miles upstream from Ford Creek and 13 miles southwest of Augusta.

Drainage area.--25.0 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,600 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 300 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 3, 1906	1.8	175	1910	(a)	0.9	63
1907	June 23, 1907	4.0	911				
1908	June 4, 1908	5.5	1,500	1911	May 15, 1911	2.40	454
1909	June 8, 1909	2.8	580	1912	May 22, 1912	2.5	484

a Mar. 20-22, Apr. 24-27, 1910.

835. Ford Creek near Augusta, Mont.

Location.--Lat 47°26', long 112°40', near center of south line of sec.31, T.20 N., R.8 W., at Ford Ranch, 14 miles west of Augusta.

Drainage area.--19.4 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,760 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 140 cfs.

Remarks.--One diversion for irrigation above station does not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 2, 1906	1.8	93	1911	May 15, June 7, 1911	2.2	128
1907	June 23, 1907	3.5	430				
1908	June 4, 1908	5.1	1,030	1912	May 20, 1912	2.7	216
1909	June 19, 1909	5.5	1,230				
1910	Apr. 27, 1910	1.75	72	1964	June 8, 1964	-	2,700

840. Smith Creek below Ford Creek, near Augusta, Mont.

Location.--Lat 47°26', long 112°31', in S½ sec.32, T.20 N., R.7 W., on right bank 2 miles downstream from Ford Creek, 4 miles upstream from mouth, and 7 miles southwest of Augusta.

Drainage area.--74.0 sq mi.

Gage.--Nonrecording at site 300 ft upstream at different datum prior to July 9, 1946; recording thereafter. Altitude of gage is 4,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 940 cfs.

Remarks.--Diversions for irrigation of about 1,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 75 cfs

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Jan. 26, 1946	a2.78	-	1950	June 14, 1950	3.79	535
	May 28, 1946	2.28	102				
				1951	Mar. 21, 1951	2.49	101
1947	Feb. 1, 1947	a4.18	-		Mar. 25, 1951	2.44	92
	Mar. 15, 1947	3.08	299		Apr. 30, 1951	3.29	315
	May 11, 1947	3.07	294		May 12, 1951	3.32	331
	June 12, 1947	2.78	178		June 12, 1951	3.77	555
					July 11, 1951	3.30	323
1948	Apr. 23, 1948	2.56	107		Aug. 28, 1951	2.54	111
	May 20, 1948	3.82	550				
	May 29, 1948	3.71	495	1952	Dec. 10, 1951	a3.56	-
	June 5, 1948	5.70	1,830		May 4, 1952	2.63	128
	June 17, 1948	5.01	1,300		May 15, 1952	3.36	339
					May 30, 1952	2.64	129
1949	Feb. 23, 1949	a4.89	-		June 25, 1952	2.52	104
	May 17, 1949	2.66	147		July 12, 1952	2.41	83
	May 26, 1949	2.75	170		July 19, 1952	2.38	77
					Aug. 11, 1952	2.44	89
1950	Oct. 19, 1949	2.42	91				
	May 18, 1950	3.07	236	1964	June 8, 1964	13.4	6,140
	May 23, 1950	3.13	256				

a Backwater from ice.

845. Elk Creek at Augusta, Mont.
(Formerly published as South Fork Sun River at Augusta)

Location.--Lat 47°29', long 112°23', in NW¼SE¼ sec.17, T.20 N., R.6 W., at old highway bridge, half a mile from Augusta and 6 miles upstream from mouth.

Drainage area.--157 sq mi.

Gage.--Nonrecording. At site 300 ft upstream at different datum Apr. 20, 1907, to December 1908. Altitude of gage is 4,070 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--Diversions for irrigation of about 4,500 acres above station should not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 7, 9, 1905	2.5	620	1916	June 22, 1916	4.4	1,910
				1917	May 26, 1917	5.4	2,400
1906	May29, June 4, 1906	2.5	625	1918	Dec. 30, 1917	b3.6	-
					July 15, 1918	-	421
1907	June 24, 1907	4.9	1,810	1919	(c)	1.8	44
1908	June 2, 1908	6.8	4,300	1920	May 12, 1920	4.2	1,420
1909	June 9, 1909	4.15	3,040				
1910	(a)	1.2	81	1921	May 20, 1921	2.6	339
				1922	May 26, 1922	2.66	490
1911	June 3, 1911	2.7	560	1923	Aug. 21, 1923	2.90	615
1912	May 22, 1912	3.9	1,840	1924	Apr. 7, 1924	2.18	294
1913	May 28, 1913	3.0	1,020				
1914	June 14, 1914	3.1	1,180	1964	June 8, 1964	-	d12,000
1915	June 16, 1915	2.8	766				

a Mar. 13, 14, 21-24, Apr. 11-20, 30, May 1, 1910. b Backwater from ice.
c Oct. 16, 17, Nov. 2, Dec. 5, 13, 14, 1918. d Momentary maximum; about.

860. Sun River at Fort Shaw, Mont.

Location.--Lat 47°31'10", long 111°48'50", on west line of SW¼ sec.1, T.20 N., R.2 W., at highway bridge at Fort Shaw.

Drainage area.--1,417 sq mi.

Gage.--Nonrecording at several sites within a quarter of a mile of present site at different datums prior to May 20, 1925; recording thereafter. Altitude of gage is 3,465 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 11,000 cfs.

Remarks.--Numerous diversions above station. Some regulation by Willow Creek Reservoir (usable capacity, 32,300 acre-ft). Peak flows are materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 29, 1913	65.8	10,900	1921	May 26, 1921	8.4	6,440
1914	May 17, June 3, 1914	4.7	4,380	1922	June 5, 1922	8.8	7,280
				1923	May 26, 1923	7.84	4,830
1915	May 2, 1915	4.8	4,280	1924	May 17, 1924	8.50	5,950
				1925	May 20, 1925	8.82	6,490
1916	June 21, 1916	11.5	20,000				
1917	May 26, 1917	12.8	16,400	1926	Apr. 30, 1926	6.90	3,280
1918	June 11, 1918	9.91	9,660	1927	June 9, 1927	10.32	10,200
1919	May 23, 1919	7.35	4,280	1928	May 23, 1928	9.5	8,560
1920	June 16, 1920	8.25	6,125				

875. Sun River at Sun River, Mont.

Location.--Lat 47°32'10", long 111°43'00", in NW¼NE¼ sec.34, T.21 N., R.1 W., at highway bridge at Sun River, 13 miles upstream from Muddy Creek.

Drainage area.--1,454 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,400 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 9,400 cfs and extended above by logarithmic plotting.

Remarks.--Numerous diversions above station and regulation by several reservoirs materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 5, 1906	5.8	3,000	1910	May 11, 1910	7.1	4,600
1907	June 24, 1907	9.6	10,900				
1908	June 7, 1908	13.4	27,200	1911	June 11, 1911	7.8	5,940
1909	June 9, 1909	10.2	12,000	1912	May 22, 1912	8.6	8,000

885. Muddy Creek at Vaughn, Mont.

Location.--Lat 47°33'40", long 111°32'30", near center of S½NE¼ sec.24, T.21 N., R.1 E., near center of span on upstream side of old highway bridge at Vaughn, 1½ miles upstream from mouth.

Drainage area.--314 sq mi.

Gage.--Nonrecording. Auxiliary crest-stage gage May 18, 1955, to Apr. 25, 1960, and since Sept. 24, 1962. At site 500 ft downstream at different datum prior to 1934. At present site at datum 1.00 ft higher Apr. 19, 1934, to Sept. 30, 1955. Altitude of gage is 3,350 ft (from topographic map).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 3,000 cfs and extended above on basis of slope-area measurement at 7,600 cfs.

Remarks.--Diversions for irrigation of about 500 acres above station. Natural flow increased by wastage from Sun River Canal and by return flow from irrigation. Some flow diverted above station to supplement water supply for Benton Lake Wildlife Refuge. Peak flows are not materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 1908	a24	-	1946	June 24, 1946	7.4	800
				1947	Mar. 16, 1947	b12.82	-
1925	June 5, 1925	8.90	602		June 10, 1947	-	1,800
				1948	June 17, 1948	9.16	1,470
1932	June 1932	a19	-	1949	Mar. 20, 1949	b8.80	-
					May 18, 1949	-	442
1934	June 8, 1934	5.83	334	1950	July 31, 1950	3.83	518
1935	Aug. 7, 1935	5.91	356				
				1951	Mar. 22, 1951	b10.80	-
1936	Mar. 3, 1936	b5.88	-		July 23, 1951	-	439
	Mar. 9, 1936	-	292	1952	July 21, 1952	3.08	475
1937	Mar. 6, 1937	b6.43	-	1953	June 4, 1953	16.7	7,600
	June 17, 1937	-	346	1954	Aug. 14, 1954	3.62	722
1938	June 23, 1938	16.0	(c)	1955	Aug. 15, 1955	1.89	386
1939	May 1, 1939	6.40	393				
1940	June 3, 1940	5.64	337	1956	June 16, 1956	3.28	419
				1957	May 21, 1957	5.15	892
1941	June 30, 1941	5.7	444	1958	June 4, 1958	6.91	1,070
1942	Mar. 9, 1942	b9.64	-	1959	Mar. 2, 1959	b8.98	-
	May 16, 1942	-	326		June 27, 1959	-	688
1943	June 15, 1943	8.36	959	1960	Aug. 6, 1960	4.57	494
1944	Mar. 10, 1944	b4.64	-				
	Aug. 14, 1944	-	351	1961	July 7, 1961	5.07	632
				1962	June 15, 1962	4.70	530
1945	Mar. 11, 1945	b4.54	-	1963	June 22, 1963	4.82	546
	Aug. 13, 1945	-	333	1964	June 9, 1964	12.24	3,750

a At present site and datum; approximate.
b Backwater from ice.
c Not determined.

890. Sun River near Vaughn, Mont.

Location.--Lat 47°31'35", long 111°29'05", in SE¼SW¼ sec.33, T.21 N., R.2 E., on right bank 4 miles downstream from Muddy Creek, 4 miles southeast of Vaughn, and 13 miles upstream from mouth.

Drainage area.--1,854 sq mi.

Gage.--Nonrecording Apr. 19 to Aug. 3, 1934; recording thereafter. Altitude of gage is 3,315 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements.

Remarks.--Flow regulated by four reservoirs (combined capacity, about 180,000 acre-ft). Diversions for irrigation of about 110,000 acres above station. Regulation and diversions materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Sun River near Vaughn, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	June 8, 1934	9.50	11,000	1950	June 18, 1950	9.50	8,700
1935	May 25, 1935	4.85	4,570				
				1951	Nov. 27, 1950	a8.25	-
1936	May 16, 1936	5.02	4,830		June 17, 1951	-	6,200
1937	June 19, 1937	2.74	1,940	1952	May 17, 1952	5.23	4,210
1938	June 24, 1938	9.56	11,200	1953	June 4, 1953	16.38	17,900
1939	May 19, 1939	4.05	3,530	1954	May 22, 1954	9.15	7,820
1940	June 1, 1940	2.63	1,810	1955	May 23, 1955	6.74	5,440
1941	Dec. 28, 1940	a1.97	-	1956	June 4, 1956	8.96	7,660
	June 30, 1941	-	774	1957	May 22, 1957	10.33	8,540
1942	May 28, 1942	7.18	7,780	1958	June 13, 1958	10.92	9,100
1943	June 16, 1943	10.48	10,300	1959	June 16, 1959	8.77	7,170
1944	June 19, 1944	4.6	4,050	1960	Nov. 25, 1959	a6.46	-
1945	June 7, 1945	5.0	4,830		June 5, 1960	-	4,820
1946	May 30, 1946	6.05	6,130	1961	June 1, 1961	6.30	5,310
1947	Mar. 17, 1947	a7.93	-	1962	May 27, 1962	9.99	7,990
	May 11, 1947	-	7,520	1963	June 7, 1963	3.52	2,350
1948	June 6, 1948	13.48	14,300	1964	June 9, 1964	23.4	53,500
1949	May 30, 1949	5.75	4,420				

a Backwater from ice.

893. Sun River tributary near Great Falls, Mont.

Location.--Lat 47°32', long 111°24', in SW¼ sec.31, T.21 N., R.3 E., at culvert on old U.S. Highways 89 and 91, 4 miles northwest of Great Falls.

Drainage area.--21.1 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,330 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements at low discharges, by slope-area measurement at 86 cfs, and by culvert computation at 470 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 20, 1956	1.20	1	1961	-	-	(a)
1957	June 16, 1957	1.05	.1	1962	May 21, 1962	3.06	b150
1958	July 3, 1958	2.74	156	1963	July 5, 1963	1.64	18
1959	Mar. 2, 1959	2.52	116	1964	June 8, 1964	5.46	470
1960	May 23, 1960	1.28	6				

a No evidence of flow during year.
b About.

903. Missouri River near Great Falls, Mont.

Location.--Lat 47°34'55", long 111°03'35", in NE¼SW¼ sec.14, T.21 N., R.5 E., at Moroney Dam, 10 miles northeast of Great Falls.

Drainage area.--23,292 sq mi.

Gage.--Foxboro meters for determining discharge through powerplant and recording gage on reservoir. Datum of gage is mean sea level (levels by Montana Power Co.

Stage-discharge relation.--Discharge computed from powerplant meters and flow through taintor gates on spillway. Current-meter measurements made at cable 800 ft downstream from dam to check computed discharges.

Historical data.--Flood of June 4, 1953, is greatest since 1908.

Remarks.--Records collected by Montana Power Co., under general supervision of Geological Survey, in connection with Federal Power Commission project. Flow regulated by 18 smaller irrigation reservoirs and powerplants and, since 1953, by Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft). Peak flows are materially affected by regulation and diversions. Peaks are principally from snowmelt. Only annual maximum daily discharges are shown, except peak discharge for 1953.

Maximum daily discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 4, 1953	-	a 66,600	1960	May 18, 1960	-	18,100
1957	June 11,12,1957	-	18,700	1961	Feb. 2, 1961	-	8,290
1958	June 14, 1958	-	19,700	1962	June 20, 1962	-	21,100
1959	June 19, 1959	-	24,600	1963	June 9,12,1963	-	19,000

a Momentary maximum.

BELT CREEK BASIN

905. Belt Creek near Monarch, Mont.

Location.--Lat 47°12', long 110°56', in SE¼NW¼ sec.26, T.17 N., R.6 E., on left bank half a mile south of Riceville and 9 miles northwest of Monarch.

Drainage area.--368 sq mi.

Gage.--Recording. Altitude of gage is 3,960 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 8,500 cfs and extended above on basis of slope-area measurement at 11,000 cfs.

Historical data.--Flood in 1908 was several feet lower than in 1953, from information by local resident.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 4, 1952	4.58	1,290	1959	May 17, 1959	3.58	605
	May 26, 1952	4.29	1,110		May 25, 1959	3.67	655
	June 6, 1952	3.42	635		June 7, 1959	5.40	1,830
1953	June 4, 1953	10.12	11,000		June 16, 1959	4.87	1,410
1954	June 5, 1954	4.88	1,460	1960	May 13, 1960	4.13	994
	June 12, 1954	4.06	930		June 4, 1960	3.74	798
1955	May 22, 1955	3.85	798	1961	May 31, 1961	3.58	655
	June 17, 1955	4.61	1,270	1962	May 22, 1962	5.51	1,980
1956	May 28, 1956	3.41	565		June 15, 1962	3.92	836
1957	May 28, 1957	3.95	842	1963	June 5, 1963	4.33	1,080
	June 7, 1957	3.72	708		July 9, 1963	3.65	686
	June 21, 1957	3.61	648	1964	June 9, 1964	7.74	a4,710
1958	May 12, 1958	3.52	625				

a Annual peak only.

908. Missouri River at Fort Benton, Mont.

Location.--Lat 47°49'03", long 110°39'59", in SE¼SE¼ sec.23, T.24 N., R.8 E., on left bank at downstream side of highway bridge at Fort Benton, 4 miles upstream from Shonkin Creek.

Drainage area.--24,749 sq mi.

Gage.--Nonrecording prior to Oct. 11, 1921; recording thereafter. At datum 1.00 ft higher prior to Apr. 26, 1924. Datum of gage is 2,614.05 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 63,000 cfs.

Remarks.--Diversion for about 730,000 acres above station. Flow regulated by numerous small irrigation reservoirs and powerplants and since 1953 by Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft). Annual peak flows probably not materially affected prior to 1953. Peaks are principally from snowmelt. Only annual maximum daily discharges are shown prior to 1921, except peak stage and discharge for 1908; annual peaks except as noted thereafter.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1891	July 14, 1891	-	39,700	1935	June 15, 1935	5.14	17,200
1892	June 14, 1892	-	65,800				
1893	June 16-18, 1893	-	35,600	1936	Jan. 10, 1936	d9.10	-
1894	June 8, 1894	-	55,300		May 18, 1936	-	24,000
1895	June 15, 1895	-	21,400	1937	July 13, 1937	3.56	10,600
				1938	June 24, 1938	7.20	30,600
1896	June 20-23, 1896	-	40,400	1939	Feb. 15, 1939	d8.61	-
1897	May 22, 23, 1897	-	27,300		May 18, 1939	-	17,900
1898	June 20, 21, 1898	-	37,600	1940	Jan. 9, 1940	d10.33	-
1899	June 27, 1899	-	46,000		June 14, 1940	-	13,600
1901	May 23, 24, 1901	-	30,400	1941	Jan. 27, 1941	d10.72	-
1902	May 22, 1902	-	31,800		June 13, 1941	-	15,300
1903	June 9, 10, 1903	-	30,400	1942	Jan. 2, 1942	d8.75	-
1904	(a)	-	27,300		June 10, 1942	-	33,200
1905	June 11, 1905	-	15,900	1943	Jan. 29, 30, 1943	d9.00	-
					June 16, 1943	-	38,500
1906	June 17, 18, 20-22, 1906	-	19,800	1944	June 19, 1944	7.70	31,000
				1945	June 14, 1945	6.57	23,900
1907	June 25, 26, 1907	-	47,500				
1908	June 6, 1908	17.5	b140,000	1946	June 6, 1946	5.62	18,900
1909	June 12, 1909	-	54,400	1947	Feb. 4, 1947	d11.90	-
1910	May 4, 15, 16, 1910	-	23,500		June 16, 1947	-	34,200
				1948	June 7, 1948	10.93	52,800
				1949	Jan. 13, 1949	d12.98	-
1911	June 20, 1911	-	31,900		June 4, 1949	-	22,700
1912	June 17-19, 1912	-	33,100	1950	Dec. 24, 1949	d12.89	-
1913	June 5, 6, 1913	-	44,000		June 19, 1950	-	28,900
1914	June 15, 16, 1914	-	28,900				
1915	July 6, 1915	-	30,700	1951	Jan. 31, 1951	d9.56	-
					May 14, 1951	-	27,500
1916	June 23, 1916	-	48,600	1952	Dec. 20, 1951	d10.62	-
1917	May 28, 1917	-	48,200		May 27, 1952	-	24,500
1918	June 19, 1918	-	28,000	1953	June 5, 1953	13.57	78,700
1919	May 30, 1919	-	13,900	1954	Jan. 19, 1954	d11.20	-
1920	June 18-20, 1920	-	30,700		May 21, 1954	-	17,900
				1955	Mar. 7, 1955	d12.65	-
1921	June 16, 1921	6.45	32,200		May 23, 1955	-	15,900
1922	June 12, 1922	6.48	34,300				
1923	June 26, 1923	5.05	25,400	1956	June 4, 1956	7.86	31,100
1924	May 21, 1924	6.13	24,300	1957	Dec. 9, 1956	d13.25	-
1925	May 25, 1925	7.05	29,800		May 22, 1957	-	21,400
				1958	June 14, 1958	6.13	20,500
1926	Apr. 21, 1926	5.45	20,400	1959	Jan. 27, 1959	d12.22	-
1927	June 13, 1927	10.3	c52,900		June 23, 1959	-	27,500
1928	May 28, 1928	7.65	33,400	1960	Mar. 6, 1960	d11.46	-
1929	June 2, 1929	5.65	21,500		May 16, 1960	-	20,600
1930	Apr. 13, 20, 1930	4.8	c16,900				
				1961	June 1, 1961	3.91	10,300
1931	Feb. 1, 1931	4.00	13,000	1962	Jan. 10, 1962	d10.78	-
1932	June 13, 1932	5.95	23,500		June 18, 1962	-	23,000
1933	June 10, 1933	6.49	26,200	1963	Feb. 6, 1963	d12.78	-
1934	Jan. 3, 1934	d12.2	-		June 8, 1963	-	22,200
	June 9, 1934	-	19,600	1964	June 10, 1964	13.44	77,400

a Occurred May 25, 27-20, June 6, 7, 1904. b About. c Maximum daily.
d Backwater from ice.

920. Two Medicine Creek near Browning, Mont.
(Published as "at Family" 1907-24 and as "Two Medicine River" prior to October 1957)

Location.--Lat 48°28'30", long 112°48'10", in SE¼ sec.5, T.31 N., R.9 W., on right bank 800 ft upstream from new bridge on U.S. Highway 89, 11 miles southeast of Browning, and 15 miles upstream from Badger Creek.

Drainage area.--317 sq mi.

Gage.--Nonrecording at several sites within 3 miles of present site at various datums prior to Nov. 1, 1924; recording at present site and datum since May 1951. Altitude of gage is 3,930 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 6,300 cfs at present site.

Remarks.--Diversions above station into Two Medicine Canal for irrigation of about 10,000 acres below station. Flow affected by storage in Lower Two Medicine Lake since 1913 (usable capacity, 16,200 acre-ft). Peak flows are materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	June 23, 1907	8.6	7,950	1951	June 24, 1951	5.54	4,620
1908	June 6, 1908	-	(a)	1952	Apr. 28, 1952	4.48	2,280
1909	June 9, 1909	8.15	7,600	1953	June 4, 1953	6.78	6,520
1910	Apr. 27, 1910	4.3	1,790	1954	May 20, 1954	6.62	5,860
				1955	May 20, 1955	4.59	2,590
1911	May 16, 1911	6.8	4,140				
1912	May 21, 1912	5.5	2,900	1956	May 21, 1956	5.67	-
					May 22, 1956	-	5,020
1914	May 17, 1914	4.9	1,640	1957	May 4, 1957	4.78	3,960
1915	May 2, 1915	5.1	1,840	1958	May 13, 1958	4.14	2,720
				1959	June 6, 1959	4.69	3,940
1916	June 21, 1916	-	b4,300	1960	May 13, 1960	3.46	-
1917	June 8, 1917	7.8	5,160		June 4, 1960	-	2,100
1918	May 4, 1918	7.8	5,160				
1919	May 29, 1919	5.38	2,030	1961	May 31, 1961	4.25	3,350
1920	May 21, 1920	5.48	2,150	1962	May 20, 1962	3.18	1,790
				1963	Feb. 5, 1963	c3.37	-
1921	May 21, 1921	5.58	2,320		June 6, 1963	-	1,540
1922	June 7, 1922	6.26	3,180	1964	June 8, 1964	14.0	d100,000
1923	June 12, 1923	5.60	2,340				
1924	June 11, 1924	6.05	2,890				

a Discharge not determined; exceeded that of June 23, 1907.
b Maximum daily.
c Backwater from ice.
d About.

925. Badger Creek near Browning, Mont.

Location.--Lat 48°21'00", long 112°50'20", in NE¼ sec.24, T.30 N., R.10 W., on right bank just upstream from point of diversion to Four Horns Canal, 15 miles upstream from mouth and 17 miles southeast of Browning.

Drainage area.--133 sq mi.

Gage.--Recording gage and concrete control consisting of concrete diversion dam and two taintor gates (regularly closed). Datum of gage is 4,179.26 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs.

Remarks.--Water diverted into Four Horns Canal at station for irrigation of about 6,000 acres below station. Diversions are included in peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Badger Creek near Browning, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 24, 1951	5.06	a1,470	1958	May 12, 1958	4.58	1,230
1952	Feb. 26, 1952	b4.68	-	1959	June 6, 1959	5.12	1,970
	Apr. 28, 1952	-	914	1960	Nov. 14, 1959	b4.92	-
1953	June 4, 1953	6.28	4,220		June 3, 1960	-	1,210
1954	May 20, 1954	5.30	2,260				
1955	May 21, 1955	4.73	1,310	1961	May 31, 1961	5.31	2,330
				1962	May 26, 1962	3.99	862
1956	May 22, 1956	5.29	2,150	1963	June 10, 1963	4.05	769
1957	May 20, 1957	4.88	1,710	1964	June 8, 1964	10.37	49,700

a Maximum for period May 20 to Sept. 30, 1951.
b Backwater from ice.

935. Badger Creek near Family, Mont.

Location.--Lat 48°26'10", long 112°42'00", in NE¼ sec.19, T.31 N., R.8 W., at highway bridge, 4 miles southeast of Family.

Drainage area.--239 sq mi.

Gage.--Nonrecording. At site 700 ft downstream prior to June 4, 1908, and at site 300 ft downstream July 21, 1908, to May 24, 1909; both at different datums. Altitude of gage is 3,900 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 1,600 cfs.

Remarks.--Bureau of Reclamation canal began to divert water in 1915 for irrigation above station. Peak flows are materially affected. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 7, 1908	-	(a)	1917	June 9, 1917	6.3	1,910
				1918	May 5, 1918	6.35	1,460
1910	Apr. 28, 1910	5.15	810	1919	May 22, 1919	5.9	1,020
				1920	June 6, 1920	6.29	1,400
1911	June 3, 1911	5.4	1,120				
1912	May 21, 1912	5.6	1,350	1921	May 20, 26, 1921	6.44	1,600
1913	May 27, 1913	5.85	1,780	1922	June 5, 1922	6.16	1,280
				1923	May 26, 1923	5.80	965
1915	June 15, 1915	4.7	504	1924	June 14, 1924	6.35	1,460
1916	June 21, 1916	6.7	2,500				

a Maximum for period of record; discharge not determined.

950. Birch Creek near Dupuyer, Mont.

Location.--Lat 48°15', long 112°39', near center of sec.28, T.29 N., R.8 W., half a mile upstream from B canal headgates and 8 miles northwest of Dupuyer.

Drainage area.--105 sq mi.

Gage.--Nonrecording. At several sites within half a mile of described site at different datums prior to June 29, 1927. Altitude of gage is 4,180 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs at both sites. Peak for flood of June 8, 1964, from slope-area measurement.

Remarks.--Records furnished by Valier-Montana Land and Water Co. Flow regulated by Swift Dam since 1913 (usable capacity, 30,000 acre-ft). Several small diversions for irrigation above station. Peaks since 1913 are materially affected by regulation. Only annual peaks are shown.

Peak stages and discharges of Birch Creek near Dupuyer, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 6, 1908	-	(a)	1924	June 15, 1924	7.32	1,290
1909	July 28, 1909	9.3	3,530	1925	May 22, 1925	7.05	982
1910	May 9, 1910	5.87	430	1926	June 23, 1926	6.02	474
1911	May 16, 1911	6.4	750	1927	June 11, 1927	8.62	2,300
1912	May 21, 1912	7.0	990	1928	May 23, 1928	2.60	894
1913	May 29, 1913	7.25	1,230	1929	Aug. 13, 1929	2.56	817
1914	May 17, 1914	4.22	445	1930	Aug. 12, 1930	2.18	487
1915	June 14, 1915	4.3	554	1931	July 29, 1931	1.90	324
1916	June 21, 1916	10.0	7,000	1932	June 16, 1932	2.27	551
1917	June 17, 1917	6.62	1,080	1933	June 15, 1933	2.76	871
1918	June 17, 24, 26, 1918	5.90	661	1934	June 7, 1934	-	b4,000
1919	June 11, 1919	6.0	680	1935	May 23, 1935	2.67	756
1920	June 15, 1920	6.26	838	1936	June 29, 1936	2.48	565
1921	May 27, 1921	5.94	674	1937	May 7, June 27, 1937	2.31	484
1922	Nov. 15, 1921	5.63	543				
1923	July 17, 1923	6.30	853	1964	June 8, 1964	-	c881,000

a Discharge not determined; exceeded that of June 21, 1916.
b Maximum daily; estimated.
c Result of dam failure.

980. Dupuyer Creek near Valier, Mont.

Location.--Lat 48°14'10", long 112°23'50", in NW¼ sec.33, T.29 N., R.6 W., 6 miles downstream from Sheep Creek and 8 miles southwest of Valier.

Drainage area.--13[illegible] sq mi.

Gage.--Nonrecording prior to Apr. 20, 1925; recording thereafter. Altitude of gage is 3,920 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 1,700 cfs.

Remarks.--Records furnished by the Valier-Montana Land and Water Co. Small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 28, 1913	3.7	304	1927	May 30, 1927	6.30	2,000
1914	May 24, 1914	3.85	351	1928	June 29, 1928	4.35	384
1915	June 5, 1915	3.70	278	1929	June 2, 1929	3.70	170
1916	June 21, 1916	6.5	2,180	1930	Feb. 5, 1930	a4.76	-
1917	Mar. 29, 1917	a6.94	1,500	1932	June 11, 1932	3.87	203
1918	Dec. 31, 1917	-	b300	1933	June 2, 1933	3.90	211
1919	Apr. 1, 1919	3.08	44	1934	June 7, 1934	7.40	3,330
1920	Apr. 13, 1920	5.60	1,370	1935	Apr. 18, 1935	4.64	498
1921	May 20, 1921	3.80	230	1936	Apr. 12, 1936	3.08	55
1922	Apr. 29, 1922	3.90	265	1937	June 14, 1937	4.76	508
1923	Aug. 22, 1923	3.80	172	1948	June 17, 1948	-	7,370
1924	June 15, 1924	4.32	351	1964	June 8, 1964	-	21,600
1925	Apr. 23, 1925	3.90	222				
1926	June 20, 1926	4.20	359				

a Backwater from ice.
b About.

985. Cut Bank Creek near Browning, Mont.

Location.--Lat 48°37', long 113°02', near center of sec.15, T.33 N., R.11 W., 100 ft upstream from road bridge and 4½ miles north of Browning.

Drainage area.--123 sq mi.

Gage.--Recording. Datum of gage is 4,467.44 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 840 cfs.

Remarks.--No regulation or diversion above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	June 11, 1918	3.93	1,020	1922	June 5, 1922	4.82	1,270
1920	June 9, 1920	3.83	940	1923	June 2, 1923	3.94	748
1921	May 26, 1921	4.12	1,030	1924	June 15, 1924	4.06	829

990. Cut Bank Creek at Cut Bank, Mont.

Location.--Lat 48°38'00", long 112°20'40", in SE¼NE¼ sec.11, T.33 N., R.6 W., on right bank at highway bridge, half a mile west of Cut Bank and 17 miles upstream from confluence with Two Medicine Creek.

Drainage area.--1,065 sq mi.

Gage.--Nonrecording prior to Nov. 2, 1924; recording thereafter. At several sites half a mile upstream at various datums prior to May 12, 1922. At present site at different datum May 12, 1922, to Nov. 1, 1924. Altitude of gage is 3,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs at site half a mile upstream and below 4,400 cfs at present site.

Remarks.--Peaks flow not materially affected by diversions. Peaks are principally from snowmelt. Base for partial-duration series, 1,300 cfs. Only annual peaks are shown prior to 1951.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 30, 1906	4.4	1,320	1953	June 15, 1953	5.06	1,560
1907	June 23, 1907	8.2	6,110				
1908	June 5, 1908	11.04	10,400	1954	Apr. 5, 1954	6.79	3,310
1909	July 29, 1909	5.4	2,380		May 21, 1954	5.26	1,750
1910	Mar. 15, 1910	4.0	772	1955	Apr. 2, 1955	b6.73	-
1911	June 25, 1911	5.55	2,560		May 19, 1955	6.36	2,840
1912	May 22, 1912	6.1	1,640	1956	Mar. 31, 1956	b6.05	-
1914	May 18, 1914	5.2	545		May 23, 1956	4.94	1,500
1915	June 26, July 29, 1915	5.0	463		June 3, 1956	4.91	1,470
					July 4, 1956	5.22	1,720
1916	June 22, 1916	6.65	2,600	1957	Feb. 28, 1957	b6.73	-
1917	June 12, 1917	-	a1,610		May 6, 1957	4.70	1,280
1919	May 29, 1919	5.57	905	1958	Apr. 5, 1958	5.89	2,200
1920	June 11, 1920	5.8	1,170	1959	Mar. 18, 1959	b8.83	-
1922	June 6, 1922	4.50	1,310		June 7, 1959	4.42	1,140
1923	June 20, 1923	4.02	918				
1924	June 8, 1924	5.50	2,010	1960	Mar. 20, 1960	b7.88	a2,000
					Mar. 20, 1960	-	a2,000
1951	June 25, 1951	9.15	6,810				
	July 10, 1951	5.69	1,950	1961	May 28, 1961	4.34	1,060
1952	Mar. 28, 1952	b12.8	-	1962	Feb. 1, 1962	b4.47	-
	Apr. 7, 1952	5.77	2,210		June 15, 1962	3.80	714
1953	Apr. 29, 1953	4.75	1,320	1963	Feb. 6, 1963	b6.46	-
	May 28, 1953	4.81	1,360		June 7, 1963	4.35	1,030
	June 3, 1953	8.25	5,300				
	June 8, 1953	8.46	5,640	1964	June 9, 1964	14.2	c16,600

a Maximum daily. b Backwater from ice. c Annual peak only.

995. Marias River near Shelby, Mont.

Location.--Lat 48°26', long 111°53', in SE¼ sec.20, T.31 N., R.2 W., on left bank 200 ft downstream from bridge on U.S. Highway 91, 6 miles south of Shelby, and 24 miles downstream from Cut Bank Creek.

Drainage area.--3,242 sq mi, of which about 2,724 sq mi contributes directly to surface runoff.

Gage.--Nonrecording or recording at several sites within 1,000 ft of present site at approximately the same datum prior to Dec. 23, 1947; recording thereafter. Datum of gage is 3,087.72 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 35,000 cfs.

Remarks.--Diversions for irrigation of about 50,000 acres above station and about 15,000 acres below. Some regulation by four reservoirs above station (combined capacity, 177,870 acre-ft). Diversions and regulation probably do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 2,900 cfs. Only annual peaks are shown prior to 1923.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1902	May 22, 1902	14.50	27,600	1932	May 14, 1932	5.60	4,430
1903	June 7, 1903	6.60	7,800		June 15, 1932	6.98	7,000
1904	Apr. 8, 1904	7.20	8,560		Aug. 21, 1932	6.18	5,470
1906	June 9, 1906	4.90	4,090	1933	Apr. 28, 1933	5.18	3,220
1907	June 24, 1907	14.9	29,500		May 16, 1933	5.29	3,430
1908	June 1908	-	(a)		June 1, 1933	6.26	5,410
					June 10, 1933	6.30	5,500
1911	May 16, 1911	8.3	8,750				
1912	May 22, 1912	8.0	8,000	1934	Apr. 9, 1934	5.50	3,840
1913	May 29, 1913	7.6	6,480		Apr. 26, 1934	6.29	5,370
1914	May 19, 1914	6.6	4,800		May 8, 1934	6.08	4,800
1915	May 3, 1915	5.3	2,660		June 8, 1934	11.05	16,200
1916	June 22, 1916	13.5	24,300	1935	Apr. 18, 1935	5.85	4,580
1917	May 31, 1917	8.4	10,000		May 25, 1935	5.88	4,660
1918	June 10, 1918	6.3	5,020				
1919	May 31, 1919	5.58	3,890	1936	Mar. 3, 1936	c5.63	-
1920	May10,17, 1920	7.40	7,580		May 12, 1936	5.00	3,160
1921	May 20, 1921	6.34	5,230	1937	June 13, 1937	8.55	9,100
1922	May 22, 1922	6.02	4,690				
				1938	Apr. 19, 1938	5.35	3,410
1923	May 11, 1923	5.68	3,950		May 28, 1938	6.26	5,020
	May 26, 1923	5.60	3,800		June 28, 1938	-	(b)
	June 12, 1923	5.72	4,030				
	June 22, 1923	5.52	3,660	1939	Apr. 7, 1939	5.37	3,410
	July 18, 1923	5.22	3,120				
				1940	May 14, 1940	4.58	2,310
1924	May 14, 1924	5.74	3,650				
	May 17, 1924	6.36	4,880	1941	June 30, 1941	4.72	2,450
	June 17, 1924	7.00	6,240				
				1942	May 26, 1942	6.70	5,590
1925	Mar. 25, 1925	-	(b)		June 6, 1942	6.56	5,340
	Apr. 13, 1925	6.55	5,280				
	Apr. 17, 1925	5.85	3,860	1943	Mar. 29, 1943	6.1	4,470
	Apr. 24, 1925	5.95	4,050		Apr. 21, 1943	5.52	3,640
	May 3, 1925	6.25	5,040		June 3, 1943	7.17	6,290
	May 21, 1925	7.35	7,680		June 15, 1943	11.6	17,200
	June 22, 1925	5.70	3,880				
				1944	May 20, 1944	5.28	3,140
1926	June 24, 1926	4.80	2,240				
				1945	May 6, 1945	5.61	3,520
1928	Mar. 20, 1928	-	(b)		May 11, 1945	5.62	3,490
	Apr. 28, 1928	6.11	4,410		May 18, 1945	5.49	3,190
	May 9, 1928	7.12	6,450		June 8, 1945	7.93	6,150
	May 24, 1928	7.1	6,450				
	June 29, 1928	6.21	4,600	1946	May 29, 1946	5.47	2,860
1929	May 25, 1929	6.12	4,190	1947	Mar. 21, 1947	c14.0	(b)
	June 3, 1929	6.16	4,460				
				1948	Apr. 17, 1948	5.77	3,740
1930	Apr. 17, 1930	5.09	2,850		May 9, 1948	6.24	4,360
					May 24, 1948	9.12	9,890
1931	May 18, 1931	4.60	2,290		June 6, 1948	11.5	16,300

a May have exceeded peak of June 18, 1948.
b Not known; probably exceeded base discharge.
c Backwater from ice.

Peak stages and discharges of Marias River near Shelby, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 18, 1948	17.75	40,000	1955	May 22, 1955	7.37	6,920
					June 6, 1955	6.48	5,270
1949	May 18, 1949	6.36	3,580		June 26, 1955	5.59	3,840
	May 31, 1949	6.51	3,800				
				1956	May 10, 1956	5.48	3,770
1950	May 15, 1950	7.23	6,100		May 22, 1956	7.88	8,660
	May 23, 1950	7.55	6,820		June 17, 1956	5.62	4,050
	May 28, 1950	7.08	5,750		July 4, 1956	6.10	4,760
	June 7, 1950	7.58	6,870		July 12, 1956	4.92	2,960
	June 14, 1950	9.11	10,700				
				1957	Feb. 28, 1957	c10.58	-
1951	May 25, 1951	-	d4,500		May 6, 1957	6.78	5,830
	Apr. 2, 1951	6.55	4,460		May 22, 1957	6.98	6,340
	May 1, 1951	7.87	7,340				
	May 12, 1951	7.63	6,780	1958	Apr. 5, 1958	5.14	3,100
	May 24, 1951	7.19	5,780		May 13, 1958	6.31	4,950
	June 16, 1951	7.23	5,870		June 5, 1958	5.19	3,320
	June 25, 1951	9.72	12,100		June 11, 1958	5.86	4,310
	July 11, 1951	7.80	7,170				
				1959	Mar. 18, 1959	c8.74	-
1952	Mar. 27, 1952	c8.98	-		Mar. 22, 1959	5.28	3,580
	Mar. 29, 1952	7.28	6,340		May 1, 1959	6.11	4,690
	Apr. 7, 1952	6.02	3,690		May 10, 1959	5.09	3,210
	Apr. 19, 1952	6.00	3,580		May 19, 1959	6.04	4,690
	Apr. 28, 1952	6.60	4,550		June 6, 1959	7.26	6,970
	May 5, 1952	6.37	4,130		June 15, 1959	6.28	5,170
	May 16, 1952	5.90	3,340				
				1960	Mar. 20, 1960	c8.25	-
1953	Apr. 23, 1953	5.98	3,470		Mar. 21, 1960	5.55	4,080
	Apr. 29, 1953	6.52	4,400		May 13, 1960	5.94	4,700
	May 9, 1953	6.59	4,530		June 4, 1960	6.00	4,800
	May 20, 1953	6.35	4,090				
	June 5, 1953	12.77	21,900	1961	May 31, 1961	6.67	6,010
	June 9, 1953	10.53	15,000				
				1962	Apr. 25, 1962	4.66	3,080
1954	Apr. 6, 1954	5.39	3,570		May 21, 1962	4.86	3,380
	May 21, 1954	8.24	9,600		Feb. 6, 1962	c10.74	-
	June 14, 1954	6.46	4,850				
	June 24, 1954	5.94	4,170	1963	June 7, 1963	4.69	3,020
1955	Mar. 31, 1955	c6.07	(b)	1964	June 9, 1964	23.64	e241,000
	Apr. 4, 1955	-	(b)				

b Not known; probably exceeded base discharge. c Backwater from ice. d Maximum daily. e Annual peak only; affected by dam failure.

1005. Dry Fork Marias River at Fowler, Mont.

Location.--Lat 48°19', long 111°47', in NE¼ sec.31, T.30 N., R.1 W., at highway bridge at Fowler, 5 miles upstream from mouth.

Drainage area.--314 sq mi.

Gage.--Nonrecording. At site a quarter of a mile downstream at different datum prior to October 1920. Altitude of gage is 3,130 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 400 cfs and extended above by logarithmic plotting.

Remarks.--Peak flows materially affected by diversions above station. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	Apr. 14, 1920	6.5	1,450	1926	June 21, 1926	2.73	440
				1927	May 30, 1927	4.44	1,220
1921	July 1, 1921	1.32	63	1928	Mar. 22, 1928	1.90	189
1922	Apr. 29, 1922	2.32	296	1929	June 3, 1929	1.82	189
1923	July 17, 1923	1.94	190	1930	Mar. 22, 1930	3.90	950
1924	Feb. 13, 1924	2.28	284				
1925	June 14, 1925	1.44	95	1931	Aug. 1, 1931	1.76	146

1010. Willow Creek near Devon, Mont.

Location.--Lat 48°38', long 111°28', in NW¼NW¼ sec.10, T.33 N., R.2 E., at road bridge, 2½ miles upstream from Trail Creek and 12 miles north of Devon.

Drainage area.--310 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,210 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 90 cfs.

Remarks.--Diversions for irrigation above station materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	July 14, 1921	5.5	430	1924	June 16, 1924	2.60	112
1922	Apr. 8, 1922	3.2	167	1925	Mar. 23, 1925	3.30	177
1923	July 29, 1923	3.76	224				

1020. Marias River near Brinkman, Mont.

Location.--Lat 48°16', long 110°42', in SE¼SE¼ sec.17, T.29 N., R.8 E., on left bank 4 miles southwest of Brinkman Post Office, 14 miles downstream from Cottonwood Creek, and 30 miles north of Fort Benton.

Drainage area.--6,425 sq mi, of which about 5,907 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site 2,800 ft downstream at datum 0.64 ft higher prior to Oct. 6, 1931; recording thereafter. At site 1,600 ft downstream at present datum Oct. 6, 1931, to July 1, 1939. Datum of gage is 2,677.25 ft above mean sea level, adjustment of 1912.

Stage-discharge relation.--Defined by current-meter measurements below 48,000 cfs.

Historical data.--Flood of 1908 is greatest known.

Remarks.--Diversion for irrigation of about 65,000 acres above station. Peak flows regulated by Tiber Reservoir (usable capacity, 1,313,000 acre-ft) since Oct. 28, 1955, and four other reservoirs having a combined capacity of 177,870 acre-ft. Peaks are principally from snowmelt. Base for partial-duration series. 2,600 cfs. Only annual peaks are shown prior to 1932.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	-	ab24.0	a70,000	1933	Apr. 29, 1933	5.09	3,230
					May 19, 1933	5.25	3,560
1922	June 7, 1922	4.72	4,630		June 11, 1933	6.21	5,800
1923	July 2, 1923	4.81	4,710				
1924	June 17, 1924	5.60	6,380	1934	Nov. 1, 1933	-	(e)
1925	Mar. 24, 1925	c7.25	-		Apr. 27, 1934	6.12	4,770
	May 23, 1925	5.65	6,480		May 9, 1934	6.04	4,620
					June 10, 1934	10.26	14,000
1926	June 22, 1926	3.05	2,100		June 29, 1934	4.87	2,620
1927	June 1, 1927	9.2	14,300				
1928	May 10, 1928	5.3	5,810	1935	Apr. 19, 1935	6.53	5,330
1929	June 3, 1929	4.78	4,880		May 25, 1935	6.00	4,500
1930	Apr. 28, May 1, 1930	3.27	3,400		July 22, 1935	5.12	2,930
				1936	May 14, 1936	4.94	2,650
1931	June 29, 1931	4.55	4,500				
				1937	June 15, 1937	8.10	8,870
1932	Feb. 29, 1932	c9.48	d5,300				
	May 15, 1932	5.48	4,070	1938	May 30, 1938	6.57	5,770
	May 21, 1932	5.50	4,110		June 21, 1938	8.74	10,200
	May 24, 1932	5.63	4,180		June 28, 1938	5.93	4,250
	June 17, 1932	5.71	4,600				

a About. b Present site and datum. c Backwater from ice. d Maximum daily; approximate. e Not known; probably exceeded base discharge.

Peak stages and discharges of Marias River near Brinkman, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 7, 1939	5.21	3,050	1950	June 8, 1950	8.66	6,100
	May 20, 1939	4.97	2,620		June 15, 1950	10.0	8,990
1940	May 16,17, 1940	5.92	1,900		July 3, 1950	8.48	5,740
1941	July 4, 1941	6.16	2,220	1951	Mar. 24, 1951	c12.69	-
					Mar. 26, 1951	-	d5,000
1942	May 28, 1942	7.36	4,280		Apr. 2, 1951	7.89	4,800
	June 9,10, 1942	7.45	4,460		Apr. 5, 1951	9.02	7,240
					May 3, 1951	8.79	6,710
1943	Feb. 22, 1943	-	d2,500		May 13, 1951	8.26	6,330
	Mar. 30, 1943	7.63	4,740		May 25, 1951	8.17	5,370
	Apr. 22, 1943	6.80	3,210		June 17, 1951	8.22	5,470
	May 1, 1943	6.45	2,680		June 26, 1951	10.43	10,600
	June 17, 1943	12.4	15,300		July 3, 1951	8.18	5,390
					July 11, 1951	8.67	6,640
1944	May 22, 1944	6.44	2,550	1952	Mar. 29, 1952	-	d8,000
					Apr. 3, 1952	9.60	8,570
1945	May 12, 1945	6.67	2,990		Apr. 9, 1952	7.55	4,160
	June 9, 1945	8.26	6,070		Apr. 21, 1952	7.05	3,280
					Apr. 30, 1952	7.52	4,110
1946	June 25, 1946	6.75	3,120				
				1953	May 1, 1953	7.17	3,640
1947	Mar. 20, 1947	c12.18	-		May 10, 1953	7.42	4,120
	Mar. 22, 1947	-	(e)		June 5, 1953	16.28	28,100
	May 13, 1947	7.77	4,610				
	June 11, 1947	7.35	3,860	1954	Mar. 18, 1954	-	(e)
					Apr. 8, 1954	7.44	3,820
1948	Apr. 18, 1948	7.15	3,540		May 9, 1954	8.66	6,380
	May 10, 1948	7.45	4,040		May 22, 1954	9.88	9,240
	May 25, 1948	9.7	8,810		June 16, 1954	8.04	4,900
	June 7, 1948	12.5	16,000		June 27, 1954	7.63	4,210
	June 19, 1948	21.0	50,700				
				1955	Apr. 3, 1955	c8.02	-
1949	Apr. 7, 1949	6.82	2,720		June 17, 1955	7.58	4,480
	June 2, 1949	7.32	3,400		July 15, 1955	6.68	2,790
1950	May 17, 1950	8.05	4,920	1956	Feb. 29, 1956	c6.12	-
	May 24, 1950	8.40	5,580		Sept.18, 1956	5.28	f874

c Backwater from ice. d Maximum daily; approximate. e Not known; probably exceeded base discharge. f Regulated peak.

1021. Dry Fork Coulee tributary near Loma, Mont.

Location.--Lat 47°57', long 110°33', in SW¼ sec.2, T.25 N., R.9 E., at culvert on county road, 2 miles west of Loma.

Drainage area.--0.84 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,580 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 15 cfs and by culvert computation at 71 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Mar. 1, 1959	4.02	71	1962	May 21, 1962	0.85	6
1960	Mar. 17, 1960	.41	a2	1963	Aug. 25, 1963	1.54	16
1961	May 31, 1961	b1.42	a1				

a Approximate.
b Backwater from ice.

1022. Marias River tributary at Loma, Mont.

Location.--Lat 47°57', long 110°31', in SW¼SE¼ sec.1, T.25 N., R.9 E., at bridge on county road, five-eighths of a mile west of Loma.

Drainage area.--1.62 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,590 ft (from topographic map).

Stage-discharge relation.--Poorly defined by current-meter measurements below 6 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	a0.8	b5	1961	-	-	(c)
1957	Mar. 1, 1957	a1.74	b3	1962	May 21, 1962	2.11	b20
1958	Mar. 29, 1958	.68	b4	1963	Feb. 4, 1963	a1.88	b10
1959	Mar. 1, 1959	a2.9	b12				
1960	Mar. 17, 1960	1.50	b6				

a Backwater from ice or debris.
b Approximate.
c No evidence of flow during year.

1023. Marias River tributary No. 2 at Loma, Mont.

Location.--Lat 47°57', long 110°30', in NE¼NE¼ sec.12, T.25 N., R.9 E., at culvert on approach to U.S. Highway 87, a quarter of a mile north of Loma.

Drainage area.--0.25 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,590 ft (from topographic map).

Stage-discharge relation.--Poorly defined by current-meter measurements below 1 cfs and by culvert computation at 15 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May 27, 1956	2.97	20	1961	-	-	(b)
1957	Mar. 1, 1957	a2.46	10	1962	Mar. 17, 1962	a1.55	2
1958	Mar. 29, 1958	a1.40	1	1963	June 28, 1963	2.60	15
1959	February 1959	1.01	1				
1960	Mar. 17, 1960	a1.73	2				

a Backwater from ice or debris.
b No evidence of flow during year.

1025. Teton River near Farmington, Mont.

Location.--Lat 47°53'00", long 112°36'35", in NE¼NE¼ sec.34, T.25 N., R.8 W., 300 ft downstream from highway bridge, 1 1/8 miles downstream from South Fork, and 20 miles west of Farmington.

Drainage area.--105 sq mi.

Gage.--Recording. Altitude of gage is 4,770 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 400 cfs.

Peak stages and discharges of Teton River near Farmington, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 23, 1948	4.25	1,970	1951	May 12, 1951	5.35	844
	June 3, 1948	5.32	2,780		May 24, 1951	5.35	844
	June 17, 1948	4.44	1,490		June 15, 1951	5.72	1,230
					July 12, 1951	5.04	610
1949	Feb. 18, 1949	a6.41	-	1952	Jan. 8, 1952	a5.41	-
	May 13, 1949	4.76	432		Apr. 29, 1952	4.67	455
	May 30, 1949	4.92	515		May 20, 1952	4.73	493
	June 6, 1949	4.74	402	1953	June 3, 1953	6.87	2,400
1950	Jan. 6, 1950	a7.34	-		June 13, 1953	6.03	2,080
	May 18, 1950	4.98	575	1954	May 20, 1954	5.31	1,210
	May 23, 1950	5.15	710		June 14, 1954	4.75	700
	May 28, 1950	5.02	606		June 23, 1954	4.83	767
	June 6, 1950	5.98	1,530				
	June 21, 1950	6.02	1,570				
	July 1, 1950	5.42	950	1964	June 8, 1964	-	b54,600

a Backwater from ice.
b Annual peak only.

1030. Teton River at Strabane, Mont.
(Published as "near Belleview" prior to 1910)

Location.--Lat 47°53', long 112°28', in SE¼NE¼ sec.35, T.25 N., R.7 W., at bridge at Strabane, 8 miles downstream from South Fork Teton River and 14 miles northwest of Choteau.

Drainage area.--128 sq mi.

Gage.--Nonrecording. At site half a mile upstream at different datum May 9, 1906, to Mar. 30, 1911. Altitude of gage is 4,440 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs at described site.

Remarks.--Starting in 1918 canal diverted floodwaters above station for storage in Bynum Reservoir for irrigation. Peak flows materially affected since 1918. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 10, 1908	9.0	2,300	1917	May 26, 1917	6.45	2,460
1909	July 27, 1909	7.4	1,080	1918	June 10, 1918	4.25	636
1910	May 4, 1910	6.3	525	1919	May 23, 1919	2.82	217
				1920	June 15, 1920	3.70	432
1911	May 16, 1911	5.1	820				
1912	May 22, 1912	5.4	925	1921	May 20, 1921	3.59	396
1913	June 2, 1913	5.8	1,410	1922	June 5, 1922	3.74	412
1914	June 4, 1914	4.76	415	1923	June 16, 1923	3.24	252
1915	May 9, 1915	4.75	430	1924	June 16, 1924	4.06	502
				1925	May 21, 1925	4.06	642
1916	June 21, 1916	7.8	3,810				

1035. Spring Creek near Strabane, Mont.

Location.--Lat 47°52', long 112°27', in NE¼SE¼ sec.2, T.24 N., R.7 W., at highway bridge, 1¼ miles south of Strabane and 13 miles west of Choteau.

Drainage area.--5.17 sq mi.

Gage.--Nonrecording. At site 200 ft upstream at different datum May 30 to Dec. 31, 1913. Altitude of gage is 4,470 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 17 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Spring Creek near Strabane, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	July 27, 1913	4.32	38	1918	Mar. 31, 1918	1.50	26
				1919	Mar. 18, 1919	1.15	16
1917	May 31, 1917	2.44	66	1920	May 13, 1920	1.58	28

1045. Teton River near Choteau, Mont.

Location.--Lat 47°48', long 112°11', in SW¼NE¼ sec.36, T.24 N., R.5 W., at highway bridge, 1 mile upstream from Deep Creek and 1½ miles south of Choteau.

Drainage area.--221 sq mi.

Gage.--Nonrecording. At site 1 mile upstream at different datum prior to Apr. 19, 1918. Altitude of gage is 3,740 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended above by logarithmic plotting at site used prior to Apr. 19, 1918.

Remarks.--Many diversions above station materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 14, 1906	1.97	30	1916	June 22, 1916	8.7	4,500
1913	June 4, 1913	5.8	1,050	1918	June 11, 1918	3.17	272
1915	(a)	3.4	110				

a Occurred July 18, 31, Aug. 1-6, 1915.

1055. Willow Creek near Choteau, Mont.

Location.--Lat 47°45', long 112°20', in S½ sec.14, T.23 N., R.6 W., about 3 miles upstream from mouth and 9 miles southwest of Choteau.

Drainage area.--88.2 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,780 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 390 cfs.

Remarks.--Small diversions above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	May 21, 1912	5.8	735	1916	June 21, 1916	6.60	880
1913	May 29, 1913	3.3	237	1917	May 26, 1917	5.60	663
1914	May 24, 1914	2.3	70				
1915	July 30, 1915	2.08	47				

1060. Deep Creek near Choteau, Mont.

Location.--Lat 47°45', long 112°14', in SW¼NW¼ sec.15, T.23 N., R.5 W., 2 miles downstream from Willow Creek and 5 miles southwest of Choteau.

Drainage area.--223 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,860 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs and extended above by logarithmic plotting.

Remarks.--Several small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	May 16, 1911	7.3	582	1919	Mar. 23, 1919	5.93	84
1912	May 21, 1912	8.4	1,460	1920	Apr. 13, 1920	8.35	1,420
1913	May 30, 1913	7.45	644				
1914	May 25, 1914	6.5	212	1921	May 19, 1921	7.15	490
1915	July 26, 1915	6.6	260	1922	June 10, 1922	7.10	465
				1923	July 8, 1923	6.85	361
1916	June 21, 1916	10.5	3,700	1924	June 9, 1924	6.70	304
1917	May 26, 1917	9.1	2,150				
1918	Jan. 1, 1918	7.1	477	1964	June 8, 1964	-	a41,800

a Momentary maximum.

1065. Muddy Creek near Bynum, Mont.

Location.--Lat 48°00', long 112°22', in NW¼SE¼ sec.22, T.26 N., R.6 W., 200 ft upstream from Blackleaf Creek and 2½ miles northwest of Bynum.

Drainage area.--71.1 sq mi.

Gage.--Nonrecording. In same vicinity at different datum prior to May 20, 1920. Altitude of gage is 4,020 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs.

Remarks.--Small diversions for irrigation above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	June 27, 1913	3.2	320	1920	Apr. 14, 1920	5.37	519
1914	June 14, 1914	2.3	12				
1915	Aug. 2, 1915	2.55	6	1922	June 11,15,1922	2.47	31
				1923	July 8, 1923	2.76	43
1916	June 21, 1916	6.9	976	1924	June 9, 1924	3.60	96
1917	May 26, 1917	5.90	720				
1918	Dec. 31, 1917	3.95	152				

1070. North Fork Muddy Creek near Bynum, Mont.
(Formerly published as "Blackleaf Creek")

Location.--Lat 48°00', long 112°22', in NW¼SE¼ sec.22, T.26 N., R.6 W., 200 ft upstream from mouth and 2 miles northwest of Bynum.

Drainage area.--61.3 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,020 ft (by barometer).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 350 cfs.

Remarks.--Most of flow at low stages diverted for irrigation above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Apr. 7, 1913	3.3	91	1920	May 12, 1920	4.26	212
1914	Oct. 13, 1913	2.7	40				
1915	Aug. 1, 1915	3.35	118	1921	May 7, 1921	2.88	8.2
				1922	Apr. 29, 1922	3.70	102
1916	June 21, 1916	5.85	600	1923	July 9, Aug. 21, 1923	3.50	68
1917	June 1, 1917	5.03	352	1924	June 8, 1924	3.55	92
1919	Nov. 13, 1918	3.12	9.0				

1080. Teton River near Dutton, Mont.

Location.--Lat 47°55'55", long 111°33'05", in SE¼SW¼ sec.12, T.25 N., R.1 E., on left bank 300 ft downstream from Kerr Bridge, 1 mile downstream from Hunt Coulee, and 10 miles northeast of Dutton.

Drainage area.--1,308 sq mi.

Gage.--Recording. Altitude of gage is 3,235 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Water diverted on left bank above station for storage in Bynum Reservoir (usable storage, 75,000 acre-ft). Diversions for irrigation of about 44,000 acres above station. Storage and diversions materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Apr. 1, 1955	a5.56	-	1960	Mar. 21, 1960	a8.30	-
	July 17, 1955	-	1,040		May 4, 1960	-	744
1956	Mar. 21, 1956	a5.74	-	1961	Dec. 26, 1960	a4.02	-
	Aug. 4, 1956	-	875		June 1, 1961	-	376
1957	Mar. 2, 1957	a5.61	-	1962	Mar. 19, 1962	a5.77	-
	May 23, 1957	-	1,100		May 28, 1962	-	1,040
1958	June 21, 1958	5.96	1,310	1963	Feb. 7, 1963	a7.06	b1,000
1959	Mar. 9, 1959	a8.68	-	1964	June 9, 1964	19.8	71,300
	Mar. 19, 1959	-	975				

a Backwater from ice.
b Maximum daily.

1095. Missouri River at Virgelle, Mont.
(Published as "at Loma" prior to 1954)

Location.--Lat 48°00'14", long 110°15'19", in SW¼SE¼ sec.13, T.26 N., R.11 E., on left bank a quarter of a mile upstream from Virgelle ferry, half a mile southwest of Virgelle, and 3 miles downstream from Spring Coulee.

Drainage area.--34,379 sq mi.

Gage.--Recording. At Loma, 18 miles upstream, at datum 35.90 ft higher prior to Sept. 30, 1953. Datum of gage is 2,507.50 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 66,000 cfs at former site and below 29,000 cfs at present site.

Historical data.--Flood of 1908 reached a stage about 2 ft higher than that of June 5, 1953, from information by local residents.

Remarks.--Diversion for irrigation of about 830,000 acres above station. Flow regulated by 23 smaller irrigation reservoirs and powerplants, since 1953 by Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft), and since 1956 by Tiber Reservoir (usable capacity, 1,313,000 acre-ft). Peak flows materially affected since 1953. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 16, 1935	6.89	19,800	1950	June 23, 1950	10.34	36,300
1936	May 18, 1936	7.60	23,700	1951	(c)	a16.92	-
1937	Jan. 1, 1937	a11.48	-		May 14, 1951	-	32,800
	June 16, 1937	-	15,400	1952	Dec. 22, 1951	a12.26	-
1938	June 25, 1938	9.12	31,400		May 18, 1952	-	27,700
1939	Feb. 10, 1939	a7.00	-	1953	June 5, 1953	d23.4	e122,000
	May 9, 1939	-	18,100	1954	Feb. 20, 1954	a11.56	-
1940	Jan. 3, 1940	a8.88	-		May 21, 1954	-	22,400
	June 10, 1940	-	13,200	1955	Mar. 31, 1955	a11.13	-
					May 24, 1955	-	19,800
1941	Feb. 28, 1941	a10.48	-				
	June 14, 1941	-	14,600	1956	June 4, 1956	9.87	31,600
1942	Dec. 31, 1941	11.35	-	1957	Jan. 19, 1957	a11.29	-
	June 10, 1942	-	b37,100		June 12, 1957	-	22,900
1943	June 17, 1943	12.96	55,800	1958	June 15, 1958	8.49	24,400
1944	June 19, 1944	8.98	31,400	1959	June 20, 1959	9.71	30,600
1945	Jan. 3, 1945	a11.51	-	1960	Feb. 25, 1960	a11.66	-
	June 9, 1945	-	29,700		May 19, 1960	-	21,200
1946	Dec. 29, 1945	a12.00	-	1961	June 2, 1961	5.59	12,000
	May 31, 1946	-	20,600	1962	Dec. 24, 1961	a11.18	-
1947	Jan. 7, 1947	a11.25	-		June 19, 1962	-	25,200
	May 12, 1947	-	36,700	1963	Feb. 7, 1963	a8.09	-
1948	June 20, 1948	17.63	92,000		June 8, 1963	-	22,800
1949	February 1949	a9.7	-	1964	June 10, 1964	21.30	105,000
	June 4, 1949	-	26,500				

a Backwater from ice. b Maximum observed. c Between Mar. 27 and Apr. 10, 1951.
d From floodmark at present site and datum. e Adjusted to present site.

JUDITH RIVER BASIN

1098. South Fork Judith River near Utica, Mont.

Location.--Lat 46°45', long 110°19', in S½ sec.34, T.12 N., R.11 E., on right bank just downstream from Trask Gulch, 8 miles upstream from confluence with Middle Fork and 18 miles southwest of Utica.

Drainage area.--58.7 sq mi.

Gage.--Recording. Altitude of gage is 5,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs.

Remarks.--Minor diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 80 cfs.

Peak stages and discharges of South Fork Judith River near Utica, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	May 16, 1959	-	a115	1962	May 21, 1962	4.25	178
	June 7, 1959	4.23	194		May 25, 1962	4.90	277
					June 11, 1962	3.70	100
1960	May 11, 1960	3.98	148		June 14, 1962	4.10	156
1961	May 22, 1961	3.20	46	1963	May 6, 1963	3.65	91
					May 14, 1963	3.90	128
1962	Apr. 24, 1962	3.53	84		June 10, 1963	3.56	82
	May 16, 1962	3.67	101				

a Maximum daily discharge; estimated.

1100. Judith River near Utica, Mont.

Location.--Lat 46°54', long 110°14', in NW¼ sec.17, T.13 N., R.12 E., on left bank at Noel Ranch, 3½ miles downstream from confluence of South and Middle Forks and 9 miles southwest of Utica.

Drainage area.--328 sq mi.

Gage.--Nonrecording prior to June 6, 1937; recording and concrete control thereafter. Altitude of gage is 4,790 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 580 cfs.

Remarks.--Minor diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 120 cfs. Only annual observed peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	June 18, 1920	4.25	552	1942	Aug. 5, 1942	3.19	204
1921	May 28, 1921	3.03	218	1943	Mar. 24, 1943	3.32	240
1922	June 9, 1922	4.60	675		Apr. 21, 1943	3.22	212
1923	June 24, 1923	4.37	547		May 4, 1943	3.05	169
1924	May 17, 1924	4.22	514		June 2, 1943	4.24	542
1925	May 22, 1925	3.95	455		June 13, 1943	4.34	580
1926	May 7, 1926	3.95	434	1944	May 19, 1944	3.91	476
1927	June 11, 1927	5.70	1,120		June 3, 1944	3.72	421
1928	May 9, 1928	4.4	628		June 19, 1944	3.65	387
1929	June 1, 1929	3.78	452		June 27, 1944	3.57	354
1930	May 31, 1930	3.54	330		July 20, 1944	3.15	226
					Sept. 1, 1944	3.44	313
1931	June 4, 1931	2.18	63				
1932	May 22, 1932	4.30	567	1945	June 6, 1945	3.72	437
1934	May 12, 1934	2.40	98	1946	Apr. 27, 1946	3.01	211
1935	June 3,13, 1935	2.62	121		May 29, 1946	4.00	493
					June 11, 1946	3.47	316
1936	May 15, 1936	4.00	470		June 17, 1946	3.35	279
1937	May 30, 1937	2.10	66		July 2, 1946	4.09	524
					July 13, 1946	3.00	191
1938	May 26, 1938	4.53	578		July 17, 1946	2.92	169
	June 19, 1938	3.43	271				
	June 23, 1938	4.41	580	1947	Mar. 17, 1947	3.79	397
	June 29, 1938	5.27	928		May 11, 1947	4.53	665
	July 2, 1938	4.46	626		June 1, 1947	3.50	312
	July 4, 1938	3.79	407		June 11, 1947	4.08	500
	July 10, 1938	3.87	431				
	July 19, 1938	3.31	240	1948	May 1, 1948	2.74	130
	July 24, 1938	2.91	161		May 8, 1948	3.27	247
					May 22, 1948	4.39	602
1939	May 5, 1939	3.41	229		June 4, 1948	5.13	898
					June 21, 1948	4.06	486
1940	May 13, 1940	2.92	124		July 11, 1948	3.17	230
	May 30, 1940	2.92	124		July 20, 1948	2.97	183
	June 10, 1940	3.22	186				
	July 12, 1940	3.78	320	1949	Apr. 30, 1949	2.99	188
					May 17, 1949	3.73	422
1941	June 5, 1941	3.18	178		June 1, 1949	3.63	386
	Aug. 8, 1941	5.52	1,070		June 17, 1949	3.05	204
1942	Apr. 22, 1942	2.98	136	1950	Apr. 1, 1950	2.77	135
	May 12, 1942	3.29	202		May 18, 1950	3.43	318
	May 25, 1942	5.56	1,100		May 23, 1950	4.05	550

Peak stages and discharges of Judith River near Utica, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 28, 1950	3.95	510	1956	May 28, 1956	3.57	363
	June 7, 1950	3.90	490		June 16, 1956	2.68	131
	June 19, 1950	4.22	618				
				1957	May 21, 1957	3.39	312
1951	May 13, 1951	3.47	344		June 7, 1957	3.48	340
	May 24, 1951	3.64	418		June 17, 1957	3.31	295
	June 17, 1951	3.45	350				
	July 10, 1951	2.72	133	1958	May 12, 1958	2.87	180
					May 22, 1958	2.81	165
1952	Apr. 29, 1952	3.49	414				
	May 5, 1952	4.01	598	1959	May 16, 1959	-	a170
	May 15, 1952	3.67	426		May 27, 1959	-	a200
	May 22, 1952	4.20	614		June 7, 1959	4.70	725
	June 6, 1952	3.55	361		June 16, 1959	4.31	593
	June 25, 1952	2.79	144		July 7, 1959	2.86	193
	June 27, 1952	2.83	156				
				1960	May 13, 1960	3.36	320
1953	June 4, 1953	5.17	894		June 5, 1960	3.35	317
	June 12, 1953	4.59	685				
				1961	May 24, 1961	2.91	195
1954	May 22, 1954	3.25	249				
	June 16, 1954	3.12	223	1962	May 26, 1962	4.11	581
					June 14, 1962	3.87	485
1955	May 22, 1955	3.05	227				
	June 17, 1955	3.82	424	1963	June 5, 1963	3.37	299

a Maximum daily.

1110. Ross Fork near Hobson, Mont.

Location.--Lat 46°59', long 109°48', in NW¼ sec.11, T.14 N., R.15 E., on left bank 1 mile downstream from Hauck Coulee, 3½ miles east of Hobson, and 7 miles upstream from mouth.

Drainage area.--337 sq mi.

Gage.--Recording. Altitude of gage is 3,860 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs. Large shifts occur due to beaver dams.

Remarks.--Small diversions for irrigation above station should not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Mar. 22, 1947	7.80	1,160	1955	Apr. 19, 1955	6.03	456
					May 3, 1955	4.63	200
1948	Mar. 23, 1948	a6.63	-		May 28, 1955	5.32	359
	Mar. 29, 1948	5.52	435				
	Apr. 3, 1948	5.56	444	1956	Mar. 20, 1956	a6.38	-
	June 4, 1948	5.00	327		Mar. 21, 1956	5.27	389
					June 17, 1956	5.19	293
1949	Mar. 8, 1949	a5.48	b290				
	Mar. 22, 1949	5.76	495	1957	June 23, 1957	3.59	14
	Apr. 6, 1949	3.99	154				
				1958	Feb. 21, 1958	4.76	-
1950	Apr. 3, 1950	4.09	124		Mar. 23, 1958	-	100
1951	Mar. 22, 1951	6.10	505	1959	Mar. 19, 1959	7.18	898
	Mar. 25, 1951	7.06	797		Mar. 22, 1959	6.24	595
	Mar. 30, 1951	4.31	159		Mar. 27, 1959	4.75	226
1952	Mar. 30, 1952	6.16	510	1960	Mar. 20, 1960	7.12	919
	Apr. 3, 1952	6.70	751				
	Apr. 6, 1952	7.44	1,010	1961	May 31, 1961	4.50	24
	Apr. 12, 1952	4.34	202				
				1962	May 21, 1962	9.26	2,640
1953	June 5, 1953	5.71	421		May 26, 1962	4.70	208
					June 12, 1962	7.92	1,700
1955	Mar. 30, 1955	6.34	479		June 15, 1962	6.56	890
	Apr. 6, 1955	4.70	188				

a Backwater from ice.
b Maximum daily.

1121. Cottonwood Creek near Moore, Mont.

Location.--Lat 46°59', long 109°29', in NW¼ sec.18, T.14 N., R.18 E., on right bank 30 ft downstream from bridge, 9½ miles east of Moore, and 12 miles upstream from mouth.

Drainage area.--47.9 sq mi.

Gage.--Recording. Altitude of gage is 4,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	May 22, 1958	3.78	57	1961	June 1, 1961	4.83	101
1959	June 7, 1959	5.42	143	1962	May 22, 1962	6.77	683
1960	June 4, 1960	4.50	102	1963	June 15, 1963	4.75	216

1140. Wolf Creek at Neubert Ranch, near Stanford, Mont.
(Published as "Wolf Creek near Stanford" except in WSP 1309)

Location.--Lat 47°07', long 110°17', in SE¼ sec.26, T.16 N., R.11 E., at Neubert Ranch, a quarter of a mile downstream from confluence of Dry Wolf and Running Wolf Creeks and 4 miles southwest of Stanford.

Drainage area.--79.2 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,500 ft (by barometer). At site 250 ft upstream at different datum prior to Mar. 31, 1922.

Stage-discharge relation.--Defined by current-meter measurements below 140 cfs.

Remarks.--Many small diversions for irrigation above station. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	June 16, 1920	3.35	322	1924	May 19, 1924	2.20	116
				1925	June 16, 1925	1.91	63
1921	June 8, 1921	.93	71				
1922	June 10, 1922	2.12	103	1926	July 8, 1926	2.09	101
1923	June 26, 1923	2.68	198				

1145. Wolf Creek near Stanford, Mont.

Location.--Lat 47°07', long 110°17', in NE¼SE¼ sec.26, T.16 N., R.11 E., on right bank half a mile downstream from confluence of Dry Wolf and Running Wolf Creeks and 4 miles southwest of Stanford.

Drainage area.--112 sq mi.

Gage.--Recording. Altitude of gage is 4,490 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 52 cfs and extended above on basis of velocity-area study.

Remarks.--Some regulation from small dam a quarter of a mile upstream. Several diversions for irrigation above station. Peak flows are not materially affected. Base for partial-duration series, 22 cfs.

Peak stages and discharges of Wolf Creek near Stanford, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	June 22, 1950	2.24	24	1956	Aug. 26, 1956	1.95	9.0
1951	Mar. 7, 1951	a2.87	-	1957	Jan. 14, 1957	a2.59	-
	July 10, 1951	1.92	11		Aug. 29, 1957	2.20	15
1952	Feb. 19, 1952	a2.86	-	1958	June 27, 1958	2.67	d31
	May 29, 1952	2.46	39				
	June 6, 1952	2.50	42	1960	Mar. 3, 1960	a2.48	-
1953	June 4, 1953	4.51	b578		June 19, 1960	1.98	13
	June 14, 1953	4.18	371	1961	Nov. 20, 1960	1.55	3.3
	June 29, 1953	2.96	77		Sept.28, 1961	e3.27	-
	Aug. 4, 1953	2.40	31				
				1962	Dec. 19, 1961	a4.04	-
1955	Apr. 10, 1955	a2.98	c10		May 26, 1962	3.49	17
1956	Feb. 1, 1956	a2.24	-				

a Backwater from ice. b Does not include an estimated 50 cfs in bypass channel.
c Maximum daily. d Annual peak only. e Backwater from beaver dam.

MISSOURI RIVER MAIN STEM

1150. Missouri River at powerplant ferry, near Zortman, Mont.

Location.--Lat 47°43'51", long 108°56'06", in NE¼NE¼ sec.30, T.23 N., R.22 E., on left bank at powerplant ferry, 1½ miles downstream from Woodhawk Creek and 22 miles southwest of Zortman.

Drainage area.--40,763 sq mi.

Gage.--Nonrecording prior to Feb. 7, 1935; recording thereafter. Datum of gage is 2,273.02 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 850,000 acres above station. Flow regulated by 24 smaller irrigation reservoirs and powerplants, Canyon Ferry Reservoir (usable capacity, 2,043,000 acre-ft) since 1953, and Tiber Reservoir (usable capacity, 1,313,000 acre-ft) since 1956. Annual peak flows not materially affected prior to 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Mar. 10, 1934	a9.80	-	1950	Apr. 3, 1950	a12.00	-
	June 12, 1934	-	31,900		June 25, 1950	-	38,300
1935	Mar. 16, 1935	a14.49	-				
	June 17, 1935	-	20,100	1951	Apr. 1, 1951	a21.0	-
					May 27, 1951	-	31,200
1936	May 19, 1936	7.69	21,300	1952	Mar. 28, 1952	a23.91	-
1937	June 12, 1937	7.22	19,000		Mar. 29, 1952	-	b55,000
1938	June 25, 1938	10.25	37,500	1953	June 6, 1953	22.20	137,000
1939	Mar. 18, 1939	a12.54	-	1954	Feb. 4, 1954	a12.59	-
	May 8, 1939	-	18,000		May 23, 1954	-	21,900
1940	Mar. 18, 1940	a10.63	-	1955	Jan. 1, 1955	a9.02	-
	June 3, 1940	-	13,800		May 25, 1955	-	22,400
1941	Mar. 26, 1941	a8.00	-	1956	June 16, 1956	10.64	40,700
	June 15, 1941	-	14,000	1957	Dec. 10, 1956	a14.55	-
1942	June 4, 1942	12.94	51,300		June 12, 1957	-	23,800
1943	Mar. 28, 1943	a19.5	-	1958	Jan. 6, 1958	a13.52	-
	June 20, 1943	-	63,800		June 16, 1958	-	25,600
1944	Dec. 24, 1943	a10.20	-	1959	Mar. 23, 1959	a15.44	-
	June 17, 1944	-	34,800		June 21, 1959	-	34,400
1945	Dec. 18, 1944	a12.56	-	1960	Nov. 21, 1959	a14.22	-
	June 10, 1945	-	31,100		May 17, 1960	-	22,400
1946	Dec. 30, 1945	a11.00	-	1961	Dec. 24, 1960	a13.30	-
	June 1, 1946	-	21,500		May 31, 1961	-	18,300
1947	Mar. 19, 1947	a30.16	-	1962	Dec. 8, 1961	a12.06	-
	May 13, 1947	-	38,800		June 17, 1962	-	29,800
1948	June 21, 1948	18.18	93,200	1963	Feb. 6, 1963	a10.94	-
1949	Mar. 22, 1949	a10.1	-		June 11, 1963	-	23,200
	June 5, 1949	-	26,900	1964	June 11, 1964	19.75	115,000

a Backwater from ice.
b Maximum daily.

1155. North Fork Musselshell River near Delpine, Mont.

Location.--Lat 46°38', long 110°35', in SW¼SE¼ sec.22, T.10 N., R.9 E., on right bank half a mile upstream from high-water line of Durand Reservoir at elevation 5,330 ft, 1 mile downstream from Lion Creek, and 4 miles northwest of Delpine.

Drainage area.--31.4 sq mi.

Gage.--Recording. Altitude of gage is 5,380 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 60 cfs.

Remarks.--Small diversions for irrigation above station do not materially affect peak flows. Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 17, 1941	1.57	61	1951	Apr. 2, 1951	2.57	116
	Aug. 29, 1941	1.41	50	1952	Apr. 6, 1952	2.17	110
1942	Apr. 1, 1942	2.54	150		Apr. 13, 1952	2.24	120
	Apr. 5, 1942	2.44	140		May 8, 1952	1.45	50
	Apr. 11, 1942	2.47	143		May 21, 1952	1.70	72
	June 3, 1942	2.99	199	1953	Mar. 25, 1953	1.44	52
1943	Mar. 29, 1943	2.65	156		June 7, 1953	1.80	79
	Apr. 2, 1943	1.75	75	1954	Apr. 4, 1954	b2.00	-
	June 3, 1943	1.49	52		Apr. 5, 1954	-	c25
1944	Mar. 30, 1944	1.38	48	1955	June 20, 1955	1.58	62
1945	Mar. 21, 1945	1.78	76	1956	Dec. 28, 1955	b2.03	-
1946	Mar. 27, 1946	2.51	146		Apr. 15, 1956	1.51	54
	May 27, 1946	1.66	65	1957	June 6, 1957	1.56	59
	July 5, 1946	1.42	50		June 16, 1957	1.43	51
1947	Mar. 17, 1947	3.08	a210	1958	Apr. 13, 1958	1.77	77
1948	Apr. 15, 1948	3.92	304	1959	Apr. 5, 1959	1.51	56
	May 8, 1948	1.79	75		June 7, 1959	1.49	55
	June 5, 1948	-	88	1960	Mar. 22, 1960	1.51	56
	June 17, 1948	1.74	59		Mar. 24, 1960	2.22	118
1949	Apr. 11, 1949	2.30	105	1961	June 2, 1961	.87	17
	Apr. 16, 1949	1.62	51	1962	May 25, 1962	1.55	58
	June 1, 1949	1.78	63		June 15, 1962	1.52	56
1950	Feb. 26, 1950	2.82	186	1963	Feb. 4, 1963	b2.44	-
	Mar. 4, 1950	1.72	69		June 14, 1963	1.42	44
	Apr. 1, 1950	4.63	423				
1951	Feb. 10, 1951	b3.45	-				

a Annual peak only.
b Backwater from ice.
c Maximum daily.

1160. North Fork Musselshell River at Delpine, Mont.
(Published as "near Delpine 1909-11, 1922)

Location.--Lat 46°35', long 110°34', in SW¼ sec.35, T.10 N., R.9 E., at Delpine, 1 mile upstream from Checkerboard Creek.

Drainage area.--48.6 sq mi.

Gage.--Nonrecording. At site 800 ft upstream prior to Sept. 26, 1923, at site 500 ft downstream Sept. 26, 1923, to Aug. 8, 1927, at different datums. Altitude of gage is 5,380 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 60 cfs at sites used prior to Aug. 8, 1927, and below 90 cfs at described site.

Remarks.--Diversions for irrigation above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of North Fork Musselshell River at Delpine, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 8, 1909	2.5	80	1926	Apr. 11, 1926	5.54	266
1910	Mar. 13, 1910	3.5	178	1927	June 1, 1927	4.82	125
				1928	Apr. 24, 1928	3.60	243
1911	Mar. 23, 1911	2.45	71	1929	Apr. 17, 1929	2.34	76
				1930	May 9, 1930	2.05	34
1922	Apr. 22, 1922	3.40	296				
1923	July 21, 1923	4.50	545	1931	Apr. 1, 1931	1.57	11
1924	Apr. 7, 1924	5.95	364	1932	Apr. 1, 1932	1.64	15
1925	Mar. 22, 1925	6.22	320				

1169. Checkerboard Creek near Delpine, Mont.

Location.--Lat 46°34', long 110°36', in sec.4, T.9 N., R.9 E., half a mile upstream from Stohr Creek $1\frac{3}{4}$ miles west of Delpine, and $2\frac{1}{2}$ miles upstream from mouth.

Drainage area.--21.1 sq mi.

Gage.--Nonrecording. At site 40 ft upstream at different datum prior to Apr. 9, 1911. Altitude of gage is 5,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 64 cfs at site used prior to Apr. 9, 1919, and below 41 cfs at described site.

Remarks.--Small diversions for irrigation above station. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	May 4, 1909	2.0	146	1913	Apr. 13, 1913	4.1	110
1910	(a)	.72	17	1914	May 10, 1914	3.3	53
1911	June 1, 1911	3.30	64				

a Occurred Apr. 12, 13, 20, 22, 23, 26-30, May 1, 10, 1910.

1170. Checkerboard Creek at Delpine, Mont.

Location.--Lat 46°34', long 110°34', in $NE\frac{1}{4}$ sec.2, T.9 N., R.9 E., 500 ft downstream from highway bridge at Delpine, a quarter of a mile downstream from Brooks Creek, and half a mile upstream from mouth.

Drainage area.--23.9 sq mi.

Gage.--Nonrecording. At site 500 ft upstream at different datum prior to Aug. 8, 1927. Altitude of gage is 5,200 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs at site used prior to Aug. 8, 1927, and below 93 cfs at described site.

Remarks.--Diversions for irrigation above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	June 18, 1922	1.90	75	1927	June 1, 1927	2.66	73
1923	July 16, 1923	3.1	167	1928	Apr. 24, 1928	2.75	113
1924	May 16, 1924	2.92	89	1929	May 25, 1929	1.68	22
1925	May 29, 1925	2.40	49	1930	May 9, 1930	1.52	14
1926	Apr. 21, 1926	2.02	49	1932	(a)	1.39	12

a Occurred May 9, 12, 13, 15, 18-21, 1932.

1180. North Fork Musselshell River near Martinsdale, Mont.

Location.--Lat 46°29', long 110°17', in sec.6, T.8 N., R.12 E., at Martin J. Settle Ranch, half a mile upstream from confluence with South Fork ard 2½ miles north of Martinsdale.

Drainage area.--233 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,670 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 440 cfs.

Remarks.--Diversions for irrigation above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 6, 1908	6.25	529	1912	May 22, 1912	6.4	572
1909	July 20, 1909	6.8	640	1913	Apr. 12, 1913	6.8	668
1910	Mar. 7, 1910	5.66	410	1914	June 6, 1914	5.8	448
1911	June 2, 1911	4.8	248				

1185. South Fork Musselshell River above Martinsdale, Mont.

Location.--Lat 46°27', long 110°23', in NW¼ sec.17, T.8 N., R.11 E., on left bank 2 miles downstream from Cottonwood Creek, 3 miles west of Martinsdale, and 6 miles upstream from confluence with North Fork.

Drainage area.--287 sq mi.

Gage.--Nonrecording prior to May 15, 1942; recording thereafter. Altitude of gage is 4,900 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 760 cfs.

Remarks.--Diversions for irrigation of about 6,600 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 480 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	May 27, 1942	5.71	938	1950	June 7, 1950	4.80	672
	June 4, 1942	5.85	993		June 17, 1950	5.17	783
1943	Apr. 11, 1943	4.75	650	1951	May 13, 1951	4.32	528
	Apr. 21, 1943	4.42	537		May 19, 1951	4.45	567
	May 5, 1943	4.82	627		May 24, 1951	4.68	636
	May 31, 1943	5.31	766				
	June 10, 1943	5.37	770	1952	Apr. 19, 1952	4.24	481
					Apr. 29, 1952	5.00	716
1944	May 19, 1944	4.82	631		May 4, 1952	5.39	849
	June 4, 1944	4.78	625				
	June 9, 1944	4.85	651	1953	June 4, 1953	5.97	997
	June 28, 1944	4.63	567				
				1954	May 22, 1954	4.26	437
1945	June 4, 1945	4.33	472				
				1955	June 17, 1955	3.87	336
1946	May 28, 1946	4.49	520				
				1956	May 24, 1956	5.14	784
1947	Dec. 15, 1946	4.42	500		May 29, 1956	5.53	916
	Apr. 15, 1947	4.9	637				
	May 10, 1947	5.38	802	1957	May 15, 1957	4.70	637
	June 10, 1947	5.31	772		May 20, 1957	5.03	746
					May 29, 1957	4.33	517
1948	May 8, 1948	4.78	600		June 7, 1957	5.04	750
	May 22, 1948	-	a1,000		June 17, 1957	4.51	574
	June 5, 1948	6.56	1,240		June 22, 1957	5.03	746
	June 18, 1948	5.68	898				
				1958	May 23, 1958	3.84	353
1949	May 17, 1949	5.58	863				
				1959	June 7, 1959	5.74	975
1950	May 18, 1950	4.88	696		June 16, 1959	5.26	797
	May 23, 1950	4.82	678				

a About.

Peak stages and discharges of South Fork Musselshell River above Martinsdale, Mont.--Con.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	Mar. 23, 1960	4.32	461	1962	May 26, 1962	5.68	941
					June 15, 1962	4.67	572
1961	May 31, 1961	3.75	277				
				1963	May 26, 1963	5.34	728
1962	May 22, 1962	4.61	552		June 11, 1963	4.63	509

1195. South Fork Musselshell River near Martinsdale, Mont.

Location.--Lat 46°28', long 110°18', in N½ sec.12, T.8 N., R.11 E., 1½ miles northeast of Martinsdale and 2 miles upstream from mouth.

Drainage area.--300 sq mi.

Gage.--Nonrecording. At different datum prior to Dec. 2, 1914. Altitude of gage is 4,720 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--Many diversions for irrigation above station. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 4, 7, 1908	5.8	1,260	1912	May 30, 1912	5.1	800
1909	May 25, 1909	5.6	1,140	1913	May 28, 1913	5.65	1,030
1910	Apr. 29, 1910	4.6	585	1914	June 6, 1914	5.0	693
1911	June 2, 1911	6.0	1,380	1932	May 22, 1932	3.00	375

1205. Musselshell River at Harlowton, Mont.

Location.--Lat 46°26', long 109°51', in NE¼ sec.28, T.8 N., R.15 E., on left bank 300 ft downstream from bridge on State Highway 19, 1 mile southwest of Harlowton, and 6 miles upstream from American Fork.

Drainage area.--1,125 sq mi.

Gage.--Nonrecording prior to Aug. 27, 1955; recording thereafter. At site 1¼ miles downstream at different datums prior to Dec. 8, 1937. At bridge 300 ft upstream at different datums Dec. 8, 1937, to Aug. 26, 1955. Altitude of gage is 4,160 ft (by barometer).

Stage-discharge relation.--At site used 1937-55: Defined by current-meter measurements below 2,100 cfs and extended above by logarithmic plotting.

Remarks.--Diversions for irrigation of about 37,000 acres above gage. Some effect on peak flows by storage in Martinsdale Reservoir (total capacity, 23,180 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	May 25, 1909	3.3	1,410	1920	May 13, 1920	5.43	1,570
1910	Apr. 29, May 11, 1910	2.2	680				
				1921	June 9, 1921	4.52	564
				1922	June 11, 1922	5.90	1,690
1911	June 3, 1911	4.1	2,590	1923	June 21, 1923	5.80	2,140
1912	May 22, 1912	3.0	1,410	1924	May 18, 1924	4.73	1,160
1913	May 29, 1913	2.85	1,250	1925	July 24, 1925	5.40	1,960
1914	June 6, 1914	3.1	1,490				
1915	June 13, 1915	2.58	1,000	1926	May 22, 1926	4.30	873
				1927	June 12, 1927	6.32	2,420
1916	June 22, 1916	2.74	1,240	1928	May 12, 1928	5.25	1,620
1917	May 27, 1917	5.3	4,020	1929	June 3, 1929	4.40	775
1918	July 15, 1918	3.80	2,500	1930	Apr. 26, 1930	3.76	339
1919	Mar. 31, 1919	3.78	748				

Peak stages and discharges of Musselshell River at Harlowton, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	June 5, 1931	3.40	155	1949	May 19, 1949	3.78	1,060
1932	June 13, 1932	4.14	561	1950	June 19, 1950	4.14	1,330
1933	June 2, 1933	5.00	1,360				
1934	Jan. 28, 1934	a4.08	-	1951	May 20, 1951	3.08	647
	June 8, 1934	-	385	1952	May 27, 1952	4.33	1,420
1935	July 21, 1935	5.90	2,330	1953	June 13, 1953	3.97	1,230
				1954	Dec. 8, 1953	a2.79	-
1936	Mar. 3, 1936	6.33	-		May 23, 1954	-	315
	Apr. 14, 1936	5.32	2,020	1955	Mar. 9, 1955	a2.36	-
1937	Apr. 17, 1937	3.62	368		June 18, 1955	-	238
1938	June 24, 1938	8.72	4,530				
1939	Mar. 25, 1939	2.78	584	1956	Mar. 24, 1956	a5.62	-
1940	June 9, 1940	-	b175		May 30, 1956	-	1,150
				1957	June 22, 1957	5.48	1,540
1941	June 10, 1941	2.87	586	1958	Feb. 25, 1958	a4.05	-
1942	June 5, 1942	5.32	2,050		May 13, 1958	-	376
1943	Mar. 25, 1943	a5.09	-	1959	June 9, 1959	5.12	1,230
	June 12, 1943	-	1,400	1960	Mar. 21, 1960	a4.43	-
1944	June 29, 1944	4.50	1,430		Mar. 23, 1960	-	595
1945	June 7, 1945	3.28	708				
				1961	Jan. 8, 1961	a3.04	-
1946	May 29, 1946	2.90	550		June 1, 1961	-	93
1947	Mar. 18, 1947	a5.09	-	1962	May 28, 1962	6.26	1,950
	May 12, 1947	-	1,100	1963	Feb. 7, 1963	a7.44	-
1948	June 6, 1948	5.90	2,470		June 12, 1963	-	834

a Backwater from ice.
b Maximum daily; estimated.

1206. Antelope Creek tributary near Harlowton, Mont.

Location.--Lat 46°39', long 109°58', in NE¼ sec.8, T.10 N., R.14 E., at culvert on county road, 18.3 miles northwest of Harlowton.

Drainage area.--0.47 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 5,300 ft (from topographic map).

Stage-discharge relation.--Defined on basis of computed flow through culvert using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	1.36	13	1961	June 13, 1961	0.25	(a)
1957	March 1957	.56	7	1962	Mar. 26, 1962	1.40	1
1958	-	-	(a)	1963	Feb. 4, 1963	1.32	1
1959	March 1959	1.72	3				
1960	Mar. 18, 1960	2.04	6				

a No evidence of flow during year.

1207. Antelope Creek tributary near mouth, near Harlowton, Mont.

Location.--Lat 46°37', long 109°57', in NW¼ sec.22, T.10 N., R.14 E., at bridge on county road, 16.3 miles northwest of Harlowton.

Drainage area.--1.92 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 5,000 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Antelope Creek tributary near mouth, near Harlowton, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 17, 1956	1.60	207	1961	-	-	(a)
1957	June 16, 1957	1.51	188	1962	Mar. 26, 1962	0.28	20
1958	May 23, 1958	.17	17	1963	Feb. 4, 1963	b1.49	c50
1959	Mar. 20, 1959	.75	65				
1960	Mar. 18, 1960	.42	33				

a No evidence of flow during year.
b Backwater from ice.
c Approximate.

1208. Antelope Creek tributary No. 2 near Harlowton, Mont.

Location.--Lat 46°28', long 109°49', in SE¼ sec.10, T.8 N., R.15 E., at E. S. Bacon Ranch, 1½ miles north of Harlowton.

Drainage area.--21.2 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,210 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and by slope-area measurements at 299 and 3,230 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	3.51	820	1961	-	(a)	-
1957	June 21, 1957	1.95	190	1962	June 16, 1962	5.56	3,230
1958	June 1958	.36	35	1963	Feb. 4, 1963	b.61	c20
1959	Mar. 20, 1959	.57	80				
1960	-	(a)	-				

a Below bottom of gage; discharge less than 25 cfs.
b Backwater from ice.
c Approximate.

1209. Antelope Creek at Harlowton, Mont.

Location.--Lat 46°26', long 109°49', in NE¼ sec.22, T.8 N., R.15 E., on overpass on U.S. Highway 12 at Harlowton.

Drainage area.--88.7 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 4,160 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs and by contracted-opening measurements at 1,600 and 24,400 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	June 17, 1950	16.73	24,400	1958	-	(a)	-
				1959	-	(a)	-
1954	Aug. 15, 1954	4.52	1,600	1960	-	(a)	-
1955	June 26, 1955	3.01	591				
				1961	-	(a)	-
1956	June 15, 1956	3.28	800	1962	June 16, 1962	4.02	1,280
1957	June 21, 1957	1.52	170	1963	Feb. 4, 1963	(a)	-

a Below bottom of gage; discharge less than 30 cfs.

1210. American Fork near Harlowton, Mont.

Location.--Lat 46°22', long 109°48', in SW¼ sec.12, T.7 N., R.15 E., half a mile upstream from Lebo Creek and 5 miles southeast of Harlowton.

Drainage area.--94.6 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,220 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 550 cfs.

Remarks.--Diversions for irrigation above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 1, 1908	4.60	980	1925	May 24, 1925	2.78	191
1909	June 21, 1909	3.6	484				
1910	May 11, 1910	2.45	109	1926	May 26, 1926	2.40	111
				1927	June 12, 1927	3.78	509
1911	June 3, 1911	3.75	535	1928	May 12, 1928	2.92	217
				1929	June 2, 1929	2.80	196
1913	May 28, 1913	3.4	386	1930	Oct. 2, 1929	1.18	8
1924	May 20, 1924	2.90	226	1932	June 10, 1932	2.72	124

1215. Lebo Creek near Harlowton, Mont.

Location.--Lat 46°23', long 109°48', in SW¼ sec.12, T.7 N., R.15 E., half a mile upstream from mouth and 4 miles south of Harlowton.

Drainage area.--59.1 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,220 ft (by barometer). At datum 0.71 ft higher prior to May 3, 1924.

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs.

Remarks.--Regulation and diversion for irrigation above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	May 31, 1908	6.0	-	1927	June 2, 1927	3.65	115
1909	May 25, 1909	3.2	-	1928	June 6, 1928	6.90	417
1910	May 16, 1910	1.50	29	1929	(b)	2.62	46
				1930	Mar. 20,21,1930	2.40	32
1913	June 12, 1913	2.4	81				
				1931	(c)	2.10	17
1924	May 6, 1924	2.46	41		Nov. 28 to Dec. 7, 1930	d2.40	-
1925	(a)	2.35	32				
				1932	June 8, 1932	3.68	118
1926	Nov. 1-3, 1925	2.35	32				

a Occurred Apr. 25, May 17, 29-31, June 1, 4, 5, 15, 16, 19, 20, 1925. b Occurred Mar. 20, 21, 26, 1929. c Occurred Oct. 16, 20-26, 31, 1930. d Backwater from ice.

1220. American Fork below Lebo Creek, near Harlowton, Mont.

Location.--Lat 46°24', long 109°46', in NE¼ sec.6, T.7 N., R.16 E., on left bank 2 miles upstream from mouth, 2 miles downstream from Lebo Creek, and 5 miles southeast of Harlowton.

Drainage area.--166 sq mi.

Gage.--Recording. Altitude of gage is 4,170 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 560 cfs.

Remarks.--Diversions for irrigation of about 7,500 acres do not materially affect peak flows. Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Mar. 17, 1947	a4.62	-	1955	Mar. 10, 1955	a3.46	-
	May 11, 1947	4.42	367		June 26, 1955	3.08	92
1948	May 22, 1948	4.54	401	1956	Mar. 21, 1956	-	b160
	May 29, 1948	4.22	311		May 30, 1956	4.93	506
	June 5, 1948	5.37	742				
	June 18, 1948	5.22	652	1957	May 16, 1957	4.37	272
	July 11, 1948	5.67	956		May 21, 1957	4.92	501
	July 19, 1948	4.05	266		June 7, 1957	4.13	203
					June 17, 1957	4.82	446
1949	Mar. 19, 1949	a6.86	-		June 22, 1957	4.93	506
	May 18, 1949	4.13	287				
				1958	May 12, 1958	4.02	194
1950	Feb. 25, 1950	3.92	231		May 25, 1958	3.69	153
	May 10, 1950	3.89	198				
	May 18, 1950	4.77	364	1959	Mar. 1, 1959	a5.82	-
	May 24, 1950	4.60	317		June 8, 1959	4.35	256
	May 28, 1950	4.48	298		June 26, 1959	3.80	158
	June 8, 1950	4.20	216				
	June 17, 1950	5.32	712	1960	Mar. 17, 1960	a4.02	-
					June 4, 1960	3.62	137
1951	Mar. 26, 1951	a4.99	b270				
	Mar. 27, 1951	4.82	424	1961	Dec. 7, 1960	a2.93	-
	May 13, 1951	3.73	178		May 31, 1961	2.40	29
1952	May 15, 1952	4.50	300	1962	May 26, 1962	4.80	440
	May 22, 1952	4.79	430		June 15, 1962	4.69	391
1953	June 6, 1953	4.37	272	1963	Feb. 4, 1963	a4.89	-
	June 13, 1953	4.74	405		June 5, 1963	4.26	231
					June 11, 1963	4.69	381
1954	Feb. 4, 1954	a3.23	-		June 15, 1963	4.50	306
	Apr. 6, 1954	2.78	59		June 21, 1963	3.97	179

a Backwater from ice.
b Daily mean.

1235. Musselshell River near Ryegate, Mont.

Location.--Lat 46°18', long 109°12', in lot 6, NW¼ sec.2, T.6 N., R.20 E., on left bank 1 mile upstream from Careless Creek and 3 miles east of Ryegate.

Drainage area.--1,982 sq mi.

Gage.--Recording. Altitude of gage is 3,580 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Some regulation by Durand, Martinsdale, and Deadman's Basin Reservoirs (combined capacity, 102,430 acre-ft). Diversions for irrigation of about 45,200 acres above station, of which about 2,700 acres is flood irrigated. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges of Musselshell River near Ryegate, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	May 13, 1947	6.66	1,240	1955	June 27, 1955	-	245
1948	June 17, 1948	10.92	6,260				
1949	Mar. 23, 1949	a6.84	-	1956	May 31, 1956	6.87	1,400
	May 20, 1949	-	1,280	1957	June 22, 1957	8.96	2,780
1950	June 19, 1950	10.06	4,010	1958	July 18, 1958	6.65	1,330
				1959	Mar. 3, 1959	a9.25	-
1951	Mar. 25, 1951	a7.63	-		June 10, 1959	-	1,260
	Aug. 29, 1951	-	1,030	1960	Mar. 24, 1960	a8.40	b700
1952	May 23, 1952	7.62	1,800				
1953	June 15, 1953	6.69	1,370	1961	July 31, 1961	5.16	654
1954	Jan. 27, 1954	a5.05	-	1962	June 16, 1962	7.71	1,970
	May 24, 1954	-	274	1963	Feb. 9, 1963	a7.85	-
1955	Apr. 1, 1955	a4.37	-		June 16, 1963	-	1,000

a Backwater from ice.
b About.

1255. Careless Creek at Wallum, Mont.

Location.--Lat 46°25', long 109°23', in SW¼ sec.32, T.8 N., R.19 E., at highway bridge at Wallum, 4 miles upstream from Swimming Woman Creek and 7 miles north of Barber.

Drainage area.--471 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,820 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 130 cfs.

Remarks.--Diversions for irrigation do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	June 8, 1934	6.8	224	1939	Mar. 19, 1939	4.96	110
1935	July 10, 1935	7.0	240	1940	June 20, 1940	5.80	156
1936	Mar. 3, 1936	7.03	240	1941	June 3, 1941	3.30	37
1937	July 14, 1937	5.32	126	1942	June 4, 1942	8.4	410
1938	June 19, 1938	12.0	-				

1257. Big Coulee near Lavina, Mont.

Location.--Lat 46°16', long 108°57', in SE¼ sec.15, T.6 N., R.22 E., on left bank 2 miles upstream from mouth and 2 miles southwest of Lavina.

Drainage area.--232 sq mi.

Gage.--Recording. Altitude of gage is 3,480 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs.

Remarks.--Minor flood irrigation in headwaters does not materially affect peak flows. Base for partial-duration series, 25 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 20, 1958	3.36	25	1960	Mar. 19, 1960	3.30	33
1959	Mar. 2, 1959	a4.30	124	1961	Jan. 31, 1961	a3.09	-
	June 11, 1959	3.08	25		July 21, 1961	2.91	9.7
	June 26, 1959	3.27	29				
	June 30, 1959	3.33	30	1962	Jan. 29, 1962	a4.50	-
	July 15, 1959	3.78	50		Mar. 20, 1962	3.48	132
					June 1, 1962	3.45	87
1960	Mar. 3, 1960	a4.29	-		June 4, 1962	4.00	191

a Backwater from ice.

Peak stages and discharges of Big Coulee near Lavina, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	June 6, 1962	3.05	37	1962	June 23, 1962	3.45	98
	June 13, 1962	3.78	116		July 27, 1962	3.35	65
	June 15, 1962	3.82	116		July 28, 1962	3.56	98
	June 17, 1962	4.00	144				
	June 19, 1962	4.32	250	1963	Feb. 6, 1963	a3.55	20

a Backwater from ice.

1263. Currant Creek near Roundup, Mont.

Location.--Lat 46°22', long 108°39', in SW¼ sec.7, T.7 N., R.25 E., at bridge on U.S. Highway 12, 7 miles southwest of Roundup.

Drainage area.--220 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,270 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 19, 1958	2.12	a40	1962	June 15, 1962	5.28	395
1959	Mar. 1, 1959	6.65	780	1963	June 5, 1963	b3.45	a20
1961	July 21, 1961	1.86	31				

a Approximate.
b Backwater from ice or debris.

1265. Musselshell River near Roundup, Mont.

Location.--Lat 46°26', long 108°34', in SE¼ sec.22, T.8 N., R.25 E., on left bank just downstream from Half Breed Creek, 2½ miles west of Roundup.

Drainage area.--4,023 sq mi.

Gage.--Nonrecording prior to Sept. 26, 1949; recording thereafter. Datum of gage is 3,188.22 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 6,300 cfs.

Remarks.--Some regulation by Durand, Martinsdale, and Deadman's Basin Reservoirs (combined capacity, 102,430 acre-ft). Diversions for irrigation of about 59,600 acres above station of which about 11,000 acres is flood irrigated. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	July 4, 1946	4.08	1,310	1956	May 28, 1956	-	2,520
1947	Mar. 20, 1947	4.76	1,800	1957	June 22, 1957	5.64	2,270
1948	June 18, 1948	11.0	7,460	1958	July 19, 1958	3.91	1,160
				1959	Mar. 2, 1959	a10.68	-
1950	June 19, 1950	6.23	2,960		Mar. 3, 1959	-	b2,000
				1960	Mar. 23, 1960	a3.85	-
1951	Aug. 30, 1951	7.20	3,840		Mar. 25, 1960	-	819
1952	May 29, 1952	4.86	1,880				
1953	June 16, 1953	4.17	1,420	1961	Aug. 1, 1961	2.48	366
1954	Aug. 5, 1954	2.77	532	1962	Mar. 19, 1962	a5.88	-
1955	July 20, 1955	3.30	870		June 16, 1962	-	2,140
				1963	Feb. 10, 1963	a4.70	-
1956	Mar. 18, 1956	a7.29	-		June 17, 1963	-	990

a Backwater from ice.
b Maximum daily.

1275. Musselshell River at Musselshell, Mont.

Location.--Lat 46°32', long 108°06', in S½SW¼ sec.20, T.9 N., R.29 E., on left bank three-quarters of a mile upstream from Hawk Creek and 1 mile west of Musselshell.

Drainage area.--4,568 sq mi.

Gage.--Nonrecording at site 1 mile downstream at different datums prior to Oct. 8, 1949; recording thereafter. Altitude of gage is 2,990 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,300 cfs at former site and below 2,500 cfs at present site.

Historical data.--Flood of May 19, 1917, is greatest known.

Remarks.--Regulation by Durand, Martinsdale, and Deadman's Basin Reservoirs (combined capacity, 102,430 acre-ft). Diversions for irrigation of about 63,300 acres above station, of which 12,500 acres is flood irrigated. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	May 19, 1917	a12	-	1954	Aug. 7, 1954	3.37	370
				1955	Apr. 5, 1955	b3.75	-
1929	June 5, 1929	3.76	882		June 20, 1955	-	294
1930	Aug. 22, 1930	4.80	1,590				
				1956	Mar. 20, 1956	b9.94	-
1932	June 9, 1932	6.18	2,130		Mar. 21, 1956	-	2,210
				1957	June 24, 1957	6.32	2,380
1946	July 5, 1946	4.52	1,220	1958	July 20, 1958	4.13	783
1947	Mar. 17, 1947	6.85	3,040	1959	Mar. 3, 1959	b8.16	-
1948	June 19, 1948	8.5	4,790		Mar. 4, 1959	-	3,870
1949	Mar. 25, 1949	6.0	2,370	1960	Mar. 25, 1960	b4.78	-
1950	June 20, 1950	6.52	2,530		Mar. 25, 1960	-	968
1951	Mar. 27, 1951	b6.61	-	1961	June 15, 1961	2.98	268
	Aug. 31, 1951	-	2,200	1962	Mar. 20, 1962	b6.65	-
1952	Mar. 28, 1952	b5.55	-		June 16, 1962	-	2,200
	May 29, 1952	-	1,750	1963	June 17, 1963	4.41	962
1953	June 8, 1953	5.02	1,380				

a About; at site and datum used August 1945 to October 1949.
b Backwater from ice.

1279. Flatwillow Creek near Flatwillow, Mont.

Location.--Lat 46°48', long 108°37', in NE¼ sec.19, T.12 N., R.25 E., 10 miles southwest of Flatwillow Creek and 14 miles upstream from Pike Creek.

Drainage area.--188 sq mi. At site used prior to Apr. 17, 1918, 202 sq mi.

Gage.--Nonrecording. At site 5 miles downstream at different datum prior to Apr. 17, 1918. At present site at different datum Apr. 17, 1918, to Apr. 15, 1925. At site 300 ft upstream at different datum Apr. 16, 1925, to Sept. 30, 1932. Altitude of gage is 3,560 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 490 cfs at present site.

Remarks.--Diversions for irrigation of about 9,000 acres above station materially affect peak flows. Only annual maximum observed stages and discharges are shown unless otherwise noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 3,4, 1911	7.2	292	1920	July 5, 1920	6.50	459
1912	May 26, 1912	6.3	232				
1913	June 13, 1913	7.6	307	1921	May 10, 1921	3.30	148
1914	Apr.16,17, 1914	6.0	221	1922	June 15, 1922	4.63	241
1915	June 17, 1915	5.9	214	1923	June 27, 1923	5.44	321
				1924	Apr. 16, 1924	5.39	309
1916	June 29, 1916	5.3	180	1925	Apr. 3, 1925	2.50	98
1917	June 4-11,1917	9.0	954				
1918	July 17, 1918	4.0	224	1926	July 9, 1926	1.96	69
1919	July 19, 1919	2.80	128				

Peak stages and discharges of Flatwillow Creek near Flatwillow, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 30 to June 4, 1927	5.9	336	1944	June 28, 1944	4.59	213
				1945	Mar. 12, 1945	b2.80	-
1928	Mar. 26, 1928	3.40	160		June 11, 1945	-	67
1929	June 4, 1929	3.42	a160				
1930	Apr. 16, 1930	3.03	115	1946	Feb. 4, 1946	b2.14	-
					June 13, 1946	-	39
1931	Jan. 31, 1931	1.70	37	1947	Apr. 16, 1947	6.00	275
1932	June 16, 1932	3.70	185	1948	June 22, 1948	5.66	247
				1949	Mar. 9, 1949	b4.49	-
1934	Mar. 5, 1934	1.30	15		Mar. 25, 1949	-	76
1935	July 8, 1935	3.45	153	1950	Apr. 4, 1950	2.44	58
1936	Apr. 13, 1936	3.30	145	1951	Mar. 28, 1951	b3.94	-
1937	-	-	0		Apr. 5, 1951	-	c131
1938	July 7, 1938	4.28	186	1952	Apr. 18, 1952	3.50	c120
1939	June 24, 1939	2.54	93	1953	June 6, 1953	7.23	c708
1940	Mar. 4, 1940	b1.94	-	1954	Feb. 10, 1954	b1.75	-
	Apr. 30, 1940	-	27		Apr. 8, 1954	-	c23
				1955	May 17, 1955	2.96	c96
1941	June 28, 1941	2.63	92				
1942	June 6, 1942	7.00	600	1956	Mar. 22, 1956	b2.00	-
1943	June 14, 1943	6.22	400		Mar. 24, 1956	-	c46

a Maximum for period May 1 to Sept. 30.
b Backwater from ice.
c Momentary maximum.

1282. Flatwillow Creek near Winnett, Mont.
(Published as "at Petrolia" 1921-32)

Location.--Lat 46°56', long 108°12', in NW¼NE¼ sec.32, T.14 N., R.28 E., 8 miles upstream from Box Elder Creek and 8½ miles southeast of Winnett.

Drainage area.--642 sq mi. At site used 1921-32, 660 sq mi.

Gage.--Nonrecording at site 6 miles downstream at datum about 90 ft lower 1921-32; recording at described site and datum thereafter. Altitude of gage is 2,790 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 300 cfs at site used 1921-32, and below 550 cfs at described site.

Remarks.--Diversions for irrigation of about 13,000 acres above station. Storage in Petrolia Reservoir, 3 miles upstream, began in July 1951. Peak flows are not materially affected. Base for partial-duration series, 100 cfs. Only annual observed peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 5, 1923	12.94	3,770	1948	July 12, 1948	3.2	411
1924	June 28, 1924	5.89	866				
1925	June 4, 1925	3.36	242	1949	Feb. 25, 1949	b4.91	-
					Mar. 7, 1949	-	c200
1926	Nov. 11, 1925	2.02	45		Mar. 22, 1949	-	c300
1927	May 28, 1927	8.56	2,170				
1928	July 7, 1928	3.04	209	1950	Mar. 24, 1950	b4.02	-
1929	Mar. 29, 1929	4.00	414		Mar. 24, 1950	-	c160
					June 16, 1950	1.82	134
1931	Feb. 26, 1931	2.38	120		June 26, 1950	2.48	237
1932	June 9, 1932	11.1	3,100				
				1951	Dec. 20, 1950	b4.02	-
1948 a/	May 20, 1948	4.6	730		Mar. 29, 1951	-	c160
	June 4, 1948	4.79	776		Apr. 6, 1951	1.99	136
	June 18, 1948	3.55	488		Aug. 30, 1951	2.37	219
	June 23, 1948	2.47	250				

a For period Apr. 1 to September 30.
b Backwater from ice.
c Daily mean.

1289. Box Elder Creek tributary near Winnett, Mont.

Location.--Lat 47°01', long 108°10', in SW¼NW¼ sec.34, T.15 N., R.28 E., a quarter of a mile north of State Highway 20 and 8 miles east of Winrett.

Drainage area.--16.2 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,760 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs and by slope-area measurements at 193 and 412 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Aug. 23, 1955	2.20	132	1960	Mar. 18, 1960	3.37	275
1956	June 18, 1956	2.11	123	1961	Aug. 10, 1961	.90	40
1957	Feb. 28, 1957	.66	27	1962	June 15, 1962	a8.3	125
1958	July 31, 1958	2.86	193	1963	May 11, 1963	2.87	194
1959	Mar. 1, 1959	3.86	412				

a Backwater from ice or debris.

1290. Box Elder Creek near Winnett, Mont.

Location.--Lat 47°01', long 108°10', in SW¼ sec.34, T.15 N., R.28 E., on right bank 500 ft upstream from bridge on State Highway 20, a quarter of a mile upstream from McDonald Creek, 7 miles upstream from Flatwillow Creek, and 8 miles east of Winnett.

Drainage area.--684 sq mi.

Gage.--Nonrecording at site 1,500 ft downstream at different datums prior to Aug. 22, 1958; recording thereafter. Altitude of gage is 2,720 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 2,700 cfs at former site and below 9,900 cfs at present site.

Remarks.--Diversions and regulation materially affect lower peaks. Base for partial-duration series, 200 cfs. Only annual peaks are shown prior to 1959.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Oct. 12, 1930	2.2	237	1961	July 30, 1961	3.07	69
1932	June 8, 1932	9.30	4,210	1962	May 14, 1962	4.11	296
					May 16, 1962	6.39	1,130
1934	June 7, 1934	8.07	2,840		May 24, 1962	5.09	677
1935	May 17, 1935	3.86	578		May 27, 1962	4.51	443
					June 5, 1962	4.07	311
1936	Mar. 7, 1936	4.00	620		June 13, 1962	8.74	2,250
1937	July 14, 1937	11.1	4,730		June 16, 1962	15.34	9,910
1938	July 5, 1938	4.98	1,060		Aug. 23, 1962	6.24	796
1959	Mar. 10, 1959	a11.16	-	1963	Feb. 6, 1963	a10.53	(b)
	Mar. 17, 1959	6.61	1,220		Feb. 26, 1963	-	c250
					May 14, 1963	4.54	222
1960	Mar. 20, 1960	5.26	691		June 29, 1963	5.83	632

a Backwater from ice.
b Not known; may have exceeded peak of June 29.
c Approximate.

1295. McDonald Creek at Winnett, Mont.

Location.--Lat 47°00', long 108°21', in NW¼ sec.7, T.14 N., R.27 E., at bridge on State Highway 244, three-quarters of a mile south of Winnett.

Drainage area.--421 sq mi.

Gage.--Nonrecording at sites within 1 mile of Winnett at different datums prior to Oct. 1, 1956; crest-stage gage thereafter. At Winnett, at different datum Oct. 1, 1956, to March 1960. Altitude of gage is 2,930 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Mar. 2, 1931	13.30	4.2	1945	June 7, 1945	2.48	180
1932	June 9, 1932	20.40	562				
				1953	June 10, 1953	5.66	424
1934	June 9, 1934	18.12	351	1954	Aug. 5, 1954	3.00	47
1935	July 8, 1935	18.30	371	1955	Apr. 11, 1955	4.39	241
1936	Mar. 5, 1936	-	220	1956	Aug. 3, 1956	2.55	88
1937	July 13, 1937	18.75	401	1957	Mar. 19, 1957	2.20	67
1938	July 8, 1938	18.71	328	1958	July 19, 1958	3.23	150
1939	June 19, 1939	4.55	270	1959	Mar. 1, 1959	b6.84	-
1940	Mar. 3, 1940	-	75	1960	Mar. 19, 1960	4.44	-
1941	June 28, 1941	5.42	482	1961	Mar. 20, 1961	1.25	.1
1942	May 15, 1942	a8.48	900	1962	June 17, 1962	4.20	485
1943	June 8,18, 1943	5.59	549	1963	Feb. 4, 1963	-	250
1944	June 20, 1944	7.40	853				

a Present site and datum.
b Backwater from ice or beaver dam.

1297. Gorman Coulee near Cat Creek, Mont.

Location.--Lat 47°01', long 108°06', in SW¼SW¼ sec.31, T.15 N., R.29 E., at culvert on State Highway 20, 6 miles southwest of Cat Creek.

Drainage area.--2.32 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,780 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs and extended above on basis of computed flow through culvert using head indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Aug. 23, 1955	5.59	385	1959	June 26, 1959	1.84	68
1956	June 18, 1956	2.73	126	1961	-	-	(a)
1957	Aug. 30, 1957	1.37	43	1962	May 16, 1962	1.06	28
1958	July 19, 1958	2.09	83	1963	-	-	(b)

a No evidence of flow during year.
b Less than 5 cfs.

1298. Gorman Coulee tributary near Cat Creek, Mont.

Location.--Lat 47°01', long 108°06', in SE¼SW¼ sec.31, T.15 N., R.29 E., at culvert on State Highway 20, 6 miles southwest of Cat Creek.

Drainage area.--0.81 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,780 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5 cfs and extended above on basis of computed flow through culvert using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Aug. 23, 1955	3.02	159	1960	Mar. 18, 1960	0.37	12
1956	June 18, 1956	.96	32	1961	Aug. 10, 1961	.50	15
1957	Aug. 30, 1957	1.24	44	1962	May 16, 1962	.55	17
1958	July 31, 1958	2.52	122	1963	-	-	(a)
1959	Sept.22, 1959	.28	10				

a Less than 5 cfs.

1305. Musselshell River at Mosby, Mont.

Location.--Lat 47°00', long 107°54', near northwest corner of sec.11, T.14 N., R.30 E., on left bank 800 ft downstream from highway bridge, half a mile west of Mosby, and 6 miles downstream from Flatwillow Creek.

Drainage area.--7,846 sq mi.

Gage.--Nonrecording prior to Dec. 6, 1962; recording thereafter. Recording gage used periodically during high stages in 1935-44. At site half a mile upstream at different datum prior to 1934. At site 800 ft upstream at datums 2.47 ft and 1.12 ft higher, respectively, Feb. 4, 1934, to Mar. 8, 1936, and Mar. 9, 1936, to Dec. 5, 1962. Altitude of gage is 2,500 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 10,000 cfs at site used 1934-62.

Remarks.--Diversions for irrigation of about 103,000 acres above station. Flow affected by offstream reservoirs. Peak flows are probably not materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	June 19, 1929	5.60	3,280	1948	June 21, 1948	8.18	5,130
				1949	Mar. 5, 1949	a7.81	-
1931	June 23, 1931	3.18	1,100		Mar. 8, 1949	-	2,720
1932	June 9, 1932	7.94	3,440	1950	June 15, 1950	8.33	5,740
1934	June 6, 1934	10.1	8,630	1951	Mar. 30, 1951	a7.10	2,350
1935	July 9, 1935	4.16	1,620	1952	Mar. 28, 1952	9.50	7,320
				1953	June 3, 1953	10.55	9,300
1936	Mar. 6, 1936	7.46	5,250	1954	Aug. 6, 1954	5.23	1,800
1937	June 12, 1937	12.18	13,400	1955	Apr. 14, 1955	4.50	1,270
1938	June 22, 1938	13.57	16,000				
1939	June 17, 1939	8.77	5,680	1956	Mar. 22, 1956	a7.25	-
1940	Mar. 3, 1940	a8.97	2,200		Mar. 22, 1956	-	2,310
				1957	Feb. 28, 1957	a7.45	-
1941	June 28, 1941	8.90	6,040		June 25, 1957	-	2,440
1942	June 4, 1942	10.98	10,000	1958	Mar. 25, 1958	a3.83	-
1943	Feb. 15, 1943	a13.0	-		July 21, 1958	-	590
	June 14, 1943	-	12,500	1959	Mar. 2, 1959	a11.83	-
1944	June 18, 1944	14.43	18,000		Mar. 3, 1959	-	7,570
1945	Feb. 12, 1945	a5.59	-	1960	Mar. 18, 1960	12.02	b5,000
	June 9, 1945	-	1,740				
				1961	Sept.11, 1961	3.87	565
1946	Feb. 19, 1946	a4.42	-	1962	June 17, 1962	12.40	10,200
	July 4, 1946	-	775	1963	Feb. 5, 1963	a8.41	-
1947	Mar. 19, 1947	a14.00	-		June 21, 1963	-	1,840

a Backwater from ice.
b About.

1306. Cat Creek near Cat Creek, Mont.

Location.--Lat 47°03', long 108°01', in SW¼ sec.23, T.15 N., R.29 E., at culvert on county road, 2½ miles south of Cat Creek.

Drainage area.--36.5 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,650 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 20 cfs and extended above on basis of computed flow through culvert and over road using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Aug. 15, 1958	2.76	92	1961	June 23, 1961	1.27	40
1959	Mar. 12, 1959	4.58	170	1962	June 16, 1962	6.19	748
1960	Mar. 18, 1960	5.85	379	1963	June 29, 1963	.72	26

1307. Sand Creek near Jordan, Mont.

Location.--Lat 47°15', long 106°51', in NW¼NW¼ sec.11, T.17 N., R.38 E., on right bank 200 ft upstream from highway bridge, 5 miles southeast of Jordan, and 7 miles upstream from mouth.

Drainage area.--317 sq mi.

Gage.--Recording. Datum of gage is 2,586.28 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 670 cfs.

Remarks.--There are 69 small reservoirs above station used for storage of stock water (total capacity, 1,270 acre-ft). Storage reservoirs may affect peak flows. Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 11, 1958	3.50	205	1961	May 22, 1961	1.96	2.6
1959	Mar. 17, 1959	7.95	2,120	1962	Mar. 20, 1962	-	b200
					July 14, 1962	4.87	576
1960	Mar. 19, 1960	a8.07	b1,000		July 16, 1962	5.02	591
1961	Feb. 6, 1961	a2.25	-	1963	Feb. 6, 1963	a5.32	b250

a Backwater from ice.
b Maximum daily discharge, estimated.

1309.5. Little Dry Creek near Van Norman, Mont.

Location.--Lat 47°21', long 106°22', in SE¼ sec.4, T.18 N., R.42 E., at bridge on State Highway 20, 1½ miles southeast of Van Norman.

Drainage area.--1,224 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,340 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,300 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 6, 1958	0.83	160	1961	Sept.11, 1961	3.08	1,320
1959	Mar. 18, 1959	6.80	5,200	1962	Mar. 22, 1962	2.32	850
1960	Mar. 20, 1960	a7.6	b4,000	1963	Feb. 6, 1963	a2.49	b800

a Backwater from ice.
b Approximate.

1310. Dry Creek near Van Norman, Mont.

Location.--Lat 47°21', long 106°22', in NW¼ sec.3, T.18 N., R.42 E., on left bank 500 ft downstream from Little Dry Creek, 3¾ miles northeast of Van Norman Post Office, and 26 miles east of Jordan.

Drainage area.--2,554 sq mi.

Gage.--Recording. Altitude of gage is 2,330 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 19,000 cfs.

Remarks.--Few small diversions do not affect peak flows. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Apr. 21, 1940	3.83	860	1952	Apr. 1, 1952	11.60	18,600
	June 8, 1940	3.85	880				
	July 5, 1940	3.38	486	1953	Mar. 10, 1953	b3.93	(a)
	July 19, 1940	3.34	458		May 30, 1953	8.41	8,210
	Aug. 1, 1940	4.11	1,170		June 4, 1953	4.67	1,250
					June 12, 1953	3.79	706
1941	June 2, 1941	3.88	858		June 19, 1953	4.13	912
	June 20, 1941	3.32	450		June 24, 1953	4.79	1,450
	Aug. 30, 1941	3.48	552		June 29, 1953	5.43	1,930
	Sept. 8, 1941	4.92	1,950				
				1954	Oct. 22, 1953	3.38	436
1942	Mar. 9, 1942	-	(a)		Aug. 5, 1954	5.52	2,740
	June 4, 1942	6.07	3,620		Aug. 17, 1954	7.00	6,400
	June 7, 1942	4.52	1,530		Aug. 21, 1954	3.77	877
1943	Feb. 22, 1943	-	(a)	1955	Mar. 9, 1955	b4.88	(a)
	Mar. 24, 1943	b8.18	6,340		Apr. 4, 1955	3.77	550
	June 4, 1943	5.23	2,430		June 26, 1955	3.47	510
	June 15, 1943	4.01	1,040		July 6, 1955	5.01	1,600
					July 28, 1955	3.82	667
1944	Mar. 17, 1944	b8.84	-				
	Mar. 19, 1944	-	(a)	1956	Mar. 4, 1956	-	(a)
	June 12, 1944	3.18	440		Mar. 19, 1956	-	c960
	June 18, 1944	8.31	8,350				
				1957	Feb. 28, 1957	4.77	(a)
1945	July 14, 1945	2.40	91		Aug. 31, 1957	3.67	575
1946	Feb. 22, 1946	b5.01	c900	1958	July 6, 1958	2.55	152
	July 9, 1946	3.55	520				
				1959	Mar. 7, 1959	-	(a)
1947	Feb. 16, 1947	-	(a)		Mar. 13, 1959	-	(a)
	Mar. 21, 1947	b15.26	-		Mar. 18, 1959	9.20	12,700
	Mar. 21, 1947	13.39	24,600		Mar. 22, 1959	5.68	4,130
1948	June 4, 1948	5.85	2,640	1960	Mar. 20, 1960	b10.51	d13,000
	June 18, 1948	3.49	486	1961	Sept.11, 1961	4.19	1,720
	July 14, 1948	4.05	792	1962	Mar. 21, 1962	-	(a)
1950	Mar. 26, 1950	-	(a)		June 15, 1962	3.22	778
	Apr. 2, 1950	b7.90	c4,000		July 6, 1962	3.36	958
	Apr. 7, 1950	3.83	1,040		July 15, 1962	5.04	3,190
	June 16, 1950	4.09	1,350				
	July 1, 1950	2.93	428	1963	Feb. 7, 1963	-	c1,000
					Feb. 25, 1963	b4.93	-
1951	Mar. 22, 1951	-	(a)		Feb. 26, 1963	-	(a)
	Sept. 1, 1951	4.15	858		June 6, 1963	3.34	886

a Not known; probably exceeded base discharge.
b Backwater from ice.
c Maximum daily mean discharge.
d About.

1320. Missouri River below Fort Peck Dam, Mont.

Location.--Lat 48°02'30", long 106°21'10", in NW¼ sec.6, T.26 N., R.42 E., on right bank about 2 miles upstream from Milk River, 6 miles south of Nashua, and 8 miles downstream from Fort Peck Dam.

Drainage area.--57,556 sq mi.

Gage.--Recording. At site 0.7 mile upstream at different datum prior to Apr. 14, 1938. Datum of gage is 2,020.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements.

Remarks.--Flow completely regulated by Fort Peck Reservoir (total capacity, 19,410,000 acre-ft), and many other reservoirs above station. Storage began in Fort Peck Reservoir in 1937. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	June 14, 1934	10.0	31,800	1950	Sept. 7,8, 1950	-	c22,300
1935	June 19, 1935	7.71	19,300				
				1951	Sept.30, 1951	-	c27,000
1936	Mar. 10, 1936	a12.30	24,900	1952	Oct.2-4,21-28, 1951	-	c27,400
1937	June 14, 1937	9.95	33,100				
1938	Mar. 11, 1938	a12.25	-		Apr. 18, 1952	10.97	-
	Mar. 17, 1938	8.56	27,700	1953	Sept.26-27,1953	-	c27,000
1939	Mar. 28, 1939	a11.2	-	1954	Aug. 30, 1954	-	c31,000
	May 13, 1939	9.97	b20,900	1955	Sept.19, 1955	8.29	31,600
1940	July 30, 1940	9.12	18,800				
				1956	Oct. 21, 1955	8.01	31,500
1941	Aug. 8, 1941	8.56	17,300	1957	Mar.29-31, May 3, 1957	-	c7,530
1942	Sept.19, 1942	9.10	19,800				
1943	Aug. 16, 1943	-	22,400	1958	Aug. 6, 1958	-	c7,530
	Aug. 21, 1943	9.72	-	1959	Aug. 25, 1959	-	c7,960
1944	Oct. 5, 1943	9.72	22,400	1960	Jan. 26, 1960	a5.98	-
1945	Oct. 12, 1944	9.10	21,300		July 25, 1960	2.71	10,600
1946	Aug. 8, 1946	-	51,000	1961	Sept.30, 1961	-	c15,800
	Aug. 10, 1946	9.64	-	1962	Oct. 1, 1961	4.01	15,800
1947	Sept.24, 1947	-	c27,000		Dec. 20, 1961	a8.41	-
1948	Sept.25, 1948	-	c28,600	1963	Jan. 18, 1963	a5.67	-
1949	Oct. 9, 1948	-	c28,600		Feb. 4, 1963	-	13,500

a Backwater from ice. b Maximum peak discharge; maximum discharge during year, 22,500 cfs at 12:01 a.m. Oct. 1, stage falling. c Maximum daily.

MILK RIVER BASIN

1327. Milk River near Del Bonita, Mont.
(Published as "South Fork Milk River near international boundary" 1905-31; as "South Fork Milk River near international boundary, near Browning" in WSP 1309)

Location.--Lat 48°57', long 112°45', in center of N½ sec.23, T.37 N., R.9 W., at bridge on State Secondary Highway 483, 3½ miles southeast of Del Bonita Port of Entry.

Drainage area.--325 sq mi.

Gage.--Nonrecording prior to Oct. 13, 1913; recording Oct. 13, 1913, to Nov. 1, 1930; crest-stage gage since Aug. 12, 1961, and nonrecording gage since April 1962. At several sites about 5 miles upstream at different datum 1905 to 1931. Altitude of gage is 4,030 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs at former site and extended to 13,000 cfs on basis of velocity-area study. Defined by current-meter measurements below 770 cfs at present site.

Remarks.--No winter records for most years. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Milk River near Del Bonita, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	May 31, 1906	5.9	629	1923	June 22, 1923	3.62	487
1907	June 23, 1907	8.90	1,940	1924	June 8, 1924	4.96	1,230
1908	June 6, 1908	15.4	a13,000	1927	Apr. 25, 1927	7.60	3,290
1911	May 16, 1911	6.55	1,610	1929	June 3, 1929	3.77	597
1913	Apr. 13, 1913	5.7	1,120	1930	Mar. 28, 1930	5.90	1,570
1914	Apr. 12, 1914	4.80	588	1962	Mar. 14, 1962	-	a800
1915	June 25, 1915	6.9	1,820		Mar. 20, 1962	b5.12	-
1916	Feb. 16, 1916	8.6	2,840	1963	Feb. 6, 1963	b5.10	765
1917	Apr. 8, 1917	6.42	1,520	1964	June 8, 1964	9.0	17,300
1919	Apr. 1, 1919	3.14	326				

a About.
b Backwater from ice.

1330. Milk River at western crossing of international boundary
(Published as "South Fork Milk River near international boundary" prior to October 1961)

(International gaging station)

Location.--Lat 49°00'30", long 112°32'40", in NE¼ sec.1, T.1, R.20 W., fourth meridian, on left bank half a mile north of international boundary, 22 miles upstream from North Milk Creek, and 23 miles southwest of Milk River, Alberta.

Drainage area.--397 sq mi.

Gage.--Recording. At sites 0.4 and 0.5 miles downstream, respectively, at different datums Mar. 1, 1931, to Aug. 8, 1948, and Aug. 9, 1948, to Oct. 31, 1958. Altitude of gage is 3,820 ft (from topographic map).

Stage-discharge relation.--1931-48: Defined by current-meter measurements below 1,300 cfs. 1948-58: Defined by current-meter measurements below 2,300 cfs and by slope-area measurement at 3,860 cfs. 1959-63: Defined by current-meter measurements below 730 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Peak flows are not materially affected by several small diversions for irrigation above station. Peaks are principally from snowmelt. Base for partial-duration series, 340 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Apr. 7, 1931	2.25	275	1938	May 23, 1938	2.30	351
1932	May 5, 1932	2.78	435		June 27, 1938	2.72	562
1933	Apr. 29, 1933	2.69	495	1939	Mar. 25, 1939	c2.91	(a)
	May 10, 1933	2.48	388	1940	July 4, 1940	2.65	540
	May 16, 1933	2.50	397	1941	June 13, 1941	2.09	293
1934	Mar. 17, 1934	-	(a)	1942	Apr. 2, 1942	c4.20	-
	Apr. 7, 1934	-	b635		Apr. 3, 1942	3.60	1,380
	May 7, 1934	2.35	387		Apr. 12, 1942	2.72	616
	June 9, 1934	3.56	1,320		May 26, 1942	2.78	624
	June 27, 1934	2.33	364		June 8, 1942	3.00	816
1935	Apr. 17, 1935	4.05	1,790	1943	Apr. 3, 1943	c3.59	-
1936	Apr. 11, 1936	3.82	1,560		Apr. 10, 1943	2.52	478
1937	Apr. 14, 1937	2.81	664		Apr. 16, 1943	2.50	452
	Apr. 28, 1937	2.32	360		Apr. 29, 1943	2.33	371
	June 13, 1937	4.82	2,560		May 2, 1943	2.55	490
1938	Mar. 15, 1938	c5.26	-		June 8, 1943	2.87	707
	Apr. 11, 1938	c2.70	b399		June 15, 1943	2.56	524
	Apr. 19, 1938	2.40	396	1944	Apr. 4, 1944	c2.72	b188
	May 19, 1938	2.45	421	1945	June 7, 1945	2.51	426

a Not known; probably exceeded base discharge.
b Maximum daily, estimated.
c Backwater from ice.

Peak stages and discharges of Milk River at western crossing of international boundary--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 6, 1946	c2.67	-
	May 30, 1946	1.73	141
1947	Mar. 20, 1947	c6.50	-
	Mar. 22, 1947	c4.85	1,450
	Mar. 30, 1947	2.72	592
	Apr. 15, 1947	2.43	411
	Apr. 20, 1947	2.52	458
	Apr. 29, 1947	2.51	452
	May 4, 1947	2.60	513
1948	Apr. 18, 1948	5.82	3,180
	May 8, 1948	-	(a)
	May 24, 1948	3.01	888
	June 5, 1948	2.76	736
	June 13, 1948	2.95	850
	June 18, 1948	6.83	4,750
	July 30, 1948	2.00	342
1949	Apr. 7, 1949	c10.23	b700
	May 20, 1949	1.97	368
1950	Apr. 17, 1950	3.36	1,400
	Apr. 21, 1950	2.76	923
	May 15, 1950	2.88	1,010
	May 24, 1950	2.40	653
	June 8, 1950	2.45	690
	June 19, 1950	2.21	520
	June 26, 1950	2.51	736
	July 3, 1950	1.96	363
1951	Mar. 24, 1951	-	(a)
	Apr. 2, 1951	c6.57	-
	Apr. 4, 1951	3.87	1,470
	May 1, 1951	3.14	1,200
	May 15, 1951	2.83	964
	May 26, 1951	2.00	382
	June 9, 1951	2.98	1,080
	June 21, 1951	2.01	388
	June 24, 1951	5.60	3,930
	July 2, 1951	3.00	1,170
	July 7, 1951	2.37	614
	July 10, 1951	3.11	1,190
	Aug. 31, 1951	2.51	718
	Sept. 3, 1951	1.93	348
	Sept.26, 1951	2.03	398
1952	Mar. 29, 1952	-	b862
	Apr. 7, 1952	5.16	b1,100
	Apr. 15, 1952	2.58	779
	Apr. 28, 1952	2.01	423
	May 5, 1952	2.16	504
	June 13, 1952	1.93	384
1953	Apr. 22, 1953	3.89	2,220
	May 27, 1953	3.04	1,260
	June 4, 1953	5.70	4,600
	June 8, 1953	4.46	2,930
1954	Apr. 7, 1954	6.47	b371
	Apr. 17, 1954	4.09	1,350
	May 13, 1954	3.67	967
	May 21, 1954	3.58	897
	June 11, 1954	2.82	413
1955	Apr. 8, 1955	6.61	-
	Apr. 10, 1955	4.10	1,350
	Apr. 24, 1955	2.78	353
	May 2, 1955	2.98	450
	May 19, 1955	5.29	2,680
	June 26, 1955	3.06	572
	July 12, 1955	3.48	806
1956	Mar. 27, 1956	-	b514
	Apr. 17, 1956	2.88	421
	Apr. 22, 1956	2.77	355
	May 10, 1956	3.22	636
	May 18, 1956	3.12	570
	June 17, 1956	3.01	500
	July 4, 1956	3.84	1,110
1957	Feb. 28, 1957	3.88	-
	Apr. 24, 1957	2.81	393
	May 5, 1957	3.29	686
	May 8, 1957	3.34	720
	May 15, 1957	2.82	404
	May 22, 1957	3.26	666
	June 10, 1957	2.86	426
1958	Mar. 31, 1958	5.5	-
	Apr. 2, 1958	-	b635
	Apr. 5, 1958	3.03	541
	Apr. 9, 1958	3.61	974
	May 14, 1958	2.67	374
	June 21, 1958	2.66	369
1959	Mar. 29, 1959	6.02	b364
	Apr. 4, 1959	4.62	976
	May 1, 1959	4.43	875
	May 19, 1959	4.41	817
1960	Mar. 20, 1960	c7.09	-
	Mar. 21, 1960	b6.74	d2,200
	May 2, 1960	4.38	587
1961	Mar. 19, 1961	c5.79	-
	May 18, 1961	4.07	431
1962	Mar. 28, 1962	-	d400
	Apr. 5, 1962	c6.68	-
	Apr. 5, 1962	4.71	844
	Apr. 16, 1962	4.40	600
1963	Feb. 6, 1963	c6.5	b800
1964	June 9, 1964	9.77	e8,800

a Not known; probably exceeded base discharge. b Maximum daily, estimated.
c Backwater from ice. d About. e Annual peak only.

1335. North Fork Milk River above St. Mary Canal, near Browning, Mont.
(Published as "near Browning" prior to May 1919)

(International gaging station)

Location.--Lat 48°59', long 113°03', in NE¼ sec.16, T.37 N., R.11 W., on left bank 1¼ miles upstream from outlet of canal, 2 miles south of international boundary, and 29 miles north of Browning.

Drainage area.--61.8 sq mi.

Gage.--Nonrecording at several sites within 1 mile of present site at different datums prior to June 20, 1921; recording thereafter. Altitude of gage is 4,220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 110 cfs and extended above on basis of slope-area measurement at 2,120 cfs.

Remarks.--Station maintained jointly by the United States and Canada. Seasonal records only. Small diversions above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Sept. 5, 1911	7.1	385	1950	Apr. 17, 1950	-	a550
1912	Mar. 28, 1912	6.3	306	1951	June 24, 1951	6.69	1,490
1924	June 7, 1924	2.65	168	1953	Apr. 22, 1953	7.55	2,120
1926	Apr. 10, 1926	-	a160	1954	Apr. 17, 1954	3.82	388
1927	May 29, 1927	4.93	660	1955	May 18, 1955	6.6	1,400
1937	June 12, 1937	4.72	659	1956	July 3, 1956	3.16	243
1941	June 29, 1941	1.56	29.7	1957	Mar. 28, 1957	b2.93	-
1942	Apr. 3, 1942	b6.49	-		Apr. 19, 1957	-	111
	Apr. 7, 1942	-	531	1958	Apr. 14, 1958	5.64	915
1944	Mar. 31, 1944	a2.45	ac109	1959	Apr. 1, 1959	b4.6	-
1945	Apr. 21, 1945	3.39	313	1960	May 2, 1960	1.92	80
1948	June 17, 1948	-	a1,500	1962	Mar. 26, 1962	b4.96	-
					Apr. 14, 1962	-	294
				1964	June 8, 1964	4.91	653

a Estimated.
b Backwater from ice.
c Maximum daily.

1340. North Fork Milk River near international boundary
(Published as "near Kimball, Alberta" 1913-16)

(International gaging station)

Location.--Lat 49°01'20", long 112°58'20", in SW¼NE¼ sec.11, T.1, R.23 W., fourth meridian, on left bank 1,500 ft upstream from highway bridge, 1½ miles north of international boundary, 3 miles east of Whiskey Gap, Alberta, and 11 miles southeast of Kimball, Alberta.

Drainage area.--91.8 sq mi.

Gage.--Nonrecording at site 2 miles downstream at different datum prior to May 1913; recording thereafter. At site 700 ft downstream May 1, 1913, to Apr. 11, 1930, and at site 1,500 ft downstream Apr. 12, 1930, to Aug. 15, 1962, at different datums. Datum of gage is 4,112.16 ft above mean sea level (Geodetic Survey of Canada datum).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs at site used 1930-62.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Several small diversions for irrigation above station. Since 1917 peak flows materially affected by water from St. Mary Canal, which enters stream above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of North Fork Milk River near international boundary

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 25, 1911	6.06	702	1940	July 27, 1940	4.07	730
1913	Apr. 14, 1913	5.03	278	1941	June 3, 1941	3.99	705
1914	Apr. 5, 1914	4.48	517	1942	June 5, 1942	4.30	900
1915	Sept. 3, 1915	4.60	558	1943	Mar. 24, 1943	b4.71	-
					June 13, 1943	3.72	625
1916	Feb. 16, 1916	-	a700	1944	Aug. 8, 1944	3.66	595
1917	Apr. 9, 1917	3.98	490	1945	June 5, 1945	3.89	697
1918	July 17, 1918	3.55	427				
1919	May 9, 1919	3.68	476	1946	June 15, 1946	3.76	654
1920	May 8, 1920	4.14	898	1947	Mar. 17, 1947	b5.22	-
					July 19, 1947	3.81	664
1921	June 20, 1921	3.17	473	1948	Apr. 16, 1948	b7.02	-
1922	Aug. 17, 1922	3.32	512		June 17, 1948	6.47	2,950
1923	June 22, 1923	3.73	676	1949	May 17, 1949	3.72	709
1924	June 7, 1924	3.54	674	1950	May 14,17, 1950	3.53	635
1925	Aug. 16, 1925	3.13	590				
				1951	June 24, 1951	6.05	a1,650
1926	Oct. 1, 1925	3.15	544	1952	Mar. 27, 1952	b5.16	-
	June 20, 1926	3.07	544		Apr. 6, 1952	4.14	892
1927	May 29, 1927	3.44	771	1953	June 3, 1953	5.17	1,680
1928	June 24, 1928	3.66	956	1954	Aug. 26, 1954	3.32	637
1929	June 2, 1929	3.32	727	1955	May 18, 1955	3.95	988
1930	July 19, 1930	3.92	596				
				1956	July 3, 1956	3.98	1,020
1931	June 30, 1931	3.92	615	1957	May 21, 1957	3.28	680
1932	June 16, 1932	4.15	708	1958	Apr. 12, 1958	3.55	842
1933	June 28, Aug. 24, 1933	4.01	661	1959	Mar. 21, 1959	b3.83	-
					May 19, 1959	3.59	856
1934	June 27, 1934	4.75	917	1960	June 20, 1960	3.26	750
1935	July 28, 1935	4.24	745				
				1961	Aug. 16, 1961	3.51	862
1936	May 28, 1936	4.23	756	1962	Apr. 14, 1962	3.41	782
1937	June 12, 1937	6.06	2,400	1963	June 22, 1963	6.25	828
1938	June 26, 1938	4.61	889	1964	June 8, 1964	7.98	2,030
1939	June 16, 1939	4.15	716				

a Maximum daily; estimated.
b Backwater from ice.

1345. Milk River at Milk River, Alberta

(International gaging station)

Location.--Lat 49°09', long 112°05', in SE¼ sec.28, T.2, R.16 W., fourth meridian, on left bank 700 ft downstream from highway bridge at Milk River and 22 miles downstream from North Milk River.

Drainage area.--1,036 sq mi.

Gage.--Nonrecording prior to June 17, 1919; recording thereafter. At several sites about 1,000 ft upstream at datum 0.61 ft higher prior to Nov. 3, 1921. Datum of gage is 3,402.78 ft above mean sea level (Geodetic Survey of Canada datum).

Stage-discharge relation.--Defined by current-meter measurements below 4,000 cfs and extended above on basis of area-velocity studies.

Remarks.--Station maintained jointly by Canada and the United States. Records prior to Oct. 1, 1920 (irrrigation season only), furnished by Canadian Department of Resources and Development. Since 1917, peak flows have been affected by flow from St. Mary Canal during irrigation season. Several small diversions for irrigation. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	May 23, 1909	7.76	4,616	1917	Apr. 7, 1917	6.30	3,326
				1918	Mar. 28, 1918	a3.80	1,000
1913	Apr. 14, 1913	5.04	1,950	1919	May 10, 1919	3.05	752
1914	Apr. 6, 1914	3.50	912	1920	Apr. 20, 1920	5.84	3,064
1915	June 26, 1915	4.40	1,234				
				1921	Apr. 3, 1921	-	b1,619
1916	Feb. 17, 1916	a8.50	3,570	1922	Apr. 30, 1922	4.74	c1,960

a Backwater from ice. b Maximum daily. c Maximum recorded; may have been higher Apr. 23, 1922.

Peak stages and discharges of Milk River at Milk River, Alberta--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 23, 1923	4.00	1,320	1947	Mar. 22, 1947	8.32	5,330
1924	Apr. 7, 1924	5.04	2,020	1948	June 18, 1948	9.05	6,140
1925	Mar. 30, 1925	5.15	2,100	1949	May 21, 1949	3.74	1,120
				1950	Apr. 17, 1950	5.14	2,080
1926	June 20, 1926	3.30	770				
1927	May 22, 1927	11.41	8,730	1951	June 25, 1951	8.80	5,860
1928	Mar. 21, 1928	a8.07	3,900	1952	Mar. 28, 1952	a9.12	-
1929	June 3, 1929	4.98	1,960		Mar. 30, 1952	-	2,380
1930	Mar. 30, 1930	a5.50	2,320	1953	June 4, 1953	9.41	7,200
				1954	Apr. 5, 1954	a7.38	-
1931	July 3, 1931	2.96	570		Apr. 6, 1954	-	2,320
1932	May 5, 1932	3.95	1,220	1955	Apr. 8, 1955	6.15	-
1933	Apr. 24, 1933	4.16	1,330		May 19, 1955	-	3,430
1934	June 9, 1934	4.75	1,720				
1935	Apr. 17, 1935	6.60	3,640	1956	Mar. 27, 1956	a6.86	-
					July 4, 1956	-	2,080
1936	Apr. 11, 1936	6.44	3,360	1957	Mar. 1, 1957	a4.17	-
1937	June 14, 1937	6.74	3,840		May 9, 1957	-	1,350
1938	Apr. 12, 1938	4.14	1,330	1958	Apr. 1, 1958	a6.33	-
1939	June 16, 1939	3.41	870		Apr. 2, 1958	-	2,190
1940	July 16, 1940	3.29	783	1959	Mar. 26, 1959	a5.82	-
					May 20, 1959	-	1,430
1941	June 6, 1941	3.29	795	1960	Mar. 20, 1960	a7.66	-
1942	Apr. 3, 1942	4.91	1,780		Mar. 21, 1960	-	2,900
1943	Mar. 25, 1943	a7.59	-				
	Mar. 30, Apr. 4, 1943	-	b1,460	1961	May 18, 1961	3.42	1,070
				1962	Mar. 20, 1962	a5.02	-
1944	May 21, 1944	2.98	646		Apr. 16, 1962	-	1,100
1945	June 8, 1945	3.87	1,130	1963	Feb. 7, 1963	a4.25	1,040
				1964	June 9, 1964	10.40	7,900
1946	June 23, 1946	3.19	788				

a Backwater from ice.
b Maximum daily.

1350. Milk River at eastern crossing of international boundary

(International gaging station)

Location.--Lat 48°59'50", long 110°35'30", in NE¼ sec.6, T.37 N., R.9 E., on right bank 500 ft south of international boundary, 500 ft downstream from Canada Coulee, 30 miles north of Rudyard, Mont., and 37 miles south of Many Berries, Alberta.

Drainage area.--2,588 sq mi.

Gage.--Nonrecording at several sites within a quarter of a mile of present site at various datums prior to Aug. 13, 1913. Nonrecording and recording gages at site 200 ft downstream at datum 2.34 ft lower Aug. 13, 1913, to June 13, 1917. Recording at present site and datum since June 13, 1917. Datum of gage is 2,698.4 ft above mean sea level (International Boundary Survey datum).

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs.

Remarks.--Stations operated jointly by the United States and Canada. Few winter records. Records prior to April 1913 furnished by Canadian Department of Resources and Development. Peak flows are materially affected by diversions since 1917. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Mar. 25, 1910	2.79	280	1923	June 21, 1923	6.28	4,100
1911	June 27, 1911	5.86	1,655	1924	June 9, 1924	4.20	1,800
				1925	Mar. 24, 1925	7.09	2,000
1913	Apr. 14, 1913	4.55	1,858				
1914	Apr. 9, 1914	5.23	1,065	1926	June 23, 1926	2.71	817
1915	Mar. 24, 1915	-	a1,750	1927	May 23, 1927	10.16	8,400
				1928	Mar. 24, 1928	7.30	5,400
1917	Apr. 9, 1917	9.60	4,860	1929	June 3, 1929	4.42	2,580
				1930	Mar. 31, 1930	4.90	3,000
1919	May 12, 1919	2.62	789				
1920	Apr. 22, 1920	5.38	3,960	1931	July 31, 1931	3.02	1,100
				1932	June 16, 1932	4.71	2,940
1921	Apr. 4, 1921	4.15	1,770	1933	Apr. 25, 1933	3.69	1,820
1922	July 8, 1922	4.58	1,910	1934	June 10, 1934	4.06	2,270

a Maximum daily; estimated.

Peak stages and discharges of Milk River at eastern crossing of international boundary--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	Apr. 18, 1935	5.68	3,380	1951	June 27, 1951	8.10	5,600
				1952	Mar. 28, 1952	b13.65	-
1936	Apr. 13, 1936	5.15	2,850		Mar. 31, 1952	-	9,530
1937	June 15, 1937	6.10	3,530	1953	June 6, 1953	7.75	7,540
1938	Apr. 12, 1938	4.18	1,910	1954	Apr. 6, 1954	b4.76	-
1939	Mar. 19, 1939	b5.42	2,140		Apr. 7, 1954	-	a1,690
1940	Mar. 5, 1940	b4.43	1,410	1955	July 12, 1955	5.71	4,720
1941	June 29, 1941	4.08	1,820	1956	July 6, 1956	3.68	2,230
1942	Mar. 10, 1942	b6.2	-	1957	Mar. 2, 1957	b5.66	-
	Apr. 4, 1942	-	2,020		May 10, 1957	-	1,380
1943	Mar. 30, 1943	b6.76	3,310	1958	Mar. 30, 1958	b5.08	-
1944	Aug. 8, 1944	2.86	705		Apr. 2, 1958	-	3,600
1945	Mar. 12, 1945	b4.94	-	1959	Mar. 25, 1959	3.09	1,770
	June 9, 1945	-	1,130	1960	Mar. 22, 1960	b5.50	4,070
1946	June 5, 1946	4.13	1,740	1961	May 20, 1961	2.16	1,080
1947	Mar. 23, 1947	b11.28	8,700	1962	Mar. 23, 1962	-	1,480
1948	June 20, 1948	7.85	5,350		Mar. 24, 1962	b5.30	-
1949	May 23, 1949	3.35	1,110	1963	June 28, 1963	2.88	1,620
1950	Apr. 19, 1950	4.08	1,880	1964	June 11, 1964	6.71	7,770

a Maximum daily; estimated.
b Backwater from ice.

1355. Sage Creek at "Q" Ranch, near Wild Horse, Alberta

(International gaging station)

Location.--Lat 49°07', long 110°13', in NW¼ sec.9, T.2, R.2 W., fourth meridian, in Alberta, on right bank 3½ miles north of "Q" Ranch buildings, 7½ miles north of Wild Horse Customs Post at international boundary, and 12½ miles north of Simpson, Mont.

Drainage area.--175 sq mi.

Gage.--Nonrecording at site 2 miles downstream at different datum prior to Sept. 24, 1935; recording thereafter. At site 100 ft upstream at datum 0.15 ft higher Sept. 24, 1935, to Oct. 31, 1951. Altitude of gage is 2,900 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Records prior to 1952 furnished by Canadian Department of Resources and Development. Peaks are principally from snowmelt. Only peaks during season (generally March through October) are shown. Peak for year normally occurs during this period.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	Apr. 11, 1936	8.50	457	1951	Apr. 5, 1951	11.37	753
1937	Apr. 11, 1937	15.87	a3,500	1952	Apr. 14, 1952	13.12	1,800
1938	Mar. 27, 1938	14.82	2,840	1953	June 3, 1953	9.91	642
1939	Mar. 22, 1939	12.76	1,760	1954	Aug. 28, 1954	6.95	269
1940	Apr. 21, 1940	11.95	1,370	1955	Apr. 19, 1955	13.06	1,840
1941	Mar. 20, 1941	b10.20	825	1956	July 7, 1956	7.81	352
				1957	Apr. 1, 1957	9.72	534
1943	Mar. 29, 1943	15.00	2,950	1958	Apr. 5, 1958	b12.98	1,730
				1959	Mar. 27, 1959	9.13	421
1946	Mar. 12, 1946	6.50	260	1960	Mar. 21, 1960	10.57	632
1947	Mar. 29, 1947	9.17	568				
1948	Apr. 17, 1948	9.75	688	1961	Mar. 18, 1961	3.26	22.6
1949	Apr. 2, 1949	3.59	55	1962	Mar. 27, 1962	b8.23	302
1950	Apr. 13, 1950	7.65	342	1963	July 5, 1963	10.68	719

a Caused by failure of Elbow Coulee Dam.
b Backwater from ice.

1370. Milk River above Havre, Mont.

Location.--Lat 48°34', long 109°49', in SE¼SW¼ sec.32, T.33 N., R.15 E., a quarter of a mile upstream from Big Sandy Creek and 6 miles west of Havre.

Drainage area.--3,826 sq mi.

Gage.--Recording. Altitude of gage is 2,480 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements.

Remarks.--A few small diversions above station. Flow increased by diversion from St. Mary River during irrigation season. Peak flows may be materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	June 21, 1928	5.42	2,540	1931	July 31, 1931	5.33	1,420
1929	June 5, 1929	5.72	2,380	1932	June 17, 1932	6.15	2,520
1930	Apr. 1, 1930	5.96	2,370	1933	May 9, 1933	5.27	1,390

1380. Sage Creek near Kremlin, Mont.

Location.--Lat 48°28', long 110°06', in E½NE¼ sec.12, T.31 N., R.12 E., 8 miles south of Kremlin and 16 miles upstream from mouth.

Drainage area.--914 sq mi.

Gage.--Nonrecording prior to Feb. 22, 1946; recording thereafter. Altitude of gage is 2,680 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs and extended above on basis of slope-area measurement at 3,520 cfs.

Remarks.--Peak flows affected by small storage reservoirs above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Feb. 25, 1946	1.91	4.5	1950	Mar. 24, 1950	4.59	207
1947	Mar. 19, 1947	7.23	942				
1948	July 13, 1948	2.05	8.4	1951	Mar. 23, 1951	4.52	a100
1949	-	-	0	1952	April 1952	11.84	3,520

a Maximum daily.

1385. Big Sandy Creek near Box Elder, Mont.

Location.--Lat 48°22', long 109°59', in NE¼ sec.13, T.30 N., R.13 E., just below mouth of Sage Creek at Cowan Ranch and 3 miles north of Box Elder.

Drainage area.--1,629 sq mi.

Gage.--Nonrecording. At site half a mile upstream on spillways of Cowan Dam at different datums prior to Mar. 7, 1928. Altitude of gage is 2,620 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs and extended above on basis of flow-over-dam measurement at 2,000 cfs at site used prior to Mar. 7, 1929. Defined by current-meter measurements below 350 cfs at described site.

Remarks.--Some regulation by small storage dam and some diversions for irrigation above station. Most annual peak flows are probably materially affected. Only annual observed peaks are shown, except as noted.

Peak stages and discharges of Big Sandy Creek near Box Elder, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 24, 1927	5.85	2,000	1934	Apr. 3, 1934	2.71	11.6
1928	Mar. 25, 1928	10.96	338	1935	Oct. 26, 1934	2.37	.8
1929	June 8, 1929	8.59	206				
1930	Mar. 24, 1930	6.70	150	1936	Apr. 13, 1936	3.91	36.5
1931	Jan. 29, 1931	4.72	74	1938	June 25, 1938	15.91	a561
1932	Aug. 27, 1932	6.70	150				

a Momentary maximum.

1395. Big Sandy Creek near Assinniboine, Mont.

Location.--Lat 48°32', long 109°50', in SW¼SW¼ sec.18, T.32 N., R.15 E., 2 miles northwest of Assinniboine, 7 miles upstream from mouth, and 16 miles downstream from Sage Creek.

Drainage area.--1,805 sq mi.

Gage.--Recording gage and concrete control. Altitude of gage is 2,510 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 4,400 cfs.

Remarks.--Diversions for irrigation of about 1,000 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Feb. 27, 1946	-	a86	1956	Mar. 30, 1956	b6.47	c 550
1947	Mar. 21, 1947	9.68	2,080	1957	Feb. 28, 1957	b5.13	c 250
1948	Mar. 22, 1948	-	a17	1958	Mar. 28, 1958	-	c 500
1949	Mar. 31, 1949	-	a5	1959	Mar. 11, 1959	7.80	1,100
1950	Mar. 29, 1950	3.88	208	1960	Mar. 25, 1960	4.1	215
1951	Mar. 23, 1951	5.01	391	1961	June 3, 1961	3.64	132
1952	Apr. 3, 1952	14.70	5,570	1962	June 12, 1962	2.54	6
1953	June 6, 1953	6.56	714	1963	Feb. 6, 1963	2.16	.1
1955	Apr. 11, 1955	6.48	698				

a Maximum daily. b Backwater from ice. c Approximate.

1405. Milk River at Havre, Mont.

Location.--Lat 48°33'30", long 109°40'10", in SE¼SE¼ sec.5, T.32 N., R.16 E., on upstream side of highway bridge on 7th Avenue East in Havre, 30 ft downstream from Bullhook Creek, 9 miles downstream from Big Sandy Creek, and 17 miles downstream from Fresno Dam.

Drainage area.--5,844 sq mi, of which 5,174 sq mi contributes directly to surface runoff.

Gage.--Nonrecording. At site half a mile upstream at different datum prior to Nov. 2, 1902. At datum 0.47 ft higher Nov. 4, 1902, to Nov. 25, 1910. At present datum Mar. 9, 1911, to July 13, 1920, and at datum 4.00 ft higher July 14, 1920, to Sept. 30, 1922. Datum of gage is 2,461.11 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 5,200 cfs at site half a mile upstream and extended to 20,000 cfs by logarithmic plotting. Defined below 7,800 cfs at present site. Subject to large shifts.

Historical data.--Flood of 1899 is highest known. Flood of Apr. 3, 1952, is probably highest since 1899.

Remarks.--Bullhook Creek flood-control project is designed to bypass damaging floods to Milk River channel several miles downstream. Diversion for irrigation of about 6,000 acres above station. Since 1917 flow has been increased during irrigation seasons by St. Mary Canal. Flow regulated by Fresno Reservoir (usable capacity, 127,200 acre-ft) since 1939. Only annual peaks are shown.

Peak stages and discharges of Milk River at Havre, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1899	Apr. 12, 1899	15.5	a20,000	1917	Apr. 11, 1917	15.3	8,090
1900	May 17, 1900	5.2	1,650	1918	Mar. 20, 1918	16.42	9,150
				1919	May 13, 1919	7.6	686
1901	May 4, 1901	6.20	2,540	1920	Apr. 22, 1920	11.2	4,090
1902	July 7, 1902	12.1	9,960				
1903	May 30, 1903	8.50	4,120	1921	Apr. 6, 1921	5.05	1,450
1904	Apr.7,13, 1904	9.30	4,900	1922	July 9, 1922	6.46	3,340
1905	July 29, 1905	5.0	366				
				1952	Apr. 3, 1952	18.6	11,400
1906	June 8, 1906	9.9	4,150	1953	June 6, 1953	16.54	6,900
1907	Mar. 24, 1907	10.1	3,750				
1908	June 9, 1908	16.5	11,000	1955	May 23, 1955	11.24	2,670
1909	May 25, 1909	11.7	5,360				
1910	Mar. 4, 1910	4.5	1,860	1956	July 19, 1956	9.56	1,280
				1957	July 26, 1957	9.81	1,280
1911	Sept. 7, 1911	10.3	2,980	1958	May 21, 1958	9.84	1,410
1912	Mar. 29, 1912	14.5	7,790	1959	Aug. 1, 1959	10.32	1,980
1913	Apr. 15, 1913	9.7	2,540	1960	July 18, 1960	9.98	1,630
1914	Mar. 14, 1914	8.0	1,080				
1915	Mar. 24, 1915	10.8	3,640	1961	July 15, 1961	9.53	1,280
				1962	July 5, 1962	9.15	1,180
1916	Mar. 12, 1916	b17.2	-	1963	June 4, 1963	8.79	1,010

a About.
b Backwater from ice.

1430. Milk River at Lohman, Mont.

Location.--Lat 48°36', long 109°24', in SE¼ sec.20, T.33 N., R.18 E., on right bank half a mile downstream from Fort Belknap diversion dam and three-quarters of a mile north of Lohman.

Drainage area.--6,166 sq mi.

Gage.--Nonrecording at site a quarter of a mile downstream at different datum prior to Jan. 7, 1934; recording thereafter. Altitude of gage is 2,420 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 3,200 cfs at described site.

Remarks.--Flow regulated by Fresno Reservoir (usable capacity, 127,200 acre-ft) since 1939. Diversion for irrigation of about 6,000 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1919	May 13, 1919	8.45	580	1942	July 29, 1942	7.77	1,340
				1943	Mar. 26, 1943	a12.66	-
1923	June 23, 1923	13.00	3,270	1944	Mar. 20, 1944	a7.00	-
					July 26, 1944	-	556
1925	Mar. 24, 1925	13.20	3,290	1945	Mar. 12, 1945	a9.44	-
					July 22, 1945	-	739
1934	June 12, 1934	7.52	1,760				
1935	Mar. 16, 1935	a9.55	-	1946	Feb. 26, 1946	a6.78	-
	Apr. 20, 1935	-	b3,000		Aug. 1, 1946	-	664
				1947	Mar. 22, 1947	a14.63	b3,000
1936	Apr. 15, 1936	10.18	2,260	1948	June 22, 1948	11.15	2,450
1937	June 16, 1937	11.24	2,680				
1938	June 23, 1938	11.90	3,230	1950	Apr. 2, 1950	a9.51	-
1939	Mar. 21, 1939	12.08	3,450		June 8, 1950	-	1,090
1940	Mar. 4, 1940	a8.11	-				
	June 11, 1940	-	660	1951	Mar. 23, 1951	a9.28	-
					May 19, 1951	-	1,480
1941	Mar. 8, 1941	b6.18	-	1952	-	17.9	-
	June 29, 1941	-	699				

a Backwater from ice.
b Maximum daily; estimated.

1445. Lodge Creek at international boundary
(Published as "at Willow Creek Police Detachment" April 1910 to October 1951)

(International gaging station)

Location.--Lat 49°01', long 109°45', in SE¼ sec.12, T.1, R.29 W., third meridian, in Saskatchewan, on right bank 1 mile north of international boundary, 1½ miles upstream from McRae Creek, and 31 miles north of Havre, Mont.

Drainage area.--753 sq mi.

Gage.--Nonrecording prior to May 7, 1919; recording thereafter. At datum 0.12 ft higher Mar. 17 to Nov. 15, 1911. Datum of gage is 2,721.06 ft above mean sea level (International Boundary Survey datum).

Stage-discharge relation.--Defined by current-meter measurements below 4,000 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Only a few winter records collected. Records prior to Apr. 1, 1917, furnished by Canadian Department of Resources and Development. Peak flows materially affected by storage reservoirs since 1937. Some effect prior to this date by diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	Sept. 6, 1911	9.54	2,220	1932	Apr. 3, 1932	5.66	628
1912	Apr. 5, 1912	12.80	4,090	1933	Mar. 20, 1933	4.88	459
1913	Apr. 12, 1913	7.89	1,481	1934	Mar. 3, 1934	a8.20	-
1914	Mar. 16, 1914	5.25	560	1935	Mar. 16, 1935	6.63	913
1915	Apr. 2, 1915	7.18	1,439				
				1936	Apr. 11, 1936	a8.30	1,530
1917	Apr. 10, 1917	10.13	2,100	1937	Apr. 10, 1937	9.76	2,200
1918	-	a13.45	-	1938	Mar. 28, 1938	7.82	1,260
	Mar. 31, 1918	-	b2,700	1939	Mar. 23, 1939	11.98	3,610
1919	Apr. 20, 1919	4.19	338	1940	Apr. 21, 1940	12.22	3,610
1920	June 18, 1920	6.50	1,030				
				1941	Mar. 20, 1941	a11.14	2,230
1921	Apr. 16, 1921	7.14	1,110	1942	June 27, 1942	9.21	1,880
1922	Apr. 8, 1922	10.66	2,740	1943	Mar. 30, 1943	13.83	5,110
1923	June 22, 1923	8.51	1,520	1944	July 6, 1944	5.45	575
1924	June 9, 1924	5.67	729	1945	Mar. 20, 1945	a5.86	679
1925	Apr. 24, 1925	8.77	1,690				
				1946	Mar. 29, 1946	4.38	358
1926	May 2, 1926	a7.61	650	1947	Mar. 28, 1947	6.97	1,020
1927	May 23, 1927	12.41	3,680	1948	Apr. 18, 1948	6.72	873
1928	Mar. 23, 1928	a12.60	3,500	1949	Apr. 8, 1949	2.36	59
1929	May 1, 1929	7.10	1,080	1950	Apr. 14, 1950	8.32	1,480
1930	Mar. 12, 1930	a6.30	797				
				1951	Aug. 30, 1951	10.76	2,600
1931	July 1, 1931	3.13	164	1952	Apr. 13, 1952	13.71	4,990

a Backwater from ice.
b Maximum daily.

1450. McRae Creek at international boundary
(Formerly published as "McRae Coulee")

(International gaging station)

Location.--Lat 49°01'00", long 109°43'10", in SW¼ sec.8, T.1, R.29 W., third meridian, on right bank three-quarters of a mile upstream from mouth, 1¼ miles north of international boundary, and 31 miles north of Havre, Mont.

Drainage area.--59.0 sq mi.

Gage.--Nonrecording prior to Sept. 28, 1927; recording thereafter. Altitude of gage is 2,750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Few winter records. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of McRae Creek at international boundary

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 23, 1927	5.74	379	1941	Mar. 21, 1941	7.03	512
1928	Apr. 2, 1928	4.42	166	1942	June 6, 1942	2.98	41.0
1929	-	-	0	1943	Mar. 29, 1943	8.34	976
1930	Mar. 26, 1930	4.40	172	1944	July 5, 1944	7.80	826
				1945	Mar. 19, 1945	4.30	126
1931	June 30, 1931	4.15	150				
1932	Mar. 24, 1932	a2.35	12.7	1946	Mar. 11, 1946	3.40	57
1933	June 29, 1933	1.88	4	1947	Mar. 30, 1947	5.81	372
1934	Mar. 3, 1934	a7.93	-	1948	-	-	0
1935	July 21, 1935	5.64	361	1949	-	-	0
				1950	Apr. 7, 1950	6.23	475
1936	Apr. 12, 1936	6.76	589				
1937	Apr. 7, 1937	4.88	216	1951	Apr. 10, 1951	a4.71	190
1938	Mar. 27, 1938	5.73	377	1952	Apr. 7, 1952	8.75	1,160
1939	Mar. 23, 1939	5.58	350				
1940	Apr. 19, 1940	6.90	621				

a Backwater from ice.

1455. Lodge Creek below McRae Creek, at international boundary
(Published as "below McRae Coulee" prior to March 1962)

(International gaging station)

Location.--Lat 49°00'20", long 109°43'05", in SW¼ sec.5, T.1, R.28 W., third meridian, in Saskatchewan, on right bank a quarter of a mile downstream from McRae Creek, 0.4 mile north of international boundary, three-quarters of a mile northwest of Willow Creek Customs Post, and 31 miles north of Havre, Mont.

Drainage area.--818 sq mi.

Gage.--Recording. Datum of gage is 2,731.0 ft above mean sea level (International Boundary Survey datum).

Stage-discharge relation.--Defined by current-meter measurements below 5,400 cfs.

Historical data.--Flood of June 14, 1962, is probably the highest since 1910.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Peak flows affected by storage reservoirs and diversions above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 7, 1952	a12.73	-	1957	Apr. 5, 1957	-	796
	Apr. 13, 1952	-	5,570	1958	Apr. 5, 1958	a9.97	2,720
1953	June 4, 1953	9.20	2,410	1959	Mar. 28, 1959	a5.87	706
1954	Apr. 6, 1954	5.61	629	1960	Mar. 24, 1960	7.05	1,000
1955	Apr. 19, 1955	10.33	3,350				
				1961	Apr. 25, 1961	2.93	134
1956	July 4, 1956	5.23	577	1962	June 14, 1962	14.40	7,760
1957	Apr. 5, 1957	a6.71	-	1963	July 9, 1963	4.15	219

a Backwater from ice.

1480. Battle Creek above Cypress Lake west inflow canal, rear West Plains, Saskatchewan

(International gaging station)

Location.--Lat 49°26', long 109°41', in NE¼ sec.34, T.5, R.28 W., third meridian, on right bank 1½ miles north of West Plains and 10 miles north of Senate.

Drainage area.--270 sq mi.

Gage.--Recording. At site 1½ miles downstream at different datum prior to Oct. 13, 1939. Altitude of gage is 3,230 ft (information furnished by Department of Northern Affairs and National Resources, Canada).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 1,500 cfs and extended above by slope-area measurement at 1,500 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records for 1939-46 furnished by Canadian Department of Resources and Development. Small diversions for irrigation do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 22, 1939	a6.75	235	1951	Apr. 29, 1951	8.47	965
1940	Apr. 23, 1940	9.29	1,460	1952	Apr. 14, 1952	10.00	b3,020
				1953	June 5, 1953	9.78	2,360
1941	July 1, 1941	5.10	379	1954	May 8, 1954	5.34	374
1942	June 26, 1942	7.60	782	1955	Apr. 11, 1955	a9.69	1,280
1943	Mar. 30, 1943	a9.22	855				
1944	Apr. 1, 1944	5.83	237	1956	Apr. 16, 1956	a4.06	199
1945	Mar. 28, 1945	5.12	344	1957	May 2, 1957	7.68	731
				1958	Apr. 1, 1958	a7.90	475
1946	Mar. 29, 1946	6.37	571	1959	Apr. 15, 1959	5.10	305
1947	Apr. 14, 1947	a5.44	450	1960	Mar. 20, 1960	a8.56	593
1948	Apr. 24, 1948	7.62	817				
1949	Apr. 8, 1949	a2.78	-	1961	Mar. 31, 1961	3.08	66
	Apr. 10, 1949	-	106	1962	Apr. 7, 1962	-	c74
1950	Apr. 16, 1950	a6.87	-		Apr. 16, 1962	a3.79	-
	Apr. 22, 1950	-	590	1963	Mar. 30, 1963	6.43	d300

a Backwater from ice. b Does not include about 700 to 1,000 cfs overflow into Lodge Creek. c Maximum daily. d Approximate.

1495. Battle Creek at international boundary

(International gaging station)

Location.--Lat 49°00'10", long 109°25'20", in SE¼ sec.4, T.1, R.26 W., third meridian, on left bank 600 ft north of international boundary in Saskatchewan, 8 miles upstream from Woodpile Coulee, and 30 miles north of Chinook, Mont.

Drainage area.--931 sq mi.

Gage.--Recording. Datum of gage is 2,729.8 ft above mean sea level (International Boundary Survey datum, adjustment of 1928).

Stage-discharge relation.--Defined by current-meter measurements below 4,400 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Only seasonal records in most years. Maximum flows materially affected by storage reservoirs, diversion for irrigation, and return flow from irrigated areas. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Battle Creek at international boundary

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	Apr. 13, 1917	8.50	3,200	1941	Mar. 21, 1941	c7.13	1,720
1918	Mar. 31, 1918	-	a2,500	1942	June 28, 1942	4.73	619
1919	Apr. 17, 1919	3.46	165	1943	Mar. 29, 1943	c8.63	2,870
1920	May 11, 1920	5.08	923	1944	Aug. 25, 1944	5.20	859
				1945	Mar. 20, 1945	4.23	398
1921	Apr. 17, 1921	4.71	690				
1922	Apr. 25, 1922	5.61	1,060	1946	Mar. 11, 1946	4.31	437
1923	June 25, 1923	3.94	341	1947	Mar. 28, 1947	c5.07	500
1924	Apr. 11, 1924	3.81	269	1948	Apr. 14, 1948	c4.97	493
1925	Apr. 2, 1925	6.38	1,430	1949	May 27, 1949	2.78	39.7
				1950	Apr. 12, 1950	6.28	1,480
1926	Apr. 14, 1926	4.05	b326				
1927	Apr. 4, 1927	7.02	2,010	1951	May 2, 1951	4.60	561
1928	Apr. 3, 1928	c9.50	2,320	1952	Apr. 15, 1952	10.56	5,820
1929	Apr. 26, 1929	5.07	763	1953	June 8, 1953	5.57	952
1930	Apr. 2, 1930	c5.8	1,070	1954	Apr. 5, 1954	c7.99	1,720
				1955	Apr. 9, 1955	c7.30	-
1931	Apr. 7, 1931	2.91	66		July 12, 1955	-	1,920
1932	Apr. 6, 1932	4.10	418				
1933	Mar. 27, 1933	c4.32	-	1956	Mar. 27, 1956	-	a200
	Apr. 22, 1933	-	310		Mar. 28, 1956	c5.14	-
1934	Mar. 3, 1934	c5.16	-	1957	Apr. 1, 1957	a6.84	655
	Apr. 9, 1934	-	324	1958	Mar. 29, 1958	c7.21	-
1935	Apr. 21, 1935	5.30	910		Apr. 3, 1958	-	1,020
				1959	Mar. 26, 1959	c5.56	775
1936	Apr. 12, 1936	7.84	2,710	1960	Mar. 23, 1960	c6.25	d1,000
1937	Apr. 8, 1937	4.97	740				
1938	Mar. 26, 1938	5.09	800	1961	Mar. 15, 1961	c7.43	1,290
1939	Mar. 22, 1939	6.88	1,830	1962	Mar. 26, 1962	c5.25	648
1940	Apr. 21, 1940	7.60	2,290	1963	July 6, 1963	3.55	210

a Maximum daily mean discharge. b Maximum recorded; probably exceeded during period of no record Nov. 1 to Mar. 23. c Backwater from ice. d About.

1500. Woodpile Coulee near international boundary

(International gaging station)

Location.--Lat 48°59'00", long 109°31'50", in NW¼ sec.8, T.37 N., R.17 E., on right bank 600 ft downstream from Antelope Coulee, 1½ miles south of international boundary, 7 miles upstream from mouth, and 30 miles north of Havre, Mont.

Drainage area.--60.2 sq mi.

Gage.--Nonrecording at site 4 miles downstream at different datum prior to Aug. 27, 1927; recording thereafter. Altitude of gage is 2,740 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 330 cfs and extended above on basis of slope-area measurement at gage height 8.50 ft.

Remarks.--Station maintained jointly by the United States and Canada. Only seasonal records in most years. Peaks are principally from snowmelt. Only annual seasonal peaks are shown. Maximum for year generally occurs during season.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 4, 1927	16.69	423	1941	Mar. 22, 1941	a7.78	1,770
1928	Apr. 2, 1928	5.04	352	1942	Mar. 31, 1942	4.36	204
1929	June 2, 1929	2.14	35.8	1943	Mar. 30, 1943	8.6	3,090
1930	Apr. 2, 1930	4.70	280	1944	Aug. 25, 1944	8.50	2,960
				1945	Mar. 19, 1945	4.98	293
1932	Mar. 23, 1932	a2.82	45.7				
1933	June 29, 1933	2.57	61	1946	Mar. 11, 1946	4.30	206
1934	Mar. 20, 1934	a2.11	-	1947	Mar. 29, 1947	5.89	547
1935	Apr. 12, 1935	6.04	591	1948	-	-	0
				1949	-	-	0
1936	Apr. 13, 1936	7.11	1,220	1950	Apr. 13, 1950	7.13	1,160
1937	Apr. 9, 1937	5.71	490				
1938	Mar. 27, 1938	5.81	551	1951	Apr. 5, 1951	5.43	369
1939	Mar. 22, 1939	7.87	2,150	1952	Apr. 7, 1952	8.5	2,960
1940	Apr. 18, 1940	7.39	1,530	1953	May 1, 1953	1.95	-

a Backwater from ice.

Peak stages and discharges of Woodpile Coulee near international boundary--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 30, 1953	-	0.8	1959	Mar. 27, 1959	5.61	b292
1954	Apr. 6, 1954	6.51	786	1960	Mar. 23, 1960	5.47	450
1955	Apr. 19, 1955	6.60	840				
				1961	Mar. 14, 1961	3.50	113
1956	May 11, 1956	2.66	24.4	1962	Mar. 27, 1962	3.91	159
1957	Apr. 4, 1957	4.84	261	1963	Feb. 28, 1963	2.29	3.6
1958	Mar. 31, 1958	6.32	696				

b Maximum daily mean.

1505. East Fork Battle Creek near international boundary

(International gaging station)

Location.--Lat 48°58', long 109°08', in NW¼ sec.17, T.37 N., R.20 E., on right bank 2 miles south of international boundary, 5½ miles upstream from Lyons Creek, and 26 miles north of Chinook, Mont.

Drainage area.--89.5 sq mi.

Gage.--Nonrecording at site half a mile downstream at different datum prior to Sept. 3, 1927; recording thereafter. At site 300 ft downstream from former site at different datum Sept. 3, 1927, to Oct. 18, 1952. Altitude of gage is 2,760 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 230 cfs at present site and extended to 2,300 cfs on basis of slope-area measurement made at site used prior to Oct. 19, 1952; converted to present site and datum.

Remarks.--Station maintained jointly by the United States and Canada. Only seasonal records for most years. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 23, 1927	13.96	658	1946	Mar. 12, 1946	5.51	286
1928	Apr. 1, 1928	5.48	432	1947	Mar. 27, 1947	a3.74	84
1929	Apr. 15, 1929	2.39	79	1948	-	-	0
1930	Mar. 29, 1930	4.50	294	1949	-	-	0
				1950	Apr. 12, 1950	8.21	1,090
1931	June 30, 1931	2.77	81				
1932	Mar. 25, 1932	2.90	94	1951	Apr. 5, 1951	a5.18	228
1933	Mar. 15, 1933	1.30	3.3	1952	Apr. 7, 1952	10.47	2,200
1934	Mar. 1, 1934	a3.65	-	1953	June 3, 1953	3.37	39.3
1935	Apr. 12, 1935	5.36	350	1954	Apr. 6, 1954	9.03	1,440
				1955	July 12, 1955	11.24	2,300
1936	Apr. 12, 1936	6.65	507				
1937	Apr. 9, 1937	5.45	321	1956	Mar. 27, 1956	a4.00	50
1938	Mar. 24, 1938	4.86	244	1957	Apr. 1, 1957	a5.47	-
1939	Mar. 21, 1939	9.0	1,420		July 22, 1957	-	232
1940	Apr. 20, 1940	7.27	751	1958	Mar. 31, 1958	7.46	761
				1959	June 27, 1959	8.29	1,060
1941	Mar. 22, 1941	7.85	950	1960	Mar. 21, 1960	7.91	901
1942	June 28, 1942	6.40	478				
1943	Mar. 28, 1943	8.16	1,070	1961	Mar. 16, 1961	5.06	199
1944	Mar. 18, 1944	5.14	272	1962	Mar. 27, 1962	6.22	415
1945	Mar. 16, 1945	3.79	106	1963	Mar. 3, 1963	3.34	27

a Backwater from ice.

1510. Lyons Creek at international boundary
(Published as "Lyons Coulee" prior to March 1962)

(International gaging station)

Location.--Lat 49°00', long 109°14', in NW¼ sec.1, T.1, R.25 W., third meridian, on right bank half a mile north of international boundary, 8 miles south of Arena, Saskatchewan, and 28 miles north of Chinook, Mont.

Drainage area.--66.7 sq mi.

Gage.--Nonrecording prior to Aug. 5, 1958; recording thereafter. At site half a mile south of international boundary at different datum prior to Oct. 19, 1935. At site 1¼ miles north of international boundary at different datum Oct. 19, 1935, to Oct. 31, 1940. Altitude of gage is 2,800 ft (from international boundary map).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Only seasonal records in most years. Small stockwater dams above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 3, 1927	7.65	668	1946	June 5, 1946	5.75	488
1928	Apr. 2, 1928	a7.80	557	1947	Mar. 29, 1947	3.10	65
1929	June 11, 1929	3.88	28.1	1948	-	-	0
1930	Apr. 2, 1930	a7.20	437	1949	-	-	0
				1950	Apr. 13, 1950	7.76	945
1931	-	-	0				
1932	June 10, 1932	3.83	25	1951	Apr. 5, 1951	a3.98	140
1933	-	-	0	1952	Apr. 7, 1952	7.4	940
1934	Mar. 3, 1934	5.14	115	1953	-	-	0
1935	Apr. 13, 1935	6.80	452	1954	Apr. 6, 1954	6.3	645
				1955	July 6, 1955	8.38	1,220
1936	Apr. 12, 1936	6.75	504				
1937	Apr. 9, 1937	5.1	184	1956	Apr. 4, 1956	2.94	19.1
1938	Mar. 25, 1938	4.89	145	1957	Apr. 1, 1957	3.50	122
1939	Mar. 23, 1939	7.16	604	1958	Mar. 31, 1958	3.92	234
1940	Apr. 21, 1940	8.26	909	1959	Mar. 26, 1959	3.97	245
				1960	Mar. 23, 1960	4.53	295
1941	Mar. 21, 1941	5.45	409				
1942	June 29, 1942	4.48	212	1961	Mar. 15, 1961	3.90	184
1943	Mar. 29, 1943	5.25	322	1962	June 14, 1962	4.07	188
1944	Mar. 17, 1944	3.43	103	1963	Feb. 27, 1963	2.63	17
1945	Mar. 23, 1945	2.43	14.5				

a Backwater from ice.

1515. Battle Creek near Chinook, Mont.
(Published as "North Fork Milk River" prior to 1913)

Location.--Lat 48°39', long 109°14', near center of sec.3, T.33 N., R.19 E., at county road bridge, 3½ miles north of Chinook and 7 miles upstream from mouth.

Drainage area.--1,539 sq mi.

Gage.--Nonrecording. At site 500 ft upstream prior to Apr. 8, 1918. Altitude of gage is 2,410 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,300 cfs and extended above on basis of slope-area measurement at 9,540 cfs.

Remarks.--Many diversions above station. Peaks are principally from srowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	July 26, 1905	2.70	392	1909	June 21, 1909	13.0	6,650
				1910	Mar. 14, 1910	4.47	991
1906	June 8, 1906	16.63	10,960				
1907	Apr. 10, 1907	10.4	3,800	1911	Sept. 7, 1911	10.0	3,220
1908	Apr. 17, 1908	2.12	190	1912	Apr. 8, 1912	13.0	6,650

Peak stages and discharges of Battle Creek near Chinook, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Apr. 1, 1913	7.6	2,200	1920	Mar. 31, 1920	6.76	2,130
1914	Apr. 17, 1914	4.0	700	1921	Apr. 17, 1921	3.95	641
1917	Apr. 10, 1917	13.1	7,800				
1918	Mar. 31, 1918	16.5	10,800	1952	Apr. 6, 1952	15.38	a9,540
1919	Apr. 2, 1919	6.80	1,860				

a Slope-area measurement.

1545. Peoples Creek near Dodson, Mont.

Location.--Lat 48°21', long 108°21', in N½ sec.21, T.30 N., R.26 E., on right bank a quarter of a mile upstream from Indian Service diversion, 6½ miles southwest of Dodson, and 7 miles upstream from mouth.

Drainage area.--670 sq mi.

Gage.--Recording. At site 300 ft downstream June 1, 1951, to Aug. 11, 1956. Altitude of gage is 2,310 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 770 cfs and extended above on basis of slope-area measurements at 1,410, 1,730, and 2,620 cfs.

Remarks.--Diversions for irrigation of about 700 acres above station do not materially affect peak flows. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Feb. 11, 1952	-	b650	1957	Mar. 21, 1957	a4.73	-
	Mar. 29, 1952	a17.05	-		May 21, 1957	4.58	186
	Mar. 30, 1952	-	b3,500	1958	Mar. 25, 1958	a5.46	b155
1953	May 27, 1953	6.41	1,010				
	May 30, 1953	6.07	882	1959	Mar. 3, 1959	a3.08	-
	June 1, 1953	6.33	973		Mar. 12, 1959	5.57	660
	June 5, 1953	6.84	1,120	1960	Mar. 19, 1960	a10.78	-
1954	Apr. 5, 1954	a6.96	-		Mar. 20, 1960	-	b1,500
	Apr. 6, 1954	6.61	1,020				
1955	Mar. 10, 1955	a6.84	(c)	1961	May 31, 1961	5.55	648
	Apr. 11, 1955	7.83	1,720	1962	July 16, 1962	5.10	414
	May 3, 1955	5.04	504				
	May 16, 1955	5.59	700	1963	Feb. 6, 1963	-	b600
	May 21, 1955	5.50	664		Feb. 25, 1963	a7.94	-
1956	Mar. 25, 1956	-	b100				

a Backwater from ice. b Maximum daily. c Peak exceeded base; discharge not determined.

1552. Alkali Creek near Malta, Mont.

Location.--Lat 48°16', long 107°58', near center sec.16, T.29 N., R.29 E., at bridge on U.S. Highway 191, 8¼ miles southwest of Malta.

Drainage area.--162 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,280 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 650 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 19, 1956	a0.85	b45	1961	-	(c)	-
1957	Mar. 21, 1957	1.69	355	1962	July 14, 1962	2.68	750
1958	Mar. 25, 1958	.82	104	1963	Feb. 5, 1963	a3.09	b700
1959	Mar. 13, 1959	a3.0	b800				

a Backwater from ice. b Approximate. c Below bottom of gage; discharge less than 220 cfs.

1553. Disjardin Coulee near Malta, Mont.

Location.--Lat 48°16', long 107°58', in SE¼NW¼ sec.16, T.29 N., R.29 E., at bridge on U.S. Highway 191, 8 miles southwest of Malta.

Drainage area.--3.42 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,280 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 130 cfs and by slope-area measurement at 160 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 5, 1956	3.22	160	1961	May 30, 1961	0.44	20
1957	Mar. 19, 1957	1.02	22	1962	July 18, 1962	2.23	b200
1958	-	-	(a)	1963	Feb. 5, 1963	c3.25	b100
1959	Mar. 18, 1959	1.62	132				
1960	Mar. 18, 1960	.61	32				

a No evidence of flow during year.
b About.
c Backwater from ice.

1554. South Fork Taylor Creek near Malta, Mont.

Location.--Lat 48°19', long 107°55', in SE¼ sec.26, T.30 N., R.29 E., at bridge on U.S. Highway 191, 3½ miles southwest of Malta.

Drainage area.--5.08 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 90 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 19, 1956	1.75	52	1961	July 30, 1961	0.90	2
1957	Mar. 19, 1957	1.43	22	1962	July 18, 1962	1.54	65
1958	-	-	(a)	1963	Feb. 5, 1963	.95	20
1959	July 13, 1959	1.94	84				
1960	Mar. 18, 1960	1.89	75				

a No evidence of flow during year.

1555. Milk River at Malta, Mont.

Location.--Lat 48°22', long 107°52', in NW¼ sec.17, T.30 N., R.30 E., at the old highway bridge at Malta.

Drainage area.--12,457 sq mi.

Gage.--Nonrecording. Datum of gage is 2,221.40 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Many large diversions for irrigation above station. Flow has been supplemented by water from St. Mary Canal since 1917. Peak flows are materially affected. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Milk River at Malta, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 2, 1903	7.70	4,170	1914	Mar. 5, 1914	a8.8	-
1904	Apr. 9, 1904	15.15	8,794	1915	Apr. 5, 1915	11.25	5,880
1905	July 31, 1905	3.05	750				
				1916	Mar. 19, 1916	a17.5	7,000
1906	June 9, 1906	19.0	11,250	1917	Apr. 6, 1917	19.05	10,800
1907	Apr. 10, 1907	19.95	11,360	1918	Mar. 26, 1918	20.22	11,500
1908	June 13, 1908	12.25	6,510	1919	Apr. 6, 1919	4.70	1,760
1909	June 23, 1909	13.0	6,980	1920	Mar. 24, 1920	11.18	5,460
1911	Sept.10, 1911	12.8	6,860	1921	Apr. 21, 1921	4.84	1,700
1912	Apr. 14, 1912	16.8	9,320	1922	Apr. 6, 1922	14.16	7,460
1913	Apr. 18, 1913	8.3	4,100				

a Backwater from ice.

1560. Whitewater Creek near international boundary

(International gaging station)

Location.--Lat 48°57', long 107°52', in NW¼ sec.24, T.37 N., R.29 E., on left bank 500 ft downstream from North Fork, 3½ miles south of international boundary, 11 miles north of Loring, Mont., and 14 miles south of Orkney, Saskatchewan.

Drainage area.--458 sq mi.

Gage.--Nonrecording prior to Aug. 31, 1927; recording thereafter. At site 300 ft upstream prior to Nov. 1, 1948. Altitude of gage is 2,500 ft (from international boundary map).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs and extended above on basis of conveyance study.

Remarks.--Station maintained jointly by the United States and Canada. Peaks are principally from snowmelt. Only seasonal records are available for most years. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 5, 1927	4.71	1,140	1947	Mar. 25, 1947	a2.89	67
1928	Mar. 21, 1928	5.36	1,810	1948	May 22, 1948	2.50	23.4
1929	Apr. 30, 1929	1.31	7.1	1949	Mar. 8, 1949	a2.42	4.4
1930	Mar. 13, 1930	a3.39	194	1950	Apr. 15, 1950	5.45	2,120
1931	June 30, 1931	4.14	634	1951	May 1, 1951	3.67	426
1932	May 31, 1932	2.87	123	1952	Apr. 14, 1952	6.15	3,500
1933	Aug. 22, 1933	1.39	8.5	1953	May 27, 1953	a3.32	-
1934	Feb. 11, 1934	a4.64	-		May 29, 1953	-	269
1935	Mar. 19, 1935	a2.94	50	1954	Apr. 6, 1954	5.46	2,130
				1955	Mar. 31, 1955	a4.89	-
1936	Apr. 10, 1936	a3.55	220		July 12, 1955	-	1,050
1937	July 11, 1937	1.82	27.7				
1938	Mar. 16, 1938	a4.04	-	1956	Mar. 24, 1956	a1.96	2.5
1939	Mar. 20, 1939	5.55	2,290	1957	Mar. 21, 1957	a2.35	33.0
1940	Apr. 21, 1940	4.33	787	1958	Mar. 29, 1958	3.83	503
				1959	Mar. 24, 1959	a5.38	-
1941	Mar. 19, 1941	3.9	450		Mar. 27, 1959	-	b210
1942	June 5, 1942	2.51	34.5	1960	May 19, 1960	4.73	936
1943	Mar. 25, 1943	6.62	2,810				
1944	Mar. 20, 1944	a3.33	169	1961	Mar. 17, 1961	5.08	1,520
1945	Mar. 21, 1945	a1.80	.8	1962	July 13, 1962	5.68	2,750
				1963	Mar. 2, 1963	2.18	c19.8
1946	Mar. 2, 1946	a2.93	67				

a Backwater from ice.
b Maximum daily mean.
c Maximum recorded; may have been higher during period of no record.

1580. Frenchman River above Eastend Reservoir, near Ravenscrag, Saskatchewan
(Published as "at Phillip's ranch" 1912-17)

(International gaging station)

Location.--Lat 49°29', long 109°00', in NW¼ sec.23, T.6, R.33 W., third meridian, on right bank 2 miles upstream from North Fork, 4 miles east of Ravenscrag, and 8 miles west of Eastend.

Drainage area.--601 sq mi, of which 159 sq mi in Cypress Lake basin is generally noncontributing.

Gage.--Nonrecording prior to Aug. 11, 1938; recording thereafter. At site half a mile downstream at different datum prior to Nov. 1, 1917, and at several sites within 5 miles of present site at various datums Mar. 1, 1937, to Aug. 11, 1938. Altitude of gage is 3,040 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,200 cfs and extended above on basis of slope-area measurement at 12,600 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records for 1937-46 furnished by Canadian Department of Resources and Development. Peak flows are materially affected by diversion in Belanger Creek diversion canal near Vidora, Saskatchewan, return in Cypress Lake east outflow canal near Vidora, and many other diversions above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Apr. 8, 1913	7.46	2,350	1948	Apr. 19, 1948	-	1,050
1914	Apr. 12, 1914	4.60	842	1949	Apr. 9, 1949	4.68	455
1915	Apr. 4, 1915	8.26	3,010	1950	Apr. 17, 1950	a8.16	2,390
1917	Apr. 21, 1917	8.89	4,180	1951	Apr. 28, 1951	7.02	3,130
				1952	Apr. 16, 1952	12.25	12,600
1937	Apr. 11, 1937	a6.84	880	1953	Apr. 24, 1953	4.46	938
1938	Apr. 12, 1938	a5.52	676	1954	Apr. 14, 1954	5.86	1,800
1939	Mar. 25, 1939	a5.56	1,010	1955	Apr. 10, 1955	5.78	2,270
1940	Apr. 22, 1940	6.29	2,180				
				1956	Apr. 15, 1956	4.43	1,260
1941	Mar. 27, 1941	a6.29	1,520	1957	Apr. 18, 1957	3.79	868
1942	June 30, 1942	4.21	724	1958	Apr. 4, 1958	6.31	2,810
1943	Mar. 29, 1943	7.36	3,600	1959	Apr. 2, 1959	a4.75	1,080
1944	Apr. 5, 1944	6.68	2,680	1960	Mar. 27, 1960	5.39	2,060
1945	Mar. 23, 1945	6.31	1,500				
				1961	Mar. 26, 1961	a2.78	209
1946	Mar. 28, 1946	5.22	1,250	1962	Mar. 27, 1962	a4.24	-
1947	Apr. 10, 1947	a5.70	-		Apr. 6, 1962	-	630
	Apr. 11, 1947	-	1,300	1963	Mar. 28, 1963	a5.30	1,100
1948	Apr. 18, 1948	a6.05	-				

a Backwater from ice.

1595. Frenchman River below Eastend Reservoir, near Eastend, Saskatchewan

(International gaging station)

Location.--Lat 49°30'55", long 108°50'10", in SE¼ sec.36, T.6, R.22 W., third meridian, on left bank three-quarters of a mile west of Eastend, 1 mile downstream from Eastend Reservoir, and 100 miles upstream from international boundary.

Drainage area.--637 sq mi, of which 159 sq mi in Cypress Lake basin is generally noncontributing.

Gage.--Nonrecording at several sites within 1½ miles of present site at various datums prior to July 1941; recording thereafter. Altitude of gage is 2,960 ft (from topographic map).

Stage-discharge relation.--Defined by surface-velocity measurement below 8,400 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records for 1918-47 furnished by Canadian Department of Resources and Development. Peak flows are materially affected by regulation and diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Frenchman River below Eastend Reservoir near Eastend, Saskatchewan

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 22, 1909	10.30	2,560	1941	Mar. 27, 1941	8.45	1,250
				1942	Apr. 13, 1942	5.47	662
1911	Apr. 11, 1911	8.80	1,910	1943	Mar. 30, 1943	15.40	3,700
1912	Apr. 10, 1912	-	a7,000	1944	Apr. 5, 1944	12.38	2,615
1913	Apr. 8, 1913	b11.30	2,360	1945	Mar. 23, 1945	9.59	1,700
1914	Apr. 13, 1914	7.41	1,010				
1915	Apr. 4, 1915	b10.87	3,040	1946	Mar. 28, 1946	7.82	1,230
				1947	Apr. 11, 1947	8.02	1,240
1918	Apr. 10, 1918	7.84	2,080	1948	Apr. 19, 1948	7.13	1,030
1919	Apr. 3, 1919	b8.05	660	1949	Apr. 9, 1949	3.35	310
1920	Apr. 21, 1920	9.43	2,300	1950	Apr. 18, 1950	12.82	2,230
1921	Apr. 14, 1921	7.84	1,670	1951	Apr. 29, 1951	13.22	2,650
1922	Apr. 23, 1922	11.78	3,650	1952	Apr. 16, 1952	19.10	11,500
1923	Apr. 15, 1923	b8.92	1,000	1953	Apr. 24, 1953	7.00	987
1924	Apr. 8, 1924	b12.84	958	1954	Apr. 14, 1954	9.14	1,460
1925	Apr. 6, 1925	b11.72	2,890	1955	Apr. 20, 1955	11.20	2,010
1926	Mar. 19, 1926	b11.87	1,420	1956	Apr. 15, 1956	8.14	1,200
1927	Apr. 26, 1927	14.50	4,370	1957	Apr. 18, 1957	6.20	799
1928	Mar. 22, 1928	b15.45	3,380	1958	Apr. 5, 1958	13.58	2,810
1929	Apr. 22, 1929	6.65	1,140	1959	Apr. 3, 1959	6.66	921
1930	Apr. 5, 1930	b12.44	2,060	1960	Mar. 27, 1960	b10.88	1,730
1931	Mar. 25, 1931	b2.58	118	1961	Mar. 25, 1961	2.06	152
				1962	Apr. 6, 1962	5.52	734
1940	Apr. 22, 1940	11.11	2,560	1963	Mar. 28, 1963	7.84	1,140

a Estimated.
b Backwater from ice.

1605. Frenchman River at Morrisons, near Eastend, Saskatchewan

(International gaging station)

Location.--Lat 49°26', long 108°40', in SW¼ sec.6, T.6, R.20 W., third meridian, on left bank at Morrison's farm, 8 miles southeast of Eastend.

Drainage area.--800 sq mi, of which 159 sq mi in Cypress Lake basin is generally noncontributing.

Gage.--Nonrecording prior to Apr. 1, 1942, and Oct. 25, 1952, to September 1955; recording Apr. 1, 1942, to Oct. 24, 1952. Altitude of gage is 2,930 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,300 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records for 1937-46 furnished by Canadian Department of Resources and Development. Records for 1953-55 furnished by Canadian Department of Northern Affairs and National Resources. Peak flows are materially affected by storage reservoirs and diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 22, 1939	9.14	2,180	1946	Mar. 29, 1946	7.16	1,220
1940	Apr. 23, 1940	10.20	2,310	1947	Apr. 11, 1947	a8.16	1,570
				1948	Apr. 19, 1948	6.42	966
1941	Mar. 28, 1941	9.88	1,330	1949	Apr. 10, 1949	4.15	284
1942	July 1, 1942	5.27	673	1950	Apr. 19, 1950	9.44	2,140
1943	Mar. 31, 1943	13.60	3,460				
1944	Apr. 6, 1944	10.85	2,317	1951	Apr. 30, 1951	10.65	2,410
1945	Mar. 24, 1945	9.13	1,780	1952	Apr. 16, 1952	17.77	b12,000

a Backwater from ice.
b About.

1610. Frenchman River at 50-Mile, near Bracken, Saskatchewan

(International gaging station)

Location.--Lat 49°25', long 108°01', in SE¼ sec.30, T.5, R.15 W., third meridian, three-quarters of a mile downstream from highway between Bracken and Admiral, 17 miles northeast of Bracken, and 18 miles northwest of Val Marie.

Drainage area.--1,248 sq mi, of which 159 sq mi in Cypress Lake basin is generally noncontributing.

Gage.--Nonrecording prior to Aug. 17, 1938; recording thereafter. At sites 3 miles upstream at various datums prior to May 1921. May 1921 to May 1931, and Sept. 12, 1935, to July 22, 1950, at several sites about 500 ft upstream at various datums. Altitude of gage is 2,750 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Fairly well defined by current-meter measurements for most years and by slope-area measurement at 14,000 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records prior to 1947 furnished by Canadian Department of Resources and Development. Peak flows are materially affected by regulation and diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Apr. 6, 1914	-	a950	1936	Apr. 17, 1936	5.75	1,080
1915	Apr. 7, 1915	-	3,050	1937	Apr. 14, 1937	5.32	912
				1938	Apr. 14, 1938	5.85	1,120
1916	July 3, 1916	-	4,280	1939	Mar. 23, 1939	b8.12	2,110
1917	Apr. 25, 1917	10.52	3,950	1940	Apr. 25, 1940	7.40	1,820
1919	Apr. 7, 1919	b6.10	600	1941	Mar. 31, 1941	6.92	1,550
1920	Apr. 23, 1920	6.72	2,540	1942	Apr. 16, 1942	4.55	570
				1943	Apr. 4, 1943	9.46	3,010
1921	May 14, 1921	-	a220	1944	Apr. 8, 1944	7.47	1,960
1922	Apr. 26, 1922	9.25	2,720	1945	Mar. 26, 1945	6.65	1,350
1923	Apr. 18, 1923	6.96	1,340				
1924	Apr. 11, 1924	6.27	1,080	1946	Mar. 31, 1946	5.62	966
1925	Apr. 8, 1925	8.66	2,310	1947	Apr. 7, 1947	b6.14	-
					Apr. 13, 1947	-	1,090
1926	Mar. 21, 1926	7.64	1,870	1948	Apr. 21, 1948	5.21	856
1927	Apr. 30, 1927	10.40	3,030	1949	Apr. 12, 1949	2.83	235
1928	Mar. 23, 1928	10.08	3,280	1950	Apr. 20, 1950	6.90	1,640
1929	Apr. 24, 1929	5.63	865				
1930	Apr. 7, 1930	7.65	1,890	1951	May 3, 1951	8.63	2,170
				1952	Apr. 17, 1952	16.28	14,000
1931	Apr. 4, 1931	-	a217				

a Daily mean.
b Backwater from ice.

1635. Frenchman River below Val Marie, Saskatchewan

(International gaging station)

Location.--Lat 49°12', long 107°41', in NE¼ sec.9, T.3, R.13 W., third meridian, on right bank 5 miles southeast of Val Marie and 6 miles northeast of Masefield.

Drainage area.--1,725 sq mi.

Gage.--Nonrecording prior to Aug. 18, 1938; recording thereafter. At datum 1.00 ft lower prior to November 1950. Altitude of gage is 2,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended above on basis of slope-area measurement at 17,000 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only. Records prior to 1947 furnished by Canadian Department of Resources and Development. Only seasonal records are collected. Peak flows are materially affected by storage reservoirs and diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Frenchman River below Val Marie, Saskatchewan

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937	July 17, 1937	5.35	268	1947	Apr. 19, 1947	10.31	551
1938	Apr. 16, 1938	7.59	424	1948	Apr. 25, 1948	12.84	906
1939	Mar. 24, 1939	16.50	2,980	1949	Apr. 3, 1949	a5.99	-
1940	Apr. 24, 1940	15.40	1,870		July 9, 1949	-	b56
				1950	Apr. 16, 1950	a15.73	-
1941	Mar. 21, 1941	15.02	1,480		Apr. 23, 1950	-	1,590
1942	June 30, 1942	9.04	491				
1943	Mar. 25, 1943	17.70	4,600	1951	May 5, 1951	15.21	2,530
1944	Apr. 11, 1944	14.72	1,400	1952	Apr. 14, 1952	19.7	17,700
1945	Mar. 29, 1945	12.50	750				
				1962	July 15, 1962	14.99	1,060
1946	Apr. 2, 1946	12.52	794	1963	Apr. 1, 1963	15.35	1,110

a Backwater from ice.
b Daily mean.

1640. Frenchman River at international boundary

(International gaging station)

Location.--Lat 49°00'00", long 107°18'10", in SE¼ sec.5, T.1, R.10 W., third meridian, on left bank 50 ft north of international boundary and 22 miles northeast of Whitewater, Mont.

Drainage area.--2,299 sq mi.

Gage.--Recording. At site half a mile upstream at different datum prior to June 23, 1937. Altitude of gage is 2,420 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5,900 cfs at site used prior to June 23, 1937. Defined by current meter measurements below 2,300 cfs at present site and extended above on basis of slope-area measurement at 22,700 cfs.

Remarks.--Station maintained jointly by Canada and the United States. Seasonal records only for most years. Peak flows are materially affected by storage reservoirs and diversions. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	Apr. 30, 1917	9.99	2,780	1942	June 28, 1942	10.00	1,590
1918	Apr. 6, 1918	8.65	2,240	1943	Mar. 30, 1943	16.36	6,630
1919	Apr. 5, 1919	5.46	1,060	1944	Apr. 3, 1944	a9.02	1,040
1920	May 10, 1920	6.10	1,660	1945	Apr. 1, 1945	6.26	624
1921	Apr. 19, 1921	4.72	882	1946	Mar. 16, 1946	a6.84	736
1922	Apr. 6, 1922	8.97	2,480	1947	Apr. 4, 1947	e6.96	744
1923	June 23, 1923	10.31	2,920	1948	Aug. 6, 1948	10.20	1,630
1924	Apr. 14, 1924	4.70	744	1949	Apr. 2, 1949	e5.02	-
1925	Mar. 29, 1925	13.12	5,440		Apr. 5, 1949	4.81	192
				1950	Apr. 17, 1950	13.24	2,870
1926	Mar. 19, 1926	6.32	1,440				
1927	Apr. 10, 1927	11.43	3,370	1951	Apr. 10, 1951	a12.78	-
1928	Mar. 25, 1928	12.71	4,950		May 7, 1951	11.82	1,950
1929	Apr. 29, 1929	4.37	637	1952	Apr. 15, 1952	19.90	22,700
1930	Apr. 6, 1930	5.65	1,340	1953	May 30, 1953	9.36	1,310
				1954	Apr. 8, 1954	13.82	3,330
1931	June 29, 1931	3.89	538	1955	Apr. 20, 1955	11.16	1,950
1932	Aug. 11, 1932	5.70	1,260				
1933	Mar. 30, 1933	a4.80	741	1956	Apr. 23, 1956	7.08	788
1934	Mar. 5, 1934	a5.27	-	1957	Apr. 13, 1957	6.20	588
	Apr. 12, 1934	4.15	456	1958	Apr. 10, 1958	10.22	1,780
1935	Apr. 24, 1935	4.73	837	1959	Mar. 28, 1959	a10.89	1,840
				1960	Mar. 28, 1960	12.96	2,600
1936	Apr. 16, 1936	5.40	1,310				
1937	July 14, 1937	4.28	347	1961	Mar. 19, 1961	a7.13	640
1938	July 5, 1938	10.77	1,790	1962	July 15, 1962	12.60	2,800
1939	Mar. 27, 1939	13.40	2,990	1963	Mar. 24, 1963	a7.98	-
1940	Apr. 26, 1940	11.29	1,930		June 8, 1963	7.64	931
1941	Mar. 25, 1941	10.53	1,730				

a Backwater from ice.

1650. Beaver Creek near Malta, Mont.

Location.--Lat 48°10', long 107°31', in SW¼SW¼ sec.19, T.28 N., R.33 E., at highway bridge at Hales Crossing, 21 miles southeast of Malta.

Drainage area.--1,010 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,260 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs.

Remarks.--Several diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	Apr. 6, 1917	19.5	4,990	1920	June 18, 1920	21.0	6,040
1918	May 20, 1918	19.3	4,850				
1919	Apr. 2, 1919	15.1	2,130	1921	May 12, 1921	8.75	783

1685. Rock Creek at international boundary

(International gaging station)

Location.--Lat 48°59'20", long 106°47'30", in SE¼ sec.1, T.37 N., R.37 E., on right bank three-quarters of a mile south of international boundary, 2 miles upstream from Horse Creek, and 9 miles northeast of Thoeny, Mont.

Drainage area.--241 sq mi.

Gage.--Nonrecording prior to Sept. 10, 1937; recording thereafter. At site 200 ft downstream Mar. 18, 1927, to Sept. 9, 1937. Altitude of gage is 2,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended above on basis of slope-area measurement at 3,310 cfs.

Remarks.--Station maintained jointly by the United States and Canada. No winter records for most years. Records prior to March 1927 furnished by Canadian Department of Resources and Development. Small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Apr. 6, 1927	10.51	1,320	1946	Mar. 20, 1946	a6.12	271
1928	Mar. 22, 1928	10.44	1,300	1947	Apr. 3, 1947	8.19	822
1929	Mar. 30, 1929	3.74	56	1948	July 14, 1948	9.26	1,060
1930	Apr. 4, 1930	7.47	606	1949	Apr. 1, 1949	a4.50	166
				1950	Apr. 16, 1950	10.37	1,330
1931	Mar. 19, 1931	a3.03	48.5				
1932	Mar. 25, 1932	4.52	169	1951	Apr. 10, 1951	a11.02	-
1933	Mar. 18, 1933	a5.33	208		Apr. 28, 1951	-	756
1934	Mar. 4, 1934	a8.03	-	1952	Apr. 15, 1952	11.91	3,310
1935	July 23, 1935	5.02	254	1953	June 9, 1953	5.59	330
				1954	Apr. 7, 1954	a11.40	2,250
1936	Apr. 12, 1936	a8.49	-	1955	Apr. 2, 1955	a10.99	1,700
	Apr. 14, 1936	-	521				
1937	July 13, 1937	4.55	208	1956	Mar. 27, 1956	a7.90	604
1938	Mar. 17, 1938	a9.70	793	1957	Apr. 24, 1957	4.67	213
1939	Mar. 25, 1939	11.40	2,410	1958	Mar. 31, 1958	a9.13	925
1940	Apr. 18, 1940	a6.63	421	1959	Mar. 28, 1959	a5.70	304
				1960	Mar. 27, 1960	10.83	1,620
1941	Mar. 22, 1941	a9.06	925				
1942	Apr. 3, 1942	6.26	422	1961	Mar. 19, 1961	a4.03	-
1943	Mar. 30, 1943	11.18	2,070		Mar. 20, 1961	-	74
1944	Apr. 2, 1944	a8.58	776				
1945	Mar. 14, 1945	a8.81	892				

a Backwater from ice.

1690. Horse Creek at international boundary
(Published as "near Barnard, Mont." 1914-17)

(International gaging station)

Location.--Lat 48°59'20", long 106°50'10", in SE¼ sec.3, T.37 N., R.37 E., on right bank three-quarters of a mile south of international boundary, 1½ miles upstream from mouth, and 8 miles northeast of Thoeny, Mont.

Drainage area.--73.5 sq mi.

Gage.--Nonrecording prior to Sept. 9, 1937; recording thereafter. At datum 1.06 ft higher prior to June 16, 1919. Altitude of gage is 2,540 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs and extended above by logarithmic plotting.

Remarks.--Station maintained jointly by United States and Canada. Only seasonal records for most years. Records prior to March 1927 furnished by Canadian Department of Resources and Development. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Apr. 4, 1915	4.00	92	1940	Apr. 19, 1940	7.87	253
1916	Apr. 10, 1916	8.0	364	1941	Mar. 22, 1941	a8.69	295
1917	Apr. 15, 1917	8.16	562	1942	Mar. 14, 1942	6.88	129
1918	Mar. 24, 1918	8.46	639	1943	Mar. 29, 1943	11.52	1,590
1919	Apr. 3, 1919	8.45	428	1944	Apr. 1, 1944	9.31	482
1920	Apr. 13, 1920	4.25	59	1945	Mar. 13, 1945	8.32	313
1921	July 13, 1921	7.57	305	1946	Mar. 20, 1946	6.33	119
1922	Apr. 5, 1922	-	450	1947	Apr. 3, 1947	8.34	301
1923	June 1, 1923	9.39	649	1948	Apr. 16, 1948	7.70	225
1924	Apr. 3, 1924	4.83	88	1949	Mar. 30, 1949	a5.69	78
1925	Mar. 30, 1925	10.85	1,040	1950	Apr. 16, 1950	10.55	970
1926	Mar. 17, 1926	7.45	274	1951	Apr. 9, 1951	a9.04	-
1927	Apr. 9, 1927	9.80	691		Apr. 26, 1951	-	268
1928	Mar. 22, 1928	10.50	940	1952	Apr. 15, 1952	11.79	1,800
1929	Mar. 29, 1929	3.59	31.7	1953	June 2, 1953	10.62	1,010
1930	Apr. 4, 1930	7.71	244	1954	Apr. 5, 1954	a11.76	1,530
				1955	Apr. 1, 1955	a10.56	548
1931	Mar. 21, 1931	2.38	6.9				
1932	Mar. 24, 1932	a5.29	56	1956	Mar. 27, 1956	-	b90
1933	Aug. 22, 1933	8.28	311	1957	Mar. 24, 1957	-	b40
					Mar. 27, 1957	3.90	-
1935	Apr. 14, 1935	7.64	226	1958	Mar. 31, 1958	9.16	515
				1959	Mar. 27, 1959	5.99	140
1936	Apr. 12, 1936	8.08	289	1960	Mar. 27, 1960	9.88	658
1937	Apr. 10, 1937	4.01	43.5				
1938	Mar. 17, 1938	8.07	288	1961	Mar. 22, 1961	3.52	10.1
1939	Mar. 24, 1939	11.18	1,360				

a Backwater from ice.
b Daily mean.

1695. Rock Creek below Horse Creek, near international boundary
(Published as "near Barnard, Mont." 1916-17)

(International gaging station)

Location.--Lat 48°58'10", long 106°49'50", in NE¼ sec.15, T.37 N., R.37 E., on right bank 1 mile downstream from Horse Creek, 2 miles south of international boundary, and 21 miles northwest of Opheim, Mont.

Drainage area.--328 sq mi.

Gage.--Nonrecording at several sites within 500 ft upstream at differert datum March 1916 to October 1926; recording at present site and datum since September 1956. Altitude of gage is 2,530 ft (from topographic map).

Stage-discharge relation.--Defined at present site by current-meter measurements below 2,100 cfs and extended above on basis of slope-area measuremert at 5,110 cfs for the flood of Apr. 15, 1952.

Remarks.--Station maintained jointly by the United States and Canada. Seasonal records only. Records 1917-26 furnished by Canadian Department of Resources and Development. Small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks for the season (generally March to October) are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	Apr. 15, 1917	-	2,500	1952	Apr. 15, 1952	12.6	5,110
1919	Apr. 4, 1919	8.73	1,265	1957	Mar. 22, 1957	a5.60	-
1920	Mar. 26, 1920	8.72	434		Apr. 24, 1957	-	186
				1958	Mar. 31, 1958	a8.28	1,430
1921	July 13, 1921	7.31	829	1959	Mar. 28, 1959	a5.76	461
1922	Apr. 5, 1922	11.00	2,328	1960	Mar. 27, 1960	9.13	2,070
1923	June 1, 1923	9.45	1,696				
1924	Oct. 12, 1923	4.85	282	1961	Mar. 20, 1961	a4.03	82
1925	Mar. 31, 1925	12.54	3,610	1962	June 15, 1962	6.80	900
				1963	Mar. 13, 1963	a7.08	-
1926	Mar. 17, 1926	6.50	606		Mar. 22, 1963	-	815

a Backwater from ice.

1700. McEachern Creek at international boundary

(International gaging station)

Location.--Lat 48°59'30", long 106°55'40", in SW¼ sec.1, T.37 N., R.36 E., on left bank half a mile downstream from East Fork, half a mile south of international boundary, and 8 miles north of Thoeny, Mont.

Drainage area.--182 sq mi.

Gage.--Nonrecording prior to May 29, 1962; recording thereafter. At site a quarter of a mile downstream at datum 1.25 ft lower prior to Mar. 1, 1927, and at site 350 ft upstream at present datum Mar. 1, 1927, to Oct. 1, 1938. Altitude of gage is 2,540 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs and extended above on basis of slope-area measurement at 7,080 cfs.

Remarks.--Station maintained jointly by the United States and Canada. Only seasonal records for most yeara. Records prior to March 1927 furnished by Canadian Department of Resources and Development. Several diversiors for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Apr. 3, 1924	-	135	1928	Mar. 21, 1928	a9.19	b1,000
1925	Mar. 29, 1925	9.75	2,210	1929	Mar. 30, 1929	a3.38	b63
				1930	Mar. 23, 1930	a6.96	b394
1926	Mar. 17, 1926	6.32	949				
1927	Apr. 9, 1927	10.42	3,190	1931	June 30, 1931	6.05	730

a Backwater from ice.
b Daily mean.

Peak stages and discharges of McEachern Creek at international boundary--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Mar. 26, 1932	a4.05	b118	1948	Apr. 16, 1948	4.95	312
1933	Aug. 22, 1933	6.07	738	1949	Apr. 3, 1949	3.70	74
1934	Mar. 2, 1934	a7.18	-	1950	Apr. 16, 1950	9.96	3,350
1935	Apr. 17, 1935	4.40	210	1951	Apr. 26, 1951	5.46	696
1936	Apr. 12, 1936	5.97	698	1952	Apr. 15, 1952	13.85	7,080
1937	Apr. 11, 1937	3.11	39.4	1953	June 3, 1953	6.31	1,070
1938	Mar. 17, 1938	6.52	934	1954	Apr. 6, 1954	11.78	4,960
1939	Mar. 23, 1939	11.12	3,750	1955	Apr. 2, 1955	a7.63	1,270
1940	Apr. 17, 1940	a6.30	-	1956	Mar. 27, 1956	a4.08	180
	Apr. 18, 1940	-	572	1957	Apr. 1, 1957	2.01	3.8
1941	Mar. 19, 1941	a6.48	413	1958	Mar. 31, 1958	6.36	1,070
1942	June 29, 1942	5.60	560	1959	Mar. 27, 1959	4.58	394
1943	Mar. 29, 1943	10.74	3,440	1960	Mar. 27, 1960	7.43	1,640
1944	Apr. 1, 1944	6.80	1,020	1961	Mar. 22, 1961	1.76	1.3
1945	Mar. 13, 1945	4.35	212	1962	July 14, 1962	5.72	798
1946	Mar. 20, 1946	4.29	193	1963	June 22, 1963	6.01	914
1947	Apr. 3, 1947	5.05	340				

a Backwater from ice.
b Daily mean.

1710. Rock Creek near Hinsdale, Mont.

Location.--Lat 48°28', long 107°02', in NW¼ sec.10, T.31 N., R.36 E., 2 miles downstream from Rock Creek Canal diversion and 5 miles northeast of Hinsdale.

Drainage area.--1,313 sq mi.

Gage.--Nonrecording. At site 2 miles upstream at different datum prior to Apr. 19, 1912. Altitude of gage is 2,140 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,700 cfs.

Remarks.--Peak flows are materially affected by diversions for irrigation. Only annual observed peaks are shown except as noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 8, 1906	18.4	6,220	1916	Apr. 13, 1916	20.6	4,220
1907	Apr. 11, 1907	17.0	5,520	1917	Apr. 11, 1917	20.0	4,020
1912	May 29, 1912	19.6	3,890	1918	Mar. 25, 1918	18.3	3,460
1914	Apr. 24, 1914	16.5	2,880	1919	Apr. 3, 1919	18.2	3,430
1915	May 27, 1915	21.1	a4,390	1920	Mar. 27, 1920	14.44	2,240

a Momentary maximum.

1720. Milk River near Vandalia, Mont.

Location.--Lat 48°23', long 106°58', in NW¼ sec.7, T.30 N., R.37 E., at Vandalia Dam, 3 miles northwest of Vandalia.

Drainage area.--20,926 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,089 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 18,000 cfs.

Remarks.--Many large diversions for irrigation above station. Since 1917, flow increased during irrigation season by water from the St. Mary River. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Milk River near Vandalia, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	May 27, 1915	19.2	8,300	1930	Apr. 5, 1930	-	6,100
1917	Apr. 11, 1917	34.5	25,200	1931	Oct. 10, 1930	-	1,370
1918	Mar. 28, 1918	34.3	24,900		Feb. 1, 1931	d9.7	-
1919	Apr. 4, 1919	27.5	15,700	1932	June 14, 1932	22.78	7,010
1920	Mar. 27, 1920	a3.80	10,300	1933	Aug. 26, 1933	25.22	7,550
				1934	Feb. 18, 1934	d17.0	-
1921	June 21, 1921	27.4	11,600		Mar. 21, 1934	-	3,180
1922	Apr. 7, 1922	-	b20,000	1935	Mar. 26, 1935	d25.2	7,920
1923	June 30, 1923	-	c17,000				
1924	June 17, 1924	18.4	5,130	1936	Apr. 11, 1936	a4.42	11,000
1925	Apr. 1, 1925	35.35	27,200	1937	Apr. 11, 1937	a3.28	5,990
				1938	Mar. 17, 1938	31.09	11,000
1929	June 10, 1929	12.3	2,540	1939	Mar. 25, 1939	36.47	21,100
1930	Feb. 22, 1930	d31.4	-				

a Gage above dam at different datum. b Daily mean; estimated. c Daily mean.
d Backwater from ice.

1723. Unger Creek near Vandalia, Mont.

Location.--Lat 48°22', long 106°48', in SW¼ sec.9, T.30 N., R.38 E., at bridge on U.S. Highway 2, 4½ miles northeast of Vandalia.

Drainage area.--11.1 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs. Large shifts occur.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	March 1958	0.92	10	1961	June 13, 1961	1.02	13
1959	Apr. 1, 1959	1.41	32	1962	July 14, 1962	3.28	575
1960	Mar. 20, 1960	2.32	225	1963	June 29, 1963	2.23	46

1740. Willow Creek near Glasgow, Mont.

Location.--Lat 48°06'52", long 106°40'15", in NW¼NE¼ sec.10, T.27 N., R.39 E., on right bank 6 miles south of Glasgow and 8 miles upstream from mouth.

Drainage area.--538 sq mi.

Gage.--Recording. Altitude of gage is 2,110 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 9,100 cfs.

Remarks.--There are 159 storage reservoirs (aggregate capacity, 1,615 acre-ft), and 59 detention reservoirs (aggregate capacity, 27,840 acre-ft) above station. Flood or water spreader irrigation serves 5,035 acres. Annual peaks might be materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	Apr. 6, 1954	16.75	3,280	1959	Mar. 19, 1959	17.58	3,100
1955	May 17, 1955	17.26	3,240	1960	Mar. 20, 1960	19.10	5,050
1956	Aug. 31, 1956	8.23	747	1961	June 14, 1961	8.70	495
1957	Mar. 21, 1957	9.3	955	1962	July 14, 1962	21.70	12,400
1958	June 10, 1958	4.14	131	1963	June 6, 1963	18.93	3,720

1745. Milk River at Nashua, Mont.

Location.--Lat 48°07'50", long 106°21'50", in NE¼NE¼ sec.1, T.27 N., R.41 E., on right bank at downstream side of highway bridge, 0.6 mile southwest of Nashua and 5 miles upstream from Porcupine Creek.

Drainage area.--22,332 sq mi.

Gage.--Recording. Datum of gage is 2,027.75 ft above mean sea level, datum of 1929, adjustment of 1948.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 140,000 acres above station. Flow regulated by Fresno and Nelson Reservoirs (usable capacity, 127,200 and 66,800 acre-ft, respectively) and four reservoirs in Frenchman River basin in Saskatchewan (capacity, 91,920 acre-ft). Peak flows are materially affected by diversions and regulation. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	Apr. 23, 1940	21.8	12,000	1952	Apr. 18, 1952	31.38	45,300
				1953	May 31, 1953	25.50	13,400
1941	Mar. 31, 1941	a17.67	6,660	1954	Apr. 13, 1954	22.35	10,900
1942	Mar. 20, 1942	a14.98	-	1955	Apr. 6, 1955	20.98	10,200
	June 6, 1942	-	6,270				
1943	Apr. 2, 1943	26.97	17,400	1956	Mar. 28, 1956	-	c3,170
1944	Mar. 27, 1944	a18.59	b6,700		Mar. 29, 1956	a13.34	-
1945	Mar. 28, 1945	a12.08	c2,500	1957	Mar. 29, 1957	a8.74	-
					Mar. 30, 1957	-	c1,750
1946	July 11, 1946	12.74	5,080	1958	Apr. 8, 1958	11.31	3,840
1947	Mar. 30, 1947	a23.56	c11,000	1959	Mar. 24, 1959	a24.43	c10,000
1948	June 6, 1948	12.11	4,760	1960	Mar. 27, 1960	26.17	14,200
1949	Mar. 23, 1949	a7.62	-				
	Apr. 1, 1949	-	2,070	1961	Feb. 6, 1961	a4.05	-
1950	Apr. 22, 1950	22.62	12,500		Mar. 22, 1961	-	702
				1962	July 17, 1962	20.30	9,670
1951	Apr. 3, 1951	a21.87	-	1963	June 10, 1963	11.70	4,250
	Apr. 9, 1951	-	10,100				

a Backwater from ice.
b About.
c Daily mean.

1750. Porcupine Creek at Nashua, Mont.

Location.--Lat 48°09', long 106°21', in NW¼ sec.31, T.28 N., R.42 E., a quarter of a mile upstream from highway bridge and three-eighths of a mile north of Nashua.

Drainage area.--725 sq mi.

Gage.--Nonrecording. At site 300 ft downstream at different datum prior to Apr. 19, 1911. Altitude of gage is 2,060 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 810 cfs.

Remarks.--Some regulation since 1918 by reservoir on Middle Fork Porcupine Creek Peaks materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	July 14, 1909	9.15	408	1919	Apr. 3, 1919	15.4	935
				1920	Mar. 27, 1920	11.0	522
1912	Aug. 20, 1912	18.0	2,390				
1913	Mar. 31, 1913	16.0	1,110	1921	June 21, 1921	15.4	830
1914	Apr. 3, 1914	13.6	755				
1915	May 27, 1915	12.3	456	1923	June 25, 1923	15.8	825
				1924	July 19, 1924	6.1	120
1916	Apr. 11, 1916	18.0	2,700				
1917	Apr. 10, 1917	16.6	1,270	1939	Mar. 24, 1939	-	a35,500
1918	Aug. 22, 1918	13.2	537				

a Computed by U.S. Indian Service; caused by failure of Middle Fork Dam.

1765. Wolf Creek near Wolf Point, Mont.

Location.--Lat 48°06', long 105°41', near center of N½ sec.17, T.27 N., R.47 E., 2 miles northwest of Wolf Point and 2½ miles upstream from mouth.

Drainage area.--251 sq mi.

Gage.--Nonrecording at site three-quarters of a mile upstream at different datum prior to August 1914. Recording Aug. 1, 1914, to Sept. 30, 1953, and crest-stage gage thereafter. Altitude of gage is 2,010 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended above on basis of contracted-opening measurement at 7,050 cfs. Large shifts occur.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	Mar. 14, 1910	3.9	110	1956	Mar. 23, 1956	-	a60
				1957	July 14, 1957	5.29	a180
1911	Mar.19-23,1911	4.45	154	1958	Apr. 1, 1958	3.30	a6
1912	Apr. 1, 1912	5.9	270	1959	June 21, 1959	6.74	a330
				1960	Mar. 20, 1960	9.71	-
1950	Apr. 18, 1950	5.30	188				
				1961	May 22, 1961	5.97	120
1951	Apr. 5, 1951	6.06	324	1962	June 15, 1962	7.95	1,440
1952	Apr. 7, 1952	9.25	7,050	1963	July 11, 1963	5.60	140
1953	June 3, 1953	7.29	1,010				
1954	Apr. 4, 1954	12.9	9,780				

a Approximate.

MISSOURI RIVER MAIN STEM

1770. Missouri River near Wolf Point, Mont.

Location.--Lat 48°04', long 105°32', in NW¼ sec.28, T.27 N., R.48 E., on right bank 500 ft downstream from bridge on State Highway 13, 6 miles southeast of Wolf Point, and 6 miles downstream from Wolf Creek.

Drainage area.--82,290 sq mi.

Gage.--Nonrecording at Wolf Point ferry landing 6 miles upstream at different datum prior to Apr. 13, 1930; recording thereafter. Datum of gage is 1,958.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 44,000 cfs at present site.

Remarks.--Diversions for irrigation of about 1,000,000 acres above station. Flow partly regulated by Fort Peck Reservoir (total capacity, 19,410,000 acre-ft) since 1937 and by many other reservoirs above station. Peak flows materially affected by regulation by Fort Peck Reservoir since 1937. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 14, 1908	a20	-	1937	June 14, 1937	10.44	23,900
				1938	Mar. 12, 1938	b13.00	-
1929	June 4, 1929	11.51	26,900		Mar. 19, 1938	-	d36,000
1930	Mar. 30, 1930	b17.45	-	1939	Mar. 25, 1939	b14.40	66,800
	Apr. 20, 1930	-	21,000	1940	Aug.14,24, 1940	9.06	17,200
1931	Mar. 23, 1931	b8.40	c14,000	1941	Mar. 30, 1941	b9.46	-
1932	May 23, 1932	14.82	41,000		Aug. 10, 1941	-	15,400
1933	Mar. 25, 1933	b12.30	-	1942	Aug. 28, 1942	8.42	15,100
	June 10, 1933	-	29,800	1943	Mar. 29, 1943	b14.25	-
1934	June 15, 1934	11.30	32,300		Mar. 30, 1943	-	38,600
1935	June 20, 1935	9.65	21,500	1944	Oct. 6, 1943	9.77	21,500
				1945	Oct. 13, 1944	-	22,200
1936	Mar. 11, 1936	b14.64	31,300		Jan. 4, 1945	b11.81	-

a Approximate; at present site and datum. b Backwater from ice. c Daily mean.
d About.

Peak stages and discharges of Missouri River near Wolf Point, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Aug. 24, 1946	9.81	20,700	1956	Oct. 19, 1955	9.22	31,500
1947	Apr. 2, 1947	b10.81	-	1957	Mar. 26, 1957	a6.87	-
	Aug. 13, 1947	-	27,200		Mar. 29, 1957	-	d13,000
1948	Aug. 9, 1948	10.77	28,600	1958	Feb. 18, 1958	a5.53	-
1949	Oct. 1, 1948	10.24	-		Apr. 9, 1958	-	9,910
	Oct. 14, 1948	-	29,100	1959	Mar. 26, 1959	b11.76	d23,000
1950	Apr. 16, 1950	b10.71	-	1960	Mar. 27, 1960	b15.64	-
	Sept. 6, 1950	-	22,100		Mar. 28, 1960	-	d30,000
1951	Apr. 7, 1951	b10.90	-	1961	Dec. 24, 1960	b8.73	-
	Sept.30, 1951	-	29,100		Sept.30, 1961	-	15,600
1952	Apr. 7, 1952	b14.91	-	1962	Oct. 3, 1961	-	15,500
	Apr. 19, 1952	-	46,800		Jan. 12, 1962	b9.64	-
1953	Sept.28, 1953	9.75	28,100	1963	Feb. 6, 1963	b9.57	d15,000
1954	Aug. 31, 1954	10.00	33,700				
1955	Sept.20, 1955	9.94	30,500				

a Approximate; at present site and datum.
b Backwater from ice.
d About.

REDWATER CREEK BASIN

1770.5. East Fork Duck Creek near Brockway, Mont.

Location.--Lat 47°12', long 105°47', in sec.31, T.17 N., R.47 E., at bridge on county road, 8 miles south of Brockway.

Drainage area.--12.4 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,660 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 280 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 12, 1955	1.46	106	1960	Aug. 16, 1960	1.65	140
1956	Mar. 2, 1956	1.08	60	1961	May 31, 1961	1.62	134
1957	July 14, 1957	3.64	505	1962	July 14, 1962	1.97	190
1958	July 21, 1958	.19	8	1963	June 6, 1963	4.30	650
1959	Mar. 18, 1959	2.47	273				

1771. Duck Creek near Brockway, Mont.

Location.--Lat 47°15', long 105°49', in SE¼ sec.11, T.17 N., R.46 E., at bridge on county road, 5 miles southwest of Brockway.

Drainage area.--54.0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,580 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	July 14, 1957	4.00	640	1961	June 1, 1961	-0.06	a1
1958	July 3, 1958	1.05	40	1962	June 6, 1962	2.59	270
1959	Mar. 18, 1959	5.15	1,000	1963	June 6, 1963	4.79	890
1960	Mar. 20, 1960	3.57	520				

a Approximate.

1771.5. Redwater Creek at Brockway, Mont.

Location.--Lat 47°19', long 105°45', in NW¼ sec.20, T.18 N., R.47 E., at bridge on county road, a quarter of a mile northwest of Brockway.

Drainage area.--216 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	July 14, 1957	5.8	1,220	1961	June 1, 1961	2.26	200
1958	July 3, 1958	1.86	130	1962	June 6, 1962	5.80	1,220
1959	Mar. 18, 1959	5.53	1,130	1963	June 6, 1963	5.45	1,520
1960	Mar. 20, 1960	a6.94	b1,000				

a Backwater from ice.
b Approximate.

1772. Tusler Creek near Brockway, Mont.

Location.--Lat 47°18', long 105°39', in SE¼ sec.24, T.18 N., R.47 E., at bridge on county road, 4 miles east of Brockway.

Drainage area.--90.2 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,570 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 340 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Feb. 27, 1957	1.66	200	1961	Mar. 6, 1961	-0.04	18
1958	July 21, 1958	-.22	14	1962	July 19, 1962	3.36	430
1959	Mar. 18, 1959	a2.16	150	1963	June 6, 1963	2.34	280
1960	Mar. 20, 1960	1.96	280				

a Backwater from ice.

1773. Redwater Creek tributary near Brockway, Mont.

Location.--Lat 47°21', long 105°41', in NE¼SE¼ sec.2, T.18 N., R.47 E., at culvert on State Highway 20, 4 miles northeast of Brockway.

Drainage area.--0.29 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,570 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs and by computation of flow through culvert at 72 and 83 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	Aug. 18, 1954	7.40	72	1960	Mar. 20, 1960	1.17	12
1957	July 14, 1957	9.40	83	1961	July 29, 1961	1.65	16
1958	-	-	(a)	1962	June 6, 1962	.62	8
1959	Mar. 18, 1959	b4.35	c20	1963	June 3, 1963	.60	8

a No evidence of flow during year.
b Backwater from ice.
c Approximate.

1773.5. South Fork Dry Ash Creek near Circle, Mont.

Location.--Lat 47°18', long 105°35', in NW¼ sec.27, T.18 N., R.48 E., at bridge on county road, 9¼ miles south of Circle.

Drainage area.--5.74 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,660 ft (from topographic map).

Stage-discharge relation.--Poorly defined by current-meter measurements below 30 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 12, 1955	2.18	56	1960	Aug. 16, 1960	2.40	85
1956	Mar. 1, 1956	1.37	17	1961	-	-	(a)
1957	Feb. 26, 1957	1.58	52	1962	July 14, 1962	1.12	22
1958	June 3, 1958	.23	3	1963	June 6, 1963	.76	10
1959	Mar. 22, 1959	2.12	79				

a No evidence of flow during year.

1774. McCune Creek near Circle, Mont.

Location.--Lat 47°21', long 105°35', in NW¼ sec.3, T.18 N., R.48 E., near bridge on county road, 5 miles south of Circle.

Drainage area.--29.9 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,500 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 12, 1955	4.32	128	1960	Mar. 20, 1960	5.44	b150
1956	Mar. 20, 1956	3.31	52	1961	Mar. 6, 1961	1.36	b5
1957	July 14, 1957	4.93	175	1962	July 19, 1962	7.26	235
1958	June 3, 1958	.98	6	1963	June 6, 1963	6.29	b450
1959	Mar. 22, 1959	-	(a)				

a Unknown.
b Approximate.

1775. Redwater Creek at Circle, Mont.

Location.--Lat 47°25', long 105°35', in SW¼ sec.11, T.19 N., R.48 E., on left bank at Circle, three-quarters of a mile upstream from Horse Creek.

Drainage area.--547 sq mi.

Gage.--Nonrecording prior to May 8, 1950; recording thereafter. Altitude of gage is 2,380 ft (by barometer). At site a third of a mile upstream at same datum prior to June 1, 1941, and Mar. 23, 1943, to Feb. 16, 1948. At site 200 ft upstream at datum 2.8 ft lower June 1, 1941, to Mar. 22, 1943.

Stage-discharge relation.--Defined by current-meter measurements below 3,500 cfs at present site.

Remarks.--Minor diversions do not materially affect peak flows. Base for partial-duration series, 80 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges of Redwater Creek at Circle, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	June 6, 1929	10.00	1,370	1953	Mar. 31, 1953	5.41	156
1930	Mar. 12, 1930	6.70	302		June 24, 1953	10.28	1,900
					June 29, 1953	10.83	1,970
1932	Apr. 23, 1932	11.1	1,840		July 16, 1953	6.45	313
1933	June 20, 1933	11.10	1,840		Aug. 1, 1953	6.98	420
1934	June 16, 1934	9.44	1,130		Aug. 5, 1953	7.19	465
1935	July 10, 1935	9.70	1,250				
				1954	Feb. 6, 1954	-	(d)
1936	Mar. 10, 1936	9.86	1,330		Aug. 16, 1954	8.12	721
1937	June 12, 1937	9.35	1,130				
1938	July 4, 1938	14.33	3,460	1955	Mar. 10, 1955	b9.70	c950
1939	Mar. 19, 1939	11.17	1,880		July 7, 1955	8.50	612
1940	June 8, 1940	3.78	9.5		July 12, 1955	6.58	240
					July 29, 1955	4.93	97
1941	(a)	b3.41	-				
	Sept.10, 1941	-	4.9	1956	Mar. 2, 1956	-	(d)
1942	Mar. 9, 1942	4.24	341		Mar. 19, 1956	b8.51	-
1943	Mar. 24, 1943	b13.8	1,500		Mar. 20, 1956	-	650
1944	June 17, 1944	18.5	6,220				
1945	Feb. 9, 1945	8.69	-	1957	Feb. 28, 1957	-	(d)
	Mar.11,12, 1945	-	c80		Mar. 11, 1957	6.30	295
					Mar. 22, 1957	6.56	342
1946	Feb. 23, 1946	b9.81	-		Apr. 23, 1957	8.01	688
	July 17, 1946	-	1,090		July 14, 1957	12.77	6,730
1947	Mar. 23, 1947	14.10	4,180		Aug. 31, 1957	5.35	148
					Sept. 5, 1957	5.40	155
1948	Feb. 27, 1948	-	(d)				
	Mar. 17, 1948	5.22	132	1958	June 7, 1958	3.85	7.8
	June 5, 1948	6.52	335				
	June 14, 1948	9.12	1,040	1959	Mar. 19, 1959	b12.23	-
	July 15, 1948	8.30	775		Mar. 20, 1959	12.15	4,360
	July 20, 1948	8.00	685		Mar. 22, 1959	11.42	2,910
	Aug. 7, 1948	6.00	243		Mar. 27, 1959	6.15	171
	Aug. 10, 1948	6.15	268				
				1960	Mar. 21, 1960	12.22	4,530
1949	Mar. 8, 1949	-	(d)		May 24, 1960	7.05	332
	Mar. 22, 1949	11.1	1,820				
				1961	Feb. 11, 1961	3.65	2.2
1950	Apr. 2, 1950	-	(d)				
	Apr. 7, 1950	7.75	612	1962	June 2, 1962	7.07	316
	Apr. 14, 1950	5.42	169		June 7, 1962	10.59	1,870
					July 17, 1962	9.02	899
1951	Feb. 11, 1951	-	(d)		July 19, 1962	9.90	1,360
	Feb. 16, 1951	-	(d)				
	Mar. 22, 1951	b9.26	c520	1963	Feb. 5, 1963	-	(d)
	Apr. 30, 1951	5.98	240		Feb. 27, 1963	-	(d)
					June 6, 1963	11.23	2,500
1952	Dec. 13, 1951	-	(d)		June 15, 1963	7.17	341
	Mar. 31, 1952	12.36	5,740				
	July 20, 1952	6.82	394				

a At times in February and March. b Backwater from ice. c Maximum daily.
d Peak above base; discharge not determined.

POPLAR RIVER BASIN

1780. Middle Fork Poplar River at international boundary

(International gaging station)

Location.--Lat 48°59'30", long 105°41'40", in SE¼ sec.6, T.37 N., R.46 E., on left bank half a mile south of international boundary, 1½ miles upstream from Coal Creek, and 18 miles northwest of Scobey, Mont.

Drainage area.--362 sq mi.

Gage.--Recording. Altitude of gage is 2,460 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs and extended above on basis of slope-area measurement at 12,700 cfs.

Remarks.--Station maintained jointly by the United States and Canada. No winter records for most years. Peak discharges not materially affected by a few small diversions above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Middle Fork Poplar River at international boundary

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Sept.19, 1931	3.45	173	1948	Apr. 16, 1948	5.84	1,210
				1949	Mar. 23, 1949	a4.25	-
1933	Mar. 19, 1933	a5.48	365		Mar. 27, 1949	-	c175
1934	Mar. 14, 1934	a5.22	-	1950	Apr. 18, 1950	6.38	1,710
	Apr. 3, 1934	-	186				
1935	June 15, 1935	6.32	1,650	1951	Apr. 7, 1951	a6.45	-
					Apr.28,May 1, 1951	-	460
1936	Apr. 12, 1936	4.53	398				
1937	July 13, 1937	5.63	1,040	1952	Apr. 7, 1952	a8.16	-
1938	Mar. 16, 1938	5.27	746		Apr. 13, 1952	-	3,500
1939	Mar. 21, 1939	8.78	b5,600	1953	Mar. 28, 1953	a5.48	-
1940	Apr. 14, 1940	a6.47	-		July 1, 1953	-	766
	Aug. 2, 1940	-	990	1954	Apr. 6, 1954	10.25	12,700
				1955	Mar. 31, 1955	a6.54	-
1941	Mar. 8, 1941	a6.14	-		Apr. 3, 1955	-	c1,520
	Mar. 26, 1941	-	423				
1942	Mar. 10, 1942	a4.90	-	1956	Mar. 27, 1956	4.44	324
	Apr. 4, 1942	-	395	1957	Mar. 23, 1957	b5.0	c160
1943	Mar. 28, 1943	a7.59	-	1958	Mar. 30, 1958	6.02	1,590
	Mar. 30, 1943	-	3,120	1959	Mar. 12, 1959	b4.47	-
1944	Apr. 1, 1944	a5.47	-		Mar. 22, 1959	-	c60
	Apr. 2, 1944	-	c300	1960	Mar. 21, 1960	7.57	c2,200
1945	Mar. 13, 1945	a4.71	c300				
				1961	Mar. 14, 1961	b5.35	188
1946	Mar. 13, 1946	a4.59	227	1962	Mar. 29, 1962	b5.59	755
1947	Mar. 24, 1947	a5.33	-	1963	June 21, 1963	9.17	7,410
	Apr. 12, 1947	-	457				

a Backwater from ice.
b About.
c Maximum daily.

1785. East Poplar River at international boundary
(Published as "East Fork Poplar River" prior to March 1962)

(International gaging station)

Location.--Lat 49°00'00", long 105°24'30", in SW¼ sec.3, T.1, R.26 W., second meridian, on left bank 10 ft north of international boundary, 400 ft southwest of Canadian East Poplar Port of Entry, 14 miles upstream from mouth, and 14 miles north of Scobey, Mont.

Drainage area.--534 sq mi.

Gage.--Recording. Datum of gage is 2,410.92 ft above mean sea level (International Boundary Surveys datum).

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs.

Remarks.--Station maintained jointly by Canada and the United States. No winter records for most years. Several diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Sept.20, 1931	4.53	36.9	1945	Mar. 13, 1945	a7.20	b180
1932	Aug. 13, 1932	10.70	2,030				
				1946	Mar. 14, 1946	a10.21	522
1935	Mar. 18, 1935	a7.90	b350	1947	Mar. 25, 1947	a10.52	-
					Apr. 11, 1947	-	992
1936	Apr. 10, 1936	a9.33	-	1948	Apr. 16, 1948	11.39	2,310
	Apr. 11, 1936	-	205	1949	Mar. 27, 1949	a8.05	b360
1937	July 15, 1937	4.43	26.4	1950	Apr. 14, 1950	12.02	c1,790
1938	Mar. 15, 1938	a11.08	950				
1939	Mar. 22, 1939	12.40	2,760	1951	Apr. 7, 1951	a8.96	-
1940	Apr. 15, 1940	9.60	953		Apr. 30, 1951	-	592
				1952	Apr. 7, 1952	a12.10	1,890
1941	Mar. 27, 1941	a8.87	752	1953	Mar. 30, 1953	a6.91	250
1942	Mar. 13, 1942	a7.91	-	1954	Apr. 6, 1954	a11.52	-
	Apr. 2, 1942	-	530		Apr. 6, 1954	-	2,270
1943	Mar. 25, 1943	a12.8	-	1955	Apr. 1, 1955	a11.61	1,650
	Mar. 29, 1943	-	2,050				

a Backwater from ice. b Maximum daily. c Maximum observed (discharge measurement). d About.

Peak stages and discharges of East Poplar River at international boundary--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 25, 1956	a6.93	281	1961	Mar. 14, 1961	a5.96	-
1957	Mar. 23, 1957	a4.52	b45		May 30, 1961	-	321
1958	Mar. 28, 1958	a8.55	-	1962	Mar. 26, 1962	-	730
	Mar. 29, 1958	-	b630		Mar. 27, 1962	a9.48	-
1959	Mar. 18, 1959	a5.68	b48	1963	Mar. 23, 1963	a9.24	d720
1960	Mar. 21, 1960	a11.69	d1,900				

a Backwater from ice.
b Maximum daily.
d About.

1795. West Fork Poplar River at international boundary

(International gaging station)

Location.--Lat 49°00'00", long 106°22'00", in SE¼ sec.5, T.1, R.3 W., third meridian, on right bank at West Poplar Canadian Customs Post, 100 ft north of international boundary, 8 miles upstream from Roanwood Coulee, and 10 miles north of Opheim, Mont.

Drainage area.--139 sq mi.

Gage.--Recording. Datum of gage is 2,847.83 ft above mean sea level (International Boundary Surveys datum).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended above on basis of contracted-opening and flow-over-road measurement at 5,450 cfs.

Remarks.--Station maintained jointly by Canada and the United States. No winter records except water years 1936-37. No known regulation or diversion above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Mar. 21, 1931	1.52	9.1	1942	Apr. 4, 1942	-	72
1932	Mar. 24, 1932	3.04	68	1943	Mar. 29, 1943	b4.80	a680
1933	Mar. 18, 1933	3.36	115	1944	Apr. 1, 1944	b3.31	159
				1945	Mar. 13, 1945	b3.99	-
1935	Apr.18,19, 1935	-	a10		Mar. 15, 1945	-	a175
1936	Apr. 10, 1936	b3.30	-	1946	Mar. 24, 1946	2.87	225
	Apr. 14, 1936	3.16	388	1947	Aug. 23, 1947	2.96	291
1937	Apr. 12, 1937	1.83	4.6	1948	Apr. 16, 1948	b4.15	c511
				1949	Mar. 28, 1949	b2.50	33
1939	Mar. 23, 1939	4.84	3,750	1950	Apr. 17, 1950	b5.17	a1,250
1940	Apr. 19, 1940	3.59	739				
				1951	Apr. 25, 1951	b4.71	-
1941	Mar. 20, 1941	b3.78	-		Apr. 26, 1951	-	a655
	Mar. 27, 1941	-	194	1952	Apr. 14, 1952	5.15	5,450
1942	Mar. 14, 1942	b3.30	-				

a Maximum daily.
b Backwater from ice.
c Maximum observed (discharge measurement).

1800. West Fork Poplar River near Richland, Mont.

Location.--Lat 48°48', long 106°01', 600 ft south of northwest corner sec.7, T.35 N., R.44 E., on Great Northern Railway bridge, a quarter of a mile upstream from Dodson Coulee and 1½ miles southeast of Richland.

Drainage area.--428 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,660 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 660 cfs.

Remarks.--No known diversion or regulation. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of West Fork Poplar River near Richlani, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	July 9, 1935	4.12	416	1943	Mar. 30, 1943	7.28	2,940
				1944	Apr. 1, 1944	b5.58	d600
1936	Apr. 13, 1936	4.60	706	1945	Mar. 13, 1945	b5.10	-
1937	July 17, 1937	(a)	66		Mar. 15, 1945	5.34	1,070
1938	Mar. 14, 1938	b6.50	-				
	Mar. 17, 1938	5.50	1,330	1946	Mar. 16, 1946	b4.56	-
1939	Mar. 23, 1939	c8.0	c3,600		Mar. 21, 1946	-	191
1940	Aug. 2, 1940	4.80	840	1947	Mar. 24, 1947	b5.40	-
					Apr. 11, 1947	4.62	706
1941	Mar. 22, 1941	b5.26	d180	1948	Mar. 23, 1948	b5.80	-
1942	Mar. 10, 1942	b4.41	-		Apr. 15, 1948	5.42	1,210
	Mar. 14, 1942	-	d80	1949	Mar. 27, 1949	b5.66	-
1943	Mar. 29, 1943	b8.24	-		Apr. 1, 1949	-	d310

a Maximum gage height not determined; occurred during March (backwater from ice).
b Backwater from ice. c About. d Maximum daily.

1805. Poplar River near Bredette, Mont.

Location.--Lat 48°25', long 105°12', in SW¼ sec.27, T.31 N., R.50 E., 11 miles southeast of Bredette, 12 miles downstream from West Fork, and 24 miles north of Poplar.

Drainage area.--2,940 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,110 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 4,000 cfs and extended above on basis of slope-area measurement at 40,000 cfs.

Remarks.--Diversions above station do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Mar. 22, 1934	6.80	920	1942	Mar. 17, 1942	a8.30	b800
1935	July 18, 1935	8.40	2,650	1943	Mar. 25, 1943	a12.8	-
					Mar. 26, 1943	12.4	c11,000
1936	Apr. 13, 1936	8.00	2,170	1944	Apr. 5, 1944	7.51	1,000
1937	July 16, 1937	8.47	2,770	1945	Mar. 14, 1945	a9.92	-
1938	Mar. 15, 1938	9.7	4,670		Mar. 20, 1945	8.92	2,780
1939	Mar. 24, 1939	12.60	11,600				
1940	Apr. 14, 1940	9.7	3,920	1946	July 9, 1946	17.18	40,000
				1947	Mar. 23, 1947	a10.40	-
1941	Mar. 25, 1941	a10.12	-		Apr. 13, 1947	8.88	2,000
	Mar. 29, 1941	8.40	2,060				

a Backwater from ice.
b Maximum daily.
c About.

1810. Poplar River near Poplar, Mont.

Location.--Lat 48°10'10", long 105°10'40", in NE¼NE¼ sec.19, T.28 N., R.51 E., on right bank 4 miles north of Poplar and 11 miles upstream from mouth.

Drainage area.--3,174 sq mi.

Gage.--Nonrecording August 1908 to October 1924; recording thereafter. Altitude of gage is 1,970 ft (from topographic map). At site 3½ miles upstream prior to May 1, 1911; at site 14 miles upstream May 1, 1911, to Oct. 4, 1913; and at site 2 miles upstream Oct. 5, 1913, to Oct. 31, 1924; all at different datums.

Stage-discharge relation.--Defined by current-meter measurements below 19,000 cfs and by slope-area measurement at 40,000 cfs made at site 20 miles upstream from present gage.

Remarks.--Diversions for irrigation of about 8,000 acres above station do not materially affect peak flows. Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to 1950.

Peak stages and discharges of Poplar River near Poplar, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	July 12, 1909	4.5	381	1955	Mar. 31, 1955	c15.87	-
					Mar. 31, 1955	15.58	11,500
1915	Apr. 5, 1915	8.20	2,150		Apr. 11, 1955	6.22	1,200
					Apr. 21, 1955	4.64	577
1921	June 21, 1921	8.80	1,540		May 3, 1955	5.87	1,030
					May 6, 1955	6.64	1,410
1923	Apr. 17, 1923	7.03	883				
				1956	Mar. 27, 1956	-	e700
1946	July 10, 1946	a18.1	b40,000				
				1957	Mar. 25, 1957	c4.43	-
1948	Mar. 25, 1948	c11.48	-		Apr. 25, 1957	4.05	402
	Apr. 19, 1948	-	3,960				
1949	Mar. 28, 1949	c9.74	d1,500	1958	Apr. 1, 1958	c10.17	e3,800
1950	Apr. 20, 1950	13.87	6,210	1959	Mar. 23, 1959	-	d550
	Apr. 23, 1950	9.98	3,340		June 25, 1959	4.57	556
					June 28, 1959	11.39	4,190
1951	Mar. 29, 1951	-	d800				
	Apr. 5, 1951	7.42	1,890	1960	Mar. 21, 1960	16.28	20,500
	Apr. 10, 1951	6.84	1,590		Mar. 28, 1960	12.23	4,610
	Apr. 16, 1951	4.68	595				
	May 1, 1951	8.06	2,210	1961	Mar. 18, 1961	c4.49	-
					Mar. 19, 1961	4.30	440
1952	Apr. 7, 1952	16.98	27,800				
	Apr. 16, 1952	15.52	12,600	1962	Mar. 29, 1962	c11.90	3,290
					Apr. 8, 1962	6.47	1,300
1953	Mar. 31, 1953	7.28	1,760				
	June 3, 1953	6.85	1,520	1963	Feb. 9, 1963	-	d500
	July 2, 1953	6.15	1,160		Mar. 24, 1963	-	d4,000
					Mar. 28, 1963	-	d2,000
1954	Mar. 11, 1954	5.77	d600		June 23, 1963	5.86	1,010
	Mar. 16, 1954	4.82	d500				
	Apr. 7, 1954	17.86	37,400				

a From floodmark. b From slope-area measurement made at site 20 miles upstream.
c Backwater from ice. d Maximum daily. e About.

BIG MUDDY CREEK BASIN

1825. Big Muddy Creek at Daleview, Mont.

Location.--Lat 48°55', long 104°57', near center of north line sec.5, T.36 N., R.52 E., on right bank half a mile west of Daleview, half a mile upstream from Whitetail Creek, and 6 miles north of Redstone.

Drainage area.--279 sq mi.

Gage.--Recording. Altitude of gage is 2,120 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs and extended above on basis of slope-area measurement at 6,360 cfs.

Remarks.--Diversions for irrigation of about 90 acres above station do not materially affect peak flows. Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Apr. 5, 1948	-	(a)	1952	Apr. 7, 1952	17.15	6,360
	Apr. 18, 1948	16.58	2,920		Apr. 12, 1952	11.86	573
	May 1, 1948	6.66	103				
				1953	Mar. 29, 1953	-	(a)
1949	Mar. 8, 1949	-	(a)		May 1, 1953	5.17	70
	Mar. 28, 1949	11.67	551		June 4, 1953	12.62	664
	Apr. 1, 1949	8.97	284		June 17, 1953	8.56	258
					June 21, 1953	6.30	108
1950	Apr. 7, 1950	-	(a)		June 25, 1953	11.25	509
	Apr. 15, 1950	b15.73	1,080		July 1, 1953	11.88	576
	Apr. 24, 1950	6.35	104				
	June 10, 1950	6.01	88	1954	Feb. 10, 1954	-	(a)
	June 13, 1950	5.78	77		Apr. 6, 1954	16.70	3,500
	Aug. 6, 1950	6.98	140		Sept.13, 1954	6.42	113
1951	Apr. 5, 1951	-	(a)	1955	Apr. 1, 1955	16.73	3,660
	Apr. 28, 1951	7.56	178		Apr. 20, 1955	7.08	183
	May 1, 1951	16.45	2,420		May 4, 1955	8.91	335

a Not known; probably exceeded base discharge.
b Backwater from ice.

Peak stages and discharges of Big Muddy Creek near Daleview, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 26, 1956	b6.03	c60	1960	Mar. 27, 1960	14.49	1,190
1957	Mar. 23, 1957	b7.26	c80	1961	Mar. 14, 1961	10.37	472
					May 31, 1961	12.79	683
1958	Feb. 25, 1958	b7.87	180				
	Mar. 28, 1958	13.90	897	1962	Mar. 26, 1962	13.19	864
	Mar. 31, 1958	11.56	604		Apr. 5, 1962	6.80	140
					June 6, 1962	5.30	60
1959	Mar. 18, 1959	-	(a)		June 16, 1962	5.68	74
	Mar. 22, 1959	-	(a)		July 19, 1962	5.52	57
	Mar. 25, 1959	5.55	67				
	June 27, 1959	16.48	1,540	1963	Feb. 7, 1963	-	(a)
	Sept.26, 1959	6.35	101		Mar. 8, 1963	-	(a)
					Mar. 20, 1963	b14.10	-
1960	Mar. 21, 1960	b16.99	4,590		Mar. 22, 1963	-	(a)

a Not known; probably exceeded base discharge.
b Backwater from ice.
c Maximum daily.

1830. Big Muddy Creek at Plentywood, Mont.

Location.--Lat 48°46', long 104°35', in NW¼NW¼ sec.30, T.35 N., R.55 E., at county road bridge half a mile southwest of Plentywood, 2 miles downstream from McCoy Creek, and 3 miles upstream from Box Elder Creek.

Drainage area.--850 sq mi.

Gage.--Nonrecording prior to July 1, 1948; recording July 1, 1948, to Sept. 30, 1953; and crest-stage since June 10, 1955. Altitude of gage is 1,980 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs and extended above on basis of slope-area measurement at 7,240 cfs.

Remarks.--Diversions for irrigation of about 1,400 acres above gage do not materially affect peak flows. Base for partial-duration series, 50 cfs. Only annual peaks are shown subsequent to 1953.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Apr. 19, 1948	15.64	a2,850	1953	Apr. 1, 1953	-	(b)
					May 3, 1953	3.64	101
1949	Mar. 8, 1949	-	(b)		May 14, 1953	3.09	60
	Mar. 30, 1949	10.49	1,020		June 3, 1953	12.48	1,580
					June 6, 1953	8.91	824
1950	Apr. 6, 1950	-	(b)		June 23, 1953	9.44	880
	Apr. 18, 1950	12.27	1,620		June 30, 1953	19.40	8,000
	June 9, 1950	-	61		July 16, 1953	5.24	262
	June 13, 1950	-	119		Aug. 1, 1953	8.82	779
	June 16, 1950	-	170				
	Aug. 9, 1950	-	105	1955	-	-	(c)
1951	Apr. 3, 1951	-	(b)	1956	Mar. 22, 1956	d6.63	e300
	Apr. 8, 1951	-	(b)	1957	July 16, 1957	6.58	413
	Apr. 30, 1951	10.59	1,130	1958	Mar. 29, 1958	12.92	1,630
	May 3, 1951	11.38	1,360	1959	June 30, 1959	10.61	945
	June 7, 1951	3.85	108	1960	Mar. 22, 1960	d17.37	e3,500
	Aug. 30, 1951	4.11	135				
	Sept. 4, 1951	3.86	111	1961	May 30, 1961	6.03	260
	Sept. 7, 1951	3.16	55	1962	Mar. 27, 1962	11.99	1,250
				1963	Mar. 22, 1963	d12.00	e750
1952	Apr. 8, 1952	19.00	7,240				
	July 21, 1952	3.15	56				

a Annual peak only. b Not determined; probably exceeded base discharge.
c Below bottom of gage; discharge less than 210 cfs. d Backwater from ice.
e Approximate.

1831. Box Elder Creek near Plentywood, Mont.

Location.--Lat 48°50', long 104°30', in sec.34, T.36 N., R.55 E., at culverts on county road, 4 miles northeast of Plentywood.

Drainage area.--9.40 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and extended above on basis of computed flow through culverts and over road at 126 and 328 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	0.25	0	1961	July 30, 1961	1.58	41
1957	July 23, 1957	7.24	328	1962	Mar. 26, 1962	2.79	65
1958	Mar. 30, 1958	1.88	22	1963	Sept.17, 1963	4.06	103
1959	June 26, 1959	3.89	126				
1960	Mar. 21, 1960	6.24	265				

1832. Box Elder Creek at damsite, near Plentywood, Mont.

Location.--Lat 48°48', long 104°33', in NE¼ sec.17, T.35 N., R.55 E., at old damsite, 1½ miles north of Plentywood.

Drainage area.--19.9 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,110 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 30 cfs, slope-area measurements at 890 and 1,400 cfs, and contracted-opening measurement at 6,530 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 30, 1953	6.52	6,530	1959	June 26, 1959	1.38	430
				1960	Mar. 22, 1960	2.27	820
1955	Mar. 29, 1955	2.42	890				
				1961	Mar. 20, 1961	1.26	395
1956	-	-	(a)	1962	Mar. 26, 1962	1.59	530
1957	July 23, 1957	3.56	1,600	1963	Sept.17, 1963	.81	230
1958	Mar. 30, 1958	.75	210				

a No evidence of flow during year.

1833. Spring Creek near Plentywood, Mont.

Location.--Lat 48°49', long 104°27', in SW¼ sec.6, T.35 N., R.55 E., at culvert on county road, 5 miles northeast of Plentywood.

Drainage area.--7.05 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,260 cfs (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs and computation of flow through culvert and over road at 240 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Spring Creek near Plentywood, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 7, 1955	0.69	5	1960	Mar. 21, 1960	5.19	240
1956	-	-	(a)	1961	July 30, 1961	1.20	17
1957	July 23, 1957	2.77	76	1962	Mar. 26, 1962	1.32	24
1958	Mar. 30, 1958	1.49	25	1963	Sept.17, 1963	b2.7	72
1959	June 26, 1959	1.30	20				

a No evidence of flow during year.
b Approximate.

1834. Spring Creek at Highway 16, near Plentywood, Mont.

Location.--Lat 48°46', long 104°31', in SE¼ sec.21, T.35 N., R.55 E., at bridge on State Highway 16, 1½ miles east of Plentywood.

Drainage area.--16.9 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,040 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 30 cfs and extended above on basis of slope-conveyance measurement at 540 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	-	-	(a)	1960	May 24, 1960	3.56	600
1956	Apr. 3, 1956	0.74	4	1961	Mar. 20, 1961	1.02	10
1957	July 23, 1957	3.38	540	1962	Mar. 26, 1962	2.85	375
1958	Mar. 30, 1958	2.40	230	1963	Sept.17, 1963	3.61	620
1959	June 26, 1959	3.70	660				

a No evidence of flow during year.

1835. Big Muddy Creek at Reserve, Mont.

Location.--Lat 48°36'25", long 104°27'30", on north line of NE¼ sec.24, T.33 N., R.55 E., on downstream side of county road bridge at Reserve.

Drainage area.--1,044 sq mi.

Gage.--Nonrecording. At different datum prior to Oct. 31, 1924. Altitude of gage is 1,950 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements in main channel. Defined by current-meter measurements below 2,900 cfs in overflow channel and extended above on basis of contracted-opening measurement at 4,540 cfs.

Remarks.--Small stock dams and diversions for irrigation of about 1,700 acres above station. Only annual peaks are shown. Peaks are combined flow in main channel and overflow channel.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	Mar. 31, 1920	13.65	1,280	1950	Apr. 18, 1950	-	a1,520
1921	June 19, 1921	13.2	1,070	1951	May 4, 1951	-	1,380
				1952	Apr. 8, 1952	-	6,300
1923	July 7, 1923	8.95	664	1953	July 2, 1953	-	2,810
1924	Apr. 6, 1924	12.20	1,110				

a Maximum daily.

1850. Big Muddy Creek near Culbertson, Mont.

Location.--Lat 48°16', long 104°43', in NE¼ sec.20, T.29 N., R.54 E., 11 miles upstream from mouth and 12 miles northwest of Culbertson.

Drainage area.--2,447 sq mi.

Gage.--Nonrecording. At site 8 miles downstream at different datum prior to July 19, 1909. Altitude of gage is 1,910 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--No winter records collected. Several small diversions for irrigation above station should not materially affect peak flows. Only annual observed peaks are shown, except as noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	Apr. 10, 1909	6.1	451	1916	Mar. 31, 1916	11.4	1,550
1910	Mar. 13, 1910	7.3	529	1917	Apr. 17, 1917	11.1	1,460
				1918	Mar. 30, 1918	9.5	1,070
1911	Apr. 7, 1911	5.8	280	1919	Apr. 6, 1919	9.6	1,100
1912	Apr. 11, 1912	10.81	a1,160	1920	Apr. 6, 1920	9.8	1,150
1913	Apr. 7, 1913	7.2	526				
1914	Apr. 4, 1914	10.0	1,010	1921	Mar. 26, 1921	8.58	868

a Momentary maximum.

MISSOURI RIVER MAIN STEM

1855. Missouri River near Culbertson, Mont.

Location.--Lat 48°07'20", long 104°28'20", in E½NW¼ sec.3, T.27 N., R.56 E., on left bank 580 ft downstream from bridge on State Highway 16, 3 miles southeast of Culbertson, and 10 miles downstream from Muddy Creek.

Drainage area.--91,557 sq mi.

Gage.--Recording, except for period Aug. 18, 1950, to Dec. 31, 1951, when nonrecording was on bridge 580 ft upstream at present datum. Datum of gage is 1,883.4 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 30,000 cfs.

Remarks.--Diversions for irrigation of about 1,020,000 acres above station. Regulation by Fort Peck Reservoir. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Aug. 30, 1942	9.46	14,800	1950	Apr. 17, 1950	a12.44	b23,000
1943	Mar. 26, 1943	a15.12	78,200				
1944	Oct.1,7-9,1943	-	21,000	1951	Mar. 28, 1951	a15.10	-
	Jan. 16, 1944	a11.22	-		Apr. 9, 1951	-	34,500
1945	Oct. 15, 1944	-	19,900				
	Jan. 11, 1945	a12.08	-	1959	Mar. 25, 1959	-	b21,500
					Mar. 27, 1959	a14.23	-
1946	Aug. 25, 1946	10.78	20,400	1960	Mar. 23, 1960	a19.14	c55,000
1947	Mar. 28, 1947	a14.83	-				
	Aug. 14, 1947	-	30,400	1961	Dec. 28, 1960	a11.43	-
1948	Apr. 13, 1948	a12.26	-		July 3, 1961	-	d14,400
	Sept.17, 1948	-	29,300	1962	Apr. 9, 1962	a13.32	-
1949	Oct. 1, 1948	11.35	-		July 20, 1962	-	16,700
	Oct. 15, 1948	-	30,700	1963	Feb. 9, 1963	a13.05	c16,000

a Backwater from ice. b Maximum daily. c About. d Maximum peak discharge; maximum discharge occurred 12 p.m. Sept. 30, on a rise that crested Oct. 2, 1961.

1865. Yellowstone River at Yellowstone Lake Outlet, Yellowstone National Park

Location.--Lat 44°34'00", long 110°22'50", on left bank 550 ft downstream from Fishing Bridge and a quarter of a mile downstream from outlet of Yellowstone Lake.

Drainage area.--1,006 sq mi.

Gage.--Nonrecording at site 550 ft upstream at datum 1.07 ft higher prior to Oct. 2, 1928; recording thereafter. Datum of gage is 7,727.77 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Flow regulated by natural storage in Yellowstone Lake. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 6, 1923	4.80	4,600	1943	July 9, 1943	7.35	6,920
1924	July 18, 1924	3.67	2,760	1944	July 7, 1944	5.24	3,490
1925	July 5, 1925	a6.20	7,220	1945	July 17, 1945	5.70	3,980
1926	June 13-16,1926	3.95	3,210	1946	June 24, 1946	5.46	3,710
1927	June 29 to July 1, 1927	6.3	7,420	1947	July 11, 1947	6.03	4,520
				1948	June 17, 1948	6.57	5,610
1928	May 31 to June 10, 1928	5.4	5,680	1949	June 22, 1949	6.33	5,310
				1950	July 11, 1950	6.87	6,150
1929	July 2-5, 1929	5.2	3,700				
1930	June 23, 1930	5.20	3,870	1951	July 7, 1951	6.29	5,130
				1952	June 15, 1952	6.39	5,360
1931	June 18, 1931	4.39	2,480	1953	July 6, 1953	5.76	4,250
1932	July 3, 1932	6.24	5,570	1954	July 7, 1954	6.63	5,610
1933	June 28, 1933	5.76	4,690	1955	June 29, 1955	5.73	4,130
1934	June 22, 1934	3.74	1,800				
1935	July 1, 1935	5.62	4,520	1956	June 21, 1956	7.55	7,610
				1957	July 3, 1957	6.48	5,340
1936	June 18, 1936	5.76	4,690	1958	June 13, 1958	-	3,520
1937	June 24 to July 2, 1937	5.11	3,590		June 25, 1958	5.40	-
				1959	June 28, 1959	6.60	5,610
1938	July 1, 1938	6.54	5,950	1960	June 21, 1960	5.26	3,220
1939	July 2-9, 1939	4.97	3,230				
1940	June 21-23,1940	5.30	3,590	1961	June 18,23,1961	5.65	3,780
				1962	July 1, 1962	6.85	5,820
1941	June 23-28,1941	4.73	2,750	1963	June 29, 1963	6.60	5,320
1942	July 10-12,1942	5.60	3,960				

a Might have been higher on July 7, 1925.

1870. Yellowstone River near Canyon Hotel, Yellowstone National Park

Location.--Lat 44°42'20", long 110°30'10", on left bank 0.5 mile upstream from Upper Falls and Canyon ranger station and 1¼ miles south of Canyon Hotel.

Drainage area.--1,157 sq mi.

Gage.--Nonrecording at site 900 ft upstream at different datums prior to Oct. 11, 1916; recording thereafter. Altitude of gage is 7,620 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--No winter records collected. Natural regulation by Yellowstone Lake. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	June 23,25,1913	5.35	a7,060	1921	June 19, 1921	3.45	5,480
1914	June 22-26,1914	4.1	4,940	1922	June 25, 1922	3.10	4,680
1915	July 24-26,1915	2.9	2,880	1923	June 21-25,1923, July 4-6,1923	3.1	4,540
1916	July 4-6,1916	5.0	6,470	1924	July 7, 1924	2.48	3,200
1917	July 11, 1917	4.08	7,220	1925	July 5, 1925	4.14	7,340
1918	June 27, 1918	4.50	b8,550				

a Might have been higher during period of no record.
b Was probably higher several days earlier.

Peak stages and discharges of Yellowstone River near Canyon Hotel, Yellowstone National Park--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	June 11-14,1926	2.6	3,520	1939	July 3-9, 1939	2.58	3,340
1927	June 30, 1927	4.23	7,890	1940	June 21, 1940	2.83	3,770
1928	June 2-5, 1928	3.6	5,840				
1929	July 2, 1929	2.8	3,740	1941	June 25, 1941	2.40	2,890
1930	June 23-25, 1930	2.76	3,850	1942	July 9-13, 1942	2.91	3,990
				1943	July 7-10, 1943	4.12	7,350
1931	June 18, 1931	2.24	2,700	1944	July 6-8, 1944	2.66	3,570
1932	July 3, 1932	3.55	5,680	1945	July 16-18, 1945	2.91	4,060
1933	June 26, 1933	3.13	4,680				
1934	June 22, 1934	1.81	1,850	1946	June 20, 1946	2.80	3,770
1935	June 28 to July 3, 1935	3.12	4,560	1947	June 27, 1947	3.18	4,750
				1948	June 17-20, 1948	3.62	5,790
				1949	June 22, 1949	3.46	5,550
1936	June 17, 1936	3.21	4,800	1950	July 11, 1950	3.81	6,420
1937	June 26, 1937, July 1, 1937	2.72	3,660	1951	July 10, 1951	3.43	5,370
1938	June 30, 1938, July 1, 1938	3.73	5,960				

1875. Tower Creek at Tower Falls, Yellowstone National Park

Location.--Lat 44°54', long 110°23', just upstream from Tower Falls, ¼ quarter of a mile upstream from mouth and 2 miles southeast of Camp Roosevelt.

Drainage area.--50.4 sq mi.

Gage.--Nonrecording. Altitude of gage is 6,400 ft (from topographic map). At datum 2.22 ft lower prior to Sept. 26, 1931. At different datum Sept. 26, 1931, to July 11, 1933. At datum 0.50 ft higher July 12, 1933, to Oct. 13, 1934.

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs.

Remarks.--No diversions or regulation. Peaks are principally from snowmelt. Only annual maximum observed peaks or maximum daily discharges are shown. Peak discharge does not greatly exceed maximum observed.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 12, 1923	5.25	316	1934	May 7, 8, 1934	-	a100
1924	May 18, 1924	5.40	369	1935	June 12, 1935	5.60	425
1925	May 30, 1925	6.16	642				
				1936	May 31, June 1, 1936	-	a300
1926	May 24,30, 1926	5.16	272				
1927	June 22,25,1927	6.11	583	1937	June 16,17, 1937	-	a120
1928	May 28, 1928	6.27	637	1938	June 8, 1938	5.55	405
1929	June 15, 1929	5.33	284	1939	May 29, 1939	5.25	292
1930	June 11, 1930	-	a250	1940	June 1, 1940	5.08	243
1931	June 3, 1931	-	a250	1941	May 27, 1941	-	a200
1932	June 16,17, 1932	-	a275	1942	June 9, 1942	5.30	327
1933	June 11,12,13, 1933	-	a350	1943	June 24, 1943	5.90	598

a Maximum daily.

1880. Lamar River near Tower Falls ranger station, Yellowstone National Park

Location.--Lat 44°55'40", long 110°23'35", on left bank 0.5 mile northeast of Cooke City highway, half a mile upstream from mouth, and 1½ miles northeast of Tower Falls ranger station.

Drainage area.--660 sq mi.

Gage.--Nonrecording prior to Sept. 16, 1925; recording thereafter. At datum 1.00 ft higher prior to July 30, 1927. Altitude of gage is 5,910 ft (from topographic map).

Stage-discharge relation.--Fairly stable. Defined by current-meter measurements below 11,000 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 5,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 12, 1923	5.6	a6,200	1942	June 9, 1942	7.80	8,880
1924	June 15, 1924	4.70	a4,390	1943	June 1, 1943	-	b11,000
					June 14, 1943	6.92	6,700
1925	May 30, 1925	7.83	a11,500		June 20, 1943	9.28	12,300
					June 26, 1943	c.46	10,300
1926	May 21, 1926	5.85	6,870		July 1, 1943	c.26	9,800
	May 24, 1926	6.03	7,310				
				1944	May 31, 1944	c.03	5,090
1927	June 9, 1927	7.28	10,000				
	June 12, 1927	8.62	13,100	1945	June 24, 1945	7.39	7,720
	June 19, 1927	7.86	11,300		June 27, 1945	7.54	8,030
	June 24, 1927	7.74	11,000				
	June 27, 1927	7.78	11,100	1946	June 6, 1946	7.10	7,100
					June 12, 1946	c.40	5,730
1928	May 25, 1928	9.75	a13,600				
				1947	May 8, 1947	c.55	6,200
1929	May 25, 1929	7.29	7,420		June 20, 1947	7.28	7,680
	June 9, 1929	7.20	7,210				
	June 15, 1929	7.56	8,080	1948	May 22, 1948	c.01	9,940
	June 29, 1929	6.51	5,770		May 29, 1948	c.82	11,800
					June 4, 1948	-	c11,000
1930	May 30, 1930	6.8	6,660				
	June 12, 1930	6.41	5,820	1949	May 17, 1949	c.43	5,910
					May 28, 1949	c.58	6,190
1931	June 3, 1931	7.7	8,650		June 12, 1949	c.94	6,880
1932	May 22, 1932	7.60	8,420	1950	June 7, 1950	7.28	7,550
	June 15, 1932	7.12	7,310		June 17, 1950	7.69	8,380
	June 25, 1932	7.57	8,420		June 22, 1950	7.84	8,690
					July 2, 1950	6.86	6,720
1933	June 2, 1933	7.16	7,310				
	June 12, 1933	8.06	9,340	1951	May 24, 1951	7.60	8,190
					May 28, 1951	8.14	9,340
1934	May 9, 1934	5.86	4,740		June 17, 1951	7.80	8,610
1935	June 13, 1935	8.36	10,300	1952	June 7, 1952	8.29	9,670
1936	May 15, 1936	7.48	8,190	1953	June 14, 1953	8.72	10,800
	June 1, 1936	7.75	8,880		June 19, 1953	8.28	9,750
1937	May 25, 1937	6.27	5,620	1954	May 22, 1954	7.55	8,050
	May 28, 1937	6.83	6,660		June 24, 1954	7.68	8,340
	June 22, 1937	6.36	5,820				
				1955	June 16, 1955	6.77	6,670
1938	May 10, 1938	7.42	7,990		June 23, 1955	6.48	6,100
	June 2, 1938	6.57	6,190				
	June 5, 1938	8.18	9,800	1956	June 2, 1956	9.11	11,300
	June 16, 1938	6.60	6,290		June 12, 1956	7.20	8,110
1939	May 30, 1939	7.28	7,770	1957	June 5, 1957	8.77	10,900
					June 13, 1957	7.23	7,360
1940	May 13, 1940	6.28	5,620				
	May 27, 1940	6.51	6,030	1958	May 24, 1958	7.84	8,700
	June 1, 1940	6.53	6,030				
				1959	June 7, 1959	8.48	10,500
1941	May 27, 1941	5.94	4,840		June 15, 1959	9.48	13,000
1942	May 26, 1942	7.12	7,310	1960	May 13, 1960	6.18	5,550

a Annual peak only.
b Maximum daily discharge; estimated.
c About.

Peak stages and discharges of Lamar River near Tower Falls ranger station, Yellowstone National Park--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	June 3, 1960	7.30	7,870	1962	June 16, 1962	7.50	8,090
	June 9, 1960	6.72	6,660		June 27, 1962	6.97	6,960
	June 15, 1960	6.56	6,340	1963	June 2, 1963	7.28	8,290
1961	June 3, 1961	7.09	7,280		June 14, 1963	7.30	8,330
1962	June 3, 1962	6.48	5,960				

1890. Blacktail Deer Creek near Mammoth, Yellowstone National Park

Location.--Lat 44°57', long 110°35', 0.3 mile upstream from East Fork, half a mile upstream from bridge on Mammoth-Tower Falls highway, and 6 miles southeast of Mammoth.

Drainage area.--15.0 sq mi.

Gage.--Recording. Altitude of gage is 6,590 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 60 cfs.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Jan. 4, 1938	a2.40	-	1942	Apr. 4, 1942	a2.61	-
	June 6, 1938	2.10	56		June 8, 1942	2.29	68
1939	May 16,17, 1939	1.88	37	1943	June 1, 1943	3.17	168
1940	May 13, 1940	2.11	52	1944	June 10, 1944	1.97	48
				1945	June 27, 1945	1.97	51
1941	May 26, 1941	1.88	37				

a Backwater from ice.

1905. Gardner River at Mammoth, Yellowstone National Park (Published as "Gardiner River near Mammoth Hot Springs" prior to Oct. 1, 1923, as "Gardiner River at Mammoth Hotel" Oct. 1, 1923, to Sept. 30, 1937, and as "Gardiner River at Mammoth" Oct. 1, 1937, to Oct. 31, 1938)

Location.--Lat 44°59', long 110°41', a quarter of a mile downstream from footbridge on Mount Everts trail, half a mile upstream from Hot River (formerly Boiling River), 0.9 mile northeast of Mammoth, and 3¾ miles upstream from mouth.

Drainage area.--200 sq mi.

Gage.--Nonrecording at site a quarter of a mile upstream at different datum prior to June 10, 1927, and at described site and datum June 10 to July 29, 1927; recording thereafter. Altitude of gage is 5,680 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs.

Remarks.--No regulation or diversions above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 12, 1923	4.22	880	1928	May 28, 1928	3.59	1,790
1924	May 18, 1924	4.10	566	1929	June 15, 1929	2.52	800
1925	June 22, 1925	-	1,500	1930	May 30, 1930	2.48	786
1926	May 24, 1926	6.50	550	1931	May 16, June 4, 1931	2.13	553
1927	June 12, 1927	3.35	1,540				

Peak stages and discharges of Gardner River at Mammoth, Yellowstone National Park--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 16, 1932	2.70	955	1936	May 15, 1936	2.81	1,040
1933	June 11, 1933	2.86	1,070	1937	May 29, 1937	2.24	621
1934	May 9, 1934	2.13	547	1938	June 6, 1938	2.88	1,110
1935	June 12, 1935	2.98	1,200				

1910. Gardner River near Mammoth, Yellowstone National Park
(Published as "Gardiner River near Mammoth" prior to October 1959)

Location.--Lat 44°59'35", long 110°41'25", on left bank at Wyoming-Montana State line, 400 ft upstream from highway bridge, half a mile downstream from Hot River (formerly Boiling River), 1½ miles north of Mammoth, and 3 miles upstream from mouth.

Drainage area.--202 sq mi.

Gage.--Recording. Altitude of gage is 5,620 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 17, 1939	3.31	835	1951	June 17, 1951	3.65	974
	May 31, 1939	3.15	752	1952	May 4, 1952	3.72	1,110
1940	May 13, 1940	3.12	755		May 14, 1952	3.16	793
1941	May 27, 1941	2.98	689		June 7, 1952	4.02	1,290
1942	May 26, 1942	3.22	838	1953	May 19, 1953	2.87	703
	June 7, 1942	3.34	-		May 29, 1953	3.32	968
	June 9, 1942	-	975		June 13, 1953	4.20	1,530
1943	June 1, 1943	4.52	1,650		June 18, 1953	4.23	1,550
	June 20, 1943	4.55	1,660	1954	May 22, 1954	3.84	1,300
1944	June 9, 1944	3.34	761		June 16, 1954	3.21	926
1945	June 7, 1945	3.32	717		June 24, 1954	3.67	1,200
	June 25, 1945	3.63	914	1955	June 14, 1955	3.42	982
	June 27, 1945	3.71	966	1956	June 4, 1956	4.46	2,080
1946	Apr. 26, 1946	3.33	741	1957	May 14, 1957	3.16	786
	Apr. 30, 1946	3.35	753		May 19, 1957	3.15	780
	May 28, 1946	3.41	810		June 5, 1957	4.11	1,610
	June 6, 1946	3.81	1,070	1958	May 26, 1958	3.66	1,160
1947	May 4, 1947	3.45	912		June 10, 1958	3.12	762
	May 10, 1947	3.77	1,120	1959	May 16, 1959	2.62	720
	May 27, 1947	3.34	844		June 7, 1959	3.48	1,680
	June 9, 1947	3.74	1,100		June 16, 1959	3.87	2,030
	June 20, 1947	4.10	1,330	1960	June 4, 1960	3.07	1,210
1948	May 22, 1948	3.52	958		June 15, 1960	2.67	790
	May 29, 1948	3.91	1,210	1961	May 28, 1961	2.83	976
1949	May 17, 1949	-	a880		June 9, 1961	3.20	1,250
	May 28, 1949	3.58	948	1962	May 9, 1962	3.73	1,200
	June 10, 1949	3.44	827		May 21, 1962	3.18	815
1950	May 22, 1950	3.39	796		June 4, 1962	3.53	1,060
	May 27, 1950	3.41	808		June 16, 1962	4.78	1,300
	June 7, 1950	3.96	1,150	1963	June 4, 1963	3.26	964
	June 22, 1950	3.93	1,250		June 15, 1963	3.36	1,060
1951	May 29, 1951	3.73	1,070				

a Maximum daily.

1915. Yellowstone River at Corwin Springs, Mont.
(Published as "at Horr" 1889-1893)

Location.--Lat 45°06'40", long 110°47'40", in SE¼NW¼ sec.30, T.8 S., R.8 E., on left bank 20 ft downstream from highway bridge at Corwin Springs, 1½ miles upstream from Mol Heron Creek, and 7 miles northwest of Gardiner.

Drainage area.--2,623 sq mi.

Gage.--Nonrecording prior to Apr. 20, 1935; recording thereafter. At sites 2 miles upstream at different datums Aug. 12, 1889, to Nov. 4, 1893. Datum of gage is 5,079.09 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 23,000 cfs.

Remarks.--Natural storage in Yellowstone Lake. Small diversions do not affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 12,000 cfs. Only annual observed peaks are shown prior to 1935, except as noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1890	May 28, 1890, June 11, 1890	8.25	11,900	1943	May 30, 1943	7.65	15,900
					June 22, 1943	9.64	24,400
1891	June 7, 1891	6.55	8,980	1944	June 27, 1944	6.42	12,000
1892	June 21, 1892	10.4	16,000				
1893	June 13, 1893	9.20	13,600	1945	June 24, 1945	7.8	17,100
					June 27, 1945	8.14	18,300
1911	June 13, 1911	10.2	25,800				
1912	June 10, 1912	8.4	16,700	1946	May 28, 1946	6.40	12,000
1913	June 8, 1913	9.6	23,200		June 6, 1946	7.43	15,600
1914	June 4, 1914	7.9	14,900		June 12, 1946	6.93	13,800
1915	June 25, 1915	5.4	7,720				
				1947	May 10, 1947	6.82	13,400
1916	June 18, 1916	9.8	24,000		June 9, 1947	7.06	14,500
1917	June 25, 1917	9.6	23,200		June 20, 1947	8.22	18,700
1918	June 14, 1918	11.5	32,000				
1919	May 29, 1919	6.9	11,900	1948	May 22, 1948	7.77	17,000
1920	June 15, 1920	8.32	a17,800		May 29, 1948	8.62	20,400
					June 4, 1948	9.00	22,000
1921	June 12, 1921	9.3	21,800				
1922	June 7, 1922	7.8	14,600	1949	May 18, 1949	6.47	12,300
1923	May 26, 1923	7.4	13,400		May 29, 1949	6.91	13,800
1924	May 26, 1924, June 15, 1924	5.9	9,030		June 12, 1949	7.37	15,500
1925	May 30, 1925	9.07	20,800	1950	June 7, 1950	7.70	16,300
					June 23, 1950	8.41	19,100
1926	May 24,26, 1926	6.8	11,600		July 1, 1950	7.70	16,300
1927	June 27, 1927	10.0	25,000				
1928	May 26, 1928	10.0	25,300	1951	May 24, 1951	7.58	16,300
1929	June 17, 1929	7.4	14,400		May 29, 1951	8.29	19,000
1930	June 11, 1930	6.6	11,700		June 17, 1951	8.34	19,200
1931	June 3, 1931	7.0	13,000	1952	May 4, 1952	6.57	12,600
1932	June 25, 1932	7.7	15,800		June 7, 1952	8.68	20,700
1933	June 16, 1933	7.75	15,800				
1934	May 7, 1934	5.4	8,480	1953	June 14, 1953	8.46	19,700
					June 19, 1953	8.37	19,400
1935	June 14, 1935	8.08	17,700		July 1, 1953	6.47	12,300
1936	May 15, 1936	7.15	14,900	1954	May 22, 1954	7.61	16,400
	June 1, 1936	7.47	15,800		June 16, 1954	6.56	12,600
					June 27, 1954	8.16	18,500
1937	May 28, 1937	6.26	12,100				
				1955	June 16, 1955	7.11	14,800
1938	May 28, 1938	7.26	15,700				
	June 6, 1938	8.19	18,100	1956	June 2, 1956	9.39	23,700
					June 13, 1956	8.68	20,700
1939	May 31, 1939	7.02	14,300				
				1957	June 5, 1957	8.48	19,800
1940	June 1, 1940	6.42	12,400				
	June 14, 1940	6.30	12,100	1958	May 24, 1958	7.46	15,800
1941	May 27, 1941	5.70	10,300	1959	June 7, 1959	8.13	18,000
					June 10, 1959	7.63	16,000
1942	May 27, 1942	6.28	12,100		June 15, 1959	9.02	21,600
	June 5, 1942	6.33	12,000				
	June 9, 1942	7.84	16,800	1960	June 4, 1960	7.01	14,200
	June 16, 1942	6.28	12,000		June 9, 1960	6.52	12,400

a Momentary maximum.

Peak stages and discharges of Yellowstone River at Corwin Springs, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	June 15, 1960	6.53	12,500	1962	June 16, 1962	7.93	18,700
1961	May 30, 1961	6.71	13,100	1963	June 3, 1963	7.45	15,800
	June 9, 1961	7.20	14,800		June 15, 1963	7.98	17,800
1962	June 4, 1962	6.60	13,400				

1920. Mill Creek near Pray, Mont.

Location.--Lat 45°21'35", long 110°37'00", in SW¼NE¼ sec.33, T.5 S., R.9 E., on downstream side of left abutment of private bridge a quarter of a mile downstream from Davis Creek, 3½ miles southeast of Pray, and 4½ miles upstream from mouth.

Drainage area.--148 sq mi.

Gage.--Nonrecording. Altitude of gage is 5,160 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Historical data.--Stage of May 1948 flood is highest known.

Remarks.--Diversion for irrigation of about 3,500 acres materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gige height (feet)	Discharge (cfs)
1948	May 1948	a6.0	-	1954	June 23, 1954	3.20	2,040
				1955	June 22, 1955	2.70	930
1951	June 17, 1951	2.40	1,160				
1952	June 6, 1952	3.20	2,300	1956	Nov. 17, 1955	b4.6	-
1953	June 13, 1953	2.80	1,550		May 23, 1956	-	1,930

a About; from information by local residents.
b Backwater from ice.

1925. Yellowstone River near Livingston, Mont.

Location.--Lat 45°35'50", long 110°33'55", in NW¼NW¼ sec.12, T.3 S., R.9 E., on right bank 50 ft downstream from bridge on U.S. Highway 89, 2 miles downstream from Suce Creek, and 4 miles south of Livingston.

Drainage area.--3,551 sq mi.

Gage.--Nonrecording prior to Feb. 4, 1951; recording thereafter. At different datum May 2, 1897, to Dec. 31, 1905. Datum of gage is 4,542.49 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Natural regulation by Yellowstone Lake. Diversions for irrigation of about 24,200 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 13,500 cfs. Only annual observed peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1897	June 1, 1897	6.9	28,100	1905	June 5, 1905	7.4	13,820
1898	June 19, 1898	7.7	23,940				
1899	June 20, 1899	8.6	26,280	1929	June 17, 1929	7.42	19,000
1900	June 7, 1900	5.0	16,875	1930	May 31, 1930	6.61	15,500
1901	May 20, 1901	6.1	26,525	1931	June 4, 1931	6.31	14,200
1902	June 11, 1902	6.6	30,100	1932	June 25, 1932	7.76	20,800
1903	June 18, 1903	8.5	21,300				
1904	June 23, 1904	8.94	20,120	1938	June 6, 1938	7.60	18,300

Peak stages and discharges of Yellowstone River near Livingston, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 31, 1939	6.89	15,400	1953	June 14, 1953	7.75	21,200
1940	June 2,14, 1940	6.30	13,100				
				1954	May 22, 1954	6.86	17,200
1941	May 27, 1941	5.40	10,600		June 27, 1954	7.49	20,400
1942	June 9, 1942	7.55	18,500				
1943	June 20, 1943	9.34	30,600	1955	June 16, 1955	6.29	14,900
1944	June 27, 1944	6.06	13,500				
1945	June 27, 1945	7.60	20,400	1956	June 2, 1956	8.57	25,800
1946	June 6, 1946	6.75	15,800	1957	June 5, 1957	7.71	21,900
1947	June 20, 1947	7.85	20,600		July 1, 1957	5.85	13,800
1948	May 22, 1948	7.52	19,300	1958	May 26, 1958	6.64	17,100
	May 29, 1948	8.24	22,600				
	June 4, 1948	9.10	26,800	1959	June 7, 1959	7.71	21,000
					June 15, 1959	8.43	24,200
1949	May 18, 1949	6.05	14,200				
	May 29, 1949	6.32	15,300	1960	June 4, 1960	6.21	15,700
	June 12, 1949	6.88	17,500		June 15, 1960	5.97	14,700
1950	June 7, 1950	7.05	18,200	1961	June 9, 1961	6.47	15,600
	June 23, 1950	7.82	21,400				
				1962	June 4, 1962	6.11	14,800
1951	May 24, 1951	6.87	16,900		June 16, 1962	7.33	20,400
	May 29, 1951	7.44	19,400				
	June 17, 1951	7.58	20,000	1963	June 3, 1963	6.75	17,400
					June 15, 1963	7.32	20,200
1952	May 4, 1952	6.02	13,500				
	June 7, 1952	8.20	22,800				

1930. Shields River near Wilsall, Mont.

Location.--Lat 46°09', long 110°35', in SE¼NW¼ sec.34, T.5 N., R.9 E., on left bank 11 miles northeast of Wilsall and 12 miles upstream from Flathead Creek.

Drainage area.--87.8 sq mi.

Gage.--Nonrecording. Altitude of gage is 5,590 ft (by barometer. At site 800 ft downstream at different datum prior to Oct. 13, 1942.

Stage-discharge relation.--Defined by current-meter measurements below 730 cfs.

Remarks.--Diversions for irrigation of about 3,100 acres do not materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	May 15, 1936	2.20	523	1947	May 10, 1947	3.20	662
1937	May 8, 1937	1.76	251	1948	June 4, 1948	4.8	1,770
1938	May 28, 1938	3.00	850	1949	May 18, 1949	4.0	485
1939	May 4, 1939	1.91	233	1950	June 18, 1950	4.13	579
1940	May 13, 1940	2.28	400				
				1951	May 18, 1951	4.20	635
1941	June 9, 1941	2.33	380	1952	May 26, 1952	4.21	674
1942	May 27, 1942	3.07	615	1953	June 3, 1953	5.15	1,350
1943	June 1, 1943	2.60	450	1954	June 11, 1954	3.90	580
1944	June 9, 1944	3.20	870	1955	June 17, 1955	4.08	641
1945	June 5, 1945	2.30	296				
				1956	May 29, 1956	4.32	800
1946	May 28, 1946	2.40	300	1957	May 15, 1957	4.05	650

1935. Shields River at Clyde Park, Mont.

Location.--Lat 45°53'10", long 110°37'05", in NW¼NW¼ sec.33, T.2 N., R.9 E., on right bank just downstream from highway bridge, three-quarters of a mile west of Clyde Park and 2 miles upstream from Brackett Creek.

Drainage area.--543 sq mi.

Gage.--Nonrecording prior to Jan. 6, 1951; recording thereafter. At different datum 1921-23. Altitude of gage is 4,780 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 19,500 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 400 cfs. Only annual observed peaks are shown prior to 1948, except as noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 9, 1921	3.14	1,190	1951	June 17, 1951	2.61	565
1922	May 26, 1922	2.98	1,020				
1923	May 26, 1923	3.64	1,800	1952	Apr. 7, 1952	5.20	2,390
					Apr. 15, 1952	3.69	1,240
1929	May 25, 1929	3.21	1,040		Apr. 29, 1952	3.86	1,370
1930	Apr. 8, 1930	2.37	410		May 16, 1952	3.39	1,020
					May 27, 1952	4.32	1,720
1931	June 3, 1931	2.56	507				
1932	May 22, 1932	2.90	832	1953	May 7, 1953	2.60	495
					June 14, 1953	4.78	2,400
1934	Apr. 14, 1934	2.08	182		May 20, 1953	2.48	417
1935	Mar. 14, 1935	2.56	364		June 4, 1953	5.04	2,360
					July 1, 1953	2.94	661
1936	Apr. 13, 1936	3.32	895				
1937	June 17, 1937	2.83	580	1954	May 13, 1954	2.54	417
1938	May 29, 1938	3.84	1,440		May 22, 1954	2.77	552
1939	Mar. 22, 1939	a4.40	-		June 5, 1954	2.90	635
	Mar. 26, 1939	3.10	650		June 11, 1954	3.07	749
1940	May 13, 1940	3.27	790		June 29, 1954	2.74	534
1941	June 6, 1941	3.48	882	1955	Apr. 10, 1955	2.46	435
1942	May 26, 1942	3.75	1,320		May 9, 1955	2.47	435
1943	Mar. 29, 1943	7.00	b4,450		May 22, 1955	2.55	471
1944	June 10, 1944	4.35	1,240		May 31, 1955	2.49	429
1945	June 6, 1945	3.72	910		June 17, 1955	3.02	764
1946	May 29, 1946	3.57	785	1956	Mar. 25, 1956	c5.77	-
1947	May 10, 1947	4.73	1,670		Mar. 26, 1956	4.65	1,900
					Mar. 31, 1956	2.87	540
1948	Mar. 24, 1948	-	a400		Apr. 22, 1956	2.71	510
	Mar. 29, 1948	-	a400		May 25, 1956	3.98	1,430
	Apr. 3, 1948	3.51	736				
	Apr. 18, 1948	3.95	1,000	1957	May 6, 1957	2.97	680
	Apr. 30, 1948	3.64	934		May 15, 1957	3.12	784
	May 9, 1948	4.33	1,330		May 21, 1957	3.08	756
	May 22, 1948	5.86	2,390		June 5, 1957	2.96	661
	June 5, 1948	7.39	4,500		June 21, 1957	3.12	735
	June 17, 1948	4.86	1,410				
	July 12, 1948	3.58	566	1958	May 12, 1958	2.93	654
					May 25, 1958	2.84	596
1949	Apr. 13, 1949	3.88	959				
	Apr. 29, 1949	3.30	675	1959	Mar. 21, 1959	-	460
	May 18, 1949	4.52	1,370		Apr. 3, 1959	2.74	550
	June 2, 1949	3.53	780		Apr. 6, 1959	2.57	434
	June 20, 1949	3.21	644		May 3, 1959	2.80	564
					May 10, 1959	2.67	466
1950	Feb. 27, 1950	c4.69	-		May 17, 1959	3.07	714
	Apr. 2, 1950	4.50	1,300		May 27, 1959	2.78	505
	Apr. 7, 1950	3.28	630		June 8, 1959	4.20	1,370
	Apr. 14, 1950	3.06	536		June 15, 1959	4.15	1,200
	May 29, 1950	3.41	744		June 26, 1959	3.81	920
	June 19, 1950	3.43	870				
				1960	Mar. 21, 1960	c4.48	-
1951	Feb. 10, 1951	c4.92	-		Mar. 23, 1960	3.49	735
	Feb. 11, 1951	4.83	2,100		Mar. 27, 1960	3.37	651
	Mar. 26, 1951	3.97	1,400		May 13, 1960	3.60	800
	Mar. 31, 1951	3.06	780		June 4, 1960	3.30	624
	Apr. 3, 1951	2.93	697		June 15, 1960	3.06	428
	May 13, 1951	3.13	871				
	May 19, 1951	3.23	959	1961	May 30, 1961	3.27	606

a Maximum daily.
b Momentary maximum.
c Backwater from ice.

Peak stages and discharges of Shields River at Clyde Park, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Apr. 3, 1962	3.34	504	1963	Feb. 4, 1963	c5.35	1,200
	Apr. 25, 1962	3.58	686		May 12, 1963	3.68	744
	May 27, 1962	3.59	618		May 26, 1963	3.99	1,010
	June 15, 1962	4.00	960		June 5, 1963	3.88	913
	July 15, 1962	3.20	482		June 14, 1963	4.01	1,020

c Backwater from ice.

1940. Brackett Creek near Clyde Park, Mont.

Location.--Lat 45°52'00", long 110°40'10", in SE¼NE¼ sec.1, T.1 N., R.8 E., near right bank on upstream side of private bridge, 3½ miles southwest of Clyde Park and 4 miles upstream from mouth.

Drainage area.--57.9 sq mi.

Gage.--Nonrecording. At site three-quarters of a mile upstream at different datum Mar. 30, 1921, to Sept. 30, 1923. Altitude of gage is 4,930 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 250 cfs at former site and below 330 cfs at present site.

Remarks.--Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	May 9, 1921	2.02	179	1946	Apr. 20, 1946	2.82	179
1922	May 20, 1922	2.40	207	1947	June 10, 1947	3.22	325
1923	June 22, 1923	3.00	370	1948	May 22, 1948	4.9	1,400
				1949	Apr. 28, 1949	3.03	188
1934	Apr. 11, 1934	2.60	69	1950	Apr. 1, 1950	3.70	473
1935	May 23, 1935	2.59	56				
				1951	May 19, 1951	3.42	291
1936	Apr. 20, 1936	3.00	162	1952	Apr. 29, 1952	-	387
1937	June 13, 1937	2.94	143		May 22, 1952	4.09	-
1938	May 2, 1938	3.36	414	1953	June 3, 1953	4.30	890
1939	May 1, 1939	2.52	118	1954	June 11, 1954	1.94	120
1940	May 13, 1940	2.72	158	1955	June 4, 1955	2.15	142
1941	June 6, 1941	2.60	129	1956	Dec. 31, 1955	a3.40	-
1942	May 27, 1942	2.65	148		May 21, 1956	2.92	263
1943	Mar. 28, 1943	3.60	490	1957	May 4, 1957	2.26	152
1944	June 10,28,1944	2.76	167				
1945	May 14, 1945	2.67	147				

a Backwater from ice.

1960. North Fork Big Timber Creek near Big Timber, Mont.

Location.--Lat 45°58'40", long 110°04'00", in NW¼SE¼ sec.26, T.3 N., R.13 E., 300 ft upstream from confluence with South Fork and 11½ miles northwest of Big Timber.

Drainage area.--36.6 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,920 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Remarks.--Diversions for irrigation of about 300 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual observed peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	May 19, 1907	3.20	600	1910	May 10, 1910	2.00	158
1908	June 1, 1908	4.05	897				
1909	June 5,20,1909	3.00	498	1911	June 2, 1911	3.10	490

1965. South Fork Big Timber Creek near Big Timber, Mont.

Location.--Lat 45°58'35", long 110°04'10", in SW¼SE¼ sec.26, T.3 N., R.13 E., just upstream from confluence with North Fork and 11½ miles northwest of Big Timber.

Drainage area.--28.1 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,920 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 72 cfs.

Remarks.--Diversions for irrigation of about 750 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual observed peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	July 13, 1907	2.0	420	1910	(a)	1.04	54
1908	June 1, 1908	2.5	550				
1909	June 20, 1909	2.05	395	1911	June 5, 1911	1.7	220

a Occurred Apr. 28, 29, May 5-13, 1910.

1970. Big Timber Creek near Big Timber, Mont.

Location.--Lat 45°57'15", long 110°01'45", in SW¼NE¼ sec.6, T.2 N., R.14 E., 3 miles downstream from confluence of North and South Forks and 9 miles northwest of Big Timber.

Drainage area.--74.9 sq mi.

Gage.--Nonrecording. At sites 1½ miles downstream at different datum prior to Apr. 5, 1918. At sites within 500 ft downstream at different datum Apr. 5, 1918, to Apr. 15, 1921. Altitude of gage is 4,680 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 440 cfs and extended above on basis of float measurement at 1,300 cfs at site used 1918-21. Defined by current-meter measurements below 320 cfs at described site.

Remarks.--Diversions for irrigation of about 5,000 acres above station materially affect peak flows. Peaks are principally from snowmelt. Only annual observed peaks are shown, except as indicated.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 9,12,1912	3.3	380	1919	May 29, 1919	4.55	274
1913	June 11, 1913	4.4	882	1920	June 16, 1920	6.61	766
1914	June 6, 1914	5.4	1,230				
1915	July 13, 1915	4.8	642	1921	June 9, 1921	3.40	442
				1922	June 5, 1922	3.20	380
1916	June 20, 1916	4.65	768	1923	July 24, 1923	4.50	a1,850
				1924	June 16, 1924	3.32	419
1918	July 15, 1918	6.9	a1,960				

a Momentary maximum.

1975. Boulder River near Contact, Mont.

Location.--Lat 45°33'20", long 110°12'00", in SE¼SE¼ sec.23, T.3 S., R.12 E., on left bank half a mile downstream from Boulder Falls, 3 miles north of Contact, 6 miles upstream from East Fork of Boulder River, and 22 miles southwest of Big Timber.

Drainage area.--226 sq mi.

Gage.--Nonrecording at site 1½ miles downstream at different datums prior to July 15, 1951; recording thereafter. Altitude of gage is 4,930 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs at former site and below 3,400 cfs at present site.

Remarks.--Small diversions above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 2,200 cfs. Only annual observed peaks are shown prior to 1951.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1910	June 2, 1910	7.3	3,660	1956	June 2, 1956	5.84	3,490
					June 12, 1956	5.62	3,320
1911	June 14, 1911	8.8	5,100		June 16, 1956	5.50	3,200
1912	June 25, 1912	7.9	4,210		June 20, 1956	4.74	2,230
1913	June 5, 1913	7.9	4,200				
1914	June 4, 1914	6.8	3,080	1957	June 5, 1957	5.98	3,850
1915	June 25, 1915	6.3	2,630		July 1, 1957	5.27	2,900
1916	June 19,27,1916	8.4	4,750	1958	May 27, 1958	5.32	2,950
					June 8, 1958	4.78	2,240
1929	June 14, 1929	5.60	3,170				
				1959	June 7, 1959	5.73	3,500
1951	May 24, 1951	4.90	2,330		June 10, 1959	5.45	3,140
	May 29, 1951	4.80	2,240		June 15, 1959	6.71	4,880
	June 17, 1951	5.82	3,220				
	July 6, 1951	4.85	2,280	1960	June 4, 1960	5.32	2,970
					June 8, 1960	5.32	2,970
1952	June 7, 1952	6.23	4,200		June 15, 1960	5.35	3,000
					June 20, 1960	4.85	2,360
1953	June 14, 1953	5.91	3,730				
	June 19, 1953	5.88	3,690	1961	May 30, 1961	4.77	2,230
	June 24, 1953	4.98	2,480		June 9, 1961	5.21	2,740
	July 1, 1953	4.89	2,370				
				1962	June 16, 1962	5.36	2,930
1954	May 21, 1954	5.05	2,620		June 21, 1962	5.36	2,950
	June 24, 1954	5.74	3,520		June 27, 1962	5.56	3,230
	June 27, 1954	5.94	3,800				
				1963	June 5, 1963	4.95	2,480
1955	June 16, 1955	5.22	2,840		June 16, 1963	5.78	3,570
	June 24, 1955	5.23	2,850		June 20, 1963	5.42	3,100
					June 28, 1963	4.78	2,280
1956	May 28, 1956	5.78	3,420				

1985. West Fork Boulder River near Bruffeys, Mont.

Location.--Lat 45°34'05", long 110°16'40", in SW¼SW¼ sec.17, T.3 S., R.12 E., at road bridge at discontinued Bruffeys Post Office, 3 miles downstream from Davis Creek and 7 miles southwest of McLeod.

Drainage area.--91.6 sq mi.

Gage.--Nonrecording. Altitude of gage is 5,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--One small diversion of about 4 cfs does not affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	June 18, 1904	4.00	1,670	1907	July 4, 1907	3.90	1,590
1905	June 10, 1905	3.9	1,590	1908	June 14, 1908	3.82	1,530
1906	June 12,15,1906	3.55	1,310	1910	June 2, 1910	4.00	1,670

1990. West Fork Boulder River at McLeod, Mont.

Location.--Lat 45°39'50", long 110°07'05", in SE¼NE¼ sec.16, T.2 S., R.13 E., at private bridge, 600 ft upstream from highway bridge in McLeod and 1 mile upstream from mouth.

Drainage area.--135 sq mi.

Gage.--Nonrecording. At datum 1.00 ft higher prior to Mar. 15, 1911. All gage heights adjusted to last used datum. Altitude of gage is 4,810 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs.

Remarks.--Diversions for irrigation of about 800 acres above gage do not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	July 4, 1907	4.5	1,820	1911	June 13, 1911	4.3	1,670
1908	July 4, 1908	4.4	1,780	1912	June 9, 1912	4.3	1,500
1909	June 3,17, 1909	4.6	1,990	1913	May 28, 1913	4.2	1,420
1910	June 2, 1910	4.0	1,370	1914	June 2, 1914	4.2	1,460

2000. Boulder River at Big Timber, Mont.

Location.--Lat 45°50'05", long 109°56'20", in NE¼SE¼ sec.14, T.1 N., R.14 E., on left bank 1 mile east of Big Timber and 2 miles upstream from mouth.

Drainage area.--523 sq mi.

Gage.--Recording. Altitude of gage is 4,060 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,000 cfs.

Remarks.--Diversions for irrigation of about 13,300 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 3,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 20, 1947	6.93	a7,080	1956	May 28, 1956	7.84	9,840
					June 2, 1956	6.42	5,790
1948	May 22, 1948	5.61	4,550		June 12, 1956	5.83	4,370
	May 30, 1948	5.67	4,640				
	June 5, 1948	7.37	8,190	1957	June 5, 1957	6.94	7,050
					June 21, 1957	5.56	3,990
1949	May 17, 1949	5.47	4,000		July 1, 1957	6.05	5,030
	June 11, 1949	5.00	3,620				
				1958	May 27, 1958	5.78	4,540
1950	June 7, 1950	5.43	4,260		June 8, 1958	5.1[illegible]	3,350
	June 17, 1950	6.07	5,360				
	June 22, 1950	6.05	5,320	1959	June 7, 1959	6.28	5,420
	July 1, 1950	5.63	4,560		June 10, 1959	5.84	4,540
	July 8, 1950	5.27	3,930		June 15, 1959	7.68	8,050
	July 11, 1950	5.18	3,760				
				1960	June 4, 1960	5.82	4,960
1951	May 24, 1951	5.06	3,550		June 8, 1960	5.81	4,940
	May 29, 1951	4.86	3,190		June 15, 1960	6.07	5,460
	June 17, 1951	5.78	4,840		June 20, 1960	5.20	3,750
	July 5, 1951	4.84	3,150				
				1961	May 30, 1961	5.33	4,090
1952	May 30, 1952	4.91	3,210		June 5, 1961	5.32	4,040
	June 7, 1952	6.85	6,820		June 9, 1961	5.54	4,440
	June 10, 1952	6.21	5,280				
				1962	June 4, 1962	4.80	3,020
1953	June 12, 1953	5.68	4,110		June 15, 1962	6.03	4,720
	June 14, 1953	6.82	6,750		June 21, 1962	6.14	4,600
	June 19, 1953	6.31	5,790		June 27, 1962	6.24	4,740
	June 24, 1953	5.21	3,310				
				1963	June 5, 1963	5.78	3,960
1955	June 16, 1955	5.75	4,190		June 16, 1963	7.13	5,970
	June 24, 1955	5.73	4,150				

a Annual peak only.

2004. Sweet Grass Creek near Melville, Mont.
(Published as "above Melville" 1907-12)

Location.--Lat 46°10', long 110°10', in SW¼ sec.24, T.5 N., R.12 E., about half a mile upstream from Blackaby Creek and 11½ miles northwest of Melville.

Drainage area.--46.3 sq mi.

Gage.--Nonrecording. At site 300 ft upstream at different datum prior to Oct. 1, 1908. Altitude of gage is 5,730 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 620 cfs.

Remarks.--Small diversions for irrigation above station do not materially affect peak flows. Peaks are principally from snowmelt. Only annual observed peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	June 23, July 4, 1907	4.0	910	1910	May 10, 1910	3.00	530
1908	June 1, 1908	5.65	1,830	1911	June 1, 1911	4.70	1,410
1909	June 10, 1909	5.6	1,960				

2005. Sweet Grass Creek above Melville, Mont.

Location.--Lat 46°09', long 110°05', in NW¼ sec.27, T.5 N., R.13 E., on right bank 7½ miles northwest of Melville.

Drainage area.--63.8 sq mi.

Gage.--Nonrecording at site 1,500 ft downstream at different datum Aug. 21, 1913, to Dec. 31, 1924; recording thereafter. At site 1,000 ft downstream at different datum Apr. 17, 1937, to Sept. 25, 1951. Altitude of gage is 5,490 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs at present site.

Remarks.--Diversions for irrigation of about 200 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 540 cfs. Only annual observed peaks are shown prior to 1937.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	June 4, 1914	2.7	940	1941	June 27, 1941	2.71	756
1915	July 10,13,1915	2.3	630	1942	May 26, 1942	3.21	1,050
1916	June 17, 1916	2.7	872		June 5, 1942	3.71	1,320
1917	June 10, 1917	3.2	1,260		June 8, 1942	3.25	1,000
1918	June 11, 1918	2.85	1,110				
1919	May 22,30, 1919	1.9	390	1943	May 30, 1943	3.02	818
1920	June 15,17,1920	2.59	848		June 11, 1943	2.73	638
					June 19, 1943	3.41	1,090
1921	June 9, 1921	2.32	651		June 26, 1943	2.76	656
1922	June 15, 1922	2.00	540		July 1, 1943	2.73	638
1923	May 27, 1923	2.80	1,100				
1924	May 17, June 4, 1924	2.00	620	1944	May 18, 1944	3.67	1,160
					May 30, 1944	2.64	553
					June 3, 1944	3.05	758
1937	June 17, 1937	3.01	807		June 9, 1944	3.09	780
	June 22, 1937	3.00	800		June 27, 1944	3.07	768
1938	May 29, 1938	3.43	1,120	1945	June 5, 1945	2.65	620
	June 6, 1938	2.97	780		June 22, 1945	3.32	1,080
	June 18, 1938	2.80	670		June 27, 1945	2.80	749
	June 23, 1938	3.60	1,240				
				1946	May 28, 1946	3.06	872
1939	May 31, 1939	2.50	556		June 6, 1946	2.80	710
					June 12, 1946	2.60	590
1940	May 13, 1940	2.63	568		July 3, 1946	2.55	562
	June 14, 1940	2.70	610				
				1947	May 10, 1947	2.78	668
1941	June 9, 1941	2.96	879		June 9, 1947	2.76	656

Peak stages and discharges of Sweet Grass Creek above Melville, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 18, 1947	2.89	742	1955	June 16, 1955	2.87	640
	June 20, 1947	2.88	736	1956	May 22, 1956	2.84	719
1948	May 21, 1948	3.64	1,330		May 28, 1956	3.93	2,060
	May 28, 1948	2.86	723		June 2, 1956	2.90	773
	June 4, 1948	4.58	2,040		June 5, 1956	2.73	619
	June 17, 1948	2.98	948	1957	May 13, 1957	2.65	568
	June 22, 1948	2.62	750		May 20, 1957	2.87	746
1949	May 17, 1949	3.42	1,220		June 5, 1957	3.31	1,200
	May 29, 1949	2.33	606		June 20, 1957	3.05	863
	June 19, 1949	2.32	601		July 1, 1957	2.82	659
1950	June 7, 1950	2.43	630	1958	May 30, 1958	2.62	533
	June 16, 1950	3.84	1,510	1959	June 7, 1959	3.32	1,180
	June 22, 1950	2.61	792		June 10, 1959	2.91	728
	July 1, 1950	2.57	771		June 15, 1959	3.28	1,140
1951	May 24, 1951	2.21	592		June 26, 1959	3.00	843
	June 16, 1951	2.53	734	1960	June 4, 1960	2.98	873
1952	May 26, 1952	3.08	961		June 15, 1960	2.87	737
	May 29, 1952	2.61	540	1961	May 27, 1961	2.87	746
	June 7, 1952	2.99	863		May 30, 1961	2.90	764
	June 27, 1952	2.91	783		June 6, 1961	2.70	589
1953	June 14, 1953	3.48	1,180	1962	June 14, 1962	2.97	843
	June 18, 1953	3.21	958		July 13, 1962	2.64	561
	June 24, 1953	2.65	563	1963	May 26, 1963	2.65	568
	July 1, 1953	2.82	674		June 2, 1963	-	a700
	July 15, 1953	2.62	545		June 14, 1963	3.06	939
1954	May 22, 1954	2.77	640		June 21, 1963	2.88	755
	June 24, 1954	2.72	581				
	June 27, 1954	2.90	702				

a About.

2010. Sweet Grass Creek below Melville, Mont.

Location.--Lat 46°04', long 109°51', near middle of south line sec.27, T.4 N., R.15 E., on left bank 6 miles southeast of Melville and 19 miles upstream from East Fork.

Drainage area.--143 sq mi.

Gage.--Nonrecording prior to Apr. 15, 1941; recording thereafter. At site 2½ miles downstream at different datum May 1907 to November 1908. Altitude of gage is 4,740 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs.

Remarks.--Diversions above station for irrigation of about 12,800 acres materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 450 cfs. Only annual observed peaks are shown prior to 1941, except as noted.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1907	June 23, 1907	3.00	1,420	1919	May 30, 1919	-	512
1908	June 1, 1908	3.80	1,800	1920	June 12, 1920	3.76	1,040
1909	June 21, 1909	3.55	1,170	1921	June 9, 1921	3.85	735
1910	May 11, 1910	2.45	438	1922	June 5, 1922	3.38	564
1911	May 16, 1911	3.90	1,560	1923	July 26, 1923	6.0	b3,090
1912	June 11, 1912	2.55	595	1924	Apr. 6, 1924	3.66	752
1913	June 11, 1913	-	a1,190	1937	June 23, 1937	3.38	613
1914	June 4, 1914	3.86	1,330	1938	June 18, 1938	5.30	1,900
1915	May 1, 1915	3.18	702	1939	Mar. 20, 1939	c4.52	-
1916	June 27, 1916	4.2	b1,700		June 1, 1939	-	470
1918	June 11,14,1918	4.06	1,300	1940	Feb. 28, 1940	c4.00	-
1919	Mar. 8,10, 1919	c3.76	-		May 13, 1940	-	455

a Maximum daily; estimated.
b Momentary maximum.
c Backwater from ice.

Peak stages and discharges of Sweet Grass Creek below Melville, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 5, 1941	3.63	774	1948	July 3, 1948	4.22	574
	June 9, 1941	3.73	858	1949	Mar. 5, 1949	c4.66	-
1942	May 27, 1942	3.88	894		May 17, 1949	4.18	1,190
	June 4, 1942	5.33	2,500	1950	June 7, 1950	3.19	565
	June 8, 1942	4.86	1,890		June 16, 1950	3.95	1,020
	June 16, 1942	3.63	606		June 22, 1950	3.08	625
	June 26, 1942	3.41	452		July 2, 1950	2.97	610
1946	May 28, 1946	3.36	546		July 11, 1950	2.77	510
1947	May 10, 1947	3.38	642	1951	Mar. 27, 1951	c3.91	-
	June 9, 1947	3.21	504		May 24, 1951	2.65	452
	June 20, 1947	3.40	618		June 16, 1951	2.76	515
1948	May 22, 1948	3.96	838	1952	May 15, 1952	2.73	490
	May 29, 1948	3.51	528		May 22, 1952	3.17	718
	June 4, 1948	4.92	1,720		May 26, 1952	3.36	826
	June 9, 1948	4.29	1,080		June 7, 1952	3.21	740
	June 16, 1948	5.78	2,730		June 27, 1952	3.07	664
	June 21, 1948	4.61	890				

c Backwater from ice.

2045. Rosebud Creek near Absarokee, Mont.

Location.--Lat 45°29'10", long 109°27'20", in SW¼NW¼ sec.13, T.4 S., R.18 E., on right bank 80 ft downstream from Smith Bridge, 0.2 mile downstream from confluence of East and West Rosebud Creeks, and 2½ miles south of Absarokee.

Drainage area.--394 sq mi.

Gage.--Nonrecording prior to July 14, 1942; recording thereafter. Altitude of gage is 4,160 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs.

Remarks.--Diversions for irrigation of about 16,000 acres above station. Some regulation by Mystic Lake (usable capacity, 20,780 acre-ft). Diversions and regulation might affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 1,600 cfs. Only annual peaks are shown prior to 1944.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 14, 1935	4.57	2,200	1949	May 18, 1949	3.25	1,750
1936	June 2, 1936	4.79	2,460	1950	Jan. 7, 1950	b3.70	-
1937	June 22, 1937	6.36	4,850		June 18, 1950	3.43	2,030
1938	June 26, 1938	4.70	2,340		June 23, 1950	3.42	2,010
1939	May 31, 1939	3.92	1,330		July 5, 1950	3.37	1,930
1940	June 21, 1940	4.93	2,620	1951	July 21, 1951	3.62	2,250
1941	June 5, 1941	4.50	2,070	1952	May 22, 1952	3.55	2,230
1942	July 8, 1942	5.78	3,870		June 7, 1952	3.80	2,540
1943	July 1, 1943	5.33	3,520		July 13, 1952	3.63	2,370
1944	May 18, 1944	3.83	1,720	1953	June 14, 1953	3.66	2,310
	June 3, 1944	4.29	2,240	1954	June 28, 1954	3.35	1,770
	June 11, 1944	3.87	1,880		July 15, 1954	3.35	1,770
	June 17, 1944	4.63	2,800	1955	June 16, 1955	2.78	1,110
	June 27, 1944	5.23	3,660	1956	May 29, 1956	4.42	3,820
	July 2, 1944	-	a3,300		June 16, 1956	3.36	1,780
1945	June 27, 1945	3.66	2,520	1957	May 12, 1957	3.44	1,730
	July 15, 1945	3.45	2,100		June 10, 1957	4.17	3,230
1946	June 24, 1946	2.78	1,360		June 16, 1957	4.32	3,570
1947	June 21, 1947	3.27	2,080		July 2, 1957	4.18	3,250
	July 8, 1947	3.33	2,030	1958	May 26, 1958	3.28	1,660
1948	May 22, 1948	3.08	1,660		June 8, 1958	3.40	1,850
	May 30, 1948	3.24	1,880	1959	June 27, 1959	3.85	2,560
	June 3, 1948	4.45	4,180				
	June 16, 1948	3.56	2,230				
	June 22, 1948	3.67	2,410				
	July 13, 1948	3.67	2,340				

a Estimated.
b Backwater from ice.

Peak stages and discharges of Rosebud Creek near Absarokee, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	June 20, 1960	2.76	1,100	1962	June 27, 1962	3.58	2,040
1961	May 30, 1961	2.90	1,240	1963	June 3, 1963	3.86	2,440
1962	Jan. 21, 1962	b4.05	-		June 10, 1963	3.87	2,420
	June 15, 1962	3.71	2,250		June 16, 1963	4.25	3,080

b Backwater from ice.

2050. Stillwater River near Absarokee, Mont.

Location.--Lat 45°33'04", long 109°23'12", in NE¼NW¼ sec.28, T.3 S., R.19 E., on right bank 3 miles downstream from Rosebud Creek, 3½ miles northeast of Absarokee, and 9 miles southwest of Columbus.

Drainage area.--975 sq mi.

Gage.--Nonrecording at site 2 miles upstream at different datums prior to Oct. 1, 1942; recording thereafter. Altitude of gage is 3,875 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 5,900 cfs at former site and below 7,500 cfs at present site.

Remarks.--Some regulation by Mystic Lake (usable capacity, 20,780 acre-ft). Diversions for irrigation of about 24,300 acres. Regulation and diversions do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 4,400 cfs. Only annual observed peaks are shown prior to 1943.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 14, 1911	6.2	7,260	1950	June 7, 1950	4.70	4,820
1912	June 10,25,1912	5.6	6,240		June 17, 1950	5.14	5,990
1913	June 2, 1913	5.5	6,080		June 22, 1950	5.47	6,930
1914	June 3, 1914	5.5	6,080		July 2, 1950	4.99	5,580
1935	June 14, 1935	5.28	7,140	1951	June 17, 1951	4.89	5,480
					July 21, 1951	4.48	4,460
1936	June 2, 1936	4.95	5,140				
1937	June 23, 1937	5.34	7,450	1952	May 22, 1952	4.74	4,930
1938	June 26, 1938	4.56	4,720		June 7, 1952	5.83	7,960
1939	May 31, 1939	4.20	4,030				
1940	June 14, 1940	4.44	5,240	1953	June 14, 1953	5.51	6,980
1941	June 5,18,1941	a4.24	4,020	1954	June 27, 1954	5.46	6,830
1942	June 8, 1942	5.54	8,520	1955	June 16,24,1955	4.42	4,340
1943	Mar. 28, 1943	4.96	5,480				
	May 30, 1943	4.90	5,340	1956	May 28, 1956	6.03	8,600
	June 14, 1943	4.60	4,570		June 2, 1956	5.42	6,710
	June 20, 1943	5.99	8,540		June 16, 1956	4.98	5,500
	June 26, 1943	5.72	7,620				
	July 1, 1943	6.21	9,180	1957	May 13, 1957	4.65	4,730
					June 5, 1957	6.16	8,690
1944	May 18, 1944	4.69	4,820		June 16, 1957	5.89	7,870
	May 31, 1944	4.65	4,700		June 21, 1957	5.31	6,230
	June 4, 1944	4.83	5,210		July 1, 1957	5.86	7,780
	June 11, 1944	4.71	4,820				
	June 17, 1944	5.62	7,320	1958	May 26, 1958	5.13	5,580
	June 27, 1944	6.44	9,820		June 8, 1958	4.65	4,420
	July 2, 1944	5.70	7,620				
1945	June 23, 1945	5.63	7,470	1959	June 7, 1959	5.04	5,530
	July 10, 1945	4.92	5,340		June 10, 1959	4.74	4,800
					June 15, 1959	5.71	7,330
1946	June 6, 1946	4.79	5,080		June 22, 1959	5.43	6,540
	June 12, 1946	4.53	4,450		June 27, 1959	5.51	6,760
1947	June 20, 1947	5.57	7,170	1960	June 15, 1960	4.35	3,840
	July 8, 1947	5.06	5,740				
				1961	June 9, 1961	4.47	4,160
1948	May 22, 1948	4.90	5,340				
	May 29, 1948	5.06	5,770	1962	June 16, 1962	5.46	6,730
	June 3, 1948	6.63	10,600		June 27, 1962	5.31	6,340
	June 22, 1948	4.75	5,120				
				1963	June 3, 1963	5.25	6,180
1949	May 17, 1949	4.82	5,300		June 16, 1963	5.88	7,850
	June 12, 1949	4.71	5,020				

a Occurred June 18.

2055. Clarks Fork Yellowstone River above Squaw Creek, near Painter, Wyo.
(Published as "Clarks Fork" prior to October 1951)

Location.--Lat 44°53', long 109°40', in NE¼ sec.34, T.57 N., R.106 W., on left bank 125 ft upstream from Squaw Creek and 12 miles northwest of Painter.

Drainage area.--194 sq mi.

Gage.--Recording. Altitude of gage is 6,480 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,000 cfs.

Remarks.--Base for partial-duration series, 2,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 6, 1946	5.12	2,460	1950	June 7, 1950	5.26	2,650
					June 22, 1950	6.75	4,920
1947	May 9, 1947	5.05	2,360		July 2, 1950	6.58	4,650
	June 20, 1947	5.54	3,060				
				1951	May 29, 1951	5.47	2,960
1948	May 29, 1948	5.86	3,540		June 17, 1951	5.78	3,420
	June 3, 1948	5.79	3,440		July 5, 1951	5.02	2,330
					July 20, 1951	4.94	2,220
1949	June 12, 1949	5.38	2,890				

2060. Clarks Fork Yellowstone River below Crandall Creek, near Painter, Wyo.
(Published as "Clarks Fork" prior to October 1956)

Location.--Lat 44°52', long 109°34', in sec.1, T.56 N., R.106 W., on right bank 2 miles downstream from Crandall Creek, 4 miles east of Crandall Creek guard station, and 9 miles north of Painter.

Drainage area.--446 sq mi.

Gage.--Recording. At different datum prior to Sept. 30, 1932. Altitude of gage is 6,160 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 6,800 cfs.

Remarks.--Diversions above station for irrigation of about 400 acres of hay meadows do not materially affect peak flows. Base for partial-duration series, 5,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	May 30, 1930	5.76	4,960	1953	June 13, 1953	9.38	7,310
					June 18, 1953	9.31	7,200
1931	June 3, 1931	5.90	5,100				
				1954	May 20, 1954	8.24	5,680
1932	June 25, 1932	7.16	6,430		June 27, 1954	9.25	7,120
					July 15, 1954	8.32	5,790
1950	June 17, 1950	8.45	5,920				
	June 22, 1950	8.77	6,300	1955	June 24, 1955	7.45	4,570
	July 2, 1950	8.75	6,280				
				1956	June 1, 1956	9.67	7,740
1951	May 28, 1951	8.88	6,440		June 15, 1956	9.10	6,890
	June 16, 1951	9.07	6,840				
				1957	June 4, 1957	9.78	7,850
1952	June 6, 1952	8.82	6,490				

2065. Sunlight Creek near Painter, Wyo.

Location.--Lat 44°45'00", long 109°30'40", in NE¼ sec.16, T.55 N., R.105 W., on left bank 1½ miles downstream from Painter Gulch and 4½ miles west of Painter.

Drainage area.--135 sq mi.

Gage.--Recording. Altitude of gage is 6,700 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Bankfull stage.--5 ft.

Historical data.--Flood of 1918 is maximum known.

Remarks.--Diversions for irrigation of about 500 acres do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	-	5.8	a4,000	1951	July 4, 1951	2.67	809
					July 20, 1951	2.91	988
1930	May 30, 1930	2.52	712		Aug. 4, 1951	2.58	746
	June 11, 1930	2.87	922				
	June 17, 1930	2.54	724	1952	June 6, 1952	3.28	1,220
	July 12, 1930	3.07	1,040		July 12, 1952	2.48	700
1931	June 3, 1931	3.02	994	1953	June 13, 1953	3.19	1,150
	June 7, 1931	2.73	820		June 18, 1953	2.99	1,010
	July 29, 1931	2.44	670				
				1954	May 22, 1954	2.67	812
1932	May 22, 1932	2.73	891		June 24, 1954	3.09	1,080
	June 15, 1932	2.89	1,000				
	June 26, 1932	4.31	2,110	1955	June 24, 1955	2.70	830
					July 23, 1955	3.42	1,330
1946	June 5, 1946	2.72	924				
	June 15, 1946	2.52	784	1956	June 2, 1956	3.41	1,220
1947	June 20, 1947	2.67	889	1957	June 5, 1957	3.83	1,610
	July 9, 1947	2.60	861		June 30, 1957	3.24	1,250
1948	May 20, 1948	2.56	812	1958	May 22, 1958	3.40	916
	June 3, 1948	3.22	1,280				
	June 9, 1948	3.03	1,140	1959	June 17, 1959	3.64	1,190
	July 2, 1948	2.37	721				
				1960	June 15, 1960	3.08	968
1949	June 11, 1949	2.96	1,040				
				1961	May 29, 1961	3.31	1,130
1950	June 6, 1950	2.54	764				
	June 18, 1950	3.05	1,100	1962	June 26, 1962	3.05	1,000
	July 2, 1950	3.12	1,160				
				1963	June 2, 1963	3.11	1,050
1951	May 28, 1951	3.03	1,080		June 15, 1963	3.34	1,230
	June 16, 1951	3.18	1,200				

a Approximate.

2070. Clarks Fork Yellowstone River near Clark, Wyo.
(Published as "Clark Fork" 1919-24)

Location.--Lat 44°51'10", long 109°10'15", in sec.8, T.56 N., R.102 W., at highway bridge 400 ft downstream from Pat O'Hara Creek, 4 miles south of Clark, and 9 miles downstream from mouth of Clarks Fork Canyon.

Drainage area.--912 sq mi.

Gage.--Nonrecording prior to Apr. 24, 1921; recording thereafter. Altitude of gage is 4,220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,400 cfs.

Remarks.--Diversion above station for irrigation of about 4,000 acres does not materially affect peak flows. Base for partial-duration series, 6,500 cfs.

Peak stages and discharges of Clarks Fork Yellowstone River near Clark, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1919	May 29, 1919	5.7	6,940	1922	June 6, 1922	5.92	7,420
1920	June 14, 1920	5.95	7,490	1923	June 12, 1923	5.75	7,050
1921	May 28, 1921	5.60	6,730	1924	June 15, 1924	5.40	6,310
	June 12, 1921	7.35	10,500				

2075. Clarks Fork Yellowstone River at Chance, Mont.
(Published as "Clarks Fork at Chance" prior to October 1956)

Location.--Lat 45°00'40", long 109°04'00", in E½NE¼ sec.31, T.9 S., R.28 E., on left bank 0.4 mile upstream from Sand Coulee and three-quarters of a mile north of Wyoming-Montana State line.

Drainage area.--1,154 sq mi.

Gage.--Nonrecording prior to Nov. 15, 1934; recording thereafter. At site 0.4 mile downstream at different datum prior to July 27, 1951. At datum 0.98 ft higher July 27, 1951, to Sept. 30, 1953. Altitude of gage is 3,980 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 9,600 cfs at former site and below 8,400 cfs at present site.

Remarks.--Diversions for irrigation of about 10,000 acres above gage do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 5,400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	June 15, 1922	5.75	8,000	1940	May 30, 1940	4.65	5,380
1923	June 13, 1923	5.05	6,950	1941	June 15, 1941	4.52	4,860
1924	June 16, 1924	4.50	5,350	1942	June 9, 1942	5.42	7,630
1925	June 22, 1925	5.60	8,670	1943	May 30, 1943	4.92	6,210
					June 14, 1943	5.20	7,000
1926	May 21, 1926	4.50	5,550		June 20, 1943	6.04	9,820
	June 7, 1926	4.50	5,550		July 1, 1943	6.02	9,640
1927	June 27, 1927	6.20	10,000	1944	May 18, 1944	4.80	5,800
					June 17, 1944	4.94	6,250
1928	May 26, 1928	6.5	10,900		June 27, 1944	5.30	7,160
1929	June 15, 1929	4.75	5,870	1945	June 25, 1945	5.81	8,050
	June 17, 1929	4.75	5,870		July 12, 1945	4.89	5,710
					July 15, 1945	5.45	6,970
1930	May 21, 1930	4.70	5,870				
				1946	June 6, 1946	4.95	5,830
1931	June 3, 1931	4.75	6,130		June 12, 1946	5.08	6,200
1932	June 25, 1932	5.60	8,290	1947	June 20, 1947	5.10	6,200
1933	June 13, 1933	5.45	2,730	1948	May 22, 1948	4.93	6,190
					May 26, 1948	5.21	7,030
1934	May 8, 1934	4.20	4,600		May 31, 1948	5.38	7,580
	May 9, 1934	4.20	4,600		June 4, 1948	5.78	8,890
1935	June 14, 1935	5.42	7,890	1949	June 12, 1949	5.35	7,350
	June 24, 1935	5.62	8,490				
				1950	June 7, 1950	5.05	6,080
1936	May 16, 1936	4.76	7,030		June 17, 1950	5.60	7,510
	June 2, 1936	5.87	9,700		July 3, 1950	5.56	7,400
1937	June 12, 1937	5.83	8,490	1951	May 29, 1951	5.70	7,780
	June 23, 1937	5.05	6,750		June 17, 1951	5.81	8,080
					July 5, 1951	4.80	5,480
1938	June 8, 1938	5.00	6,650		July 21, 1951	4.82	5,530
	June 13, 1938	4.72	5,870				
	June 24, 1938	6.25	10,000	1952	June 7, 1952	6.10	8,300
	June 27, 1938	5.54	7,730				
				1953	June 14, 1953	6.40	8,820
1939	May 31, 1939	4.81	5,800		June 19, 1953	6.20	8,420

Peak stages and discharges of Clarks Fork Yellowstone River at Chance, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 22, 1954	6.23	6,660	1959	June 7, 1959	6.38	6,820
	June 27, 1954	7.09	8,330		June 10, 1959	6.40	6,860
	July 16, 1954	5.78	5,850		June 15, 1959	7.83	9,680
1955	June 25, 1955	5.58	5,690	1960	June 4, 1960	6.05	6,230
1956	June 2, 1956	7.54	8,800	1961	May 30, 1961	6.23	6,500
	June 13, 1956	7.07	7,780		June 10, 1961	6.48	6,960
1957	June 5, 1957	8.01	10,100	1962	June 16, 1962	6.49	6,820
	June 13, 1957	6.78	7,580		June 28, 1962	6.32	6,520
	July 2, 1957	6.22	6,540				
				1963	June 5, 1963	6.62	7,070
1958	May 26, 1958	6.69	7,280		June 16, 1963	7.03	7,860

2080. Clarks Fork Yellowstone River at Fromberg, Mont.
(Published as Clark Fork at Fromberg, 1905-13)

Location.--Lat 45°23'30", long 108°53'40", in NE¼NE¼ sec.21, T.5 S., R.23 E., at highway bridge, half a mile east of Northern Pacific Railway station at Fromberg.

Drainage area.--1,940 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,520 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,800 cfs.

Remarks.--Diversions for irrigation of about 40,000 acres above station should not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 9, 1905	7.45	6,260	1910	June 7, 1910	7.8	6,490
1906	June 14, 1906	8.1	7,890	1911	June 15, 1911	8.9	9,710
1907	July 5, 1907	9.3	11,100	1912	June 22, 1912	8.9	9,710
1908	July 5, 1908	8.9	9,710	1913	June 18, 1913	8.8	9,410
1909	July 3, 1909	9.9	12,700				

2085. Clarks Fork Yellowstone River at Edgar, Mont.
(Published as "Clarks Fork at Edgar" prior to October 1956)

Location.--Lat 45°28'00", long 108°50'30", in SE¼SE¼ sec.23, T.4 S., R.23 E., on right bank just downstream from highway bridge, half a mile east of Edgar and 6 miles upstream from Rock Creek.

Drainage area.--2,032 sq mi.

Gage.--Nonrecording prior to Sept. 1, 1953; recording thereafter. Altitude of gage is 3,440 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 9,800 cfs.

Remarks.--Diversions for irrigation of about 41,500 acres. Base for partial-duration series, 5,300 cfs. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown prior to 1951.

Peak stages and discharges of Clarks Fork Yellowstone River at Edgar, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	June 16, 1922	7.90	9,700	1951	June 17, 1951	7.64	a7,710
1923	June 13, 1923	6.70	6,700				
1924	June 15, 1924	5.95	5,300	1952	June 7, 1952	7.50	7,950
1925	June 22, 1925	7.30	8,310	1953	June 14, 1953	7.92	8,340
1926	June 7, 1926	6.35	6,170				
1927	June 27, 1927	8.10	10,200	1954	May 22, 1954	6.96	6,810
1928	May 26, 1928	8.25	10,600		June 27, 1954	7.54	8,090
1929	June 16, 1929	6.92	5,630				
1930	May 31, 1930	6.05	4,390	1955	June 25, 1955	6.23	5,300
1931	June 3, 1931	6.80	5,600	1956	June 2, 1956	7.99	9,080
1932	June 8, 1932	9.20	10,800		June 16, 1956	7.53	8,070
1934	May 9, 1934	5.78	4,550	1957	June 5, 1957	8.33	9,830
1935	June 14, 1935	7.64	8,450		June 17, 1957	7.62	7,890
					July 1, 1957	6.83	6,770
1936	June 2, 1936	8.62	10,900				
1937	June 12, 1937	8.59	10,200	1958	May 26, 1958	7.00	6,950
1938	June 24, 1938	7.90	8,420				
1939	May 31, 1939	6.78	6,350	1959	June 10, 1959	6.76	6,450
1940	June 16, 1940	6.02	4,810		June 16, 1959	8.16	9,450
1941	Sept. 8, 1941	7.40	7,570	1960	June 5, 1960	6.49	6,220
1942	June 9, 1942	7.46	7,880				
1943	June 20, 1943	8.34	9,170	1961	May 30, 1961	6.64	6,190
1944	June 27, 1944	8.17	8,770		June 10, 1961	6.90	6,740
1945	June 25, 1945	7.95	8,430				
				1962	June 16, 1962	7.40	7,830
1946	June 12, 1946	6.73	5,840		June 28, 1962	6.86	6,700
1947	June 21, 1947	7.05	6,630				
1948	June 4, 1948	7.79	8,400	1963	June 5, 1963	7.47	7,730
1949	June 12, 1949	7.11	6,820		June 16, 1963	7.55	7,910
1950	June 17, 1950	7.46	7,350				

a Annual peak only.

2095. Rock Creek near Red Lodge, Mont.

Location.--Lat 45°07'15", long 109°17'45", in NW¼NW¼ sec.20, T.8 S., R.20 E., on left bank at downstream side of bridge, 3 miles upstream from West Fork and 5 miles southwest of Red Lodge.

Drainage area.--124 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1937; recording thereafter. Datum of gage is 6,100.52 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 660 cfs. Only annual observed peaks are shown prior to 1938.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	May 21, June 15, 24, 1932	3.80	955	1941	May 26, 1941	3.09	664
					June 15, 1941	3.26	780
					June 17, 1941	3.25	760
1934	June 16, 1934	3.10	533				
1935	June 12, 1935	4.40	1,490	1942	May 26, 1942	3.46	1,300
					June 8, 1942	3.79	1,840
1936	June 1, 1936	4.10	1,240		June 25, 1942	3.07	976
1937	June 16, 1937	4.80	1,930		July 8, 1942	3.30	1,250
1938	May 28, 1938	3.25	815	1943	May 30, 1943	3.21	890
	June 5, 1938	3.24	804		June 19, 1943	3.85	2,010
	June 8, 1938	3.33	903		June 27, 1943	3.52	1,390
	June 13, 1938	3.13	690		July 1, 1943	3.79	1,820
	June 18, 1938	3.18	740		July 10, 1943	3.54	1,370
	June 26, 1938	3.41	991		July 23, 1943	3.30	1,000
1939	May 29, 1939	3.01	661	1944	May 15, 1944	3.13	710
					May 30, 1944	3.22	818
1940	June 20, 1940	3.12	673		June 26, 1944	3.70	1,630

Peak stages and discharges of Rock Creek near Red Lodge, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	July 1, 1944	3.41	1,110	1954	June 24, 1954	3.79	1,110
					June 27, 1954	4.08	1,570
1945	June 22, 1945	3.87	1,990		July 17, 1954	3.63	923
	July 4, 1945	3.25	902				
	July 11, 1945	3.27	946	1955	June 23, 1955	3.18	578
1946	June 5, 1946	3.24	744	1956	May 28, 1956	4.00	1,430
					June 5, 1956	3.85	1,310
1947	May 9, 1947	3.10	675		June 16, 1956	4.02	1,800
	June 20, 1947	3.24	846		June 29, 1956	3.38	842
	July 8, 1947	3.20	790				
	July 16, 1947	3.12	698	1957	June 4, 1957	4.78	3,110
					June 20, 1957	3.61	958
1948	May 22, 1948	3.39	1,070		June 24, 1957	3.69	1,020
	June 3, 1948	3.32	962		June 30, 1957	4.23	1,840
	June 9, 1948	3.38	1,060				
	July 3, 1948	3.12	698	1958	May 21, 1958	3.90	1,250
1949	June 11, 1949	3.46	1,190	1959	June 6, 1959	3.51	895
					June 9, 1959	3.46	850
1950	June 6, 1950	3.24	818		June 15, 1959	3.88	1,200
	June 16, 1950	3.38	916		July 15, 1959	3.22	674
	June 22, 1950	3.40	970				
	July 1, 1950	3.47	1,100	1960	June 2, 1960	3.11	680
1951	May 24, 1951	3.20	790	1961	May 30, 1961	3.15	751
	May 28, 1951	3.29	916		June 8, 1961	3.14	730
	June 16, 1951	3.54	1,330				
	July 4, 1951	3.23	832	1962	June 14, 1962	3.57	964
	July 21, 1951	3.64	1,460		June 26, 1962	3.63	1,030
	Aug. 5, 1951	3.23	832				
				1963	May 24, 1963	3.18	680
1952	May 29, 1952	3.38	1,060		June 4, 1963	3.63	962
	June 5, 1952	4.18	2,590		June 15, 1963	3.98	1,350
					July 9, 1963	3.17	660
1953	June 13, 1953	3.52	1,300				

2100. West Fork Rock Creek below Basin Creek, near Red Lodge, Mont.

Location.--Lat 45°09'00", long 109°19'30", in NW¼NE¼ sec.12, T.8 S., R.20 E., on left bank 0.6 mile below Silver Run Creek and 4 miles southwest of Red Lodge.

Drainage area.--63.1 sq mi.

Gage.--Recording. Altitude of gage is 6,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 590 cfs.

Remarks.--No winter records. Peaks are principally from snowmelt. Base for partial-duration series, 280 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	June 8, 1938	2.65	303	1943	May 30, 1943	2.88	449
	June 26, 1938	2.82	352		June 20, 1943	3.58	700
					June 30, 1943	3.42	636
1939	May 30, 1939	-	280		July 23, 1943	2.86	422
					Aug. 2, 1943	2.62	343
1940	June 1, 1940	2.83	355				
	June 21, 1940	3.11	441	1944	May 18, 1944	2.79	418
	June 26, 1940	2.92	382		May 31, 1944	3.20	576
	July 3, 1940	3.00	408		June 3, 1944	3.48	700
					June 26, 1944	3.53	722
1941	May 26, 1941	2.57	281		July 2, 1944	3.43	678
	June 18, 1941	3.02	473				
	June 24, 1941	2.90	427	1945	June 6, 1945	2.40	283
	July 20, 1941	2.54	303		June 22, 1945	3.62	722
					July 11, 1945	3.05	537
1942	May 26, 1942	2.92	435		Aug. 4, 1945	2.42	313
	June 8, 1942	3.61	715				
	June 26, 1942	2.82	420	1946	June 5, 1946	2.76	396
	July 8, 1942	3.46	678		June 11, 1946	2.54	319

Peak stages and discharges of West Fork Rock Creek below Basin Creek, near Red Lodge, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 23, 1946	2.51	316	1951	July 5, 1951	2.65	344
	July 2, 1946	2.67	361		July 17, 1951	2.78	394
1947	June 20, 1947	2.65	378	1952	May 29, 1952	2.46	287
	June 27, 1947	2.43	303		June 6, 1952	3.88	933
	July 7, 1947	2.62	368		July 6, 1952	2.57	312
					July 12, 1952	2.53	290
1948	May 21, 1948	2.89	487				
	June 3, 1948	2.94	529	1953	June 13, 1953	3.33	598
	June 10, 1948	2.99	553		July 10, 1953	2.57	315
	June 22, 1948	2.52	340				
	July 1, 1948	2.56	336	1954	May 22, 1954	2.57	315
					June 27, 1954	3.27	581
1949	June 9, 1949	2.66	392		July 12, 1954	2.74	371
					July 16, 1954	2.92	446
1950	June 11, 1950	2.47	280				
	June 17, 1950	2.91	446	1955	June 23, 1955	2.76	386
	June 22, 1950	2.73	375				
	July 2, 1950	2.93	454	1956	May 28, 1956	3.56	727
					June 16, 1956	2.95	472
1951	June 17, 1951	2.63	337		June 29, 1956	2.44	312

2105. West Fork Rock Creek near Red Lodge, Mont.

Location.--Lat 45°09', long 109°19', in SE¼ sec.6, T.8 S., R.20 E., at U.S. ranger station, 2 miles upstream from mouth and 3 miles southwest of Red Lodge.

Drainage area.--66.9 sq mi.

Gage.--Nonrecording. Altitude of gage is 6,060 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs.

Remarks.--Diversions above station for irrigation of about 3,000 acres below station materially affect peak flows. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 24, 1932	3.96	861	1939	May 30, 1939	3.30	390
				1940	June 2,17,1940	2.98	288
1934	June 16, 1934	2.34	150				
1935	June 13, 1935	3.70	582	1941	June 17, 1941	3.60	505
				1942	June 8, 1942	4.50	864
1936	June 1, 1936	4.00	686	1943	June 19, 1943	4.22	734
1937	June 22, 1937	6.10	1,850	1944	June 5, 1944	3.78	615
1938	June 26, 1938	3.90	640				

2110. Red Lodge Creek above Cooney Reservoir, near Boyd, Mont.

Location.--Lat 45°26'16", long 109°15'10", in SE¼SE¼ sec.33, T.4 S., R.20 E., on right bank just upstream from Cooney Reservoir, 9 miles west of Boyd.

Drainage area.--143 sq mi.

Gage.--Recording. Datum of gage is 4,248.0 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs.

Remarks.--No winter records prior to 1963. Diversions for irrigation of about 5,100 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 140 cfs.

Peak stages and discharges of Red Lodge Creek above Cooney Reservoir, near Boyd, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)
1937	June 5, 1937	2.47	152
	June 12, 1937	5.55	900
1938	May 20, 1938	3.32	318
	June 23, 1938	2.92	246
	June 25, 1938	4.27	500
	June 28, 1938	3.90	430
	July 20, 1938	3.78	410
1939	June 17, 1939	2.19	135
1940	June 23, 1940	2.12	129
1941	Apr. 17, 1941	2.38	161
	Apr. 23, 1941	2.38	164
	May 31, 1941	2.81	228
	June 5, 1941	5.06	798
	June 10, 1941	4.20	558
	Aug. 12, 1941	2.28	168
	Sept. 8, 1941	3.65	424
	Sept.22, 1941	2.15	148
	Sept.27, 1941	2.50	201
1942	Oct. 5, 1941	2.34	183
	Apr. 9, 1942	2.29	182
	Apr. 14, 1942	2.54	216
	Apr. 25, 1942	2.47	201
	May 13, 1942	-	a800
	May 14, 1942	-	a800
	May 17, 1942	4.89	743
	May 29, 1942	6.00	1,050
1943	Apr. 11, 1943	5.18	820
	June 3, 1943	3.90	484
	June 14, 1943	5.30	882
1944	May 17, 1944	5.10	798
	June 4, 1944	4.29	583
	June 7, 1944	3.84	472
	June 11, 1944	4.89	743
	June 17, 1944	6.03	1,050
	June 22, 1944	4.56	648
	June 27, 1944	-	(b)
1945	Apr. 19, 1945	2.30	157
	May 6, 1945	2.40	180
	May 20, 1945	3.22	334
	May 27, 1945	3.30	356
	June 6, 1945	4.68	776
	June 11, 1945	4.04	596
	June 27, 1945	3.62	478
	July 12, 1945	2.78	290
1946	May 24, 1946	2.38	210
	May 28, 1946	3.19	346
	June 12, 1946	2.95	290
	June 18, 1946	2.57	216
	June 24, 1946	2.50	202
1947	Apr. 15, 1947	3.65	466
	Apr. 21, 1947	2.69	248
	May 12, 1947	3.35	404
	June 21, 1947	2.50	222
1948	Apr. 16, 1948	2.41	195
	May 10, 1948	2.15	155
	June 3, 1948	6.00	1,150
	June 16, 1948	2.94	320
	June 22, 1948	4.50	720
	July 13, 1948	4.07	602
1949	May 17, 1949	2.44	238
	June 3, 1949	1.89	144
1950	Apr. 2, 1950	2.83	297
	Apr. 9, 1950	2.19	172
	May 6, 1950	2.07	154
	May 10, 1950	2.79	288
	May 24, 1950	2.28	188
	May 28, 1950	2.28	188
	June 2, 1950	2.46	224
	June 18, 1950	2.58	256
1951	Apr. 14, 1951	2.17	165
	Apr. 30, 1951	2.85	301
	May 13, 1951	2.15	166
	June 4, 1951	2.22	177
	July 11, 1951	2.71	271
1952	Apr. 8, 1952	2.93	354
	Apr. 16, 1952	2.94	343
	May 16, 1952	2.77	305
	May 22, 1952	5.24	930
	June 25, 1952	2.08	155
	July 13, 1952	2.04	149
1953	Apr. 23, 1953	2.32	167
	Apr. 29, 1953	2.26	146
	May 29, 1953	2.48	189
	June 6, 1953	3.06	325
	June 13, 1953	2.54	236
1954	Apr. 5, 1954	2.48	224
1955	Apr. 15, 1955	2.67	254
	Apr. 19, 1955	2.32	182
	June 6, 1955	2.21	161
1956	May 29, 1956	3.10	353
1957	Apr. 23, 1957	2.86	294
	May 13, 1957	4.92	839
	May 15, 1957	4.11	615
	May 21, 1957	5.13	900
	May 31, 1957	3.87	550
	June 17, 1957	6.56	c1,360
	June 21, 1957	4.42	742
1958	May 8, 1958	3.27	417
	June 20, 1958	2.93	315
	July 4, 1958	2.49	214
1959	Apr. 23, 1959	2.69	272
	Apr. 27, 1959	2.63	257
	May 4, 1959	2.91	318
	June 22, 1959	2.24	161
	June 28, 1959	2.47	208
1960	May 3, 1960	1.63	78
1961	Sept.19, 1961	2.45	204
1962	Apr. 4, 1962	2.28	201
	Apr. 20, 1962	2.04	148
	May 15, 1962	2.28	195
	May 26, 1962	2.95	358
	June 4, 1962	2.79	318
	June 15, 1962	6.10	1,220
1963	Apr. 28, 1963	3.66	550
	May 12, 1963	3.64	544
	June 3, 1963	3.51	511
	June 10, 1963	5.39	1,020

a Estimated.
b Peak exceeded base; discharge not determined.
c Does not include some possible bypass flow.

2115. Willow Creek near Boyd, Mont.

Location.--Lat 45°25'20", long 109°13'50", in SW¼SW¼ sec.2, T.5 S., R.20 E., on left bank half a mile upstream from Cooney Reservoir and 8 miles west of Boyd.

Drainage area.--53.3 sq mi.

Gage.--Recording. At site half a mile downstream at different datum prior to Apr. 23, 1948. Altitude of gage is 4,260 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs.

Remarks.--No winter records prior to 1963. Diversions for irrigation of about 1,800 acres above stations do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 80 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1937 a/	June 8, 1937	3.17	134	1945	July 21, 1945	2.65	86
	June 10, 1937	3.05	122		Aug. 21, 1945	2.65	86
	June 12, 1937	6.60	450	1946	June 12, 1946	3.25	134
1938	May 20, 1938	4.03	202		June 19, 1946	2.64	93
	June 24, 1938	4.56	258		June 25, 1946	2.91	111
	June 29, 1938	3.50	166		July 4, 1946	3.16	131
	July 6, 1938	2.52	89	1947	Apr. 29, 1947	5.01	262
	July 20, 1938	3.44	162		May 12, 1947	4.10	188
1939	June 17, 1939	2.38	82	1948	Apr. 16, 1948	3.82	162
1940	June 23, 1940	3.45	170		June 3, 1948	3.08	171
	July 4, 1940	2.64	96		June 22, 1948	2.82	132
1941	June 5, 1941	4.98	294		July 14, 1948	4.13	376
	June 10, 1941	4.17	194		Aug. 10, 1948	2.62	97
	June 16, 1941	3.14	92	1949	May 17, 1949	2.42	67
	July 6, 1941	2.43	88	1950	Apr. 2, 1950	2.95	152
	July 27, 1941	2.88	118		Apr. 9, 1950	2.73	119
	Aug. 31, 1941	2.88	118		Apr. 13, 1950	2.54	93
	Sept. 8, 1941	4.69	266		May 10, 1950	2.70	115
	Sept.21, 1941	2.88	118		July 30, 1950	2.47	83
	Sept.27, 1941	3.00	126		Sept.11, 1950	2.57	97
1942	Apr. 14, 1942	3.17	138	1951	Apr. 30, 1951	2.71	116
	May 6, 1942	2.91	118		July 11, 1951	2.86	138
	May 13, 1942	6.15	410	1952	Apr. 8, 1952	2.81	142
	May 29, 1942	b7.24	350		Apr. 16, 1952	4.25	338
	June 7, 1942	5.34	258		May 22, 1952	4.14	376
	June 24, 1942	3.08	127		June 28, 1952	2.92	122
	June 29, 1942	2.97	100		July 15, 1952	2.78	99
1943	Apr. 11, 1943	5.61	287		Aug. 11, 1952	2.85	110
	May 24, 1943	3.01	94	1953	June 6, 1953	2.71	95
	June 4, 1943	4.45	192		Aug. 3, 1953	2.75	96
	June 14, 1943	3.28	115	1954	July 19, 1954	2.55	82
	Aug. 5, 1943	2.56	82	1955	Apr. 15, 1955	3.14	180
	Sept. 3, 1943	2.74	86		Apr. 19, 1955	2.70	109
1944	May 18, 1944	3.84	140	1956	July 7, 1956	2.52	80
	June 4, 1944	5.57	287	1957	Apr. 23, 1957	2.93	152
	June 8, 1944	3.80	136		May 13, 1957	4.49	451
	June 11, 1944	3.94	146		May 21, 1957	4.56	417
	June 17, 1944	6.98	444		May 31, 1957	3.08	127
	June 22, 1944	4.90	221		June 17, 1957	6.66	848
	June 27, 1944	7.17	469	1958	Mar. 27, 1958	2.98	86
	July 11, 1944	4.11	157		May 8, 1958	3.16	124
	July 23, 1944	2.76	86		June 20, 1958	3.18	128
	July 26, 1944	3.43	115		July 4, 1958	2.93	96
	Sept. 2, 1944	2.89	91		July 27, 1958	2.92	95
1945	May 2, 1945	3.27	120	1959	July 4, 1959	2.79	88
	May 20, 1945	4.07	180				
	May 27, 1945	4.16	188				
	June 2, 1945	3.90	168				
	June 6, 1945	6.5	410				
	June 9, 1945	4.64	226				
	June 13, 1945	3.92	168				
	June 28, 1945	3.37	128				

a Period June 1 to Sept. 30.
b Backwater from Cooney Reservoir.

Peak stages and discharges of Willow Creek near Boyd, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	Aug. 17, 1960	2.73	69	1962	July 14, 1962	2.90	92
					Aug. 1, 1962	2.85	86
1961	Sept.19, 1961	-	c95				
				1963	Apr. 28, 1963	3.47	178
1962	Apr. 16, 1962	3.09	112		May 12, 1963	2.96	105
	May 27, 1962	3.05	106		June 3, 1963	3.38	170
	June 5, 1962	3.01	101		June 11, 1963	3.51	181
	June 16, 1962	6.33	768				

c Maximum daily; estimated.

2135. Rock Creek at Joliet, Mont.

Location.--Lat 45°28'30", long 108°59'50", in SE¼NW¼ sec.22, T.4 S., R.22 E., at bridge on U.S. Highway 312 at Joliet, 4 miles downstream from Red Lodge Creek and 10 miles upstream from mouth.

Drainage area.--539 sq mi.

Gage.--Recording. Altitude of gage is 3,780 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs.

Remarks.--Some regulation by Cooney Reservoir on Red Lodge Creek. Diversions for irrigation of about 46,600 acres. Regulation and diversions might materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Feb. 1, 1946	a2.65	-	1950	June 7, 1950	3.51	1,080
	June 12, 1946	2.07	912		June 17, 1950	3.79	1,330
					June 23, 1950	3.51	1,080
1947	Mar. 17, 1947	a2.97	-		July 2, 1950	3.48	1,050
	Mar. 20, 1947	2.72	1,140				
	May 11, 1947	2.48	1,040	1951	Feb. 2, 1951	a4.85	-
	June 21, 1947	2.25	852		June 17, 1951	3.52	1,060
					July 11, 1951	3.61	1,130
1948	Feb. 18, 1948	a4.48	-		July 21, 1951	3.88	1,360
	May 22, 1948	3.70	1,250				
	June 10, 1948	4.03	1,540	1952	Jan. 3, 1952	a4.89	-
	June 24, 1948	3.83	1,360		June 6, 1952	4.60	1,930
	July 14, 1948	4.01	1,420				
				1953	June 14, 1953	3.88	1,580
1949	Dec. 30, 1948	a5.25	-				
	June 8, 1949	3.34	952				

a Backwater from ice.

2140. Rock Creek at Rockvale, Mont.

Location.--Lat 45°31', long 108°52', in NW¼ sec.2, T.4 S., R.23 E., 200 ft downstream from highway bridge, half a mile south of Rockvale, and 2 miles upstream from mouth.

Drainage area.--569 sq mi.

Gage.--Nonrecording. At bridge 200 ft upstream at different datum prior to Apr. 19, 1934. Altitude of gage is 3,470 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 1,400 cfs at site used prior to Apr. 19, 1934, and below 2,200 cfs at described site.

Remarks.--Peak flows are materially affected by diversions for irrigation. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Rock Creek at Rockvale, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 9, 1921	4.45	2,200	1936	Mar. 4, 1936	a4.24	-
1922	June 6,10, 1922	3.08	856		June 9, 1936	4.04	984
				1937	June 18,22,1937	4.52	2,240
1932	June 8, 1932	8.10	2,310	1938	June 29, 1938	4.30	1,370
				1939	June 18, 1939	3.52	885
1934	June 7, 1934	3.24	834	1940	Jan. 25, 1940	a3.72	-
1935	July 22, 1935	3.50	1,280		June 15, 1940	3.01	530

a Backwater from ice.

2145. Yellowstone River at Billings, Mont.
(Published as "near Billings" 1904-5)

Location.--Lat 45°46'25", long 108°28'30", in SW¼SE¼ sec.2, T.1 S., R.26 E., near left bank at city of Billings water department intake, 1 mile east of Billings and 12 miles upstream from Pryor Creek.

Drainage area.--11,783 sq mi. At site used prior to Jan. 10, 1963, 11,795 sq mi.

Gage.--Nonrecording at highway bridge 1¾ miles upstream at different datums prior to July 1, 1932; recording thereafter. At old diversion dam 1¼ miles upstream at different datum July 1, 1932, to Oct. 12, 1937. At highway bridge 1¾ miles downstream at same datum used 1928-32 for Oct. 13, 1937, to Jan. 9, 1963. Datum of gage is 3,096.09 ft above mean sea level (city of Billings Water Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 350,000 acres above station. Base for partial-duration series, 25,700 cfs. Peaks are principally from snowmelt. Only annual observed peaks are shown prior to 1934.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	June 20, 1904	10.6	32,600	1945	June 28, 1945	10.23	44,600
1905	June 9, 1905	10.00	33,100				
				1946	June 7, 1946	8.28	30,100
1929	June 17, 1929	9.10	31,500		June 12, 1946	8.42	30,800
1930	May 31, 1930	7.80	26,100				
				1947	May 11, 1947	8.23	29,600
1931	June 4, 1931	8.10	27,100		June 10, 1947	8.14	29,300
1932	June 26, 1932	10.10	37,400		June 21, 1947	10.05	44,600
1933	June 14, 1933	8.50	38,300				
				1948	May 23, 1948	9.69	39,700
1934	May 10, 1934	5.00	15,200		June 6, 1948	11.58	54,700
1935	June 15, 1935	8.70	38,300	1949	May 18, 1949	8.38	30,200
					May 30, 1949	8.10	28,200
1936	Apr. 17, 1936	7.00	26,800		June 12, 1949	8.97	34,300
	June 2, 1936	8.51	35,200				
				1950	June 8, 1950	9.02	34,600
1937	June 12, 1937	8.12	32,800		June 18, 1950	10.18	43,400
	June 23, 1937	8.34	34,000		July 2, 1950	9.37	37,100
1938	May 30, 1938	8.29	34,000	1951	May 25, 1951	8.32	28,300
	June 7, 1938	8.51	35,600		May 29, 1951	8.96	34,000
	June 24, 1938	10.02	46,800		June 18, 1951	9.64	39,100
1939	June 1, 1939	7.67	29,100	1952	May 5, 1952	7.71	25,700
					May 22, 1952	8.62	31,800
1940	June 15, 1940	7.51	27,300		May 30, 1952	8.60	31,700
					June 7, 1952	10.82	48,600
1941	June 16, 1941	6.77	22,900				
				1953	June 15, 1953	10.56	46,500
1942	May 28, 1942	8.22	32,600				
	June 9, 1942	10.14	46,600	1954	May 23, 1954	8.78	33,400
	July 9, 1942	7.17	25,800		June 28, 1954	9.90	41,300
1943	June 1, 1943	8.74	37,500	1955	June 17, 1955	8.57	32,000
	June 21, 1943	12.1	61,200		June 25, 1955	8.44	31,100
1944	June 4, 1944	8.49	30,800	1956	May 29, 1956	11.65	56,200
	June 17, 1944	10.08	43,800		June 3, 1956	11.07	50,800
	June 27, 1944	12.5	64,800		June 16, 1956	9.45	38,000

Peak stages and discharges of Yellowstone River at Billings, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	June 7, 1957	11.65	56,200	1960	June 16, 1960	7.60	28,000
	June 17, 1957	10.77	48,200				
	June 22, 1957	9.57	38,900	1961	June 10, 1961	7.68	27,000
	July 2, 1957	9.24	36,600				
				1962	June 5, 1962	7.77	27,500
1958	May 26, 1958	8.77	32,800		June 16, 1962	9.80	41,400
1959	June 8, 1959	9.52	38,800	1963	June 5, 1963	8.48	37,100
	June 16, 1959	10.83	52,300		June 16, 1963	9.49	46,100

2162. Wets Creek near Billings, Mont.

Location.--Lat 45°38', long 108°24', in SW¼ sec.28, T.2 S., R.27 E., at bridge on county road, 19 miles southeast of Billings.

Drainage area.--8.14 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,520 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Aug. 25, 1955	-	a5	1960	May 2, 1960	2.50	-
1956	Feb. 22, 1956	3.23	65	1961	May 21, 1961	.40	10
1957	June 8, 1957	1.66	62	1962	Mar. 9, 1962	1.92	76
1958	July 2, 1958	.50	14	1963	June 8, 1963	2.7	-
1959	June 4, 1959	1.14	39				

a Approximate.

2163. West Buckeye Creek near Billings, Mont.

Location.--Lat 45°39', long 108°24', in NE¼ sec.21, T.2 S., R.27 E., at bridge on county road, 17 miles southeast of Billings.

Drainage area.--1.54 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 90 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Aug. 25, 1955	1.54	17	1960	May 2, 1960	1.16	60
1956	May 29, 1956	2.24	92	1961	May 24, 1961	.80	22
1957	May 12, 1957	1.81	185	1962	Mar. 9, 1962	1.03	44
1958	July 2, 1958	1.31	83	1963	June 20, 1963	1.37	-
1959	June 4, 1959	.68	15				

2165. Pryor Creek near Billings, Mont.

Location.--Lat 45°43', long 108°19', in sec.30, T.1 S., R.28 E., at bridge on Interstate Highway 90 and U.S. Highway 87, 11 miles southeast of Billings and 14 miles upstream from mouth.

Drainage area.--435 sq mi.

Gage.--Nonrecording prior to May 26, 1955; crest-stage gage thereafter. At site 2 miles upstream at different datum prior to March 1938. Altitude of gage is 3,310 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs.

Remarks.--Diversions for irrigation of about 1,500 acres above station do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	July 3, 1912	11.2	930	1945	June 11, 1945	4.80	625
1913	Mar. 30, 1913	12.54	1,130				
1914	June 26, 1914	9.3	595	1946	June 12, 1946	3.98	489
1915	June 12, 1915	9.7	645	1947	Mar. 19, 1947	b11.25	a890
				1948	Apr. 20, 1948	3.95	464
1916	May 22, 1916	7.01	333	1949	June 3, 1949	2.22	133
1917	June 5, 1917	10.44	750	1950	Feb. 25, 1950	-	a230
1918	Mar. 27, 1918	8.35	480				
1919	Aug. 2, 1919	7.30	344	1951	Mar. 22, 1951	b9.82	761
1920	May 12, 1920	10.37	740	1952	May 22, 1952	4.25	424
				1953	June 7, 1953	2.43	145
1921	June 9, 1921	9.60	635				
1922	May 11, 1922	7.65	400	1955	June 16, 1955	3.44	286
1923	Sept.30, 1923	9.25	590				
1924	Apr. 4, 1924	10.04	705	1956	Feb. 22, 1956	b9.12	c800
				1957	June 8, 1957	6.14	825
1938	June 24, 1938	7.9	1,230	1958	Feb. 20, 1958	3.26	262
1939	June 18, 1939	3.35	332	1959	Mar. 2, 1959	4.65	508
1940	Apr. 16, 1940	2.83	208	1960	May 2, 1960	9.9	1,700
1941	Sept. 8, 1941	4.68	607	1961	Sept.20, 1961	3.44	288
1942	May 14, 1942	9.2	1,500	1962	Mar. 9, 1962	6.20	840
1943	Mar. 26, 1943	-	a1,000	1963	Apr. 28, 1963	8.40	1,330
1944	June 19, 1944	7.66	1,150				

a Maximum daily.
b Backwater from ice or beaver dam.
c About.

2170. Pryor Creek at Huntley, Mont.

Location.--Lat 45°53', long 108°19', in SW¼ sec.25, T.2 N., R.27 E., on highway bridge, half a mile southwest of railroad station at Huntley and half a mile upstream from mouth.

Drainage area.--606 sq mi.

Gage.--Nonrecording. At old channel at site 200 ft south of railroad station at different datum prior to June 16, 1906. Datum of gage is 3,011.5 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs at site used prior to June 16, 1906, and below 710 cfs at described site.

Remarks.--Diversions for irrigation of about 2,400 acres above station do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 5, 1905	16.0	2,300	1911	June 9, 1911	a3.6	330
				1912	July 3, 1912	7.8	1,750
1906	Aug. 23, 1906	5.0	670	1913	Mar. 27, 1913	7.8	1,750
				1914	June 27, 1914	4.8	840
1908	May 29, 1908	5.4	805	1915	June 13,14,1915	4.2	660
1910	May 18, 1910	3.5	318				

a Gage height at time of maximum discharge; maximum stage occurred during ice period in March.

2175. Yellowstone River at Huntley, Mont.

Location.--Lat 46°54', long 108°19', in SW¼ sec.24, T.2 N., R.27 E., on highway bridge, 1 mile downstream from Pryor Creek and Huntley.

Drainage area.--12,840 sq mi.

Gage.--Nonrecording. Datum of gage is 3,001 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversion for irrigation of about 375,000 acres above station. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown. Maximum observed discharge does not differ materially from momentary maximum.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 17, 1908	9.1	41,200	1913	June 13, 1913	10.6	45,600
1909	June 5, 1909	10.0	42,200	1914	June 5, 1914	10.4	37,800
1910	June 2, 1910	8.4	31,600	1915	June 26, 1915	8.5	26,000
1911	June 14, 1911	11.1	48,500	1916	June 20, 1916	12.8	60,000
1912	June 10, 1912	9.5	39,000				

2185. Wind River near Dubois, Wyo.

Location.--Lat 43°34'40", long 109°45'30", in NW¼NE¼ sec.25, T.42 N., R.108 W., on left bank 2.5 miles upstream from Warm Springs Creek and 7 miles northwest of Dubois.

Drainage area.--232 sq mi.

Gage.--Recording. Datum of gage is 7,188.71 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Remarks.--Diversion for irrigation of about 900 acres above station does not materially affect peak flows. Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 6, 1946	4.04	868	1955	Jan. 29, 1955	a4.97	-
					June 16, 1955	4.26	834
1947	June 20, 1947	4.23	958				
				1956	June 2, 1956	5.66	1,910
1948	June 3, 1948	4.83	1,270				
				1957	June 7, 1957	5.21	1,610
1949	June 13, 1949	4.18	868				
				1958	May 26, 1958	4.83	1,130
1950	June 7, 1950	4.57	1,100				
	June 17, 1950	4.71	1,190	1959	June 16, 1959	4.84	1,210
1951	May 29, 1951	5.09	1,450	1960	Mar. 15, 1960	a4.47	-
	June 17, 1951	5.43	1,720		May 13, 1960	4.27	847
1952	Dec. 7, 1951	a5.07	-	1961	May 28, 1961	4.39	930
	June 7, 1952	4.62	1,080				
				1962	June 15, 1962	4.48	986
1953	June 14, 1953	5.17	1,520				
				1963	June 15, 1963	5.05	1,390
1954	May 22, 1954	5.05	1,420				
	June 27, 1954	4.67	1,120				

a Backwater from ice.

2205. East Fork Wind River near Dubois, Wyo.
(Published as "North Fork Wind River" prior to October 1953)

Location.--Lat 43°27'20", long 109°27'55", in SW¼NW¼ sec.24, T.6 N., R.6 W., on left bank 1.1 miles upstream from mouth and 10 miles southeast of Dubois.

Drainage area.--427 sq mi.

Gage.--Recording. Altitude of gage is 6,450 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,400 cfs.

Remarks.--Diversion for irrigation of about 2,000 acres above station does not materially affect peak flows. Base for partial-duration series, 2,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	May 23, 1951	6.52	2,640	1954	June 24, 1954	6.42	2,830
	May 29, 1951	6.50	2,600		June 26, 1954	7.72	5,700
	June 17, 1951	7.51	5,370				
	July 5, 1951	6.55	2,700	1955	June 23, 1955	6.16	1,760
1952	June 7, 1952	7.35	4,890	1956	June 1, 1956	7.92	5,350
1953	June 13, 1953	7.27	4,640	1957	June 8, 1957	8.91	4,830
					June 30, 1957	9.27	4,720
1954	May 21, 1954	6.50	2,850		July 19, 1957	9.22	4,580

2214. Dinwoody Creek above lakes, near Burris, Wyo.

Location.--Lat 43°20'45", long 109°24'35", in SE¼SE¼ sec.1, T.4 N., R.6 W., on left bank half a mile upstream from Upper Dinwoody Lake, 7.0 miles west of Burris, and 17 miles southeast of Dubois.

Drainage area.--88.2 sq mi.

Gage.--Recording. Altitude of gage is 6,500 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 670 cfs.

Remarks.--Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	May 24, 1958	4.08	737	1962	June 27, 1962	4.17	868
1959	June 25, 1959	4.17	876	1963	June 16, 1963	4.57	1,270
1960	June 17, 1960	4.05	708		July 7, 1963	4.08	784
1961	June 20, 1961	4.05	740				

2215. Dinwoody Creek near Burris, Wyo.
(Published as "near Crowheart" 1909 and as "near Lenore" 1918-24)

Location.--Lat 43°25'55", long 109°21'01", in NE¼NE¼ sec.9, T.5 N., R.5 W., on left bank 1,000 ft upstream from mouth and 6 miles northwest of Burris.

Drainage area.--100 sq mi.

Gage.--Nonrecording May 17 to Oct. 30, 1909; recording thereafter. Datum of gage is 6,196.63 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Diversion above station for irrigation of about 1,700 acres. Natural regulation by Dinwoody Lake (surface area, 640 acres) and other small lakes. Regulation and diversion do not materially affect peak flows. Base for partial-duration series, 700 cfs.

Peak stages and discharges of Dinwoody Creek near Burris, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	July 7, 1909	4.1	a1,030	1928	May 28, 1928	3.03	816
					July 19, 1928	3.35	1,000
1918 b/	June 18, 1918	3.73	1,340		July 28, 1928	2.94	767
	July 23, 1918	-	c782				
	Aug. 4, 1918	-	c768	1929	July 20, 1929	2.98	767
1919	July 26, 1919	2.85	742	1930 b/	July 14, 1930	3.24	905
1920	June 16, 1920	2.75	645	1950 b/	July 8, 1950	2.94	998
1921	June 12, 1921	3.48	1,460	1951	May 29, 1951	2.72	742
	June 30, 1921	2.97	930		June 17, 1951	2.70	720
	July 21, 1921	2.75	710		July 22, 1951	3.31	1,250
					July 30, 1951	2.86	902
1922	June 23, 1922	2.82	820				
	Aug. 14, 1922	2.78	782	1952	June 7, 1952	3.01	979
	Aug. 27, 1922	3.03	1,030				
				1953	June 14, 1953	3.17	1,120
1923	June 13, 1923	3.00	960				
	July 13, 1923	3.09	1,050	1954	June 28, 1954	3.42	1,110
	July 25, 1923	3.75	1,710		July 17, 1954	2.83	720
1924	June 16, 1924	3.16	934	1955	July 22, 1955	3.12	908
	July 8, 1924	3.37	1,070		July 26, 1955	2.82	713
1925	July 6, 1925	3.25	992	1956	June 6, 1956	2.98	817
	July 18, 1925	3.23	980		June 13, 1956	2.82	732
1926	July 5, 1926	3.16	888	1957	June 7, 1957	3.24	988
	July 10, 1926	3.38	1,020		July 1, 1957	3.10	895
	Aug. 4, 1926	3.14	877		July 18, 1957	3.22	974
1927	June 29, 1927	3.47	1,070	1958	May 24, 1958	2.80	682

a Annual peak only.
b Partial year.
c Maximum daily.

2220. Wind River near Burris, Wyo.

Location.--Lat 43°25'50", long 109°20'45", in NW¼ sec.10, T.5 N., R.5 W., on left bank 700 ft downstream from Dinwoody Creek and 5 miles northwest of Burris.

Drainage area.--1,236 sq mi.

Gage.--Recording. Datum of gage is 6,177.22 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 7,300 cfs.

Remarks.--Diversion above station for irrigation of about 6,000 acres above and 1,000 acres below station. Diversion does not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 20, 1947	6.42	4,800	1951	May 24, 1951	6.70	5,240
					May 29, 1951	7.42	7,220
1948	June 8, 1948	6.68	5,510		June 17, 1951	7.72	8,610
1949	June 13, 1949	6.47	5,040	1952	June 7, 1952	7.11	6,310
1950	June 7, 1950	6.65	5,130	1953	June 14, 1953	7.68	9,900
	June 17, 1950	6.83	5,560				
	July 4, 1950	6.67	5,170				

2225. Dry Creek near Burris, Wyo.
(Published as "at Crowheart" 1909 and as "near Lenore" 1921-24)

Location.--Lat 43°20'10", long 109°18'20", in SW¼ sec.12, T.4 N., R.5 W., half a mile upstream from Dry Creek ditch and 2½ miles southwest of Burris.

Drainage area.--53.2 sq mi.

Gage.--Recording. At datum 1.07 ft higher prior to Nov. 5, 1934. Altitude of gage is 6,480 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 580 cfs.

Remarks.--Diversions above station for irrigation of about 100 acres do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 12, 1921	3.9	1,400	1931	June 8, 1931	2.31	400
1922	June 23, 1922	2.17	317	1932	June 26, 1932	2.34	448
1923	June 13, 1923	2.6	505	1933	June 10, 1933	3.00	675
1924	June 16, 1924	2.65	582	1934	May 8, 1934	1.45	135
1925	June 30, 1925	2.32	410	1935	June 14, 1935	5.01	776
1926	July 9, 1926	2.71	691	1936	Aug. 3, 1936	4.13	340
1927	June 28, 1927	2.49	465	1937	June 21, 1937	4.05	311
				1938	June 23, 1938	4.03	278
1929	May 25, 1929	2.05	272	1939	May 30, 1939	3.82	219
1930	Aug. 14, 1930	3.16	1,000	1940	June 19, 1940	3.42	124

2235. Willow Creek near Crowheart, Wyo.
(Published as "at J. K. Ranch post office" 1909 and as "near Lenore" 1921-23)

Location.--Lat 43°17'05", long 109°11'00", in NW¼ sec.36, T.4 N., R.4 W., 400 ft upstream from Willow Creek Canal diversion dam and 2 miles south of Crowheart.

Drainage area.--55.4 sq mi.

Gage.--Nonrecording prior to Aug. 24, 1923; recording thereafter. At site 1.8 miles downstream at different datum prior to Oct. 31, 1909, and at site 800 ft upstream at different datum May 16, 1921, to Aug. 24, 1923. Altitude of gage is 6,070 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs at described site.

Remarks.--Diversion above station for irrigation of about 100 acres does not appreciably affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	June 5, 1909	4.5	408	1931	June 1, 1931	2.83	270
				1932	May 21, 1932	2.56	209
1921	June 7, 1921	3.65	532	1933	June 12, 1933	3.00	284
1922	June 12, 1922	1.98	175	1934	July 24, 1934	2.05	131
1923	July 26, 1923	4.50	750	1935	June 15, 1935	2.86	a259
1925	June 30, 1925	2.13	108	1936	June 1, 1936	1.89	109
				1937	June 16, 1937	2.47	194
1926	July 9, 1926	2.2	126	1938	June 8, 1938	1.93	115
1927	July 28, 1927	4.13	518	1939	May 31, 1939	a5.40	a1,100
1928	May 28, 1928	2.64	214	1940	Sept.28, 1940	1.40	49
1929	June 17, 1929	2.15	151				
1930	May 30, 1930	2.37	183				

a From Bureau of Indian Affairs.

2240. Bull Lake Creek above Bull Lake, Wyo.
(Published as "above Bull Lake Reservoir" prior to October 1950)

Location.--Lat 43°10'37", long 109°12'08", in NE¼SW¼ sec.2, T.2 N., R.4 W., on left bank 1¼ miles upstream from high-water line of Bull Lake and 9 miles south of Crowheart.

Drainage area.--187 sq mi, of which 179 sq mi contributes directly to surface runoff.

Gage.--Recording. Altitude of gage is 5,874 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs.

Remarks.--No diversion above station. Base for partial-duration series, 1,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941 a/	June 18, 1941	5.28	1,760	1947	July 8, 1947	5.66	1,960
1942	May 27, 1942	-	1,540	1948	May 29, 1948	5.26	1,690
	June 9, 1942	5.40	1,840		June 3, 1948	5.31	1,730
	July 8, 1942	-	1,690		June 9, 1948	5.33	1,740
1943	May 31, 1943	5.22	1,600	1949	June 19, 1949	5.96	2,290
	June 27, 1943	5.95	2,180		June 27, 1949	5.45	1,830
1944	May 17, 1944	5.14	1,540	1950	June 23, 1950	5.58	1,940
	June 1, 1944	5.87	2,120		July 3, 1950	5.84	2,180
	June 27, 1944	6.18	2,360		July 11, 1950	5.77	2,110
	July 2, 1944	5.60	1,900	1951	May 28, 1951	5.84	2,180
1945	June 24, 1945	6.02	2,380		June 17, 1951	5.58	1,940
	July 18, 1945	5.10	1,620		July 21, 1951	5.45	1,830
1946	June 18, 1946	4.80	1,270		Aug. 5, 1951	5.08	1,520
1947	June 9, 1947	5.13	1,530	1952	June 7, 1952	6.69	3,030
	June 21, 1947	6.61	2,760	1953	June 14, 1953	6.52	2,860
	June 27, 1947	5.18	1,570				

a Partial year; listed peak is probably maximum for the year.

2250. Bull Lake Creek near Lenore, Wyo.

Location.--Lat 43°14'33", long 109°01'20", in NE¼NW¼ sec.17, T.3 N., R.2 W., on left bank 700 ft upstream from mouth, 2¾ miles downstream from Bull Lake, and 8½ miles southeast of Lenore.

Drainage area.--213 sq mi, of which 201 sq mi contributes directly to surface runoff.

Gage.--Recording. At datum 0.86 ft higher prior to Oct. 1, 1922. At datum 2.00 ft lower Oct. 1, 1922, to Oct. 3, 1934. Altitude of gage is 5,654 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended above on basis of slope-area measurement at 6,200 cfs.

Remarks.--Diversions above station for irrigation of about 600 acres downstream. Flow completely regulated by Bull Lake since 1938. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1918	June 16, 1918	4.2	3,990	1926	July 10, 1926	6.5	2,280
1919	May 30, 1919	2.98	1,920	1927	June 29, 1927	7.23	3,340
1920	June 16, 1920	3.3	2,190	1928	May 28, 1928	6.38	2,110
				1929	June 17, 1929	5.89	1,430
1921	June 12, 1921	4.3	2,950	1930	Aug. 15, 1930	6.5	2,450
1922	June 23, 1922	3.86	2,520				
1923	June 13, 1923	6.53	2,290	1931	June 8, 1931	5.80	1,260
1924	June 16, 1924	6.52	2,260	1932	June 26, 1932	6.75	2,880
1925	July 1, 1925	6.7	2,560	1933	June 14, 1933	6.98	3,270

Peak stages and discharges of Bull Lake Creek near Lenore, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	May 29, 1934	5.29	770	1950	Dec. 13, 1949	3.60	1,140
1935	June 15, 1935	4.95	3,220		Jan. 15, 1950	a5.06	-
1936	June 2, 1936	3.91	1,540	1951	Aug. 8, 1951	7.09	6,200
1937	June 25, 1937	3.81	1,390	1952	Oct. 11, 1951	4.27	2,030
1938	Sept.17, 1938	4.00	1,600	1953	July 20, 1953	2.84	656
1939	July 24, 1939	3.43	897	1954	July 21, 1954	3.47	1,050
1940	Aug. 3, 1940	3.75	1,240	1955	July 22, 1955	2.93	714
1941	Aug. 8, 1941	2.93	598	1956	July 2, 1956	3.72	1,340
1942	July 12, 1942	3.46	1,080	1957	June 30, 1957	4.45	2,240
1943	July 12, 1943	3.89	1,570	1958	Oct. 19, 1957	3.73	1,360
1944	June 28, 1944	4.20	1,900	1959	Aug. 8, 1959	3.58	1,110
1945	July 14, 1945	3.78	1,370	1960	July 28, 1960	3.28	891
1946	July 7, 1946	3.26	814	1961	July 24, 1961	3.51	1,210
1947	June 22, 1947	4.48	2,270	1962	July 9, 1962	5.65	4,100
1948	June 10, 1948	4.08	1,880	1963	June 6, 1963	3.95	1,580
1949	July 9, 1949	3.34	886				

a Backwater from ice.

2255. Wind River near Crowheart, Wyo.

Location.--Lat 43°14'33", long 109°00'35", in NW¼NW¼ sec.16, T.3 N., R.2 W., on right bank 0.9 mile downstream from Bull Lake Creek and 9 miles southeast of Crowheart.

Drainage area.--1,891 sq mi, of which 1,873 sq mi contributes directly to surface runoff.

Gage.--Recording. Altitude of gage is 5,635 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs.

Bankfull stage.--10 ft.

Remarks.--Diversions for irrigation of about 18,000 acres above station. Some regulation by Bull Lake. Diversions and regulations do not materially affect peak flows. Base for partial-duration series, 5,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	June 29, 1927	-	a13,000	1953	June 19, 1953	8.08	7,880
1946	June 6, 1946	6.90	4,750	1954	May 21, 1954	7.56	6,560
					June 27, 1954	8.04	7,760
1947	May 9, 1947	7.01	5,390				
	June 21, 1947	8.27	8,630	1955	July 22, 1955	7.46	6,330
	July 10, 1947	7.44	6,410				
	July 22, 1947	7.60	6,810	1956	June 2, 1956	8.58	10,200
1948	June 3, 1948	7.81	7,360	1957	June 7, 1957	9.08	11,400
	June 11, 1948	7.85	7,460		July 1, 1957	8.68	9,490
					July 19, 1957	8.37	8,430
1949	June 13, 1949	7.17	5,760				
				1958	May 23, 1958	8.02	7,770
1950	June 7, 1950	7.10	5,600				
	June 17, 1950	7.39	6,290	1959	June 16, 1959	7.65	6,570
	July 4, 1950	7.21	5,850				
				1960	Nov 17, 1959	b6.75	-
1951	May 29, 1951	8.13	8,230		May 13, 1960	6.31	3,650
	June 17, 1951	8.74	10,000				
	July 9, 1951	7.48	6,450	1961	Dec. 10, 1960	b7.49	-
	July 17, 1951	8.90	10,500		June 10, 1961	7.13	5,640
	July 21, 1951	7.37	6,160				
	Aug. 8, 1951	8.13	8,230	1962	June 25, 1962	8.17	9,060
1952	June 7, 1952	7.85	7,250	1963	June 5, 1963	8.12	7,920
					June 16, 1963	9.16	13,000
1953	June 14, 1953	8.63	10,800				

a From discharge measurements by Bureau of Reclamation at site 1 mile downstream; annual peak only.
b Backwater from ice.

2280. Wind River at Riverton, Wyo.
(Published as "Big Wind River near Arapahoe Agency" in 1906 and "Big Wind River near Riverton" in 1907-8)

Location.--Lat 43°00'36", long 108°22'35", in NW¼NW¼ sec.2, T.1 S., R.4 E., on left bank at downstream side of bridge on State Highway 789, 1.1 miles southeast of post office in Riverton and 1½ miles upstream from Popo Agie River.

Drainage area.--2,309 sq mi.

Gage.--Nonrecording prior to Apr. 4, 1917; June 13, 1927, to Dec. 5, 1928; and Apr. 26, 1929, to Oct. 12, 1930; recording otherwise. At sites about 1 mile upstream at different datums prior to Nov. 6, 1908. At site 600 ft downstream at different datums May 15, 1911, to Dec. 5, 1928. Datum of gage is 4,903.56 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,500 cfs.

Remarks.--Diversion for irrigation of about 92,000 acres above station. The main diversion began in 1926 for the Riverton project. Some regulation by Pilot Butte Reservoir beginning in 1926, and Bull Lake Reservoir beginning in 1938 (combined capacity, 182,000 acre-ft). Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 14, 1906	-	12,300	1940	Sept.29, 1940	5.53	4,240
1908	June 15, 1908	4.90	8,800	1941	June 18, 1941	6.11	5,460
				1942	June 10, 1942	7.18	6,620
1911	June 17, 1911	10.5	11,100	1943	June 23, 1943	7.05	6,600
1912	June 8, 1912	10.1	9,000	1944	June 27, 1944	7.49	7,290
1913	May 29, 1913	-	10,900	1945	June 25, 1945	6.84	6,070
1914	June 4, 1914	-	8,800				
1915	June 2, 1915	8.8	5,510	1946	June 6, 1946	6.10	3,940
				1947	Feb. 19, 1947	a8.39	-
1916	June 18, 1916	10.1	7,750		June 21, 1947	-	8,400
1917	July 1, 1917	10.9	9,530	1948	June 11, 1948	6.98	6,030
1918	June 16, 1918	12.8	9,300	1949	June 13, 1949	6.38	4,860
1919	May 31, 1919	9.0	2,280	1950	Dec. 21, 1949	a7.52	-
1920	June 10, 1920	11.3	8,800		June 17, 1950	-	4,760
1921	June 8, 1921	11.7	12,200	1951	June 18, 1951	8.13	7,680
1922	June 10, 1922	10.15	7,360	1952	Dec. 19, 1951	a8.17	-
1923	July 25, 1923	11.5	11,400		June 7, 1952	-	5,740
1924	June 15, 1924	10.45	8,380	1953	Dec. 28, 1952	a8.38	-
1925	July 4, 1925	10.6	8,900		June 15, 1953	-	7,700
				1954	Jan. 27, 1954	a9.36	-
1926	July 11, 1926	9.32	4,570		June 27, 1954	-	5,510
1927	June 29, 1927	11.0	9,400	1955	Jan. 12, 1955	a8.29	-
1928	May 28, 1928	11.4	10,900		June 16, 1955	-	2,720
1929	May 25, 1929	6.00	4,730				
1930	Aug. 13, 1930	7.40	9,000	1956	Dec. 23, 1955	a8.90	-
					June 3, 1956	-	8,200
1931	June 8, 1931	6.43	7,770	1957	June 8, 1957	9.17	9,550
1932	June 24, 1932	6.95	8,780	1958	May 23, 1958	8.00	6,740
1933	June 14, 1933	7.20	9,510	1959	June 16, 1959	6.58	4,120
1934	July 25, 1934	5.70	5,500	1960	Nov. 14, 1959	a8.46	-
1935	June 15, 1935	8.15	13,300		May 13, 1960	-	1,980
1936	June 2, 1936	5.99	5,760	1961	Dec. 8, 1960	a9.39	-
1937	June 22, 1937	6.52	6,450		June 10, 1961	-	4,380
1938	June 8, 1938	5.25	3,920	1962	June 22, 1962	8.31	6,660
1939	June 1, 1939	5.55	4,280	1963	June 17, 1963	9.49	9,050

a Backwater from ice.

2285. South Fork Little Wind River near Fort Washakie, Wyo.
(Published as "Little Wind River" 1923-40)

Location.--Lat 43°00'00", long 108°56'05", in SE¼ sec.1, T.1 S., R.2 W., 500 ft upstream from Ray Canal, 2½ miles west of Fort Washakie, and 3.4 miles upstream from North Fork.

Drainage area.--118 sq mi.

Gage.--Recording. At datum 1.30 ft higher prior to Oct. 1, 1926. Altitude of gage is 5,720 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Flow regulated by Washakie Reservoir (capacity, 7,800 acre-ft). Natural flow of stream affected by transbasin diversions from North Fork and diversions for irrigation above station. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 12, 1921	5.8	2,280	1931	June 8, 1931	3.94	785
1922	June 22, 1922	4.15	1,330	1932	May 22, 1932	4.14	1,060
1923	June 13, 1923	4.25	1,420	1933	June 14, 1933	5.58	2,080
1924	June 16, 1924	4.4	1,500	1934	May 8, 1934	-	480
1925	July 1, 1925	3.35	908	1935	June 14, 1935	4.46	1,310
1926	July 9, 1926	7.59	5,220	1936	June 1, 1936	3.90	930
1927	June 28, 1927	5.5	1,670	1937	June 21, 1937	4.52	1,340
1928	May 28, 1928	4.94	1,330	1938	June 10, 1938	3.60	706
1929	June 17, 1929	4.50	1,080	1939	May 31, 1939	3.36	575
1930	Aug. 14, 1930	4.76	1,220	1940	July 2, 1940	3.66	742

2290. North Fork Little Wind River at Fort Washakie, Wyo.

Location.--Lat 43°00'40", long 108°53'10", in SE¼SW¼ sec.33, T.1 N., R.1 W., a quarter of a mile upstream from South Fork and half a mile north of Fort Washakie.

Drainage area.--127 sq mi.

Gage.--Recording. Altitude of gage is 5,540 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended above by logarithmic plotting.

Remarks.--Natural flow of stream affected by diversions for irrigation of about 1,000 acres and by transbasin diversions above station to Pevah Creek (tributary to Sage Creek) and South Fork. Diversions materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 6, 1921	4.1	2,030	1931	June 8, 1931	2.70	710
1922	June 22, 1922	2.85	1,080	1932	May 22, 1932	-	a820
1923	June 13, 1923	3.70	1,850	1933	June 14, 1933	3.78	1,350
1924	June 16, 1924	4.02	1,960	1934	May 8, 1934	2.12	410
1925	May 31, 1925	2.62	878	1935	June 14, 1935	4.78	2,380
1926	July 9, 1926	4.85	2,640	1936	June 1, 1936	2.77	732
1927	June 28, 1927	3.68	1,370	1937	June 18, 1937	3.33	1,190
1928	May 28, 1928	3.59	1,300	1938	May 29, 1938	2.84	890
1929	June 17, 1929	3.00	890	1939	May 31, 1939	2.42	598
1930	Aug. 14, 1930	3.23	1,040	1940	May 29, 1940	1.92	328

a Maximum daily discharge.

2310. Little Wind River above Arapahoe, Wyo.
(Published as "above Arapahoe Agency" for 1906)

Location.--Lat 42°57'34", long 108°29'40", in SW¼ sec.23, T.1 S., R.3 E., at railroad bridge a quarter of a mile southwest of Arapahoe and 0.9 mile upstream from mouth.

Drainage area.--716 sq mi.

Gage.--Nonrecording. At highway bridge 1,600 ft upstream at datum about 1.6 ft higher prior to May 14, 1911. Altitude of gage is 4,990 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs.

Remarks.--Diversions for irrigation of about 25,000 acres above station. Natural flow of stream affected by partial regulation by Washakie Reservoir (capacity, 7,940 acre-ft) and return flow from irrigated areas. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 15, 1906	4.00	2,840	1913	May 30, 1913	-	a1,790
				1914	June 3,4, 1914	-	a2,400
1908	June 16, July 6, 1908	3.55	1,700	1915	June 3, 1915	5.0	1,760
1909	July 6, 1909	4.4	2,320	1916	June 19, 1916	5.1	1,870
				1917	June 23, 1917	6.25	3,280
1911	June 17, 1911	6.6	3,840	1918	June 23, 1918	5.75	2,480
1912	June 26, 1912	6.0	2,880				

a Maximum daily; from reports of State engineer of Wyoming.

2315. Middle Popo Agie River near Lander, Wyo.
(Published as "Popo Agie River" 1911-12 and as "Middle Fork Popo Agie River" 1918-25)

Location.--Lat 42°44'35", long 108°49'00", in sec.17, T.32 N., R.100 W., 400 ft upstream from diversion dam of Sinks Hydroelectric Co., 1.7 miles upstream from Sawmill Creek, and 7 miles southwest of Lander.

Drainage area.--86 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 1, 1919; recording thereafter. At site 2 miles upstream at different datums prior to May 4, 1922. Altitude of gage is 6,560 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 730 cfs.

Remarks.--No diversion above station. Base of partial-duration series, 740 cfs. Only annual peaks are shown prior to 1920.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 16, 1911	11.56	741	1923	June 12, 1923	4.00	1,640
1912	June 9, 1912	11.55	738		July 2, 1923	3.42	944
1918	June 21, 1918	3.37	1,310		July 15, 1923	4.00	1,640
1919	May 30, 1919	2.90	950		July 24, 1923	3.33	843
1920	May 29, 1920	2.67	772	1924 b/	May 19, 1924	3.53	1,090
	June 10, 1920	3.35	1,290		May 26, 1924	3.30	820
1921	June 7, 1921	4.10	a2,720		June 4, 1924	3.78	1,390
					June 14, 1924	4.15	1,830
1922	May 25, 1922	3.24	753		June 23, 1924	3.41	946
	June 9, 1922	3.72	1,230				
	June 22, 1922	3.75	1,260	1926	July 9, 1926	6.0	c2,900

a Computed at diversion dam 2 miles downstream.
b Partial year; peak of June 14, 1924, is probably maximum for the year.
c Annual peak only.

2320. North Popo Agie River near Milford, Wyo.

Location.--Lat 42°51'50", long 108°54'25", in SW¼NE¼ sec.3, T.33 N., R.101 W., on right bank at Pine Bar Ranch, 2¼ miles downstream from Paradise Creek, 6¼ miles southwest of Milford, and 8½ miles northwest of Lander.

Drainage area.--98.4 sq mi.

Gage.--Recording. At datum 2.0 ft higher prior to Oct. 1, 1946. Altitude of gage is 6,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended above on basis of slope-area measurement at 4,500 cfs.

Remarks.--Two small diversions above station for irrigation of hay meadows do not materially affect peak flows. Base of partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 5, 1946	4.52	628	1952	June 7, 1952	6.59	2,060
					June 24, 1952	4.27	641
1947	May 11, 1947	5.42	864				
	June 9, 1947	6.33	1,240	1953	June 13, 1953	6.33	1,810
	June 20, 1947	6.73	1,420				
	July 4, 1947	5.75	997	1954	May 26, 1954	5.32	1,070
					June 27, 1954	5.19	1,000
1948	May 20, 1948	4.84	759				
	May 26, 1948	4.39	607	1955	June 14, 1955	4.25	675
	May 29, 1948	4.83	756				
	June 3, 1948	5.22	903	1956	June 5, 1956	5.92	1,460
	June 9, 1948	4.71	714				
				1957	June 6, 1957	6.45	1,980
1949	May 16, 1949	4.30	650		June 30, 1957	6.33	1,900
	May 30, 1949	4.25	635				
	June 13, 1949	5.52	1,090	1958	May 26, 1958	5.70	1,380
	June 19, 1949	6.67	1,600				
	July 4, 1949	4.23	629	1959	June 16, 1959	5.05	960
1950	June 6, 1950	4.97	804	1960	June 4, 1960	3.54	520
	June 25, 1950	5.97	1,240				
	July 2, 1950	5.62	1,100	1961	May 30, 1961	4.71	778
	July 11, 1950	4.74	851				
				1962	June 21, 1962	-	a900
1951	May 28, 1951	5.37	963				
	June 17, 1951	5.66	1,150	1963	June 5, 1963	-	a900
	July 5, 1951	4.32	656		June 16, 1963	9.44	4,500
1952	May 4, 1952	4.40	680				

a Estimated.

2325. North Popo Agie River near Lander, Wyo.
(Published as "North Fork Popo Agie River" 1938-43)

Location.--Lat 42°52'59", long 108°47'16", in SE¼SW¼ sec.17, T.2 S., R.1 E., 120 ft downstream from bridge on U.S. Highway 287, 4½ miles northwest of post office in Lander, and 7 miles upstream from mouth.

Drainage area.--134 sq mi.

Gage.--Nonrecording prior to Sept. 22, 1938; recording thereafter. Datum of gage is 5,498.08 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Remarks.--Diversions above station for irrigation of about 3,000 acres do not materially affect peak flows. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	June 7, 1938	3.47	a662	1941	May 13, 1941	3.83	744
					May 18, 1941	3.48	520
1939	June 1, 1939	3.12	460		May 27, 1941	3.94	832
					June 10, 1941	3.59	584
1940	May 28, 1940	3.20	470		June 18, 1941	4.05	920

a Annual peak only.

Peak stages and discharges of North Popo Agie River near Lander, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	May 27, 1942	4.43	1,170	1948	May 20, 1948	3.82	713
	June 8, 1942	4.39	1,140		May 29, 1948	3.75	670
	June 16, 1942	3.63	630		June 3, 1948	3.92	778
1943	May 30, 1943	4.19	989		June 9, 1948	3.61	590
	June 12, 1943	3.85	772	1949	May 16, 1949	3.64	594
	June 26, 1943	4.66	1,340		May 30, 1949	3.51	525
1944	May 17, 1944	3.95	824		June 13, 1949	4.15	925
	May 23, 1944	4.49	1,190		June 19, 1949	5.22	1,820
	June 1, 1944	4.82	1,390	1950	June 2, 1950	3.54	540
	June 17, 1944	4.10	864		June 7, 1950	3.91	714
	June 27, 1944	4.51	1,230		June 25, 1950	4.79	1,380
	July 2, 1944	3.92	838		July 2, 1950	4.48	1,120
1945	June 13, 1945	3.52	580		July 11, 1950	3.97	750
	June 24, 1945	4.68	1,380	1951	May 29, 1951	4.78	1,420
	July 11, 1945	4.12	961		June 17, 1951	4.69	1,340
1946	June 6, 1946	3.94	831		July 5, 1951	3.58	565
	June 10, 1946	3.73	694	1952	May 4, 1952	3.77	665
	June 18, 1946	3.60	610		June 8, 1952	5.39	1,830
1947	May 11, 1947	4.01	837		June 27, 1952	3.52	540
	June 9, 1947	4.41	1,130	1953	June 14, 1953	5.54	1,900
	June 20, 1947	5.18	1,780				
	July 4, 1947	4.25	1,010				

2330. Little Popo Agie River near Lander, Wyo.

Location.--Lat 42°43'00", long 108°38'34", in NE¼SE¼ sec.27, T.32 N., R.99 W., on left bank 700 ft downstream from bridge on State Highway 28, 2½ miles downstream from Red Canyon Creek, and 9½ miles southeast of post office in Lander.

Drainage area.--125 sq mi.

Gage.--Recording. Datum of gage is 5,436.49 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs.

Remarks.--Diversions for irrigation of about 600 acres above station and slight regulation by Christina Lake (capacity, 3,860 acre-ft). Diversions and regulation do not materially affect peak flows. Base for partial-duration series, 350 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 6, 1946	4.21	344	1952	May 16, 1952	3.80	354
1947	May 11, 1947	4.36	421		June 7, 1952	5.83	1,160
	June 9, 1947	5.37	767		June 24, 1952	3.63	425
	June 21, 1947	5.80	922	1953	June 14, 1953	4.87	780
1948	June 3, 1948	4.79	493	1954	May 22, 1954	4.59	682
1949	May 16, 1949	4.60	402		June 27, 1954	3.76	390
	May 30, 1949	4.57	391		July 14, 1954	4.32	587
	June 13, 1949	4.92	507		July 16, 1954	4.12	512
	June 19, 1949	4.95	518	1955	Feb. 10, 1955	ε3.94	-
1950	May 24, 1950	4.30	373		June 14, 1955	3.23	234
	June 2, 1950	4.58	500	1956	Dec. 16, 1955	ε4.88	-
	June 7, 1950	4.89	638		May 29, 1956	4.56	671
	June 17, 1950	5.40	920				
	June 23, 1950	5.05	760	1957	June 7, 1957	5.08	870
1951	May 29, 1951	4.62	591		June 30, 1957	4.54	688
	June 18, 1951	4.51	553	1958	May 26, 1958	4.67	734
1952	May 4, 1952	4.16	450	1959	Feb. 10, 1959	ε4.30	-

a Backwater from ice.

Peak stages and discharges of Little Popo Agie River near Lander, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 15, 1959	3.35	283	1962	Feb. 10, 1962	4.95	794
					May 7, 1962	3.77	387
1960	Feb. 24, 1960	a4.54	-				
	May 13, 1960	2.92	170	1963	June 5, 1963	3.87	430
					June 16, 1963	6.64	2,010
1961	Dec. 9, 1960	a4.17	-				
	May 28, 1961	3.36	302				

a Backwater from ice.

2335. Little Popo Agie River at Hudson, Wyo.

Location.--Lat 42°54'04", long 108°35'12", in SW¼ sec.21, T.34 N., R.98 W., on left bank at southwest edge of Hudson, half a mile upstream from mouth.

Drainage area.--384 sq mi.

Gage.--Nonrecording. At site 450 ft downstream at different datum June 13, 1908, to July 23, 1912. At site 150 ft downstream at different datums July 24, 1912, to Sept. 30, 1917. Datum of gage is 5,074.28 ft above mean sea level, datum of 1929 (Chicago and North Western Railway bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Bankfull stage.--11 ft.

Remarks.--Diversions for irrigation of about 3,000 acres above station do materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 18, 1908	6.10	875	1941	June 9, 1941	4.25	469
1909	June 21, 1909	6.60	a944	1942	May 27, 1942	4.62	566
				1943	May 31, 1943	4.84	550
1911	June 22, 1911	5.90	a792	1944	June 2, 1944	5.62	780
1912	June 9, 1912	6.18	b858	1945	June 24, 1945	4.46	507
1913	May 29, 1913	-	ab585				
1914	June 4, 1914	-	ab768	1946	June 18, 1946	4.30	474
1915	June 3, 1915	5.83	822	1947	June 22, 1947	7.60	1,540
				1948	Mar. 20, 1948	c4.95	-
1916	June 19, 1916	3.65	584		Mar. 24, 1948	-	516
1917	June 23,24,26, 1917	6.6	a1,490	1949	May 18, 1949	4.87	557
				1950	June 18, 1950	5.86	842
1938	June 7, 1938	3.46	388	1951	May 29, 1951	c5.42	700
1939	Mar. 12, 1939	c6.72	-	1952	June 9, 1952	c6.71	1,160
	June 1, 1939	-	734	1953	June 14, 1953	c5.11	585
1940	May 29, 1940	2.50	160				

a Maximum daily.
b Records furnished by State engineer of Wyoming.
c Backwater from ice.

2340. Little Wind River below Arapahoe, Wyo.
(Published as "below Arapahoe Agency" 1906 and as "Popo Agie River" 1910, 1916-18)

Location.--Lat 42°57'20", long 108°29'15", in SE¼ sec.23, T.1 S., R.3 E., 25 ft downstream from former site of timber bridge, 600 ft downstream from Popo Agie River, and half a mile south of Arapahoe.

Drainage area.--1,530 sq mi, approximately.

Gage.--Nonrecording. At datum 0.17 ft lower Mar. 15, 1908, to Nov. 27, 1909. Altitude of gage is 4,990 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,000 cfs.

Bankfull stage.--8 ft.

Remarks.--Diversions above station for irrigation of about 47,000 acres materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 14, 1906	7.5	6,950	1915	June 2, 1915	5.95	4,040
1908	June 15, 1908	5.8	4,460	1916	June 19, 1916	6.2	4,400
1909	June 6, 1909	7.15	6,510	1917	June 24, 1917	9.3	11,500
1911	June 17, 1911	8.6	9,660	1918	June 22, 1918	6.7	5,340
1912	June 9, 1912	7.6	6,780				

2355. Little Wind River near Riverton, Wyo.
(Published as "Popo Agie River" prior to October 1958)

Location.--Lat 42°59'51", long 108°22'29", in N½NW¼ sec.11, T.1 S., R.4 E., on right bank 1¾ miles upstream from mouth and 1.9 miles southeast of Riverton.

Drainage area.--1,851 sq mi.

Gage.--Recording. At site 600 ft downstream prior to Sept. 19, 1956. Datum of gage is 4,901.84 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 13,000 cfs.

Remarks.--Diversions for irrigation of about 43,000 acres above station materially affect peak flows. Base for partial-duration series, 3,200 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 8, 1941	5.66	3,710	1954	May 22, 1954	5.55	3,920
1942	May 27, 1942	5.76	4,120		June 28, 1954	5.32	3,470
1943	June 22, 1943	6.09	4,710				
1944	June 2, 1944	6.87	6,150	1955	June 13, 1955	4.41	2,080
1945	June 25, 1945	6.27	5,190				
				1956	June 6, 1956	6.53	5,430
1946	June 6, 1946	5.13	3,160				
1947	June 22, 1947	8.57	9,820	1957	May 15, 1957	6.31	3,320
					June 8, 1957	8.59	7,410
1948	June 3, 1948	5.26	3,380		July 1, 1957	7.81	5,890
1949	June 13, 1949	6.00	4,530	1958	May 26, 1958	7.82	6,160
	June 20, 1949	6.33	5,160				
				1959	June 16, 1959	6.15	3,140
1950	June 8, 1950	5.47	3,580				
	June 23, 1950	6.12	4,760	1960	June 11, 1960	4.15	1,170
	July 3, 1950	5.74	4,050				
				1961	June 2, 1961	6.04	3,330
1951	May 29, 1951	6.30	5,100				
	June 17, 1951	5.92	4,380	1962	Feb. 11, 1962	10.13	10,300
					June 15, 1962	6.68	3,820
1952	June 8, 1952	7.69	7,520				
				1963	June 3, 1963	6.35	3,270
1953	June 15, 1953	6.49	5,360		June 17, 1963	10.85	14,700

2390. Muskrat Creek near Shoshoni, Wyo.

Location.--Lat 43°08'55", long 108°09'30", in NW¼SW¼ sec.15, T.2 N., R.6 E., on right bank 2 miles upstream from mouth and 7 miles southwest of Shoshoni.

Drainage area.--733 sq mi.

Gage.--Recording. Altitude of gage is 4,770 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs and extended above on basis of slope-area measurement at 13,300 cfs.

Remarks.--Diversion for irrigation of about 230 acres above station. Some small reservoirs for sediment control and flood detention above station. Diversions and reservoirs do not materially affect peak flows. Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 24, 1923	-	a6,400	1957	May 30, 1957	2.57	290
					May 31, 1957	2.47	228
1951	July 22, 1951	3.82	3,100		June 1, 1957	2.34	136
					June 11, 1957	2.76	444
1952	June 24, 1952	2.20	20				
				1958	June 24, 1958	2.38	180
1953	May 28, 1953	2.72	b3		Aug. 23, 1958	2.81	490
1954	-	-	0	1960	July 5, 1960	2.98	412
1955	June 17, 1955	3.19	629	1961	June 2, 1961	4.02	1,800
	July 11, 1955	2.58	147				
	July 23, 1955	3.37	844	1962	Feb. 10, 1962	6.44	13,300
	July 24, 1955	4.90	3,600		July 31, 1962	1.00	132
					Sept.21, 1962	.93	109
1956	Dec. 23, 1955	2.52	123				
	May 25, 1956	2.70	748	1963	June 1, 1963	1.22	212
	May 29, 1956	3.22	1,450		June 16, 1963	1.72	645
					Aug. 11, 1963	1.85	720
1957	Apr. 23, 1957	2.72	408		Aug. 31, 1963	1.44	292
	May 13, 1957	-	270		Sept.21, 1963	1.39	132
	May 25, 1957	2.50	245				

a Annual peak only, from slope-area measurement.
b Estimated.

2445. Fivemile Creek above Wyoming Canal, near Pavillion, Wyo.

Location.--Lat 43°18'04", long 108°42'04", in NW¼NE¼ sec.25, T.4 N., R.1 E., on right bank 1,400 ft upstream from Wyoming Canal siphon and 4 miles north of Pavillion.

Drainage area.--118 sq mi.

Gage.--Recording. At site a quarter of a mile downstream at different datum prior to Mar. 29, 1950. Altitude of gage is 5,495 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs.

Remarks.--Bureau of Indian Affairs has a reservoir system in headwaters which materially affects peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	September1948	6.10	2,600	1957	June 30, 1957	3.02	138
				1958	Feb. 19, 1958	a3.32	-
1950	Sept.20, 1950	4.97	1,450		July 29, 1958	-	40
				1959	June 15, 1959	3.76	372
1951	Sept. 6, 1951	5.60	1,750	1960	Dec. 6, 1959	a3.64	-
1952	Aug. 3, 1952	3.50	440		July 13, 1960	-	39
1953	July 29, 1953	3.03	314				
1954	July 17, 1954	3.03	174	1961	Dec. 13, 1960	a3.76	-
1955	Feb. 17, 1955	a2.72	-		Sept.19, 1961	-	70
	July 22, 1955	-	46	1962	Mar. 3, 1962	a3.84	-
					Sept.23, 1962	-	56
1956	Mar. 15, 1956	a3.17	-	1963	Sept. 8, 1963	3.20	155
	May 28, 1956	-	87				

a Backwater from ice.

2500. Fivemile Creek near Riverton, Wyo.

Location.--Lat 43°12'14", long 108°23'54", in SW¼SW¼ sec.27, T.3 N., R.4 E., on right bank 12½ miles north of Riverton and 13 miles upstream from mouth.

Drainage area.--356 sq mi, of which 224 sq mi is probably contributing.

Gage.--Nonrecording prior to Apr. 4, 1951; recording thereafter. Altitude of gage is 5,020 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and extended above on basis of velocity-area study and logarithmic plotting.

Remarks.--Natural flow of stream affected by return flow from Riverton irrigation project and by the Bureau of Indian Affairs reservoir system in headwaters. Return flow and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	July 25, 1950	11.0	1,690	1957	Dec. 24, 1956	a7.78	-
					May 30, 1957	-	302
1951	Sept. 6, 1951	9.44	1,090	1958	Jan. 6, 1958	a7.15	-
1952	Dec. 11, 1951	a8.35	-		June 14, 1958	-	274
	Aug. 3, 1952	-	645				
1953	Dec. 10, 1952	a8.28	-	1960	Feb. 12, 1960	a7.48	-
	July 29, 1953	-	510		June 9, 1960	-	333
1954	Dec. 24, 1953	a7.05	-				
	July 17, 1954	-	327	1961	Feb. 12, 1961	a7.63	-
1955	July 23, 1955	10.15	1,440		June 2, 1961	-	334
				1962	June 15, 1962	9.71	1,220
1956	Feb. 2, 1956	a7.58	-	1963	June 15, 1963	10.04	1,440
	May 31, 1956	-	420				

a Backwater from ice.

2515. Sand Gulch near Shoshoni, Wyo.

Location.--Lat 43°11'38", long 108°18'50", in NE¼SW¼ sec.32, T.3 N., R.5 E., on left bank half a mile upstream from mouth and 10½ miles southwest of Shoshoni.

Drainage area.--18.6 sq mi.

Gage.--Recording. Altitude of gage is 4,910 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 110 cfs.

Remarks.--Natural flow of stream affected by diversions for irrigation, return flow from irrigated areas, and waste water from Riverton project. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 11, 1949	3.18	161	1952	July 1, 1952	2.81	121
1950	July 25, 1950	3.36	203	1953	Aug. 5, 1953	2.72	111
1951	July 25, 1951	3.02	153				

2530. Fivemile Creek near Shoshoni, Wyo.

Location.--Lat 43°13'20", long 108°13'06", in NW¼SW¼ sec.19, T.3 N., R.6 E., on right bank 1¼ miles upstream from normal high-water line of Boysen Reservoir at elevation 4,725 ft and 5 miles west of Shoshoni.

Drainage area.--418 sq mi, of which 285 sq mi is probably contributing.

Gage.--Nonrecording at site 1 mile downstream at different datum prior to Oct. 1, 1942; recording thereafter. Altitude of gage is 4,750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs and extended above on basis of logarithmic plotting.

Remarks.--Flow is mainly return flow and waste water from Riverton irrigation project. Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 24, 1923	-	a3,500	1955	July 24, 1955	-	2,850
1941	Aug. 7, 1941	8.03	3,200	1956	Dec. 23, 1955	c7.50	-
1942	Aug. 14, 1942	-	232		Mar. 3, 1956	-	968
	Sept.12, 1942	b3.69	-	1957	Dec. 6, 1956	c6.58	-
					Aug. 17, 1957	-	780
1948	Sept.19, 1948	8.28	2,500	1958	Dec. 24, 1957	c8.85	-
1949	June 12, 1949	-	722		July 30, 1958	-	474
	Aug. 20, 1949	b5.37	-	1959	Jan. 3, 1959	c6.90	-
1950	Sept.20, 1950	7.49	2,570		July 18, 1959	-	576
				1960	Jan. 1, 1960	c7.60	-
1951	July 21, 1951	6.96	1,910		June 10, 1960	-	394
1952	Aug. 4, 1952	5.13	735				
1953	Nov. 29, 1952	c8.52	-	1961	Feb. 8, 1961	c6.40	-
	July 29, 1953	-	552		June 2, 1961	-	447
1954	Dec. 23, 1953	c8.09	-	1962	June 15, 1962	7.85	3,390
	June 26, 1954	-	504	1963	Dec. 25, 1962	c7.85	-
1955	Dec. 27, 1954	c9.61	-		June 15, 1963	-	2,070

a Estimated by Bureau of Reclamation.
b Backwater from debris.
c Backwater from ice.

2560. Badwater Creek at Lybyer Ranch, near Lost Cabin, Wyo.

Location.--Lat 43°21'02", long 107°33'22", in SE¼NE¼ sec.18, T.39 N., R.89 W., on right bank 2,000 ft downstream from Sioux Creek, 1 mile northwest of Lybyer Ranch, and 6 miles northeast of Lost Cabin.

Drainage area.--131 sq mi.

Gage.--Recording. Datum of gage is 5,715.42 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 280 cfs and extended above by float-velocity measurement at 400 cfs.

Bankfull stage.--8 ft.

Remarks.--Diversions above station for irrigation of about 350 acres do not materially affect peak flows. Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	July 8, 1949	7.35	445	1954	Jan. 25, 1954	a6.87	-
	July 13, 1949	6.46	197		Apr. 28, 1954	5.29	43
1950	May 18, 1950	6.12	142	1955	Apr. 6, 1955	a7.15	-
					May 7, 1955	6.20	154
1951	Feb. 3, 1951	a7.16	-				
	Apr. 28, 1951	6.01	126	1956	Mar. 22, 1956	a6.30	-
					May 26, 1956	6.20	154
1952	Mar. 30, 1952	a8.88	-				
	July 12, 1952	5.60	71	1957	May 25, 1957	5.54	63
1953	Aug. 16, 1953	5.87	110	1958	June 20, 1958	6.15	156

a Backwater from ice.

Peak stages and discharges of Badwater Creek at Lybyer Ranch, near Lost Cabin, Wyo.--Con.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 24, 1958	6.65	232	1961	June 5, 1961	5.79	95
	July 25, 1958	6.88	285	1962	Apr. 17, 1962	7.01	324
1959	Mar. 19, 1959	a6.60	-		June 11, 1962	7.60	275
	May 16, 1959	5.49	59	1963	Aug. 30, 1963	6.10	149
1960	Apr. 24, 1960	5.15	27				

a Backwater from ice.

2570. Badwater Creek at Bonneville, Wyo.

Location.--Lat 43°16'09", long 108°04'46", in NW¼NE¼ sec.14, T.38 N., R.94 W., on right bank 0.4 mile west of Bonneville and 3 miles upstream from normal high-water line of Boysen Reservoir at elevation 4,725 ft.

Drainage area.--808 sq mi.

Gage.--Nonrecording prior to June 27, 1947; recording thereafter. Datum of gage is 4,774.17 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Poorly defined by current-meter measurements below 1,100 cfs and extended above on basis of slope-area measurement at 7,260 cfs.

Remarks.--Diversions above station for irrigation of 800 acres do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 24, 1923	-	18,600	1956	May 25, 1956	6.6	7,260
				1957	May 25, 1957	3.45	210
1947	July 22, 1947	6.27	4,690	1958	July 25, 1958	4.25	1,450
1948	July 14, 1948	4.97	1,440	1959	Mar. 23, 1959	3.28	311
1949	July 14, 1949	4.50	1,140	1960	July 5, 1960	3.72	742
1951	Sept. 7, 1951	4.36	641	1961	June 3, 1961	4.10	1,980
1952	Aug. 3, 1952	4.05	605	1962	June 12, 1962	5.64	4,400
1953	June 5, 1953	4.21	750	1963	June 15, 1963	6.30	4,800
1954	June 26, 1954	5.52	2,550				
1955	July 24, 1955	4.21	1,080				

2575. Muddy Creek near Pavillion, Wyo.

Location.--Lat 43°21'46", long 108°36'08", in NW¼SW¼ sec.35, T.5 N., R.2 E., on left bank 600 ft upstream from Wyoming Canal siphon, 4 1/8 miles downstream from Sheep Creek, and 9½ miles northeast of Pavillion.

Drainage area.--267 sq mi.

Gage.--Recording. At site 1 1/8 miles upstream at different datum prior to Oct. 16, 1956. Altitude of gage is 5,350 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 720 cfs and extended above on basis of float-velocity measurement at 1,020 cfs and slope-area measurement at 2,300 cfs.

Remarks.--Diversions above station for irrigation of about 3,900 acres and some small reservoirs for sediment control and flood detention above station. Diversions and reservoirs do not materially affect peak flows. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges of Muddy Creek near Pavillion, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949 a/	June 5, 1949	9.70	2,300	1957	June 30, 1957	3.50	340
	July 11, 1949	7.80	1,200				
	July 12, 1949	7.70	1,060	1958	Feb. 17, 1958	b4.63	-
					July 21, 1958	4.30	600
1950	July 4, 1950	6.70	1,200				
				1960	Mar. 11, 1960	b3.07	-
1951	July 21, 1951	8.45	1,620		June 9, 1960	2.79	163
1952	Mar. 23, 1952	b8.13	-	1961	Sept.19, 1961	3.62	421
	Aug. 4, 1952	6.21	638				
				1962	Mar. 10, 1962	b2.81	-
1953	July 19, 1953	7.15	995		Sept.22, 1962	2.62	159
1955	Aug. 7, 1955	7.31	1,060	1963	Sept. 1, 1963	6.96	1,840
1956	May 29, 1956	6.96	919				

a Partial year.
b Backwater from ice.

2580. Muddy Creek near Shoshoni, Wyo.

Location.--Lat 43°17'10", long 108°16'30", in NE¼NW¼ sec.34, T.4 N., R.5 E., on left bank 2¼ miles upstream from normal high-water line of Boysen Reservoir at elevation 4,725 ft and 9 miles northwest of Shoshoni.

Drainage area.--332 sq mi.

Gage.--Recording. At different datum prior to May 13, 1949. Altitude of gage is 4,780 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 910 cfs and extended above on basis of slope-area measurement at 1,430 cfs.

Remarks.--Bureau of Indian Affairs has a reservoir system in the headwaters. Flow regulated by operation of Wyoming Canal spillway. Extent of effect on peak flows not known. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	July 24, 1923	-	a16,300	1956	May 30, 1956	6.78	1,040
1949 b/	June 6, 1949	7.60	1,140	1957	June 11, 1957	4.32	194
	July 12, 1949	7.79	1,220				
	July 13, 1949	6.58	753	1958	Feb. 20, 1958	c5.65	-
					July 22, 1958	4.62	230
1950	July 5, 1950	7.54	1,100				
	Sept.10, 1950	6.40	720	1959	Feb. 26, 1959	c5.75	-
					June 30, 1959	4.20	131
1951	July 22, 1951	7.50	1,430				
				1960	Mar. 21, 1960	c5.89	-
1952	Oct. 4, 1951	6.07	730		June 10, 1960	5.01	332
	Aug. 5, 1952	5.72	510				
				1961	Feb. 20, 1961	c6.94	-
1953	July 20, 1953	5.56	530		Sept.19, 1961	4.50	214
1954	May 11, 1954	5.01	318	1962	Feb. 15, 1962	c6.48	-
					June 15, 1962	6.37	785
1955	July 24, 1955	7.10	1,320				
	Aug. 8, 1955	5.31	530	1963	June 15, 1963	7.10	1,410

a Annual peak only, from slope-area measurement.
b Partial year.
c Backwater from ice.

2595. Bighorn River at Thermopolis, Wyo.
(Published as "near Thermopolis" prior to 1911)

Location.--Lat 43°39', long 108°12', in sec.36, T.43 N., R.95 W., on left bank 200 ft downstream from Park Street Bridge at Thermopolis and a quarter of a mile downstream from Thermopolis Creek.

Drainage area.--8,020 sq mi.

Gage.--Nonrecording prior to Oct. 25, 1934, and from Oct. 1, 1950, to Apr. 30, 1952; recording otherwise. At several sites within 350 ft of present site at various datums prior to Oct. 25, 1934. At site half a mile downstream at datum 3.69 ft lower Oct. 25, 1934, to Sept. 30, 1936, and at datum 4.69 ft lower Oct. 1, 1936, to Sept. 30, 1950. At site a quarter of a mile upstream at datum 2.89 ft higher Oct. 1, 1950, to Apr. 30, 1952. Datum of gage is 4,305.18 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs.

Remarks.--Diversions for irrigation of about 141,000 acres above station have substantial effect on peak flows. Flow completely regulated by Boysen Reservoir beginning Oct. 11, 1951. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1900 a/	June 8, 1900	6.80	14,500	1930	Aug. 16, 1930	9.41	14,500
1901	May 21, 1901	8.20	17,900	1931	June 9, 1931	6.51	8,700
1902	June 12, 1902	5.0	9,890	1932	June 26, 1932	8.16	11,800
1903	June 19, 1903	6.60	9,920	1933	June 15, 1933	9.88	15,500
1904	June 22, 1904	8.00	14,500	1934	July 25, 1934	4.80	4,730
1905	June 7, 1905	6.70	11,600	1935	June 16, 1935	11.75	18,700
1911	June 19, 1911	-	b18,000	1936	June 5, 1936	7.98	10,500
1912	June 11, 1912	10.3	19,500	1937	July 12, 1937	11.7	15,400
1913	May 21, 1913	-	15,300	1938	June 24, 1938	7.68	7,710
1914	June 5, 1914	-	c13,300	1939	June 2, 1939	9.08	9,940
1915	June 3, 1915	7.8	11,800	1940	Sept.30, 1940	8.02	7,440
1916	June 21, 1916	9.25	13,000	1941	Aug. 11, 1941	9.71	10,400
1917	June 24, 1917	13.4	19,400	1942	May 28, 1942	9.48	9,760
1918	June 17, 1918	13.3	19,200	1943	June 29, 1943	10.11	11,000
1919	June 1, 1919	4.7	5,000	1944	June 28, 1944	10.55	11,900
1920	June 12, 1920	9.7	13,800	1945	June 23, 1945	9.84	12,200
1921	June 10, 1921	13.4	20,700	1946	June 19, 1946	7.81	7,960
1922	June 11, 1922	8.2	12,100	1947	June 23, 1947	12.65	17,200
1923	July 24, 1923	16.2	29,800	1948	June 4, 1948	8.32	8,730
1924	Apr. 6, 1924	11.0	17,300	1949	June 14, 1949	8.68	8,960
1925	July 5, 1925	7.3	10,000	1950	June 24, July 5, 1950	9.43	9,460
1926	July 11, 1926	7.25	10,200				
1927	June 30, 1927	9.7	14,800	1951	June 19, 1951	8.02	11,800
1928	May 29, 1928	9.9	15,200	1952	June 11, 1952	4.07	4,350
1929	Mar. 11, 1929	9.25	14,000	1953	July 30, 1953	4.06	4,330

a Partial year.
b Maximum daily.
c Estimated.

2600. South Fork Owl Creek near Anchor, Wyo.

Location.--Lat 43°40', long 108°52', in sec.28, T.43 N., R.100 W., on left bank 1 mile upstream from Middle Fork, 2½ miles upstream from Anchor Dam, 3 miles south of Anchor, and 33 miles west of Thermopolis.

Drainage area.--86.3 sq mi.

Gage.--Nonrecording prior to June 1, 1932; recording thereafter. At datum 1.00 ft higher prior to Sept. 30, 1943. Datum of gage is 6,504.47 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 330 cfs.

Bankfull stage.--6½ ft.

Remarks.--Base for partial-duration series, 250 cfs.

Peak stages and discharges of South Fork Owl Creek near Anchor, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	May 21, 1932	2.45	a321	1943	May 29,30, 1943	-	b260
					June 19, 1943	3.19	458
1940	Sept.29, 1940	2.97	171	1959	June 7, 1959	3.12	c345
1941	May 12, 1941	4.25	428				
	May 17, 1941	3.53	290	1960	Mar. 23, 1960	d2.87	-
	May 25, 1941	3.53	294		May 12, 1960	2.78	228
	June 17, 1941	4.22	470				
	July 16, 1941	3.50	253	1961	June 7, 1961	3.93	707
	July 25, 1941	7.59	1,940				
	Aug. 11, 1941	4.52	668	1962	Apr. 15, 1962	d3.86	-
	Aug. 17, 1941	3.15	350		June 20, 1962	3.22	364
1942	May 25, 1942	3.57	631	1963	June 4, 1963	3.65	665
	June 7, 1942	3.0	499		June 15, 1963	4.04	908
	June 14, 1942	2.21	290		Aug. 12, 1963	2.79	264
	June 18, 1942	2.25	280				
	June 25, 1942	2.29	256				

a Annual peak only. b Maximum daily. c Maximum for period April to September 1959. d Backwater from ice.

2605. South Fork Owl Creek above Curtis Ranch, near Thermopolis, Wyo.

Location.--Lat 43°41', long 108°44', in NW¼ sec.11, T.8 N., R.1 E., on right bank 1.7 miles southwest of Curtis Ranch, 5 miles upstream from Red Creek, and 26 miles west of Thermopolis.

Drainage area.--144 sq mi.

Gage.--Recording. Altitude of gage is 5,840 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 470 cfs.

Bankfull stage.--5 ft.

Remarks.--Two diversions above station for irrigation of about 400 acres do not materially affect peak flows. Base for partial-duration series, 320 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	June 24, 1945	4.25	1,520	1953	June 13, 1953	3.55	1,020
1946	June 5, 1946	3.70	1,010	1954	May 19, 1954	2.39	257
1947	May 2, 1947	3.82	1,120	1955	July 24, 1955	2.65	350
1948	May 29, 1948	2.62	319	1956	June 5, 1956	2.65	394
1949	June 10, 1949	2.67	331	1957	June 4, 1957	3.38	693
					June 30, 1957	3.23	651
1950	June 15, 1950	2.70	345		July 12, 1957	3.20	630
	July 3, 1950	3.27	677		July 13, 1957	3.43	794
	July 25, 1950	3.28	686				
				1958	May 11, 1958	2.86	400
1951	June 16, 1951	3.02	517		May 20, 1958	3.64	962
	July 29, 1951	2.71	371				
				1959	June 5, 1959	2.24	338
1952	May 3, 1952	2.65	332				
	June 7, 1952	3.22	644				

2610. South Fork Owl Creek at Curtis Ranch, near Thermopolis, Wyo.

Location.--Lat 43°43', long 108°42', in sec.11, T.43 N., R.99 W., 6th Principal Meridian, at Curtis Ranch, 300 ft downstream from County highway bridge and 25 miles west of Thermopolis.

Drainage area.--149 sq mi.

Gage.--Nonrecording prior to July 12, 1940; recording thereafter. At site 300 ft upstream at different datum prior to Sept. 30, 1932. Altitude of gage is 5,700 ft (estimated from nearby level line).

Stage-discharge relation.--Defined by current-meter measurements below 270 cfs.

Bankfull stage.--6 ft.

Remarks.--Diversions above station for irrigation of about 1,000 acres materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	May 22, 1932	2.42	618	1941	Aug. 11, 1941	6.16	1,070
				1942	May 26, 1942	5.79	760
1938	May 27, 1938	3.88	202	1943	June 23, 1943	5.54	472
1939	May 30, 1939	3.21	110				
1940	June 14, 1940	3.50	132				

2620. North Fork Owl Creek near Anchor, Wyo.

Location.--Lat 43°42', long 108°55', in sec.12, T.43 N., R.101 W., on left bank half a mile upstream from Cup Creek and 4¾ miles west of Anchor.

Drainage area.--54.8 sq mi.

Gage.--Recording. At site half a mile downstream at different datum prior to Aug. 29, 1948. Altitude of gage is 6,720 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 390 cfs and extended above on basis of slope-area measurement at 3,200 cfs. Defined by current-meter measurements below 280 cfs at previous site.

Remarks.--Diversion above station for irrigation of hay meadow does not materially affect peak flows. Base for partial-duration series, 165 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Aug. 10, 1941	4.48	a940	1952	May 31, 1952	3.46	196
1942	May 9, 1942	3.66	337	1953	May 28, 1953	3.93	367
	May 25, 1942	4.50	1,080		June 11, 1953	3.68	264
	June 4, 1942	3.48	445		Aug. 15, 1953	3.55	197
	June 7, 1942	3.28	360				
				1954	July 19, 1954	3.49	156
1943	May 27, 1943	2.86	167				
				1955	July 23, 1955	8.0	3,200
1944	May 15, 1944	3.70	308				
	May 28, 1944	2.84	230	1956	May 28, 1956	4.84	226
	June 11, 1944	3.58	466		Aug. 17, 1956	4.86	277
1945	Apr. 21, 1945	2.57	180	1957	June 2, 1957	5.53	928
	June 7, 1945	3.15	268		July 13, 1957	7.29	2,340
	June 24, 1945	3.42	349				
				1958	May 19, 1958	6.90	410
1947	May 2, 1947	3.10	274		June 24, 1958	6.43	262
					July 29, 1958	7.42	619
1948	June 22, 1948	3.22	-				
				1959	June 6, 1959	5.56	112
1949	June 7, 1949	2.45	165				
				1960	June 11, 1960	5.67	60
1950	July 3, 1950	3.78	430				
	July 24, 1950	4.43	712	1961	June 2, 1961	6.41	198
1951	May 22, 1951	3.42	87				
				1962	Apr. 20, 1962	6.22	276
1952	Apr. 27, 1952	3.95	354		June 1, 1962	5.92	192
	May 28, 1952	3.41	181		June 15, 1962	5.83	170

a Maximum during period May to September 1941.

Note.--Only annual peaks listed for 1941, 1943, 1947, and 1948; gage-height record fragmentary and other peaks above base may have occurred during periods of no record.

2640. Owl Creek near Thermopolis, Wyo.

Location.--Lat 43°41', long 108°18', in sec.19, T.43 N., R.95 W., on right bank at McCumber Ranch, 1½ miles downstream from Mud Creek and 6 miles northwest of Thermopolis.

Drainage area.--478 sq mi.

Gage.--Nonrecording prior to Oct. 10, 1938; recording thereafter. At site a quarter of a mile upstream at different datum prior to Apr. 7, 1914. At various sites within 50 ft of present site at various datums Apr. 8, 1914, to Nov. 30, 1917. Altitude of gage is 4,560 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs and extended above on basis of contracted-opening measurement at 7,030 cfs.

Bankfull stage.--6 ft.

Remarks.--Diversions above station for irrigation of about 14,000 acres materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 15, 1911	3.00	197	1948	June 22, 1948	-	883
1912	July 4, 1912	3.8	315	1949	June 8, 1949	2.56	230
				1950	July 4, 1950	4.28	669
1915	June 10, 1915	7.6	1,160				
				1951	July 21, 1951	4.16	631
1916	June 16, 1916	3.79	209	1952	Apr. 28, 1952	4.68	802
1917	June 17, 1917	6.8	980	1953	Mar. 4, 1953	a4.17	-
					June 14, 1953	-	501
1932	June 17, 1932	3.25	450	1954	Feb. 2, 1954	a2.63	-
					May 10, 1954	-	101
1938	June 26, 1938	1.96	154	1955	July 23, 1955	3.77	517
1939	June 1, 1939	2.88	285				
1940	Sept.21, 1940	2.75	278	1956	May 29, 1956	2.15	215
				1957	June 7, 1957	4.68	673
1941	July 27, 1941	4.51	702	1958	May 21, 1958	3.87	558
1942	May 24, 1942	4.71	860	1959	Feb. 21, 1959	a2.47	-
1943	Mar. 19, 1943	a3.81	-		Mar. 24, 1959	-	31
	June 22, 1943	-	256	1960	Mar. 9, 1960	a3.00	-
1944	June 4, 1944	5.61	1,190		June 9, 1960	-	82
1945	June 25, 1945	4.24	787				
				1961	Sept.19, 1961	3.12	379
1946	June 6, 1946	2.17	257	1962	June 16, 1962	2.92	324
1947	May 3, 1947	5.42	1,180	1963	June 15, 1963	8.73	7,030
1948	Feb. 18, 1948	a6.02	-				

a Backwater from ice.

2645. Owl Creek near Lucerne, Wyo.

Location.--Lat 43°43', long 108°11', in sec.7, T.43 N., R.94 W., near center of span on upstream side of bridge on U.S. Highway 20, 1 mile upstream from mouth and 1½ miles south of Lucerne.

Drainage area.--505 sq mi.

Gage.--Nonrecording. At datum 1.48 ft higher prior to Sept. 30, 1932; at datum 0.98 ft higher Oct. 1, 1932, to Feb. 28, 1933; and at datum 2.00 ft higher May 11, 1938, to July 12, 1944. Datum of gage is 4,305.33 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 630 cfs.

Remarks.--Diversions above station for irrigation of about 18,000 acres materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Owl Creek near Lucerne, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 16, 1932	2.34	109	1946	Mar. 29, 1946	2.26	130
				1947	May 4, 1947	5.56	928
1938	June 29, 1938	1.99	a45	1948	June 22, 1948	4.88	748
1939	June 2, 1939	2.83	134	1949	Mar. 7, 1949	1.98	90
1940	Sept.29, 1940	2.95	152	1950	July 4, 1950	2.30	138
1941	June 15, 1941	4.67	b568	1951	July 22, 1951	2.73	216
1942	May 27, 1942	4.80	698	1952	Apr. 29, 1952	4.67	546
1943	Mar. 29, 1943	2.45	176	1953	June 14, 1953	3.17	258
1944	Apr. 29, 1944	4.75	676				
1945	June 25, 1945	4.79	618				

a Maximum observed during the period May 11 to Sept. 30, 1938.
b Maximum observed during the period May 10 to Sept. 30, 1941.

2650. Kirby Creek near Lucerne, Wyo.

Location.--Lat 43°44', long 108°09', in sec.33, T.44 N., R.94 W., 1 mile upstream from mouth and 1½ miles east of Lucerne.

Drainage area.--240 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 4,350 ft (estimated from nearby level lines).

Stage-discharge relation.--Defined by current-meter measurements below 590 cfs and extended above on basis of slope-area measurement at 980 cfs.

Bankfull stage.--11 ft.

Historical data.--Maximum stage known is that of June 1936, from information by local resident.

Remarks.--Diversions above station for irrigation of about 100 acres do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	June 1936	12.0	1,090	1943	Mar. 23, 1943	7.36	385
				1944	May 20, 1944	10.70	862
1941	Sept. 4, 1941	7.80	a440	1945	June 24, 1945	9.60	686
1942	Mar. 10, 1942	11.41	980				

a Maximum discharge observed during the period June 13 to Sept. 30, 1941.

2655. Cottonwood Creek at Winchester, Wyo.

Location.--Lat 43°51'45", long 108°09'10", in SE¼ sec.17, T.45 N., R.94 W., at bridge on U.S. Highway 20 at Winchester, half a mile upstream from mouth.

Drainage area.--416 sq mi.

Gage.--Nonrecording. Altitude of gage is 4,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended above on basis of slope-area measurements.

Remarks.--Diversions above station for irrigation of about 2,900 acres do not materially affect peak flows. Records are considered poor. Only annual observed peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	July 27, 1941	7.40	4,120	1944	May 18, 1944	6.00	2,960
1942	Aug. 2, 1942	6.09	2,900	1945	Mar.15-17,1945	a3.40	-
1943	Mar. 14, 1943	a3.08	-		June 9, 1945	-	630
	May 29, 1943	-	195				

a Backwater from ice.

2658. Gooseberry Creek at Dickie, Wyo.

Location.--Lat 44°00'00", long 108°45'25", in NE¼ sec.32, T.47 N., R.99 W., at left downstream wingwall of county bridge, 0.6 mile downstream from Middle Creek and 0.8 mile northwest of Dickie.

Drainage area.--95.0 sq mi.

Gage.--Recording. Altitude of gage is 5,750 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 170 cfs and extended above on basis of indirect measurement at 1,130 cfs.

Remarks.--Several small diversions for irrigation of hay meadows above station do not materially affect peak flows. Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Apr. 16, 1958	3.06	179	1961	June 2, 1961	2.48	174
	May 7, 1958	3.45	248				
	Aug. 10, 1958	3.02	171	1962	Apr. 15, 1962	2.74	275
					July 14, 1962	2.73	224
1959	June 16, 1959	2.45	161				
				1963	June 15, 1963	5.66	1,130
1960	Nov. 24, 1959	a2.22	-				
	May 13, 1960	1.68	39				

a Backwater from ice.

2660. Gooseberry Creek near Grass Creek, Wyo.

Location.--Lat 44°00'00", long 108°41'10", in SE¼NW¼ sec.36, T.47 N., R.99 W., on right bank 15 ft downstream from bridge, 3 miles downstream from Eros Creek, and 4½ miles northwest of town of Grass Creek.

Drainage area.--142 sq mi.

Gage.--Recording. At datum 1.35 ft higher prior to Apr. 23, 1953. Datum of gage is 5,522.15 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 260 cfs

Bankfull stage.--4 ft.

Remarks.--Diversions above station for irrigation of about 800 acres do not materially affect peak flows. Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 18, 1946	3.05	370	1951	July 21, 1951	1.68	197
1947	Apr. 14, 1947	2.87	319	1952	Apr. 20, 1952	1.81	228
	Apr. 21, 1947	2.44	241		Apr. 25, 1952	2.84	418
	Apr. 28, 1947	2.28	215		May 26, 1952	2.38	309
	May 5, 1947	2.07	175		Aug. 4, 1952	1.23	151
	May 11, 1947	2.06	172				
	June 12, 1947	2.32	221	1953	May 29, 1953	2.95	144
	June 21, 1947	3.12	364				
	June 26, 1947	2.48	259	1954	July 19, 1954	2.72	83
	July 17, 1947	2.22	232				
				1955	June 25, 1955	3.40	206
1948	Apr. 18, 1948	1.67	184		July 22, 1955	3.14	169
	June 22, 1948	3.62	593		July 28, 1955	3.10	163
	July 13, 1948	1.94	236				
	Aug. 1, 1948	1.96	233	1956	Mar. 20, 1956	a3.62	-
					May 29, 1956	3.53	295
1949	May 21, 1949	1.15	120				
				1957	May 12, 1957	a4.00	-
1950	Dec. 30, 1949	a2.08	-		May 12, 1957	3.76	520
	July 3, 1950	1.78	337		May 31, 1957	3.26	372
	Aug. 12, 1950	1.46	234				

a Backwater from ice.

2670. Gooseberry Creek at Neiber, Wyo.
(Published as "at Pulliam")

Location.--Lat 43°55'22", long 108°03'48", in SE¼ sec.30, T.46 N., R.93 W., at Neiber, three-quarters of a mile upstream from mouth.

Drainage area.--361 sq mi.

Gage.--Recording. At two sites within a quarter of a mile upstream at different datums prior to Sept. 30, 1944. At datum 1.01 ft higher Oct. 1, 1945, to Sept. 4, 1948. Datum of gage is 4,140.44 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 540 cfs.

Remarks.--Diversions for irrigation of about 3,000 acres above station materially affect peak flows. Badly shifting channel. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941 a/	June 10, 1941	4.54	s23	1949	Mar. 22, 1949	-	b55
1942	May 25, 1942	3.50	500	1950	Mar. 5, 1950	-	b55
1943	Apr. 4, 1943	1.65	97				
1944	May 18, 1944	7.13	1,650	1951	Mar. 16, 1951	c4.17	-
					Mar. 27, 1951	-	42
1946	June 20, 1946	1.12	175	1952	May 22, 1952	3.07	429
1947	Mar. 18, 1947	2.56	371	1953	Mar. 8, 1953	c3.03	-
1948	June 22, 1948	2.80	735		July 29, 1953	-	s3

a Partial year.
b Maximum daily.
c Backwater from ice.

2685. Fifteen Mile Creek near Worland, Wyo.

Location.--Lat 44°01'14", long 108°00'42", in NW¼NE¼ sec.27, T.47 N., R.93 W., on left bank 300 ft upstream from Bighorn Canal spillway, 1¾ miles upstream from mouth, and 2¾ miles west of Worland.

Drainage area.--518 sq mi.

Gage.--Recording. At site 400 ft upstream at datum 5.52 ft higher prior to Oct. 1, 1956. Altitude of gage is 4,080 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs.

Remarks.--Bureau of Land Management has extensive spreader systems on some of the tributaries above station which do not materially affect peak flows. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951 a/	June 2, 1951	2.22	418	1955	June 25, 1955	2.85	750
	July 11, 1951	3.48	1,030		July 29, 1955	3.05	858
	Aug. 5, 1951	3.23	896		Aug. 15, 1955	3.11	890
	Aug. 7, 1951	4.02	1,340				
				1956	Dec. 24, 1955	-	b490
1952	Oct. 4, 1951	3.66	1,150		Sept.13, 1956	2.28	492
	Apr. 16, 1952	3.64	1,130				
	May 16, 1952	2.72	635	1957	May 14, 1957	2.98	686
	May 22, 1952	5.77	3,300		May 15, 1957	3.88	1,090
	May 26, 1952	2.96	755		June 10, 1957	4.00	1,150
					June 17, 1957	3.31	834
1953	June 8, 1953	2.40	490		Aug. 18, 1957	2.88	642
	July 29, 1953	5.17	2,490				
				1958	June 4, 1958	2.97	682
1954	June 26, 1954	5.02	2,320		June 12, 1958	3.95	1,130
	June 29, 1954	3.95	1,380		July 31, 1958	3.03	762
	July 16, 1954	3.42	1,060		Aug. 16, 1958	2.48	554
					Sept.10, 1958	2.88	738
1955	Apr. 9, 1955	2.11	404				
	June 3, 1955	2.08	412	1959	Mar. 11, 1959	c3.80	-
	June 16, 1955	3.86	1,330		May 4, 1959	2.75	654

a Period March to September 1951. b Estimated. c Backwater from ice.

Peak stages and discharges of Fifteen Mile Creek near Worland, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 17, 1959	2.88	703	1961	Sept.20, 1961	6.32	2,180
	June 30, 1959	2.75	654				
	Aug. 20, 1959	2.54	506	1962	Oct. 10, 1961	3.42	568
					Mar. 9, 1962	-	b500
1960	Oct. 16, 1959	2.32	411		May 26, 1962	3.76	876
	Mar. 14, 1960	c3.62	-		July 13, 1962	3.85	-
	June 10, 1960	2.42	470				
	Sept.15, 1960	2.79	578	1963	Apr. 28, 1963	4.80	1,270
					May 26, 1963	4.30	995
1961	May 25, 1961	3.12	749		June 3, 1963	4.19	934
	July 7, 1961	3.10	785		June 15, 1963	3.54	577
	Sept.11, 1961	4.67	1,240		Sept.22, 1963	4.02	841
	Sept.12, 1961	4.14	947				

b Estimated. c Backwater from ice.

2690. Bighorn River near Manderson, Wyo.

Location.--Lat 44°12', long 107°55', in sec.28, T.49 N., R.92 W., on left bank at bridge a quarter of a mile west of Rairdon, 1¼ miles downstream from Five-mile Creek, and 6 miles southeast of Manderson.

Drainage area.--11,020 sq mi.

Gage.--Nonrecording prior to June 2, 1953; recording thereafter. Datum of gage is 3,924.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs.

Bankfull stage.--12 ft.

Remarks.--Diversions for irrigation of about 213,000 acres above station. Flow largely regulated by Boysen Reservoir beginning on Oct. 11, 1951. Diversions materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Feb. 19, 1948	a16.45	9,500	1952	May 22, 1952	8.27	5,810
1949	June 15, 1949	9.47	8,040	1953	July 30, 1953	6.25	2,390
1950	June 25, 1950	9.72	8,580				
				1956	Feb. 6, 1956	a11.10	-
1951	June 1, 1951	10.15	10,600		Feb. 24, 1956	-	4,940

a Backwater from ice.

2695. Bighorn River at Manderson, Wyo.

Location.--Lat 44°16', long 107°59', in sec.36, T.50 N., R.93 W., at bridge on U.S. Highway 20, near west edge of Manderson and 1 mile upstream from Nowood Creek.

Drainage area.--11,048 sq mi.

Gage.--Nonrecording. Datum of gage is 3,881.74 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 18,000 cfs.

Remarks.--Diversions above station for irrigation of about 213,000 acres materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 9, 1941	8.99	10,500	1946	June 24, 1946	11.88	14,200
1942	May 29, 1942	9.37	10,400	1947	June 23, 1947	12.97	17,700
1943	June 24, 1943	10.12	10,900	1948	Feb. 19, 1948	-	a9,620
1944	June 4, 1944	12.60	17,900		Feb. 19, 1948	b15.00	-
1945	June 24, 1945	11.67	13,700	1949	June 15, 1949	-	c7,950

a Result of current-meter measurement. b Backwater from ice. c Maximum daily.

2700. Nowood Creek near Tensleep, Wyo.

Location.--Lat 44°00'50", long 107°25'40", in sec.27, T.47 N., R.88 W., on right bank 2 miles upstream from Tensleep Creek and 2 miles southeast of Tensleep.

Drainage area.--803 sq mi.

Gage.--Nonrecording at site 300 ft downstream at different datum prior to Oct. 1, 1943; recording thereafter. Altitude of gage is 4,410 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 720 cfs and extended above on basis of slope-area measurement at 3,330 cfs. Defined below 1,400 cfs at former site.

Remarks.--Diversions above station for irrigation of about 4,000 acres do not materially affect peak flows. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938 a/	June 28, 1938	9.00	2,110	1951	May 1, 1951	3.06	394
	Sept. 2, 1938	5.82	1,030	1952	June 27, 1952	5.88	1,160
1939	Mar. 13, 1939	-	850		Aug. 11, 1952	4.02	635
1940	June 20, 1940	9.00	2,110	1953	Mar. 9, 1953	b6.13	-
					May 29, 1953	5.45	1,040
1941	May 5, 1941	7.66	1,580		June 7, 1953	4.70	820
1942	Mar. 13, 1942	8.11	1,750	1954	Feb. 14, 1954	b3.55	-
					Aug. 7, 1954	3.25	412
1943	Mar. 25, 1943	8.51	2,010	1955	May 3, 1955	4.01	586
1950 a/	May 18, 1950	3.86	587		May 16, 1955	5.10	890
					June 16, 1955	12.3	3,330
1951	Feb. 28, 1951	b5.52	-		June 17, 1955	5.25	885

a Partial year.
b Backwater from ice.

2705. Canyon Creek near Tensleep, Wyo.

Location.--Lat 44°03'45", long 107°22'55", in NW¼ sec.12, T.47 N., R.88 W., 50 ft upstream from a small unnamed tributary, 300 ft upstream from mouth, and 4.4 miles northeast of Tensleep.

Drainage area.--66.3 sq mi.

Gage.--Nonrecording. Datum of gage is 4,706.25 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Bankfull stage.--6 ft.

Remarks.--Diversions for irrigation of about 810 acres above station do not materially affect peak flows. Only annual observed maximum stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 1, 1939	2.24	a75	1942	Apr. 21, 1942	3.32	231
1940	July 3, 1940	2.38	80	1943	June 12, 1943	2.86	166
				1944	May 18, 1944	3.44	248
1941	May 14, 1941	3.09	196				

a Maximum observed during the period May to September 1939.

2710. Tensleep Creek near Tensleep, Wyo.

Location.--Lat 44°03'40", long 107°23'10", in NW¼ sec.12, T.47 N., R.88 W., on left bank a quarter of a mile downstream from Canyon Creek and 4 miles northeast of Tensleep.

Drainage area.--247 sq mi.

Gage.--Nonrecording prior to May 11, 1918; recording thereafter. At datum 1.00 ft higher prior to Oct. 1, 1916. Datum of gage is 4,667.59 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs.

Bankfull stage.--8 ft.

Remarks.--Natural flow affected by some regulation of Meadowlark Lake. Diversions above station for irrigation of about 500 acres. Regulation and diversions do not materially affect peak flows. Peak flows are primarily from snowmelt. Base for partial-duration series, 1,300 cfs. Only annual peaks are shown prior to 1921.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 1, 1911	3.05	940	1948	May 22, 1948	6.42	2,390
1912	June 8, 1912	5.3	1,840				
				1949	June 6, 1949	5.80	1,900
1915	June 12, 1915	4.1	1,350				
				1950	June 7, 1950	4.94	1,340
1916	June 19, 1916	5.0	1,710		June 17, 1950	4.97	1,360
1917	June 18, 1917	5.8	1,860				
1918	June 11, 1918	6.8	2,690	1951	May 29, 1951	4.48	1,070
1919	May 30, 1919	4.6	1,250				
1920	June 9, 1920	6.0	2,050	1952	June 7, 1952	5.61	1,780
1921	May 30, 1921	5.25	1,620	1953	June 15, 1953	6.49	2,440
	June 8, 1921	4.79	1,420				
	June 18, 1921	5.3	1,680	1954	May 22, 1954	4.59	1,080
1922	May 26, 1922	5.25	1,620	1955	June 16, 1955	5.68	1,830
	June 10, 1922	4.72	1,360				
				1956	May 27, 1956	5.09	1,340
1923	May 27, 1923	4.85	1,420				
	June 13, 1923	5.1	1,550	1957	June 11, 1957	5.13	1,410
	June 16, 1923	5.07	1,540				
				1958	May 22, 1958	5.08	1,210
1924	May 19, 1924	4.91	1,460				
	June 15, 1924	7.05	2,890	1959	June 8, 1959	6.26	2,230
	June 27, 1924	5.08	1,540		June 25, 1959	5.48	1,560
1944	May 31, 1944	5.42	1,490	1960	May 13, 1960	4.09	815
1945	June 24, 1945	6.82	2,710	1961	May 30, 1961	4.61	1,060
1946	June 6, 1946	5.46	1,590	1962	June 13, 1962	5.25	1,470
1947	May 9, 1947	5.24	1,480	1963	June 16, 1963	6.23	2,230

2715. Paintrock Creek below Lake Solitude, Wyo.

Location.--Lat 44°21'20", long 107°16'10", in NE¼ sec.36, T.51 N., R.87 W., on left bank three-eighths of a mile downstream from Lake Solitude and 18 miles northeast of Hyattville.

Drainage area.--16.0 sq mi.

Gage.--Recording. Altitude of gage is 9,150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 270 cfs.

Bankfull stage.--3 ft.

Remarks.--Natural regulation by Lake Solitude and many small lakes in headwaters materially affects peak flows. Only annual peaks are shown.

Peak stages and discharges of Paintrock Creek below Lake Solitude, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 20, 1947	4.64	321	1951	June 17, 1951	4.52	300
1948	May 1948	4.69	328	1952	June 7, 1952	5.50	452
1949	June 19, 1949	4.40	286	1953	June 11, 1953	6.0	543
1950	June 25, 1950	4.86	341				

2725. Paintrock Creek near Hyattville, Wyo.

Location.--Lat 44°17', long 107°30', in sec.25, T.50 N., R.89 W., on downstream side of bridge near left bank, 0.6 mile upstream from Luman Creek and 6 miles northeast of Hyattville.

Drainage area.--164 sq mi.

Gage.--Recording prior to June 15, 1953; nonrecording thereafter. At several nearby sites at different datums prior to Sept. 4, 1948. At site 400 ft upstream at different datum Sept. 4, 1948, to June 14, 1953. Altitude of gage is 5,070 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 530 cfs at present site and below 1,900 cfs at site 400 ft upstream.

Remarks.--Some natural regulation by Lake Solitude and many small lakes in headwaters does not materially affect peak flows. Base for partial-duration series, 1,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	May 28, 1921	5.20	2,560	1944	May 31, 1944	5.89	1,590
1922	May 28, 1922	4.62	1,890	1945	June 24, 1945	9.80	8,200
	June 6, 1922	4.90	2,200	1946	June 6, 1946	5.20	1,910
1923	May 26, 1923	4.36	1,620				
	June 3, 1923	4.34	1,600	1947	June 8, 1947	4.55	1,540
	June 12, 1923	4.79	2,080				
	July 24, 1923	7.2	4,960	1948	May 21, 1948	4.50	2,600
1924	June 14, 1924	6.1	3,300	1949	June 6, 1949	6.48	2,050
	June 26, 1924	-	a1,750	1950	June 6, 1950	6.10	1,700
1925	May 21, 1925	5.6	2,520		June 16, 1950	6.80	2,380
	May 30, 1925	4.90	1,820	1951	May 28, 1951	6.40	1,750
1926	May 23, 1926	4.94	1,860	1952	June 6, 1952	7.5	2,930
1941	May 25, 1941	5.20	1,170	1953	June 11, 1953	8.32	3,950
1942	May 26, 1942	6.54	2,150				
1943	June 20, 1943	6.15	1,900				

a Maximum daily

2730. Medicine Lodge Creek near Hyattville, Wyo.

Location.--Lat 44°18', long 107°33', in NW¼ sec.22, T.50 N., R.89 W., on left bank a quarter of a mile downstream from North Fork and 4½ miles northeast of Hyattville.

Drainage area.--86.8 sq mi.

Gage.--Nonrecording at different datum prior to June 24, 1943; recording thereafter. Altitude of gage is 4,770 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 570 cfs.

Bankfull stage.--3 ft.

Remarks.--Small diversion above station for irrigation of hay meadow does not materially affect peak flows. Base for partial-duration series, 350 cfs.

Peak stages and discharges of Medicine Lodge Creek near Hyattville, Wyc.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	June 21, 1943	4.60	610	1954	May 22, 1954	2.25	281
1944	May 31, 1944	3.10	584	1955	June 14, 1955	2.54	493
	June 22, 1944	2.73	447		June 17, 1955	2.46	504
1945	June 24, 1945	4.10	1,160		July 25, 1955	2.52	528
1946	June 6, 1946	2.84	501	1956	May 27, 1956	2.29	408
	June 28, 1946	3.22	675	1957	June 4, 1957	2.08	337
1947	June 9, 1947	2.47	362	1958	May 22, 1958	2.24	349
1948	May 22, 1948	2.75	538	1959	June 7, 1959	2.84	655
1949	June 6, 1949	2.35	372	1960	June 10, 1960	1.88	219
1950	June 13, 1950	2.48	383	1961	May 27, 1961	2.28	402
1951	May 29, 1951	2.40	390	1962	June 14, 1962	2.25	374
1952	June 7, 1952	2.80	475	1963	June 5, 1963	2.59	648
1953	June 13, 1953	3.43	782		June 15, 1963	2.34	504

2735. Paintrock Creek near Bonanza, Wyo.
(Published as "at Bonanza" 1913, by State engineer of Wyoming)

Location.--Lat 44°12', long 107°43', in sec.19, T.49 N., R.90 W., half a mile upstream from mouth, 1½ miles east of Bonanza, and 6½ miles southwest of Hyattville.

Drainage area.--398 sq mi.

Gage.--Nonrecording. At site 300 ft upstream at different datum prior to Oct. 31, 1913. Altitude of gage is 4,150 ft (estimated from nearby U.S. Geological Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs.

Remarks.--Diversions above station for irrigation of about 7,000 acres materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 2,16, 1911	5.60	950	1917	June 17, 1917	4.2	2,180
1912	June 10, 1912	7.60	1,850	1918	June 12, 1918	5.3	3,390
1913	May 27, 1913	6.74	1,390	1919	May 20, 1919	3.4	1,060
1915	June 12, 1915	4.0	1,770	1920	June 10, 1920	4.6	2,340
1916	June 19, 1916	4.75	2,670	1921	May 29, 1921	4.0	1,770
				1922	June 7, 1922	4.0	1,880

2740. Nowood Creek at Bonanza, Wyo.
(Published as "near Bonanza" 1913-14)

Location.--Lat 44°13', long 107°45', in sec.24, T.49 N., R.91 W., a quarter of a mile north of Bonanza, 1 mile downstream from Paintrock Creek, and 7½ miles southwest of Hyattville.

Drainage area.--1,790 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 4,120 ft (estimated from nearby U.S. Geological Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs.

Remarks.--Records for 1913-14 furnished by State engineer of Wyoming. Diversions above station for irrigation of about 13,000 acres, some of which are below station, materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 16, 1911	5.70	2,100	1921	June 19, 1921	6.5	2,950
1912	July 2, 1912	8.3	4,540	1922	May 29, 1922	6.6	3,050
1913	May 27, 1913	-	2,700	1923	Sept.29, 1923	7.35	4,110
1914	May 28, 1914	-	3,940	1924	June 15, 1924	8.09	5,160
1915	June 13, 1915	6.8	2,930	1925	May 22, 1925	7.0	3,600
1916	June 19, 1916	7.5	3,780	1926	May 25, 1926	6.3	2,800
1917	June 18, 1917	7.5	3,780	1927	June 28, 1927	7.46	4,260
1918	June 12,13,1918	7.8	4,080	1928	July 7, 1928	7.03	3,760
1919	May 20, 1919	5.42	1,760				
1920	June 11, 1920	7.7	3,980				

2745. Greybull River near Pitchfork, Wyo.

Location.--Lat 44°06'31", long 109°09'36", in SE¼ sec.24, T.48 N., R.103 W., on left bank at downstream side of Z Bar T Ranch bridge, 0.1 mile upstream from Rose Creek and 4 miles west of Pitchfork.

Drainage area.--282 sq mi.

Gage.--Recording. At site 300 ft downstream at different datum prior to May 9, 1951. Datum of gage is 6,709.33 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,900 cfs and extended above on basis of slope-area measurement at 8,610 cfs.

Remarks.--Diversions above station for irrigation of about 1,000 acres do not materially affect peak flows. Base for partial-duration series, 1,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 5, 1946	3.56	1,230	1955	June 21, 1955	4.82	1,290
1947	June 19, 1947	3.89	1,360	1956	June 4, 1956	5.57	2,120
1948	Dec. 12, 1947	a4.96	-	1957	June 5, 1957	6.98	5,700
	June 7, 1948	3.90	1,240		June 29, 1957	6.13	3,270
					July 19, 1957	5.21	1,510
1949	June 5, 1949	4.57	-				
	June 12, 1949	4.13	1,540	1958	May 22, 1958	5.13	2,020
1951 b/	June 16, 1951	5.58	2,460	1959	June 6, 1959	4.62	1,260
	July 4, 1951	5.16	1,440		June 16, 1959	4.80	1,500
	July 16, 1951	5.05	1,230				
				1960	June 17, 1960	4.22	800
1952	Apr. 27, 1952	5.17	1,480				
	June 6, 1952	6.10	4,000	1961	June 9, 1961	5.49	2,230
1953	June 13, 1953	5.73	3,190	1962	June 26, 1962	5.51	2,300
1954	May 20, 1954	4.89	1,430	1963	June 4, 1963	5.15	1,760
	June 27, 1954	5.68	3,060		June 15, 1963	7.68	8,610
					June 21, 1963	4.34	2,410
1955	June 15, 1955	4.82	1,290				

a Backwater from ice. b Period May to September 1951.

2750. Wood River at Sunshine, Wyo.

Location.--Lat 44°01', long 109°01', in sec.29, T.47 N., R.101 W., on left bank 60 ft upstream from bridge on county road, half a mile northeast of Sunshine, and 3 miles downstream from Dicks Creek.

Drainage area.--194 sq mi.

Gage.--Recording except nonrecording Sept. 18, 1952, to Oct. 27, 1953. Datum of gage is 6,537.45 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs and extended above on basis of slope-area measurement at 5,080 cfs.

Remarks.--Diversions above station for irrigation of about 1,500 acres do not materially affect peak flows. Base for partial-duration series, 830 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 5, 1946	3.38	828	1954	Jan. 23, 1954	a3.76	-
					May 20, 1954	3.31	628
1947	May 8, 1947	3.38	848				
	June 19, 1947	3.88	1,340	1955	Apr. 10, 1955	a3.76	-
	June 26, 1947	4.16	1,620		July 24, 1955	3.52	798
	July 3, 1947	3.50	960				
	July 22, 1947	3.90	1,360	1956	May 28, 1956	3.88	1,140
1948	June 22, 1948	4.00	1,520	1957	June 6, 1957	5.95	-
					June 7, 1957	5.48	2,040
1949	June 13, 1949	3.95	1,420		June 29, 1957	5.58	2,020
	June 19, 1949	3.36	888				
				1958	May 10, 1958	4.26	898
1950	Mar. 22, 1950	a4.78	-		May 22, 1958	4.77	1,510
	July 4, 1950	3.51	958				
				1959	June 7, 1959	2.72	422
1951	Mar. 2, 1951	a4.35	-				
	June 16, 1951	3.92	1,290	1960	May 12, 1960	2.60	350
	July 4, 1951	3.55	945				
				1961	June 8, 1961	4.23	1,540
1952	Apr. 26, 1952	4.27	1,930				
	June 5, 1952	4.85	2,260	1962	June 22, 1962	3.53	851
1953	June 13, 1953	3.63	1,090	1963	June 15, 1963	7.00	5,080

a Backwater from ice.

2755. Wood River near Meeteetse, Wyo.

Location.--Lat 44°06'25", long 108°57'25", in SE¼SE¼ sec.22, T.48 N., R.101 W., 50 ft downstream from bridge, a quarter of a mile upstream from mouth, and 5½ miles southwest of Meeteetse.

Drainage area.--218 sq mi.

Gage.--Nonrecording prior to Aug. 1, 1934; recording thereafter. At site 50 ft upstream at different datum prior to Apr. 26, 1916. At site 450 ft upstream at different datum Apr. 27, 1916, to July 31, 1934. At site 800 ft downstream at different datum Aug. 1, 1934, to Aug. 16, 1936. At present site at datum 2.00 ft higher Aug. 17, 1936, to Aug. 26, 1945. Altitude of gage is 6,030 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 990 cfs.

Remarks.--Diversions above station for irrigation of about 6,800 acres do not materially affect peak flows. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 18, 1911	2.49	665	1930	Aug. 16, 1930	3.80	780
1912	June 8, 1912	-	a1,700	1931	June 7, 1931	3.30	633
1915	Sept. 5, 1915	3.5	575	1932	June 25, 1932	3.10	744
1916	June 18, 1916	3.85	888	1933	June 6, 1933	3.26	852

a Estimated.

Peak stages and discharges of Wood River near Meeteetse, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 14, 1935	6.17	1,550	1944	May 31, 1944	2.45	1,010
					June 11, 1944	2.33	936
1936	July 12, 1936	4.51	a400		June 17, 1944	2.44	1,040
					June 22, 1944	2.64	1,220
1937	June 17, 1937	3.06	992		June 27, 1944	2.90	1,450
	June 20, 1937	3.06	1,020				
				1945	June 22, 1945	3.18	-
1938	May 27, 1938	2.31	615		June 24, 1945	3.05	2,150
					July 4, 1945	.94	740
1939	May 29, 1939	1.86	412		July 9, 1945	1.00	821
1940	July 1, 1940	1.95	407	1946	June 5, 1946	3.36	1,110
					June 18, 1946	2.83	652
1941	May 13, 1941	2.48	812		June 22, 1946	3.40	1,160
	May 26, 1941	-	b760				
	June 15, 1941	2.62	1,170	1947	May 3, 1947	3.1	1,080
	July 25, 1941	2.32	614		June 19, 1947	-	b1,160
	Aug. 11, 1941	3.36	1,350		June 27, 1947	-	b1,280
					July 4, 1947	-	b720
1942	May 22, 1942	3.03	1,210				
	May 26, 1942	3.05	1,210	1948	May 21, 1948	3.13	785
	June 4, 1942	3.23	1,260		May 29, 1948	3.30	1,020
	June 8, 1942	3.30	1,330		June 3, 1948	3.25	930
	June 26, 1942	2.48	756		June 7, 1948	3.30	900
					June 22, 1948	4.24	1,600
1943	May 29, 1943	2.56	823				
	June 21, 1943	2.86	1,050	1949	June 12, 1949	4.52	1,370
					June 19, 1949	3.88	753
1944	May 14, 1944	2.97	1,320				

a Estimated.
b Maximum daily.

2765. Greybull River at Meeteetse, Wyo.

Location.--Lat 44°09'20", long 108°52'35", in sec.4, T.48 N., R.100 W., on right bank at Meeteetse, 1,700 ft upstream from bridge on State Highway 120 and 3 miles upstream from Meeteetse Creek.

Drainage area.--681 sq mi.

Gage.--Recording. At different datum prior to July 25, 1926. At site 600 ft downstream at different datum July 26, 1926, to Apr. 14, 1929. At site 2,200 ft downstream at different datum Apr. 15, 1929, to July 29, 1934. At site 1,700 ft downstream at different datum July 30, 1934, to Apr. 27, 1938. At site 100 ft upstream on left bank at datum 2.00 ft higher Apr. 28, 1938, to May 24, 1961. Datum of gage is 5,739.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements below 6,500 cfs.

Remarks.--Diversions above station for irrigation of about 6,000 acres. Slight regulation by Sunshine Reservoir (capacity, 53,000 acre-ft) beginning May 1940. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 6, 1921	5.4	4,970	1934	May 7, 1934	5.17	1,690
1922	June 22, 1922	4.7	3,320	1935	June 12, 1935	6.90	9,000
1923	June 12, 1923	7.44	4,280				
1924	June 16,17,1924	-	a4,600	1936	July 20, 1936	6.55	8,000
1925	June 22, 1925	6.55	3,020	1937	June 20, 1937	7.47	10,500
				1938	June 23, 1938	4.63	2,200
1926	July 9, 1926	8.35	6,350	1939	May 30, 1939	4.40	1,740
1927	June 27, 1927	5.48	2,010	1940	June 5, 1940	3.85	1,080
1928	(b)	6.69	3,350				
1929	June 6, 1929	6.37	4,000	1941	Aug. 11, 1941	7.56	10,400
1930	Aug. 14, 1930	8.20	7,320	1942	May 25, 1942	6.33	7,400
				1943	June 23, 1943	4.96	2,780
1931	June 7, 1931	7.14	5,030	1944	June 26, 1944	5.59	4,530
1932	June 22, 1932	6.69	3,940	1945	June 22, 1945	6.32	5,960
1933	June 15, 1933	6.42	4,550				

a Maximum daily; estimated.
b Occurred May 27 or June 27, 1928.

Peak stages and discharges of Greybull River at Meeteetse, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 23, 1946	5.03	2,410	1955	July 28, 1955	3.91	1,810
1947	June 19, 1947	5.56	2,780				
1948	June 22, 1948	4.91	2,400	1956	June 5, 1956	4.20	2,290
1949	June 12, 1949	5.12	2,730	1957	June 6, 1957	6.78	7,710
1950	Jan. 21, 1950	c4.27	-	1958	May 20, 1958	5.17	3,920
	June 7, 1950	4.03	1,580	1959	June 16, 1959	2.70	1,110
				1960	June 18, 1960	2.37	933
1951	June 17, 1951	5.13	3,380				
1952	June 7, 1952	6.36	5,490	1961	June 8, 1961	4.72	2,480
1953	June 13, 1953	5.12	3,340	1962	June 27, 1962	4.71	2,800
1954	July 15, 1954	4.54	2,600	1963	June 15, 1963	9.20	13,600

c Backwater from ice.

2775. Greybull River near Basin, Wyo.

Location.--Lat 44°25', long 108°11', in NW¼ sec.8, T.51 N., R.94 W., on left bank 250 ft downstream from bridge on State Highway 130, 2 miles upstream from Dorsey Creek, and 8 miles west of Basin.

Drainage area.--1,115 sq mi.

Gage.--Nonrecording prior to Sept. 20, 1934; recording thereafter. At datum 2.92 ft higher Apr. 14 to Sept. 30, 1930. At datum 1.92 ft higher Oct. 1, 1930, to Apr. 14, 1936. At site 200 ft upstream at present datum Apr. 15, 1936, to Aug. 13, 1951. Altitude of gage is 3,990 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 8,200 cfs and extended above on basis of slope-area measurement at 19,400 cfs.

Bankfull stage.--5 ft.

Remarks.--Diversions above station for irrigation of about 39,000 acres. Slight regulation by upper Sunshine Reservoir beginning May 1940 (capacity, 53,000 acre-ft). Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Aug. 15, 1930	4.90	3,270	1949	June 12, 1949	-	2,390
				1950	July 4, 1950	5.17	376
1931	June 8, 1931	6.40	4,100				
1932	May 22, 1932	5.80	3,500	1951	Feb. 27, 1951	a7.29	-
1933	June 10, 1933	5.4	2,920		Aug. 5, 1951	-	3,420
1934	Apr. 7, 1934	3.31	834	1952	June 7, 1952	6.89	4,920
1935	June 13, 1935	5.58	5,270	1953	June 14, 1953	5.59	2,590
				1954	July 16, 1954	5.24	1,880
1936	Aug. 4, 1936	5.60	1,920	1955	Mar. 30, 1955	a4.92	-
1937	June 21, 1937	6.93	4,220		June 25, 1955	-	1,110
1938	July 25, 1938	7.66	5,340				
1939	Mar. 13, 1939	a5.94	-	1956	Dec. 24, 1955	a5.16	-
	June 1, 1939	-	1,280		July 13, 1956	-	1,250
1940	June 5, 1940	6.98	4,050	1957	June 4, 1957	6.03	-
					June 4, 1957	5.90	9,300
1941	Aug. 12, 1941	8.48	5,390	1958	May 21, 1958	5.04	3,390
1942	May 24, 1942	7.43	4,510	1959	Jan. 12, 1959	a4.34	-
1943	Mar. 26, 1943	a8.60	-		June 22, 1959	-	1,240
	June 26, 1943	-	2,720	1960	Mar. 21, 1960	a5.75	-
1944	June 27, 1944	7.62	3,200		Mar. 28, 1960	-	397
1945	June 23, 1945	7.82	4,050				
				1961	Sept.19, 1961	5.11	3,680
1946	June 23, 1946	6.50	1,650	1962	Feb. 12, 1962	a4.96	-
1947	June 27, 1947	7.71	2,890		June 23, 1962	-	2,330
1948	June 26, 1948	7.35	2,530	1963	June 16, 1963	8.83	19,400
1949	Mar. 5, 1949	a8.06	-				

a Backwater from ice.

2780. Dry Creek at Greybull, Wyo.

Location.--Lat 44°30', long 108°03', in sec.5, T.52 N., R.93 W., on left bank half a mile north of Greybull and half a mile upstream from mouth.

Drainage area.--433 sq mi.

Gage.--Recording. At site 1 mile upstream at different datum prior to Nov. 12, 1952. Altitude of gage is 3,780 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 980 cfs.

Remarks.--Diversions above station for irrigation of about 800 acres. Part of flow is return flow from lands irrigated by the Farmers Canal diverting water from Greybull River. Diversions and return flow do not materially affect peak flows. Base for partial-duration series, 350 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951a/	July 17, 1951	4.06	860	1957	June 7, 1957	7.72	998
	Aug. 5, 1951	3.86	773		June 10, 1957	6.48	448
	Aug. 8, 1951	3.33	547		June 17, 1957	7.41	845
1952	Mar. 9, 1952	b4.70	-	1958	June 9, 1958	6.30	410
	May 22, 1952	3.77	734		July 3, 1958	6.54	491
					July 20, 1958	6.70	575
1953	Feb. 4, 1953	b5.44	-		July 21, 1958	6.48	487
	June 15, 1953	5.38	246		July 25, 1958	6.95	680
					July 31, 1958	6.72	600
1956	Mar. 19, 1956	b6.84	-				
	Mar. 19, 1956	b6.78	360	1959	June 30, 1959	6.92	668
1957	May 5, 1957	6.67	590	1960	Mar. 9, 1960	b9.12	-
	May 15, 1957	7.09	746		Mar. 10, 1960	-	c250
	May 20, 1957	6.49	526				
	May 31, 1957	7.46	894	1961	Sept.19, 1961	-	d7,200

a Partial year. b Backwater from ice. c Maximum daily; estimated. d Annual peak only.

2783. Shell Creek above Shell Creek Reservoir, Wyo.

Location.--Lat 44°30', long 107°24', in sec.1, T.52 N., R.88 W., on right bank 1 mile downstream from Buckley Creek, 6 miles southeast of Shell ranger station, and 19 miles east of Shell. Station is above Shell Creek Reservoir.

Drainage area.--23.1 sq mi.

Gage.--Recording. Altitude of gage is 9,050 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 410 cfs and extended above on basis of area-velocity study.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	June 4, 1957	5.98	764	1961	May 29, 1961	6.18	870
1958	May 21, 1958	5.75	695	1962	June 3, 1962	4.85	465
1959	June 7, 1959	6.23	845		June 12, 1962	5.77	722
1960	June 3, 1960	4.64	438	1963	June 4, 1963	6.31	945
	June 10, 1960	5.20	578		June 15, 1963	7.84	1,870

2785. Shell Creek near Shell, Wyo.

Location.--Lat 44°34', long 107°42', in sec.17, T.53 N., R.90 W., on right bank 1½ miles upstream from White Creek and 5 miles northeast of Shell.

Drainage area.--145 sq mi.

Gage.--Recording. Datum of gage is 4,367.20 ft above mean sea level (U.S. Bureau of Public Roads bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Bankfull stage.--5 ft.

Remarks.--Diversions above station for irrigation of about 100 acres. Some regulation by two small reservoirs (capacity, 3,650 acre-ft). Diversions and regulation do not materially affect peak flows. Base for partial-duration series, 750 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	May 13, 1941	4.81	1,020	1950	June 6, 1950	5.13	1,170
	May 18, 1941	4.76	990		June 13, 1950	5.29	1,260
	May 25, 1941	4.79	1,000		June 25, 1950	4.50	810
1942	May 26, 1942	5.33	1,200	1951	May 23, 1951	4.83	956
	June 5, 1942	5.84	1,280		May 28, 1951	5.33	1,260
					June 17, 1951	4.98	1,040
1943	May 30, 1943	4.48	836				
	June 12, 1943	5.12	1,140	1952	May 3, 1952	5.13	1,080
	June 20, 1943	5.39	1,280		June 7, 1952	5.69	1,510
1944	May 24, 1944	4.84	970	1953	June 11, 1953	6.49	2,130
	May 31, 1944	5.55	1,320				
	June 16, 1944	4.52	824	1954	May 22, 1954	4.72	1,080
	June 22, 1944	4.83	965				
	June 25, 1944	4.69	900	1955	May 15, 1955	4.22	812
					May 21, 1955	4.27	842
1945	May 31, 1945	4.58	900		June 15, 1955	5.67	1,770
	June 6, 1945	4.68	950				
	June 24, 1945	7.49	3,020	1956	June 1, 1956	4.88	1,190
1946	May 28, 1946	4.60	905	1957	June 7, 1957	4.72	1,240
	June 6, 1946	5.77	1,480				
				1958	May 24, 1958	5.02	1,320
1947	May 9, 1947	4.55	868				
	June 9, 1947	5.20	1,190	1959	June 8, 1959	5.37	1,610
	June 20, 1947	4.75	965				
	June 27, 1947	4.45	822	1960	June 10, 1960	4.24	828
1948	May 22, 1948	5.61	1,420	1961	May 30, 1961	4.63	1,300
	May 27, 1948	4.60	910				
	June 2, 1948	4.60	910	1962	June 4, 1962	4.25	870
					June 13, 1962	4.58	1,100
1949	May 16, 1949	4.52	870				
	May 29, 1949	4.75	985	1963	June 5, 1963	5.52	1,790
	June 6, 1949	4.90	1,060		June 15, 1963	6.09	2,320
	June 12, 1949	5.06	1,160				

2790. Shell Creek at Shell, Wyo.

Location.--Lat 44°33', long 107°48', in sec.26, T.53 N., R.91 W., at Shell, 450 ft upstream from headgate of Shell Canal and half a mile downstream from Trapper Creek.

Drainage area.--256 sq mi.

Gage.--Nonrecording. At datum 2.80 ft lower prior to Oct. 1, 1918. Altitude of gage is about 4,200 ft (estimated from nearby Geological Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs.

Remarks.--Diversion above station for irrigation of about 4,000 acres. Flow partly regulated by Adelaide Lake (capacity, 1,410 acre-ft). Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	May 26,27, 1913	7.57	a1,390	1919	May 21, 1919	3.9	970
1914	May 24, 1914	-	a1,380	1920	June 10, 1920	4.85	1,520
1915	Apr. 30, 1915	7.1	1,110	1921	May 29, 1921	4.73	1,490
1916	June 10, 1916	7.5	1,360	1922	June 7, 1922	4.52	1,310
1917	June 17, 1917	7.75	1,500	1923	June 13, 1923	4.57	1,320
1918	June 11, 1918	8.35	1,910				

a Maximum daily; data furnished by State engineer of Wyoming.

2795. Bighorn River at Kane, Wyo.

Location.--Lat 44°45', long 108°12', in sec.9, T.55 N., R.94 W., on right bank 2 miles upstream from Five Springs Creek and 6½ miles south of Kane.

Drainage area.--15,765 sq mi. Area at sites used prior to May 17, 1956, 15,846 sq mi.

Gage.--Nonrecording prior to Apr. 25, 1932; recording thereafter. At site 12½ miles downstream on highway bridge at different datum prior to Apr. 25, 1932. At site 150 ft upstream from bridge 12½ miles downstream at different datum Apr. 25, 1932, to Nov. 25, 1943. At site 26 ft downstream from bridge 12½ miles downstream at different datum Nov. 26, 1943, to May 16, 1956. Altitude of gage is 3,660 ft (from Fairchild Aerial Survey map made for Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs.

Bankfull stage.--9 ft.

Historical data.--Maximum stage known is that of Sept. 30, 1923.

Remarks.--Diversions above station for irrigation of about 275,000 acres. Some regulation by Boysen Reservoir since October 1951. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Sept.30, 1923	a14.8	-	1937	July 12, 1937	9.57	19,300
				1938	June 25, 1938	8.19	15,000
1929	Mar. 11, 1929	b12.6	-	1939	June 2, 1939	9.73	19,900
1930	Aug. 17, 1930	7.68	16,200	1940	June 6, 1940	8.38	15,000
1931	May 28, 1931	7.26	12,200	1941	June 10, 1941	8.74	15,900
1932	June 25, 1932	9.02	18,100	1942	Mar. 12, 1942	b12.88	-
1933	June 16, 1933	9.39	19,300		May 27, 1942	-	18,100
1934	July 26, 1934	6.58	9,000	1943	June 25, 1943	9.54	16,800
1935	June 16, 1935	11.10	25,200	1944	June 5, 1944	9.67	21,200
				1945	June 25, 1945	10.33	21,900
1936	June 7, 1936	7.45	12,000				

a Site and datum used 1932-56. b Backwater from ice.

Peak stages and discharges of Bighorn River at Kane, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 25, 1946	9.08	17,200	1955	Jan. 5, 1955	b9.71	-
1947	June 25, 1947	10.14	20,600		June 17, 1955	-	7,740
1948	Feb. 21, 1948	b11.64	-				
	May 30, 1948	-	11,700	1956	May 27, 1956	3.80	4,950
1949	Mar. 18, 1949	b9.09	-	1957	June 7, 1957	7.24	14,200
	June 13, 1949	-	12,500	1958	May 24, 1958	4.72	7,160
1950	June 19, 1950	8.05	12,400	1959	Jan. 9, 1959	b5.59	-
					June 30, 1959	-	8,770
1951	June 2, 1951	8.61	14,500	1960	June 11, 1960	6.02	11,300
1952	Jan. 7, 1952	b7.61	-				
	June 8, 1952	-	9,230	1961	May 30, 1961	3.63	4,610
1953	June 15, 1953	7.27	10,300	1962	Feb. 14, 1962	9.33	16,200
1954	Mar. 7, 1954	b6.46	-	1963	June 17, 1963	10.62	24,200
	June 27, 1954	-	4,750				

b Backwater from ice.

2800. North Fork Shoshone River near Wapiti, Wyo.

Location.--Lat 44°29', long 109°21', in sec.15, T.52 N., R.104 W., 1 mile upstream from high-water line of Buffalo Bill Reservoir and 4 miles east of Wapiti.

Drainage area.--800 sq mi, approximately.

Gage.--Recording. Altitude of gage is 5,450 ft (estimated from nearby Geological Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 440 cfs.

Remarks.--Diversions above station for irrigation of about 1,800 acres do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 11, 1921	-	a7,390	1925	June 23, 1925	6.88	9,250
1922	June 8, 1922	-	a4,270				
1923	July 22, 1923	7.2	8,100	1926	June 6,7, 1926	5.56	5,430
1924	June 16, 1924	-	4,480				

a Maximum daily.

2803. South Fork Shoshone River near Valley, Wyo.

Location.--Lat 44°12'30", long 109°33'15", in NE¼ sec.24, T.49 N., R.106 W., on left bank 75 ft downstream from U.S. Forest Service bridge, 0.4 mile downstream from Boulder Creek, 3.2 miles northeast of Valley, and 33.5 miles southwest of Cody.

Drainage area.--297 sq mi.

Gage.--Recording. Altitude of gage is 6,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,300 cfs and extended above on basis of slope-area measurement at 6,610 cfs.

Remarks.--Base for partial-duration series, 2,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	June 6, 1957	7.05	4,580	1961	June 9, 1961	6.41	3,800
	June 29, 1957	6.69	4,140		July 5, 1961	5.76	2,830
1958	May 22, 1958	6.26	3,520	1962	June 26, 1962	6.66	4,850
1960	June 17, 1960	5.83	2,620	1963	June 15, 1963	8.83	6,610

2805. South Fork Shoshone River near Ishawooa, Wyo.
(Published as "Shoshone River" 1916-24)

Location.--Lat 44°22', long 109°20', in SW¼ sec.23, T.51 N., R.104 W., 500 ft downstream from private bridge, 1½ miles upstream from Bull Creek, and 1½ miles northeast of Ishawooa.

Drainage area.--532 sq mi.

Gage.--Nonrecording. At site half a mile upstream at different datum prior to May 23, 1918. At site 500 ft upstream at different datum May 24, 1918, to July 23, 1921. Altitude of gage is 5,700 ft (estimated from nearby Geological Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs.

Remarks.--Diversions above station for irrigation of about 2,100 acres do not materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	June 25, 1915	4.6	2,970	1920	June 3, 1920	4.94	3,900
1916	June 18, 1916	5.9	4,760	1921	June 12, 1921	6.0	4,900
1917	July 5, 1917	5.95	4,420	1922	June 19, 1922	4.25	3,440
1918	June 14, 1918	7.0	7,740	1923	June 13, 1923	5.0	4,890
1919	May 28, 1919	4.1	2,870				

2810. South Fork Shoshone River above Buffalo Bill Reservoir, Wyo.
(Published as "at Marquette", 1903, 1905-8, and as Shoshone River above Shoshone Reservoir, 1921-26)

Location.--Lat 44°26', long 109°15', in sec.33, T.52 N., R.103 W., at highway bridge 1 mile upstream from high-water line of Buffalo Bill Reservoir and 12 miles southwest of Cody.

Drainage area.--674 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1908; recording thereafter. At sites within 6 miles downstream at different datums prior to Oct. 1, 1908. Altitude of gage is 5,420 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs.

Remarks.--Diversions above station for irrigation of about 11,000 acres do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 17, 1903	3.8	3,380	1922	June 20, 1922	-	a3,190
				1923	June 13, 1923	-	a3,080
1905	June 27, 1905	3.9	3,490	1924	June 17, 1924	3.85	2,260
				1925	June 20, 1925	5.00	4,200
1906	June 13, 1906	5.1	4,560				
1907	July 4, 1907	-	5,300	1926	June 7, 1926	3.87	2,430
1921	June 12, 1921	-	a4,440				

a Maximum daily.

2825. Shoshone River at Cody, Wyo.
(Published as "near Cody" 1902-6)

Location.--Lat 44°32'05", long 109°03'40", in NE¼ sec.31, T.53 N., R.101 W., at old bridge at north city limits of Cody, 700 ft downstream from Dry Creek.

Drainage area.--1,600 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 4,800 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 10,000 cfs.

Remarks.--Diversions above station for irrigation of about 35,000 acres materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1902	June 10,11,1902	7.0	12,000	1906	June 13, 1906	7.4	12,600
1903	June 29, 1903	7.0	12,000	1907	July 4, 1907	8.0	15,800
1904	June 19,20,1904	7.0	12,000	1908	July 4, 1908	6.9	10,400
1905	June 5, 1905	-	7,850	1909	July 3, 1909	9.1	22,200

2830. Shoshone River at Corbett Dam, Wyo.

Location.--Lat 44°35', long 108°56', in NW¼ sec.7, T.53 N., R.100 W., at Corbett Dam, 7 miles northeast of Cody.

Drainage area.--1,740 sq mi, approximately.

Gage.--Nonrecording prior to 1921; recording thereafter. Altitude of gage is 4,700 ft (estimated from nearby U.S. Coast and Geodetic Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and by computation of flow over dam and through sluice gates and tunnel.

Remarks.--Natural flow of stream affected by diversions above station for irrigation, return flow from irrigated areas and storage in Buffalo Bill Reservoir (capacity, 456,600 acre-ft) beginning in 1909. Figures herein represent flow above diversion dam. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1909	July 4, 1909	5.15	17,400	1917	June 20, 1917	3.24	9,730
1910	May 13,14,1910	1.92	4,210	1918	June 15, 1918	5.00	18,700
				1919	June 9, 1919	1.18	2,220
1911	July 31, 1911	1.60	4,290	1920	July 5, 1920	2.90	a8,040
1912	June 3, 1912	2.20	5,200				
1913	June 30, 1913	2.80	7,220	1921	June 13, 1921	3.21	10,800
1914	June 4, 1914	2.9	7,730	1922	June 22, 1922	2.66	8,050
1915	June 26, 1915	2.30	5,450	1923	June 28, 1923	2.50	6,910
				1924	June 17, 1924	-	8,820
1916	June 20, 1916	3.40	10,200	1925	June 24, 1925	3.37	12,000

a Does not include flow through Corbett tunnel sluices.
Note.--Gage heights represent height of river.

2845. Bitter Creek near Garland, Wyo.

Location.--Lat 44°45', long 108°36', in SW¼ sec.7, T.55 N., R.97 W., on left bank three-quarters of a mile upstream from mouth, 4 miles southeast of Garland, and 5 miles southwest of Byron.

Drainage area.--80.5 sq mi.

Gage.--Recording. Altitude of gage is 4,080 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 390 cfs.

Remarks.--Flow is mainly return flow from Garland Canal system of Shoshone irrigation project. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Aug. 12, 1950	3.42	723	1954	Oct. 22, 1953	2.68	b400
1951	July 10, 1951	3.23	666	1958	June 8, 1958	3.77	766
1952	Jan. 30, 1952	a3.72	-	1959	Aug. 21, 1959	2.68	360
	May 21, 1952	-	529	1960	June 10, 1960	4.48	1,510
1953	May 29, 1953	2.95	516				

a Backwater from ice.
b Maximum for the period October to December 1954.

2850. Shoshone River at Byron, Wyo.

Location.--Lat 44°47', long 108°31', in sec.35, T.56 N., R.97 W., on left bank at Byron, 450 ft downstream from highway bridge and three-quarters of a mile downstream from Coon Creek.

Drainage area.--2,345 sq mi.

Gage.--Nonrecording prior to Apr. 23, 1932; recording thereafter. At site 450 ft upstream at bridge prior to Apr. 23, 1932. Altitude of gage is 3,960 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 9,500 cfs and extended above on basis of logarithmic plotting and velocity-area study.

Remarks.--Diversions above station for irrigation of about 133,000 acres. Flow regulated by Buffalo Bill Reservoir. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	(a)	-	6,420	1947	June 21, 1947	4.67	9,240
	Mar. 6, 1929	b6.30	-	1948	June 10, 1948	5.43	9,530
1930	June 12, 1930	5.90	6,920	1949	Jan. 29, 1949	b8.12	-
					June 23, 1949	-	3,680
1931	June 9, 1931	5.60	6,190	1950	July 12, 1950	4.78	6,530
1932	June 25, 1932	6.45	13,900				
1933	June 20, 1933	4.91	8,060	1951	Feb. 4, 1951	b5.65	-
1934	Dec. 28, 1933	b4.77	-		July 10, 1951	-	5,330
	Aug. 10, 1934	-	4,030	1952	May 22, 1952	4.78	6,530
1935	June 14, 1935	5.45	9,720	1953	May 29, 1953	2.95	1,600
				1954	Jan. 24, 1954	b5.98	-
1936	Feb. 2, 1936	b6.40	-		July 7, 1954	-	5,420
	June 2, 1936	-	8,200	1955	Feb. 19, 1955	b3.23	-
1937	Jan. 4, 1937	b5.0	-		June 24, 1955	-	1,710
	June 23, 1937	-	7,890				
1938	June 26, 1938	c5.42	11,100	1956	June 21, 1956	4.62	5,880
1939	May 24, 1939	4.40	6,940	1957	June 16, 1957	5.68	8,400
1940	Jan. 27, 1940	b3.63	-	1958	June 12, 1958	4.55	5,270
	Sept.30, 1940	-	2,970	1959	Oct. 20, 1958	-	2,020
					Jan. 6, 1959	b6.42	-
1941	Oct. 4, 1940	5.02	10,100	1960	June 10, 1960	2.80	1,420
1942	June 25, 1942	3.29	4,270				
1943	June 27, 1943	5.26	11,400	1961	Sept.19, 1961	7.57	16,000
1944	June 27, 1944	4.40	7,400	1962	June 28, 1962	5.75	7,880
1945	July 16, 1945	3.29	4,990	1963	June 22, 1963	6.59	9,970
1946	June 17, 1946	3.81	6,650				

a Occurred June 16, 30, July 1, 1929. b Backwater from ice. c Gage height was higher during period of ice effect and no gage-height record, Nov. 29 to Feb. 16.

2855. Sage Creek near Lovell, Wyo.

Location.--Lat 44°51', long 108°27', in sec.8, T.56 N., R.96 W., on right bank 200 ft downstream from bridge on U.S. Highway 310, 1½ miles upstream from mouth, and 3 miles west of Lovell.

Drainage area.--381 sq mi.

Gage.--Recording. Altitude of gage is 3,870 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 510 cfs and extended above on basis of slope-area measurement at gage height 6.30 ft.

Remarks.--Flow is mostly return flow from land irrigated by canals diverting water from Shoshone River. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	July 10, 1951	5.00	769	1956	June 21, 1956	4.04	491
1952	Aug. 10, 1952	3.86	404	1957	June 17, 1957	4.68	654
1953	May 29, 1953	3.75	360	1958	July 31, 1958	6.43	1,290
1954	Oct. 22, 1953	3.43	280	1959	June 29, 1959	3.44	316
1955	June 6, 1955	3.57	284	1960	Aug. 16, 1960	4.10	446

2862. Shoshone River at Kane, Wyo.

Location.--Lat 44°52', long 108°13', in E½ sec.6, T.56 N., R.94 W., on right pier of county bridge, 1 mile north of Kane and 1½ miles upstream from mouth.

Drainage area.--2,989 sq mi.

Gage.--Recording. Datum of gage is 3,635.35 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Peak flows materially affected by transbasin diversions, storage reservoirs, power developments, and diversions for irrigation. Major regulation by Buffalo Bill Reservoir (capacity, 456,600 acre-ft). Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 8, 1958	7.30	5,020	1962	June 16, 1962	8.48	10,000
1959	Oct. 20, 1958	6.02	2,720	1963	Jan. 19, 1963	a9.45	-
1960	Aug. 16, 1960	6.04	3,090		June 22, 1963	-	8,510
1961	Sept.19, 1961	10.34	13,200				

a Backwater from ice.

2870. Bighorn River near St. Xavier, Mont.

Location.--Lat 45°19', long 107°55', in NW¼NE¼ sec.16, T.6 S., R.31 E., on right bank 1 mile downstream from Grapevine Creek, 2½ miles downstream from Yellowtail Dam, and 14 miles southwest of St. Xavier.

Drainage area.--19,667 sq mi.

Gage.--Recording. At site 1¼ miles upsteam at altitude of 3,170 ft (by barometer) prior to Apr. 16, 1963. Datum of gage is mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 32,000 cfs.

Remarks.--Regulation by 14 reservoirs with combined usable storage of about 1,400,000 acre-ft and diversions for irrigation of about 375,000 acres above station materially affect peak flows. Peaks are principally from snowmelt. Only annual peak discharges are shown.

Peak stages and discharges of Bighorn River near St. Xavier, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 16, 1935	-	37,400	1950	June 26, 1950	-	13,700
1936	June 3, 1936	-	19,700	1951	June 3, 1951	-	16,400
1937	June 24, 1937	-	23,700	1952	May 22, 1952	-	10,700
1938	June 25, 1938	-	22,600	1953	June 16, 1953	-	9,200
1939	June 2, 1939	-	14,400	1954	June 28, 1954	-	6,900
1940	July 3, 1940	-	12,200	1955	June 26, 1955	-	8,400
1941	June 19, 1941	-	12,400	1956	June 22, 1956	-	8,820
1942	June 11, 1942	-	20,500	1957	July 2, 1957	-	19,400
1943	June 24, 1943	-	25,800	1958	June 26, 1958	-	8,190
1944	June 28, 1944	-	23,900	1959	July 1, 1959	-	10,500
1945	June 26, 1945	-	21,600	1960	June 11, 1960	-	13,000
1946	June 25, 1946	-	20,700	1961	Sept. 20, 1961	-	15,000
1947	June 22, 1947	-	28,300	1962	Feb. 14, 1962	-	17,200
1948	June 12, 1948	-	18,300	1963	June 18, 1963	-	25,000
1949	June 16, 1949	-	15,000				

2875. Soap Creek near St. Xavier, Mont.

Location.--Lat 45°20', long 107°46', in NE¼ sec.10, T.6 S., R.32 E., on left bank 6 miles upstream from mouth and 9 miles southwest of St. Xavier.

Drainage area.--98.3 sq mi.

Gage.--Recording. Altitude of gage is 3,290 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 580 cfs and extended above on basis of slope-area measurement at 1,800 cfs.

Remarks.--Diversions for irrigation of about 1,100 acres above gage do not materially affect peak flows. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 2, 1939	5.70	228	1945	June 13, 1945	6.44	295
1940	Apr. 22, 1940	6.80	319	1946	Mar. 27, 1946	5.89	255
1941	Sept. 7, 1941	5.51	220	1947	Mar. 16, 1947	-	a350
	Sept. 27, 1941	5.43	213		Mar. 17, 1947	b11.50	-
					June 10, 1947	7.88	426
1942	May 5, 1942	6.37	287		June 21, 1947	10.21	707
	May 13, 1942	13.4	1,300				
	May 17, 1942	7.18	355	1948	Mar. 23, 1948	5.28	209
					Apr. 19, 1948	10.34	727
1943	Mar. 25, 1943	8.8	527				
	Mar. 29, 1943	6.50	303	1949	Mar. 8, 1949	-	(c)
	June 12, 1943	6.83	328		Mar. 23, 1949	b7.02	240
1944	June 4, 1944	11.10	679	1950	Jan. 21, 1950	b7.26	-
	June 7, 1944	7.57	292		June 13, 1950	5.01	186
	June 13, 1944	7.39	278				
	June 15, 1944	8.84	392	1951	Mar. 15, 1951	(bd)	-
	June 18, 1944	13.00	1,020		Mar. 26, 1951	4.20	140
	June 28, 1944	10.57	603				
				1952	Mar. 30, 1952	6.80	319
1945	May 21, 1945	5.42	213				
	May 27, 1945	6.18	271	1953	June 4, 1953	3.35	85
	June 1, 1945	5.89	248				

a Maximum daily.
b Backwater from ice.
c Not determined; exceeded base discharge.
d Above 6 ft.

2877. Soap Creek near mouth, near St. Xavier, Mont.
(Published as "Soap Creek near St. Xavier" April 1914 to September 1924)

Location.--Lat 45°23', long 107°48', in SW¼ sec.20, T.5 S., R.32 E., 1 mile upstream from mouth and 7 miles southwest of St. Xavier.

Drainage area.--110 sq mi.

Gage.--Nonrecording. At site half a mile upstream at different datum prior to July 8, 1915. Altitude of gage is 3,110 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 81 cfs at described site.

Remarks.--Diversions for irrigation of about 800 acres above station do not materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	May 11, 1914	12.8	440	1920	May 11, 1920	11.2	750
1915	June 12, 1915	12.0	400	1921	May 8, 1921	7.65	305
1916	May 15, 1916	7.27	252	1922	Mar. 15, 1922	7.70	271
				1923	Sept.25, 1923	6.98	224
1918	May 9, 1918	8.44	395	1924	Apr. 3, 1924	7.90	270

2885. Bighorn River near Hardin, Mont.
(Published as "at Fort Custer" prior to 1907)

Location.--Lat 45°44'20", long 107°34'20", in NW¼ sec.19, T.1 S., R.34 E., at highway bridge half a mile upstream from Little Bighorn River, 2 miles east of Hardin.

Drainage area.--20,722 sq mi.

Gage.--Nonrecording. At railroad bridge 100 ft upstream at different datum prior to Dec. 1, 1917. Altitude of gage is 2,900 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 34,000 cfs.

Remarks.--Diversions for irrigation of about 35,000 acres above station. Only annual maximum observed stages and discharges are shown. Momentary maxima should not greatly exceed maxima observed.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	June 24, 1904	5.69	25,300	1917	June 26, 1917	9.9	36,700
1905	June 10, 1905	5.6	24,500	1918	June 17, 1918	10.1	33,200
				1919	June 3, 1919	5.15	5,420
1906	June 15, 1906	8.0	26,800	1920	June 18, 1920	8.21	25,500
1907	June 9,23,1907	7.3	21,300				
1908	June 17, 1908	9.8	40,800	1921	June 14, 1921	9.35	33,600
1909	June 20, 1909	9.35	33,800	1922	June 16, 1922	7.95	22,600
1910	June 4, 1910	6.0	11,600	1923	July 27, 1923	9.01	a30,000
				1924	Oct. 1, 1923	10.65	42,300
1911	June 22, 1911	7.6	22,400				
1912	June 15, 1912	8.4	29,500	1929	Mar. 11, 1929	11.1	45,900
1913	June 2, 1913	7.2	20,600	1930	Aug. 17, 1930	8.60	26,300
1914	June 6, 1914	8.3	28,300				
1915	June 13, 1915	8.0	26,100	1931	June 10, 1931	7.80	19,600
				1932	June 9, 1932	9.53	31,500
1916	June 21, 1916	9.1	31,400	1933	June 18, 1933	9.18	27,400

a Maximum peak discharge observed; maximum discharge observed, 35,900 cfs Sept. 30, 1923, stage rising.

2890. Little Bighorn River at State line, near Wyola, Mont.
(Published as "Little Horn River" prior to October 1940)

Location.--Lat 45°01', long 107°37', in SW¼NW¼ sec.36, T.9 S., R.33 E., on right bank half a mile north of Montana-Wyoming State line, 1 mile downstream from West Fork, and 13 miles southwest of Wyola.

Drainage area.--193 sq mi.

Gage.--Recording. Altitude of gage is 4,450 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs.

Remarks.--Peaks are principally from snowmelt. Base for partial-duration series, 510 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 2, 1939	-	a700	1950	June 14, 1950	3.71	719
					June 17, 1950	3.74	746
1940	May 29, 1940	2.59	507				
				1951	May 19, 1951	3.46	574
1941	May 17, 1941	3.08	840		May 23, 1951	3.71	800
	May 26, 1941	2.88	604		May 28, 1951	3.84	960
					June 16, 1951	3.47	607
1942	May 26, 1942	3.92	2,160				
	June 4, 1942	3.29	1,160	1952	May 4, 1952	3.60	662
					May 26, 1952	3.54	606
1943	May 30, 1943	3.20	802				
	June 18, 1943	3.28	883	1953	June 2, 1953	3.60	598
	July 3, 1943	3.01	630		June 12, 1953	4.10	1,350
1944	May 17, 1944	3.53	1,120	1954	May 21, 1954	3.41	748
	May 23, 1944	3.15	758		May 25, 1954	3.19	588
	May 30, 1944	3.55	1,140		June 27, 1954	3.13	546
	June 3, 1944	4.87	2,730				
	June 9, 1944	b5.93	-	1955	May 15, 1955	3.22	609
					May 22, 1955	3.44	772
1945	May 31, 1945	4.00	685		June 15, 1955	3.32	680
	June 5, 1945	4.28	825				
	June 21, 1945	3.99	690	1956	May 28, 1956	3.64	936
1946	May 27, 1946	3.91	635	1957	June 2, 1957	3.91	1,130
	June 5, 1946	4.21	901		June 21, 1957	3.87	1,120
	June 14, 1946	3.69	635				
				1958	May 23, 1958	3.63	927
1947	May 9, 1947	4.05	710				
	May 17, 1947	3.71	544	1959	June 10, 1959	3.76	1,080
	June 8, 1947	4.18	775				
	June 27, 1947	4.54	972	1960	June 10, 1960	3.10	460
1948	May 20, 1948	4.38	1,420	1961	May 29, 1961	3.61	922
1949	May 13, 1949	3.41	511	1962	May 9, 1962	3.19	528
	June 7, 1949	3.67	686		June 3, 1962	3.23	559
	June 13, 1949	3.55	595		June 16, 1962	3.49	692
1950	June 6, 1950	3.64	662	1963	June 5, 1963	4.18	1,550
	June 12, 1950	3.66	678		June 15, 1963	4.15	1,380

a Maximum daily discharge for period Mar. 24 to Sept. 30, 1939.
b Backwater from logjam.

2895. Little Bighorn River near Wyola, Mont.
(Published as "Little Horn River" 1915-24)

Location.--Lat 45°06', long 107°26', in SE¼ sec.29, T.8 S., R.35 E., 2½ miles upstream from Pass Creek and 3 miles southwest of Wyola.

Drainage area.--251 sq mi.

Gage.--Nonrecording. At site 900 ft downstream at different datum prior to June 6, 1923. At site 300 ft downstream at different datum June 6, 1923, to May 18, 1924. Altitude of gage is 3,880 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Diversions for irrigation of about 5,000 acres above station should not materially affect peak flows. Peaks are principally from snowmelt. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 10, 1912	6.9	1,400	1919	May 20, 1919	5.26	420
1913	May 30, 1913	6.7	1,260	1920	June 10,12,1920	6.03	748
1914	May 24, 1914	6.4	1,010				
1915	June 11, 1915	6.6	1,130	1921	May 29, 1921	5.50	560
				1922	June 9, 1922	5.80	710
1916	June 18, 1916	6.3	950	1923	May 27-30,1923	6.1	890
1917	June 22, 1917	7.1	1,580	1924	June 16, 1924	5.00	1,610
1918	June 12,14,1918	7.0	1,480				

2900. Pass Creek near Wyola, Mont.

Location.--Lat 45°03', long 107°21', in NE¼ sec.13, T.9 S., R.35 E., on right bank 100 ft upstream from highway bridge, 1 mile downstream from Twin Creek, 5 miles south of Wyola, and 6 miles upstream from mouth.

Drainage area.--111 sq mi.

Gage.--Nonrecording at site 100 ft downstream prior to Dec. 21, 1950; recording at present site thereafter. Altitude of gage is 3,860 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs.

Remarks.--Diversions for irrigation of about 2,500 acres above station should not materially affect peak flows. Base for partial-duration series, 100 cfs. Only annual peaks are shown prior to 1952.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 7, 1935	2.18	182	1951	Mar. 24, 1951	a4.01	-
					Mar. 26, 1951	-	274
1936	Mar. 1, 1936	a6.02	-				
1937	June 14, 1937	2.34	182	1952	Mar. 29, 1952	a5.23	(c)
1938	May 20, 1938	3.00	360		Apr. 5, 1952	2.49	307
1939	Mar. 19, 1939	a3.68	-		Apr. 29, 1952	1.75	110
	June 2, 1939	-	180		May 22, 1952	2.12	196
1940	Jan. 27, 1940,	a2.64	-				
	Feb. 29, 1940			1953	June 6, 1953	1.80	118
	Apr. 27, 1940	-	91		June 15, 1953	2.66	361
1941	Apr. 13, 1941	3.30	463	1954	Feb. 1, 1954	a2.56	-
1942	May 13, 1942	4.08	785		Apr. 6, 1954	1.80	131
1943	Mar. 25, 1943	a6.22	-				
	Mar. 26, 1943	-	412	1955	Apr. 11, 1955	a2.88	-
1944	June 4, 1944	4.82	1,150		Apr. 15, 1955	2.13	199
1945	Feb. 8, 1945	2.99	-		Apr. 19, 1955	2.00	163
	June 12, 1945	-	395		May 25, 1955	1.98	158
1946	Mar. 28, 1946	3.0	451	1956	Mar. 19, 1956	a3.87	-
1947	June 20, 1947	4.60	1,120		May 22, 1956	1.68	106
1948	Feb. 18, 1948	-	b400		May 29, 1956	2.34	247
1949	Jan. 14, 1949	a2.94	-				
	Apr. 14, 1949	-	c100				

a Backwater from ice. b Maximum daily. c Peak exceeded base; discharge not determined.

2905. Little Bighorn River below Pass Creek, near Wyola, Mont.
(Published as "Little Horn River" prior to October 1940)

Location.--Lat 45°10', long 107°23', in W½SW¼ sec.35, T.7 S., R.35 E., on right bank 3½ miles north of Wyola and 4 miles downstream from Pass Creek.

Drainage area.--428 sq mi.

Gage.--Recording. Altitude of gage is 3,600 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs.

Remarks.--Diversions for irrigation of about 7,700 acres above station do not materially affect peak flows. Peaks are principally from snowmelt. Base for partial-duration series, 580 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939a/	May 18, 1939	3.02	592	1949	June 14, 1949	3.19	634
	May 24, 1939	3.23	700				
	June 2, 1939	3.83	972	1950	Feb. 25, 1950	b4.87	-
					June 18, 1950	3.53	749
1940	Feb. 18, 1940	b3.20	-				
	June 8, 1940	2.97	571	1951	Feb. 11, 1951	b5.20	-
					Mar. 26, 1951	3.33	671
1941	Apr. 14, 1941	3.11	624		May 29, 1951	3.51	754
	May 14, 1941	3.22	668		June 19, 1951	3.23	625
	May 18, 1941	3.45	780				
	May 25, 1941	3.25	690	1952	Jan. 26, 1952	b3.85	-
					Mar. 28, 1952	3.62	805
1942	May 13, 1942	4.53	1,360		May 5, 1952	3.70	749
	May 27, 1942	5.12	1,690		May 26, 1952	3.52	708
	June 5, 1942	4.38	1,280				
				1953	June 16, 1953	4.49	1,240
1943	Mar. 25, 1943	5.06	1,690				
	Mar. 28, 1943	3.65	869	1954	May 22, 1954	3.44	721
	May 31, 1943	3.83	969				
	June 13, 1943	3.92	994	1955	May 16, 1955	3.41	708
					May 22, 1955	3.64	815
1944	May 19, 1944	4.65	1,450		June 1, 1955	3.14	586
	June 4, 1944	7.00	3,200		June 16, 1955	3.32	666
	June 8, 1944	5.97	2,360				
	June 18, 1944	5.41	1,920	1956	Mar. 17, 1956	3.17	598
	June 27, 1944	4.27	1,110		May 29, 1956	4.41	1,200
1945	May 20, 1945	3.35	702	1957	Apr. 23, 1957	4.13	1,060
	June 13, 1945	4.56	1,270		May 13, 1957	3.69	815
	June 23, 1945	3.94	968		May 22, 1957	3.41	671
					June 4, 1957	4.44	1,170
1946	Mar. 28, 1946	3.07	599		June 18, 1957	6.21	2,490
	May 23, 1946	3.19	635				
	May 29, 1946	4.00	995	1958	May 24, 1958	3.76	875
	June 6, 1946	4.08	1,040		June 13, 1958	3.57	781
	June 12, 1946	4.09	1,040				
	June 18, 1946	3.80	905	1960	Mar. 18, 1960	4.64	1,370
1947	Mar. 17, 1947	4.83	1,400	1961	May 30, 1961	3.48	731
	May 10, 1947	3.78	905				
	June 10, 1947	3.73	882	1962	Feb. 3, 1962	b5.69	-
	June 22, 1947	5.60	1,900		June 5, 1962	3.26	584
					June 16, 1962	4.00	940
1948	Mar. 24, 1948	3.11	603				
	Apr. 19, 1948	3.94	968	1963	Feb. 6, 1963	-	c1,000
	May 22, 1948	4.25	1,100		Apr. 28, 1963	6.25	2,600
	June 24, 1948	3.23	623		May 12, 1963	3.87	952
					June 5, 1963	5.83	2,290
1949	June 8, 1949	3.32	685		June 14, 1963	7.43	3,630

a Records for period Mar. 27 to Sept. 30.
b Backwater from ice.
c About.

2910. Owl Creek near Lodgegrass, Mont.

Location.--Lat 45°16', long 107°18', in NE¼SW¼ sec.33, T.6 S., R.36 E., 1 mile downstream from Sioux Pass Creek and 5 miles southeast of Lodgegrass.

Drainage area.--161 sq mi.

Gage.--Recording. Altitude of gage is 3,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 890 cfs.

Remarks.--Diversions for irrigation of about 400 acres above station do not materially affect peak flows. Base for partial-duration series, 70 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 25, 1939	5.02	96	1944	Mar. 24, 1944	8.51	342
	June 2, 1939	7.88	322		Mar. 31, 1944	8.03	297
					May 4, 1944	4.64	70
1940	June 6, 1940	4.31	64		May 19, 1944	13.81	939
					June 3, 1944	-	b400
1941	Apr. 14, 1941	6.84	222		June 18, 1944	14.18	1,020
					June 28, 1944	5.99	127
1942	May 14, 1942	7.57	290		July 7, 1944	5.27	86
	May 18, 1942	4.47	70				
	June 4, 1942	10.31	572	1945	Mar. 13, 1945	a9.22	-
					Mar. 14, 1945	-	c200
1943	Feb. 10, 1943	a9.24	-		Mar. 25, 1945	-	c88
	Mar. 28, 1943	-	b110		May 21, 1945	5.69	115
					June 2, 1945	5.23	90
1944	Mar. 18, 1944	a14.50	-				

a Backwater from ice.
b Maximum daily; estimated.
c Maximum daily.

2915. Lodgegrass Creek above Willow Creek diversion, near Wyola, Mont.

Location.--Lat 45°07', long 107°36', in W½NW¼ sec.19, T.8 S., R.34 E., on left bank half a mile upstream from Willow Creek diversion canal, 1½ miles downstream from Spring Creek, and 10 miles west of Wyola.

Drainage area.--80.7 sq mi.

Gage.--Recording. Altitude of gage is 4,360 ft (from topographic map).

Stage-discharge relation.--Subject to large shifts. Defined by current-meter measurements below 400 cfs.

Remarks.--Diversions for irrigation of about 400 acres do not materially affect peak flows. Base for partial-duration series, 270 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	May 24, 1939	3.71	286	1944	June 27, 1944	3.87	388
	June 1, 1939	4.51	429				
				1945	May 27, 1945	3.67	341
1940	June 14, 1940	3.55	262		May 31, 1945	4.29	494
					June 6, 1945	4.30	494
1941	Apr. 13, 1941	3.87	308		June 13, 1945	4.52	566
	May 18, 1941	4.32	324		June 22, 1945	3.60	319
	May 25, 1941	3.93	276				
				1946	May 29, 1946	3.67	388
1942	May 13, 1942	5.02	456		June 6, 1946	3.92	452
	May 27, 1942	5.28	570		June 12, 1946	3.60	364
	June 5, 1942	4.95	455		June 18, 1946	3.27	298
1943	May 31, 1943	4.19	330	1947	May 11, 1947	3.72	364
	June 13, 1943	4.05	330		June 10, 1947	3.83	388
					June 21, 1947	5.00	722
1944	May 18, 1944	4.84	626		June 27, 1947	3.85	388
	June 4, 1944	5.68	972				
	June 8, 1944	4.85	706	1948	May 22, 1948	4.17	351
	June 17, 1944	4.64	626		May 30, 1948	4.02	328

Peak stages and discharges of Lodgegrass Creek above Willow Creek diversion, near Wyola, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Mar. 23, 1949	a3.91	-	1957	June 3, 1957	4.17	523
	May 17, 1949	3.05	185		June 17, 1957	4.71	680
1950	Feb. 5, 1950	a3.88	-	1958	May 24, 1958	4.22	521
	June 15, 1950	3.26	268		June 13, 1958	3.44	302
1951	May 29, 1951	3.32	297	1959	June 8, 1959	4.26	532
					June 15, 1959	4.32	546
1952	Jan. 25, 1952	a3.82	-				
	May 26, 1952	3.18	237	1960	Mar. 19, 1960	4.00	459
1953	June 14, 1953	4.35	412	1961	May 30, 1961	3.60	333
1954	May 21, 1954	3.25	228	1962	Jan. 16, 1962	4.15	428
1955	May 25, 1955	3.53	273	1963	Apr. 28, 1963	5.02	722
					May 12, 1963	3.83	333
1956	May 29, 1956	4.45	427		June 5, 1963	5.42	804
					June 16, 1963	4.94	614
1957	Apr. 24, 1957	4.07	479				

a Backwater from ice.

2925. Lodgegrass Creek near Lodgegrass, Mont.

Location.--Lat 45°16', long 107°27', in NW¼ sec.32, T.6 S., R.35 E., half a mile upstream from headgate of Lodgegrass ditch No. 1 and 5½ miles southwest of Lodgegrass.

Drainage area.--143 sq mi.

Gage.--Nonrecording. At site a quarter of a mile downstream at different datum prior to Dec. 4, 1916. Altitude of gage is 3,630 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 310 cfs.

Remarks.--Diversions for irrigation of about 800 acres above station do not materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	June 11, 1912	6.20	508	1921	May 7, 1921	2.47	148
1913	June 1-6, 1913	6.8	628	1922	Aug. 4, 1922	2.65	176
1914	June 3-9, 1914	4.7	211	1923	Sept. 29, 1923	4.38	462
1915	June 13, 1915	7.0	695	1924	Apr. 7, 1924	7.25	1,000

2930. Lodgegrass Creek at Lodgegrass, Mont.

Location.--Lat 45°18', long 107°22', in S½ sec.13, T.6 S., R.35 E., 600 ft upstream from Chicago, Burlington and Quincy Railroad bridge and a quarter of a mile south of Lodgegrass.

Drainage area.--170 sq mi.

Gage.--Nonrecording. Altitude of gage is 3,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 380 cfs.

Remarks.--Diversions for irrigation of about 2,500 acres above station materially affect peak flows. Only annual maximum observed stages and discharges are shown.

Peak stages and discharges of Lodgegrass Creek at Lodgegrass, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	June 20, 1916	3.6	355	1919	Dec. 7, 1918	a3.5	-
1917	Apr. 9, 1917	4.2	619		May 25, 1919	-	60
1918	June 15, 1918	4.1	624	1920	Mar. 23, 1920	4.0	525

a Backwater from ice.

2935. Little Bighorn River near Crow Agency, Mont.
(Published as "Little Horn River" October 1914 to September 1940)

Location.--Lat 45°34', long 107°27', in E½SE¼ sec.13, T.3 S., R.34 E., on right bank at Chicago, Burlington & Quincy Railroad Bridge, 2 miles south of Crow Agency and 17 miles upstream from mouth.

Drainage area.--1,181 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1918, and Oct. 1, 1930, to Dec. 5, 1932, and Apr. 1, 1938, to May 6, 1947; recording during remainder of period. Datum of gage is 3,045.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,600 cfs.

Remarks.--Diversions for irrigation of about 13,700 acres above station. Some regulation by Willow Creek Reservoir (capacity, 23,000 acre-ft) since 1940. Peaks are principally from snowmelt. Base for partial-duration series, 920 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	July 4, 1912	8.6	3,380	1948	May 24, 1948	6.70	1,140
1914	July 25, 1914	6.9	2,500	1949	Mar. 1, 1949	a6.18	-
1915	June 14, 1915	11.0	4,020		Mar. 28, 1949	-	b600
1916	June 20, 1916	6.65	1,360	1950	Feb. 27, 1950	a8.01	-
1917	Apr. 6, 1917	10.8	3,930		June 19, 1950	5.70	630
1918	June 19, 1918	8.6	2,500				
1919	May 21, 1919	5.46	467	1951	Feb. 10, 1951	a8.63	-
1920	May 11, 1920	11.69	4,480		Mar. 26, 1951	-	b650
1921	May 9, 1921	7.1	1,460	1952	Mar. 28, 1952	a7.73	-
1922	July 31, 1922	7.85	1,900		Mar. 20, 1952	7.67	1,550
1923	July 23, 1923	14.0	6,200				
1924	Apr. 8, 1924	11.22	4,150	1953	June 16, 1953	7.32	1,470
1929	Mar. 11, 1929	9.19	3,080	1954	May 23, 1954	6.00	765
1930	Mar. 12, 1930	6.11	930				
				1955	Apr. 15, 1955	6.98	1,360
1931	June 4, 7, 1931	5.74	713		Apr. 19, 1955	7.01	1,350
1932	Feb. 27, 1932	a11.21	-		June 28, 1955	6.50	990
	May 23, 1932	-	b1,880				
				1956	Mar. 22, 1956	8.33	1,960
1938	May 21, 1938	6.85	1,370		May 30, 1956	7.59	1,590
1939	Mar. 21, 1939	a10.52	3,310				
1940	June 15, 1940	5.70	687	1957	Feb. 27, 1957	a10.69	b1,500
					Apr. 24, 1957	8.07	1,980
1941	May 15, 1941	6.32	970		May 23, 1957	6.58	1,100
1942	June 6, 1942	9.76	2,740		June 7, 1957	8.64	2,130
1943	Mar. 26, 1943	a13.01	4,970		June 19, 1957	9.84	2,750
1944	June 6, 1944	11.84	4,400				
1945	Mar. 14, 1945	a8.54	-	1958	June 14, 1958	6.43	952
	June 9, 1945	-	1,780				
				1959	Mar. 2, 1959	a8.17	-
1946	June 13, 1946	-	b1,600		Mar. 18, 1959	-	b1,300
1947	Mar. 16, 1947	-	b4,000		June 17, 1959	6.95	1,210
1948	Feb. 28, 1948	a8.52	-	1960	Mar. 19, 1960	a11.02	-
	Mar. 30, 1948	6.80	1,190		Mar. 21, 1960	9.56	2,850
	Apr. 20, 1948	7.78	1,730				

a Backwater from ice.
b Maximum daily.

2940. Little Bighorn River near Hardin, Mont.

Location.--Lat 45°44'20", long 107°33'50", in SW¼SE¼ sec.18, T.1 S., R.34 E., on right bank at county bridge a quarter of a mile upstream from mouth and 2 miles east of Hardin.

Drainage area.--1,294 sq mi.

Gage.--Nonrecording at datum 2.00 ft higher prior to Oct. 7, 1953, and at present datum since May 6, 1963; recording at site 425 ft upstream at different datum Oct. 7, 1953, to May 6, 1963. Altitude of gage is 2,830 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs at recorder site and below 2,400 cfs at present site.

Remarks.--Diversions for irrigation of about 17,000 acres above station. Some regulation by Willow Creek Reservoir (capacity, 23,000 acre-ft). Peaks are principally from snowmelt. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 17, 1953	-	a1,310	1958	June 14, 1958	5.17	680
1954	Mar. 3, 1954	b6.81	-	1959	Mar. 14, 1959	b9.80	-
	May 24, 1954	5.23	698		Mar. 18, 1959	7.60	1,950
					June 17, 1959	5.61	1,040
1955	Apr. 16, 1955	6.10	1,250				
	Apr. 20, 1955	6.21	1,320	1960	Mar. 20, 1960	b11.78	-
	May 24, 1955	5.70	1,010		Mar. 21, 1960	-	d3,000
	May 29, 1955	5.71	1,020				
				1961	Feb. 6, 1961	b4.85	-
1956	Mar. 20, 1956	b11.16	-		June 1, 1961	-	c370
	Mar. 23, 1956	7.17	1,780				
	May 30, 1956	6.48	1,380	1962	Mar. 19, 1962	b8.99	-
					June 17, 1962	6.37	1,300
1957	Feb. 26, 1957	b9.56	-				
	Feb. 27, 1957	-	c1,900	1963	Feb. 6, 1963	b9.72	-
	Apr. 25, 1957	6.98	2,000		Feb. 7, 1963	-	d1,000
	June 7, 1957	7.12	2,000		Apr. 30, 1963	8.76	3,750
	June 19, 1957	8.00	2,990		May 13, 1963	3.50	1,300
					June 7, 1963	5.63	2,760
1958	Feb. 17, 1958	b5.42	-		June 16, 1963	-	d2,200

a Maximum daily discharge for period June to September, 1953.
b Backwater from ice.
c Maximum daily.
d About.

2947. Bighorn River at Bighorn, Mont.
(Published as "near Custer" 1945-55)

Location.--Lat 46°08'50", long 107°28'00", in NE¼NE¼ sec.33, T.5 N., R.34 E., on right bank just downstream from bridge on U.S. Highway 10, three-quarters of a mile upstream from mouth, 1 mile southwest of Bighorn, and 4 miles east of Custer.

Drainage area.--22,885 sq mi.

Gage.--Nonrecording prior to Dec. 7, 1945; recording thereafter. At site 4 miles upstream at different datum prior to Oct. 7, 1955. Altitude of gage is 2,690 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 12,500 cfs and extended above by logarithmic plotting at former site. Defined by current-meter measurements below 22,000 cfs at present site.

Remarks.--Peak flows are materially affected by major regulation by 14 reservoirs with combined usable capacity of about 1,400,000 acre-ft and diversions for irrigation of about 465,000 acres above station. Peaks are principally from snowmelt. Only annual peaks are shown.

Peak stages and discharges of Bighorn River at Bighorn, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	June 25, 1945	8.74	22,900	1954	May 24, 1954	-	6,500
				1955	Mar. 31, 1955	a7.67	-
1946	June 26, 1946	7.80	20,400		June 19, 1955	-	8,900
1947	Mar. 20, 1947	a10.65	-				
	June 24, 1947	-	26,200	1956	Mar. 7, 1956	a6.83	-
1948	Mar. 19, 1948	a9.18	-		May 31, 1956	-	9,580
	June 12, 1948	-	19,800	1957	June 18, 1957	8.95	-
1949	Mar. 7, 1949	a7.57	-		July 3, 1957	-	20,800
	June 16, 1949	-	15,800	1958	Feb. 12, 1958	a8.95	-
1950	Feb. 27, 1950	a6.75	-		June 27, 1958	5.44	9,310
	June 21, 1950	-	14,100	1959	Dec. 13, 1958	a7.31	-
					July 2, 1959	6.38	11,100
1951	Mar. 26, 1951	a9.74	-	1960	Mar. 21, 1960	a10.10	-
	June 3, 1951	-	18,600		June 12, 1960	5.75	b10,000
1952	May 23, 1952	6.65	14,800				
1953	Dec. 20, 1952	a8.75	-	1961	Sept.21, 1961	6.80	12,700
	June 17, 1953	-	12,200	1962	Feb. 15, 1962	a10.29	b15,000
1954	Jan. 26, 1954	a5.25	-	1963	June 19, 1963	9.95	23,400

a Backwater from ice.
b Approximate.

2950.5. Little Porcupine Creek near Forsyth, Mont.

Location.--Lat 46°18', long 106°34', in NE¼ sec.3, T.6 N., R.41 E., at bridge on county road, 6 miles northeast of Forsyth.

Drainage area.--614 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,480 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,600 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 3, 1958	4.9	1,480	1961	Sept.20, 1961	8.14	3,320
1959	Mar. 20, 1959	7.08	2,650	1962	June 15, 1962	4.53	1,310
1960	Mar. 20, 1960	7.17	2,700	1963	June 3, 1963	5.98	2,030

2955. Rosebud Creek near Rosebud, Mont.

Location.--Lat 46°06', long 106°26', in SW¼ sec.12, T.4 N., R.42 E., 1 mile downstream from Cottonwood Creek and 12 miles south of Rosebud.

Drainage area.--1,193 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,620 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 440 cfs.

Remarks.--Diversions for irrigation of about 700 acres above station do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	June 23, 1938	9.0	690	1942	June 10, 1942	6.6	405
1939	June 2, 1939	6.62	405	1943	Feb. 15, 1943	a9.70	-
1940	Aug. 2, 1940	9.0	690		Mar. 24, 1943	-	803
1941	May 31, 1941	9.74	827				

a Backwater from ice.

2960. Rosebud Creek near Forsyth, Mont.

Location.--Lat 46°11'50", long 106°28'25", in SW¼ sec.9, T.5 N., R.42 E., on right bank 5 miles upstream from mouth and 10 miles southeast of Forsyth.

Drainage area.--1,260 sq mi.

Gage.--Recording. Altitude of gage is 2,540 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 1,200 acres above station. Base for partial-duration series, 300 cfs. Only annual peaks are shown after 1953.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 4, 1948	7.90	344	1952	Feb. 10, 1952	a9.65	-
	June 6, 1948	7.76	334		Mar. 29, 1952	7.81	269
	July 15, 1948	7.40	310				
	July 21, 1948	8.41	382	1953	May 30, 1953	10.27	596
	July 25, 1948	8.03	357				
				1956	March 1956	8.78	350
1949	Mar. 5, 1949	a10.72	-	1957	June 17, 1957	8.78	342
	Mar. 8, 1949	8.96	418				
	Mar. 22, 1949	8.71	373	1959	Mar. 3, 1959	-	570
1950	Feb. 26, 1950	a9.41	-	1961	Sept.10, 1961	9.58	435
	June 9, 1950	7.90	250	1962	June 7, 1962	9.16	378
				1963	June 16, 1963	6.58	182
1951	Sept. 1, 1951	8.42	280				

a Backwater from ice.

2965. North Fork Tongue River near Dayton, Wyo.

Location.--Lat 44°45'25", long 107°37'20", in sec.7, T.55 N., R.89 W., on left bank half a mile downstream from Hideout Creek and 19½ miles southwest of Dayton.

Drainage area.--32.4 sq mi.

Gage.--Recording. At site 300 ft downstream at datum 5.80 ft lower prior to Sept. 28, 1950. Datum of gage is 8,146.70 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs.

Remarks.--Base for partial-duration series, 150 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 27, 1946	2.14	395	1951	May 28, 1951	3.78	281
	June 5, 1946	2.37	546		June 15, 1951	3.06	188
1947	June 8, 1947	1.96	274	1952	May 3, 1952	3.64	263
	June 20, 1947	1.88	233				
	June 27, 1947	1.82	204	1953	June 13, 1953	4.12	378
1948	May 21, 1948	2.55	560	1954	May 21, 1954	2.75	147
1949	May 29, 1949	1.71	151	1955	May 22, 1955	3.03	209
	June 11, 1949	1.73	154		June 14, 1955	2.87	168
1950	June 12, 1950	2.00	254	1956	June 4, 1956	3.27	207
1951	May 23, 1951	3.44	237	1957	June 4, 1957	2.95	174

2970. South Fork Tongue River near Dayton, Wyo.

Location.--Lat 44°47'10", long 107°28'00", in sec.33, T.56 N., R.88 W., on left bank 60 ft downstream from Johnson Creek and 12 miles southwest of Dayton.

Drainage area.--85.0 sq mi.

Gage.--Recording. Datum of gage is 7,621.78 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 740 cfs and extended above by logarithmic plotting.

Historical data.--Maximum stage known, about 6.36 ft, from floodmarks (date unknown).

Remarks.--Base for partial-duration series, 650 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 5, 1946	5.18	812	1955	May 15, 1955	4.83	745
					June 15, 1955	5.31	1,020
1947	May 9, 1947	5.44	916				
	June 20, 1947	5.23	832	1956	May 28, 1956	5.62	1,120
1948	May 21, 1948	5.61	1,070	1957	June 18, 1957	4.89	785
1949	June 13, 1949	4.67	666	1958	May 24, 1958	5.06	840
1950	June 6, 1950	4.73	702	1959	June 7, 1959	5.17	925
	June 12, 1950	4.74	706				
	June 20, 1950	4.65	670	1960	June 10, 1960	3.94	399
	June 25, 1950	4.65	670				
				1961	May 29, 1961	4.78	750
1951	May 28, 1951	4.72	698				
				1962	June 16, 1962	4.98	850
1952	May 3, 1952	4.82	770				
				1963	June 3, 1963	5.60	1,160
1953	June 15, 1953	5.52	1,070		June 15, 1963	6.24	1,670
1954	May 22, 1954	4.56	636				

2980. Tongue River near Dayton, Wyo.

Location.--Lat 44°51'00", long 107°18'10", in sec.11, T.56 N., R.87 W., on left bank a quarter of a mile downstream from intake of Highline ditch, 1¼ miles upstream from Amsden Creek, and 2½ miles southwest of Dayton.

Drainage area.--204 sq mi.

Gage.--Recording. Altitude of gage is 4,060 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs.

Remarks.--Small diversions above station for Dayton municipal supply. Diversions above station for irrigation of about 2,000 acres. Diversions do not materially affect peak flows. Base for partial-duration series, 980 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1919	May 20, 1919	3.4	690	1924	June 7, 1924	4.82	1,860
					June 15, 1924	5.57	2,460
1920	May 30, 1920	3.94	1,290				
	June 10, 1920	4.35	1,700	1925	May 15, 1925	4.02	1,220
					May 22, 1925	4.82	1,860
1921	May 30, 1921	3.27	714		May 31, 1925	4.22	1,380
1922	May 25, 1922	4.15	1,660	1926	Apr. 21, 1926	3.80	1,010
	June 8, 1922	3.72	1,130		Apr. 30, 1926	4.50	1,560
					May 25, 1926	4.72	1,740
1923	May 29, 1923	4.45	1,730				
				1927	May 17, 1927	5.07	2,030
1924	May 19, 1924	4.72	1,780		May 27, 1927	4.19	1,310

Peak stages and discharges of Tongue River near Dayton, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	June 9, 1927	4.78	1,780	1950	May 17, 1950	4.11	1,200
					May 22, 1950	3.91	1,040
1928	May 8, 1928	4.95	1,930		June 7, 1950	4.03	1,130
	May 26, 1928	4.96	1,940		June 13, 1950	4.01	1,120
	June 14, 1928	4.06	1,210				
	July 1, 1928	3.99	1,150	1951	May 24, 1951	4.04	1,190
	July 7, 1928	4.21	1,320		May 28, 1951	4.09	1,200
1929	May 25, 1929	5.29	2,150	1952	Apr. 28, 1952	4.62	1,640
	June 2, 1929	5.30	2,160				
	June 9, 1929	5.03	1,940	1953	May 31, 1953	3.97	1,090
					June 15, 1953	4.84	1,840
1941	May 13, 1941	4.34	1,360				
	May 18, 1941	4.11	1,180	1954	May 22, 1954	4.00	1,060
1942	Apr. 21, 1942	4.18	1,230	1955	May 16, 1955	4.29	1,340
	May 26, 1942	5.30	2,100		May 22, 1955	4.01	1,120
	June 5, 1942	4.60	1,570		June 15, 1955	4.34	1,390
1943	May 31, 1943	4.28	1,310	1956	May 28, 1956	4.90	1,790
	June 12, 1943	4.02	1,110				
				1957	June 18, 1957	4.56	1,450
1944	May 17, 1944	5.55	2,450				
	June 3, 1944	6.45	3,400	1958	May 11, 1958	4.08	1,060
					May 24, 1958	4.45	1,340
1945	June 6, 1945	4.41	1,410				
	June 24, 1945	5.43	2,330	1959	June 8, 1959	4.50	1,460
1946	May 28, 1946	4.27	1,280	1960	May 12, 1960	3.55	730
	June 6, 1946	4.62	1,600				
				1961	May 30, 1961	4.17	1,180
1947	May 8, 1947	4.72	1,690				
	June 9, 1947	4.14	1,170	1962	June 16, 1962	4.60	1,500
	June 20, 1947	4.53	1,520				
				1963	June 5, 1963	5.01	2,020
1948	May 19, 1948	5.12	2,050		June 15, 1963	5.42	2,630
	June 22, 1948	4.01	1,070				
1949	June 13, 1949	3.94	1,050				

2985. Little Tongue River near Dayton, Wyo.

Location.--Lat 44°48'45", long 107°17'00", in sec.24, T.56 N., R.87 W., on right bank a quarter of a mile downstream from entrance of main tributary and 4.5 miles south of Dayton.

Drainage area.--25.1 sq mi.

Gage.--Recording. Altitude of gage is 4,380 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 170 cfs.

Remarks.--Diversion for irrigation of about 106 acres does not materially affect peak flows. Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	July 10, 1951	1.58	83	1958	May 23, 1958	1.84	117
1952	May 23, 1952	2.09	181	1959	May 27, 1959	1.48	42
1953	June 15, 1953	1.72	114	1960	May 19, 1960	1.27	24
1955	May 22, 1955	1.64	84	1961	May 27, 1961	1.65	76
1956	May 28, 1956	2.01	161	1962	June 16, 1962	1.65	74
1957	June 20, 1957	2.31	263	1963	May 27, 1963	2.17	192

2995. Wolf Creek at Wolf, Wyo.

Location.--Lat 44°46'30", long 107°14'00", in sec.4, T.55 N., R.86 W., on left bank at Wolf, half a mile downstream from Red Canyon Creek.

Drainage area.--37.8 sq mi.

Gage.--Nonrecording prior to May 26, 1945; recording thereafter. Altitude of gage is 4,550 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 310 cfs and extended above by logarithmic plotting.

Historical data.--Maximum stage known, that of May 18, 1944.

Remarks.--One small diversion above station for irrigation of hay meadows during spring runoff does not materially affect peak flows. Base for partial-duration series, 180 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	May 18, 1944	5.0	a1,100	1953	May 29, 1953	2.94	246
					June 15, 1953	3.01	313
1945	June 5, 1945	2.84	277				
	June 24, 1945	3.03	325	1954	May 20, 1954	2.35	152
1946	June 12, 1946	2.61	220	1955	May 16, 1955	2.56	180
	June 18, 1946	2.79	267		May 22, 1955	2.63	195
1947	June 3, 1947	2.53	195	1956	May 28, 1956	3.93	586
	June 25, 1947	2.95	297				
				1957	June 16, 1957	3.33	410
1948	May 22, 1948	2.96	337				
	June 22, 1948	3.44	442	1958	May 23, 1958	2.62	238
1949	May 17, 1949	2.59	208	1959	June 7, 1959	2.74	246
	June 6, 1949	2.60	210				
				1960	June 10, 1960	2.17	136
1950	June 25, 1950	2.47	182				
				1961	May 29, 1961	2.52	218
1951	May 28, 1951	2.43	164				
				1962	June 16, 1962	3.61	572
1952	May 23, 1952	3.09	320				
	June 7, 1952	2.66	215	1963	June 15, 1963	4.60	1,130

a Annual peak only; estimated.

3005. East Goose Creek near Big Horn, Wyo.

Location.--Lat 44°32'44", long 107°13'03", in NE¼SE¼ sec.21, T.53 N., R.86 W., on right bank a quarter of a mile upstream from Cross Creek and 15 miles southwest of Big Horn. Station is above Park Reservoir.

Drainage area.--20.3 sq mi. Area at site used prior to June 28, 1960, 23.6 sq mi.

Gage.--Recording gage and Parshall flume. At site 800 ft downstream at different datum prior to June 28, 1960. Altitude of gage is 8,270 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 350 cfs and extended above on basis of slope-area measurement at 1,230 cfs.

Remarks.--Base for partial-duration series, 180 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 21, 1954	3.44	538	1955	June 14, 1955	3.75	552
	June 27, 1954	-	225				
				1956	May 28, 1956	3.44	511
1955	May 15, 1955	2.13	199		June 5, 1956	2.80	456
	May 22, 1955	2.82	332				
	June 1, 1955	2.23	216	1957	June 6, 1957	3.68	580

Peak stages and discharges of East Goose Creek near Big Horn, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	June 21, 1957	2.39	270	1961	May 27, 1961	4.21	404
	June 30, 1957	2.56	307	1962	June 12, 1962	2.13	380
1958	May 21, 1958	3.40	515	1963	June 4, 1963	2.33	555
1959	June 7, 1959	3.45	522		June 15, 1963	3.59	1,230
1960	June 10, 1960	2.96	405				

3010. Cross Creek near Big Horn, Wyo.

Location.--Lat 44°31'20", long 107°12'20", in sec.34, T.53 N., R.86 W., on left bank about 200 ft upstream from Big Horn Reservoir and 15½ miles southwest of Big Horn.

Drainage area.--9.63 sq mi.

Gage.--Recording gage and concrete-flume control. Altitude of gage is 8,770 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 160 cfs.

Remarks.--Some regulation by Cross Creek Lake (capacity, 796 acre-ft) does not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 21, 1954	2.47	178	1957	June 7, 1957	a3.2	175
1955	June 16, 1955	2.44	175	1958	May 21, 1958	3.05	176
				1959	June 7, 1959	-	b92
1956	June 4, 1956	2.87	140	1960	June 15, 1960	1.97	60

a About.
b Maximum daily.

3015. West Goose Creek near Big Horn, Wyo.

Location.--Lat 44°36'45", long 107°17'50", in NW¼ sec.36, T.54 N., R.87 W., on right bank a quarter of a mile downstream from Twin Lakes Branch and 16 miles west of Big Horn.

Drainage area.--24.4 sq mi.

Gage.--Recording. Altitude of gage is 8,440 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 410 cfs and extended above on basis of area-velocity study.

Remarks.--Some regulation by Twin Lake (capacity, 1,200 acre-ft) and Dome Lake (capacity, 1,800 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 22, 1954	3.74	376	1959	June 8, 1959	4.12	499
1955	June 15, 1955	4.06	499	1960	June 10, 1960	3.59	362
1956	May 28, 1956	4.32	582	1961	May 30, 1961	4.24	551
1957	June 7, 1957	4.45	569	1962	June 15, 1962	3.82	388
1958	May 22, 1958	4.13	460	1963	June 15, 1963	5.37	1,030

3020. Goose Creek near Sheridan, Wyo.

Location.--Lat 44°42', long 107°11', in sec.35, T.55 N., R.86 W., on right bank half a mile upstream from Cave Creek and 14 miles southwest of Sheridan.

Drainage area.--120 sq mi.

Gage.--Recording. Altitude of gage is 4,530 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs and extended above by logarithmic plotting.

Remarks.--Diversions above station for irrigation of about 11,000 acres. Natural flow of stream affected by nine storage reservoirs (combined capacity, 13,740 acre-ft), transbasin diversions to Little Goose Creek, and diversions for Sheridan municipal supply and Veterans Administration Hospital. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	June 1, 1930	3.28	566	1947	June 9, 1947	3.66	902
				1948	June 23, 1948	3.46	762
1931	June 3, 1931	3.94	1,090	1949	June 13, 1949	3.95	1,130
1932	May 22, 1932	4.64	1,640	1950	June 18, 1950	3.72	867
1933	June 3, 1933	4.55	1,560				
1934	May 8, 1934	2.66	329	1951	June 19, 1951	3.36	598
1935	June 14, 1935	4.70	1,730	1952	June 7, 1952	4.57	1,500
				1953	June 15, 1953	4.65	1,560
1936	June 1, 1936	4.28	1,370	1954	May 22, 1954	3.25	615
1937	June 18, 1937	4.89	1,900	1955	June 15, 1955	4.02	981
1938	May 30, 1938	3.94	1,100				
1939	May 31, 1939	3.95	1,120	1956	May 28, 1956	4.65	1,630
1940	June 3, 1940	3.60	860	1957	June 11, 1957	4.11	1,170
				1958	May 24, 1958	3.54	724
1941	May 13, 1941	3.52	804	1959	June 8, 1959	3.91	1,020
1942	May 27, 1942	3.93	1,090	1960	June 10, 1960	2.75	373
1943	June 12, 1943	3.93	1,060				
1944	June 3, 1944	4.73	1,730	1961	May 30, 1961	3.62	773
1945	June 25, 1945	4.23	1,370	1962	June 16, 1962	4.42	1,450
				1963	June 15, 1963	5.83	3,160
1946	June 18, 1946	3.75	958				

3035. Little Goose Creek in canyon, near Big Horn, Wyo.

Location.--Lat 44°35'46", long 107°02'22", in NE¼ sec.1, T.53 N., R.85 W., on left bank 100 ft upstream from headgate of Lower Peralta ditch and 6½ miles southwest of Big Horn.

Drainage area.--55 sq mi, approximately.

Gage.--Recording. Altitude of gage is 4,860 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 870 cfs and extended above by logarithmic plotting.

Remarks.--Two small diversions above station for irrigation. Diversions into drainage basin above station from East Goose Creek basin diverted below station for irrigation. Three small reservoirs above station (combined capacity, 720 acre-ft), two of which store some of the imported water. Diversions and regulation do not materially affect peak flows. Base for partial-duration series, 420 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941a/	May 13, 1941	4.31	507	1944	May 18, 1944	5.00	719
	May 26, 1941	4.44	543		June 3, 1944	5.87	928
1942	May 26, 1942	4.87	568	1945	June 6, 1945	4.60	534
	June 4, 1942	4.67	514		June 24, 1945	5.04	669
1943	May 30, 1943	4.09	429	1946	June 5, 1946	4.55	574

a Partial year.

Peak stages and discharges of Little Goose Creek in canyon, near Big Horn, Wyo.--Con.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 18, 1946	4.45	546	1954	May 20, 1954	3.57	282
	June 24, 1946	6.13	1,080	1955	May 22, 1955	3.81	332
1947	June 8, 1947	4.18	421	1956	May 28, 1956	5.83	889
	June 26, 1947	4.33	460	1957	June 10, 1957	4.47	501
1948	May 21, 1948	4.82	596		June 18, 1957	4.33	462
	May 29, 1948	4.30	452	1958	May 25, 1958	4.33	452
	June 22, 1948	5.12	684	1959	June 7, 1959	4.14	428
1949	June 7, 1949	4.81	593	1960	June 10, 1960	3.30	217
1950	June 16, 1950	4.08	418	1961	May 29, 1961	4.41	503
1951	May 25, 1951	3.79	328	1962	June 16, 1962	4.93	624
1952	May 25, 1952	4.21	428	1963	June 15, 1963	6.78	1,350
	June 6, 1952	4.47	498				
1953	May 29, 1953	4.36	468				
	June 15, 1953	4.87	610				

3055. Goose Creek below Sheridan, Wyo.

Location.--Lat 44°49'25", long 106°57'40", in SE¼SW¼ sec.15, T.56 N., R.84 W., on right bank 700 ft north of Sheridan city limits and 1,200 ft downstream from Soldier Creek.

Drainage area.--392 sq mi.

Gage.--Nonrecording at site 600 ft upstream at datum 2.18 ft lower prior to Aug. 3, 1951; recording thereafter. Datum of gage is 3,701.26 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,500 cfs.

Bankfull stage.--8 ft.

Remarks.--Diversions above station for irrigation of about 55,000 acres. Natural flow of stream affected by many small storage reservoirs (combined capacity, about 15,000 acre-ft). Diversions and regulation materially affect peak flows. Base for partial-duration series, 1,200 cfs. Only annual maximum observed stages and discharges are shown prior to 1952.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	May 27, 1942	8.12	1,650	1955	June 26, 1955	4.15	1,300
1943	June 13, 1943	7.50	1,380	1956	May 29, 1956	6.97	3,360
1944	June 4, 1944	11.26	4,040	1957	June 11, 1957	4.58	1,730
1945	June 24, 1945	8.78	2,270		June 17, 1957	4.75	1,830
1946	June 25, 1946	9.75	2,780	1958	May 24, 1958	3.40	1,080
1947	June 22, 1947	7.47	1,440	1959	June 8, 1959	3.56	1,130
1948	June 23, 1948	8.92	2,340	1960	Mar. 19, 1960	a3.15	-
1949	June 8, 1949	7.88	1,680		Mar. 19, 1960	2.92	b600
1950	June 15, 1950	6.88	1,120	1961	May 30, 1961	3.16	939
1951	July 11, 1951	6.80	1,120	1962	June 16, 1962	5.66	4,100
1952	Mar. 30, 1952	3.90	1,240	1963	Apr. 28, 1963	5.28	2,640
	May 23, 1952	4.10	1,340		June 5, 1963	6.06	3,190
	June 7, 1952	4.74	1,690		June 16, 1963	7.82	5,450
1953	June 15, 1953	5.98	2,370				
1954	May 23, 1954	3.14	591				
1955	June 16, 1955	4.12	1,270				

a Backwater from ice.
b About.

3060. Tongue River near Acme, Wyo.

Location.--Lat 44°56'40", long 106°56'20", in sec.1, T.57 N., R.84 W., on right bank just upstream from Ash Creek, 400 ft downstream from highway bridge and 3.2 miles northeast of Acme.

Drainage area.--894 sq mi.

Gage.--Recording. Altitude of gage is 3,530 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 6,300 cfs.

Remarks.--Diversion above station for irrigation of about 52,000 acres. Some regulation by 12 mountain reservoirs (combined capacity, 14,600 acre-ft) as result of storage during spring runoff and release for irrigation during summer. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 2, 1939	6.92	3,340	1949	June 14, 1949	5.87	2,710
1940	June 6, 1940	4.93	1,360	1950	June 19, 1950	5.25	2,020
1941	May 14, 1941	6.08	2,520	1951	July 11, 1951	5.34	2,080
1942	May 27, 1942	7.60	4,350	1952	May 24, 1952	5.86	2,700
1943	June 1, 1943	6.55	3,100	1953	June 16, 1953	7.56	4,870
1944	June 4, 1944	10.50	9,110	1954	May 23, 1954	-	a1,800
1945	June 24, 1945	7.42	4,430	1955	June 27, 1955	5.75	2,580
1946	June 19, 1946	6.97	3,840	1956	May 29, 1956	8.24	6,280
1947	June 22, 1947	6.90	3,750	1957	June 18, 1957	7.34	4,700
1948	Apr. 19, 1948	6.72	3,850				

a Estimated.

3065. Tongue River near Decker, Mont.

Location.--Lat 45°01'50", long 106°48'50", in SE¼ sec.22, T.9 S., R.40 E., at bridge a quarter of a mile northeast of Decker, 2 miles north of Wyoming-Montana State line, and 3 miles upstream from high-water line of Tongue River Reservoir.

Drainage area.--1,610 sq mi.

Gage.--Nonrecording prior to Sept. 11, 1934; recording thereafter. At datum 1.00 ft higher prior to Sept. 11, 1934. Altitude of gage is 3,430 ft (from River Basin Survey map).

Stage-discharge relation.--Defined by current-meter measurements below 3,600 cfs.

Remarks.--Diversions above station for irrigation of about 58,000 acres. Some regulation by 12 mountain reservoirs (combined capacity, 15,000 acre-ft) as result of storage during spring runoff and release for irrigation during summer. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	May 28, 1928	5.25	3,730	1934	May 10, 1934	2.12	596
1929	June 2, 1929	8.25	7,220	1935	June 14, 1935	6.45	4,100
1930	June 2, 1930	3.26	1,410	1936	June 2, 1936	6.47	4,140
1931	May 17, 1931	5.14	3,640	1937	June 19, 1937	6.91	4,330
1932	May 23, 1932	6.28	4,820	1938	June 25, 1938	7.45	5,160
1933	June 3, 1933	6.55	5,180				

3069.5. Leaf Rock Creek near Kirby, Mont.

Location.--Lat 45°11', long 106°55', in center sec.35, T.7 S., R.39 E., at culvert on county road, 10 miles south of Kirby.

Drainage area.--6.04 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,940 ft (from topographic map).

Stage-discharge relation.--Defined by computation of flow through culvert, using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 7, 1958	6.77	222	1961	-	-	(a)
				1962	June 16, 1962	6.37	216
1960	Mar. 19, 1960	5.03	168	1963	June 15, 1963	6.77	222

a No evidence of flow during year.

3082. Basin Creek tributary near Volborg, Mont.

Location.--Lat 45°53', long 105°40', in NW¼ sec.31, T.2 N., R.49 E., at culvert on county road, 3½ miles north of Volborg.

Drainage area.--0.14 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,900 ft (from topographic map).

Stage-discharge relation.--Defined by computation of flow through culvert using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 29, 1955	0.24	20	1960	Mar. 21, 1960	0.97	12
1956	-	-	(a)	1961	-	-	(a)
1957	-	-	(a)	1962	June 17, 1962	2.76	36
1958	July 2, 1958	6.96	390	1963	June 22, 1963	9.38	94
1959	March 1959	-	b2				

a No evidence of flow during year. b Approximate.

3083. Basin Creek near Volborg, Mont.

Location.--Lat 45°53', long 105°39', in NW¼ sec.32, T.2 N., R.49 E., at bridge on U.S. Highway 212, 4 miles north of Volborg.

Drainage area.--10.9 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,880 ft (from topographic map).

Stage-discharge relation.--Poorly defined by current-meter measurements below 10 cfs and by slope-area measurement at 953 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 29, 1955	1.1	20	1960	Mar. 21, 1960	5.26	770
1956	Aug. 27, 1956	5.76	953	1961	Sept.10, 1961	1.04	18
1957	Apr. 24, 1957	3.45	300	1962	Feb. 11, 1962	3.18	250
1958	July 2, 1958	5.79	965	1963	June 22, 1963	5.69	920
1959	Mar. 11, 1959	1.87	75				

3085. Tongue River at Miles City, Mont.
(Published as "near Miles City" April 1938 to April 1942)

Location.--Lat 46°21', long 105°48', in SE¼ sec.23, T.7 N., R.47 E., on right bank 4 miles south of Miles City and 8 miles upstream from mouth.

Drainage area.--5,379 sq mi.

Gage.--Nonrecording at site 8 miles upstream at different datum prior to April 1942; recording at present site and datum since April 1946. Altitude of gage is 2,370 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 3,200 cfs at present site and extended above on basis of float measurement at 12,000 cfs. Defined below 1,700 cfs at former site.

Remarks.--Diversions for irrigation of about 90,000 acres above station. Flow regulated by Tongue River Reservoir (present usable capacity, 68,040 acre-ft), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Peak flows are materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	June 1, 1938	6.10	2,800	1954	Aug. 17, 1954	4.92	2,780
1939	Mar. 23, 1939	5.84	2,560	1955	May 4, 1955	5.53	3,810
1940	July 28, 1940	6.58	3,420	1956	Mar. 23, 1956	a9.00	-
1941	May 30, 1941	7.20	3,650		June 3, 1956	-	3,080
1946	June 12, 1946	4.94	3,140	1957	Mar. 1, 1957	a6.33	-
1947	Mar. 20, 1947	a9.65	-		Apr. 24, 1957	-	4,980
	Mar. 21, 1947	-	b4,800	1958	July 3, 1958	7.59	6,970
1948	June 5, 1948	7.92	7,470	1959	Mar. 10, 1959	a7.30	-
1949	Mar. 6, 1949	all.8	c12,000		Mar. 13, 1959	-	5,400
1950	Apr. 2, 1950	a6.76	-	1960	Mar. 19, 1960	a12.27	-
	June 25, 1950	-	1,640		Mar. 20, 1960	-	6,820
1951	Sept. 2, 1951	4.55	2,680	1961	July 30, 1961	2.60	1,090
1952	Mar. 29, 1952	all.70	-	1962	June 15, 1962	11.33	13,300
	Mar. 30, 1952	-	7,520	1963	Feb. 6, 1963	a7.55	-
1953	June 20, 1953	5.16	3,100		June 22, 1963	-	5,090

a Backwater from ice.
b Maximum daily mean; estimated.
c Result of float measurement.

3090. Yellowstone River at Miles City, Mont.

Location.--Lat 46°25', long 105°51', in SW¼NW¼ sec.28, T.8 N., R.47 E., on left bank 350 ft upstream from bridge on State Highway 22 at Miles City and three-quarters of a mile downstream from Tongue River.

Drainage area.--48,253 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1931; recording thereafter. At pumping plant 1¼ miles downstream at different datums prior to May 6, 1929, and Nov. 11, 1937, to Sept. 30, 1946. Datum of gage is 2,330.20 ft above mean sea level (State Highway Department bench mark).

Stage-discharge relation.--Well defined by current-meter measurements at both sites.

Remarks.--Some regulation by reservoirs on tributary streams. Diversions for irrigation of about 1,100,000 acres above station. Peak flows might be materially affected. Base for partial-duration series, 36,700 cfs. Only annual peaks are shown prior to 1932.

Peak stages and discharges of Yellowstone River at Miles City, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	June 15, 1923	8.80	53,300	1948	June 8, 1948	13.05	70,500
1929	June 18, 1929	11.20	60,300	1949	Mar. 26, 1949	a10.30	-
1930	June 2, 1930	9.08	42,000		June 1, 1949	8.79	37,700
					June 15, 1949	10.08	46,100
1931	June 11, 1931	9.49	45,000	1950	Apr. 6, 1950	a13.80	-
1932	June 28, 1932	12.17	65,200		June 9, 1950	9.84	45,700
					June 25, 1950	11.47	57,300
1933	June 19, 1933	11.62	60,800	1951	Mar. 26, 1951	a12.80	-
1934	Mar. 10, 1934	a11.02	-		May 31, 1951	10.05	46,100
	May 11, 1934	5.85	20,100		June 20, 1951	10.86	52,000
1935	June 17, 1935	12.22	66,400	1952	Mar. 29, 1952	10.42	48,900
					May 24, 1952	9.56	42,000
1936	June 4, 1936	10.76	51,600		June 10, 1952	11.46	54,400
1937	June 25, 1937	11.10	51,600	1953	June 17, 1953	11.60	58,400
1938	June 26, 1938	10.50	74,200	1954	June 29, 1954	9.90	44,200
	July 5, 1938	10.10	67,600				
				1955	June 19, 1955	9.07	37,600
1939	Mar. 22, 1939	a11.37	-	1956	Mar. 26, 1956	a12.42	-
	June 4, 1939	8.34	42,300		June 1, 1956	12.08	60,700
1940	June 10, 1940	7.35	34,900	1957	May 23, 1957	9.15	37,300
1941	Mar. 23, 1941	a7.82	-		June 10, 1957	12.86	67,900
	June 12, 1941	7.70	36,700		June 19, 1957	12.39	63,500
					June 23, 1957	11.96	59,600
1942	May 29, 1942	9.62	54,500		July 4, 1957	11.72	57,500
	June 12, 1942	10.55	67,700				
				1958	Feb. 21, 1958	a10.83	-
1943	Mar. 26, 1943	a14.00	-		May 27, 1958	9.90	40,300
	June 4, 1943	10.10	62,700				
	June 26, 1943	11.76	83,700	1959	Mar. 13, 1959	a12.90	-
					June 10, 1959	10.11	42,700
1944	Mar. 20, 1944	b12.9	-		June 18, 1959	11.53	54,200
	May 21, 1944	10.35	48,000				
	June 19, 1944	12.74	96,300	1960	Mar. 19, 1960	a15.50	-
	June 30, 1944	14.05	82,800		June 13, 1960	8.49	32,900
1945	June 8, 1945	8.42	44,100	1961	June 1, 1961	8.30	-
	June 28, 1945	10.57	67,700		June 12, 1961	-	30,500
1946	June 14, 1946	9.11	50,100	1962	Feb. 17, 1962	a14.84	-
					June 6, 1962	9.53	39,400
1947	Mar. 22, 1947	10.67	48,900		June 18, 1962	11.91	57,100
	May 13, 1947	10.48	47,300				
	June 12, 1947	10.57	48,100	1963	June 6, 1963	11.99	54,200
	June 23, 1947	12.42	64,800		June 19, 1963	12.81	61,300

a Backwater from ice.
b Backwater from ice; gage height, 21.7 ft, present site and datum, from floodmark.

3095. Middle Fork Powder River above Kaycee, Wyo.

Location.--Lat 43°39', long 106°49', in SW¼ sec.34, T.43 N., R.83 W., on right bank 680 ft upstream from county highway bridge, 2 miles upstream from Red Fork, 2 miles downstream from Beaver Creek, and 10 miles southwest of Kaycee.

Drainage area.--450 sq mi, approximately.

Gage.--Recording. Datum of gage is 4,874.76 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs and extended above by logarithmic plotting.

Bankfull stage.--7 ft.

Historical data.--Maximum stage known, about 11.7 ft, date unknown.

Remarks.--Diversions above station for irrigation of about 9,500 acres materially affect peak flows. Base for partial-duration series, 300 cfs.

Peak stages and discharges of Middle Fork Powder River above Kaycee, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949a/	Apr. 30, 1949	3.74	319	1957	June 16, 1957	3.85	370
	May 4, 1949	3.76	326		June 20, 1957	4.60	620
	June 9, 1949	4.50	586		June 30, 1957	5.22	860
	Aug. 10, 1949	4.11	452	1958	May 13, 1958	5.50	933
1950	May 18, 1950	5.68	1,020		June 13, 1958	4.23	494
					July 3, 1958	5.20	840
1951	Apr. 30, 1951	3.66	312		July 21, 1958	4.16	470
	May 6, 1951	3.71	327				
	May 13, 1951	3.88	380	1959	May 17, 1959	4.91	644
	Sept. 6, 1951	4.21	487		Aug. 12, 1959	4.72	672
					Aug. 19, 1959	4.12	464
1952	Apr. 29, 1952	4.28	566				
	May 22, 1952	3.58	307	1960	June 10, 1960	3.80	370
1953	May 29, 1953	4.04	437	1961	May 23, 1961	5.00	755
	July 29, 1953	3.57	303				
				1962	Apr. 26, 1962	4.84	567
1954	May 13, 1954	3.57	287		May 25, 1962	4.04	350
					June 15, 1962	5.76	932
1955	May 15, 1955	4.98	730		June 24, 1962	4.82	567
	June 2, 1955	4.02	424		June 30, 1962	4.34	425
	June 14, 1955	5.07	792		July 14, 1962	4.31	418
1956	May 27, 1956	3.85	367	1963	May 10, 1963	4.95	634
	July 2, 1956	3.78	322		June 15, 1963	8.45	2,480
					July 7, 1963	5.84	1,010
1957	May 14, 1957	3.79	374		Aug. 13, 1963	5.18	729
	May 30, 1957	3.77	346		Sept.21, 1963	4.52	514
	June 7, 1957	3.82	374				

a Partial year.

3100. Red Fork near Barnum, Wyo.

Location.--Lat 43°39', long 106°46', in sec.35, T.43 N., R.83 W., on right bank 800 ft upstream from mouth and 6.5 miles east of Barnum.

Drainage area.--142 sq mi.

Gage.--Nonrecording prior to June 3, 1950; recording thereafter. At datum 1.52 ft higher May 24, 1929, to June 30, 1932, and at datum 0.49 ft higher, Mar. 20 to June 2, 1950. Datum of gage is 4,835.80 ft above mean sea level (State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 360 cfs.

Bankfull stage.--6 ft.

Historical data.--Maximum stage known, 10.3 ft (present datum) in April 1927, from floodmarks, from information by local resident.

Remarks.--Diversions for irrigation of about 3,100 acres above station do not materially affect peak flows. Only annual peaks are shown prior to 1950. Base for partial-duration series, 120 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	April 1927	a10.3	-	1950	May 18, 1950	5.66	649
1929	May 25, 1929	3.57	754	1951	May 13, 1951	2.94	158
1930	Aug. 11, 1930	3.17	625		Sept. 7, 1951	5.29	583
1931	June 9, 1931	2.40	370	1952	Jan. 24, 1952	b5.44	-
1932	May 14, 1932	3.63	768		Apr. 29, 1952	4.24	386
1950	Apr. 17, 1950	3.04	182	1953	May 29, 1953	3.00	150
	Apr. 23, 1950	3.12	195		July 29, 1953	5.15	527

a Present datum.
b Backwater from ice.

3110. North Fork Powder River near Hazelton, Wyo.

Location.--Lat 44°01'20", long 107°04'00", in SE¼ sec.21, T.47 N., R.85 W., on right bank three-quarters of a mile upstream from bridge, 3 miles upstream from Twin Creek, 7.5 miles southwest of Hazelton, and 19 miles northwest of Mayoworth.

Drainage area.--25.0 sq mi.

Gage.--Recording. Altitude of gage is 8,120 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 120 cfs and extended above on basis of slope-area measurement at gage height 4.3 ft.

Remarks.--Base for partial-duration series, 190 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	May 5, 1947	3.44	396	1956	May 20, 1956	2.81	202
					May 24, 1956	3.13	287
1948	May 20, 1948	3.14	290		May 27, 1956	3.01	253
1949	June 6, 1949	3.40	361	1957	June 10, 1957	2.98	247
	June 12, 1949	3.97	242				
				1958	May 7, 1958	3.12	284
1950	May 23, 1950	3.27	332		May 17, 1958	2.77	200
1951	May 18, 1951	2.62	171	1959	June 3, 1959	2.55	146
					June 22, 1959	2.58	-
1952	May 3, 1952	3.18	302				
	June 3, 1952	2.95	237	1960	Apr. 23, 1960	2.54	166
1953	May 29, 1953	3.25	325	1961	May 10, 1961	3.40	380
	June 15, 1953	4.34	886				
				1962	May 8, 1962	3.17	284
1954	May 10, 1954	2.94	234				
				1963	June 1, 1963	3.20	308
1955	May 14, 1955	2.96	240				
	June 15, 1955	3.42	388				

3115. North Fork Powder River near Mayoworth, Wyo.

Location.--Lat 43°54', long 106°53', in sec.6, T.45 N., R.83 W., on right bank 2 miles downstream from Pass Creek and 6 miles northwest of Mayoworth.

Drainage area.--106 sq mi.

Gage.--Recording. At site 300 ft downstream at datum 4.43 ft lower prior to May 12, 1948. Altitude of gage is 5,590 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 370 cfs.

Remarks.--Two small diversions above station for irrigation of 223 acres on Hat Ranch do not materially affect peak flow. Base for partial-duration series, 330 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	May 1, 1941	5.74	562	1948	May 20, 1948	4.37	364
	Aug. 11, 1941	7.64	1,270				
				1949	June 6, 1949	4.49	406
1942	Apr. 14, 1942	5.45	552				
				1950	May 17, 1950	5.24	608
1943	June 12, 1943	4.97	411		May 22, 1950	4.62	414
1944	May 17, 1944	5.32	507	1951	May 19, 1951	3.57	171
	May 24, 1944	5.06	405				
				1952	Apr. 27, 1952	4.83	475
1945	May 6, 1945	4.61	306				
				1953	May 29, 1953	4.49	387
1946	Apr. 18, 1946	4.74	353		June 15, 1953	5.77	715
1947	May 3, 1947	6.86	1,030	1954	May 10, 1954	4.06	274
	May 11, 1947	5.38	448				

Peak stages and discharges of North Fork Powder River near Mayoworth, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 15, 1955	4.46	370	1960	Apr. 24, 1960	3.89	230
1956	June 14, 1956	4.89	486	1961	May 11, 1961	4.26	314
	June 18, 1956	4.52	394				
				1962	Apr. 24, 1962	5.17	554
1957	June 11, 1957	4.00	251		May 9, 1962	4.69	444
1958	May 7, 1958	4.62	400	1963	June 2, 1963	4.48	384
					Sept.21, 1963	4.80	464
1959	June 4, 1959	3.44	-				
	June 22, 1959	3.43	139				

3125. Powder River near Kaycee, Wyo.
(Published as "Middle Fork Powder River" prior to October 1961)

Location.--Lat 43°42', long 106°31', in sec.13, T.43 N., R.81 W., on left bank at Jay Bar U Ranch 450 ft downstream from headgate of Sahara Canal, 1½ miles downstream from North Fork Powder River, and 6 miles east of Kaycee.

Drainage area.--980 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 16, 1940; recording thereafter. Datun of gage is 4,533.76 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs and extended above on basis of slope-area measurements at gage heights 8.98, 11.17, and 12.57 ft.

Historical data.--Maximum stage known, that of Sept. 30, 1923, from information by local resident.

Remarks.--Diversions above station for irrigation of about 27,000 acres materially affect peak flows. Only annual peaks are shown prior to 1949. Base for partial-duration series, 930 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Sept.30, 1923	18	-	1953	June 6, 1953	5.65	1,290
					June 15, 1953	5.33	1,180
1934	June 6, 1934	8.84	2,160				
1935	May 31, 1935	5.92	1,040	1954	May 11, 1954	3.34	461
				1955	May 15, 1955	5.63	1,210
1936	June 1936	14.3	-				
				1956	Mar. 4, 1956	a3.59	-
1938	May 1, 1938	6.20	1,140		May 10, 1956	3.20	402
1939	June 1, 1939	5.62	974				
1940	Sept.30, 1940	6.20	1,130	1957	June 21, 1957	5.07	980
1941	Aug. 11, 1941	12.57	5,230	1958	May 13, 1958	5.35	1,160
1942	Apr. 15, 1942	7.92	1,730				
1943	June 12, 1943	7.80	1,690	1959	May 17, 1959	4.65	842
1944	May 19, 1944	11.15	3,860				
1945	June 11, 1945	8.09	1,940	1960	Mar. 9, 1960	a4.66	-
					Apr. 24, 1960	3.19	389
1946	July 2, 1946	8.22	2,000				
1947	May 6, 1947	9.57	3,280	1961	May 25, 1961	4.66	839
1948	Feb. 18, 1948	a6.27	-				
	May 21, 1948	-	1,360	1962	Apr. 26, 1962	5.89	1,240
					May 26, 1962	5.90	1,240
1949	Feb. 25, 1949	a5.47	-		June 1, 1962	9.30	2,800
	Apr. 30, 1949	3.66	614		June 13, 1962	6.13	1,330
					June 15, 1962	8.52	2,410
1950	May 18, 1950	6.34	1,570		July 14, 1962	8.74	2,520
1951	Sept. 7, 1951	7.57	2,060	1963	Oct. 6, 1962	5.24	952
					Apr. 28, 1963	5.84	1,220
1952	Mar. 29, 1952	4.81	998		June 3, 1963	5.23	972
	May 22, 1952	5.10	1,100		June 15, 1963	5.98	1,270

a Backwater from ice.

3130. South Fork Powder River near Kaycee, Wyo.

Location.--Lat 43°37', long 106°34', in SE¼ sec.9, T.42 N., R.81 W., on right bank 300 ft upstream from bridge on U.S. Highway 87, 1½ miles upstream from Murphy Creek, 6.6 miles southeast of Kaycee, and 7 miles upstream from mouth.

Drainage area.--1,150 sq mi, approximately.

Gage.--Nonrecording prior to June 30, 1940; recording thereafter. At site 300 ft upstream prior to Dec. 4, 1956. At datum 0.77 ft lower prior to June 30, 1940, and at datum 1.13 ft higher May 1, 1950, to Dec. 3, 1956. Altitude of gage is 4,650 ft (estimated from nearby U.S. Coast and Geodetic Survey level line).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and extended above on basis of slope-area measurement at 35,500 cfs.

Remarks.--Diversions above station for irrigation of about 4,350 acres. Natural flow of stream affected by storage in many small reservoirs (combined capacity, 1,300 acre-ft) above station. Diversions and storage do not materially affect peak flows. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	July 26, 1938	8.80	12,400	1955	July 23, 1955	4.28	3,920
1939	Mar. 12, 1939	a5.29	-	1956	Mar. 19, 1956	3.60	2,550
	June 1, 1939	5.08	2,810		May 27, 1956	3.55	2,470
1940	Feb. 27, 1940	a4.20	-	1957	July 19, 1957	2.84	558
	Apr. 18, 1940	3.88	957	1958	July 25, 1958	3.77	1,090
1950	May 9, 1950	-	b450	1959	Mar. 2, 1959	a4.66	-
1951	Sept. 7, 1951	5.05	4,380		Sept.24, 1959	3.21	795
1952	May 22, 1952	7.87	14,400	1960	Mar. 10, 1960	a5.98	-
1953	June 15, 1953	2.30	1,250		June 10, 1960	3.76	880
	July 16, 1953	2.75	1,580	1961	July 8, 1961	5.40	2,000
	July 18, 1953	3.50	2,720				
	July 29, 1953	2.80	1,580	1962	May 22, 1962	13.17	c35,500
1954	July 17, 1954	7.20	12,100	1963	Oct. 6, 1962	5.80	7,680
					Apr. 29, 1963	3.20	1,230
1955	Mar. 10, 1955	a5.6	-		May 26, 1963	2.89	1,000
	Mar. 10, 1955	3.95	2,120		June 1, 1963	2.98	1,120
	Mar. 30, 1955	3.55	2,460		Sept.22, 1963	7.35	12,000
	June 24, 1955	2.52	1,280				

a Backwater from ice. b Maximum daily. c Annual peak only.

3135. Powder River at Sussex, Wyo.

Location.--Lat 43°42', long 106°17', in sec.13, T.43 N., R.79 W., on left bank at Sussex, 100 ft downstream from bridge on county road and 3½ miles downstream from Salt Creek.

Drainage area.--3,090 sq mi, approximately.

Gage.--Nonrecording prior to June 30, 1940; recording thereafter. At site 100 ft upstream at datum 1.07 ft higher Apr. 10, 1938, to June 30, 1940. Datum of gage is 4,362.16 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs and extended above on basis of slope-area measurement at 32,500 cfs.

Bankfull stage.--10 ft.

Historical data.--Maximum stage known, that of Sept. 30, 1923, from information by local resident.

Remarks.--Diversions above station for irrigation of about 37,500 acres. Natural flow is regulated by many small reservoirs (combined capacity, 5,820 acre-ft). Diversions and regulation do not materially affect peak flows. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges of Powder River at Sussex, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Sept.30, 1923	a13.6	-	1952	May 23, 1952	12.6	32,500
1938	July 16, 1938	7.41	8,710	1953	Aug. 3, 1953	4.94	2,080
	July 26, 1938	8.73	9,390	1954	July 17, 1954	7.66	8,680
1939	Mar. 12, 1939	b9.22	-	1955	Mar. 10, 1955	6.15	3,080
	June 1, 1939	b5.50	3,630		Mar. 30, 1955	6.62	5,490
1940	Feb. 27, 1940	b5.43	-		Apr. 10, 1955	5.35	2,270
	Apr. 19, 1940	4.47	1,610		June 17, 1955	9.50	16,600
1950	Feb. 8, 1950	b6.30	-		June 26, 1955	5.52	2,420
	May 18, 1950	5.42	1,680	1956	Mar. 4, 1956	b6.06	-
1951	Sept. 7, 1951	7.00	5,270		May 28, 1956	5.45	1,660
1952	May 9, 1952	6.45	4,160	1957	June 11, 1957	5.75	2,400

a Annual peak only; present datum.
b Backwater from ice.

3140. North Fork Crazy Woman Creek near Buffalo, Wyo.

Location.--Lat 44°11'20", long 106°49'50", in sec.27, T.49 N., R.83 W., 1½ miles upstream from Spring Draw, 3½ miles upstream from Elgin Creek, and 13 miles southwest of Buffalo.

Drainage area.--44.9 sq mi.

Gage.--Recording. Altitude of gage is 5,900 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs and extended above on basis of slope-area measurement at 611 cfs at site 3¼ miles downstream.

Remarks.--Records for 1944 furnished by Bureau of Reclamation. Base for partial-duration series, 160 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	May 18, 1944	3.42	213	1947	May 3, 1947	3.57	222
	May 24, 1944	3.53	239		May 11, 1947	3.35	170
	June 17, 1944	3.64	266	1948	May 29, 1948	3.35	170
1945	June 6, 1945	3.56	200		July 14, 1948	3.41	188
	June 24, 1945	4.40	426	1949	June 6, 1949	5.56	611
1946	June 6, 1946	3.32	156		June 12, 1949	4.25	297

3145. North Fork Crazy Woman Creek below Spring Draw, near Buffalo, Wyo.

Location.--Lat 44°11'50", long 106°46'25", in NW¼NW¼ sec.30, T.49 N., R.82 W., on right bank 1¾ miles upstream from Spring Draw and 11 miles southwest of Buffalo.

Drainage area.--51.7 sq mi.

Gage.--Recording. Altitude of gage is 5,320 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 180 cfs and extended above on basis of slope-area measurement at 1,020 cfs.

Bankfull stage.--6 ft.

Remarks.--Diversions above station for irrigation of about 870 acres do not materially affect peak flows. Base for partial-duration series, 160 cfs.

Peak stages and discharges of North Fork Crazy Woman Creek below Spring Draw, near Buffalo, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 6, 1949	5.42	610	1958	Jan. 1, 1958	a4.11	-
					May 11, 1958	4.05	155
1950	May 16, 1950	4.54	294	1959	June 8, 1959	4.12	167
1951	May 29, 1951	3.88	97		June 22, 1959	4.28	282
1952	May 25, 1952	4.29	197	1960	Dec. 31, 1959	a3.80	-
					May 13, 1960	3.74	62
1953	June 15, 1953	4.96	446	1961	Jan. 28, 1961	a4.05	-
1954	May 22, 1954	3.73	82		May 30, 1961	3.88	92
1955	June 16, 1955	4.43	259	1962	June 12, 1962	4.57	314
					June 16, 1962	4.76	390
1956	May 28, 1956	4.09	166	1963	June 2, 1963	4.89	445
1957	June 10, 1957	4.57	299		June 15, 1963	5.83	1,020
	June 16, 1957	4.42	244				

a Backwater from ice.

3150. North Fork Crazy Woman Creek near Greub, Wyo.

Location.--Lat 44°04'50", long 106°39'40", in SW¼ sec.36, T.48 N., R.82 W., on left bank 1 mile upstream from Middle Fork, 5 miles northeast of Greub, and 18 miles south of Buffalo.

Drainage area.--174 sq mi.

Gage.--Nonrecording prior to Sept. 13, 1950; recording thereafter. Altitude of gage is 4,650 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 260 cfs and extended above on basis of slope-area measurements at gage heights 7.00 and 9.05 ft, and slope-conveyance study.

Remarks.--Storage in 5 small reservoirs (combined capacity, 730 acre-ft) and diversions for irrigation of about 11,500 acres materially affect peak flows. Base for partial-duration series, 180 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 7, 1949	6.45	a580	1959	June 30, 1959	3.13	180
1950	May 18, 1950	4.12	344	1960	Mar. 10, 1960	b3.19	-
					June 30, 1960	2.78	138
1951	Sept. 7, 1951	2.86	124	1961	May 22, 1961	2.57	102
1952	May 26, 1952	3.10	170	1962	Oct. 10, 1961	3.61	243
1953	June 15, 1953	7.00	619		May 26, 1962	4.82	367
					May 28, 1962	6.60	582
1954	June 27, 1954	4.98	404		June 13, 1962	9.05	1,050
					June 17, 1962	7.27	666
1955	June 16, 1955	5.36	446		June 29, 1962	7.92	784
					July 12, 1962	4.71	356
1956	May 27, 1956	3.20	199	1963	Apr. 27, 1963	3.35	212
1957	May 29, 1957	4.42	332		June 3, 1963	5.58	455
	June 10, 1957	4.32	320		June 16, 1963	7.05	632
	June 16, 1957	5.15	412		Sept.21, 1963	6.09	516
1958	May 6, 1958	2.79	134				

a Annual peak only.
b Backwater from ice.

3155. Middle Fork Crazy Woman Creek near Greub, Wyo.

Location.--Lat 44°03'40", long 106°48'00", in sec.11, T.47 N., R.83 W., on left bank a quarter of a mile downstream from Poison Creek, 2½ miles west of Greub, and 21 miles southwest of Buffalo.

Drainage area.--82.7 sq mi.

Gage.--Nonrecording prior to 1944; recording thereafter. At datum 0.67 ft lower prior to June 7, 1952. Altitude of gage is 5,190 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs and extended above by logarithmic plotting.

Remarks.--Records for 1942-44 furnished by Bureau of Reclamation. Diversions above station for irrigation of about 340 acres do not materially affect peak flows. Base for partial-duration series, 140 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Apr. 14, 1942	2.94	169
1943	June 12, 1943	3.75	378
1944	May 9, 1944	2.86	260
	May 18, 1944	3.45	409
	May 24, 1944	2.95	282
	May 31, 1944	2.80	246
	June 4, 1944	3.25	357
	June 9, 1944	3.17	336
	June 17, 1944	3.31	373
1945	May 1, 1945	3.13	350
	June 6, 1945	2.90	278
	June 14, 1945	2.77	240
	June 24, 1945	2.97	299
	July 12, 1945	2.53	174
1946	Mar. 29, 1946	2.33	128
1947	Apr. 29, 1947	4.80	2,550
	May 2, 1947	5.77	4,520
	May 11, 1947	-	206
	May 27, 1947	2.22	176
	May 31, 1947	2.33	209
	June 12, 1947	2.11	148
	June 21, 1947	2.27	191
1948	Apr. 17, 1948	2.28	194
	May 30, 1948	2.37	221
1949	June 6, 1949	3.28	564
	June 8, 1949	2.65	264
	June 12, 1949	2.84	400
	June 19, 1949	2.44	242
1950	Apr. 14, 1950	2.82	390
	May 16, 1950	3.46	788
1950	June 8, 1950	2.17	168
1951	Apr. 28, 1951	2.25	191
1952	Apr. 19, 1952	3.83	635
	May 22, 1952	2.44	175
1953	June 15, 1953	2.68	285
1954	June 26, 1954	2.72	295
1955	June 15, 1955	2.30	192
1956	May 28, 1956	2.28	215
1957	May 13, 1957	2.41	258
	June 11, 1957	2.26	188
	June 16, 1957	2.43	230
1958	Apr. 17, 1958	3.73	503
	May 3, 1958	3.01	271
1959	June 22, 1959	2.12	93
1960	Mar. 26, 1960	a2.82	-
	Mar. 26, 1960	2.74	208
1961	July 7, 1961	2.47	155
1962	Apr. 15, 1962	3.17	331
	May 26, 1962	2.45	184
	June 16, 1962	2.73	254
	June 29, 1962	2.68	206
1963	Apr. 27, 1963	2.86	235
	June 15, 1963	2.84	251
	Sept. 21, 1963	4.78	1,030

a Backwater from debris.

3165. Crazy Woman Creek near Arvada, Wyo.

Location.--Lat 44°29', long 106°09', in NW¼ sec.16, T.52 N., R.77 W., on left bank 200 ft upstream from county highway bridge, 1 mile upstream from mouth, and 11½ miles south of Arvada.

Drainage area.--956 sq mi.

Gage.--Nonrecording prior to Jan. 1, 1944; recording thereafter. At site half a mile upstream at different datum prior to Dec. 31, 1943. Datum of gage is 3,737.07 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs.

Remarks.--Diversions above station for irrigation of about 30,000 acres materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	June 6, 1940	5.98	804	1955	Mar. 30, 1955	a11.32	-
					Aug. 7, 1955	10.39	1,890
1941	July 13, 1941	9.46	1,850				
1942	June 4, 1942	6.90	1,080	1956	Mar. 20, 1956	a11.45	-
1943	Mar. 25, 1943	a7.92	-		Mar. 20, 1956	9.13	c900
	Mar. 26, 1943	7.02	1,010	1957	June 6, 1957	11.05	2,130
				1958	July 3, 1958	7.75	989
1950	May 20, 1950	5.07	488	1959	June 25, 1959	7.50	936
				1960	June 10, 1960	9.93	1,690
1951	Sept. 7, 1951	5.9	619				
1952	Apr. 21, 1952	5.75	393	1961	Feb. 9, 1961	a5.42	-
	May 24, 1952	b8.07	-		July 31, 1961	4.84	323
1953	June 14, 1953	9.7	1,670	1962	July 14, 1962	12.79	2,900
1954	Aug. 17, 1954	8.90	1,430	1963	June 15, 1963	9.50	1,560

a Backwater from ice.
b Backwater.
c About.

3170. Powder River at Arvada, Wyo.

Location.--Lat 44°39', long 106°08', in NE¼NW¼ sec.21, T.54 N., R.77 W., on left bank 2,500 ft upstream from highway bridge, half a mile southwest of Arvada, and three-quarters of a mile upstream from Wild Horse Creek.

Drainage area.--6,050 sq mi, approximately.

Gage.--Nonrecording at bridge 2,500 ft downstream at datum 0.14 ft lower prior to Oct. 24, 1938; recording thereafter. Datum of gage is 3,6?2.01 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 32,000 cfs.

Bankfull stage.--11 ft.

Remarks.--Many small storage reservoirs above station for livestock, irrigation, and oil production (combined capacity, 7,900 acre-ft per year). Diversions above station for irrigation of about 75,000 acres. Storage and diversions materially affect peak flows. Only annual peaks are shown prior to 1949. Base for partial-duration series, 2,200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1919	Aug. 3, 1919	3.67	2,460	1926	July 10, 1926	7.00	11,600
1920	June 19, 1920	8.25	10,700	1927	Aug. 15, 1927	6.50	10,200
				1928	Oct. 2, 1927	5.20	7,000
1921	June 3, 1921	6.9	8,010	1929	Mar. 7, 1929	a8.80	10,300
1922	Mar. 16, 1922	a5.88	-	1930	Aug. 13, 1930	5.40	7,500
	Aug. 3, 1922	5.83	6,030				
1923	Sept.29, 1923	23.7	b100,000	1931	July 18, 1931	5.75	8,380
1924	Oct. 1, 1923	-	c46,500	1932	May 7, 1932	5.90	8,750
	Apr. 5, 1924	10.8	24,600	1933	Aug. 29, 1933	7.60	13,400
1925	June 16, 1925	16.6	50,000	1934	July 26, 1934	5.13	6,560

a Backwater from ice. b About. c Maximum daily.

Peak stages and discharges of Powder River at Arvada, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 1, 1935	7.40	12,800	1955	Mar. 10, 1955	7.33	3,590
					Mar. 31, 1955	7.02	4,920
1936	June 6, 1936	5.98	8,950		Apr. 5, 1955	a7.77	-
1937	July 14, 1937	8.12	14,100		June 18, 1955	7.37	6,090
1938	July 27, 1938	5.12	7,340		June 27, 1955	5.50	2,990
1939	Mar. 13, 1939	a8.78	-		July 29, 1955	5.35	2,690
	June 1, 1939	5.38	4,030		Aug. 8, 1955	7.30	5,950
1940	Mar. 2, 1940	a7.68	-				
	June 4, 1940	7.05	7,680	1956	Mar. 20, 1956	a10.00	-
					June 16, 1956	8.70	8,380
1941	Apr. 15, 1941	9.43	11,000		July 3, 1956	6.88	5,130
1942	Mar. 12, 1942	a6.90	-				
	Aug. 4, 1942	5.77	3,140	1957	June 2, 1957	5.25	2,360
1943	Mar. 25, 1943	a8.93	-		June 6, 1957	7.25	5,450
	Apr. 12, 1943	8.20	7,440		June 9, 1957	5.42	2,910
1944	May 20, 1944	9.39	11,200		June 12, 1957	5.55	3,640
1945	Mar. 13, 1945	a10.85	-				
	June 6, 1945	6.94	5,450	1958	June 13, 1958	6.52	4,240
					July 19, 1958	5.43	2,740
1946	July 5, 1946	6.47	4,960		July 31, 1958	5.2	2,520
1947	Mar. 16, 1947	a9.57	-				
	Mar. 18, 1947	8.54	7,360	1959	Mar. 20, 1959	a8.25	-
1948	Feb. 19, 1948	a8.50	-		Mar. 20, 1959	-	6,500
	June 17, 1948	8.06	7,930		June 22, 1959	5.86	3,060
					June 30, 1959	5.62	2,910
1949	Feb. 28, 1949	a7.09	-				
	June 8, 1949	5.30	2,440	1960	Mar. 19, 1960	a7.82	-
					June 30, 1960	5.24	2,150
1950	Mar. 19, 1950	a7.60	-				
	May 20, 1950	4.86	1,930	1961	Feb. 23, 1961	a5.48	-
					July 9, 1961	5.40	2,480
1951	Mar. 25, 1951	a6.68	-				
	Aug. 12, 1951	5.49	3,280	1962	Feb. 15, 1962	5.98	3,160
	Sept. 3, 1951	5.57	3,460		Feb. 22, 1962	5.30	2,240
	Sept. 8, 1951	5.61	3,550		May 23, 1962	15.52	32,000
					May 27, 1962	11.08	16,200
1952	May 10, 1952	5.50	2,640		June 3, 1962	10.27	13,900
	May 24, 1952	12.95	22,000		June 17, 1962	14.22	27,400
	July 19, 1952	6.50	4,950		June 29, 1962	6.97	5,800
					July 12, 1962	9.74	11,900
1953	Mar. 12, 1953	a9.65	-				
	Mar. 12, 1953	8.84	9,540	1963	Oct. 8, 1962	7.98	8,300
	June 15, 1953	7.90	7,230		June 4, 1963	5.94	3,400
	Aug. 3, 1953	7.37	6,090		June 15, 1963	6.76	4,590
1954	Aug. 14, 1954	5.85	3,420				

a Backwater from ice.

3175. North Fork Clear Creek near Buffalo, Wyo.

Location.--Lat 44°19'12", long 106°54'35", in SW¼NE¼ sec.12, T.50 N., R.84 W., on left bank 1 mile upstream from confluence with South Fork Clear Creek, 1¾ miles east of Hunter ranger station, and 10.5 miles west of Buffalo.

Drainage area.--29.0 sq mi.

Gage.--Recording. Altitude of gage is 6,950 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 210 cfs and extended above on basis of velocity-area study.

Bankfull stage.--4 ft.

Remarks.--Two transbasin diversions above station to French Creek for irrigation of about 5,000 acres. Diversions materially affect peak flow. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 6, 1949	3.47	a600	1952	Apr. 7, 1952	b4.91	-
1950	Apr. 8, 1950	b4.22	-		June 7, 1952	3.22	407
	May 13, 1950	3.14	345	1953	June 13, 1953	3.04	276
				1954	May 22, 1954	2.56	128
1951	June 17, 1951	2.61	112	1955	June 15, 1955	2.54	139

a About. b Backwater from ice.

Peak stages and discharges of North Fork Clear Creek near Buffalo, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 5, 1956	2.51	129	1960	June 8, 1960	2.34	100
1957	June 6, 1957	2.99	246				
1958	Apr. 17, 1958	b3.40	-	1961	Jan. 4, 1961	b4.02	-
	May 21, 1958	2.62	156		May 29, 1961	2.58	144
1959	June 7, 1959	2.63	154	1962	June 16, 1962	3.24	333
1960	Mar. 21, 1960	b3.02	-	1963	June 15, 1963	3.95	675

b Backwater from ice.

3185. Clear Creek near Buffalo, Wyo.
(Published as "at Buffalo" 1897-98)

Location.--Lat 44°20'00", long 106°46'10", in sec.6, T.50 N., R.82 W., on left bank at mouth of canyon, 500 ft upstream from Pacific Power and Light Co.'s powerplant and 4 miles west of Buffalo.

Drainage area.--120 sq mi, approximately.

Gage.--Nonrecording June 16, 1917, to Oct. 31, 1927, and Apr. 8 to Sept. 30, 1938; recording before and after. At site 1 mile upstream at different datum prior to Dec. 31, 1899. At site 160 ft downstream at different datum June 16, 1917, to Oct. 31, 1927. At datum 2.00 ft higher Apr. 8 to Sept. 30, 1938. Datum of gage is 5,184.83 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs and extended above on basis of area-velocity study.

Remarks.--Records for 1894, 1896-99, furnished by State engineer of Wyoming. Transbasin diversion above station from North Fork to French Creek for irrigation of about 5,000 acres. Diversions above station for irrigation of about 600 acres in Clear Creek basin. Since 1914 an average daily flow of about 7 cfs has been diverted 1½ miles above station into Pacific Power and Light Co.'s pipeline. Diversions materially affect peak flows. Only annual peaks are shown prior to 1949. Base for partial-duration series, 380 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	June 3, 1894	-	a853	1946	June 6, 1946	3.93	427
				1947	May 11, 1947	4.30	705
1896	June 3, 1896	-	a504	1948	May 19, 1948	4.46	719
1897	June 1, 1897	-	a657				
1898	May 29, 1898	-	a1,060	1949	June 6, 1949	5.40	1,310
1899	June 19-21, 1899	-	a778		June 12, 1949	4.60	816
1917	June 18, 1917	4.2	1,120	1950	May 16, 1950	3.83	414
1918	June 10, 1918	3.7	850		June 7, 1950	3.86	427
1919	May 21, 1919	2.8	433		June 18, 1950	3.78	392
1920	June 11, 1920	3.9	910		June 25, 1950	3.84	418
1921	June 8, 1921	3.6	785	1951	May 29, 1951	3.86	427
1922	May 26, 1922	3.58	780				
1923	June 16, 1923	3.62	770	1952	Apr. 29, 1952	3.88	414
1924	Dec. 31, 1923	b4.44	-		June 7, 1952	4.85	961
	June 3, 1924	-	880		July 13, 1952	3.98	483
1925	May 22, 1925	3.44	690				
				1953	June 15, 1953	4.46	880
1926	May 27, 1926	3.66	802				
1927	June 28, 1927	4.78	1,380	1954	May 22, 1954	3.79	360
1938	May 30, 1938	3.64	814	1955	June 17, 1955	3.77	380
1939	May 31, 1939	4.47	723				
1940	June 3, 1940	3.61	356	1956	May 27, 1956	3.83	462
1941	May 3, 1941	4.21	529	1957	June 11, 1957	4.66	836
1942	May 27, 1942	4.04	462		July 1, 1957	3.78	413
1943	June 12, 1943	4.41	683				
1944	May 24, 1944	4.89	910	1958	May 11, 1958	3.99	387
1945	June 24, 1945	5.35	1,280		May 25, 1958	4.36	514

a Maximum daily.
b Backwater from ice.

Peak stages and discharges of Clear Creek near Buffalo, Wyo.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Dec. 7, 1958	b4.21	-	1962	June 16, 1962	5.29	1,380
	June 8, 1959	4.08	470				
				1963	June 2, 1963	5.24	1,650
1960	Jan. 2, 1960	b4.09	-		June 15, 1963	6.19	3,420
	June 10, 1960	3.65	345				
1961	May 30, 1961	4.02	426				

b Backwater from ice.

3200. Rock Creek near Buffalo, Wyo.

Location.--Lat 44°27'20", long 106°52'30", in NW¼ sec.29, T.52 N., R.83 W., on left bank 300 ft downstream from confluence of North and South Forks and 11.5 miles northwest of Buffalo.

Drainage area.--60.0 sq mi.

Gage.--Recording. Altitude of gage is 5,260 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 450 cfs and extended above on basis of slope-area measurement at 1,860 cfs.

Remarks.--Diversions above station for irrigation of about 1,250 acres. Water imported from South Piney Creek to Rock Creek above station for irrigation of about 6,500 acres. Diversions materially affect peak flows. Only annual peaks are shown prior to 1949. Base for partial-duration series, 440 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	May 12, 1941	-	a633	1954	May 22, 1954	4.99	146
1942	May 26, 1942	-	a602				
1943	May 29, 1943	-	a652	1955	June 17, 1955	5.26	208
1944	June 2, 1944	7.56	1,770				
1945	June 24, 1945	7.60	1,810	1956	May 28, 1956	5.72	324
1946	June 5, 1946	5.95	430	1957	June 16, 1957	5.86	409
1947	May 11, 1947	6.33	694				
1948	May 19, 1948	6.60	910	1958	May 26, 1958	5.45	253
1949	June 6, 1949	6.77	1,020	1959	June 17, 1959	6.14	650
1950	June 6, 1950	6.09	518	1960	June 17, 1960	4.85	124
1951	May 28, 1951	5.31	216	1961	May 30, 1961	5.78	326
1952	May 25, 1952	5.84	368	1962	June 16, 1962	7.58	1,340
				1963	June 3, 1963	6.40	720
1953	June 10, 1953	5.74	338		June 15, 1963	7.98	1,860

a Maximum daily discharge, from files of U.S. Bureau of Reclamation and Geological Survey.

3205. South Piney Creek at Willow Park, Wyo.

Location.--Lat 44°28'03", long 107°01'55", in NW¼NE¼ sec.24, T.52 N., R.85 W., on left bank about 400 ft downstream from Willow Park Dam, 1.4 miles upstream from Kearney Creek, and 10 miles southwest of Story.

Drainage area.--33.6 sq mi.

Gage.--Recording. At site 600 ft upstream at different datum prior to Oct. 1, 1957. Altitude of gage is 8,540 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 370 cfs and extended above on basis of slope-area measurement at 1,620 cfs.

Remarks.--Some regulation by Cloud Peak Reservoir (capacity, 2,720 acre-ft), storage of which is diverted into Rock Creek just below station by Rock Creek and Piney Reservoir and Ditch Co.'s canal. Some regulation by Willow Park Reservoir (capacity, 4,457 acre-ft), beginning April 1959. Regulation does not materially affect peak flows prior to Willow Park Reservoir completion. Only annual peaks shown for 1946 and 1960-63. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 5, 1946	4.45	500	1952	June 7, 1952	4.77	642
					July 13, 1952	4.28	492
1948	May 22, 1948	4.29	438				
	May 30, 1948	3.73	315	1953	June 2, 1953	-	b270
	June 22, 1948	3.38	242		June 15, 1953	4.65	604
	July 14, 1948	3.39	244		Aug. 2, 1953	3.31	246
1949	May 16, 1949	-	a230	1954	May 21, 1954	3.33	251
	June 6, 1949	4.65	604		June 27, 1954	3.39	264
	June 11, 1949	3.37	258				
	June 19, 1949	3.79	346	1955	June 26, 1955	3.52	288
	July 11, 1949	3.52	288				
				1956	May 28, 1956	3.71	340
1950	June 7, 1950	-	b360				
	June 12, 1950	-	b350	1957	June 10, 1957	4.79	649
	June 18, 1950	-	b340				
	June 25, 1950	4.07	409	1960	May 25, 1960	2.11	181
	July 2, 1950	3.20	224				
				1961	June 11, 1961	2.58	295
1951	May 24, 1951	3.25	234	1962	June 16, 1962	3.05	416
	May 28, 1951	3.50	284	1963	June 15, 1963	4.68	1,620
	July 21, 1951	3.36	256				

a Estimated.
b Daily mean, estimated.

3210. South Piney Creek near Story, Wyo.

Location.--Lat 44°33'25", long 106°56'10", in NE¼ sec.23, T.53 N., R.84 W., on left bank 2.3 miles southwest of Story and 3.3 miles upstream from confluence with North Piney Creek.

Drainage area.--70.5 sq mi.

Gage.--Nonrecording at site 500 ft upstream at different datum prior to Oct. 1, 1951; recording thereafter. Altitude of gage is 5,700 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Remarks.--Some regulation by Kearney Lake (capacity, 1,860 acre-ft), Cloud Peak Reservoir (capacity, 3,385 acre-ft), and Willow Park Reservoir (capacity, 4,457 acre-ft). Storage of Cloud Peak Reservoir is diverted above station into Rock Creek for irrigation by Rock Creek and Piney Reservoir and Ditch Co.'s canal. Diversion for irrigation of about 6,500 acres above station into Rock Creek by Rock Creek and Piney Reservoir and Ditch Co.'s canal. Diversions and storage materially affect peak flows. Base for partial-duration series, 250 cfs. Only annual peaks are shown for 1961 and 1959-63.

Peak stages and discharges of South Piney Creek near Story, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	July 22, 1951	2.50	a322	1956	May 28, 1956	3.43	805
1952	May 4, 1952	3.26	519	1957	June 10, 1957	4.00	1,350
	June 7, 1952	4.36	1,260		June 30, 1957	2.38	476
	June 27, 1952	2.83	350				
	July 13, 1952	3.61	826	1958	May 21, 1958	3.47	728
					May 31, 1958	3.08	656
1953	June 2, 1953	3.58	526				
	June 15, 1953	-	b1,100	1959	June 16, 1959	3.03	484
				1960	June 12, 1960	2.51	239
1954	May 20, 1954	3.00	471				
	June 28, 1954	2.73	320	1961	May 30, 1961	3.12	475
				1962	June 16, 1962	3.54	638
1955	June 17, 1955	2.92	416	1963	June 15, 1963	c5.30	2,090
	June 26, 1955	3.00	460				

a Maximum observed during period June to September.
b About.
c Backwater from slide.

3215. North Piney Creek near Story, Wyo.

Location.--Lat 44°34'50", long 106°55'55", in NW¼SW¼ sec.12, T.53 N., R.84 W., on left bank 2.1 miles west of Story and 3.2 miles upstream from confluence with South Piney Creek.

Drainage area.--37.7 sq mi.

Gage.--Nonrecording prior to Sept. 14, 1951; recording thereafter. Altitude of gage is 5,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,000 cfs.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 28, 1952	2.74	346	1957	June 10, 1957	2.69	348
	May 22, 1952	2.86	394		June 18, 1957	2.79	398
1953	May 29, 1953	3.30	530	1958	May 21, 1958	3.06	482
	June 15, 1953	3.02	470				
				1959	June 7, 1959	2.64	331
1954	May 20, 1954	2.65	311				
				1960	May 13, 1960	2.17	176
1955	May 16, 1955	2.87	378				
	May 22, 1955	3.00	430	1961	May 29, 1961	2.72	354
	June 5, 1955	2.45	247				
				1962	May 8, 1962	2.65	335
1956	May 28, 1956	4.57	1,230		June 16, 1962	3.53	706
1957	May 14, 1957	2.32	225	1963	June 3, 1963	3.11	464
	June 2, 1957	2.59	297		June 15, 1963	5.04	1,820

3230. Piney Creek at Kearney, Wyo.
(Published as "near Kearney" 1913)

Location.--Lat 44°32'10", long 106°49'20", in sec.26, T.53 N., R.83 W., on right bank 1,000 ft south of Kearney and half a mile upstream from Little Piney Creek.

Drainage area.--106 sq mi.

Gage.--Nonrecording prior to Sept. 30, 1923; recording thereafter. At different datum prior to June 30, 1906. Datum of gage is 4,655.11 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs and extended above by logarithmic plotting.

Bankfull stage.--6 ft.

Remarks.--Records for 1910, 1913 furnished by State engineer of Wyoming. Some regulation by Cloud Peak Reservoir and Kearney Lake (combined capacity, 4,580 acre-ft). Diversions above station for irrigation of about 26,800 acres located in Piney Creek, Prairie Dog Creek, and Rock Creek basins. Regulation and diversions materially affect peak flows. Only annual peaks are shown prior to 1948. Base for partial-duration series, 750 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 16, 1903	3.05	835	1950	June 7, 1950	3.96	1,010
1904	May 23, 1904	3.45	1,140		June 12, 1950	3.78	833
1905	June 4, 1905	3.80	1,640				
				1951	May 29, 1951	3.31	491
1906	May 24, 1906	3.97	1,910				
				1952	May 4, 1952	3.85	898
1911	May 15, 1911	3.60	635		June 7, 1952	4.20	1,260
1912	June 9, 1912	4.60	1,240		July 13, 1952	3.98	1,030
1913	May 26, 1913	-	a843				
1914	May 24, 1914	-	a1,260	1953	May 29, 1953	4.03	1,170
1915	May 14, 1915	4.05	943		June 15, 1953	4.27	1,480
1916	June 10, 1916	4.00	911	1954	May 21, 1954	3.54	712
1917	June 17, 1917	4.70	1,220				
				1955	May 22, 1955	3.44	610
1919	May 20, 1919	3.30	450				
1920	June 9, 1920	4.50	1,130	1956	May 28, 1956	4.95	1,840
1921	June 7, 1921	3.92	796	1957	June 10, 1957	4.62	1,450
1922	May 28, 1922	4.25	1,020		June 17, 1957	3.97	854
1923	Sept.30, 1923	4.80	1,260				
				1958	May 21, 1958	4.42	1,250
1941	May 27, 1941	4.23	1,180				
1942	May 26, 1942	4.68	1,700	1959	June 16, 1959	3.42	520
1943	June 12, 1943	3.96	914				
1944	June 3, 1944	5.32	2,570	1960	Feb. 15, 1960	b3.21	-
1945	June 24, 1945	4.70	1,790		Mar. 19, 1960	2.95	314
1946	June 6, 1946	4.09	1,070	1961	May 28, 1961	3.55	582
1947	May 11, 1947	4.05	1,020				
				1962	June 16, 1962	4.74	1,610
1948	May 20, 1948	4.53	1,590				
	May 30, 1948	3.92	890	1963	June 5, 1963	4.49	1,390
	June 22, 1948	4.42	1,450		June 15, 1963	6.05	3,410
1949	June 6, 1949	4.17	1,230				

a Maximum daily mean.
b Backwater from ice.

3235. Piney Creek at Ucross, Wyo.

Location.--Lat 44°33'45", long 106°32'25", in SW¼ sec.18, T.53 N., R.80 W., on left bank at Ucross, 190 ft upstream from bridge on U.S. Highways 14 and 16, and 1 mile upstream from mouth.

Drainage area.--267 sq mi.

Gage.--Nonrecording at different datum prior to Sept. 30, 1923; recording thereafter. Datum of gage is 4,066.83 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs.

Historical data.--Maximum stage known, that of June 1, 1929, from floodmarks, from information by local resident.

Remarks.--Natural flow of stream affected by storage and some regulation for irrigation by Lake De Smet (capacity, 32,250 acre-ft), Cloud Peak Reservoir (capacity, 3,385 acre-ft), Kearney Lake (capacity, 1,860 acre-ft), and Willow Park Reservoir (capacity, 4,457 acre-ft) and diversions for irrigation of 33,500 acres above station. Only annual peaks are shown for 1917-23. Base for partial-duration series, 750 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	June 20, 1917	4.22	1,070	1955	May 22, 1955	3.97	535
1918	June 11, 1918	5.00	1,900				
1919	May 21, 1919	3.20	460	1956	May 23, 1956	4.66	846
1920	June 10, 1920	4.30	1,140		May 28, 1956	5.88	1,640
1921	June 8, 1921	3.40	560	1957	June 10, 1957	5.50	1,220
1922	June 9, 1922	4.40	1,260		June 17, 1957	5.18	1,040
1923	Sept.28, 1923	6.00	2,580				
				1958	May 22, 1958	5.31	1,240
1929	June 1, 1929	10.9	-				
				1959	Jan. 9, 1959	a3.85	-
1950	June 8, 1950	4.26	890		June 17, 1959	3.79	374
1951	July 11, 1951	3.70	420	1960	Mar. 19, 1960	a4.20	-
					June 11, 1960	3.17	180
1952	May 5, 1952	4.42	936				
	June 7, 1952	4.69	1,150	1961	May 28, 1961	3.54	277
	July 13, 1952	4.80	1,240				
				1962	June 16, 1962	6.17	1,800
1953	May 29, 1953	4.67	1,050				
	June 15, 1953	4.92	1,340	1963	June 5, 1963	5.87	1,690
					June 16, 1963	7.33	3,570
1954	May 21, 1954	3.98	587				

a Backwater from ice.

3240. Clear Creek near Arvada, Wyo.

Location.--Lat 44°52'18", long 106°04'56", in SE¼ sec.36, T.57 N., R.77 W., on right bank 600 ft downstream from Cabin Creek, 1.8 miles upstream from mouth, and 16 miles north of Arvada.

Drainage area.--1,110 sq mi, approximately.

Gage.--Nonrecording prior to Jan. 15, 1951; recording thereafter. At different datum prior to May 1, 1919. At site a quarter of a mile upstream at different datum Apr. 15, 1928, to May 26, 1929. Datum of gage is 3,506.51 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs.

Remarks.--Some regulation by Lake De Smet (capacity, 32,250 acre-ft), Cloud Peak Reservoir (capacity, 3,385 acre-ft), and Kearney Lake (capacity, 1,860 acre-ft). Diversions above station for irrigation of about 70,000 acres in Clear Creek basin. Diversions above station from North and South Forks of Piney Creek into Prairie Dog Creek (Tongue River basin) for irrigation of about 16,800 acres. Peaks for 1928 and 1929 do not include flow from Cabin Creek because the gage was located above Cabin Creek. Diversions and regulation materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges of Clear Creek near Arvada, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1916	June 20, 1916	7.14	1,410	1950	June 8, 1950	4.26	1,380
1917	June 18, 1917	8.23	2,630				
1918	June 8, 1918	8.40	2,840	1951	Sept. 2, 1951	4.22	1,280
				1952	Mar. 29, 1952	b7.82	-
1928	July 17, 1928	7.17	4,510		July 14, 1952	-	1,740
1929	May 30, 1929	a11.00	8,600	1953	June 15, 1953	6.23	2,700
				1954	Aug. 5, 1954	10.45	9,600
1940	June 22, 1940	5.28	2,110	1955	June 26, 1955	6.00	2,520
1941	Aug. 6, 1941	5.00	2,160	1956	Mar. 21, 1956	b10.18	-
1942	June 26, 1942	10.17	9,000		Mar. 21, 1956	-	8,560
1943	Mar. 25, 1943	b9.70	-	1957	June 7, 1957	5.63	2,310
	Mar. 26, 1943	-	c3,100	1958	June 8, 1958	6.82	3,310
1944	June 22, 1944	10.07	8,830	1959	Mar. 18, 1959	b7.34	-
1945	June 25, 1945	6.50	3,140		Mar. 18, 1959	-	c2,800
				1960	Mar. 20, 1960	5.00	1,710
1946	June 25, 1946	4.88	1,750				
1947	Mar. 17, 1947	b8.65	-	1961	May 30, 1961	3.19	623
	May 12, 1947	-	2,290	1962	June 17, 1962	7.88	4,900
1948	June 23, 1948	5.55	2,240	1963	June 17, 1963	9.79	6,150
1949	June 7, 1949	5.97	2,500				

a From high-water mark.
b Backwater from ice.
c Maximum daily.

3245. Powder River at Moorhead, Mont.

Location.--Lat 45°04', long 105°51', in sec.8, T.9 S., R.48 E., on left bank 400 ft downstream from discontinued post office at Moorhead and 6¼ miles upstream from Buffalo Creek.

Drainage area.--8,088 sq mi.

Gage.--Nonrecording prior to Aug. 28, 1931, and Mar. 22 to Sept. 12, 1956; recording during remainder of period of record. At site a quarter of a mile upstream at different datum prior to Aug. 28, 1931. Aug. 28, 1931, to Mar. 21, 1956, at site three-quarters of a mile upstream at different datum. Mar. 22 to July 24, 1956, at site a quarter of a mile downstream at different datum. Datum of gage is 3,334.6 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Large shifts occur. At site used 1931 to 1956, defined by current-meter measurements below 4,000 cfs and extended above on basis of slope-area measurement at 15,300 cfs. At present site, defined by current-meter measurements below 7,000 cfs.

Remarks.--Diversions for irrigation of about 50,000 acres. Some regulation by three reservoirs in Wyoming, with combined usable capacity of 36,800 acre-ft. Base for partial-duration series, 3,700 cfs. Only annual peaks are shown prior to 1939.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1923	Sept.30, 1923	a19	-	1940	Mar. 3, 1940	d7.60	-
					June 4, 1940	7.00	6,820
1929	June 3, 1929	7.90	b8,610				
1930	July 14, 1930	5.86	b4,040	1941	Oct. 2, 1940	7.38	7,660
					Apr. 15, 1941	7.34	7,440
1931	May 6, 1931	6.75	c6,040		May 6, 1941	6.74	6,090
1932	June 8, 1932	6.21	3,550		May 15, 1941	5.65	3,800
1933	Aug 30, 1933	10.85	14,800		May 27, 1941	5.98	4,500
1934	Mar. 3, 1934	d6.58	-		July 13, 1941	7.40	7,700
	June 16, 1934	-	1,920		July 28, 1941	7.53	7,800
1935	June 1, 1935	7.58	8,140		Aug. 6, 1941	6.33	5,240
					Aug. 13, 1941	7.72	8,360
1936	Mar. 2, 1936	d15.10	9,240		Aug. 31, 1941	5.55	3,760
1937	July 14, 1937	10.20	14,500				
1938	Mar. 5, 1938	d7.44	-	1942	Mar. 12, 1942	d8.43	-
	May 30, 1938	-	5,720		June 5, 1942	5.65	3,800
					June 26, 1942	6.17	5,070
1939	Mar. 14, 1939	d7.72	-				
	Mar. 16, 1939	6.25	4,860	1943	Mar. 25, 1943	d11.19	-
	June 2, 1939	7.17	7,200		Mar. 26, 1943	7.94	8,800

a At site and datum used 1931-56, from information by local residents. b Maximum observed; may have been exceeded during period of no record. c Maximum observed.
d Backwater from ice.

Peak stages and discharges of Powder River at Moorhead, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Apr. 13, 1943	6.78	6,160	1953	June 15, 1953	7.98	8,590
	June 13, 1943	6.87	6,600		Aug. 3, 1953	6.37	5,320
1944	Mar. 17, 1944	d10.10	-	1954	Aug. 6, 1954	8.39	9,740
	Mar. 18, 1944	5.65	e4,220				
	May 20, 1944	8.46	10,700	1955	Mar. 12, 1955	d9.83	-
	June 18, 1944	8.37	9,970		June 18, 1955	6.61	5,610
	June 22, 1944	8.15	9,510		Aug. 8, 1955	6.31	5,350
1945	Mar. 14, 1945	d12.73	-	1956	Mar. 20, 1956	-	e6,200
	June 6, 1945	6.58	6,190		Mar. 21, 1956	d17.7	-
	June 27, 1945	5.82	4,620		June 16, 1956	7.00	c7,200
1946	Feb. 25, 1946	d8.09	-	1957	June 7, 1957	5.93	5,600
	June 11, 1946	6.47	5,720		June 9, 1957	5.70	5,090
	July 6, 1946	6.25	5,200		June 12, 1957	5.48	4,630
1947	Mar. 17, 1947	d15.64	-	1958	June 8, 1958	5.49	4,650
	Mar. 19, 1947	-	e9,300		June 12, 1958	5.60	4,900
	May 13, 1947	5.67	3,980		July 19, 1958	5.16	4,060
1948	Mar. 18, 1948	-	e4,500	1959	Mar. 18, 1959	d7.50	-
	June 17, 1948	8.1	9,320		Mar. 19, 1959	5.96	5,740
	June 23, 1948	6.57	5,980				
	June 28, 1948	6.15	5,070	1960	Mar. 19, 1960	d7.62	-
	July 15, 1948	5.85	4,380		Mar. 20, 1960	6.27	6,200
	July 19, 1948	5.78	4,240				
				1961	Feb. 21, 1961	d3.78	-
1949	Mar. 1, 1949	-	(f)		May 30, 1961	3.76	1,320
	Mar. 6, 1949	8.15	9,360				
	June 8, 1949	5.68	4,060	1962	May 24, 1962	9.92	14,600
					May 28, 1962	8.52	10,700
1950	Mar. 4, 1950	d5.33	-		June 4, 1962	8.14	9,660
	May 19, 1950	4.83	2,620		June 11, 1962	11.75	20,000
					June 17, 1962	12.77	23,000
1951	Mar. 27, 1951	d9.18	-		June 30, 1962	6.95	6,860
	Sept. 9, 1951	4.60	2,020		July 14, 1962	8.05	9,430
1952	Mar. 25, 1952	10.67	15,300	1963	Oct. 8, 1962	6.10	5,140
	July 20, 1952	6.04	4,700		June 5, 1963	6.57	5,740
					June 15, 1963	7.18	7,010
1953	Mar. 13, 1953	d8.90	-		June 17, 1963	7.04	6,710
	June 7, 1953	6.01	4,550		June 20, 1963	6.05	4,720

c Maximum observed.
d Backwater from ice.
e Maximum daily mean; estimated.
f Peak probably exceeded base; discharge not determined.

3247. Sand Creek near Broadus, Mont.

Location.--Lat 45°26', long 105°26', in SE¼ sec.5, T.5 S., R.51 E., at culverts on Moorhead road, 1.8 miles southwest of Broadus.

Drainage area.--10.6 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,090 ft (from topographic map).

Stage-discharge relation.--Defined by computation of flow through culverts and over road using head as indicated by crest-stage gage.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	-	-	(a)	1960	Mar. 20, 1960	b4.78	c150
1956	Mar. 16, 1956	1.75	19	1961	-	-	(a)
1957	Aug. 28, 1957	1.55	15	1962	June 11, 1962	2.85	50
1958	June 7, 1958	3.95	93	1963	Feb. 5, 1963	2.00	23
1959	Mar. 18, 1959	4.79	236				

a No evidence of flow during year.
b Backwater from ice.
c Approximate.

3255. Little Powder River near Broadus, Mont.

Location.--Lat 45°23', long 105°18', in NW¼NE¼ sec.21, T.5 S., R.52 E., on left bank 1 mile downstream from East Fork of Little Powder River, 5 miles upstream from mouth, and 5½ miles southeast of Broadus.

Drainage area.--1,974 sq mi.

Gage.--Recording. At site three-quarters of a mile upstream at different datum prior to Dec. 10, 1962. Altitude of gage is 3,020 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 1,300 cfs at site used prior to Dec. 10, 1962.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 23, 1947	3.57	a476	1953	June 15, 1953	8.94	2,340
					June 22, 1953	6.67	1,370
1948	Mar. 16, 1948	b10.59	c800				
	Mar. 25, 1948	4.59	782	1956	July 2, 1956	3.10	287
	June 4, 1948	4.61	788				
	June 18, 1948	5.87	1,220	1957	June 11, 1957	4.52	640
	June 25, 1948	-	d520		July 22, 1957	4.09	520
	June 27, 1948	-	d450		Aug. 29, 1957	5.45	922
1949	Mar. 5, 1949	b7.44	d1,600	1958	June 4, 1958	5.88	1,070
	Mar. 21, 1949	5.63	1,140		June 5, 1958	3.72	470
	June 4, 1949	4.50	827		June 8, 1958	6.20	1,180
	July 12, 1949	5.76	1,220				
				1959	Mar. 18, 1959	6.25	1,220
1950	Apr. 3, 1950	6.16	1,320		Mar. 22, 1959	3.71	480
	Apr. 7, 1950	3.78	539		June 26, 1959	6.14	1,160
	May 11, 1950	3.84	527				
	Aug. 14, 1950	4.67	755	1960	Mar. 19, 1960	b9.36	d1,700
				1961	July 25, 1961	4.77	788
1951	May 14, 1951	4.09	626	1962	Feb. 14, 1962	7.75	1,850
	Aug. 14, 1951	4.06	623		Mar. 20, 1962	6.40	1,290
	Aug. 17, 1951	4.03	614		June 21, 1962	4.87	751
	Aug. 30, 1951	3.70	515				
	Sept. 6, 1951	4.43	734	1963	May 29, 1963	4.70	589
					June 6, 1963	4.85	632
1952	Mar. 18, 1952	b7.21	-		June 8, 1963	4.20	453
	Mar. 18, 1952	b6.59	1,300		June 18, 1963	4.87	637
	Mar. 31, 1952	b6.91	(e)				

a Maximum for period May to September. b Backwater from ice. c Daily mean.
d About. e Not known.

3265. Powder River near Locate, Mont.

Location.--Lat 46°26', long 105°18', in NE¼ sec.26, T.8 N., R.51 E., on right bank 50 ft upstream from bridge on U.S. Highway 12, at present site of Locate (5 miles west of former site), 3 miles upstream from Locate Creek, and 25 miles east of Miles City.

Drainage area.--13,189 sq mi.

Gage.--Nonrecording prior to July 11, 1947; recording thereafter. Altitude of gage is 2,400 ft (by barometer).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 17,000 cfs.

Remarks.--Diversions for irrigation of about 52,000 acres above station. Some regulation by three reservoirs in Wyoming, with combined usable capacity of 36,800 acre-ft. Base for partial-duration series, 5,000 cfs. Only annual peaks are shown prior to 1947.

Peak stages and discharges of Powder River near Locate, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Sept. 7, 1938	6.99	10,600	1953	Mar. 14, 1953	a8.61	-
1939	Mar. 22, 1939	6.99	10,600		June 17, 1953	6.49	8,860
1940	July 27, 1940	6.47	7,610				
				1954	Sept. 6, 1954	5.75	6,130
1941	Oct. 4, 1940	6.39	7,280				
1942	June 6, 1942	5.8	5,620	1955	Apr. 2, 1955	5.65	5,800
1943	Feb. 19, 1943	11.23	31,000				
1944	Mar. 19, 1944	10.6	28,000	1956	Mar. 23, 1956	a12.3	24,000
1945	Mar. 13, 1945	a7.25	-				
	June 8, 1945	-	b5,500	1957	June 22, 1957	5.17	4,380
1946	July 8, 1946	6.55	9,010	1958	June 10, 1958	5.58	5,800
					July 3, 1958	5.71	6,440
1947	Mar. 22, 1947	8.45	17,200				
				1959	Mar. 18, 1959	a8.31	b12,200
1948	Feb. 23, 1948	-	7,200		Mar. 22, 1959	7.95	15,600
	Feb. 28, 1948	-	6,800				
	Mar. 16, 1948	-	8,780	1960	Mar. 19, 1960	a9.10	-
	Mar. 18, 1948	-	8,700		Mar. 21, 1960	7.45	12,900
	Mar. 19, 1948	a6.92	9,940				
	Mar. 22, 1948	-	9,140	1961	Mar. 2, 1961	a3.45	-
	June 19, 1948	-	6,790		June 2, 1961	3.03	697
1949	Mar. 8, 1949	7.25	12,000	1962	Feb. 16, 1962	-	12,000
	Mar. 23, 1949	6.18	7,320		May 26, 1962	6.84	9,260
					May 30, 1962	7.23	11,700
1950	Feb. 27, 1950	a6.94	-		June 5, 1962	6.64	9,860
	Apr. 3, 1950	-	b3,000		June 13, 1962	5.92	7,280
					June 15, 1962	6.85	11,000
1951	Mar. 29, 1951	a5.13	-		June 20, 1962	8.75	19,400
	Aug. 25, 1951	4.98	4,210		July 15, 1962	7.63	13,600
1952	Nov. 9, 1951	5.58	5,140	1963	June 6, 1963	8.30	12,300
	Mar. 29, 1952	a11.01	-		June 19, 1963	6.58	7,030
	Mar. 30, 1952	9.53	23,900				
	May 26, 1952	6.44	8,230				

a Backwater from ice.
b Maximum daily.

3275. Yellowstone River at Glendive, Mont.

Location.--Lat 47°06', long 104°43', in N½ sec.35, T.16 N., R.55 E., at highway bridge at Glendive.

Drainage area.--66,788 sq mi.

Gage.--Nonrecording. Altitude of gage is 2,040 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Diversions for irrigation of about 1,200,000 acres above station. Some regulation on tributary streams. Only annual maximum observed stages and discharges are shown. Maximum observed discharge should not differ materially from momentary maximum.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1903	June 20, 1903	9.0	62,300	1909	June 8, 1909	12.7	118,000
1904	Apr. 1, 1904	a11.9	-	1910	June 9, 1910	8.0	49,400
	June 23, 1904	10.2	77,900				
1905	June 8, 1905	9.4	67,800	1932	Mar. 23, 1932	a14.60	-
					June 29, 1932	-	65,100
1906	June 8, 1906	10.3	82,200	1933	June 20, 1933	10.97	64,800
1907	June 24, 1907	11.0	92,000	1934	Jan. 7, 1934	a6.83	-
1908	June 4,18,1908	10.6	86,400		May 12, 1934	-	21,200

a Backwater from ice.

3278. Griffith Creek near Glendive, Mont.

Location.--Lat 47°06', long 104°34', in NE¼ sec.36, T.16 N., R.56 E., near bridge on Interstate Highway 94 and U.S. Highway 10, 8 miles east of Glendive.

Drainage area.--15.5 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,210 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 160 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 28, 1955	1.80	a100	1960	Mar. 20, 1960	1.41	-
1956	Mar. 19, 1956	.86	a80	1961	June 29, 1961	3.96	-
1957	Mar. 20, 1957	.27	50	1962	June 6, 1962	.82	21
1958	July 3, 1958	.55	101	1963	June 22, 1963	1.70	-
1959	Mar. 17, 1959	.74	157				

a Approximate.

3292. Burns Creek near Savage, Mont.

Location.--Lat 47°23', long 104°26', near center of west line of sec.26, T.19 N., R.57 E., on right bank 1,000 ft upstream from bridge on State Highway 16, 1 mile upstream from mouth, and 7 miles southwest of Savage.

Drainage area.--233 sq mi.

Gage.--Recording. Altitude of gage is 2,000 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs and extended above on basis of slope-area measurement at 2,100 cfs.

Remarks.--Base for partial-duration series, 25 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Mar. 30, 1958	a2.34	-	1961	May 30, 1961	2.40	21
	July 8, 1958	2.24	18				
				1962	Mar. 21, 1962	a3.12	c100
1959	Mar. 2, 1959	--	(b)		Mar. 30, 1962	2.59	38
	Mar. 12, 1959	-	(b)		June 6, 1962	2.75	59
	Mar. 19, 1959	4.73	1,420		June 12, 1962	2.98	98
	June 27, 1959	3.10	174		July 14, 1962	2.68	49
					Aug. 10, 1962	2.48	29
1960	Mar. 20, 1960	5.31	2,100				
	June 19, 1960	4.59	1,270	1963	Feb. 6, 1963	a4.73	d100
	June 22, 1960	3.14	136		Mar. 2, 1963	-	(b)
					Mar. 18, 1963	-	(b)
1961	Feb. 7, 1961	a2.48	-		June 9, 1963	2.67	48

a Backwater from ice. b Not known; probably exceeded base discharge. c About.
d Maximum daily.

3295. Yellowstone River near Sidney, Mont.
(Published as "at intake" October 1910 to September 1931)

Location.--Lat 47°37', long 104°11', in NW¼NW¼ sec.5, T.21 N., R.59 E., on right bank at Montana Water Conservation Board pumping plant, 2½ miles upstream from Fox Creek, 4½ miles upstream from bridge on State Highway 23, and 7 miles south of Sidney.

Drainage area.--68,812 sq mi. At highway bridge, 69,103 sq mi.

Gage.--Nonrecording Jan. 1, 1911, to Sept. 30, 1931, and May 17, 1945, to Apr. 3, 1952; recording during remainder of time. At site 28 miles upstream at different datum 1911-31. At or in vicinity of highway bridge 4½ miles downstream at datum 10 ft lower Apr. 9, 1934, to Apr. 3, 1952. Altitude of gage is 1,895 ft (from topographic map).

Stage-discharge relation.--Large shifts occur. Defined by current-meter measurements below 70,000 cfs at site 28 miles upstream. Well defined by current-meter measurements since 1934.

Remarks.--Diversions for irrigation of about 1,250,000 acres above station. Some regulation by reservoirs on tributary streams. Peak flows might be materially affected. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1911	June 22, 1911	8.0	78,400	1941	June 19, 1941	8.77	43,000
1912	Mar. 29, 1912	10.2	114,000	1942	June 7, 1942	11.72	68,200
1913	June 4, 1913	7.7	73,800	1943	Mar. 25, 1943	b18.00	-
1914	June 7, 1914	8.1	80,000		Mar. 29, 1943	-	132,000
1915	June 13, 1915	9.2	97,400	1944	June 21, 1944	16.78	120,000
				1945	June 30, 1945	12.20	66,500
1916	June 23, 1916	9.4	a101,000				
1917	Apr. 3, 1917	b11.6	-	1946	June 15, 1946	10.62	50,000
	June 23,25,26, 29, 1917	-	c94,600	1947	Mar. 22, 1947	b21.85	-
					Mar. 23, 1947	-	c98,000
1918	June 20, 1918	10.8	126,000	1948	June 9, 1948	12.49	77,800
1919	May 29, 1919	4.3	26,400	1949	Mar. 8, 1949	b18.16	-
1920	June 19, 1920	8.7	89,700		June 15, 1949	-	48,000
				1950	Apr. 4, 1950	b12.51	-
1921	June 21, 1921	12.6	159,000		June 26, 1950	-	67,400
1922	June 17, 1922	8.5	86,400				
1923	Mar. 31, 1923	b11.0	-	1951	Mar. 27, 1951	b11.07	-
	June 20, 1923	-	64,400		June 21, 1951	-	49,900
1924	Oct. 3, 1923	11.2	134,000	1952	Mar. 30, 1952	b19.7	-
1925	June 2, 1925	7.5	70,600		Mar. 31, 1952	-	138,000
				1953	June 18, 1953	14.50	65,200
1926	May 27, 1926	6.35	53,000	1954	July 1, 1954	12.00	41,400
1927	July 1, 1927	9.4	101,000	1955	Apr. 3, 1955	b12.33	-
1928	June 1, 1928	8.65	88,900		June 29, 1955	-	39,000
1929	June 7, 1929	9.0	94,600				
1930	June 2, 1930	5.45	40,800	1956	Mar. 26, 1956	b15.84	-
					June 2, 1956	-	64,600
1931	June 11, 1931	5.30	46,100	1957	June 10, 1957	15.44	70,000
				1958	May 28, 1958	12.28	38,800
1934	May 12, 1934	5.16	17,600	1959	Mar. 21, 1959	b19.14	-
1935	June 18, 1935	10.60	77,800		Mar. 22, 1959	-	57,300
				1960	Mar. 21, 1960	b15.1	-
1936	June 6, 1936	9.47	63,000		Mar. 23, 1960	-	58,000
1937	June 14, 1937	9.88	65,300				
1938	Mar. 2, 1938	b16.66	-	1961	Mar. 17, 1961	b12.60	-
	July 1, 1938	-	84,200		June 2, 1961	-	30,700
1939	Mar. 22, 1939	b13.20	-	1962	June 20, 1962	15.38	68,800
	June 5, 1939	-	56,500	1963	June 7, 1963	17.10	86,000
1940	June 9, 1940	8.17	37,600				

a May have been higher during period of no record.
b Backwater from ice.
c Maximum daily.

3297. Painted Woods Creek tributary near Williston, N. Dak.

Location.--Lat 48°12', long 103°53', in SE¼NE¼ sec.35, T.155 N., R.103 W., at culvert on county highway, 13 miles west of Williston.

Drainage area.--0.35 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 5 cfs and by indirect measurement at 47.8 cfs. Subject to change owing to ice effect.

Bankfull stage.--Not subject to overflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 28, 1955	a3.45	15	1960	March 1960	a8.76	29
1956	Mar. 19, 1956	1.95	7	1961	March 1961	a2.57	b1
1957	March 1957	-	b1.5	1962	March 1962	a7.1	28
1958	March 1958	1.58	1	1963	July 10, 1963	2.10	2.0
1959	June 26, 1959	4.36	47.8	1964	July 1964	1.71	1.0

a Backwater
b Estimated.

3299. Painted Woods Creek tributary No. 2 near Williston, N. Dak.

Location.--Lat 48°13', long 103°49', in SW¼SW¼ sec.21, T.155 N., R.102 W., at culvert on county highway, 10½ miles northwest of Williston.

Drainage area.--8.30 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 15 cfs and extended above by logarithmic plotting; Subject to change owing to ice effect.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 13, 1955	4.09	61	1960	March 1960	3.22	26
1956	Mar. 19, 1956	a2.67	15	1961	March 1961	3.23	29
1957	-	1.65	.5	1962	-	-	0
1958	April 1958	4.06	60	1963	July 10, 1963	5.1	100
1959	Mar. 19, 1959	7.96	207	1964	Apr. 1, 1964	2.7	11

a Backwater from ice or snow.

3300. Missouri River near Williston, N. Dak.

Location.--Lat 48°07', long 103°43', in sec.6, T.153 N., R.101 W., on downstream end of right pier of Lewis and Clark Highway bridge, 5 miles southwest of Williston, 29.3 miles downstream from Yellowstone River, and at mile 1,552.7.

Drainage area.--164,500 sq mi, approximately.

Gage.--Recording. Datum of gage is 1,830.20 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 120,000 cfs.

Historical data.--Flood in April 1912 is maximum known, from information by local residents.

Remarks.--Peak flows affected to some extent by irrigation and power developments and by storage reservoirs above station. Peaks materially affected by regulation by Fort Peck Reservoir (total capacity, 19,410,000 acre-ft) since 1937. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	April 1912	a28	-	1945	June 29, 1945	-	70,800
1929	June 8, 1929	10.8	109,000	1946	June 15, 1946	7.92	53,300
1930	Apr. 4, 1930	b18.6	231,000	1947	Mar. 23, 1947	b18.6	-
					Mar. 24, 1947	-	210,000
1931	June 13, 1931	7.75	52,000	1948	Mar. 26, 1948	b12.00	-
1932	June 29, 1932	10.93	99,200		June 10, 1948	-	78,300
1933	Mar. 16, 1933	b11.94	-	1949	Mar. 26, 1949	b13.29	-
	June 21, 1933	-	92,400		June 15, 1949	-	c49,700
1934	Mar. 16, 1934	b10.28	58,900	1950	Apr. 6, 1950	b11.97	-
1935	Mar. 27, 1935	b10.50	-		Apr. 17, 1950	-	110,000
	June 19, 1935	-	84,100				
				1951	Apr. 8, 1951	b16.76	140,000
1936	Mar. 9, 1936	b18.10	-	1952	Apr. 1, 1952	b17.76	170,000
	June 6, 1936	-	62,500	1953	Apr. 3, 1953	b9.93	-
1937	June 16, 1937	10.27	88,300		June 19, 1953	-	73,400
1938	Mar. 14, 1938	b18.22	-	1954	Apr. 8, 1954	b10.17	a70,000
	July 6, 1938	-	106,000	1955	Apr. 3, 1955	b10.30	a70,000
1939	Mar. 24, 1939	b15.28	-				
	Mar. 26, 1939	-	152,000	1956	Mar. 29, 1956	b11.65	-
1940	Apr. 8, 1940	b8.48	-		June 3, 1956	-	67,800
	June 10, 1940	-	45,200	1957	June 11, 1957	9.67	77,000
				1958	Apr. 5, 1958	b9.77	-
1941	Apr. 1, 1941	b13.74	-		May 28, 1958	-	43,100
	Sept. 9, 1941	-	47,100	1959	Mar. 23, 1959	b20.63	170,000
1942	Mar. 13, 1942	b9.70	-	1960	Mar. 22, 1960	b20.8	120,000
	June 13, 1942	-	69,500				
1943	Mar. 28, 1943	b19.78	-	1961	Mar. 23, 1961	b8.83	-
	Mar. 30, 1943	-	204,000		June 14, 1961	-	38,100
1944	Mar. 24, 1944	b15.43	-	1962	Mar. 25, 1962	b13.00	-
	June 22, 1944	-	121,000		June 20, 1962	-	79,900
1945	Mar. 19, 1945	b10.26	-	1963	June 21, 1963	11.73	73,400

a About; from information by local resident.
b Backwater from ice.
c Maximum daily.

SAND CREEK BASIN

3301. Sand Creek at Williston, N. Dak.

Location.--Lat 48°09', long 103°39', in NW¼SE¼ sec.22, T.154 N., R.101 W., at bridge on U.S. Highways 2 and 85, 1½ miles west of post office at Williston.

Drainage area.--38.2 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs and extended above on basis of logarithmic plotting.

Remarks.--Lower peaks can be materially affected by channel storage. Only annual peaks are shown.

Peak stages and discharges of Sand Creek at Williston, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 28, 1955	4.66	161	1960	March 1960	9.00	-
1956	March 1956	3.10	37	1961	March 1961	b4.40	10
1957	March 1957	-	a10	1962	Mar. 21, 1962	b6.4	350
1958	March 1958	5.00	207	1963	July 10, 1963	5.70	330
1959	Mar. 19, 1959	6.5	900	1964	July 5, 1964	2.8	10

a Estimated.
b Backwater.

LITTLE MUDDY CREEK BASIN

3310. Little Muddy Creek below Cow Creek, near Williston, N. Dak.

Location.--Lat 48°17'04", long 103°34'21", in NE¼NW¼ sec.5, T.155 N., R.100 W., on left bank 37 ft downstream from center line of highway, 1 mile downstream from Cow Creek, 4 miles upstream from Camp Creek, 10 miles northeast of Williston, and 13 miles upstream from mouth.

Drainage area.--875 sq mi, of which about 775 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,863.18 ft above mean sea level, datum of 1929.

Stage discharge relation.--Defined by current-meter measurements below 3,500 cfs.

Bankfull stage.--8 ft.

Historical data.--See records for station 3315.

Remarks.--Some small diversions for irrigation. Some regulation by Lake Zahl, Fish and Wildlife Reservoir. Base for partial-duration series, 250 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 13, 1955	a8.02	400	1960	Mar. 27, 1960	13.57	6,910
	Mar. 30, 1955	12.15	3,750				
				1961	Mar. 14, 1961	8.22	371
1956	Mar. 21, 1956	a8.28	b400	1962	Mar. 26, 1962	ε11.6	1,900
1957	Feb. 28, 1957	a8.63	b320		June 12, 1962	8.10	300
1958	Mar. 28, 1958	a10.53	b500	1963	Mar. 23, 1963	a8.35	450
1959	Mar. 19, 1959	11.81	2,470		July 11, 1963	10.71	2,140

a Backwater from ice or snow.
b About.

3315. Little Muddy Creek near Williston, N. Dak.
(Published as "Little Muddy River" prior to 1946)

Location.--Lat 48°11'40", long 103°35'50", on line between sec.31, T.155 N., R.100 W., and sec.6, T.154 N., R.100 W., on upstream side of highway bridge, 2.5 miles downstream from Camp Creek, 4 miles northeast of Williston, and 6 miles upstream from mouth.

Drainage area.--1,010 sq mi, approximately, of which 910 sq mi contributes directly to surface runoff.

Gage.--Nonrecording. At site 2½ miles upstream, above Camp Creek, at different datum 1904-09. At site half a mile upstream at different datum 1932-33. Altitude of gage is 1,850 ft (by interpolation between known altitudes along river channel).

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs for the 1904-9 site, below 330 cfs for the 1932-33 site, and below 2,300 cfs for the 1946-54 site.

Bankfull stage.--13 ft, present site and datum.

Historical data.--A stage of about 13 ft, present site and datum, was reached in 1904 and a stage of approximately 12 ft, present site and datum, was reached in years 1911, 1916, 1925, 1929, and 1935.

Remarks.--Some small diversions above station for irrigation. Some regulation by Lake Zahl, Fish and Wildlife Service Reservoir. The station was discontinued in October 1954 and a new station was established 6½ miles upstream. The records are not equivalent. The 1955 maximum discharge for the old site was computed by multiplying the maximum discharge for the new site by a factor of 0.97. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 7, 1906	7.0	1,800	1949	Mar. 28, Apr. 3, 1949	-	1,300
1907	Apr. 17, 1907	6.2	1,310				
1908	Apr. 5, 1908	6.8	1,670	1950	Apr. 7, 1950	a11.36	1,330
1933	Mar. 9, 1933	a11.54	798	1951	Apr. 4, 1951	11.92	2,330
				1952	Apr. 6, 1952	12.52	2,590
1947	Mar. 23, 1947	a13.8	b2,500	1953	June 24, 1953	13.0	2,820
1948	Mar. 23, 1948	a12.6	1,950	1954	Feb. 10, 1954	a9.85	1,200
1949	Mar. 28, 1949	a12.0	-	1955	Mar. 30, 1955	-	3,640

a Backwater from ice.
b About.

WHITE EARTH RIVER BASIN

3320. White Earth River at White Earth, N. Dak.

Location.--Lat 48°23', long 102°46', in SE¼SW¼ sec.36, T.157 N., R.94 W., 35 ft upstream from bridge on county road, a quarter of a mile east of White Earth.

Drainage area.--490 sq mi, approximately, of which about 320 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site a quarter of a mile upstream at datum 1.64 ft higher prior to Oct. 23, 1959; recording thereafter. Datum of gage is 2,070.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs.

Historical data.--Flood of 1929 reached a stage of 31.8 ft (former site and datum) from information by local residents.

Remarks.--Base for partial-duration series, 150 cfs.

Peak stages and discharges of White Earth River at White Earth, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	-	21.8	-	1960	Mar. 28, 1960	a18.02	2,300
1955	Mar. 30, 1955	a15.2	1,270	1961	Mar. 15, 1961	a4.51	110
1956	Mar. 21, 1956	a9.0	350	1962	Mar. 26, 1962	a11.94	736
	Mar. 25, 1956	a10.0	440		May 30, 1962	8.02	313
	Apr. 1, 1956	a9.7	460		June 12, 1962	14.27	1,350
	Apr. 4, 1956	10.1	504		June 14, 1962	9.03	394
					July 6, 1962	5.55	154
1957	Mar. 20, 1957	a7.19	120				
				1963	Mar. 22, 1963	a9.49	220
1958	Mar. 28, 1958	a10.4	-		June 8, 1963	8.09	388
	Mar. 31, 1958	10.25	540				
				1964	Apr. 2, 1964	-	360
1959	Mar. 18, 1959	a12.06	-				
	Mar. 21, 1959	a11.13	530				

a Backwater from ice.

LITTLE MISSOURI RIVER BASIN

3329. North Creek near Alzada, Mont.

Location.--Lat 45°04', long 104°31', in SE¼NW¼ sec.7, T.9 S., R.59 E., 8 miles northwest of Alzada.

Drainage area.--0.68 sq mi.

Gage.--Recording. Altitude of gage is 3,480 ft (by barometer).

Stage-discharge relation.--Defined by computation of flow over sharp-crested weir.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	June 17, 1951	5.18	260	1960	Aug. 17, 1960	3.77	142
1956	July 2, 1956	4.32	276	1961	Sept.18, 1961	4.05	203
1957	Aug. 28, 1957	4.32	276	1962	May 21, 1962	5.47	1,100
1958	June 3, 1958	4.66	417	1963	June 14, 1963	5.23	-
1959	June 30, 1959	3.21	58				

3340. Little Missouri River near Alzada, Mont.

Location.--Lat 45°05', long 104°24', in NE¼SW¼ sec.6, T.9 S., R.60 E., on right bank 1.9 miles downstream from Thompson Creek and 4 miles north of Alzada.

Drainage area.--904 sq mi.

Gage.--Nonrecording prior to June 14, 1947; recording thereafter. At site 300 ft upstream at datum 2.07 ft higher Apr. 4, 1912, to June 13, 1947. Datum of gage is 3,367 ft above mean sea level (river-profile survey).

Stage-discharge relation.--Defined by current-meter measurements below 2,500 cfs. Large shifts occur.

Remarks.--Several diversions of floodwaters for irrigation of hay meadows above station do not materially affect peak flows. Base for partial-duration series, 1,100 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Apr. 6, 1912	15.3	4,550	1917	Apr. 11, 1917	13.18	3,250
1913	Apr. 1, 1913	14.7	4,250	1918	Mar. 15, 1918	11.97	2,770
1914	Aug. 3, 1914	11.33	2,630	1919	July 30, 1919	7.70	1,360
1915	June 13, 1915	13.4	3,600	1920	May 12, 1920	-	a1,740
1916	Mar. 12, 1916	8.18	1,490	1921	June 29, 1921	6.07	915

a Daily mean.

Peak stages and discharges of Little Missouri River near Alzada, Mont.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1922	June 16, 1922	14.7	4,100	1950	May 10, 1950	10.43	1,380
1923	Sept.30, 1923	14.68	4,090				
1924	Apr. 8, 1924	15.28	4,420	1951	June 17, 1951	5.89	490
1925	June 17, 1925	15.5	4,540				
				1952	Mar. 31, 1952	b11.09	-
1929	May 30, 1929	14.50	4,000		Apr. 1, 1952	10.51	1,400
1930	Feb. 21, 1930	b12.10	-				
	Feb. 23, 1930	-	2,160	1953	May 29, 1953	11.34	1,630
1931	May 28, 1931	3.43	164		June 18, 1953	10.74	1,590
1932	Apr. 24, 1932	14.9	4,210				
				1954	Apr. 6, 1954	8.28	792
1935	July 22, 1935	6.79	c1,080				
				1955	Apr. 13, 1955	9.12	1,270
1936	Mar. 7, 1936	7.28	1,320		May 19, 1955	11.23	1,780
1937	June 14, 1937	12.05	2,780				
1938	May 31, 1938	5.55	794	1956	Mar. 22, 1956	b9.50	e1,000
1939	Mar. 24, 1939	7.9	1,420				
1940	Aug. 19, 1940	9.6	1,600	1957	June 24, 1957	6.63	639
1941	June 11, 1941	12.54	2,820	1958	Apr. 30, 1958	6.60	670
1942	June 6, 1942	12.90	3,000				
1943	Mar. 27, 1943	11.81	2,500	1959	Mar. 20, 1959	7.95	929
1944	Apr. 4, 1944	-	a6,000				
1945	Mar. 14, 1945	b8.94	b1,100	1960	Mar. 24, 1960	12.03	2,130
					June 11, 1960	8.42	1,100
1946	May 24, 1946	13.01	3,040		Aug. 19, 1960	8.79	1,190
1947	June 23, 1947	14.42	2,850				
				1961	Sept.23, 1961	5.80	475
1948	Mar. 27, 1948	9.83	1,200				
	June 18, 1948	16.08	3,690	1962	May 20, 1962	10.35	1,600
					May 23, 1962	14.92	2,890
1949	Mar. 7, 1949	b14.41	(d)		May 27, 1962	15.10	2,940
	Mar. 22, 1949	12.85	2,230		June 4, 1962	8.43	1,100
1950	Apr. 4, 1950	10.94	1,550	1963	June 8, 1963	9.12	1,260
	Apr. 12, 1950	11.82	1,860		June 17, 1963	9.35	1,320

a Maximum daily mean. b Backwater from ice. c Maximum for period Mar. 29 to Sept. 30, 1935. d Not known; probably exceeded base discharge. e About.

3341. Wolf Creek near Hammond, Mont.

Location.--Lat 45°10', long 104°45', in SE¼ sec.5, T.8 S., R.57 E., at culvert on U.S. Highway 212, 8 miles southeast of Hammond.

Drainage area.--9.09 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,580 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 70 cfs and extended above on basis of computation of flow through culvert at 298 and 550 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 11, 1955	4.08	298	1960	Mar. 21, 1960	5.26	485
1956	Mar. 22, 1956	3.45	175	1961	Sept.18, 1961	2.31	30
1957	Aug. 29, 1957	4.58	365	1962	May 21, 1962	5.62	540
1958	June 3, 1958	5.76	550	1963	Aug. 3, 1963	3.54	190
1959	Mar. 19, 1959	3.32	154				

3342. Willow Creek near Alzada, Mont.

Location.--Lat 45°06', long 104°35', in center of sec.27, T.8 S., R.58 E., near bridge on U.S. Highway 212, 11 miles northwest of Alzada.

Drainage area.--123 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 550 cfs. Large shifts occur.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	June 5, 1958	7.54	455	1961	Sept.18, 1961	1.77	40
1959	Mar. 19, 1959	7.31	548	1962	May 21, 1962	11.98	1,700
1960	Mar. 23, 1960	11.19	1,350	1963	Aug. 3, 1963	7.28	480

3345. Little Missouri River at Camp Crook, S. Dak.

Location.--Lat 45°33', long 103°58', in SW¼ sec.2, T.18 N., R.1 E., on left bank 15 ft upstream from bridge on State Highway 8 at east edge of Camp Crook.

Drainage area.--1,970 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 9, 1957; recording thereafter. Datum of gage is 3,110.98 ft above mean sea level, datum of 1929.

Stage-discharge relation--Defined by current-meter measurements below 7,600 cfs.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	-	a16	-	1961	Sept.24, 1961	2.65	359
1956	July 5, 1956	8.8	b3,210	1962	Mar. 24, 1962	8.35	2,980
					May 28, 1962	13.07	7,600
1957	June 24, 1957	5.30	1,350		June 6, 1962	5.60	1,410
	Aug. 31, 1957	6.95	2,080				
				1963	Feb. 12, 1963	8.26	1,080
1958	June 9, 1958	4.94	1,120		Mar. 3, 1963	9.27	1,210
	July 3, 1958	5.17	1,200		May 29, 1963	5.22	1,430
					June 6, 1963	5.76	1,670
1959	Mar. 21, 1959	7.70	2,350		June 9, 1963	6.21	1,870
					June 16, 1963	9.25	3,420
1960	Mar. 22, 1960	9.27	3,360		June 23, 1963	4.29	1,090
	June 11, 1960	7.46	2,340		Sept. 5, 1963	4.52	1,080
	Aug. 20, 1960	4.88	1,040				

a About, from information by local resident.
b Maximum for period May 25 to Sept. 30, 1956.

3350. Little Beaver Creek near Marmarth, N. Dak.

Location.--Lat 46°16', long 103°58', in NE¼ sec.7, T.132 N., R.106 W., on left bank 150 ft upstream from concreted ford, three-quarters of a mile downstream from Corral Creek, 3 miles southwest of Marmarth, and 5 miles upstream from mouth.

Drainage area.--615 sq mi.

Gage.--Nonrecording prior to June 28, 1951; recording thereafter. At site half a mile upstream at datum 0.57 ft higher prior to Mar. 15, 1941. At site half a mile upstream at present datum May 21, 1947, to June 27, 1951. Datum of gage is 2,743.14 ft above mean sea level, datum of 1929. Gage heights given herein converted to present site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs and extended above on basis of slope-area measurement at 12,700 cfs; subject to changes owing to channel shifting and ice effect.

Bankfull stage.--11 ft.

Remarks.--No regulation. Some small diversions for irrigation. Base for partial-duration series, 2,000 cfs. Only annual peaks are shown prior to Oct. 1, 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 6, 1939	10.0	5,500	1953	June 15, 1953	6.51	2,130
1940	Aug. 9, 1940	4.0	1,130		June 20, 1953	6.56	2,170
1941	June 10, 1941	6.56	2,670	1954	Sept. 6, 1954	9.49	4,820
1942	May 30, 1942	6.11	2,440				
1943	Feb. 20, 1943	a9.3	-	1955	June 27, 1955	7.81	2,990
	Mar. 24, 1943	-	4,000				
1944	June 22, 1944	12.5	9,260	1956	July 29, 1956	4.98	1,070
1945	Mar. 15, 1945	a7.6	2,700				
				1957	Apr. 22, 1957	12.82	11,200
1946	July 8, 1946	8.20	3,700		June 16, 1957	7.14	2,450
1948	Mar. 14, 1948	a8.7	2,200	1958	July 19, 1958	5.23	1,180
	June 4, 1948	8.6	4,200				
	June 14, 1948	11.0	6,700	1959	Mar. 19, 1959	a6.79	1,920
	June 17, 1948	7.2	3,100				
	June 27, 1948	6.5	2,600	1960	Mar. 20, 1960	a9.20	3,900
	Aug. 9, 1948	7.8	3,500				
				1961	Sept.12, 1961	4.11	614
1949	Mar. 23, 1949	a8.1	3,300				
				1962	May 26, 1962	7.14	2,040
1950	Apr. 3, 1950	a8.8	2,500		July 7, 1962	7.52	2,270
	Apr. 7, 1950	9.1	4,600				
				1963	Feb. 7, 1963	a7.91	2,140
1951	Sept. 3, 1951	6.21	2,230		May 15, 1963	7.16	2,120
	Sept. 4, 1951	5.88	2,040				
1952	Apr. 6, 1952	13.9	12,700				

a Backwater from ice.

3355. Little Missouri River at Marmarth, N. Dak.

Location.--Lat 46°18', long 103°54', in SE¼ sec.30, T.133 N., R.105 W., on upstream side of highway bridge in Marmarth, 1½ miles downstream from Little Beaver Creek.

Drainage area.--4,570 sq mi, approximately.

Gage.--Nonrecording prior to Sept. 3, 1957; recording thereafter. Datum of gage is 2,686.32 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 25,000 cfs.

Bankfull stage.--18 ft.

Historical data.--According to local residents, the highest known flood occurred in June 1907. Other major floods occurred in March 1913, May 1929, and March 1920 and reached stages of about 21.5, 20.2, and 19.7 ft, respectively. (These stages are not comparable to stages during period of record, owing to construction of levees.)

Remarks.--Some small diversions above station for irrigation. Base for partial-duration series, 3,000 cfs. Only annual peaks are shown prior to 1958.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 7, 1939	9.70	7,710	1958	June 10, 1958	8.12	6,080
1940	July 28, 1940	9.77	7,710				
				1959	Mar. 24, 1959	8.33	5,570
1941	June 11, 1941	11.1	9,990				
1942	May 30, 1942	7.21	4,160	1960	Mar. 25, 1960	9.50	7,430
1943	Feb. 20, 1943	a19.5	36,000		June 13, 1960	6.94	3,920
1944	Apr. 5, 1944	17.80	29,600				
1945	Mar. 13, 1945	11.35	10,400	1961	Sept.13, 1961	3.85	902
1946	June 23, 1946	11.00	10,800	1962	Mar. 25, 1962	a9.25	3,500
1947	Mar. 23, 1947	21.7	45,000		May 22, 1962	6.91	3,890
1948	Mar. 15, 1948	a13.49	15,000		May 28, 1962	11.35	12,400
1949	Mar. 24, 1949	11.2	11,700		June 12, 1962	5.98	3,200
1950	Apr. 7, 1950	14.2	18,500		July 3, 1962	9.23	7,960
					July 7, 1962	7.34	5,060
1951	July 29, 1951	8.05	4,940		July 17, 1962	7.61	5,620
1952	Mar. 31, 1952	a23.4	41,300				
1953	June 19, 1953	10.44	10,000	1963	Feb. 7, 1963	a6.62	3,500
1954	Sept. 6, 1954	6.25	3,400		Mar. 2, 1963	6.33	3,500
1955	June 27, 1955	5.80	2,550		June 9, 1963	7.56	5,240
					June 15, 1963	7.46	5,390
1956	Mar. 23, 1956	6.05	2,810		June 17, 1963	6.57	4,190
1957	Apr. 22, 1957	8.66	6,890				

a Backwater from ice.

3357. Deep Creek near Bowman, N. Dak.

Location.--Lat 46°14', long 103°22', in NW¼NW¼ sec.30, T.132 N., R.101 W., at culvert on U.S. Highway 85, 3¾ miles north of Bowman.

Drainage area.--0.20 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 5 cfs and extended above on basis of culvert measurement at 57.0 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Deep Creek near Bowman, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	8.90	57.0	1960	March 1960	4.16	7.5
1956	Mar. 1, 1956	a4.47	-	1961	-	-	0
	Aug. 6, 1956	3.91	4.2	1962	August 1962	5.48	25
1957	June 21, 1957	4.58	13	1963	February 1963	a5.89	10
1958	February 1958	4.73	15	1964	June 1964	4.66	14
1959	March or April 1959	4.10	6.8				

a Backwater from ice or snow.

3360. Little Missouri River at Medora, N. Dak.

Location.--Lat 46°55', long 103°32', in NE¼ sec.27, T.140 N., R.102 W., on left bank 600 ft downstream from bridge on U.S. Highway 10, a quarter of a mile northwest of Medora, and 1 mile upstream from Andrews Creek.

Drainage area.--6,190 sq mi, approximately.

Gage.--Nonrecording prior to Aug. 23, 1951; recording thereafter. Nonrecording gages used interchangeably at sites 950 ft and 750 ft upstream at datum about 1 ft lower 1904-16. At site 600 ft upstream at datum about 1 ft lower Oct. 11, 1921, to Sept. 30, 1924. At site about 600 ft upstream within 0.2 ft of present datum Aug. 31, 1928, to Sept. 30, 1934. At site 600 ft upstream at present datum Oct. 1, 1945, to Aug. 22, 1951. Datum of gage is 2,246.75 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 43,000 cfs; subject to changes owing to channel shifting and ice effect.

Bankfull stage.--15 ft.

Historical data.--Since the turn of the century, in addition to floods listed in the table, a flood occurred in 1913 of approximately 15-18 ft gage height, present datum, from information by local residents.

Remarks.--Some small diversions above station for irrigation. Records for the period 1909-12, 1914-16 were computed using the gage height record published by the U.S. Weather Bureau and an open-water rating based on one discharge measurement made in 1912 and ratings used for the period 1903-08. Base for partial-duration series, 4,000 cfs. Only annual peaks are shown prior to 1946.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1904	June 9, 1904	11.2	11,600	1946	June 24, 1946	8.75	9,310
1905	July 2, 1905	10.2	8,500	1947	Feb. 18, 1947	-	5,500
1906	June 8, 1906	12.0	13,900		Feb. 23, 1947	9.7	-
1907	June 24, 1907	16.0	29,000		Mar. 23, 1947	20.5	65,000
1908	June 6, 1908	10.7	10,800		Apr. 12, 1947	8.4	8,910
1909	May 31, 1909	11.5	12,400		June 24, 1947	8.73	9,340
1910	Mar. 16, 1910	9.5	7,550	1948	Feb. 19, 1948	a8.5	6,700
1911	May 17, 1911	8.6	5,540		Mar. 16, 1948	a8.7	7,600
1912	July 8, 1912	8.7	5,750		Mar. 20, 1948	8.1	7,900
					Mar. 23, 1948	13.5	24,100
1914	Apr. 3, 1914	6.3	1,850				
1915	June 16, 1915	14.1	24,700	1949	Mar. 9, 1949	a8.1	5,200
					Mar. 21, 1949	a13.0	12,600
1916	Mar. 16, 1916	9.1	6,630		Mar. 27, 1949	11.2	14,600
1924	Apr. 4, 1924	13.8	18,500	1950	Mar. 6, 1950	8.1	7,970
					Apr. 3, 1950	a10.5	6,560
1929	June 7, 1929	17.2	38,700		Apr. 8, 1950	13.0	25,600
1930	Feb. 25, 1930	a8.4	-		Apr. 16, 1950	12.6	20,800
	Sept. 13, 1930	-	4,700		May 11, 1950	7.0	5,610
1931	June 22, 1931	4.52	1,610	1951	Mar. 22, 1951	a9.0	-
1932	Apr. 28, 1932	9.66	12,500		Mar. 22, 1951	a8.5	5,200
1933	May 24, 1933	12.44	20,800				
1934	June 12, 1934	4.50	1,850	1952	Apr. 1, 1952	a18.35	36,900

a Backwater from ice.

Peak stages and discharges of Little Missouri River at Medora, N. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 8, 1952	17.32	42,500	1959	Mar. 20, 1959	a7.47	6,650
1953	Mar. 19, 1953	a6.5	4,800	1960	Mar. 22, 1960	a8.72	8,100
	June 21, 1953	8.21	8,820		June 20, 1960	6.12	4,690
1954	Apr. 7, 1954	5.99	4,320	1961	May 24, 1961	5.22	3,540
1955	June 27, 1955	13.90	25,600	1962	May 27, 1962	9.47	10,100
					May 30, 1962	9.85	10,800
1956	Mar. 20, 1956	a4.76	-		July 5, 1962	6.59	5,350
	Mar. 27, 1956	4.05	2,030	1963	Feb. 7, 1963	a6.25	4,550
1957	June 22, 1957	7.45	7,900		Mar. 3, 1963	a14.3	-
					Mar. 3, 1963	-	b11,000
1958	July 4, 1958	5.9	5,050		June 7, 1963	7.07	5,210

a Backwater from ice.
b About.

3361. Sheep Creek tributary near Medora, N. Dak.

Location.--Lat 46°55', long 103°26', in NW¼SE¼ sec.29, T.140 N., R.101 W., at culvert on U.S. Highway 10, 3.6 miles east of Medora.

Drainage area.--0.29 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurement below 1.3 cfs and extended above on basis of culvert measurement at 147 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	3.85	28	1960	June 20, 1960	6.55	147
1956	August 1956	3.66	22	1961	June 29, 1961	3.98	30
1957	-	3.32	15	1962	July 18, 1962	4.02	55
1958	February 1958	a3.58	-	1963	June or July 1963	3.01	20
	(b)	3.48	20				
1959	February or March 1959	2.69	5	1964	June 1964	3.62	40

a Backwater from ice or snow. b Unknown.

3362. Sheep Creek tributary No. 2 near Medora, N. Dak.

Location.--Lat 46°56', long 103°28', near center of sec.19, T.140 N., R.101 W., at culvert on Theodore Roosevelt National Park Highway, 2¾ miles east of Medora.

Drainage area.--0.42 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,460 ft (from topographic map).

Stage-discharge relation.--Defined by culvert measurements at 85.7 and 139 cfs.

Remarks.--Only annual peaks are shown. Gage will not record below 3.00 ft.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	-	(a)	(b)	1961	May 23, 1961	4.01	85.7
				1962	March 1962	c2.90	2
1956	-	(a)	(b)	1963	June or July 1963	3.26	53
1957	-	(a)	(b)				
1958	February 1958	3.20	2	1964	March 1964	-	d.2
1959	-	-	0				
1960	June 20, 1960	5.40	139				

a Below 3.00 ft. b Less than 1 cfs. c Backwater from ice or snow.
d Estimated.

3363. Little Missouri River tributary near Medora, N. Dak.

Location.--Lat 46°57', long 103°30', in SE¼ sec.11, T.140 N., R.102 W., at culvert on Theodore Roosevelt National Park Highway, 2¾ miles north of Medora.

Drainage area.--0.32 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,220 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2 cfs. and extended to 200 cfs by estimate based on stage and culvert geometry. Subject to change owing to vegetation growth, shifting channel, and ice effect.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 30, 1955	4.68	20	1960	June 20, 1960	10.9	200
1956	Aug. 25, 1956	2.90	2.5	1961	June 29, 1961	3.89	10
1957	-	-	0	1962	June 1962	3.22	4
1958	March 1958	3.49	6	1963	June or July 1963	a3.33	1.5
1959	March or April 1959	3.99	11	1964	June 1964	a3.08	1

a Backwater.

3364. Jules Creek near Medora, N. Dak.

Location.--Lat 47°00', long 103°29', in NW¼ sec.33, T.141 N., R.101 W., at bridge on Theodore Roosevelt National Park Highway, 5¾ miles north of Medora.

Drainage area.--3.80 sq mi.

Gage.--Crest-stage gage. Datum of gage is 2,259.63 ft above mean sea level, datum of 1929. At old bridge at same site and datum prior to March 1962.

Stage-discharge relation.--Prior to March 1962, defined by current-meter measurements below 60 cfs and extended above on basis of contracted opening measurements at 215 and 619 cfs. After March 1962, defined by current-meter measurement below 2.5 cfs and extended above on basis of slope-area measurement at 159 cfs, and former curve. Subject to change owing to channel change and ice effect.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 9, 1955	3.80	62	1961	June 29, 1961	5.83	215
				1962	July 18, 1962	5.49	220
1956	August 1956	4.71	130	1963	June 6, 1963	5.20	190
1957	June 21, 1957	-	10	1964	May or June 1964	4.18	85
1958	July 1958	5.98	250				
1959	-	4.69	126				
1960	June 20, 1960	9.49	619				

3364.5. Spring Creek near Wibaux, Mont.

Location.--Lat 46°53', long 104°12', in sec.14, T.13 N., R.59 E., near bridge on State Highway 7, 7 miles south of Wibaux.

Drainage area.--3.88 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 2,760 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs and extended above on basis of slope-area measurement at 438 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Spring Creek near Wibaux, Mont.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	0.67	61	1961	-	-	(a)
1957	Sept. 9, 1957	1.36	127	1962	July 19, 1962	3.34	438
1958	March 1958	.54	52	1963	Feb. 5, 1963	.57	53
1959	Mar. 21, 1959	1.18	108				
1960	Mar. 20, 1960	.84	76				

a No evidence of flow during year.

3365. Beaver Creek at Wibaux, Mont.

Location.--Lat 46°59', long 104°11', in NE¼NE¼ sec.12, T.14 N., R.59 E., on upstream side of bridge on U.S. Highway 10 at Wibaux, 12 miles upstream from Little Beaver Creek.

Drainage area.--351 sq mi.

Gage.--Nonrecording. Supplementary crest-stage gage since June 20, 1955. At site 500 ft upstream at different datums prior to Sept. 21, 1940. Altitude of gage is 2,650 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs at site used prior to 1940 and below 2,200 cfs at present site.

Historical data.--Flood of 1872 is reported to be about the same as that of June 7, 1929, and about 8.6 ft higher than that of June 1921.

Remarks.--Diversions for irrigation of about 150 acres does not materially affect peak flows. Only annual peaks are shown (maximum observed prior to 1951).

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1921	June 1921	-	a10,000	1949	Mar. 28, 1949	-	2,140
				1950	Mar. 21, 1950	d9.97	-
1929	June 7, 1929	-	b30,000		Apr. 8, 1950	-	1,100
1938	Apr. 26, 1938	7.14	c1,290	1951	Mar. 24, 1951	del1.16	f400
1939	Mar. 21, 1939	10.8	3,780	1952	Apr. 8, 1952	13.0	3,760
1940	Apr. 24, 1940	4.78	91	1953	June 24, 1953	7.00	104
				1954	Apr. 7, 1954	10.16	1,210
1941	Mar. 6, 1941	d7.65	-	1955	Mar. 10, 1955	d10.80	f1,000
	Mar. 29, 1941	-	33				
1942	June 7, 1942	10.70	1,840	1956	Mar. 24, 1956	-	f44
1943	Mar. 24, 1943	d13.44	a3,000	1957	Mar. 22, 1957	d8.40	f150
1944	Apr. 1, 1944	d11.90	-	1958	July 3, 1958	11.44	2,120
	Apr. 5, 1944	-	2,040	1959	Mar. 23, 1959	11.22	1,680
1945	Mar. 11, 1945	d11.05	-	1960	Mar. 21, 1960	d11.9	f1,800
1946	Dec. 2, 1945	d9.95	-	1961	Mar. 18, 1961	6.51	20
	July 10, 1946	-	480	1962	Mar. 20, 1962	-	323
1947	Mar. 23, 1947	d13.39	-		July 20, 1962	11.60	-
1948	July 4, 1948	11.5	2,380	1963	June 7, 1963	10.56	1,350
1949	Mar. 23, 1949	d11.69	-				

a Approximate. b Average of three independent indirect measurements made at different sites. c Maximum during period April to September. d Backwater from ice. e Observed on preceding day. f Maximum daily mean.

3370. Little Missouri River near Watford City, N. Dak.

Location.--Lat 47°35'25", long 103°15'22", in NW¼SW¼SE¼ sec.35, T.148 N., R.99 W., on right bank 700 ft upstream from bridge on U.S. Highway 85, 17 miles upstream from Cherry Creek, and 17½ miles south of Watford City.

Drainage area.--8,490 sq mi, approximately.

Gage.--Recording. At site 0.9 mile upstream prior to June 9, 1939, and Apr. 16, 1943, to Oct. 1, 1959; at site 1 mile upstream June 9, 1939, to Apr. 15, 1943; at site 700 ft downstream Oct. 2, 1959, to June 17, 1963; all at present datum. Datum of gage is 1,929.03 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 41,000 cfs and extended above on basis of float measurement at 67,000 cfs; subject to change owing to shifting channel and ice effect.

Bankfull stage.--20 ft.

Historical data.--Flood of Mar. 25, 1947, is the highest known flood since at least 1921.

Remarks.--Because of faulty intake action most of the high-water records have been based on graphs drawn through readings of wire-weight gage. Base for partial-duration series, 8,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	July 11, 1935	10.60	20,500	1949	Mar. 28, 1949	a13.7	26,000
1936	Mar. 10, 1936	8.00	8,800	1950	Mar. 6, 1950	a9.38	10,600
					Apr. 9, 1950	a21.42	60,000
1937	June 15, 1937	7.85	8,990		Apr. 17, 1950	10.80	18,500
1938	Mar. 15, 1938	9.4	14,600	1951	Feb. 12, 1951	a11.88	b17,000
	June 18, 1938	9.4	14,600		Mar. 25, 1951	a13.94	-
	June 30, 1938	8.15	9,380		Mar. 27, 1951	a13.82	b18,000
1939	Mar. 22, 1939	a13.05	26,500	1952	Apr. 3, 1952	13.92	34,100
					Apr. 10, 1952	15.53	42,200
1940	Sept.23, 1940	6.83	4,270	1953	Mar. 25, 1953	a8.55	-
1941	June 11, 1941	9.0	13,000		June 22, 1953	7.68	7,650
1942	Mar. 11, 1942	a9.59	12,600	1954	June 14, 1954	8.37	10,200
1943	Mar. 25, 1943	a18	-	1955	June 28, 1955	9.96	17,600
1944	Apr. 8, 1944	14.4	32,600	1956	July 30, 1956	6.00	2,770
	June 10, 1944	8.40	9,140				
	June 18, 1944	8.98	10,400	1957	June 23, 1957	7.80	6,890
	June 25, 1944	10.3	14,700	1958	Mar. 25, 1958	9.94	b12,000
1945	Mar. 14, 1945	a14.4	b30,000	1959	Mar. 20, 1959	a10.13	12,800
1946	Feb. 24, 1946	a8.75	8,000	1960	Mar. 22, 1960	9.83	18,900
1947	Mar. 25, 1947	24.0	110,000				
	Apr. 14, 1947	8.18	9,760	1961	May 25, 1961	3.76	2,920
	June 23, 1947	8.30	10,200	1962	May 31, 1962	6.71	12,100
1948	Mar. 17, 1948	a14.6	14,300		June 15, 1962	6.33	8,940
	Mar. 24, 1948	a11.56	16,000				
				1963	Mar. 5, 1963	a9.9	-
1949	Mar. 9, 1949	a11.36	11,000		Mar. 5, 1963	-	b10,000

a Backwater from ice.
b About.

3375. Missouri River near Elbowoods, N. Dak.

Location.--Lat 47°34', long 102°12', in NE¼NE¼ sec.12, T.147 N., R.91 W., on downstream side of right span of bridge on State Highway 8, 2 miles downstream from Little Missouri River, 2½ miles west of Elbowoods, and at mile 1,504.0.

Drainage area.--179,800 sq mi, approximately.

Gage.--Nonrecording prior to Apr. 19, 1940, and after Nov. 8, 1945; recording Apr. 19, 1940, to Nov. 8, 1945. Datum of gage is 1,720.55 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--See remarks for station near Williston, N. Dak. (station 3300). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	June 10, 1940	8.84	38,900	1948	Mar. 25, 1948	b15.14	-
					June 10, 1948	-	77,000
1941	Apr. 10, 1941	9.0	65,000	1949	Apr. 3, 1949	b18.05	-
1942	June 8,15, 1942	a10.12	74,000		Apr. 5, 1949	-	c170,000
1943	Mar. 31, 1943	b21.08	241,000	1950	Apr. 10, 1950	b17.30	-
1944	Apr. 5, 1944	b17.2	-		Apr. 15, 1950	-	161,000
	June 25, 1944	-	116,000				
1945	Mar. 20, 1945	b12.97	-	1951	Apr. 6, 1951	b16.03	-
	June 30, 1945	-	70,200		Apr. 11, 1951	-	94,000
				1952	Apr. 5, 1952	25.20	360,000
1946	June 15, 1946	10.45	58,800	1953	June 20, 1953	10.92	-
1947	Mar. 26, 1947	b23.2	c260,000		June 23, 1953	-	75,900

a Occurred June 15, 1942.
b Backwater from ice.
c About.

DOUGLAS CREEK BASIN

3376. East Branch Douglas Creek tributary near Garrison, N. Dak.

Location.--Lat 47°38'37", long 101°31'09", in SW¼NE¼NW¼ sec.16, T.148 N., R.85 W., at culvert on State Highway 37, 5 miles west of Garrison.

Drainage area.--1.39 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 9 cfs and extended above on the basis of culvert measurement at 76 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	July 1957	8.54	76	1961	March 1961	5.48	17
				1962	June 1962	6.83	41
1959	March 1959	4.2	a5	1963	June 1963	7.54	53
1960	April 1960	8.18	66	1964	Apr. 27, 1964	4.82	8

a Estimated.

3379. Snake Creek tributary near Garrison, N. Dak.

Location.--Lat 47°37'55", long 101°21'00", on south line sec.14, T.148 N., R.84 W., at culvert on county highway, 1 mile south of State Highway 37 and 3 miles southeast of Garrison.

Drainage area.--1.22 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 8 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	March 1959	1.88	3	1962	Mar. 21, 1962	a3.89	14
1960	April 1960	6.18	-	1963	Mar. 19, 1963	2.77	8
				1964	-	2.53	5.5
1961	March 1961	2.97	11				

a Backwater from ice or snow; occurred on preceding day.

KNIFE RIVER BASIN

3395. Knife River near Golden Valley, N. Dak.

Location.--Lat 47°09', long 102°03', in SE¼ sec.34, T.143 N., R.90 W., on left bank 6 ft downstream from county highway bridge, 4½ miles downstream from Elm Creek, and 9 miles south of Golden Valley.

Drainage area.--1,230 sq mi, approximately.

Gage.--Nonrecording prior to May 1, 1946; recording thereafter. Datum of gage is 1,847.13 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 9,000 cfs and extended above on basis of estimated velocity of flow in overflow section.

Bankfull stage.--20 ft.

Historical data.--Flood of Mar. 26, 1943, is the highest known in the period 1903-55, according to streamflow records for period 1903-24, and information by local residents.

Remarks.--Base for partial-duration series, 1,500 cfs. Only annual peaks are shown prior to Oct. 1, 1946.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 26, 1943	26.7	11,500	1953	June 4, 1953	12.49	1,510
1944	Apr. 2, 1944	18.75	4,460				
				1954	Apr. 7, 1954	a17.60	3,320
1947	Feb. 17, 1947	a14.85	1,600				
	Mar. 23, 1947	a20.08	3,500	1955	Mar. 13, 1955	a10.37	750
	Apr. 12, 1947	12.38	1,700				
	June 24, 1947	21.30	6,020	1956	Mar. 20, 1956	a19.55	-
					Mar. 20, 1956	a19.4	b2,300
1948	Mar. 20, 1948	a16.77	3,000				
	Mar. 23, 1948	a19.0	4,370	1957	June 24, 1957	12.47	1,490
	Mar. 30, 1948	12.00	1,640				
	June 5, 1948	14.50	2,420	1958	Mar. 27, 1958	a15.56	2,000
					July 4, 1958	13.30	1,760
1949	Apr. 4, 1949	a22.9	6,400				
				1959	Mar. 23, 1959	a21.73	b5,000
1950	Mar. 26, 1950	a16.52	1,700				
	Apr. 8, 1950	ab16.5	1,900	1960	Mar. 22, 1960	a18.14	2,830
	Apr. 16, 1950	26.37	10,900				
				1961	Mar. 3, 1961	a5.42	117
1951	Mar. 28, 1951	a25.68	7,200				
	Apr. 4, 1951	16.05	3,020	1962	May 30, 1962	17.12	3,080
1952	Apr. 7, 1952	25.63	9,740	1963	June 9, 1963	9.52	779

a Backwater from ice. b About.

3400. Spring Creek at Zap, N. Dak.

Location.--Lat 47°17', long 101°55', in SW¼ sec.14, T.144 N., R.89 W., on right bank 250 ft downstream from Northern Pacific Railroad bridge in Zap and 9 miles upstream from mouth.

Drainage area.--545 sq mi.

Gage.--Nonrecording prior to Oct. 1, 1947; recording thereafter. At site 250 ft upstream prior to Oct. 1, 1948. At datum about 7 ft lower prior to Oct. 1, 1945, and 1.12 ft higher Oct. 1, 1945, to Sept. 30, 1947. Datum of gage is 1,819.39 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Gage heights given herein for 1947 are converted to present site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 55 cfs in 1924 and below 5,900 cfs for the period 1945-63.

Bankfull stage.--14 ft.

Historical data.--Maximum stage known occurred about 1902, from ice jam. Floods of February 1913 and March 1943 reached stages of about 20 ard 19.5 ft, respectively, according to local residents.

Remarks.--Flow regulated by Ilo Lake (capacity, 7,130 acre-ft); effect on flood peaks minor. Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	June 27, 1924	a16.3	a878	1955	Apr. 20, 1955	8.79	664
1947	Mar. 23, 1947	b13.3	1,200	1956	Mar. 19, 1956	b13.57	1,650
	June 24, 1947	12.6	1,530	1957	Feb. 28, 1957	b12.28	1,200
1948	Mar. 24, 1948	b11.82	1,380				
	Mar. 29, 1948	11.53	1,380	1958	Mar. 29, 1958	b9.75	726
	Apr. 4, 1948	11.10	1,280				
	June 3, 1948	11.67	1,430	1959	Mar. 23, 1959	b13.20	1,420
1949	Apr. 7, 1949	16.0	2,890	1960	Mar. 27, 1960	18.58	4,640
1950	Mar. 25, 1950	12.35	1,600	1961	Feb. 21, 1961	b5.22	130
	Apr. 17, 1950	18.80	4,580	1962	May 30, 1962	13.80	1,520
1951	Apr. 5, 1951	b18.38	3,900		June 15, 1962	16.12	2,230
	June 7, 1951	13.21	1,720		June 21, 1962	14.19	1,630
					July 18, 1962	15.76	2,100
1952	Apr. 7, 1952	20.03	6,130	1963	June 8, 1963	10.85	862
1953	June 14, 1953	15.18	2,360				
1954	Apr. 5, 1954	12.80	1,610				

a Annual maximum observed only.
b Backwater from ice.

3405. Knife River at Hazen, N. Dak.

Location.--Lat 47°17', long 101°37', in SE¼ sec.18, T.144 N., R.86 W., on right bank at upstream side of county highway bridge, 0.5 mile south of Hazen and 2 miles upstream from Antelope Creek.

Drainage area.--2,350 sq mi, approximately.

Gage.--Nonrecording prior to Sept. 25, 1947; recording thereafter. Datum of gage is 1,712.35 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 17,000 cfs and extended above on basis of contracted-opening and flow-over-road measurements at 23,000 cfs.

Bankfull stage.--21 ft.

Historical data.--Floods of 1943, 1950, and 1952 are the only major floods known since at least 1884.

Remarks.--Some diversions above station. Minor regulation by Ilo Lake (capacity, 7,130 acre-ft). Base for partial-duration series, 1,500 cfs. Only annual peaks are shown prior to Oct. 1, 1945.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Feb. 21, 1930	a23.2	b3,100	1950	Apr. 17, 1950	25.93	22,700
1931	Sept.22, 1931	11.6	1,450	1951	Mar. 30, 1951	a25.36	9,000
1932	June 14, 1932	11.10	1,300		Apr. 5, 1951	a23.67	7,600
1933	Mar. 8, 1933	a15.6	-		Aug. 29, 1951	11.77	1,580
	Mar. 17, 1933	-	2,200				
				1952	Apr. 7, 1952	25.83	20,200
1938	July 5, 1938	23.00	7,540				
1939	Mar. 24, 1939	24.47	9,300	1953	June 3, 1953	16.01	2,860
1940	July 29, 1940	10.92	1,150		June 14, 1953	17.31	3,440
1941	June 9, 1941	20.23	4,110	1954	Apr. 8, 1954	18.06	3,880
1942	June 7, 1942	17.1	3,120				
1943	Mar. 26, 1943	26.3	26,500	1955	Mar. 13, 1955	11.35	b1,400
1944	Apr. 3, 1944	23.39	8,010				
1945	Mar. 15, 1945	23.99	8,690	1956	Mar. 21, 1956	a23.76	6,630
1946	Mar. 3, 1946	a19.30	3,500	1957	Mar. 1, 1957	a12.49	1,590
1947	Feb. 18, 1947	a16.77	1,760	1958	Mar. 28, 1958	a19.82	3,500
	Mar. 25, 1947	a21.95	3,660				
	Apr. 4, 1947	a14.70	1,580	1959	Mar. 24, 1959	20.14	4,930
	Apr. 13, 1947	14.20	7,460				
	June 25, 1947	21.70	6,000	1960	Mar. 27, 1960	a23.13	7,230
1948	Mar. 24, 1948	a23.62	7,070	1961	Mar. 2, 1961	a9.72	-
	Mar. 30, 1948	18.26	4,320		Mar. 3, 1961	a9.62	488
	Apr. 4, 1948	19.62	4,760				
	June 6, 1948	13.25	2,290	1962	May 31, 1962	17.48	3,860
					June 16, 1962	13.40	2,230
1949	Apr. 3, 1949	a24.1	-		June 22, 1962	12.91	2,060
	Apr. 6, 1949	23.3	7,760		July 6, 1962	11.36	1,530
					July 19, 1962	13.72	2,340
1950	Mar. 26, 1950	a18.61	2,720				
	Apr. 8, 1950	a16.10	2,220	1963	June 10, 1963	9.63	1,050

a Backwater from ice.
b About.

3414. Turtle Creek near Turtle Lake, N. Dak.

Location.--Lat 47°27'30", long 100°55'15", on north line sec.19, T.146 N., R.80 W., on downstream end of twin culverts on State Highway 7, 2½ miles downstream from Lake Ordway and 4 miles southwest of Turtle Lake.

Drainage area.--310 sq mi, approximately, of which about 115 sq mi contributes directly to surface runoff.

Gage.--Recording. Altitude of gage is 1,805 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurement below 34 cfs.

Remarks.--Peak flows probably materially affected by storage in Lake Ordway. Base for partial-duration series, 30 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Feb. 27, 1957	4.86	91	1960	Mar. 26, 1960	ab5.04	82
	July 28, 1957	4.10	34	1961	Feb. 22, 1961	a3.83	5.0
1958	Mar. 26, 1958	4.50	53	1962	July 6, 1962	a4.51	22
1959	Mar. 10, 1959	a4.22	-				
	Mar. 14, 1959	a4.16	25	1963	Aug. 2, 1963	4.01	20

a Backwater from ice.
b Occurred on preceding day.

PAINTED WOODS CREEK BASIN

3418. Painted Woods Creek near Wilton, N. Dak.

Location.--Lat 47°16'30", long 100°47'30", in SW¼SW¼ sec.23, T.144 N., R.80 W., on right bank 600 ft upstream from county highway bridge, 7 miles upstream from Yanktonai Creek, and 8 miles north of Wilton.

Drainage area.--427 sq mi, of which about 117 sq mi contributes directly to surface runoff.

Gage.--Recording. Altitude of gage is 1,760 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurement below 640 cfs.

Remarks.--Base for partial-duration series, 30 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Mar. 26, 1958	6.22	271	1962	Mar. 27, 1962	6.62	438
1959	Mar. 15, 1959	5.22	-		May 17, 1962	5.66	126
	Mar. 21, 1959	5.13	46	1963	June 6, 1963	5.13	59
1960	Mar. 27, 1960	a7.44	650		July 26, 1963	6.81	475
					Aug. 11, 1963	4.99	43
1961	Mar. 3, 1961	4.68	12	1964	Aug. 3, 1964	4.97	40

a Backwater from ice.

3420.5. Square Butte Creek at Center, N. Dak.

Location.--Lat 47°06'40", long 101°17'55", at section corner 14, 15, 22, 23, T.124 N., R.84 W., at bridge on State Highway 25 in Center.

Drainage area.--56.8 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 140 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 21, 1956	a4.1	90	1961	Feb. 22, 1961	3.10	86
1957	July 22, 1957	4.43	-	1962	Mar. 22, 1962	a3.70	-
1958	March 1958	4.54	-		May 29, 1962	3.66	200
1959	Mar. 22, 1959	a4.48	215	1963	March 1963	1.70	13
1960	Mar. 28, 1960	a7.00	-	1964	June 21, 1964	3.89	-

a Backwater from ice or snow.

3421. Square Butte Creek tributary No. 2 near Center, N. Dak.

Location.--Lat 47°07', long 101°15', at south line sec.13, T.142 N., R.84 W., at culvert on State Highway 25, 1.9 miles east of Center.

Drainage area.--13.0 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 570 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	March 1955	4.74	125	1961	Feb. 21, 1961	a4.50	-
					March 1961	4.08	53
1956	March 1956	a6.18	170	1962	July or August 1962	5.74	370
1957	July 16, 1957	7.98	2,500				
1958	March 1958	a5.28	230	1963	June 1963	4.54	100
1959	Mar. 22, 1959	5.55	300	1964	Mar. 31, 1964	4.47	90
1960	Mar. 26, 1960	7.20	1,350				

a Backwater from ice or snow.

3421.5. Square Butte Creek tributary near Center, N. Dak.

Location.--Lat 47°07', long 101°16', at south line sec.13, T.142 N., R.84 W., at culvert on State Highway 25, 1.7 miles east of Center.

Drainage area.--0.19 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 9 cfs and extended above on basis of culvert measurement at 50.8 cfs.

Remarks.--Gage heights listed are for tailwater gage. Only annual peaks are shown.

Peak stages and discharges of Square Butte Creek tributary near Certer, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July or August 1955	3.98	11	1960	Mar. 26, 1960	4.40	18
				1961	March 1961	-	a1
1956	Mar. 16, 1956	3.99	12	1962	-	b4.58	20
1957	July 16, 1957	6.34	50.8	1963	June 1963	4.26	16
1958	March 1958	4.63	22	1964	March 1964	-	a8
1959	Mar. 22, 1959	-	7				

a About.
b Backwater from ice or snow.

3422.5. Square Butte Creek tributary No. 3 near Center, N. Dak.

Location.--Lat 47°07', long 101°11', in SE¼ sec.15, T.142 N., R.83 W., at culvert on State Highway 25, 5¾ miles east of Center.

Drainage area.--1.68 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 14 cfs and extended above on basis of culvert measurements at 39.8 and 86 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	March 1955	a5.85	-	1961	Feb. 22, 1961	a3.20	-
					Mar. 2, 1961	-	7
1956	Mar. 20, 1956	a4.29	b40	1962	March 1962	a3.81	-
1957	March 1957	4.20	48		May 29, 1962	3.67	38
1958	March 1958	6.61	86	1963	June 1963	6.79	88
1959	Mar. 19, 1959	a3.25	25	1964	March 1964	a4.51	-
1960	Mar. 26, 1960	a5.10	40		March 1964	2.91	21

a Backwater from ice or snow.
b About.

BURNT CREEK BASIN

3423. Burnt Creek tributary near Baldwin, N. Dak.

Location.--Lat 47°01'25", long 100°47'30", 0.2 mile south of section corner 14, 15, 22, 23, T.141 N., R.80 W., at culvert on U.S. Highway 83, 2 miles west of Baldwin.

Drainage area.--2.98 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 90 cfs and extended above on basis of culvert measurements at 256 and 966 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 21, 1956	a7.25	-	1961	Feb. 21, 1961	a2.12	-
	July 7, 1956	2.78	73.4		Feb. 21, 1961	a1.97	4.2
1957	July 16, 1957	3.76	256	1962	Mar. 17, 1962	a3.80	25
1958	Mar. 25, 1958	3.15	130	1963	June 6, 1963	3.05	50
1959	Mar. 13, 1959	a3.10	-	1964	May 6, 1964	7.85	966
	Mar. 19, 1959	2.20	17				
1960	Mar. 26, 1960	a4.98	200				

a Backwater from ice or snow.

3423.5. Burnt Creek tributary No. 2 near Baldwin, N. Dak.

Location.--Lat 46°59'05", long 100°47'25", in SW¼SW¼ sec.35, T.141 N., R.80 W., at culvert on U.S. Highway 83, 3½ miles southwest of Baldwin.

Drainage area.--2.12 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and extended above on basis of culvert measurements at 247, 380, and 645 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 30, 1956	5.23	373	1961	Feb. 21, 1961	a2.51	7.0
1957	July 16, 1957	5.95	476	1962	Mar. 21, 1962	a4.2	20
1958	June 4, 1958	3.67	150	1963	June 1963	a2.94	10
1959	Mar. 19, 1959	2.60	17	1964	May 6, 1964	7.18	652
1960	Mar. 26, 1960	a4.28	b200				

a Backwater from ice or snow.
b About.

MISSOURI RIVER MAIN STEM

3425. Missouri River at Bismarck, N. Dak.

Location.--Lat 46°48'51", long 100°49'12", in SE¼NW¼SE¼ sec.31, T.139 N., R.80 W., on left bank 40 ft upstream from Bismarck city water-filter plant, 2,100 ft downstream from Northern Pacific Railway bridge, 1.6 miles northwest of Bismark post office, 3.5 miles upstream from Heart River, and at mile 1,314.5.

Drainage area.--186,400 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 17, 1928, and July 24 to Sept. 30, 1937; recording during remainder of time. At site 2,100 ft upstream at datum 4.24 ft higher prior to Oct. 17, 1928. At present site at datum 4.24 ft higher Oct. 17, 1928, to Sept. 30, 1934, and at present datum Oct. 1, 1934, to Apr. 9, 1936. At site 2,000 ft downstream at datum 0.47 ft lower Apr. 10, 1936, to Sept. 30, 1937. Datum of gage is 1,618.38 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Stage of Mar. 31, 1881, is highest known.

Remarks.--Peak flows affected to some extent by irrigation and power developments and by storage reservoirs above station. Peaks materially affected by regulation of Fort Peck Reservoir (total capacity, 19,410,000 acre-ft) since 1937, and by Garrison Reservoir (total capacity, 24,790,000 acre-ft) since 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1881	Mar. 31, 1881	ab31.6	-	1939	Mar. 28, 1939	21.45	222,000
				1940	June 11, 1940	10.19	56,600
1929	Mar. 17, 1929	b17.8	-				
	June 10, 1929	-	122,000	1941	June 22, 1941	10.00	-
1930	Mar. 6, 1930	b11.38	-		June 11, 1941,	-	51,600
	Apr. 5, 1930	-	78,000		Sept.10, 1941		
				1942	June 16, 1942	12.5	77,400
1931	June 10, 1931	5.31	47,200	1943	Apr. 1, 1943	22.2	-
1932	June 13, 1932	8.33	118,000		Apr. 3, 1943	-	282,000
1933	Mar. 21, 1933	b9.53	-	1944	Apr. 7, 1944	b16.90	136,000
	June 21, 1933	-	88,800	1945	Mar. 18, 1945	b14.5	-
1934	Mar. 20, 1934	7.41	79,200		June 30, 1945	-	73,400
1935	July 13, 1935	13.15	116,000				
				1946	Mar. 27, 1946	b10.93	-
1936	Mar. 20, 1936	b16.50	-		Mar. 28, 1946	-	59,600
	Apr. 15, 1936	-	117,000	1947	Mar. 29, 1947	21.80	262,000
1937	June 18, 1937	12.65	98,900	1948	Apr. 1, 1948	b15.84	-
1938	Mar. 19, 1938	19.60	190,000		June 12, 1948	-	76,400

a Present site and datum. b Backwater from ice.

Peak stages and discharges of Missouri River at Bismarck, N. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Apr. 3, 1949	b18.15	-	1957	Dec. 10, 1956	b8.71	-
	Apr. 6, 1949	-	157,000		May 13, 1957	-	26,700
1950	Apr. 17, 1950	18.72	192,000	1958	Mar. 30, 1958	b9.27	-
					June 23, 1958	-	33,100
1951	Apr. 4, 1951	b16.30	-	1959	Dec. 3, 1958	b10.49	-
	Apr. 5, 1951	-	130,000		Sept. 8, 1959	-	23,700
1952	Apr. 6, 1952	27.90	500,000	1960	Mar. 27, 1960	b13.27	35,000
1953	June 21, 1953	11.13	-				
	June 24, 1953	-	78,200	1961	Apr. 2, 1961	7.87	24,800
1954	Aug. 17, 1954	9.73	40,600	1962	Jan. 26, 1962	b11.51	-
1955	May 14, 1955	9.08	48,100		June 13, 1962	-	31,900
				1963	Jan. 25, 1963	b11.52	-
1956	Apr. 2, 1956	b10.70	-		Apr. 25, 1963	-	30,200
	June 17, 1956	-	38,200				

b Backwater from ice.

HEART RIVER BASIN

3430. Heart River near South Heart, N. Dak.
(Published as Heart River near Dickinson prior to June 1, 1947)

Location.--Lat 46°52', long 102°57', in SW¼ sec.8, T.139 N., R.97 W., on left bank half a mile downstream from North Creek and 2 miles east of South Heart.

Drainage area.--315 sq mi.

Gage.--Nonrecording prior to June 1, 1947; recording thereafter. At bridge 6 miles downstream at different datum prior to June 1, 1947. Datum of gage is 2,429.45 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs.

Bankfull stage.--18 ft.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Feb. 17, 1947	a13.33	840	1955	Mar. 14, 1955	a6.35	210
	Mar. 24, 1947	a17.0	2,200		Apr. 21, 1955	6.52	263
	Mar. 30, 1947	a9.0	327		June 28, 1955	16.12	1,910
	Apr. 12, 1947	14.5	1,720				
	June 23, 1947	16.09	1,860	1956	Mar. 21, 1956	-	b200
	July 1, 1947	11.30	886		July 31, 1956	6.38	251
1948	Mar. 16, 1948	a8.36	236	1957	Apr. 23, 1957	9.56	642
	Mar. 20, 1948	14.78	1,550		June 18, 1957	9.27	588
	Mar. 23, 1948	15.15	1,640		June 23, 1957	21.79	5,090
	Mar. 29, 1948	8.27	450		July 4, 1957	8.12	430
	June 3, 1948	13.56	1,310				
				1958	Mar. 26, 1958	12.07	994
1949	Mar. 31, 1949	17.75	2,400		July 11, 1958	9.60	571
1950	Mar. 7, 1950	a9.20	450	1959	Mar. 20, 1959	17.42	2,290
	Mar. 23, 1950	a12.55	630				
	Apr. 16, 1950	21.67	4,970	1960	Mar. 22, 1960	14.72	1,580
	May 11, 1950	6.87	281		June 22, 1960	9.70	692
1951	Feb. 22, 1951	a8.03	300	1961	June 30, 1961	4.71	115
	Mar. 26, 1951	a17.09	2,100	1962	May 31, 1962	7.14	349
1952	Apr. 1, 1952	20.05	3,300	1963	Mar. 3, 1963	a7.15	270
					May 14, 1963	8.19	446
1953	June 22, 1953	7.32	334		June 7, 1963	7.91	447
	Aug. 20, 1953	12.46	1,120		June 16, 1963	5.74	202
1954	Apr. 6, 1954	21.73	5,030	1964	June 10, 1964	10.42	814

a Backwater from ice.
b About.

3432. Heart River tributary near South Heart, N. Dak.

Location.--Lat 46°53', long 102°55', in SE¼ sec.4, T.139 N., R.97 W., at culvert on U.S. Highway 10, 3.5 miles northwest of South Heart.

Drainage area.--0.13 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by culvert measurements at 38.1 and 61.6 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	12.37	62	1959	June 20, 1959	10.09	20
				1960	March 1960	9.49	9.0
1956	July or August 1956	10.80	33				
				1961	June 29, 1961	11.09	38
1957	June 21, 1957	9.82	14	1962	March 1962	a9.30	b1
1958	March 1958	a12.22	-	1963	May 12, 1963	11.45	45
	Aug. 21, 1958	8.82	1.5	1964	May 1964	9.26	4.8

a Backwater from ice or snow.
b Estimated.

3442. Heart River tributary near Dickinson, N. Dak.

Location.--Lat 46°50'21", long 102°47'22", in NW¼SW¼ sec.22, T.139 N., R.96 W., at culvert on State Highway 22, 3 miles south of Dickinson.

Drainage area.--1.72 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	5.85	90	1961	-	-	0
				1962	-	-	0
1956	Mar. 1, 1956	3.88	16	1963	-	-	0
1957	June 21, 1957	-	.2	1964	May or June, 1964	3.53	6
1958	July 3, 1958	5.09	62				
1959	March 1959	3.83	15				
1960	March 1960	4.20	29				

3445. Heart River at Lehigh, N. Dak.

Location.--Lat 46°52', long 102°43', in NE¼ sec.7, T.139 N., R.95 W., on upstream side of county highway bridge in Lehigh, 150 ft downstream from Northern Pacific Railway bridge, 10 miles downstream from Dickinson Dam, and 10 miles upstream from Green River.

Drainage area.--443 sq mi.

Gage.--Nonrecording. Datum of gage is 2,328.39 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 4,900 cfs.

Remarks.--Regulated by Dickinson Reservoir since May 23, 1950. Several small diversions above station for irrigation and municipal and industrial use. Peaks for water years 1953-55 computed by multiplying maximum discharge for station below Dickinson Dam by factor of 1.05. Base for partial-duration series, 600 cfs. Only annual peaks are shown for 1943, 1950-55.

Peak stages and discharges of Heart River at Lehigh, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 25, 1943	17.7	5,420	1947	July 2, 1947	8.62	811
1944	Apr. 2, 1944	10.24	1,180	1948	Mar. 21, 1948	a12.2	1,520
	June 20, 1944	10.52	1,280		Mar. 24, 1948	a12.1	1,640
	June 28, 1944	10.87	1,420		June 4, 1948	8.94	895
1945	Mar. 13, 1945	a17.7	4,500	1949	Apr. 2, 1949	a14.9	3,800
	Mar. 27, 1945	9.74	932	1950	Apr. 15, 1950	17.90	5,980
1946	Mar. 4, 1946	a7.06	-	1951	Mar. 26, 1951	a15.0	2,600
	June 26, 1946	3.95	20	1952	Apr. 3, 1952	14.30	3,520
1947	Feb. 17, 1947	a11.30	950	1953	Aug. 21, 1953	-	500
	Mar. 24, 1947	15.7	4,040	1954	Apr. 7, 1954	-	4,200
	Apr. 12, 1947	11.20	1,680	1955	June 29, 1955	-	1,500
	June 24, 1947	11.16	1,660				

a Backwater from ice.

3450. Green River near Gladstone, N. Dak.

Location.--Lat 46°53', long 102°37', in SW¼ sec.36, T.140 N., R.95 W., on right bank half a mile upstream from bridge on U.S. Highway 10, 3½ miles northwest of Gladstone, 3½ miles upstream from mouth, and 8 miles downstream from Spring Creek.

Drainage area.--356 sq mi.

Gage.--Nonrecording prior to June 27, 1953; recording thereafter. At datum 4.15 ft lower prior to June 27, 1953. On former Highway 10 bridge over former channel, 700 ft east of next site Oct. 1, 1945, to July 5, 1949. On Highway 10 bridge half a mile downstream from present site July 6, 1949, to June 26, 1953. Altitude of gage is 2,320 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs prior to 1954 and below 2,800 cfs thereafter.

Bankfull stage.--13 ft, present site and datum.

Historical data.--Maximum stage known, that of March 1943, site and datum used prior to June 27, 1953.

Remarks.--A few small diversions above station for irrigation of hay meadows, and washing of sand and gravel. Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to Oct. 1, 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	March 1943	a20	-	1955	Mar. 15, 1955	b4.82	-
					Apr. 22, 1955	b4.52	280
1946	Feb. 28, 1946	b5.42	140				
	Mar. 5, 1946	b4.32	140	1956	Mar. 19, 1956	-	a250
1947	Mar. 25, 1947	b15.44	2,300	1957	Apr. 24, 1957	6.32	781
1948	Mar. 24, 1948	b12.7	1,770		June 23, 1957	8.05	1,180
	Mar. 29, 1948	b9.9	1,160				
	June 4, 1948	10.8	1,520	1958	Mar. 27, 1958	b6.76	-
					Mar. 29, 1958	6.36	838
1949	Apr. 5, 1949	16.9	3,780				
				1959	Mar. 24, 1959	9.70	1,640
1950	Mar. 24, 1950	b8.4	520				
	Apr. 15, 1950	18.3	5,260	1960	Mar. 22, 1960	b9.65	1,500
					June 23, 1960	8.31	1,150
1951	Mar. 27, 1951	b16.7	3,800				
				1961	June 30, 1961	3.60	200
1952	Apr. 3, 1952	15.7	3,440				
				1962	July 4, 1962	3.65	218
1953	June 14, 1953	7.70	847				
				1963	Mar. 6, 1963	b5.06	-
1954	Apr. 7, 1954	15.93	4,290		June 8, 1963	4.48	347

a About.
b Backwater from ice.

3451. Antelope Creek near Dickinson, N. Dak.

Location.--Lat 46°43', long 102°47' in NW¼SW¼ sec.34, T.138 N., R.96 W., at bridge on State Highway 22, 11 miles south of Dickinson.

Drainage area.--69.2 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 1,100 cfs and extended above on basis of contracted-opening measurement at 6,100 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 9, 1955	a5.52	-	1959	March 1959	a10.30	1,500
	June 26, 1955	-	200	1960	March 1960	a6.0	-
					April 1960	-	280
1956	July 30 or 31, 1956	5.21	210	1961	-	-	0
1957	June 21 or 22, 1957	11.98	6,100	1962	May 29, 1962	4.83	55
				1963	June 5, 1963	6.59	600
1958	March 24 or 25, 1958	6.95	920	1964	June 1964	3.58	5

a Backwater from ice or snow.

3452. Antelope Creek tributary near New England, N. Dak.

Location.--Lat 46°40', long 102°47', in SW¼NW¼ sec.22, T.137 N., R.96 W., at culvert on State Highway 22, 9½ miles northwest of New England.

Drainage area.--13.0 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 28 cfs and extended above on basis of culvert measurements at 1,080 and 1,360 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	6.26	602	1960	June 12, 1960	10.93	1,360
1956	June 29, 1956	3.91	179	1961	-	-	0
1957	June 21, 1957	8.93	1,080	1962	May 29, 1962	a3.02	11.7
1958	Mar. 25, 1958	a4.64	240	1963	June 5, 1963	4.86	350
1959	May 1959	2.92	17	1964	June 1964	2.92	17

a Backwater from ice or snow.

3453. Antelope Creek tributary (site No. 2) near New England, N. Dak.

Location.--Lat 46°41', long 102°47', in SW¼SW¼ sec.10, T.137 N., R.96 W., at culvert on State Highway 22, 11 miles northwest of New England.

Drainage area.--22.4 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 140 cfs and extended above on basis of culvert measurements made at 675, 1,090, and 1,200 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Antelope Creek tributary (site No. 2) near New England, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	4.49	675	1959	March 1959	-	b20
1956	July or August 1956	3.72	441	1960	June 12, 1960	6.33	1,120
1957	June 21, 1957	6.34	1,200	1961	-	-	0
1958	Mar. 24, 1958	a3.55	100	1962	May 29, 1962	2.95	210
1959	March 1959	a4.00	-	1963	June 5, 1963	4.14	567
				1964	June 21, 1964	a1.52	2.0

a Backwater from ice.
b At least this high.

3455. Heart River near Richardton, N. Dak.

Location.--Lat 46°44'46", long 102°18'27", in NE¼ sec.29, T.138 N., R.92 W., on right bank 10 ft upstream from bridge on State Highway 8, half a mile downstream from Blacktail Creek, and 9½ miles south of Richardton.

Drainage area.--1,240 sq mi, approximately.

Gage.--Nonrecording prior to July 8, 1947; recording thereafter. At old bridge 300 ft downstream at datum 2.77 ft lower 1905-10. At site 1 mile downstream at different datum 1911 (gage set to read same as gage used 1905 to 1910). At site 500 ft below the 1911 staff gage (set to read 20 ft higher than 1911 staff gage) 1912-21. During the period 1912-21, the 1905-10 chain gage (with 20.00 ft added to readings) was used interchangeably with the cantilever chain gage. At present site and datum since 1943. The 1938 maximum gage height is referred to present site and datum. Datum of present gage is 2,153.67 ft above mean sea level, datum of 1929.

Stage-discharge relationship.--Defined by current-meter measurements below 19,000 cfs.

Bankfull stage.--20 ft.

Remarks.--Flow regulated by Dickinson Reservoir since May 1950. Regulation is only minor at high discharges. Base for partial-duration series, 1,500 cfs. Only annual peaks are shown prior to Oct. 1, 1945.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	July 5, 1905	10.0	1,000	1945	Mar. 14, 1945	22.57	9,920
1906	June 10, 1906	25.9	10,500	1946	Mar. 2, 1946	a8.80	900
1907	Mar. 22, 1907	14.5	2,500		Mar. 5, 1946	a8.86	-
1908	May 24, 1908	10.5	1,130				
1909	June 2, 1909	18.0	4,250	1947	Feb. 17, 1947	a15.73	-
1910	Mar. 14, 1910	a19.4	4,600		Mar. 23, 1947	a21.0	7,500
					Apr. 2, 1947	13.82	3,440
1911	Mar. 19, 1911	5.7	200		June 24, 1947	15.55	4,440
1912	Mar. 31, 1912	ab42.9	4,500				
1913	Apr. 2, 1913	a42.1	5,500	1948	Mar. 15, 1948	12.98	2,500
1914	June 29, 1914	31.7	1,550		Mar. 20, 1948	a14.72	3,660
1915	June 15, 1915	32.6	1,820		Mar. 24, 1948	a15.00	3,760
					Mar. 30, 1948	10.4	1,740
1916	Feb. 23, 1916	a35.7	-		June 5, 1948	11.6	2,190
	Apr. 4, 1916	-	2,470		July 21, 1948	16.5	5,010
1917	Mar. 30, Apr. 1, 1917	a33.7	-	1949	Mar. 28, 1949	a15.38	4,100
	Apr. 1-3, 1917	-	1,850		Apr. 6, 1949	18.8	6,540
1918	Aug. 22, 1918	34.1	2,200				
1919	Apr. 1, 1919	29.6	966	1950	Mar. 6, 1950	a10.95	-
1920	Mar. 25, 1920	a32.4	-		Mar. 24, 1950	a14.28	1,870
	Mar. 29, 1920	-	1,500		Apr. 16, 1950	28.05	23,400
1921	June 19, 1921	28.6	714	1951	Mar. 27, 1951	19.52	7,900
1938	July 5, 1938	26.0	16,000	1952	Apr. 3, 1952	20.43	7,990
					Aug. 27, 1952	10.66	1,590
1943	Mar. 25, 1943	24.2	11,700				
1944	June 18, 1944	15.6	4,470	1953	June 15, 1953	12.97	2,880

a Backwater from ice.
b Occurred on preceding day.

Peak stages and discharges of Heart River near Richardton, N. Dak.--Con.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	D'scharge (cfs)
1954	Apr. 7, 1954	19.65	7,390	1959	Mar. 21, 1959	16.17	4,600
1955	June 29, 1955	10.28	1,420	1960	Mar. 24, 1960	a14.62	3,800
1956	Mar. 20, 1956	ab12.92	c500	1961	July 10, 1961	8.17	371
1957	June 22, 1957	17.38	5,680	1962	May 29, 1962	10.39	1,070
1958	Mar. 27, 1958	15.23	4,060	1963	May 30, 1963	11.76	1,980
1959	Mar. 19, 1959	a16.42	-				

a Backwater from ice.
b Occurred on preceding day.
c About.

3457. Government Creek near Richardton, N. Dak.

Location.--Lat 46°48', long 102°18', in NE¼NE¼ sec.5, T.138 N., R.92 W., at bridge on county highway, 5.4 miles south of Richardton.

Drainage area.--33.4 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 280 cfs and extended above on basis of contracted-opening measurement at 4,300 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	D'scharge (cfs)
1950	Apr. 16, 1950	15.05	4,300	1959	Mar. 18, 1959	7.90	755
				1960	March 1960	4.88	50
1955	Mar. 11, 1955	a5.44	50				
				1961	-	-	0
1956	March 1956	a7.26	400	1962	June 1962	a4.76	20
1957	June 22, 1957	5.84	184	1963	May 31, 1963	a11.77	1,500
1958	Mar. 25, 1958	5.93	203	1964	June 18, 1964	6.23	273

a Backwater from ice, snow, or vegetation.

3465. Heart River below Heart Butte Dam, near Glen Ullin, N. Dak.
(Published as "near Glen Ullin" prior to Oct. 1, 1949)

Location.--Lat 46°35'50", long 101°48'05", in NE¼ sec.13, T.136 N., R.89 W., on right bank 0.5 mile downstream from Heart Butte Dam, 10 miles upstream from Heart Butte Creek, 14 miles south of Glen Ullin, and 14 miles north of Elgin.

Drainage area.--1,710 sq mi, approximately.

Gage.--Nonrecording prior to Aug. 24, 1943; recording thereafter, except for the water years 1945-47, when the recorder was not functioning at the time of the maximum discharge. At site 4 miles upstream at different datum prior to June 1, 1947. Datum of gage is 1,998.87 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--At upstream site, defined by current-meter measurements below 7,800 cfs and extended on basis of float measurement at 18,000 cfs and slope-area measurement at 20,000 cfs. At lower site in 1947, defined by current-meter measurements below 3,700 cfs and extended above on basis of later measurements and ratings. After 1947, at lower site defined by current-meter measurements below 6,900 cfs.

Historical data.--Flood of Mar. 24, 1947, is the highest known since at least 1904.

Remarks.--Flow regulated by Heart Butte Reservoir (usable capacity, 421,250 acre-ft) since Sept. 29, 1949. Only annual peaks are shown.

Peak stages and discharges of Heart River below Heart Butte Dam, near Glen Ullin, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 25, 1943	18.77	20,000	1950	Apr. 17, 1950	b7.55	-
1944	Apr. 1, 1944	13.26	7,280		Apr. 19, 1950	6.92	3,840
1945	Mar. 14, 1945	15.45	11,500				
				1951	Mar. 29, 1951	6.42	3,440
1946	Mar. 3, 1946	-	(a)	1952	Apr. 9, 1952	6.99	4,100
1947	Mar. 24, 1947	a21.5	25,000	1953	June 16, 1953	3.18	699
1948	Mar. 19, 1948	b11.48	c9,900	1954	Apr. 10, 1954	6.08	3,270
1949	Mar. 28, 1949	b10.78	7,300	1955	July 14, 1955	2.14	176

a Probably less than 1,000 cfs.
b Backwater from ice.
c Release of water when ice jam broke.

3470. Antelope Creek near Carson, N. Dak.

Location.--Lat 46°32', long 101°38', in NW¼NE¼ sec.8, T.135 N., R.87 W., on right bank 8 ft upstream from county highway bridge, 4 miles upstream from mouth, and 8 miles northwest of Carson.

Drainage area.--221 sq mi.

Gage.--Nonrecording at site 800 ft downstream prior to May 23, 1958; recording thereafter. Altitude of gage is 1,974 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 1,500 cfs and extended on basis of slope-area measurement at 11,100 cfs; subject to changes owing to channel shifting and ice effect.

Bankfull stage.--15 ft.

Historical data.--The flood of Mar. 25, 1943, is the highest known prior to 1950.

Remarks.--Base for partial-duration series, 200 cfs. Only annual peaks prior to Oct. 1, 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 25, 1943	17.1	-	1956	Mar. 20, 1956	a11.50	870
1949	Mar. 28, 1949	a13.84	1,300	1957	June 23, 1957	8.44	480
1950	Apr. 16, 1950	17.95	11,100				
				1958	June 11, 1958	6.47	213
1951	Mar. 27, 1951	a15.5	2,900				
				1959	Mar. 14, 1959	10.11	250
1952	Apr. 3, 1952	a15.7	3,280				
	June 29, 1952	b8.5	b500	1960	Mar. 21, 1960	a11.50	725
	Aug. 26, 1952	b11	b900		June 10, 1960	7.00	271
	Aug. 30, 1952	15.05	3,300				
				1961	June 14, 1961	a9.32	531
1953	June 16, 1953	13.06	1,540				
				1962	May 23, 1962	8.27	450
1954	Apr. 7, 1954	5.90	252		May 30, 1962	9.77	621
1955	June 2, 1955	7.50	377	1963	June 15, 1963	7.45	344
	July 28, 1955	7.15	365		July 27, 1963	7.51	340
					July 31, 1963	9.56	593
1956	Mar. 20, 1956	a12.03	-				

a Backwater from ice.
b About.

3475. Muddy Creek near Almont, N. Dak.

Location.--Lat 46°42', long 101°28', in SW¼ sec.7, T.137 N., R.85 W., on right bank 450 ft downstream from county highway bridge, 2 miles downstream from Hailstone Creek, 3 miles southeast of Almont, and 12 miles upstream from mouth.

Drainage area.--456 sq mi.

Gage.--Nonrecording prior to Sept. 5, 1952; recording thereafter. Altitude of gage is 1,864 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 3,100 cfs and extended above on basis of slope-area measurement at 20,200 cfs.

Bankfull stage.--22 ft.

Historical data.--Flood of Apr. 17, 1950, is the highest known since at least 1895. Flood of June 26, 1914, and the spring flood of 1943 were about 4 ft lower than the 1950 flood, from information obtained from local residents.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 3, 1946	a12.8	750	1953	June 21, 1953	9.38	396
	June 30, 1946	9.08	405		Sept. 3, 1953	7.96	242
1947	Feb. 18, 1947	a12	400	1954	Feb. 5, 1954	8.57	301
	Mar. 23, 1947	a17.17	1,600		Mar. 20, 1954	8.93	312
	Apr. 12, 1947	a11.0	410		Apr. 6, 1954	14.07	1,170
	Apr. 18, 1947	6.95	206				
	June 23, 1947	12.9	1,020	1955	Mar. 12, 1955	a11.68	560
					June 2, 1955	12.49	864
1948	Mar. 24, 1948	a19.20	2,250		July 9, 1955	7.59	239
	Mar. 29, 1948	a13.96	1,180				
	Apr. 5, 1948	12.0	992	1956	Mar. 21, 1956	a18.87	2,190
	July 14, 1948	7.70	337		Mar. 27, 1956	12.15	790
					June 30, 1956	12.98	956
1949	Apr. 1, 1949	15.41	1,400				
	May 29, 1949	8.50	330	1957	June 24, 1957	7.18	205
1950	Mar. 26, 1950	a10.62	-	1958	Mar. 28, 1958	a13.02	810
	Apr. 9, 1950	a11.25	250		June 3, 1958	7.84	275
	Apr. 17, 1950	30.7	20,200		July 25, 1958	7.72	266
	May 12, 1950	12.04	780				
	June 9, 1950	8.47	263	1959	Mar. 24, 1959	14.19	1,230
1951	Mar. 30, 1951	a19.5	1,800	1960	Mar. 27, 1960	17.97	2,050
	Apr. 5, 1951	19.0	2,050		June 10, 1960	16.76	1,760
1952	Apr. 8, 1952	21.86	3,350	1961	Mar. 23, 1961	a3.66	8.4
	June 29, 1952	16.2	1,700				
	Aug. 31, 1952	14.0	1,200	1962	Mar. 22, 1962	a8.16	265
					May 23, 1962	10.00	490
1953	Mar. 18, 1953	a10.28	360		May 31, 1962	16.31	1,660
	May 2, 1953	7.86	218		July 7, 1962	11.35	692
	June 4, 1953	7.58	205				
	June 17, 1953	12.60	836	1963	July 26, 1963	-	630

a Backwater from ice.

3480. Heart River near Lark, N. Dak.

Location.--Lat 46°36'37", long 101°22'45", in NW¼NW¼SW¼ sec.9, T.136 N., R.85 W., on right bank 20 ft downstream from bridge on State Highway 31, 1 mile downstream from Muddy Creek, and 10 miles north of Lark.

Drainage area.--2,750 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 16, 1948; recording thereafter. Datum of gage is 1,802.83 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended above on basis of contracted-opening measurement at 29,200 cfs.

Remarks.--Peak flows materially affected by regulation of Lake Tschida since storage began Sept. 29, 1949. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Mar. 25, 1947	a15.85	10,400	1957	June 27, 1957	6.98	1,340
1948	Mar. 24, 1948	a13.99	7,500	1958	Mar. 27, 1958	a9.78	1,220
1949	Mar. 29, 1949	14.72	9,810	1959	Mar. 19, 1959	a13.5	-
1950	Apr. 17, 1950	20.70	29,200		Mar. 24, 1959	-	3,800
				1960	Mar. 22, 1960	a10.66	-
1951	Mar. 26, 1951	a14.9	b9,000		Mar. 26, 1960	-	3,600
1952	Apr. 7, 1952	15.62	11,800				
1953	June 15, 1953	11.53	5,440	1961	June 15, 1961	4.82	398
1954	Apr. 10, 1954	9.60	3,500	1962	June 15, 1962	8.96	2,730
1955	Mar. 12, 1955	a9.23	1,110	1963	July 26, 1963	7.32	1,540
1956	Mar. 20, 1956	a16.27	b12,000				

a Backwater from ice.
b About.

3485. Sweetbriar Creek near Judson, N. Dak.

Location.--Lat 46°51', long 101°15', in SW¼ sec.14, T.139 N., R.84 W., on right bank 80 ft downstream from bridge on U.S. Highway 10, two miles northeast of Judson, and 16 miles upstream from mouth.

Drainage area.--157 sq mi.

Gage.--Nonrecording prior to July 20, 1955; recording thereafter. Altitude of gage is 1,886 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended above on basis of contracted-opening measurement at 5,910 cfs.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Apr. 17, 1950	12.5	5,910	1956	Mar. 26, 1956	6.30	580
					June 22, 1956	5.08	349
1952	Apr. 7, 1952	9.55	2,300				
	June 29, 1952	4.45	254	1957	July 17, 1957	6.19	709
1953	June 16, 1953	8.48	1,450	1958	Mar. 27, 1958	7.75	990
1954	Feb. 4, 1954	a5.2	300	1959	Mar. 23, 1959	7.17	866
	Mar. 19, 1954	a5.8	440				
	Apr. 5, 1954	7.8	1,100	1960	Mar. 27, 1960	a9.11	b1,600
					June 7, 1960	6.79	946
1955	Mar. 11, 1955	a5.28	240				
	June 2, 1955	11.11	3,400	1961	Mar. 4, 1961	3.52	59
1956	Mar. 21, 1956	a8.10	1,300	1962	May 23, 1962	4.66	295

a Backwater from ice.
b About.

Peak stages and discharges of Sweetbriar Creek near Judson, N. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	May 30, 1962	7.01	1,130	1963	July 29, 1963	4.96	325
	July 6, 1962	5.41	541		Aug. 1, 1963	5.73	566
1963	July 26, 1963	5.58	514		Aug. 8, 1963	5.51	491

3490. Heart River near Mandan, N. Dak.

Location.--Lat 46°50'02", long 100°58'27", in NW¼NE¼ sec.25, T.139 N., R.82 W., on left bank near downstream wingwall bridge on U.S. Highway 10, 3 miles west of Mandan and 4 miles downstream from Sweetbriar Creek.

Drainage area.--3,310 sq mi, approximately.

Gage.--Nonrecording prior to Sept. 13, 1948; recording thereafter. On old highway bridge near present site at datum 2.79 ft lower in 1924, and at present datum March 1928 to Mar. 27, 1943; on Northern Pacific Railway bridge 300 ft upstream and at present datum Apr. 9, 1943, to Mar. 16, 1948. Datum of gage is 1,638.70 ft above mean sea level, datum of 1929. Gage heights given herein converted to present site and datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--18 ft.

Remarks.--Flow regulated by Heart Butte Reservoir (usable capacity, 421,250 acre-ft) since Sept. 29, 1949. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Apr. 7, 1924	-	3,300	1948	Mar. 21, 1948	a23.31	-
	June 19, 1924	10.86	-		Mar. 23, 1948	22.02	16,100
				1949	Mar. 29, 1949	a21.95	d16,000
1929	Mar. 20, 1929	a11.8	-	1950	Apr. 19, 1950	23.64	30,500
	June 3, 1929	-	2,750				
1930	Mar.17,18,1930	a20.40	(b)	1951	Mar. 28, 1951	a24.35	-
					Apr. 3, 1951	-	d14,000
1931	June 30, 1931	5.70	209	1952	Apr. 4, 1952	a25.75	d30,000
1932	Feb. 28, 1932	11.55	3,400	1953	June 16, 1953	11.35	6,200
1933	Mar. 3, 1933	a17.6	-	1954	Apr. 10, 1954	9.52	3,720
	Mar. 19, 1933	-	2,530	1955	Mar. 13, 1955	a9.36	-
					June 2, 1955	-	1,350
1938	July 7, 1938	16.9	7,320				
1939	Mar. 23, 1939	ac23.4	10,600	1956	Mar. 21, 1956	ae21.6	d12,000
1940	May 2, 1940	11.07	3,700	1957	June 28, 1957	7.78	1,380
				1958	Mar. 27, 1958	a12.08	2,500
1941	Mar. 27, 1941	a16.72	-	1959	Mar. 25, 1959	a11.28	4,100
	June 11, 1941	-	7,480	1960	Mar. 27, 1960	ac19.50	4,700
1942	June 10, 1942	11.9	3,350				
1943	Mar. 27, 1943	24.7	21,400				
1944	Apr. 4, 1944	a22.75	d12,000	1961	Mar. 3, 1961	a6.17	-
1945	Mar. 14, 1945	ac22.3	14,800		June 17, 1961	-	170
				1962	June 1, 1962	9.98	2,480
1946	Mar. 3, 1946	13.99	(b)	1963	July 28, 1963	7.21	915
1947	Mar. 27, 1947	22.16	(b)		Aug. 2, 1963	-	915

a Backwater from ice.
b Not determined.
c Occurred on previous day.
d Release of water when ice jam broke.
e Occurred on following day.

3492. West Branch Long Lake Creek near Hazelton, N. Dak.

Location.--Lat 46°29'10", long 100°09'20", on south line sec.19, T.135 N., R.75 W., at culverts on State Highway 34, 5.9 miles east of Hazelton.

Drainage area.--16.5 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 300 cfs and extended above on basis of culvert and slope-area measurements at 798 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 11, 1955	a5.45	140	1960	March 1960	a7.8	500
1956	June 6, 1956	7.92	798	1961	-	-	0
1957	Feb. 28, 1957	a3.91	-	1962	Mar. 21, 1962	6.60	120
	May 1957	3.43	.1	1963	March 1963	-	2
1958	Feb. 25, 1958	4.50	43	1964	May or June, 1964	4.04	13
1959	-	-	0				

a Backwater from ice or snow.

3495. Apple Creek near Menoken, N. Dak.

Location.--Lat 46°47'40", long 100°39'25", in NW¼NE¼ sec.9, T.138 N., R.79 W., on left bank 75 ft downstream from bridge on former U.S. Highway 10, 4 miles upstream from Hay Creek, 6.3 miles west of Menoken, and 6.4 miles east of Bismarck.

Drainage area.--1,680 sq mi, approximately, of which about 1,180 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 1, 1953; recording thereafter. Gage on upstream side of bridge prior to Sept. 30, 1953. At high stages steel of bridge becomes submerged causing a difference in stage above and below bridge. Stages have been corrected to equivalent stages below bridge in listing of peak stage. Datum of gage is 1,638.61 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 10, 1946	a12.66	(b)	1954	Feb. 11, 1954	a6.64	-
1947	Mar. 26, 1947	a13.20	800		June 8, 1954	6.88	275
	Apr. 15, 1947	7.7	308	1955	Mar. 14, 1955	7.3	225
1948	Apr. 7, 1948	15.80	2,340	1956	Mar. 30, 1956	a10.6	440
1949	Apr. 5, 1949	a12.4	750		Apr. 8, 1956	10.82	665
1950	Apr. 7, 1950	a15.00	c560	1957	Mar. 25, 1957	a7.25	260
	Apr. 18, 1950	17.07	6,750		June 7, 1956	6.67	260
	May 14, 1950	16.0	2,720	1958	Mar. 28, 1958	a10.56	460
1951	Apr. 7, 1951	16.13	3,200	1959	Mar. 24, 1959	a7.26	170
	Sept. 2, 1951	7.4	292	1960	Mar. 29, 1960	a14.21	960
1952	Apr. 5, 1952	a15.87	1,540	1961	Nov. 9, 1960	2.16	13
	June 11, 1952	6.99	255				
	July 1, 1952	9.66	523	1962	Mar. 29, 1962	a10.96	540
1953	Mar. 23, 1953	a6.40	-	1963	June 6, 1963	11.04	632
	May 30, 1953	8.7	415				
	June 16, 1953	14.59	1,160				

a Backwater from ice. b Not determined. c About.

3500. Cannonball River at Regent, N. Dak.

Location.--Lat 46°26', long 102°33', NE¼NE¼ sec.13, T.134 N., R.95 W., on right bank 400 ft upstream from bridge on county highway and 0.3 mile north of Regent.

Drainage area.--580 sq mi, approximately.

Gage.--Recording. Datum of gage is 2,422.90 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,100 cfs and extended to 20,300 cfs on basis of slope-area measurement at site 4 miles downstream.

Bankfull stage.--14 ft.

Historical data.--Flood of Apr. 16, 1950, is maximum known.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Apr. 16, 1950	26.1	20,300	1957	May 31, 1957	5.73	409
					June 22, 1957	17.35	6,040
1951	Mar. 22, 1951	a10.05	1,300		July 3, 1957	6.96	680
					July 13, 1957	7.31	774
1952	Apr. 7, 1952	15.77	5,420				
	May 26, 1952	10.40	-	1958	Mar. 26, 1958	a8.7	800
	June 23, 1952	11.85	-		June 16, 1958	6.72	645
	Aug. 27, 1952	10.78	-				
				1959	Mar. 21, 1959	10.38	1,910
1953	June 15, 1953	14.07	4,230				
	June 20, 1953	7.48	864	1960	Mar. 22 or 25, 1960	b8	b900
1954	Apr. 6, 1954	9.59	1,690				
	Aug. 26, 1954	8.34	1,200	1961	May 26, 1961	5.2	270
1955	June 29, 1955	8.27	1,170	1962	Aug. 9, 1962	9.65	1,600
	Aug. 6, 1955	5.84	464				
				1963	June 7, 1963	7.69	899
1956	Mar. 20, 1956	a7.85	-		July 8, 1963	6.19	450
	Aug. 28, 1956	5.93	453				

a Backwater from ice.
b About.

3510. Cannonball River below Bentley, N. Dak.
(Published as "near New Leipzig" prior to 1953)

Location.--Lat 46°21'30", long 102°02'30", in SW¼SW¼ sec.6, T.133 N., R.90 W., on left bank, a quarter of a mile downstream from Thirty Mile Creek, 2 miles north and 1 mile east of Bentley.

Drainage area.--1,140 sq mi, approximately. Prior to Oct. 1, 1951, 1,180 sq mi, approximately, at site 8 miles downstream.

Gage.--Nonrecording prior to Nov. 7, 1947; recording thereafter. At site 8 miles downstream at datum 2,222.90 ft above mean sea level, datum of 1929 (levels by Corps of Engineers) prior to Oct. 1, 1951. Altitude of gage is 2,250 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements at site 8 miles downstream below 12,000 cfs and extended above on basis of slope-area measurement at 15,000 cfs and slope-area and contracted-opening measurements at 51,800 cfs. Defined by current-meter measurements at present site below 8,000 cfs.

Bankfull stage.--18 ft.

Historical data.--Flood of Apr. 17, 1950, is greatest since at least 1889.

Remarks.--Some diversions and storage in small lakes above station; minor effect on floodflows. Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to Oct. 1, 1946.

Peak stages and discharges of Cannonball River below Bentley, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 25, 1943	26.9	15,000	1953	June 22, 1953	7.47	922
1944	Apr. 7, 1944	19.1	6,600				
1945	Mar. 14, 1945	16.70	4,370	1954	Apr. 7, 1954	e11.11	-
					Apr. 8, 1954	10.90	2,250
1946	July 4, 1946	6.70	231		Aug. 28, 1954	6.72	717
1947	Feb. 17, 1947	a13.9	1,070	1955	Mar. 12, 1955	6.16	-
	Mar. 24, 1947	20.50	8,000		June 30, 1955	7.48	905
	Apr. 12, 1947	12.7	2,280				
	June 23, 1947	14.9	3,390	1956	Mar. 6, 1956	9.50	900
					Mar. 20, 1956	12.29	b1,400
1948	Mar. 1, 1948	a8.52	-				
	Mar. 16, 1948	a17.21	2,500	1957	June 24, 1957	18.80	6,550
	Mar. 20, 1948	a12.16	1,900		July 4, 1957	6.89	747
					July 14, 1957	6.16	567
1949	Mar. 9, 1949	a8.15	-				
	Mar. 28, 1949	a18.3	-	1958	Mar. 27, 1958	a12.50	1,800
	Mar. 30, 1949	17.4	5,350		June 4, 1958	7.03	670
	Aug. 21, 1949	10.10	1,250		June 10, 1958	7.68	839
					June 17, 1958	7.35	766
1950	Mar. 27, 1950	a10.63	-				
	Apr. 17, 1950	34.0	51,800	1959	Mar. 20, 1959	12.58	2,910
	May 12, 1950	8.72	655				
	June 8, 1950	8.20	538	1960	Mar. 23, 1960	a11.64	b2,000
1951	Feb. 26, 1951	a9.24	b600	1961	Aug. 2, 1961	6.82	b160
	Mar. 25, 1951	18.99	6,320				
				1962	May 22, 1962	7.21	667
1952	Apr. 7, 1952	19.81	7,930		May 29, 1962	10.37	1,840
	June 25, 1952	6.90	763		June 16, 1962	6.78	530
	June 28, 1952	7.22	851		Aug. 10, 1962	7.21	667
1953	June 3, 1953	5.84	503	1963	June 8, 1963	7.03	613
	June 17, 1953	15.05	4,300		July 26, 1963	7.65	789

a Backwater from ice.
b About.

3520. Cedar Creek near Haynes, N. Dak.

Location.--Lat 46°09', long 102°28', in W½ sec.20, T.131 N., R.94 W., on left bank 30 ft downstream from new bridge on State Highway 8 and 12½ miles north of Haynes.

Drainage area.--553 sq mi.

Gage.--Nonrecording on former bridge 400 ft upstream, at same datum prior to May 20, 1951; recording thereafter. Altitude of gage is 2,470 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 7,200 cfs and extended above on basis of slope-area measurement at 26,900 cfs at site 9 miles upstream.

Bankfull stage.--14 ft.

Remarks.--Maximum discharge of 1950 determined at site 9 miles upstream and converted to station site on basis of a drainage-area relation. Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Apr. 16, 1950	a23	27,400	1955	July 29, 1955	9.40	435
1951	Mar. 27, 1951	b14.2	1,000	1956	Mar. 18, 1956	b9.60	350
1952	Apr. 7, 1952	21.25	7,870	1957	June 25, 1957	17.30	2,390
1953	May 29, 1953	15.19	1,480		July 26, 1957	12.29	859
	June 16, 1953	16.84	2,140	1958	June 5, 1958	11.4	750
	June 21, 1953	15.19	1,480		June 10, 1958	11.6	780
					June 16, 1958	15.10	1,450
1954	Apr. 9, 1954	11.04	696		June 18, 1958	13.09	1,020
	Aug. 26, 1954	12.61	946				

a About.
b Backwater from ice.

Peak stages and discharges of Cedar Creek near Haynes, N. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Mar. 20, 1959	13.07	900	1962	Aug. 12, 1962	7.53	255
1960	Mar. 25, 1960	b8.30	-	1963	June 9, 1963	7.90	308
	Mar. 26, 1960	b7.12	200				
1961	June 14, 1961	5.78	116				

b Backwater from ice.

3525. Cedar Creek near Pretty Rock, N. Dak.

Location.--Lat 46°02', long 101°49', in S½ sec.33, T.130 N., R.89 W., on left bank on downstream side of county highway bridge, 7 miles north of Keldron, S. Dak., 10½ miles south of abandoned town site of Pretty Rock, and 15 miles downstream from Timber Creek.

Drainage area.--1,340 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 17, 1947; recording thereafter. Datum of gage is 2,155.17 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 7,800 cfs and extended above on basis of slope-area measurement at 48,000 cfs.

Bankfull stage.--16 ft.

Remarks.--Some small diversions for irrigation upstream from gage do not materially affect peak flows. Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to Oct. 1, 1945.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 24, 1943	21.8	14,300	1953	May 31, 1953	7.88	1,290
1944	Apr. 10, 1944	14.9	4,450		June 3, 1953	9.62	1,830
1945	Mar. 15, 1945	a12.71	1,700		June 18, 1953	10.34	2,050
					June 22, 1953	10.77	2,270
1946	June 24, 1946	4.95	349				
				1954	Apr. 11, 1954	5.75	588
1947	Feb. 17, 1947	a10.78	1,040		Aug. 30, 1954	5.75	588
	Feb. 21, 1947	a9.15	533				
	Mar. 24, 1947	a17.50	3,300	1955	June 30, 1955	4.25	221
	Apr. 3, 1947	a5.85	564				
	Apr. 14, 1947	9.12	1,760	1956	Mar. 20, 1956	a10.79	1,400
	June 23, 1947	12.7	3,280				
				1957	June 27, 1957	9.42	1,790
1948	Mar. 15, 1948	a14.00	2,000		July 28, 1957	5.86	621
	Mar. 20, 1948	a12.76	1,930				
				1958	June 7, 1958	5.44	513
1949	Mar. 8, 1949	a10.60	980		June 12, 1958	5.71	593
	Apr. 2, 1949	a18.0	3,800		June 18, 1958	6.97	995
					June 20, 1958	6.63	883
1950	Apr. 17, 1950	26.5	48,000				
	June 8, 1950	5.98	657	1959	Mar. 23, 1959	a9.67	1,240
1951	Mar. 26, 1951	a20.89	7,600	1960	Mar. 28, 1960	5.03	324
	June 6, 1951	7.5	1,160				
				1961	June 14, 1961	3.42	57
1952	Apr. 4, 1952	a20.91	-	1962	May 23, 1962	5.72	608
	Apr. 9, 1952	19.31	9,720		May 29, 1962	10.18	2,180
1953	May 29, 1953	11.10	2,440	1963	June 27, 1963	4.13	143

a Backwater from ice.

3536. Louise Creek tributary near Brisbane, N. Dak.

Location.--Lat 46°22', long 101°29', in SW¼SW¼SW¼ sec.34, T.134 N., R.86 W., at culvert on county highway, 2 miles north of Brisbane.

Drainage area.--0.29 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 3 cfs and extended above on basis of culvert measurement at 7.6 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	March 1955	4.34	-	1959	March 1959	a4.69	b10
	June 9, 1955	3.69	8.8	1960	June 1960	4.64	17
1956	March 1956	a4.44	-	1961	Aug. 26, 1961	2.53	.3
	July 1956	3.99	11.5	1962	May 30, 1962	3.18	4.2
1957	March 1957	a3.41	-	1963	June 1963	3.63	8.2
	June 1957	3.13	3.8	1964	June 18, 1964	4.68	18
1958	Mar. 24, 1958	3.55	7.5				

a Backwater from ice or snow.
b Estimated.

3537. Louise Creek tributary near Lark, N. Dak.

Location.--Lat 46°27', long 101°25' in NW¼ sec.7, T.134 N., R.85 W., at culvert on State Highway 21, 1.3 miles southwest of Lark.

Drainage area.--0.76 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 19 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 17, 1956	a3.30	b5.5	1962	Mar. 20, 1962	a3.69	-
1957	June 22, 1957	a2.90	20		March or April 1962	2.49	7
1958	Mar. 24, 1958	a3.00	b10				
1959	March 1959	a4.77	b15	1963	Mar. 4, 1963	a2.75	-
1960	March 1960	4.20	60		June 1963	2.30	2
				1964	May or June 1964	2.77	16
1961	Aug. 26, 1961	3.63	42				

a Backwater from snow, ice, or vegetation.
b About.

3538. Louise Creek tributary No. 2 near Lark, N. Dak.

Location.--Lat 46°27', long 101°20', at section line 2-11, T.134 N., R.85 W., at culvert on State Highway 21, 3.4 miles east of Lark.

Drainage area.--7.70 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 63 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Louise Creek tributary No. 2 near Lark, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	1.84	108	1961	-	-	0
1957	June 1957	1.26	10.5	1962	May or June 1962	2.07	165
1958	April 1958	1.22	8.0				
1959	Mar. 23-24,1959	1.21	7.5	1963	July 31, 1963	1.44	29
1960	March 1960	3.30	-	1964	July 1964	1.28	12

3539. Louise Creek above Flasher, N. Dak.

Location.--Lat 46°27', long 101°15', in SW¼NE¼ sec.4, T.134 N., R.84 W., at bridge on Northern Pacific Railway, 0.7 mile west of Flasher.

Drainage area.--110 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 770 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 11, 1955	3.49	45	1960	Mar. 21, 1960	a9.55	600
1956	Mar. 30, 1956	10.40	946	1961	-	-	0
1957	June 23, 1957	a3.40	27	1962	June 14, 1962	5.96	199
1958	Mar. 26, 1958	6.61	266	1963	June 25, 1963	a3.5	40
1959	March 1959	4.46	89	1964	June 10, 1964	a7.57	380

a Backwater due to ice or vegetation.

3540. Cannonball River at Breien, N. Dak.
(Published as "at or near Stevenson" prior to 1928 and as "near Timmer" 1928-34)

Location.--Lat 46°23', long 100°56', in sec.36, T.134 N., R.82 W., on right bank 600 ft upstream from bridge on State Highway 6, 950 ft downstream from Louise Creek, and 0.5 mile south of Breien.

Drainage area.--4,100 sq mi, approximately. At site used prior to 1935, 3,670 sq mi, approximately.

Gage.--Nonrecording 1906-08, 1916-18, 1922, 1924, 1928-34, at site 7¾ miles upstream at altitude 1,710 ft. Nonrecording 1912-1915 at site 8¾ miles upstream; gage read about 10 ft higher than gage 1 mile downstream. Gage heights prior to 1935 given herein converted to site and datum used prior to 1912 and 1916-34. Recording at present site since 1935. Datum of gage is 1,676.54 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to 1935, defined by current-meter measurements below 3,900 cfs and extended to 11,000 cfs on basis of slope-area and contracted-opening measurements at 94,800 cfs. Subsequent to 1934, defined by current-meter measurements below 20,000 cfs and extended above on basis of slope-area and contracted-opening measurement at 94,800 cfs.

Bankfull stage.--11 ft.

Historical data.--Flood of Apr. 19, 1950, is the greatest known since at least 1900.

Remarks.--Some diversions and storage in several small lakes above station. Discharges given herein converted to present site by a drainage-area relationship. Base for partial-duration series, 2,000 cfs. Only annual peaks prior to Oct. 1, 1934.

Peak stages and discharges of Cannonball River at Breien, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)
1906	June 6, 1906	a10.8	6,760
1907	Feb. 20, 1907	9.8	-
	June 8, 1907	8.4	3,650
1908	Mar. 20, 1908	9.2	4,440
1912	Mar. 28, 1912	a13.0	-
	Apr. 2, 1912	11.5	8,030
1913	Apr. 3, 1913	9.1	4,550
1914	June 27, 1914	9.8	5,450
1915	June 4, 1915	10.5	6,410
1916	Mar. 18, 1916	all	-
	Apr. 13, 1916	8.9	4,120
1917	Apr. 5, 1917	b9.4	-
	Apr. 13, 1917	b6.6	1,680
1918	Mar. 18, 1918	b10.5	3,700
1922	Apr. 7, 1922	9.4	4,650
1924	Apr. 3, 1924	b7.6	-
	Aug. 21, 1924	7.3	2,580
1928	Sept.14, 1928	8.3	3,380
1929	Mar. 18, 1929	11.1	6,890
1930	Feb. 20, 1930	b12.7	-
	Mar. 18, 1930	b9.01	3,400
1931	June 22, 1931	6.08	1,220
1932	June 10, 1932	12.66	11,000
1933	Mar. 20, 1933	b11.82	2,110
1934	Mar. 22, 1934	b3.92	-
	June 8, 1934	3.47	80
1935	June 16, 1935	5.72	2,170
	July 12, 1935	6.80	2,920
1936	Mar. 9, 1936	b6.50	-
	Mar. 10, 1936	5.80	2,230
1937	Mar. 7, 1937	6.04	2,450
	June 6, 1937	10.44	7,270
	June 14, 1937	14.28	14,800
	June 17, 1937	9.30	5,840
	June 22, 1937	8.85	5,210
1938	June 21, 1938	6.07	2,500
	June 27, 1938	6.6	2,920
	July 3, 1938	8.14	4,410
	July 6, 1938	7.80	4,080
	July 9, 1938	8.49	4,850
1939	Mar. 22, 1939	b9.06	4,520
	June 18, 1939	6.67	3,000
	June 28, 1939	5.57	2,120
1940	Mar. 30, 1940	b6.12	-
	Apr. 29, 1940	5.20	1,840
1941	Mar. 10, 1941	b7.2	2,500
	Mar. 27, 1941	8.08	4,690
	June 7, 1941	5.94	2,500
	June 11, 1941	11.56	9,060
1942	May 18, 1942	5.00	1,830
1943	Mar. 1, 1943	b8.20	a2,500
	Mar. 27, 1943	17.4	28,200
	June 3, 1943	5.32	2,030
	June 14, 1943	10.70	7,800
	July 5, 1943	5.5	2,170
1944	Apr. 1, 1944	b12.45	7,500
	Apr. 6, 1944	12.12	10,200
	June 18, 1944	5.99	3,070
	June 21, 1944	6.57	3,620
	June 27, 1944	7.02	4,000
	July 1, 1944	5.84	2,890
1945	Mar. 15, 1945	b11.85	-
	Mar. 16, 1945	10.15	7,000
1946	July 6, 1946	5.6	2,320
1947	Feb. 20, 1947	b9.58	-
	Mar. 26, 1947	b15.0	11,000
	Apr. 15, 1947	6.26	2,990
	June 25, 1947	8.09	4,740
1948	Mar. 17, 1948	b14.9	10,000
	Mar. 20, 1948	13.25	12,500
	Mar. 23, 1948	11.92	9,850
1949	Mar. 7, 1949	6.85	3,400
	Mar. 12, 1949	b7.40	2,900
	Mar. 30, 1949	b11.1	-
	Apr. 1, 1949	10.99	8,320
	May 29, 1949	7.71	4,150
1950	Mar. 25, 1950	b6.51	-
	Apr. 7, 1950	11.50	9,400
	Apr. 19, 1950	22.30	94,800
	May 9, 1950	5.81	2,860
	Aug. 14, 1950	7.0	3,800
1951	Mar. 27, 1951	14.80	17,200
	June 14, 1951	7.03	3,830
	Aug. 30, 1951	7.59	4,390
1952	Apr. 7, 1952	15.42	21,300
1953	Mar. 21, 1953	b10.5	a8,500
	May 29, 1953	10.85	10,100
	June 16, 1953	8.32	5,960
	June 19, 1953	7.35	4,600
	June 24, 1953	6.06	3,130
1954	Apr. 10, 1954	5.06	2,610
1955	Mar. 10, 1955	b3.50	720
1956	Mar. 21, 1956	b11.1	9,000
1957	June 26, 1957	8.93	5,600
1958	Mar. 27, 1958	b8.20	2,000
	Mar. 30, 1958	5.84	3,000
1959	Mar. 17, 1959	b8.12	-
	Mar. 22, 1959	b7.08	3,800
1960	Mar. 27, 1960	7.46	4,100
1961	June 28, 1961	2.22	374
1962	May 31, 1962	6.54	3,700
	June 13, 1962	7.02	4,210
	June 21, 1962	7.34	4,570
1963	Mar. 16, 1963	b4.74	900

a About.
b Backwater from ice.

3545. Beaver Creek at Linton, N. Dak.

Location.--Lat 46°16', long 100°14', on line between secs. 17 and 18, T.132 N., R.76 W., near center of span on downstream side of bridge on U.S. Highway 83, 0.7 mile south of railway station in Linton and 1 mile upstream from Spring Creek.

Drainage area.--717 sq mi, of which about 617 sq mi contributes to surface runoff.

Gage.--Nonrecording. Datum of gage is 1,690.55 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Remarks.--Small diversions above station for irrigation. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Spring 1943	15.5	-	1956	June 6, 1956	12.70	1,350
					June 7, 1956	10.15	740
1950	Mar. 28, 1950	a10.65	-		June 22, 1956	13.40	1,520
	Apr. 7, 1950	16.50	4,500				
	Apr. 17, 1950	15.30	2,640	1957	Mar. 5, 1957	a6.95	-
	May 12, 1950	11.06	965		Apr. 22, 1957	4.28	82
	June 27, 1950	11.73	1,030				
				1958	Feb. 26, 1958	a9.26	472
1951	Mar. 30, 1951	a15.6	-				
	Apr. 1, 1951	15.17	2,550	1959	Mar. 23, 1959	10.80	871
	Apr. 6, 1951	14.10	1,950				
				1960	Mar. 28, 1960	a14.92	2,260
1952	Apr. 8, 1952	17.5	9,800				
				1961	Mar. 7, 1961	a5.02	-
1953	Mar. 22, 1953	a11.35	790		Mar. 17, 1961	a4.80	70
	June 17, 1953	17.05	5,650				
				1962	Mar. 30, 1962	10.48	746
1954	Feb. 11, 1954	a8.55	-		July 6, 1962	12.61	1,370
	June 13, 1954	8.00	396				
				1963	Mar. 22, 1963	a11.18	925
1955	Mar. 15, 1955	9.80	570				
	July 6, 1955	9.95	717				

a Backwater from ice.

3547. Spring Creek near Linton, N. Dak.

Location.--Lat 46°18'40", long 100°13'50", in NE¼NE¼ sec.28, T.133 N., R.76 W., at bridge on county highway, 3 miles north of Linton.

Drainage area.--22.9 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 900 cfs and extended above on basis of contracted-opening measurement at 2,790 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 10, 1955	a5.90	-	1959	Mar. 19, 1959	a5.8	130
	June or July 1955	4.42	72	1960	Mar. 26, 1960	7.05	1,180
				1961	Apr. 19, 1961	1.60	1.0
1956	June 6, 1956	8.18	2,790	1962	May 22, 1962	7.06	1,190
1957	Feb. 27, 1957	a4.34	18	1963	Mar. 20, 1963	a6.50	200
	March 1957	a4.77	-	1964	May or June 1964	5.20	145
1958	Feb. 25, 1958	a5.07	-				
	Mar. 24, 1958	4.52	82				

a Backwater from ice.

3548. Sand Creek near Temvik, N. Dak.

Location.--Lat 46°22'20", long 100°20'40", on north line sec.3, T.133 N., R.77 W., at bridge on county highway, 4.2 miles west of Temvik.

Drainage area.--23.3 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 240 cfs and extended above on basis of culvert measurement at 1,030 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 8, 1955	2.38	96	1959	Mar. 22, 1959	a5.65	30
				1960	Mar. 26, 1960	4.40	1,030
1956	May or June 1956	2.20	65				
				1961	-	-	0
1957	March 1957	a2.01	28	1962	June 18, 1962	4.42	1,670
1958	Feb. 25, 1958	2.68	165	1963	Mar. 19, 1963	2.67	162
	Mar. 24, 1958	2.70	-	1964	Mar. 30, 1964	1.56	17

a Backwater from ice.

GRAND RIVER BASIN

3549. Spring Creek near Bowman, N. Dak.

Location.--Lat 46°08', long 103°24', in NW¼SW¼ sec.35, T.131 N., R.102 W., at bridge on U.S. Highway 85, 4 miles south of Bowman.

Drainage area.--51.2 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 240 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Spring Creek near Bowman, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 28, 1955	2.61	9	1960	Mar. 20, 1960	5.22	155
1956	-	-	0	1961	-	-	0
1957	June 21, 1957	4.34	90	1962	May 1962	-	a2
1958	June 9, 1958	4.03	75	1963	June 1963	b4.45	95
1959	Mar. 18, 1959	4.50	100	1964	June 18, 1964	5.80	265

a About.
b Backwater from vegetation.

3549.5. Spring Creek tributary near Bowman, N. Dak.

Location.--Lat 46°09', long 103°24', in SW¼SW¼ sec.23, T.131 N., R.102 W., at bridge on U.S. Highway 85, 2.3 miles south of Bowman.

Drainage area.--11.4 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 33 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 28, 1955	6.29	50	1960	June 12, 1960	5.95	22
1956	March or April 1956	5.80	a10	1961	-	-	0
				1962	May 1962	b5.90	14
1957	June 21, 1957	b6.50	a70	1963	May 1963	6.08	35
1958	July 1958	6.58	80	1964	June 18, 1964	6.78	78
1959	Mar. 19, 1959	b6.06	30				

a Estimated.
b Backwater.

3550. North Fork Grand River at Haley, N. Dak.

Location.--Lat 45°57', long 103°07', in southwest corner sec.30, T.129 N., R.99 W., on left bank 10 ft downstream from county highway bridge, 300 ft south of post office at Haley, and 1 mile north of the South Dakota State line.

Drainage area.--509 sq mi.

Gage.--Nonrecording prior to June 19, 1951; recording thereafter. At datum 3 ft higher prior to September 1917. Altitude of gage is 2,664 ft (by barometer). Gage heights given herein converted to present site and datum.

Stage-discharge relation.--Poorly defined by current-meter measurements below 5,800 cfs for 1912-17. Defined by current-meter measurements below 4,500 cfs for 1946-63. Extended on basis of slope-area measurement at 11,200 cfs for 1946-52; since 1952, extended on the basis of one discharge measurement at 8,100 cfs, 50 percent of which was a current-meter measurement and 50 percent was by indirect measurement of flow over roadway outside of main channel.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 400 cfs. Only annual peaks are shown prior to Oct. 23, 1945.

Peak stages and discharges of North Fork Grand River at Haley, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1912	Mar. 29, 1912	10.4	1,400	1952	Apr. 7, 1952	17.03	14,100
1913	Mar. 31, 1913	13.5	8,100				
1914	June 21, 1914	15.0	6,500	1953	May 29, 1953	8.59	578
1915	June 13, 1915	13.3	4,000		June 15, 1953	12.23	2,210
					June 20, 1953	12.58	2,510
1917	Apr. 7, 1917	a9.25	-		July 20, 1953	9.38	789
	Apr. 7, 1917	a8.85	650				
				1954	Apr. 7, 1954	9.07	711
1946	June 29, 1946	5.40	72				
				1955	July 28, 1955	8.38	608
1947	Feb. 16, 1947	a10.30	930				
	Mar. 23, 1947	14.40	5,640	1956	Mar. 16, 1956	a6.18	-
	Apr. 11, 1947	12.28	2,920		Aug. 27, 1956	5.57	60
	June 23, 1947	10.00	1,250				
				1957	June 9, 1957	9.02	681
1948	Feb. 18, 1948	a9.40	b500		June 23, 1957	12.11	1,940
	Mar. 16, 1948	a12	b2,000				
				1958	June 11, 1958	7.27	261
1949	Mar. 24, 1949	a14.0	1,700				
	Mar. 28, 1949	a11.0	1,770	1959	Mar. 19, 1959	9.97	940
1950	Mar. 6, 1950	a11.41	1,710	1960	Mar. 21, 1960	9.49	781
	Apr. 8, 1950	a12.89	1,830		June 10, 1960	11.61	1,980
	Apr. 15, 1950	17.10	11,300	1961	May 23, 1961	8.26	436
	May 8, 1950	7.59	428	1962	June 15, 1962	9.45	723
	May 10, 1950	9.27	931		July 3, 1962	10.17	940
1951	Mar. 25, 1951	a10.22	775				
	July 30, 1951	12.81	2,680	1963	Mar. 3, 1963	a9.20	400

a Backwater from ice.
b About.

3552. Buffalo Creek tributary near Buffalo Springs, N. Dak.

Location.--Lat 46°11', long 103°16', in NE¼NW¼ sec.14, T.131 N., R.101 W., at culvert on U.S. Highway 12, 2 miles west of Buffalo Springs.

Drainage area.--3.39 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 4 cfs and extended above on basis of culvert measurement at 389 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 26, 1955	0.68	0.1	1960	Mar. 20, 1960	1.75	18
1956	Mar. 1, 1956	a1.31	-	1961	-	-	0
	Aug. 6, 1956	1.00	1	1962	June 15, 1962	a3.80	150
1957	Spring 1957	a2.11	33	1963	Feb. 4, 1963	a1.86	-
1958	June 9, 1958	6.17	389		March 1963	1.77	19
1959	March 1959	a1.92	-	1964	June 18, 1964	2.01	24
	March 1959	1.49	10				

a Backwater from snow, ice, or vegetation.

3555. North Fork Grand River near White Butte, N. Dak.

Location.--Lat 45°48'10", long 102°21'35", near line between secs.10 and 11, T.21 N., R.14 E., on left bank 100 ft upstream from county highway bridge, a quarter of a mile upstream from nearest tributary, and 9¾ miles south of White Butte.

Drainage area.--1,190 sq mi, approximately.

Gage.--Nonrecording Nov. 28, 1945, to Aug. 28, 1947, and Apr. 17, 1950, to June 11, 1951; recording Aug. 29, 1947, to Apr. 16, 1950, and after June 11, 1951. Altitude of gage is 2,275 ft (by barometer).

Stage-discharge relation.--Prior to 1952, defined by current-meter measurements below 4,300 cfs and extended above on basis of slope-area measurement at 30,900 cfs. Since 1952, defined by current-meter measurements below 19,000 cfs.

Bankfull stage.--14 ft.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	July 2, 1946	3.44	72	1952	May 27, 1952	5.67	440
1947	Feb. 17, 1947	a7.02	480	1953	May 29, 1953	7.90	2,850
	Mar. 24, 1947	a12.35	7,040		June 16, 1953	8.82	4,270
	Apr. 13, 1947	6.1	1,260		June 21, 1953	8.92	4,430
	June 23, 1947	7.0	1,700		July 22, 1953	6.80	1,460
1948	Feb. 21, 1948	a5.78	500	1954	Apr. 8, 1954	5.55	689
	Feb. 27, 1948	a6.36	600		Aug. 26, 1954	5.17	405
	Mar. 16, 1948	a10.26	-				
	Mar. 17, 1948	7.47	2,000	1955	July 8, 1955	4.20	61
1949	Mar. 8, 1949	a8.26	930	1956	Mar. 20, 1956	a5.67	310
	Mar. 25, 1949	a11.1	-				
	Mar. 28, 1949	a8.46	2,600	1957	June 24, 1957	7.32	2,170
1950	Mar. 7, 1950	a8.50	1,700	1958	June 13, 1958	4.53	206
	Apr. 7, 1950	a6.58	800				
	Apr. 10, 1950	a10.8	2,000	1959	Mar. 21, 1959	6.69	1,670
	Apr. 16, 1950	20.0	30,900				
	May 12, 1950	6.3	915	1960	Mar. 23, 1960	6.01	989
	Aug. 13, 1950	6.09	764		June 11, 1960	6.33	1,320
1951	Mar. 23, 1951	a7.20	-	1961	May 28, 1961	2.95	21
	Mar. 27, 1951	6.58	1,190				
	July 31, 1951	6.97	1,450	1962	July 4, 1962	5.83	844
1952	Apr. 8, 1952	17.0	21,500	1963	June 25, 1963	6.50	1,340

a Backwater from ice.

3560. South Fork Grand River at Buffalo, S. Dak.

Location.--Lat 45°34'35", long 103°32'45", on east line sec.30, T.19 N., R.5 E., on upstream side of bridge on U.S. Highway 85, 0.3 mile south of Buffalo.

Drainage area.--148 sq mi.

Gage.--Nonrecording and crest-stage gage. Datum of gage is 2,839.60 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 540 cfs and extended above on basis of slope-area measurement at 2,780 cfs.

Bankfull stage.--5 ft.

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges of South Fork Grand River at Buffalo, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	July 3, 1956	5.8	738	1962	Mar. 19, 1962	a5.5	170
	Aug. 12, 1956	6.26	968		May 15, 1962	4.21	112
					May 19, 1962	6.62	665
1957	Nov. 6, 1956	a5.55	-		May 22, 1962	6.00	450
	June 22, 1957	4.05	114		May 26, 1962	5.60	322
	Aug. 8, 1957	5.35	480		May 29, 1962	4.55	143
					July 17, 1962	5.10	207
1958	June 9, 1958	5.68	404				
				1963	Feb. 4, 1963	a5.54	140
1959	Mar. 9, 1959	a5.27	-		Apr. 6, 1963	4.60	172
	June 30, 1959	4.14	104		Apr. 27, 1963	5.10	254
					May 11, 1963	5.09	254
1960	Mar. 20, 1960	a5.60	320		June 14, 1963	9.01	2,780
	May 25, 1960	4.75	173		June 17, 1963	8.02	1,750
	June 9, 1960	7.54	1,020				
	Sept. 8, 1960	5.62	312	1964	June 9, 1964	6.88	1,080
1961	Aug. 17, 1961	a6.33	375				

a Backwater from ice.

3560.5. Wide Sandy Creek near Buffalo, S. Dak.

Location.--Lat 45°31', long 103°33', in NW¼ sec.20, T.18 N., R.5 E., at bridge on U.S. Highway 85, 4½ miles south of Buffalo.

Drainage area.--38.8 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 62 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	August 1956	a4.10	23	1961	September 1961	4.15	90
				1962	June 1962	6.66	400
1958	June 8, 1958	4.92	150	1963	June 1963	6.08	320
1959	June 25, 1959	5.25	200	1964	June 9, 1964	5.34	-
1960	June 1960	5.35	220		June 18, 1964	4.95	60

Note.--Backwater from ice or vegetation on all peaks.

3565. South Fork Grand River near Cash, S. Dak.

Location.--Lat 45°38'55", long 102°38'45", in NE¼SW¼SE¼ sec.33, T.20 N., R.12 E., on downstream end of left pier of county highway bridge, 1 mile upstream from Little Nasty Creek, 4 miles north of Cash, 10 miles south of Lodgepole, 12 miles northwest of Bison, and 16 miles downstream from Big Nasty Creek.

Drainage area.--1,350 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 25, 1946; recording and nonrecording thereafter. Altitude of gage is 2,416 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs and extended above on basis of slope-area measurement at 27,000 cfs.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges of South Fork Grand River near Cash, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Feb. 26, 1946	a5.11	-	1953	Mar. 14, 1953	a6.31	-
	May 25, 1946	5.5	1,040		May 29, 1953	6.11	1,360
	June 13, 1946	4.95	686		June 16, 1953	6.36	1,580
					June 20, 1953	7.02	2,160
1947	Feb. 17, 1947	a8.6	1,120		July 21, 1953	7.11	2,240
	Mar. 22, 1947	a14.35	-				
	Mar. 23, 1947	11.2	8,000	1954	Apr. 7, 1954	5.30	752
	Mar. 25, 1947	5.9	1,380				
	Mar. 28, 1947	4.75	576	1955	Mar. 11, 1955	a5.55	-
	Apr. 1, 1947	4.9	657		June 29, 1955	5.30	700
	Apr. 11, 1947	6.1	1,570				
	June 21, 1947	5.40	971	1956	Mar. 19, 1956	5.75	1,040
	June 24, 1947	7.34	3,000		July 4, 1956	5.03	512
	June 27, 1947	5.75	1,240				
				1957	June 24, 1957	5.24	638
1948	Feb. 18, 1948	a8.1	2,000		Aug. 2, 1957	5.01	500
	Mar. 14, 1948	a13.1	2,500		Aug. 8, 1957	7.28	2,420
	Mar. 19, 1948	a11.0	1,000				
	May 25, 1948	5.06	746	1958	June 15, 1958	4.73	400
	June 19, 1948	5.02	715				
	July 16, 1948	4.63	523	1959	Mar. 19, 1959	5.47	758
1949	Mar. 8, 1949	a7.15	2,300	1960	Mar. 22, 1960	a6.97	1,610
	Mar. 23, 1949	7.48	3,200		June 10, 1960	8.13	3,190
	Mar. 28, 1949	5.58	1,120		June 14, 1960	5.56	1,040
1950	Mar. 7, 1950	a6.77	1,900	1961	July 25, 1961	4.29	199
	Apr. 7, 1950	10.87	7,000				
	Apr. 15, 1950	15.40	27,000	1962	Mar. 21, 1962	5.38	814
	May 3, 1950	5.28	528		May 20, 1962	5.72	1,220
	May 10, 1950	5.77	1,190		May 23, 1962	5.47	1,250
					July 18, 1962	5.66	1,040
1951	Mar. 25, 1951	a6.34	1,000		Aug. 9, 1962	6.40	1,710
	July 30, 1951	5.25	575				
				1963	Mar. 3, 1963	a6.7	1,450
1952	Feb. 14, 1952	a15.8	-		June 16, 1963	8.19	3,200
	Apr. 2, 1952	11.57	4,690		June 19, 1963	5.94	1,130
	Apr. 6, 1952	13.59	15,600		June 25, 1963	5.09	694

a Backwater from ice.

3575. Grand River at Shadehill, S. Dak.

Location.--Lat 45°45', long 102°12', in NW¼NW¼ sec.30, T.21 N., R.16 E., a quarter of a mile downstream from Shadehill Dam, 1 mile southwest of Shadehill, and 12 miles southwest of Lemmon.

Drainage area.--3,120 sq mi, approximately.

Gage.--Nonrecording prior to Sept. 1, 1947; recording thereafter. At site three-quarters of a mile downstream at datum 6.02 ft lower prior to Oct. 25, 1958. Datum of gage is 2,192.48 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft, at site three-quarters of a mile downstream.

Remarks.--Flow completely regulated by Shadehill Reservoir (usable capacity, 350,769 acre-ft) since July 1, 1950. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Feb. 20, 1943	18.7	(a)	1953	June 22, 1953	8.43	2,830
1944	Apr. 7, 1944	17.2	18,000	1954	Apr. 10, 1954	4.25	252
1945	Mar. 12, 1945	b15.5	-	1955	Sept.20, 1955	3.62	29
	Mar. 14, 1945	-	8,680				
				1956	Mar. 29, 1956	4.02	169
1946	May 25, 1946	5.75	637	1957	June 26, 1957	5.15	542
1947	Mar. 23, 1947	b18.0	16,100	1958	June 18, 1958	3.88	137
1948	Mar. 16, 1948	bc13.5	6,800	1959	Mar. 26, 1959	4.45	362
1949	Mar. 28, 1949	b10.60	4,800	1960	June 16, 1960	4.70	499
1950	Apr. 16, 1950	d21.0	58,000				
				1961	Oct. 16, 1960	4.25	266
1951	Mar. 22, 1951	b4.85	-	1962	Dec. 7, 1962	b3.99	-
	Aug. 30, 1951	-	71		Aug. 26, 1962	-	125
1952	Apr. 9, 1952	10.45	5,150	1963	Sept.18, 1963	4.07	210

a Not determined. b Backwater from ice. c Occurred on preceding day.
d From floodmark upstream from bridge.

3580. Grand River near Wakpala, S. Dak.

Location.--Lat 45°39'40", long 100°38'20", in SE¼SW¼ sec.26, T.20 N., R.28 E., on upstream side of bridge on U.S. Highway 12, 5 miles west of Wakpala, 8 miles upstream from Deep Bank Creek, and 21 miles upstream from mouth.

Drainage area.--5,510 sq mi, approximately.

Gage.--Nonrecording prior to Mar. 12, 1937; Mar. 31, 1944, to June 29, 1948; and subsequent to June 26, 1960. At site 12 miles downstream at different datum prior to Mar. 18, 1918. At site 17 miles downstream at different datum Aug. 26, 1928, to Mar. 30, 1944. Datum of gage is 1,582.87 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,200 cfs for the period 1914-16; below 9,000 cfs for the period 1928-43; below 19,000 cfs for the period 1944-49; and below 80,000 cfs for the period 1950-55.

Bankfull stage.--17 ft, present site and datum.

Remarks.--Regulated by Shadehill Reservoir (usable capacity, 350,769 acre-ft) since July 1, 1950. Records are equivalent at the three sites used during the period of record. Base for partial-duration series, 1,400 cfs. Only annual peaks are shown prior to Oct. 1, 1936, and subsequent to Sept. 30, 1950.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	June 15, 1914	12.4	4,000	1943	Feb. 23, 1943	15.8	13,000
1915	June 18, 1915	18.8	7,600		Mar. 25, 1943	a17.7	-
					Mar. 26, 1943	17.2	15,800
1916	Apr. 20, 1916	10.6	3,260		June 5, 1943	6.70	1,780
					June 9, 1943	6.46	1,590
1929	Mar. 12, 1929	a19.0	-		June 16, 1943	10.66	5,790
	Mar. 14, 1929	12.3	7,630		July 5, 1943	6.40	1,540
1930	Mar. 14, 1930	a20.5	(b)		Sept. 4, 1943	7.55	2,500
1931	June 12, 1931	5.94	843	1944	Apr. 9, 1944	19.5	32,000
1932	June 11, 1932	12.0	7,230		June 19, 1944	13.36	11,500
1933	Mar. 19, 1933	c9.0	(b)		June 23, 1944	12.6	9,950
	May 27, 1933	8.30	2,140		June 28, 1944	11.3	7,410
1934	Mar. 23, 1934	7.26	1,360		July 10, 1944	7.35	1,840
1935	July 24, 1935	9.08	3,800				
				1945	Mar. 11, 1945	a17.3	-
1936	Mar. 10, 1936	7.63	2,010		Mar. 15, 1945	a18.37	10,000
					Mar. 27, 1945	8.65	3,280
1937	Mar. 7, 1937	7.00	1,960		June 8, 1945	8.77	3,540
	Apr. 8, 1937	7.43	2,360				
	Apr. 16, 1937	9.41	4,510	1946	July 4, 1946	6.44	1,000
	June 8, 1937	11.87	8,060				
	June 15, 1937	14.98	13,700	1947	Mar. 25, 1947	17.0	19,000
	June 21, 1937	9.90	5,160		Apr. 14, 1947	7.15	2,090
	July 15, 1937	6.88	1,850		June 8, 1947	8.55	3,550
					June 23, 1947	11.8	12,400
1938	(d)	a6.5	-		June 29, 1947	8.72	4,390
	June 29, 1938	10.06	5,730				
	July 3, 1938	13.92	9,110	1948	Mar. 18, 1948	a12.1	7,700
	July 7, 1938	12.70	7,520		Mar. 19, 1948	a14.0	-
	Sept. 6, 1938	12.10	6,740		Mar. 23, 1948	9.1	4,250
					June 19, 1948	7.6	2,410
1939	Mar. 24, 1939	a14.60	7,000				
	July 8, 1939	10.37	4,600	1949	Mar. 8, 1949	a12.66	8,300
					Mar. 25, 1949	a15.1	9,500
1940	Mar. 31, 1940	a11.60	-		Mar. 28, 1949	11.9	10,200
	Mar. 31, 1940	8.99	2,970		May 2, 1949	7.0	1,660
	Apr. 30, 1940	7.53	1,400		May 30, 1949	7.2	1,950
	July 30, 1940	9.40	3,420				
				1950	Mar. 11, 1950	a7.41	1,700
1941	Mar. 10, 1941	a8.00	1,400		Mar. 26, 1950	a9.38	3,600
	June 8, 1941	11.53	6,030		Apr. 8, 1950	14.19	13,300
	June 13, 1941	13.49	9,100		Apr. 18, 1950	22.75	82,200
					May 10, 1950	8.61	6,010
1942	Apr. 5, 1942	7.84	1,700		Aug. 14, 1950	8.95	4,580
	May 3, 1942	8.97	3,080				
	May 19, 1942	10.43	4,840	1951	Mar. 26, 1951	a11.28	10,000
	June 4, 1942	9.61	3,660	1952	Apr. 1, 1952	a14.0	-
	June 30, 1942	7.61	1,460		Apr. 2, 1952	12.82	17,900
	July 30, 1942	8.85	2,900	1953	June 17, 1953	15.96	32,000

a Backwater from ice. b Not determined. c At least this high. d During period Feb. 28 to Mar. 5, 1938.

Peak stages and discharges of Grand River near Wakpala, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	June 7, 1954	8.73	3,410	1959	Mar. 12, 1959	8.15	1,660
1955	Sept.23, 1955	7.25	755	1960	Mar. 23, 1960	a9.31	3,890
1956	Mar. 18, 1956	a10.95	-	1961	Mar. 2, 1961	a8.49	-
	Mar. 20, 1956	-	6,260		Sept.14, 1961	-	665
1957	May 26, 1957	8.46	2,740	1962	June 14, 1962	11.7	8,360
1958	Mar. 26, 1958	9.38	4,510	1963	Aug. 29, 1963	9.75	3,700

a Backwater from ice.

3584. Claymore Creek tributary No. 2 near Trail City, S. Dak.

Location.--Lat 45°29', long 100°35', in NE¼ sec.31, T.18 N., R.29 E., at culvert on old State Highway 8, 7½ miles east of Trail City.

Drainage area.--0.11 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 1.1 cfs and extended on basis of estimate of peak flow of 12.5 cfs based on culvert geometry.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May or June 1956	3.61	24	1960	Mar. 21, 1960	a3.5	b5
1957	June 24, 1957	3.24	18	1961	Spring 1961	2.67	4.5
1958	March 1958	a4.60	-	1962	May 18, 1962	4.61	-
	Mar. 24, 1958	3.70	25	1963	Mar. 19, 1963	a2.24	1.0
1959	March 1959	a2.48	-	1964	May 5, 1964	2.94	b12.5
	Mar. 10, 1959	2.27	2.5				

a Backwater from ice or snow.
b Estimated.

DEADMAN CREEK BASIN

3585.2. Deadman Creek tributary near Mobridge, S. Dak.

Location.--Lat 45°28', long 103°30', in NW¼ sec.1, T.17 N., R.29 E., at culvert on county highway, 6 miles southwest of Mobridge.

Drainage area.--0.31 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 12 cfs and extended above on basis of culvert measurements at 60.3 and 180 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 18, 1956	4.76	4.0	1961	March 1961	4.63	3.5
1957	May 1957	6.69	48	1962	Feb. 6, 1962	5.98	23
1958	Mar. 24, 1958	5.42	8		Mar. 20, 1962	a7.9	-
1959	March 1959	4.00	1.0	1963	May 1963	4.12	1.2
1960	Mar. 21, 1960	a4.94	4.5	1964	June 17, 1964	a12.07	180

a Backwater.

3587.5. North Fork Moreau River tributary near Redig, S. Dak.

Location.--Lat 45°20', long 103°33', in SE¼ sec.19, T.16 N., R.5 E., at culvert on U.S. Highway 85, 5 miles north of Redig and 17¾ miles south of Buffalo.

Drainage area.--4.00 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 23 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June or July 1956	3.45	14	1961	-	-	0
				1962	May 1962	5.95	-
				1963	June 1963	5.40	-
1958	-	3.15	10	1964	June 1964	4.56	-
1959	Mar. 17, 1959	4.00	20				
1960	Mar. 20, 1960	4.20	22.6				

3590. Moreau River at Bixby, S. Dak.

Location.--Lat 45°08'32", long 102°33'38", in SE¼SW¼ sec.29, T.14 N., R.13 E., on right bank 0.3 mile downstream from county highway bridge, 0.4 mile south of Bixby, and 3½ miles downstream from proposed Bixby damsite.

Drainage area.--1,570 sq mi, approximately.

Gage.--Nonrecording Apr. 17 to June 24, 1948, and Oct. 1, 1950, to Oct. 11, 1952; recording June 25, 1948, to Sept. 30, 1950, and after Oct. 11, 1952. At bridge a quarter of a mile upstream Apr. 17 to June 24, 1948, and Oct. 1, 1950, to Sept. 9, 1952. At site 300 ft below bridge June 25, 1948, to Sept. 30, 1950, and at present site and datum since Sept. 10, 1952. Datum of gage is 2,431.02 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Prior to 1953, defined by current-meter measurements below 12,000 cfs and extended above on basis of slope-area measurement at 15,300 cfs. Since 1953, defined by current-meter measurements below 2,000 cfs and extended above on basis of slope-area measurement at 15,300 cfs.

Bankfull stage.--17 ft.

Remarks.--Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Mar. 10, 1949	a7.80	720	1956	Mar. 21, 1956	a7.39	-
	Mar. 23, 1949	11.0	5,420		July 5, 1956	6.60	1,840
	Mar. 28, 1949	7.55	2,330		Aug. 5, 1956	5.62	1,160
	Apr. 7, 1949	5.25	872		Aug. 13, 1956	5.17	935
1950	Apr. 3, 1950	a13.53	3,500	1957	Aug. 10, 1957	4.98	700
	Apr. 7, 1950	12.74	7,610				
	Apr. 16, 1950	14.65	10,500	1958	June 10, 1958	7.62	2,750
	May 5, 1950	5.24	867		June 18, 1958	5.84	1,410
	May 7, 1950	5.28	889		July 3, 1958	8.46	3,520
	May 11, 1950	6.38	1,520				
1951	Mar. 29, 1951	a5.1	-	1959	Mar. 14, 1959	5.81	1,310
	Aug. 13, 1951	5.60	1,060	1960	Mar. 22, 1960	8.72	3,620
1952	Feb. 11, 1952	a10.34	2,500		May 1960	5.68	1,230
	Apr. 1, 1952	17.8	15,300		June 16, 1960	4.96	840
1953	Mar. 17, 1953	a7.08	1,300	1961	June 16, 1961	5.49	1,110
	May 29, 1953	4.76	722	1962	Mar. 22, 1962	a8.23	1,000
	June 15, 1953	6.36	1,670		May 19, 1962	8.14	3,320
	June 17, 1953	8.03	2,980		May 24, 1962	8.63	3,790
	June 21, 1953	5.47	1,110		May 28, 1962	8.13	3,310
					May 31, 1962	7.76	2,980
1955	Sept.21, 1955	4.56	632		June 23, 1962	5.08	934

a Backwater from ice.

Peak stages and discharges of Moreau River at Bixby, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1963	Mar. 2, 1963	a8.68	1,600	1963	June 16, 1963	9.26	4,390
	June 4, 1963	5.15	950		June 24, 1963	5.40	1,110
	June 8, 1963	4.99	862				

a Backwater from ice.

3595. Moreau River near Faith, S. Dak.

Location.--Lat 45°11'51", long 102°09'12", in NE¼NW¼ sec.10, T.14 N., R.16 E., 500 ft downstream from bridge on State Highway 73, 2⅝ miles downstream from Rabbit Creek, and 13¼ miles northwest of Faith.

Drainage area.--2,660 sq mi, approximately.

Gage.--Nonrecording at site a third of a mile upstream prior to Oct. 5, 1949; nonrecording and crest-stage gage at site 500 ft upstream Oct. 5, 1949, to July 16, 1959; recording thereafter. At datum 1.0 ft higher prior to July 17, 1959. Datum of gage is 2,238.68 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to 1950, defined by current-meter measurements below 5,300 cfs and extended above on basis of slope-area measurement at 26,000 cfs. Since 1950, defined by current-meter measurements.

Bankfull stage.--16 ft.

Remarks.--Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Apr. 9, 1944	20.9	26,000	1952	Feb. 14, 1952	a6.72	1,700
	June 6, 1944	6.7	2,010		Mar. 30, 1952	a20.3	-
	June 14, 1944	6.35	1,710		Apr. 2, 1952	17.2	25,000
	June 18, 1944	19.6	23,000		June 22, 1952	4.8	1,440
	June 24, 1944	9.0	4,200		June 28, 1952	5.5	1,900
	July 13, 1944	7.15	2,500		July 3, 1952	4.1	970
1945	Mar. 15, 1945	11.01	6,280	1953	Mar. 19, 1953	a6.85	2,500
	June 9, 1945	5.4	1,040		May 3, 1953	5.0	1,600
					May 30, 1953	4.8	1,460
1946	May 26, 1946	6.7	2,010		June 15, 1953	14.6	12,700
	June 2, 1946	5.9	1,460		June 18, 1953	9.0	5,110
	June 15, 1946	5.3	984		June 21, 1953	8.3	4,360
	June 21, 1946	7.1	2,370		July 27, 1953	4.0	905
	June 27, 1946	5.2	926				
	June 30, 1946	5.5	1,110	1954	Apr. 7, 1954	4.4	1,050
					May 24, 1954	5.3	1,660
1947	Oct. 8, 1946	5.05	1,010		May 29, 1954	5.02	1,470
	Feb. 16, 1947	a14.4	5,600		June 4, 1954	4.38	1,080
	Mar. 23, 1947	a13.07	-		June 7, 1954	6.10	2,460
	Mar. 23, 1947	a12.5	7,930		June 11, 1954	4.22	980
	Apr. 2, 1947	5.2	984				
	Apr. 12, 1947	5.5	1,170	1955	Sept.22, 1955	4.08	826
	June 21, 1947	9.1	4,300				
	June 24, 1947	9.95	5,160	1956	Mar. 21, 1956	4.70	1,200
	July 11, 1947	6.0	1,610		July 5, 1956	6.28	2,520
					Aug. 6, 1956	4.83	1,340
1948	Mar. 16, 1948	a11.0	1,900		Aug. 13, 1956	4.64	1,220
	Mar. 19, 1948	a10.3	1,900				
	June 20, 1948	6.45	2,010	1957	May 25, 1957	4.31	987
	June 25, 1948	5.1	1,040		Aug. 11, 1957	4.29	973
1949	Mar. 8, 1949	a8.3	2,500	1958	June 11, 1958	6.55	2,340
	Mar. 23, 1949	11.0	6,280		June 19, 1958	5.03	1,180
	Apr. 3, 1949	5.5	1,300		July 4, 1958	7.22	2,900
1950	Apr. 4, 1950	10.1	6,400	1959	Mar. 14, 1959	a4.47	830
	Apr. 7, 1950	13.5	11,000				
	Apr. 17, 1950	18.0	23,000	1960	Mar. 22, 1960	a10.0	3,500
	May 8, 1950	4.87	1,340		May 26, 1960	5.98	1,250
	May 12, 1950	5.62	1,970		June 17, 1960	5.61	1,060
					Aug. 17, 1960	6	1,000
1951	Mar. 26, 1951	a4.83	1,080				
	Aug. 13, 1951	6.50	2,300	1961	June 17, 1961	4.92	743

a Backwater from ice.

Peak stages and discharges of Moreau River near Faith, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Mar. 23, 1962	6.20	1,150	1963	June 3, 1963	5.86	1,450
	May 20, 1962	8.22	2,870		June 5, 1963	5.42	1,190
	May 23, 1962	10.85	5,380		June 9, 1963	5.25	1,090
	May 29, 1962	10.57	5,080		June 18, 1963	8.95	3,550
	June 24, 1962	5.90	975		June 24, 1963	6.26	1,540
1963	Mar. 3, 1963	a9.48	3,000				

a Backwater from ice.

3600. Moreau River near Eagle Butte, S. Dak.

Location.--Lat 45°11'20", long 101°13'05", in NW¼NW¼SW¼ sec.8, T.14 N., R.24 E., on right bank at downstream side of bridge on State Highway 63, 4 miles downstream from Meadow Creek and 13 miles north of Eagle Butte.

Drainage area.--4,320 sq mi, approximately.

Gage.--Nonrecording prior to June 19, 1947; recording thereafter. Altitude of gage is 1,792 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 1,100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Apr. 9, 1944	23.0	27,000	1950	May 9, 1950	8.68	4,100
	June 7, 1944	9.7	5,190				
	June 16, 1944	7.1	2,380	1951	Mar. 27, 1951	a11.50	4,200
	June 19, 1944	17.1	16,900		June 8, 1951	5.65	1,310
	June 26, 1944	9.8	5,300		Aug. 14, 1951	7.50	3,040
	July 14, 1944	7.5	2,780		Aug. 31, 1951	7.40	2,920
1945	Mar. 14, 1945	a13.1	-	1952	Feb. 14, 1952	a10.5	4,070
	Mar. 17, 1945	10.5	6,290		Apr. 4, 1952	21.7	27,400
	June 9, 1945	6.8	2,290		June 29, 1952	5.68	1,440
1946	May 27, 1946	7.0	2,470	1953	Mar. 18, 1953	a10.9	8,160
	June 4, 1946	6.0	1,590		Mar. 22, 1953	10.54	7,880
	June 23, 1946	6.5	2,020		May 2, 1953	6.64	2,730
	June 29, 1946	5.8	1,430		June 9, 1953	7.07	3,040
	July 2, 1946	5.7	1,360		June 15, 1953	22.01	30,300
					June 22, 1953	9.52	6,980
1947	Feb. 16, 1947	a15.0	-		Aug. 21, 1953	5.58	1,650
	Feb. 17, 1947	a12.6	6,840				
	Mar. 22, 1947	a17.86	-	1954	May 25, 1954	5.30	1,460
	Mar. 24, 1947	14.36	10,800		May 29, 1954	5.17	1,360
	Apr. 6, 1947	7.3	2,470		June 5, 1954	4.87	1,120
	Apr. 11, 1947	6.4	1,760		June 8, 1954	6.72	2,990
	June 22, 1947	13.2	10,600		June 11, 1954	6.96	3,090
1948	Mar. 15, 1948	a12.50	-	1955	Sept.25, 1955	3.73	452
	Mar. 17, 1948	a8.24	3,420				
	Apr. 24, 1948	5.71	1,360	1956	Mar. 18, 1956	a9.2	-
	June 22, 1948	6.03	1,590		Mar. 20, 1956	-	b4,500
	July 20, 1948	6.1	1,930		July 6, 1956	5.85	1,980
1949	Mar. 9, 1949	a9.1	3,700	1957	May 26, 1957	7.5	3,400
	Mar. 28, 1949	12.62	9,400				
				1958	June 12, 1958	7.0	2,180
1950	Apr. 8, 1950	14.42	12,500		June 20, 1958	5.48	1,120
	Apr. 18, 1950	20.23	22,200		July 5, 1958	6.45	1,870

a Backwater from ice.
b About.

3605. Moreau River near Whitehorse, S. Dak.

Location.--Lat 45°15'21", long 100°50'33", in SW¼SE¼ sec.17, T.15 N., R.27 E., on left bank 30 ft downstream from bridge, 2½ miles southeast of Whitehorse, 8 miles downstream from Little Moreau River, and 17 miles southeast of Timber Lake.

Drainage area.--4,880 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 23, 1954; recording thereafter. Datum of gage is 1,661.48 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--21 ft.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 1953	a26.2	-	1960	May 25, 1960	13.09	6,080
					June 20, 1960	9.36	3,550
1955	Mar. 9, 1955	6.49	530				
				1961	May 17, 1961	6.34	1,050
1956	Mar. 18, 1956	b12.67	-		June 14, 1961	12.81	5,720
	Mar. 21, 1956	b10.90	5,000		July 29, 1961	6.61	1,190
	July 7, 1956	7.63	1,800				
				1962	Mar. 21, 1962	b11.09	3,000
1957	May 25, 1957	15.7	10,100		May 22, 1962	21.0	17,500
	May 29, 1957	8.70	2,840		May 31, 1962	12.7	5,390
	Sept. 2, 1957	6.69	1,180		June 7, 1962	6.87	1,580
					June 9, 1962	9.37	3,050
1958	Mar. 27, 1958	6.69	1,180		June 13, 1962	14.8	7,340
	June 13, 1958	7.52	1,960		June 17, 1962	14.0	6,540
	June 21, 1958	6.98	1,470		Aug. 10, 1962	11.8	4,690
	July 5, 1958	8.97	3,360				
				1963	June 7, 1963	6.0	1,100
1959	Mar. 12, 1959	7.40	1,780		June 20, 1963	9.15	3,130
					June 24, 1963	6.10	1,140
1960	Mar. 25, 1960	b9.8	3,610		June 27, 1963	6.58	1,340

a About; probably exceeded by flood in 1947.
b Backwater from ice.

3610. Moreau River at Promise, S. Dak.

Location.--Lat 45°20', long 100°36', in sec.17, T.16 N., R.29 E., on upstream side of highway bridge, 170 ft downstream from Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, 0.5 mile downstream from Virgin Creek, and three-quarters of a mile north of Promise.

Drainage area.--5,223 sq mi.

Gage.--Nonrecording 1928 to Nov. 7, 1934, July 21, 1944, to July 11, 1948, and since May 21, 1953; recording Nov. 8, 1934, to July 20, 1944, and July 12, 1948, to May 20, 1953. Datum of gage is 1,587.01 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--17 ft.

Remarks.--Base for partial-duration series, 1,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 14, 1929	11.5	5,780	1941	June 4, 1941	6.64	1,950
	Mar. 24, 1929	11.56	5,850		June 8, 1941	14.36	7,180
	Mar. 28, 1929	8.8	3,750		June 13, 1941	20.04	12,900
	May 31, 1929	8.0	3,870				
	June 2, 1929	8.3	4,290	1942	May 1, 1942	12.73	5,610
	June 7, 1929	7.3	2,990		May 17, 1942	15.43	8,130
					June 6, 1942	17.0	9,730
1930	Feb. 24, 1930	-	a1,400		July 2, 1942	8.95	2,640
	Apr. 19, 1930	5.9	1,640		July 29, 1942	10.37	3,690
	May 9, 1930	5.4	1,390		Aug. 2, 1942	7.88	1,880
	June 24, 1930	9.06	3,980				
				1943	Feb. 23, 1943	20.0	12,900
1931	Apr. 2, 1931	5.30	1,370		Mar. 1, 1943	10.44	4,100
					Mar. 24, 1943	18.30	11,000
1932	Mar. 2, 1932	7.5	2,870		Mar. 28, 1943	17.65	10,300
	Mar. 24, 1932	b8.6	2,240		June 14, 1943	18.43	11,200
	Apr. 28, 1932	8.5	3,570		July 7, 1943	13.0	6,100
	May 3, 1932	9.1	3,990				
	June 2, 1932	5.5	1,530	1944	Apr. 11, 1944	23.2	22,800
	June 4, 1932	7.5	2,870		June 8, 1944	10.34	4,860
	June 8, 1932	5.3	1,410		June 20, 1944	18.75	12,800
	June 12, 1932	11.4	5,600		June 27, 1944	-	(c)
	June 18, 1932	7.5	2,870		July 15, 1944	-	(c)
	June 29, 1932	7.3	2,730				
	Aug. 18, 1932	10.0	4,620	1945	Mar. 14, 1945	b21.08	-
					Mar. 17, 1945	b13.7	6,500
1933	Apr. 24, 1933	6.7	2,310		June 7, 1945	10.7	5,200
	May 15, 1933	5.3	1,410				
	May 26, 1933	16.80	9,960	1946	May 29, 1946	6.45	1,820
					June 5, 1946	6.2	1,660
1934	June 26, 1934	3.60	630		June 24, 1946	6.94	2,220
					June 28, 1946	6.6	1,980
1935	June 6, 1935	9.45	4,200		June 30, 1946	6.1	1,590
	July 10, 1935	8.80	3,780		July 3, 1946	6.2	1,660
	July 22, 1935	5.92	1,770				
				1947	Feb. 16, 1947	b12.5	6,000
1936	June 8, 1936	5.12	1,310		Feb. 18, 1947	b21.4	-
					Mar. 25, 1947	24.4	29,500
1937	Mar. 6, 1937	8.30	3,160		Mar. 30, 1947	b9.6	4,060
	Apr. 7, 1937	5.37	1,380		Apr. 6, 1947	9.7	4,690
	Apr. 15, 1937	6.16	1,830		Apr. 11, 1947	7.1	2,380
	June 7, 1937	12.57	6,300		Apr. 15, 1947	6.1	1,590
	June 16, 1937	15.80	9,100		June 23, 1947	16.0	11,700
	July 15, 1937	11.60	5,500				
	July 18, 1937	11.25	5,190	1948	Mar. 19, 1948	b19.79	a9,000
					Apr. 25, 1948	8.4	2,810
1938	May 23, 1938	5.95	1,600		June 23, 1948	6.4	1,450
	June 24, 1938	10.32	4,500				
	July 8, 1938	6.16	1,710	1949	Mar. 9, 1949	b11.30	a5,000
	Sept. 6, 1938	9.46	3,920		Mar. 26, 1949	b22.05	-
	Sept.10, 1938	6.52	1,950		Mar. 29, 1949	b16.20	11,300
1939	Mar. 24, 1939	b7.67	2,130	1950	Mar. 26, 1950	b11.3	3,200
	June 27, 1939	7.22	2,320		Apr. 8, 1950	18.0	13,600
					Apr. 19, 1950	21.8	20,900
1940	May 3, 1940	4.55	1,060		May 8, 1950	13.1	7,470
	June 9, 1940	4.58	1,060				
				1951	Mar. 28, 1951	b12.78	-
1941	Apr. 30, 1941	5.70	1,710		Mar. 28, 1951	b11.33	a3,600
	June 1, 1941	8.81	3,420		June 20, 1951	7.43	1,970

a About. b Backwater from ice. c Not determined; probably exceeded base discharge.

Peak stages and discharges of Moreau River at Promise, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Aug. 14, 1951	7.8	a2,300	1955	Mar. 10, 1955	b6.90	700
	Aug. 30, 1951	9.02	3,440				
				1956	Mar. 21, 1956	b10.85	5,540
1952	Feb. 16, 1952	b12.8	a5,700		July 8, 1956	8.4	3,160
	Apr. 5, 1952	24.16	36,900				
				1957	May 21, 1957	8.1	2,460
1953	Mar. 23, 1953	13.59	8,730		May 25, 1957	18.5	15,000
	May 2, 1953	8.95	3,700				
	June 10, 1953	10.06	4,810	1958	Mar. 26, 1958	7.80	2,370
	June 15, 1953	23.80	34,300		June 13, 1958	6.72	1,570
	June 21, 1953	11.54	6,400		July 6, 1958	8.30	3,050
1954	June 12, 1954	9.60	4,350				

a About.
b Backwater from ice.

CHEYENNE RIVER BASIN

3860. Lance Creek at Spencer, Wyo.

Location.--Lat 43°22', long 104°16', in sec.14, T.39 N., R.62 W., on right bank three-eighths of a mile north of Spencer, 1 mile upstream from mouth, and 34 miles south of Newcastle.

Drainage area.--2,070 sq mi, approximately.

Gage.--Nonrecording prior to Aug. 14, 1948; recording thereafter. Altitude of gage is 3,750 ft (from map prepared by Army Map Service, Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs.

Bankfull stage.--8 ft.

Remarks.--Diversions above station for irrigation of about 5,700 acres. Natural flow of stream affected by storage in 2,120 small stock and irrigation reservoirs (total capacity, about 12,800 acre-ft). Diversions and storage materially affect peak flows. Base for partial-duration series, 750 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948a/	June 23, 1948	6.40	2,670	1957	May 17, 1957	4.46	956
	July 11, 1948	5.40	1,550		May 25, 1957	6.90	3,820
	July 18, 1948	5.08	1,280		May 31, 1957	4.98	1,330
	Aug. 14, 1948	4.46	792		June 11, 1957	5.52	1,630
					June 22, 1957	4.39	806
1949	Aug. 18, 1949	4.51	786		July 20, 1957	5.17	1,310
					Aug. 17, 1957	6.62	3,400
1950	June 18, 1950	6.36	2,620				
	July 12, 1950	5.15	1,340	1958	June 21, 1958	4.59	1,030
	July 22, 1950	5.18	1,360		July 3, 1958	4.85	922
					July 11, 1958	6.93	3,250
1951	June 19, 1951	4.68	1,040		July 19, 1958	6.82	2,990
	June 23, 1951	5.12	1,340				
	July 2, 1951	6.8	3,190	1959	June 18, 1959	3.71	506
	July 28, 1951	6.63	2,970				
	July 31, 1951	6.7	3,060	1960	June 9, 1960	5.17	1,210
	Aug. 11, 1951	4.93	1,210		July 7, 1960	4.51	784
	Sept. 4, 1951	7.14	3,630				
	Sept. 7, 1951	5.30	1,480	1961	June 14, 1961	5.25	1,190
					Aug. 20, 1961	5.56	1,570
1952	May 23, 1952	6.28	2,510				
	June 28, 1952	8.3	5,250	1962	May 23, 1962	6.47	2,580
	July 12, 1952	5.42	1,580		June 12, 1962	5.96	2,590
	Aug. 12, 1952	4.30	835		May 26, 1962	6.68	3,580
	Aug. 21, 1952	5.17	1,380		June 17, 1962	5.93	2,590
1953	June 20, 1953	3.92	695	1963	June 3, 1963	5.43	1,740
					June 7, 1963	4.45	965
1954	July 14, 1954	5.64	1,930		July 25, 1963	4.70	1,160
	Aug. 5, 1954	5.44	1,770		Sept. 2, 1963	4.49	993

a Period May to September 1948.

3865. Cheyenne River near Spencer, Wyo.
(Published as "South Fork Cheyenne River" October 1949 to September 1951)

Location.--Lat 43°25', long 104°08', in N½ sec.25, T.40 N., R.61 W., on right bank just downstream from old highway bridge, 1¾ miles downstream from Robbers Roost Creek, 7½ miles northeast of Spencer, and 30 miles south of Newcastle.

Drainage area.--5,270 sq mi, approximately.

Gage.--Nonrecording prior to Aug. 22, 1948; recording thereafter. At site 400 ft upstream Aug. 22, 1948, to Oct. 17, 1955. At site 2,500 ft upstream Oct. 18, 1955, to Aug. 1, 1961. At site 2,200 ft upstream Aug. 2, 1961, to Aug. 22, 1962. Altitude of gage is 3,600 ft (from map by Army Map Service, Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 14,000 cfs.

Remarks.--Diversions above station for irrigation of about 17,500 acres. Natural flow of stream affected by 5,400 small reservoirs (total capacity, about 33,900 acre-ft) above station. Diversions and storage materially affect peak flows. Base for partial-duration series, 2,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 24, 1949	5.33	1,810	1956	June 18, 1956	4.85	3,030
1950	June 18, 1950	6.26	3,510	1957	May 25, 1957	5.25	3,480
	July 22, 1950	6.29	3,570		June 11, 1957	4.71	2,840
					Aug. 17, 1957	5.09	3,110
1951	June 19, 1951	4.5	2,140				
	June 23, 1951	5.0	2,950	1958	July 11, 1958	5.66	4,620
	July 28, 1951	5.8	4,040		July 19, 1958	6.14	5,770
	Aug. 1, 1951	6.0	4,230		July 31, 1958	5.57	3,960
	Sept. 4, 1951	6.36	4,370				
	Sept. 8, 1951	5.58	2,630	1959	June 23, 1959	4.16	1,390
1952	May 23, 1952	8.0	7,750	1960	June 9, 1960	3.6	955
	June 28, 1952	8.6	9,840				
				1961	Aug. 20, 1961	3.65	1,420
1953	May 29, 1953	4.85	1,630				
				1962	May 23, 1962	6.52	7,460
1954	Aug. 6, 1954	5.23	1,860		May 27, 1962	8.74	16,000
					June 17, 1962	7.95	12,100
1955	Apr. 12, 1955	5.54	2,850				
	Apr. 15, 1955	5.30	2,350	1963	June 7, 1963	6.25	3,780
	June 3, 1955	5.23	2,210		Sept. 2, 1963	5.62	2,280
	Aug. 8, 1955	8.15	8,110				

3940. Beaver Creek near Newcastle, Wyo.

Location.--Lat 43°32'05", long 104°07'00", in NW¼ sec.18, T.41 N., R.60 W., at highway bridge, 2¼ miles downstream from Sheep Creek and 23 miles south of Newcastle.

Drainage area.--1,320 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 1, 1945; recording thereafter. Altitude of gage is 3,660 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs.

Remarks.--Natural flow of stream affected by 1,350 small reservoirs above station used for storage of stock and irrigation water (total capcity, about 11,000 acre-ft). Diversions above station for irrigation of about 6,000 acres. Diversions and storage materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges of Beaver Creek near Newcastle, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Mar. 27, 1943	14.00	1,840	1954	Aug. 8, 1954	7.13	599
				1955	May 19, 1955	12.48	1,630
1945	June 30, 1945	6.66	529				
				1956	Feb. 25, 1956	9.67	653
1946	July 7, 1946	11.76	1,390	1957	June 11, 1957	11.41	1,440
1947	Feb. 18, 1947	a9.00	-	1958	July 31, 1958	11.16	1,370
	June 21, 1947	-	740	1959	Mar. 21, 1959	a7.97	-
1948	June 17, 1948	12.18	1,480		June 23, 1959	-	494
1949	June 6, 1949	12.10	1,460	1960	Mar. 22, 1960	a7.53	-
1950	Apr. 12, 1950	7.08	574		June 9, 1960	-	579
1951	Sept. 7, 1951	6.90	554	1961	July 8, 1961	11.10	1,360
1952	May 24, 1952	8.97	869	1962	June 16, 1962	19.98	11,900
1953	June 22, 1953	12.98	1,640	1963	June 13, 1963	11.78	1,470

a Backwater from ice.

3950. Cheyenne River at Edgemont, S. Dak.

Location.--Lat 43°18'20", long 103°49'15", in SW¼SE¼SE¼ sec.36, T.8 S., R.2 E., near right bank on downstream side of pier of bridge on U.S. Highway 18 at Edgemont, 300 ft downstream from Chicago, Burlington & Quincy Railroad bridge, and 600 ft upstream from Cottonwood Creek.

Drainage area.--7,143 sq mi.

Gage.--Nonrecording prior to October 1947, and since January 1961; recording October 1947 to January 1961. At datum 2.7 ft lower prior to 1907; gage heights given herein converted to present datum. Datum of gage is 3,416.56 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--6 ft.

Historical data.--Maximum stage known, that of May 1, 1922.

Remarks.--Base for partial-duration series, 1,500 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	July 30, 1905	8.5	13,000	1952	June 28, 1952	7.29	8,940
1920	May 12, 1920	11.0	-	1953	May 31, 1953	3.75	2,050
1922	May 1, 1922	12.0	-	1954	May 22, 1954	5.57	5,150
					Aug. 6, 1954	3.62	1,520
1929	June 3, 1929	7.86	10,500				
1930	Aug. 18, 1930	5.00	4,090	1955	Apr. 12, 1955	4.29	2,360
					Apr. 15, 1955	4.19	2,220
1931	Oct. 4, 1930	4.8	3,690		May 18, 1955	3.94	1,850
1932	June 18, 1932	5.70	5,560		June 4, 1955	3.69	1,520
					Aug. 8, 1955	6.02	5,660
1947	June 22, 1947	4.70	2,800				
				1956	May 29, 1956	3.56	1,560
1948	June 18, 1948	5.15	3,490		June 19, 1956	4.12	2,820
	June 23, 1948	4.24	2,230				
	July 18, 1948	4.60	2,370	1957	May 25, 1957	7.05	7,980
					June 11, 1957	4.82	3,290
1949	June 7, 1949	3.82	1,510		Aug. 17, 1957	4.28	2,480
1950	June 19, 1950	4.00	1,820	1958	July 11, 1958	5.31	4,190
	July 22, 1950	3.81	1,550		July 20, 1958	5.71	5,160
					July 31, 1958	5.68	5,120
1951	June 19, 1951	4.27	2,160				
	June 23, 1951	4.49	2,510	1959	June 24, 1959	3.47	1,450
	July 3, 1951	5.44	4,000				
	July 30, 1951	4.35	2,440	1960	June 10, 1960	3.35	1,320
	Aug. 1, 1951	5.32	3,910				
	Sept. 5, 1951	4.56	2,580	1961	June 14, 1961	3.75	-
	Sept. 8, 1951	4.20	2,090		July 9, 1961	3.50	1,260
1952	May 24, 1952	6.3	a6,700	1962	May 23, 1962	7.45	9,120
	June 4, 1952	4.96	3,820		May 27, 1962	9.17	12,900

a About.

Peak stages and discharges of Cheyenne River at Edgemont, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	June 13, 1962	3.75	2,700	1963	June 5, 1963	3.49	2,190
	June 17, 1962	9.46	13,500		June 7, 1963	3.83	2,780
	June 21, 1962	3.35	2,350		Sept. 2, 1963	3.15	1,520
	July 5, 1962	3.10	1,730				
	July 14, 1962	5.67	5,900				

3997. Pine Creek near Ardmore, S. Dak.

Location.--Lat 43°11', long 103°38', in NW¼ sec.15, T.10 S., R.4 E., at bridge on State Highway 87, 11½ miles north of Ardmore.

Drainage area.--5.47 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 30 cfs and extended above on basis of contracted-opening measurement at 1,110 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 17, 1956	7.17	1,110	1961	July 29, 1961	5.32	295
1957	May 25, 1957	7.00	1,020	1962	June 16, 1962	7.72	1,440
1958	July 12, 1958	6.17	590	1963	July 23, 1963	5.43	325
1959	July 13, 1959	7.16	1,110	1964	June 21, 1964	7.11	1,080
1960	April 1960	2.44	8				

4000. Hat Creek near Edgemont, S. Dak.

Location.--Lat 43°14'46", long 103°35'14", in SW¼SE¼SE¼ sec.24, T.9 S., R.4 E., on left bank at downstream side of bridge on State Highway 87, 2 miles upstream from mouth, 2 miles west of Heppner, and 12¼ miles southeast of Edgemont.

Drainage area.--1,044 sq mi.

Gage.--Nonrecording prior to May 1951; recording thereafter. At site 1,000 ft downstream at different datum April 1905 to April 1906. Datum of gage is 3,295.71 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to 1906, defined by current-meter measurements below 85 cfs and extended by float measurement at 2,000 cfs. Subsequent to 1950, defined by current-meter measurements below 2,600 cfs and extended above by slope-area measurement at 9,430 cfs. Large shift in 1955 caused by irrigation diversion dam being constructed a mile downstream.

Bankfull stage.--7 ft.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	Aug. 12, 1905	11.0	a9,150	1953	Mar. 13, 1953	4.19	636
1951	June 19, 1951	6.72	1,760	1954	May 23, 1954	11.98	9,430
	July 4, 1951	5.40	1,110				
	July 29, 1951	8.17	2,640	1955	Aug. 12, 1955	9.68	3,670
					Sept.21, 1955	8.25	1,790
1952	Mar. 10, 1952	b6.21	-				
	June 5, 1952	6.75	1,790	1956	Dec. 24, 1955	b6.64	-
	June 30, 1952	5.17	1,080		June 18, 1956	5.84	628
1953	Mar. 12, 1953	b4.45	-	1957	May 21, 1957	10.22	3,820

a Annual peak only.
b Backwater from ice.

Peak stages and discharges of Hat Creek near Edgemont, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	May 26, 1957	11.65	5,820	1961	Mar. 21, 1961	c7.95	d200
1958	July 21, 1958	5.60	747	1962	June 12, 1962	7.40	1,120
1959	June 19, 1959	8.22	1,740		June 18, 1962	7.97	1,400
1960	Mar. 22, 1960	2.76	133	1963	June 16, 1963	6.22	734
	June 21, 1960	c5.85	-				

c Backwater from temporary dam.
d About.

4005. Cheyenne River near Hot Springs, S. Dak.

Location.--Lat 43°18'19", long 103°33'43", in SE¼SE¼ sec.31, T.8 S., R.5 E., near right bank on downstream side of bridge on State Highway 87, a quarter of a mile downstream from Cascade Creek and 10 miles southwest of Hot Springs.

Drainage area.--8,710 sq mi, approximately.

Gage.--Recording September 1914 to March 1915 and after June 1954; nonrecording April 1915 to September 1920 and March 1943 to June 1954. At site 3 miles downstream at different datum prior to September 1920. Datum of gage is 3,190.89 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to 1920, defined by current-meter measurements below 19,000 cfs and extended above by slope-area measurement at 114,000 cfs. Subsequent to 1943, defined by current-meter measurements throughout.

Bankfull stage.--20 ft.

Remarks.--Base for partial-duration series, 2,000 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	June 12, 1915	19.7	39,200	1952	June 28, 1952	11.72	9,450
1916	June 21, 1916	7.2	6,140	1953	May 31, 1953	7.57	1,620
1917	May 22, 1917	10.8	16,100				
1918	July 14, 1918	12.0	19,000	1954	May 23, 1954	10.90	7,380
1919	July 5, 1919	8.8	10,300				
1920	May 12, 1920	29.2	114,000	1955	Apr. 12, 1955	8.49	2,750
					Apr. 16, 1955	8.79	3,120
1943	June 14, 1943	10.66	9,140		May 18, 1955	8.11	2,290
1944	July 11, 1944	11.0	9,000		Aug. 9, 1955	10.15	5,150
1945	June 7, 1945	9.0	3,750		Aug. 12, 1955	8.52	2,580
1946	June 19, 1946	9.86	5,770	1956	June 19, 1956	8.59	2,870
1947	June 22, 1947	10.50	7,430				
				1957	May 21, 1957	9.77	4,710
1948	Mar. 16, 1948	7.96	2,360		May 25, 1957	12.78	9,870
	Mar. 20, 1948	7.94	2,210		June 12, 1957	9.71	4,090
	June 18, 1948	9.05	3,750		Aug. 18, 1957	8.49	2,260
	June 24, 1948	8.78	3,020				
	July 19, 1948	8.25	2,520	1958	July 11, 1958	9.57	4,570
					July 20, 1958	10.76	5,610
1949	Feb. 27, 1949	7.93	2,070		July 31, 1958	10.29	4,930
	Mar. 2, 1949	8.54	2,850				
	Mar. 5, 1949	8.20	2,220	1959	June 24, 1959	7.67	1,550
1950	June 19, 1950	7.92	1,930	1960	June 10, 1960	7.28	1,160
1951	June 19, 1951	9.00	3,420	1961	July 10, 1961	7.91	1,030
	June 24, 1951	9.12	3,610				
	July 3, 1951	10.03	5,400	1962	May 24, 1962	12.60	7,510
	July 30, 1951	10.4	6,250		May 28, 1962	15.45	13,500
	Aug. 1, 1951	9.90	5,190		June 3, 1962	9.30	2,120
	Sept. 5, 1951	8.95	3,420		June 13, 1962	9.92	2,950
	Sept. 9, 1951	8.80	3,050		June 18, 1962	16.35	15,500
					July 13, 1962	11.72	5,870
1952	May 24, 1952	10.79	6,950				
	June 4, 1952	9.57	4,290	1963	June 8, 1963	9.56	2,460

4020. Fall River at Hot Springs, S. Dak.

Location.--Lat 43°25'50", long 103°28'35", in NW¼ sec.24, T.7 S., R.5 E., on left bank 30 ft downstream from Seventh Street Bridge in Hot Springs and 6 miles upstream from mouth.

Drainage area.--137 sq mi.

Gage.--Nonrecording at site one block upstream at datum 3.00 ft higher November 1937 to June 2, 1939; recording thereafter. Datum of gage is 3,413.20 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and extended above by weir formula and slope-area measurements at 560, 2,060, 8,000, and 13,100 cfs. Change in relation occurred owing to channel improvements after 1947 flood.

Bankfull stage.--13 ft.

Remarks.--Regulated by Cold Brook Reservoir (capacity, 6,000 acre-ft) since April 1953. Base for partial-duration series, 135 cfs. Only annual peaks are shown prior to 1940.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	Sept. 4, 1938	18.4	13,100	1949	Aug. 17, 1949	1.96	132
1939	June 15, 1939	1.97	103	1950	July 5, 1950	2.57	141
1940	Apr. 27, 1940	3.47	691	1951	Aug. 14, 1951	2.72	a200
	July 11, 1940	3.44	677				
	July 16, 1940	2.16	157	1952	May 18, 1952	2.15	46
	Sept.23, 1940	2.23	179				
	Sept.30, 1940	2.15	154	1953	Sept. 1, 1953	2.44	119
1941	Apr. 13, 1941	3.20	569	1954	May 22, 1954	2.24	65
	Aug. 6, 1941	9.13	4,700				
1942	June 2, 1942	2.29	199	1955	Sept.19, 1955	3.19	558
	June 4, 1942	2.66	339	1956	May 26, 1956	2.25	46
1943	Mar. 23, 1943	3.13	538		June 17, 1956	2.27	-
	May 29, 1943	2.13	146	1957	June 6, 1957	2.23	51
	June 13, 1943	2.50	274				
1944	May 24, 1944	2.30	198	1958	July 2, 1958	3.21	558
	June 12, 1944	2.65	234	1959	June 22, 1959	2.58	188
1945	June 10, 1945	2.65	286	1960	June 11, 1960	2.14	36
	July 26, 1945	2.64	266				
1946	May 2, 1946	2.75	314	1961	June 13, 1961	3.68	755
	July 17, 1946	2.54	232		July 7, 1961	5.90	2,060
					July 30, 1961	4.36	1,140
1947	June 20, 1947	11.12	8,300	1962	May 21, 1962	2.50	148
	July 10, 1947	2.84	439		July 13, 1962	2.96	392
	July 16, 1947	2.39	258				
	July 22, 1947	2.15	172	1963	June 6, 1963	3.73	805
1948	Aug. 13, 1948	5.57	1,720				

a About.

4025. Beaver Creek near Buffalo Gap, S. Dak.

Location.--Lat 43°28'00", long 103°18'20", in NE¼SE¼ sec.5, T.7 S., R.7 E., on left bank 1½ miles south of Buffalo Gap and 4½ miles upstream from mouth.

Drainage area.--130 sq mi, approximately.

Gage.--Nonrecording November 1937 to June 1939; recording thereafter. At site three-quarters of a mile downstream at different datum prior to June 1939. Altitude of gage is 3,150 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 11 cfs and extended to 11,700 cfs by slope-area measurement at site three-quarters of a mile downstream. Defined by current-meter measurements below 20 cfs and extended by drift velocity-area measurement at 500 cfs and slope-area measurement at 2,750 cfs at present site.

Bankfull stage.--7 ft.

Historical data.--Flood of 1927 is greatest known, from information by local residents.

Remarks.--Diversions for irrigation above station may appreciably affect low peaks. Base for partial-duration series, 24 cfs. Only annual peaks are shown prior to 1940.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	-	18.0	-	1950	Aug. 13, 1950	3.81	38
1938	Sept. 4, 1938	16.46	11,700	1951	Feb. 14, 1951	b4.04	-
1939	June 21, 1939	a4.90	65		June 23, 1951	3.85	25
					Sept. 7, 1951	4.68	85
1940	Jan. 26, 1940	b4.22	-				
	Apr. 27, 1940	4.44	116	1952	Jan. 1, 1952	b4.77	-
	July 16, 1940	4.45	102		May 23, 1952	4.01	51
					June 3, 1952	3.67	26
1941	Apr. 13, 1941	6.41	856				
	Apr. 17, 1941	3.98	68	1953	Jan. 16, 1953	b4.16	-
	June 9, 1941	3.61	31		-	-	c11
	June 15, 1941	3.80	43				
	Aug. 7, 1941	4.07	70	1954	Jan. 25, 1954	b4.50	-
					Aug. 20, 1954	6.25	670
1942	Jan. 8, 1942	b4.17	-				
	June 2, 1942	3.95	52	1955	Feb. 19, 1955	b3.74	-
	June 4, 1942	3.87	41		Aug. 10, 1955	10.15	2,750
	July 18, 1942	4.44	91		Sept.20, 1955	4.57	121
	July 27, 1942	4.14	62				
				1956	Dec. 23, 1955	3.39	13
1943	Mar. 17, 1943	b3.77	-		Feb. 1, 1956	b3.73	-
	Mar. 25, 1943	4.05	81				
	Apr. 10, 1943	3.99	72	1957	May 25, 1957	4.08	48
	June 7, 1943	4.16	80		June 13, 1957	5.59	432
	June 13, 1943	4.31	96		June 16, 1957	4.05	47
	June 27, 1943	3.79	30		June 27, 1957	3.82	26
	June 30, 1943	3.78	29				
	July 4, 1943	3.87	35	1958	July 3, 1958	5.76	279
					July 18, 1958	4.84	74
1944	Jan. 30, 1944	b3.70	-		July 30, 1958	6.06	381
	May 25, 1944	3.61	23				
				1959	Aug. 2, 1959	4.45	83
1945	Jan. 1, 1945	b3.81	-				
	June 11, 1945	3.97	64	1960	Dec. 24, 1959	3.67	21
					Mar. 3, 1960	b4.17	-
1946	Feb. 6, 1946	b3.56	-				
	May 2, 1946	4.25	102	1961	Nov. 17, 1960	3.79	16
					Dec. 4, 1960	b4.37	-
1947	Jan. 3, 1947	b3.86	-				
	June 20, 1947	7.36	1,240	1962	May 21, 1962	4.47	34
	June 30, 1947	4.10	87		May 28, 1962	4.82	66
	July 11, 1947	3.84	59		June 17, 1962	4.64	48
	July 22, 1947	5.28	330		July 4, 1962	4.86	71
					July 13, 1962	6.54	601
1948	Feb. 12, 1948	b3.67	-				
	July 14, 1948	3.36	25	1963	June 3, 1963	4.76	62
					June 7, 1963	8.36	1,440
1949	Jan. 20, 1949	b4.45	-		June 15, 1963	5.99	393
	July 14, 1949	3.34	21		July 6, 1963	4.49	40
					July 14, 1963	6.99	829
1950	Feb. 2, 1950	b4.30	-				

a Backwater from downstream tributary.
b Backwater from ice.
c Maximum daily discharge; occurred on many days.

4060. Battle Creek at Hermosa, S. Dak.

Location.--Lat 43°49'40", long 103°11'40", in NE¼SW¼SW¼ sec.32, T.2 S., R.8 E., on right bank 130 ft downstream from Chicago and North Western Railway Co. bridge, three-quarters of a mile south of Hermosa, and 2½ miles downstream from Grace Coolidge Creek.

Drainage area.--178 sq mi.

Gage.--Nonrecording July 1949 to December 1961; recording thereafter. At site half a mile upstream at different datum July 1949 to November 1950. At site 120 ft downstream at present datum November 1950 to December 1961. Altitude of gage is 3,290 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--8 ft.

Remarks.--Base for partial-duration series, 50 cfs. Only annual peaks are shown prior to 1961.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	July 2, 1950	3.01	149	1962	May 22, 1962	6.47	624
					May 26, 1962	5.55	467
1951	June 24, 1951	2.85	163		May 28, 1962	6.10	558
1952	May 22, 1952	14.00	2,950		June 17, 1962	8.55	978
1953	June 19, 1953	5.56	519		June 20, 1962	3.85	240
1954	Mar. 14, 1954	a1.55	-		June 24, 1962	9.60	1,170
	Aug. 26, 1954	1.20	7		July 1, 1962	6.85	688
1955	June 17, 1955	1.37	16		July 13, 1962	12.44	1,820
					July 24, 1962	2.50	61
1956	July 2, 1956	7.90	869		July 26, 1962	2.50	61
1957	July 28, 1957	12.16	1,950		Aug. 1, 1962	2.58	71
1958	May 4, 1958	2.94	153				
1959	June 29, 1959	2.00	34	1963	Apr. 28, 1963	3.89	268
1960	May 27, 1960	4.02	262		June 3, 1963	2.58	71
					June 6, 1963	4.47	348
1961	June 13, 1961	2.96	159		June 16, 1963	7.92	891
	July 6, 1961	2.70	130		June 21, 1963	4.04	260
	July 19, 1961	3.25	190		July 7, 1963	2.55	73

a Backwater from ice.

4067.5. Sunday Gulch near Hill City, S. Dak.

Location.--Lat 43°53'25", long 103°35'20", in NE¼NE¼SW¼ sec.12, T.2 S., R.4 E., at culvert on U.S. Highways 16 and 85A, 3 miles south of Hill City.

Drainage area.--5.72 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 17 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	-	(a)	1961	May 1961	2.46	9
1957	April 1957	3.55	-	1962	June 16, 1962	2.65	15
1958	August 1958	2.70	17	1963	Apr. 10, 1963	3.32	-
1959	-	-	(a)	1964	June 9, 1964	2.88	24
1960	July 11, 1960	2.36	7				

a Discharge less than 1 cfs.

4085. Spring Creek near Hermosa, S. Dak.

Location.--Lat 43°56'35", long 103°09'10", in $SE\frac{1}{4}SE\frac{1}{4}SE\frac{1}{4}$ sec.21, T.1 S., R.8 E., on right bank 150 ft upstream from highway bridge, a quarter of a mile upstream from Chicago and North Western Railway Co. bridge, and $7\frac{1}{2}$ miles north of Hermosa.

Drainage area.--199 sq mi.

Gage.--Nonrecording. Datum of gage is 3,278.30 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 110 cfs and extended above by logarithmic plotting.

Bankfull stage.--4 ft.

Remarks.--Considerable loss in sinkholes in reach 10 to 15 miles upstream from station. Flow regulated by Lake Sheridan (capacity, 12,657 acre-ft), 24 miles upstream. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Aug. 12, 1950	1.54	69	1958	Feb. 22, 1958	a0.82	-
					June 13, 1958	-	4.1
1951	Mar. 9, 1951	a1.26	-	1959	Feb 21,22,Mar 1, 1959	a1.10	-
	June 19, 1951	-	2.0				
1952	May 23, 1952	4.56	580		May 30, 1959	-	1.9
1953	June 19, 1953	2.50	205	1960	Mar. 19, 1960	a2.25	4
1954	Aug. 12, 1954	3.52	378				
1955	(b)	.42	-	1961	July 8, 1961	.60	1.3
	Mar. 30, 1955	-	c.5	1962	July 13, 1962	4.10	500
				1963	June 15, 1963	3.22	350
1956	July 3, 1956	.80	3.8	1964	June 20, 1964	1.24	35
1957	May 25, 1957	2.96	302				

a Backwater from ice.
b Many days.
c Estimated.

4090. Castle Creek above Deerfield Reservoir, near Hill City, S. Dak.
(Published as "above Deerfield Reservoir near Deerfield" prior to October 1953)

Location.--Lat 44°00'50", long 103°49'25", in $SW\frac{1}{4}$ sec.25, T.1 N., R.2 E., on right bank 50 ft downstream from highway bridge, 250 ft downstream from South Fork Castle Creek, 600 ft upstream from high-water line or Deerfield Reservoir, $2\frac{1}{2}$ miles southwest of Deerfield Dam, and 14 miles northwest of Hill City.

Drainage area.--83 sq mi, approximately.

Gage.--Nonrecording at site 50 ft upstream at datum 2.05 ft higher June to August 1948; recording thereafter. Altitude of gage is 5,910 ft (from reservoir elevation).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--5 ft.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges of Castle Creek above Deerfield Reservoir, near Hill City, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 22, 1948	a3.38	-	1957	Jan. 18, 1957	a2.98	-
	June 2, 1949	2.56	48		Aug. 27, 1957	2.49	40
1950	Mar. 8, 1950	a2.97	-	1958	Jan. 22, 1958	a2.85	-
	Apr. 7, 1950	3.28	100		July 18, 1958	2.04	20
	Apr. 14, 1950	3.38	108				
	Aug. 11, 1950	2.74	62	1959	Jan. 7, 1959	a2.72	-
					Apr. 16, 1959	2.13	20
1951	Feb. 10, 1951	a3.46	-				
	Apr. 6, 1951	2.64	55	1960	Mar. 22, 1960	a3.12	-
					Mar. 28, 1960	2.96	68
1952	May 22, 1952	5.81	615				
				1961	Jan. 31, 1961	a2.95	-
1953	Dec. 30, 1952	a3.22	-		June 13, 1961	2.24	25
	Aug. 15, 1953	2.42	37				
				1962	Apr. 15, 1962	3.21	92
1954	Jan. 23, 1954	a3.66	-				
	May 23, 1954	2.18	27	1963	Feb. 2, 1963	a4.12	-
					June 5, 1963	3.53	124
1955	Apr. 10, 1955	a4.64	-		June 15, 1963	2.93	66
	Apr. 16, 1955	2.87	58				
				1964	June 9, 1964	3.52	114
1956	Mar. 24, 1956	a3.25	-				
	May 28, 1956	2.30	32				

a Backwater from ice.

4105. Rapid Creek above Pactola Reservoir, at Silver City, S. Dak.

Location.--Lat 44°05'05", long 103°34'45", in SW¼SE¼ sec.36, T.2 N., R.4 E., on right bank 0.8 mile west of Silver City and 3 miles downstream from Slate Creek.

Drainage area.--292 sq mi.

Gage.--Recording. Datum of gage is 4,620.00 ft above mean sea level (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 980 cfs.

Remarks.--Maximum discharges probably not appreciably affected by regulation at Deerfield Reservoir (usable capacity, 15,143 acre-ft). Base for partial-duration series, 120 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	May 23, 1954	5.64	106	1960	Mar. 23, 1960	6.14	117
1955	Apr. 11, 1955	5.80	146	1961	Mar. 7, 1961	a6.71	-
	July 28, 1955	8.90	1,520		July 7, 1961	5.43	96
1956	Mar. 21, 1956	a7.32	-	1962	May 26, 1962	6.10	218
	Mar. 24, 1956	a6.85	175		June 3, 1962	5.99	189
	May 28, 1956	6.48	146		June 15, 1962	6.62	390
1957	May 25, 1957	5.96	181	1963	Mar. 29, 1963	5.79	144
	Aug. 16, 1957	5.83	152		Apr. 29, 1963	6.27	268
					June 7, 1963	6.32	298
1958	May 31, 1958	5.61	113		June 11, 1963	6.45	341
					June 16, 1963	7.37	715
1959	Mar. 19, 1959	a6.50	-				
	Sept.25, 1959	5.79	146	1964	June 9, 1964	7.16	b635
1960	Mar. 22, 1960	a6.21	-				

a Backwater from ice.
b Annual peak only.

4115. Rapid Creek below Pactola Dam, S. Dak.
(Published as "near Pactola" 1929-31, 1947-53, and as "at Big Bend" 1932-42)

Location.--Lat 44°04'35", long 103°28'55", in SW¼NE¼ sec.2, T.1 N., R.5 E., on right bank 2,000 ft downstream from Pactola Dam, 4 miles upstream from Deer Creek, and 13 miles west of Rapid City.

Drainage area.--320 sq mi, approximately; at site used 1929-31, 319 sq mi; at site used 1932-42, 332 sq mi; and at site used 1947-52, 315 sq mi.

Gage.--Nonrecording April 1929 to March 1932, July 1946 to August 1947; recording April 1932 to December 1942, and after August 1947. At sites 3,500 ft upstream 1929-31; 7 miles downstream 1932-42; and 2 miles upstream 1946-53; all at different datums. Datum of gage is 4,406.00 ft above mean sea level (Bureau of Reclamation bench mark). Discharges given herein converted to present site by drainage-area relationship.

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs 1929-31; below 800 cfs 1932-42; and throughout after 1947.

Bankfull stage.--7 ft.

Historical data.--Flood of May 12, 1920, reached a stage of 7.75 ft at 1932-42 site and datum.

Remarks.--Flow at 1929-31 site affected by power flume, which diverted water from Rapid Creek three-quarters of a mile upstream from gaging station. Peak discharges probably not appreciably affected by regulation at powerplant upstream 1932-39, or by Deerfield Reservoir since 1947. Flow completely regulated by Pactola Reservoir since August 1956. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	May 12, 1920	7.75	-	1949	June 2, 1949	3.59	233
				1950	Apr. 15, 1950	3.55	233
1929	June 3, 1929	-	a794				
1930	Apr. 9, 1930	-	a194	1951	June 14, 1951	2.67	97
				1952	May 22, 1952	6.74	2,190
1931	Apr. 8, 1931	-	a155	1953	June 15, 1953	-	c160
1932	Apr. 24, 1932	3.30	682		Aug. 1, 1953	d6.52	-
1933	May 24, 1933	5.20	1,540	1954	Mar. 13, 1954	b4.86	-
1934	Feb. 1, 1934	b2.04	-		May 23, 1954	-	94
	Feb. 11, 1934	-	117	1955	July 29, 1955	7.36	378
1935	June 1, 1935	2.65	437				
				1956	Dec. 25, 1955	d7.36	-
1936	Apr. 10, 1936	b3.84	-		Mar. 25, 1956	-	178
	Apr. 13, 1936	-	100	1957	Mar. 14, 1957	-	55
1937	July 12, 1937	1.51	84		Aug. 9, 1957	e4.42	-
1938	Jan. 22, 1938	b1.72	-	1958	June 2, 1958	-	84
	Apr. 16, 1938	-	86		Sept.30, 1958	e5.30	-
1939	Apr. 24, 1939	1.30	62	1959	Oct.15-20, 1958	e5.23	-
1940	Feb. 6, 1940	b2.70	-		Aug. 21, 1959	-	90
	Aug. 27, 1940	-	245	1960	July 20, 1960	5.12	112
1941	June 11, 1941	3.34	540	1961	June 11, 1961	-	111
1942	May 16, 1942	3.03	409		July 20, 1961	e5.70	-
				1962	May 18, 1962	-	67
1947	June 23, 1947	5.90	954		Aug. 24, 1962	e5.22	-
1948	June 22, 1948	3.80	248	1963	June 30, 1963	8.16	184

a Combined discharge of Rapid Creek and Dakota Power & Light Co. flume. b Backwater from ice. c Estimated. d Backwater from temporary construction fill downstream. e Backwater from vegetation.

4125. Rapid Creek above Canyon Lake, near Rapid City, S. Dak.

Location.--Lat 44°03'05", long 103°18'50", in NE¼NE¼ sec.18, T.1 N., R.7 E., on right bank at bridge on State Highway 40, 1 mile southwest of city limits of Rapid City and 2¾ miles downstream from Victoria Creek.

Drainage area.--371 sq mi.

Gage.--Nonrecording July 1946 to October 1947; recording thereafter. Datum of gage is 3,407.39 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs.

Bankfull stage.--7 ft.

Remarks.--Peaks prior to 1957 probably not affected appreciably by regulation by Deerfield Reservoir (usable capacity, 15,153 acre-ft); flow regulated by Pactola Reservoir (conservation and flood storage capacity, 99,000 acre-ft) since August 1956. Base for partial-duration series, 230 cfs. Only annual peaks are shown after 1956.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Apr. 1, 1947	a3.59	-	1954	Aug. 12, 1954	2.53	140
	June 23, 1947	5.82	950	1955	Mar. 18, 1955	a3.81	-
1948	June 22, 1948	3.43	245		July 9, 1955	3.31	294
	July 13, 1948	3.43	233		July 29, 1955	3.44	326
1949	Mar. 19, 1949	a4.43	-	1956	Jan. 20, 1956	a3.04	-
	June 3, 1949	3.36	230		May 29, 1956	2.49	130
	Aug. 15, 1949	3.63	290	1957	July 14, 1957	3.84	433
1950	Mar. 30, 1950	a4.37	-	1958	Mar. 13, 1958	a2.70	-
	Apr. 15, 1950	3.33	209		May 30, 1958	-	81
1951	Mar. 27, 1951	a3.81	-	1959	Mar. 15, 1959	a4.11	-
	June 15, 1951	2.62	77		June 30, 1959	-	82
1952	Mar. 24, 1952	a5.00	-	1960	Mar. 18, 1960	a3.47	-
	May 23, 1952	8.08	2,600		July 16, 1960	-	82
1953	Mar. 12, 1953	a2.94	-	1961	Feb. 3, 1961	a3.47	-
	June 16, 1953	2.65	152		July 1, 1961	-	100
1954	Jan. 31, 1954	a3.22	-	1962	July 13, 1962	6.02	1,310
				1963	June 6, 1963	3.91	191
				1964	June 11, 1964	4.09	268

a Backwater from ice.

4140. Rapid Creek at Rapid City, S. Dak.

Location.--Lat 44°05'10", long 103°14'25", in SW¼SE¼ sec.35, T.2 N., R.7 E., on right bank 200 ft downstream from Oskosh Street Bridge in Rapid City and 3.7 miles downstream from Canyon Lake.

Drainage area.--410 sq mi, approximately.

Gage.--Nonrecording June 1903 to November 1906; recording since July 1942. At site 1 mile downstream at different datum prior to 1907. Datum of gage is 3,230.8 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 1,400 cfs and extended above on basis of slope-area measurement at 3,300 cfs.

Bankfull stage.--9 ft.

Remarks.--Peaks prior to 1957 probably not affected appreciably by regulation by Deerfield Reservoir (usable capacity, 15,153 acre-ft) or Canyon Lake (regulated occasionally for recreational purposes); flow regulated by Pactola Reservoir (conservation and flood storage capacity, 99,000 acre-ft) since August 1956. Base for partial-duration series, 180 cfs. Only annual peaks are shown prior to 1943 and after 1956.

Peak stages and discharges of Rapid Creek at Rapid City, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	July 26, 1905	4.65	2,500	1949	June 3, 1949	2.27	276
					July 5, 1949	2.21	286
1906	Aug. 2, 1906	3.5	980		Aug. 15, 1949	2.89	563
1920	May 12, 1920	13.6	-	1950	Apr. 9, 1950	2.13	221
					Apr. 16, 1950	2.20	246
1943	Mar. 26, 1943	2.45	387		Apr. 20, 1950	2.07	209
	Mar. 30, 1943	2.32	329				
	Apr. 11, 1943	2.93	625	1951	Oct. 9, 1951	1.89	143
	June 8, 1943	2.17	266				
	June 13, 1943	3.50	936	1952	Apr. 8, 1952	1.99	183
	June 26, 1943	2.39	356		May 23, 1952	6.20	2,540
	July 9, 1943	2.03	206		June 27, 1952	2.38	198
					July 9, 1952	2.40	208
1944	May 11, 1944	2.22	232				
	May 24, 1944	2.15	204	1953	May 9, 1953	2.46	216
	June 12, 1944	2.30	270		June 14, 1953	2.66	276
	June 17, 1944	2.10	184		June 19, 1953	3.85	824
1945	June 9, 1945	2.24	215	1954	Jan. 10, 1954	a2.48	-
	July 11, 1945	2.15	180		June 10, 1954	2.23	172
	July 22, 1945	2.27	228				
	Aug. 1, 1945	2.56	381	1955	July 9, 1955	3.37	550
	Aug. 4, 1945	2.20	198		July 29, 1955	2.74	285
					Aug. 10, 1955	4.03	878
1946	May 3, 1946	3.19	592				
	June 2, 1946	2.83	395	1956	Oct. 15, 1955	2.32	182
	June 19, 1946	3.30	564		Feb. 2, 1956	a2.48	-
	July 7, 1946	2.76	362				
	July 18, 1946	4.24	1,000	1957	July 14, 1957	3.87	784
				1958	July 19, 1958	2.94	362
1947	Apr. 1, 1947	2.05	187	1959	Dec. 11, 1958	2.23	141
	June 18, 1947	2.47	306	1960	June 20, 1960	2.71	290
	June 24, 1947	3.75	1,170				
	July 23, 1947	2.23	272	1961	June 14, 1961	2.07	115
				1962	July 13, 1962	8.37	3,300
1948	June 22, 1948	2.29	294	1963	June 5, 1963	2.70	418
	July 13, 1948	2.23	283	1964	June 13, 1964	2.35	426
	Aug. 13, 1948	2.67	472				

a Backwater from ice.

4215. Rapid Creek near Farmingdale, S. Dak.

Location.--Lat 43°56'30", long 102°51'15", in $SW\frac{1}{4}SW\frac{1}{4}SW\frac{1}{4}$ sec.19, T.1 S., R.11 E., on right bank at downstream side of highway bridge, 2 miles southeast of Farmingdale and $4\frac{3}{4}$ miles downstream from Antelope Creek.

Drainage area.--602 sq mi.

Gage.--Nonrecording July 1946 to September 1947; recording thereafter. Altitude of gage is 2,700 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Diversions for irrigation of about 10,000 acres above station. Flow regulated by Pactola Reservoir (flood storage capacity, 43,300 acre-ft) since August 1956. Base for partial-duration series, 180 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 21, 1947	8.4	a2,640	1950	Feb. 8, 1950	b4.93	-
					Apr. 1, 1950	b4.12	c200
1948	Feb. 16, 1948	b4.12	-		Apr. 16, 1950	4.00	285
	June 17, 1948	5.80	885		May 9, 1950	4.03	268
	June 22, 1948	5.07	572		Sept.20, 1950	3.87	217
	Aug. 12, 1948	4.16	285				
				1951	Mar. 15, 1951	b4.74	-
1949	Mar. 21, 1949	b6.97	c500		June 23, 1951	3.62	161
	June 3, 1949	4.54	419				
	Aug. 16, 1949	3.60	208	1952	Jan. 30, 1952	b5.02	-

a Annual peak only.
b Backwater from ice.
c About.

Peak stages and discharges of Rapid Creek near Farmingdale, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 22, 1952	6.30	930	1958	June 15, 1958	5.34	496
	May 24, 1952	8.19	1,770		July 19, 1958	7.01	939
	June 28, 1952	3.74	191	1960	Mar. 22, 1960	5.08	439
1953	Apr. 30, 1953	4.05	246		May 27, 1960	4.07	230
	June 16, 1953	3.81	195		Aug. 14, 1960	3.90	199
	June 20, 1953	6.38	962				
	Aug. 2, 1953	8.35	1,790	1961	July 1, 1961	5.40	516
1954	Aug. 11, 1954	3.89	204	1962	May 21, 1962	9.77	2,030
					May 28, 1962	8.91	1,580
1955	Mar. 4, 1955	b4.12	-		June 3, 1962	5.15	237
	July 11, 1955	4.15	267		June 16, 1962	5.85	481
	Aug. 11, 1955	4.92	461		June 25, 1962	7.75	1,140
	Sept.21, 1955	4.50	302		July 1, 1962	6.38	661
					July 4, 1962	5.06	231
1956	July 4, 1956	4.88	449		July 15, 1962	9.13	1,730
	Aug. 10, 1956	3.89	220				
				1963	Mar. 23, 1963	5.32	365
1957	May 20, 1957	7.42	1,090		Apr. 28, 1963	5.05	313
	May 25, 1957	9.39	1,900		May 31, 1963	4.66	244
	June 10, 1957	3.93	188		June 7, 1963	5.11	324
	June 22, 1957	4.27	248		June 16, 1963	6.36	599
	July 15, 1957	5.14	452		June 21, 1963	4.29	185
1958	June 9, 1958	5.25	465				

b Backwater from ice.

4235. Cheyenne River near Wasta, S. Dak.

Location.--Lat 44°04'48", long 102°24'00", in NE¼NE¼NW¼ sec.2, T.1 N., R.14 E., on downstream side of second pier from left bank of bridge or U.S. Highway 16, 200 ft downstream from Chicago and North Western Railway Co. bridge, 3 miles east of Wasta, and 7 miles downstream from Box Elder Creek.

Drainage area.--12,800 sq mi, approximately.

Gage.--Nonrecording prior to 1941; recording thereafter. Datum of gage is 2,262.78 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Prior to 1928, defined below 32,000 cfs by current-meter measurements made by South Dakota State Engineer's office. After 1928, defined by current-meter measurements below 11,000 cfs and extended above on basis of an incomplete discharge measurement at gage height 8.65 ft. Large change occurred at high stages between 1915 and 1928.

Bankfull stage.--14 ft.

Historical data.--Flood in May 1920 reached a stage of about 16 ft, from information and photographs by local residents.

Remarks.--Flow regulated by Angostura Reservoir (capacity, 194,200 acre-ft) since October 1949. Base for partial-duration series, 3,300 cfs. Only annual peaks are shown prior to 1941.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	June 13, 1915	12.5	a34,200	1936	Mar. 4, 1936	c5.28	1,680
				1937	July 14, 1937	8.20	b20,000
1920	May 1920	b16	-	1938	Sept. 7, 1938	6.70	9,500
				1939	May 25, 1939	6.90	10,700
1929	June 2, 1929	8.00	16,800	1940	Feb. 29, 1940	c5.55	-
1930	Feb. 21, 1930	c5.5	-		Apr. 28, 1940	-	3,720
	Apr. 17, 1930	-	5,000				
				1941	Apr. 14, 1941	6.41	7,630
1931	Oct. 6, 1930	4.20	2,560		Apr. 16, 1941	5.50	4,780
1932	May 6, 1932	11.28	46,300		June 10, 1941	8.00	18,200
					June 12, 1941	6.62	8,550
1934	July 27, 1934	5.50	5,300		July 3, 1941	5.23	4,200
1935	June 1, 1935	10.60	43,000		July 14, 1941	6.65	11,400

a Maximum discharge observed during period Oct. 1 to July 2.
b About.
c Backwater from ice.

Peak stages and discharges of Cheyenne River near Wasta, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Oct. 26, 1941	5.72	5,300	1952	Mar. 29, 1952	c6.00	4,200
	Apr. 25, 1942	5.93	6,420		May 22, 1952	8.54	24,700
	May 1, 1942	8.23	20,200		May 26, 1952	4.83	4,550
	May 4, 1942	7.07	11,700		June 4, 1952	6.22	9,580
	May 7, 1942	7.23	12,900				
	May 12, 1942	10.8	44,000	1953	Mar. 10, 1953	c6.45	-
	May 13, 1942	10.8	44,000		Mar. 12, 1953	c4.78	4,010
	May 18, 1942	6.61	10,800		May 1, 1953	5.12	6,050
	June 2, 1942	6.11	7,000		June 20, 1953	6.00	9,480
	June 6, 1942	7.44	14,200		Aug. 3, 1953	5.10	6,310
1943	Mar. 26, 1943	c6.82	-	1954	June 7, 1954	3.66	2,410
	Mar. 27, 1943	4.85	3,850				
	May 30, 1943	5.41	5,480	1955	June 10, 1955	4.52	4,040
	June 7, 1943	5.43	6,360		Aug. 11, 1955	5.40	6,010
	June 10, 1943	6.06	8,870		Sept.20, 1955	9.45	24,300
	June 16, 1943	6.50	11,000				
				1956	Dec. 24, 1955	c9.55	5,000
1944	Apr. 3, 1944	c5.08	-		May 28, 1956	4.34	3,740
	May 25, 1944	4.78	4,230		Aug. 7, 1956	4.17	3,320
	June 12, 1944	8.5	24,300				
	July 12, 1944	6.00	8,640	1957	May 17, 1957	4.52	4,040
					May 20, 1957	9.50	21,200
1945	Mar. 13, 1945	c4.51	-		May 25, 1957	10.42	26,900
	Mar. 25, 1945	5.30	5,830		May 28, 1957	6.36	10,600
	Aug. 4, 1945	4.87	4,380		June 11, 1957	4.14	3,460
					June 13, 1957	4.20	3,580
1946	May 2, 1946	8.71	26,100		June 16, 1957	4.85	5,020
	May 24, 1946	7.14	14,700				
	June 18, 1946	7.34	16,000	1958	June 16, 1958	5.84	7,760
					July 20, 1958	5.56	6,800
1947	June 10, 1947	5.92	8,180		July 31, 1958	4.64	4,570
	June 18, 1947	4.59	3,660				
	June 22, 1947	10.25	40,100	1959	May 5, 1959	6.38	8,710
	June 30, 1947	6.49	11,100				
				1960	Mar. 19, 1960	c4.83	-
1948	Mar. 18, 1948	4.90	b4,500		Mar. 22, 1960	c4.47	3,400
	June 17, 1948	5.20	5,490				
	June 22, 1948	5.48	6,920	1961	June 11, 1961	3.80	2,600
	June 26, 1948	5.28	5,830	1962	May 17, 1962	4.95	3,460
	Aug. 13, 1948	5.03	5,000		May 22, 1962	9.55	20,300
					May 26, 1962	4.92	3,420
1949	Mar. 5, 1949	c8.91	-		May 30, 1962	7.35	10,100
	Mar. 6, 1949	c6.60	8,600		June 17, 1962	10.61	25,400
	Mar. 23, 1949	4.23	3,310		June 21, 1962	7.82	15,100
	May 1, 1949	4.94	4,860		June 24, 1962	4.96	5,590
					July 1, 1962	4.40	3,940
1950	May 9, 1950	5.55	6,760		July 14, 1962	6.54	10,200
1951	June 19, 1951	5.24	5,740	1963	May 31, 1963	4.95	5,090
	June 23, 1951	4.73	4,340		June 7, 1963	6.79	11,000
	Sept. 2, 1951	4.36	3,420		June 16, 1963	8.50	18,100

b About.
c Backwater from ice.

4255. Elk Creek near Elm Springs, S. Dak.

Location.--Lat 44°14'50", long 102°29'55", in NE¼SW¼ sec.1, T.3 N., R.13 E., near center of span on downstream side of highway bridge, 2 miles downstream from small tributary, 5 miles southeast of Elm Springs, and 7 miles upstream from mouth.

Drainage area.--540 sq mi, approximately.

Gage.--Nonrecording; supplementary crest-stage gage since Sept.29, 1954. Datum of gage is 2,304.49 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,100 cfs.

Bankfull stage.--6 ft.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges of Elk Creek near Elm Springs, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	May 1920	a17	-	1956	July 3, 1956	4.00	48
1950	Apr. 7, 1950	5.40	521	1957	May 21, 1957	7.66	2,170
	Apr. 15, 1950	6.10	852		May 26, 1957	8.29	2,690
	May 9, 1950	5.60	656				
				1958	June 16, 1958	6.27	616
1951	Sept. 2, 1951	4.9	328				
				1959	May 29, 1959	3.55	16
1952	Mar. 21, 1952	b8.5	-				
	Mar. 29, 1952	10.61	8,540	1960	June 30, 1960	6.78	796
	May 23, 1952	5.81	434				
	May 25, 1952	6.19	586	1961	-	-	0
1953	Mar. 13, 1953	5.54	453	1962	May 21, 1962	10.60	6,320
	May 1, 1953	5.83	540		May 29, 1962	11.00	7,040
	May 3, 1953	6.83	1,160		June 17, 1962	8.50	3,120
	June 19, 1953	9.86	5,250		July 13, 1962	5.94	470
1954	June 10, 1954	6.25	838	1963	June 17, 1963	6.42	698
1955	Sept.20, 1955	5.10	270				

a Annual peak only (approximate); from information by local residents.
b Backwater from ice.

4260. Belle Fourche River near Moorcroft, Wyo.

Location.--Lat 44°16'30", long 104°58'35", in sec.36, T.50 N., R.68 W., at highway bridge, 1½ miles northwest of Moorcroft and 2 miles upstream from Donkey Creek.

Drainage area.--1,380 sq mi, approximately.

Gage.--Nonrecording. Datum of gage is 4,133.47 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,800 cfs.

Remarks.--Diversions for irrigation of about 200 acres above station do not materially affect peak flows. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	June 1908	a15.0	-	1928	July 19, 1928	8.50	5,770
				1929	Apr. 5, 1929	12.36	9,060
1924	Apr. 7, 1924	-	b12,500	1930	Feb. 19, 1930	5.06	1,140
1925	Aug. 11, 1925	7.8	4,750				
				1931	Oct. 2, 1930	2.02	221
1926	July 1, 1926	6.70	3,200	1932	July 2, 1932	6.30	1,500
1927	Aug. 14, 1927	8.85	6,420				

a About.
b Estimated.

4265. Belle Fourche River below Moorcroft, Wyo.

Location.--Lat 44°18', long 104°58', in SW¼ sec.24, T.50 N., R.68 W., on left bank 100 ft upstream from Trail Creek, three-quarters of a mile downstream from Donkey Creek, and 2.8 miles northwest of Moorcroft.

Drainage area.--1,670 sq mi, approximately.

Gage.--Nonrecording prior to Mar. 28, 1947; recording thereafter. At site 5½ miles downstream at different datum prior to Jan. 17, 1951. Datum of gage is 4,118.4 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 1,700 cfs.

Remarks.--Diversions above station for irrigation of about 5,000 acres. Natural flow of stream affected by numerous small storage reservoirs above station. Diversion and storage probably materially affect peak flows. Only annual peaks are shown prior to 1948. Base for partial-duration series, 360 cfs.

Peak stages and discharges of Belle Fourche River below Moorcroft, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Apr. 3, 1944	9.43	1,240	1955	June 18, 1955	9.27	740
1945	Mar. 14, 1945	a9.42	-		June 29, 1955	10.75	1,000
	Mar. 22, 1945	-	352		Aug. 7, 1955	6.90	444
1946	May 29, 1946	-	b1,100	1956	Mar. 21, 1956	7.68	576
	June 1, 1946	9.51	-		June 17, 1956	8.12	591
1947	Mar. 18, 1947	-	b600		Aug. 12, 1956	9.09	717
	Mar. 18, 1947	a10.2	-	1957	May 26, 1957	7.06	453
1948	Mar. 20, 1948	a10.60	-		June 1, 1957	6.42	376
	June 18, 1948	7.66	740		June 4, 1957	7.73	540
	June 24, 1948	8.18	878		June 22, 1957	6.99	444
	June 29, 1948	8.19	898				
	July 17, 1948	7.09	592	1958	June 15, 1958	7.78	505
					July 5, 1958	8.05	581
1949	Mar. 6, 1949	a10.95	-		July 19, 1958	6.06	356
	June 4, 1949	5.95	370				
	July 11, 1949	7.29	662	1959	July 1, 1959	7.28	419
					Aug. 2, 1959	9.87	789
1950	May 7, 1950	7.06	561				
	May 10, 1950	7.28	581	1960	Mar. 10, 1960	9.12	634
					Mar. 21, 1960	9.84	746
1951	Sept. 5, 1951	9.94	817		July 1, 1960	8.47	417
					Aug. 19, 1960	9.46	526
1952	May 23, 1952	12.30	1,800				
				1961	June 11, 1961	3.86	46
1953	June 16, 1953	10.06	943				
	June 20, 1953	11.33	1,250	1962	Feb. 11, 1962	13.36	2,850
	Aug. 2, 1953	9.97	834		May 18, 1962	10.22	805
	Aug. 4, 1953	8.89	630		May 27, 1962	14.33	4,420
					June 18, 1962	14.11	4,000
1954	June 21, 1954	10.33	852		July 14, 1962	9.08	613
					July 28, 1962	9.23	637
1955	Mar. 11, 1955	11.08	880		Aug. 1, 1962	8.22	491
	Mar. 31, 1955	11.93	1,420		Aug. 24, 1962	7.19	363
	Apr. 2, 1955	6.94	448				
	Apr. 10, 1955	8.33	615	1963	Apr. 30, 1963	7.57	404
	May 18, 1955	11.95	1,430		May 27, 1963	7.85	450
	May 22, 1955	6.42	392		June 4, 1963	12.38	1,800
	June 3, 1955	9.75	815		June 12, 1963	10.82	977

a Backwater from ice.
b Maximum daily.

4280. Belle Fourche River at Hulett, Wyo.

Location.--Lat 44°41'00", long 104°35'40", in sec.12, T.54 N., R.65 W., near right bank on downstream side of pier of bridge at Hulett, 2 miles downstream from Blacktail Creek.

Drainage area.--2,800 sq mi, approximately.

Gage.--Nonrecording prior to Jan. 11, 1950; recording thereafter. Datum of gage is 3,742.04 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,700 cfs.

Bankfull stage.--16 ft.

Historical data.--Maximum stage known since 1882, that of Apr. 8, 1924, from floodmarks, from information by local resident.

Remarks.--Diversions for irrigation of about 13,500 acres above station. Numerous small stockwater and soil conservation reservoirs in drainage basin above station. Only annual observed maximum stages and discharges are shown, except as noted.

Peak stages and discharges of Belle Fourche River at Hulett, Wyo.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Apr. 8, 1924	18.7	-	1943	Mar. 26, 1943	8.75	6,320
				1944	Apr. 4, 1944	8.14	5,190
1929a/	May 31, 1929	8.90	6,230	1945	Mar. 25, 1945	4.63	1,250
1930	June 11, 1930	8.67	6,160				
				1946	Sept. 9, 1946	5.79	1,950
1931	Oct. 4, 1930	3.33	544	1947	Feb. 18, 1947	b5.83	-
1932	Apr. 24, 1932	6.44	3,280		Mar. 22, 1947	5.06	1,420
				1948	Mar. 19, 1948	b7.55	-
1938a/	Sept. 9, 1938	3.60	582		Mar. 24, 1948	5.48	1,850
1939	Mar. 21, 1939	b7.75	(c)	1949	Mar. 22, 1949	7.78	4,570
1940	July 14, 1940	5.25	1,640	1950	Apr. 11, 1950	b5.23	-
					May 11, 1950	5.17	d1,730
1941	June 11, 1941	7.51	4,000				
1942	May 18, 1942	5.44	1,800	1951	Sept. 5, 1951	5.42	d1,810

a Partial year. b Backwater from ice. c Maximum discharge not determined; occurred during period of ice effect. d Momentary maximum.

4285. Belle Fourche River at Wyoming-South Dakota State line

Location.--Lat 44°45'00", long 104°02'45", in NE¼NW¼NW¼ sec.18, T.9 N., R.1 E., on left bank a quarter of a mile downstream from State line, 3½ miles downstream from Oak Creek, and 11 miles northwest of Belle Fourche, S. Dak.

Drainage area.--3,280 sq mi, approximately.

Gage.--Recording. Datum of gage is 3,095.7 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--14 ft.

Remarks.--Flow regulated by Keyhole Reservoir (usable capacity, 199,900 acre-ft) since March 1952. Base for partial-duration series, 1,000 cfs. Only annual peaks are shown after 1951.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Mar. 22, 1947	a14.33	-	1950	May 10, 1950	9.51	2,000
	Mar. 23, 1947	9.89	2,230		May 12, 1950	8.56	1,610
	Apr. 2, 1947	8.27	1,520				
	June 18, 1947	7.46	1,210	1951	Sept. 6, 1951	8.47	1,480
	June 23, 1947	12.51	3,620	1952	Mar. 31, 1952	9.69	2,030
				1953	Aug. 5, 1953	12.68	3,170
1948	Mar. 20, 1948	a12.36	-	1954	Apr. 6, 1954	5.19	389
	Mar. 20, 1948	9.40	2,000	1955	Apr. 12, 1955	8.71	1,490
	Mar. 26, 1948	9.36	2,000				
	June 18, 1948	9.98	2,280	1956	Mar. 9, 1956	a7.12	-
	July 11, 1948	7.85	1,320		Mar. 24, 1956	-	509
				1957	Mar. 1, 1957	a8.45	1,350
1949	Mar. 20, 1949	a11.00	-	1958	Apr. 27, 1958	6.52	728
	Mar. 25, 1949	9.83	2,180	1959	Mar. 23, 1959	7.15	927
	Mar. 29, 1949	7.23	1,030	1960	Mar. 23, 1960	9.64	1,660
	Apr. 8, 1949	7.49	1,140				
	June 5, 1949	7.01	1,030	1961	July 5, 1961	3.75	140
				1962	June 18, 1962	15.59	4,400
1950	Apr. 2, 1950	a7.86	-	1963	Feb. 5, 1963	a8.15	-
	Apr. 7, 1950	8.10	1,440		Apr. 28, 1963	-	985
	Apr. 13, 1950	9.20	1,820				

a Backwater from ice.

4305. Redwater Creek at Wyoming-South Dakota State line
(Published as "near Beulah, Wyo." 1929-31, 1936-37)

Location.--Lat 44°34'30", long 104°02'50", in NW¼NW¼ sec.18, T.7 N., R.1 E., on left bank 800 ft downstream from State line, 3 miles upstream from Crow Creek, and 12 miles southwest of Belle Fourche, S. Dak.

Drainage area.--471 sq mi.

Gage.--Nonrecording at site 2 miles upstream at different datums prior to July 1954; recording thereafter. Altitude of gage is 3,410 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 320 cfs and extended above on basis of slope-area measurement at 2,340 cfs.

Remarks.--Base for partial-duration series, 150 cfs. Only annual peaks are shown prior to 1955.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	May 26, 1929	6.20	515	1959	Dec. 9, 1958	a3.36	-
1930	June 9, 1930	5.30	162		June 25, 1959	2.73	37
1931	July13,14,1931	4.94	68	1960	Mar. 22, 1960	4.18	273
1936	July 13, 1936	7.72	• 650	1961	Jan.16,17,1961	2.75	28
1937	July 17, 1937	11.5	2,000		Jan. 26, 1961	a4.33	-
1955	June 11, 1955	3.87	194	1962	May 23, 1962	5.10	419
					May 26, 1962	4.60	324
1956	Feb. 2, 1956	a3.72	-		June 16, 1962	11.95	2,340
	July 7, 1956	3.70	123		June 20, 1962	6.03	596
					July 12, 1962	4.36	280
1957	Jan. 31, 1957	a4.58	-				
	Aug. 21, 1957	4.01	108	1963	Apr. 29, 1963	4.30	267
1958	July 19, 1958	3.85	186	1964	June 23, 1964	7.04	b798

a Backwater from ice.
b Annual peak only.

4315. Spearfish Creek at Spearfish, S. Dak.

Location.--Lat 44°29'00", long 103°51'15", in SE¼NW¼ sec.15, T.6 N., R.2 E., on right bank in city park in Spearfish, 300 ft downstream from fish hatchery and nearest tributary and 12 miles upstream from mouth.

Drainage area.--168 sq mi.

Gage.--Recording. Altitude of gage is 3,640 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--9 ft.

Historical data.--Flood of June 5, 1904, reached a stage of 7.00 ft, site and datum of former gage near Spearfish, 1 mile upstream (drainage area, 157 sq mi); discharge, about 5,000 cfs.

Remarks.--Regulation by hydroelectric plant and fish hatchery half a mile upstream causes diurnal fluctuation, but since storage capacity is small, daily flows and peak discharges are not affected appreciably. Base for partial-duration series, 125 cfs.

Peak stages and discharges of Spearfish Creek at Spearfish, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 22, 1947	6.73	891	1955	June 11, 1955	5.20	181
1948	June 14, 1948	5.70	336	1956	Feb. 2, 1956	a5.86	-
	June 24, 1948	5.89	417		July 16, 1956	5.61	300
1949	Feb. 13, 1949	a5.70	-	1957	Jan. 25, 1957	a6.94	-
	May 6, 1949	5.32	176		July 14, 1957	5.22	158
1950	Jan. 5, 1950	a6.67	-	1958	July 3, 1958	6.23	571
	May 22, 1950	5.09	116	1959	Jan. 6, 1959	a7.27	-
1951	Feb. 1, 1951	a6.61	-		May 4, 1959	4.95	83
	June 17, 1951	5.37	215	1960	Nov. 14, 1959	a5.92	-
1952	Jan. 24, 1952	a7.29	-		May 10, 1960	5.02	86
	Apr. 27, 1952	5.03	126	1961	Nov. 15, 1960	5.07	100
	May 22, 1952	6.81	947		Jan. 28, 1961	a5.15	-
1953	May 9, 1953	5.26	194	1962	Jan. 23, 1962	a7.13	-
	May 21, 1953	5.07	146		May 22, 1962	6.64	830
	May 28, 1953	5.40	252		June 15, 1962	5.73	216
	June 15, 1953	5.09	144	1963	Jan. 14, 1963	a7.40	-
	June 19, 1953	5.56	301		Apr. 29, 1963	6.47	662
1954	Jan. 17, 1954	a6.39	-		June 16, 1963	5.99	344
	May 30, 1954	5.15	147				
1955	Feb. 24, 1955	a5.54	-	1964	June 9, 1964	7.97	b1,920

a Backwater from ice.
b Annual peak only.

4322.3 Miller Creek near Whitewood, S. Dak.

Location.--Lat 44°29', long 103°44', in SE¼ sec.15, T.6 N., R.3 E., at culvert on U.S. Highway 14-85, 5 miles west of Whitewood.

Drainage area.--6.72 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 130 cfs and extended above on basis of indirect measurement at 275 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	-	0	1961	-	-	0
1957	-	-	0	1962	May 22, 1962	3.10	180
1958	July 2, 1958	2.90	127	1963	Apr. 29, 1963	2.63	64
1959	-	-	0	1964	June 9, 1964	3.48	275
1960	-	-	0				

4330. Redwater River above Belle Fourche, S. Dak.
(Published as "Redwater Creek" prior to 1960)

Location.--Lat 44°40'05", long 103°49'55", in NW¼SE¼ sec.11, T.8 N., R.2 E., on right bank at upstream side of bridge on U.S. Highway 212 in Belle Fourche, a quarter of a mile upstream from Hay Creek and half a mile upstream from mouth.

Drainage area.--920 sq mi.

Gage.--Nonrecording October 1945 to December 1946; recording thereafter. Altitude of gage is 3,000 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs and extended above on basis of slope-area measurement at 16,400 cfs.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 2, 1946	6.3	a1,300	1954	May 31, 1954	4.72	270
	May 24, 1946	6.24	1,260				
	May 31, 1946	8.55	2,550	1955	June 11, 1955	5.35	483
	June 11, 1946	7.35	1,640				
	June 18, 1946	7.40	1,640	1956	Dec. 23, 1955	b8.35	480
	July 3, 1946	5.75	740				
				1957	Feb. 8, 1957	b6.69	-
1947	Feb. 8, 1947	b6.64	-		June 25, 1957	5.28	453
	Mar. 17, 1947	6.13	834				
	June 22, 1947	8.98	2,800	1958	June 15, 1958	5.61	608
					July 4, 1958	5.44	516
1948	Feb. 13, 1948	b7.06	-				
	July 11, 1948	5.73	672	1959	Jan. 4, 1959	b5.84	-
					Mar. 1, 1959	4.56	246
1949	Feb. 24, 1949	b7.11	-				
	Mar. 4, 1949	6.29	985	1960	Mar. 4, 1960	b5.77	-
	Mar. 21, 1949	5.49	587		Mar. 21, 1960	5.50	516
1950	Feb. 2, 1950	b6.21	-	1961	Jan. 26, 1961	b5.62	-
	Apr. 6, 1950	4.83	340		July 27, 1961	4.28	178
1951	Jan. 31, 1951	b5.61	-	1962	May 23, 1962	7.08	1,470
	June 14, 1951	4.63	269		May 25, 1962	6.41	1,020
					May 29, 1962	6.14	874
1952	Jan. 23, 1952	b6.27	-		June 16, 1962	11.69	16,400
	Mar. 28, 1952	5.60	590		June 21, 1962	6.02	794
	May 23, 1952	6.62	1,120		July 4, 1962	6.46	1,040
					July 12, 1962	6.16	868
1953	Mar. 2, 1953	b5.45	-				
	May 29, 1953	5.93	748	1963	Feb. 1, 1963	b7.36	-
	June 20, 1953	6.13	852		Apr. 30, 1963	6.42	1,010
					June 16, 1963	6.10	831
1954	(c)	b9.45	-				

a About.
b Backwater from ice.
c Occurred between Jan. 22 and Feb. 1, 1954.

4335. Hay Creek at Belle Fourche, S. Dak.

Location.--Lat 44°40'05", long 103°50'25", in NW¼SW¼ sec.11, T.8 N., R.2 E., on right bank at intersection of Tenth Avenue and Jackson Street in Belle Fourche, half a mile upstream from mouth.

Drainage area.--121 sq mi.

Gage.--Recording. Datum of gage is 3,005.18 ft above mean sea level (city of Belle Fourche bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs and extended above by logarithmic plotting.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges of Hay Creek at Belle Fourche, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	Apr. 6, 1954	3.55	18	1960	Mar. 20, 1960	4.24	42
1955	Apr. 9, 1955	3.77	29	1961	July 5, 1961	3.87	8.9
1956	Dec. 23, 1955	a3.89	-	1962	May 22, 1962	5.15	97
	July 16, 1956	3.52	15		May 27, 1962	5.37	125
					May 29, 1962	5.65	166
1957	June 22, 1957	4.11	51		June 16, 1962	6.51	348
	June 25, 1957	4.46	132		July 4, 1962	5.27	111
	Sept. 1, 1957	4.49	117		July 12, 1962	4.98	77
1958	Apr. 7, 1958	4.18	63	1963	June 18, 1963	4.66	40
1959	Jan. 22, 1959	a4.43	-	1964	June 22, 1964	7.05	c530
	Feb.15,Mar.2, 1959	-	b2.0				

a Backwater from ice.
b Maximum daily.
c Annual peak only.

4355. Belle Fourche River near Belle Fourche, S. Dak.

Location.--Lat 44°41'30", long 103°49'30", in sec.2, T.8 N., R.2 E., at diversion dam of Belle Fourche irrigation project, 1½ miles downstream from Belle Fourche.

Drainage area.--4,310 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 3,000 ft (from topographic map).

Stage-discharge relation.--Discharge computed as sum of flow over diversion dam, from weir formula, and flow through Inlet Canal, from rated diversion gate openings.

Remarks.--Records furnished by Bureau of Reclamation. Diversion above station for irrigation. Records of peak flow include flow diverted at Belle Fourche diversion dam through Inlet Canal to Belle Fourche Reservoir. Only annual maximum observed discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Apr. 9, 1924	-	22,400	1935	June 2, 1935	-	1,090
1927	May 13, 1927	-	8,250	1936	Mar. 5, 1936	-	1,440
1928	Mar. 12, 1928	-	9,660	1937	July 17, 1937	-	5,350
1929	Apr. 8, 1929	-	15,000	1938	June 28, 1938	-	590
1930	June 9, 1930	-	2,060	1939	Mar. 23, 1939	-	1,070
				1940	June 4, 1940	-	2,700
1931	June 11, 1931	-	848				
1932	Apr. 24, 1932	-	6,310	1941	June 10, 1941	-	8,960
1933	May 25, 1933	-	5,090	1942	May 14, 1942	-	3,740
1934	June 10, 1934	-	596	1943	May 28, 1943	-	5,520

4360. Belle Fourche River near Fruitdale, S. Dak.

Location.--Lat 44°41'25", long 103°44'15", in NW¼NE¼ sec.3, T.8 N., R.3 E., near right bank on downstream side of pier of bridge on U.S. Highway 212, 2½ miles northwest of Fruitdale and 8¾ miles downstream from point of diversion to Belle Fourche Reservoir.

Drainage area.--4,540 sq mi, approximately.

Gage.--Nonrecording prior to Apr. 9, 1947, and Dec. 31, 1958, to Sept. 23, 1959; recording during remainder of period. Altitude of gage is 2,925 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and extended above by logarithmic plotting.

Bankfull stage.--12 ft.

Remarks.--Peak flows materially affected by diversion to Fourche Reservoir and other smaller diversions. Total diversions for irrigation of about 60,000 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 1, 1946	9.7	5,710	1955	Apr. 12, 1955	4.44	597
1947	June 23, 1947	11.03	7,460				
1948	June 18, 1948	6.98	2,720	1956	Dec. 23, 1955	a4.36	b320
1949	Mar. 5, 1949	a9.74	-	1957	Sept. 1, 1957	3.92	144
	Mar. 25, 1949	-	2,280	1958	June 16, 1958	3.93	183
1950	Apr. 6, 1950	a6.78	-				
	May 10, 1950	-	1,530	1960	Mar. 24, 1960	ac6.38	2,530
1951	Sept. 7, 1951	5.66	1,680	1961	Sept.21, 1961	3.64	7
1952	Mar. 31, 1952	6.10	2,280	1962	June 16, 1962	11.25	7,840
1953	Aug. 6, 1953	7.83	4,070	1963	Apr. 30, 1963	5.72	1,580
1954	Nov. 26, 1953	3.50	110				

a Backwater from ice.
b About.
c Occurred on preceding day.

4370. Belle Fourche River near Sturgis, S. Dak.

Location.--Lat 44°30'50", long 103°07'50", in SW¼NE¼ sec.3, T.6 N., R.8 E., near right bank on downstream side of pier of bridge on State Highway 34, half a mile upstream from Bear Butte Creek and 20 miles northeast of Sturgis.

Drainage area.--5,870 sq mi, approximately.

Gage.--Nonrecording October 1945 to October 1946; recording thereafter. Datum of gage is 2,526.13 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 11,000 cfs and extended above by logarithmic plotting.

Remarks.--At a point 70 miles above station, water is diverted to Belle Fourche Reservoir (usable capacity, 185,200 acre-ft) through Inlet Canal. Base for partial-duration series, 1,500 cfs.

Peak stages and discharges of Belle Fourche River near Sturgis, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 24, 1946	13.86	a17,900	1954	May 23, 1954	7.08	3,160
					June 6, 1954	6.55	2,370
1947	Oct. 6, 1946	6.67	2,730		June 21, 1954	5.89	1,610
	Oct. 9, 1946	6.73	2,730	1955	Mar. 10, 1955	c5.73	-
	Feb. 19, 1947	-	b3,000		July 24, 1955	5.24	848
	Mar. 18, 1947	8.23	5,530	1956	July 4, 1956	6.72	2,580
	Mar. 21, 1947	9.46	7,830				
	Mar. 31, 1947	5.91	2,130	1957	Feb. 13, 1957	c6.25	-
	Apr. 5, 1947	7.13	3,770		May 21, 1957	5.62	1,230
	June 23, 1947	12.53	14,400				
1948	Mar. 21, 1948	c9.46	-	1958	June 8, 1958	6.35	1,950
	Mar. 22, 1948	7.77	4,220		June 16, 1958	6.26	1,850
	June 19, 1948	7.61	4,060				
	June 22, 1948	6.53	2,520	1959	Mar. 4, 1959	c6.15	-
					July 16, 1959	5.83	1,380
1949	Mar. 6, 1949	c12.30	b3,500				
	Mar. 23, 1949	-	b5,500	1960	Mar. 22, 1960	c7.20	2,800
1950	Apr. 5, 1950	c10.35	-	1961	June 29, 1961	6.81	2,720
	Apr. 8, 1950	8.27	5,170				
	Apr. 15, 1950	8.12	4,820	1962	May 19, 1962	7.88	2,910
	May 11, 1950	6.53	2,330		May 22, 1962	11.57	7,760
					May 26, 1962	10.10	5,700
1951	June 20, 1951	5.70	1,330		May 30, 1962	11.23	7,280
					June 16, 1962	14.32	11,900
1952	Mar. 28, 1952	c11.97	-		June 19, 1962	9.14	4,420
	Mar. 30, 1952	8.92	6,300		June 25, 1962	7.96	3,000
	May 23, 1952	6.20	1,850		July 4, 1962	8.00	3,040
					July 15, 1962	8.06	3,110
1953	May 29, 1953	7.98	4,620				
	June 16, 1953	9.1	6,640	1963	Apr. 30, 1963	7.61	2,400
	June 20, 1953	8.97	6,390		June 8, 1963	6.94	2,000
	Aug. 4, 1953	7.22	3,350		June 16, 1963	8.80	4,000
	Aug. 6, 1953	7.69	4,120		June 23, 1963	6.86	1,970

a Annual peak only.
b Estimated.
c Backwater from ice.

4371. Boulder Creek near Deadwood, S. Dak.

Location.--Lat 44°23', long 103°39', in SW¼ sec.17, T.5 N., R.4 E., at culvert on U.S. Highway 14, 3½ miles east of Deadwood.

Drainage area.--1.69 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 30 cfs and extended above on basis of culvert computations at 139 and 210 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	-	(a)	1961	-	-	0
1957	May 25, 1957	4.50	24	1962	June 15, 1962	8.46	210
1958	July 2, 1958	7.22	139	1963	Apr. 29, 1963	4.76	34
1959	-	-	(a)				
1960	March 1960	4.13	10				

a Peak stage did not reach bottom of gage; less than 0.5 cfs.

4375. Bear Butte Creek near Sturgis, S. Dak.

Location.--Lat 44°28'50", long 103°16'30", in NW¼SE¼ sec.16, T.6 N., R.7 E., on left bank 1 mile downstream from Spring Creek, 12½ miles northeast of Sturgis, and 17 miles upstream from mouth.

Drainage area.--192 sq mi.

Gage.--Nonrecording at site 1 mile downstream at datum 11.79 ft lower prior to June 25, 1962; recording thereafter. Datum of gage is 2,779.91 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,400 cfs and extended above on basis of indirect measurement at 12,700 cfs.

Bankfull stage.--9 ft.

Historical data.--Flood of May 20, 1883 (maximum known), and one in 1909, were greater than flood of June 16, 1962, from information by local residents.

Remarks.--Only annual peaks are shown prior to 1962. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 24, 1946	12.07	-	1957	May 25, 1957	7.95	645
1947	June 22, 1947	10.20	-	1958	July 5, 1958	2.88	29
1948	Mar. 15, 1948	a5.26	-	1959	July 16, 1958	3.91	106
	June 23, 1948	-	263	1960	Mar. 19, 1960	4.85	204
1949	Mar. 21, 1949	a11.8	-				
	May 28, 1949	-	636	1961	-	-	0
1950	Apr. 5, 1950	a6.45	-				
	Apr. 15, 1950	-	249	1962	May 22, 1962	9.01	807
					May 26, 1962	6.92	483
1951	May 13, 1951	5.92	352		May 30, 1962	5.90	338
1952	May 23, 1952	8.30	701		June 16, 1962	12.45	12,700
1953	June 20, 1953	7.05	560		July 14, 1962	6.70	445
1954	June 7, 1954	4.90	215	1963	Apr. 30, 1963	7.35	549
1955	Apr. 11, 1955	3.62	88		June 16, 1963	6.98	494
1956	May 29, 1956	2.73	20	1964	June 9, 1964	10.00	b2,360

a Backwater from ice.
b Annual peak only.

4380. Belle Fourche River near Elm Springs, S. Dak.

Location.--Lat 44°22'10", long 102°33'55", in NE¼NE¼ sec.29, T.5 N., R.13 E., near right bank on downstream side of pier of highway bridge, 4¼ miles northwest of Elm Springs and 5½ miles downstream from Hay Creek.

Drainage area.--7,210 sq mi, approximately.

Gage.--Nonrecording prior to July 28, 1939; recording thereafter. Datum of gage is 2,171.60 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 27,000 cfs.

Bankfull stage.--15 ft.

Historical data.--Maximum stage known, that of May 1927.

Remarks.--At a point 130 miles above station, water is diverted to Belle Fourche Reservoir through Inlet Canal. Base for partial-duration series, 3,500 cfs. Only annual peaks are shown prior to 1940.

Peak stages and discharges of Belle Fourche River near Elm Springs, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 1927	21.8	-	1948	Mar. 22, 1948	b7.10	-
					Mar. 22, 1948	6.88	8,280
1929	June 3, 1929	11.30	25,500		June 20, 1948	5.29	4,700
1930	June 25, 1930	5.26	5,480		June 23, 1948	4.79	3,630
					Aug. 9, 1948	6.72	7,760
1931	July3or4,1931	8.4	15,100				
1932	Apr. 25, 1932	7.90	14,400	1949	Mar. 7, 1949	b3.47	6,000
1933	Spring 1933	a20	-		Mar. 23, 1949	b9.29	-
1934	June 9, 1934	2.38	595		Mar. 23, 1949	8.30	12,800
1935	June 1, 1935	11.15	24,800		Mar. 27, 1949	7.18	9,350
					Apr. 7, 1949	4.93	4,170
1936	Mar. 6, 1936	b5.40	-				
	July 26, 1936	-	4,890	1950	Apr. 4, 1950	b8.2	(c)
1937	July 13, 1937	12.3	29,300		Apr. 7, 1950	6.66	6,980
1938	June 24, 1938	5.79	6,910		Apr. 15, 1950	6.74	7,240
1939	Mar. 21, 1939	b4.03	1,740		May 9, 1950	5.00	3,760
					Aug. 11, 1950	6.04	5,580
1940	Apr. 29, 1940	4.63	3,530				
	June 5, 1940	5.38	5,510	1951	June 20, 1951	3.40	1,930
1941	Apr. 15, 1941	8.50	12,900	1952	Apr. 1, 1952	9.5	14,400
	June 2, 1941	9.30	15,500				
	June 7, 1941	9.54	16,200	1953	Mar. 12, 1953	b5.15	-
	June 10, 1941	14.3	35,700		May 3, 1953	5.09	3,990
					May 29, 1953	5.94	5,310
1942	May 1, 1942	6.65	7,600		June 17, 1953	6.23	5,900
	May 14, 1942	6.87	8,340		June 21, 1953	7.41	8,740
	May 18, 1942	9.00	14,500		Aug. 7, 1953	5.37	4,270
	June 6, 1942	6.42	7,120				
	June 28, 1942	4.87	3,670	1954	May23or24,1954	-	(c)
					June 7, 1954	5.01	3,700
1943	Mar. 29, 1943	6.52	7,360		June 10, 1954	8.09	10,500
	June 10, 1943	5.96	6,180				
	June 14, 1943	11.1	21,900	1955	July 9, 1955	4.57	3,090
1944	Mar. 28, 1944	b13.75	-	1956	Mar. 19, 1956	b7.34	-
	Apr. 6, 1944	10.3	19,000		July 5, 1956	4.22	2,600
	May 20, 1944	4.93	3,670				
	June 5, 1944	6.88	8,340	1957	May 25, 1957	6.55	6,380
	June 9, 1944	4.96	3,880				
	June 13, 1944	8.46	12,900	1958	June 9, 1958	5.33	3,790
	June 18, 1944	11.2	22,200		June 15, 1958	6.16	5,470
	June 23, 1944	7.75	11,400				
	July 9, 1944	5.60	5,600	1959	Mar. 7, 1959	b3.35	-
					July 16, 1959	2.48	693
1945	Mar. 15, 1945	8.97	13,300				
	Mar. 25, 1945	6.95	8,000	1960	Mar. 21, 1960	b6.78	-
	June 10, 1945	7.08	8,210		Mar. 23, 1960	5.66	3,760
	June 14, 1945	5.63	4,710	1961	June 30, 1961	4.09	2,090
1946	May 2, 1946	8.58	12,200	1962	May 19, 1962	9.01	11,700
	May 24, 1946	12.56	25,500		May 21, 1962	11.08	20,200
	June 1, 1946	10.68	18,500		May 26, 1962	9.57	12,700
	June 19, 1946	11.22	22,200		May 28, 1962	14.31	37,900
					June 15, 1962	12.51	27,500
1947	Oct. 7, 1946	4.86	3,680		June 19, 1962	6.53	5,260
	Mar. 17, 1947	b9.59	-		June 25, 1962	5.72	3,660
	Mar. 19, 1947	5.42	4,840				
	Apr. 5, 1947	5.99	6,180	1963	June 16, 1963	6.78	6,960
	June 23, 1947	10.71	20,400		June 22, 1963	6.36	5,930

a About; from floodmarks.
b Backwater from ice.
c Unknown; greater than 3,500 cfs.

4385. Cheyenne River near Plainview, S. Dak.

Location.--Lat 44°31'25", long 101°59'30", in NE¼SW¼ sec.31, T.7 N., R.18 E., on downstream side of third pier from right end of bridge on State Highway 73, 1¾ miles downstream from Ash Creek and 10 miles southeast of Plainview.

Drainage area.--21,600 sq mi, approximately.

Gage.--Nonrecording prior to Mar. 22, 1951; recording thereafter. Datum of gage is 1,877.65 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 24,000 cfs and extended above by logarithmic plotting.

Bankfull stage.--13 ft.

Historical data.--Maximum stage known, that of May 1920.

Remarks.--Base for partial-duration series, 4,500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	May 1920	a17.5	-	1957	May 26, 1957	10.96	41,700
					May 28, 1957	8.61	12,500
1927	May 1927	a14	-		June 12, 1957	6.57	5,480
					June 14, 1957	6.18	4,770
1951	June 20, 1951	5.82	4,340		June 17, 1957	6.85	6,000
	June 24, 1951	5.82	4,340				
				1958	June 4, 1958	6.03	4,470
1952	Mar. 29, 1952	b10.62	-		June 9, 1958	6.50	5,330
	Mar. 30, 1952	10.55	41,400		June 16, 1958	7.81	8,530
	May 23, 1952	8.99	18,800		July 20, 1958	6.80	5,920
	May 26, 1952	6.33	5,470		July 31, 1958	6.24	4,880
	June 4, 1952	7.32	8,260				
				1959	May 6, 1959	7.35	7,280
1953	Mar. 11, 1953	b7.22	-				
	Mar. 12, 1953	6.52	5,930	1960	Mar. 20, 1960	b9.23	-
	May 1, 1953	7.02	7,630		Mar. 22, 1960	b7.52	6,600
	May 4, 1953	7.38	8,940				
	May 30, 1953	6.57	5,780	1961	July 27, 1961	6.88	5,670
	June 18, 1953	6.68	5,710				
	June 20, 1953	8.97	15,700	1962	May 20, 1962	8.20	9,800
	Aug. 5, 1953	6.64	6,220		May 22, 1962	11.65	38,600
					May 27, 1962	9.61	16,300
1954	June 10, 1954	7.68	9,710		May 29, 1962	11.47	36,300
					June 18, 1962	10.90	30,400
1955	Mar. 12, 1955	b7.20	-		June 26, 1962	7.89	6,580
	Aug. 12, 1955	6.38	5,840		July 5, 1962	7.31	5,230
	Sept.21, 1955	9.53	21,000		July 15, 1962	8.92	11,800
1956	Mar. 20, 1956	b6.92	-	1963	June 7, 1963	8.57	9,600
	May 29, 1956	5.48	4,220		June 16, 1963	9.77	18,000
					June 23, 1963	7.45	5,240
1957	May 21, 1957	9.36	19,200				

a Annual peak only (about); from information by local residents.
b Backwater from ice.

4390. Cherry Creek near Plainview, S. Dak.

Location.--Lat 44°44'35", long 102°03'10", in SW¼NE¼ sec.16, T.9 N., R.17 E., on left bank 5 ft downstream from bridge on State Highway 73, a quarter of a mile downstream from small tributary, 6½ miles downstream from Red Owl Creek, and 11 miles northeast of Plainview.

Drainage area.--1,190 sq mi, approximately.

Gage.--Nonrecording November 1945 to June 1948; recording thereafter. Datum of gage is 2,158.06 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 1,000 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges of Cherry Creek near Plainview, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 26, 1946	9.05	1,180	1954	June 12, 1954	10.89	1,800
1947	Feb. 16, 1947	a14.25	-	1955	Mar. 11, 1955	8.03	771
	June 25, 1947	-	2,540	1956	Mar. 18, 1956	a9.53	940
1948	June 5, 1948	9.2	1,280	1957	May 26, 1957	7.74	692
1949	Mar. 27, 1949	12.88	2,980	1958	June 9, 1958	8.39	900
1950	Apr. 8, 1950	12.90	2,980	1959	July 3, 1959	6.00	164
	Apr. 17, 1950	12.45	2,760	1960	Mar. 24, 1960	9.00	1,120
1951	Sept. 7, 1951	8.29	996	1961	-	-	0
1952	Feb. 13, 1952	a10.13	-	1962	May 22, 1962	12.86	6,240
	Apr. 1, 1952	22.63	17,500		May 29, 1962	10.71	1,800
1953	Mar. 22, 1953	12.24	2,380		June 2, 1962	11.16	2,030
	May 4, 1953	8.96	1,030		June 18, 1962	12.66	2,920
	June 1, 1953	10.22	1,570		June 28, 1962	9.86	1,400
	June 16, 1953	16.91	5,960		July 5, 1962	10.11	1,510
	June 20, 1953	14.58	3,880				
	Aug. 7, 1953	8.74	1,030	1963	June 17, 1963	9.00	1,030

a Backwater from ice.

4390.8. Cherry Creek tributary No. 3 near Avance, S. Dak.

Location.--Lat 44°51', long 102°03', in SW¼ sec.3, T.10 N., R.17 E., at bridge on State Highway 73, 11 miles southeast of Avance.

Drainage area.--4.58 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 65 cfs and by indirect measurement at 2,280 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	a4.51	20	1961	March 1961	2.12	(b)
1957	May 25, 1957	4.32	-	1962	May 21, 1962	6.96	2,280
1958	June 1958	2.30	1.0	1963	July 26, 1963	2.58	8.0
1959	-	-	0	1964	June 8, 1964	3.63	-
1960	Mar. 21, 1960	3.53	-				

a Backwater from ice.
b Less than 0.5 cfs.

4391. Beaver Creek near Faith, S. Dak.

Location.--Lat 44°56', long 102°03', in SW¼ sec.3, T.11 N., R.17 E., at bridge on State Highway 73, 6 miles south of Faith.

Drainage area.--37.1 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 60 cfs and at 3,000 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Beaver Creek near Faith, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	a7.21	70	1961	March 1961	a2.25	1
1957	Aug. 21, 1957	5.97	225	1962	May 21, 1962	11.85	3,080
1958	June 8, 1958	6.63	390	1963	June 15, 1963	7.09	535
1959	Mar. 10, 1959	a4.67	35	1964	June 8, 1964	7.19	575
1960	Mar. 21, 1960	a8.15	400				

a Backwater from ice.

4395. Cheyenne River near Eagle Butte, S. Dak.

Location.--Lat 44°41'40", long 101°13'05", in NE¼SE¼ sec.32, T.9 N., R.24 E., on downstream side of fourth pier from left abutment of bridge on State Highway 63, 0.5 mile upstream from Hermaphrodite Creek and 21 miles south of Eagle Butte.

Drainage area.--24,500 sq mi, approximately.

Gage.--Nonrecording prior to Nov. 23, 1934; recording thereafter. Datum of gage is 1,601.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 30,000 cfs and extended above by logarithmic plotting.

Bankfull stage.--16 ft.

Remarks.--Base for partial-duration series, 5,500 cfs. Only annual peaks are shown prior to 1935.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	May 13, 1920	18.9	-	1942	Apr. 29, 1942	5.27	5,760
					May 2, 1942	9.85	37,600
1927	May 9, 1927	18.1	-		May 7, 1942	7.39	16,400
					May 14, 1942	10.35	37,600
1929	June 3, 1929	10.12	49,600		May 18, 1942	9.80	31,600
1930	Feb. 24, 1930	5.95	6,260		June 6, 1942	8.67	22,400
1931	July 4, 1931	5.80	8,600	1943	Feb. 23, 1943	6.13	7,050
1932	May 7, 1932	10.9	53,000		Mar. 30, 1943	6.75	10,700
1933	May 24, 1933	15.00	104,000		June 11, 1943	7.85	16,400
1934	July 28, 1934	4.48	3,080		June 15, 1943	9.70	30,700
1935	Apr. 27, 1935	5.65	6,770	1944	Apr. 2, 1944	a10.0	-
	May 21, 1935	5.77	7,530		Apr. 3, 1944	7.60	14,800
	May 23, 1935	5.40	6,110		Apr. 7, 1944	8.91	24,000
	May 30, 1935	5.67	7,150		June 6, 1944	6.34	7,700
	June 2, 1935	10.80	51,600		June 10, 1944	6.22	6,260
					June 13, 1944	8.44	21,400
1936	Mar. 7, 1936	a7.05	b10,000		June 19, 1944	9.42	28,000
					June 22, 1944	7.81	15,200
1937	Mar. 16, 1937	a6.10	-		June 24, 1944	7.80	15,200
	June 13, 1937	6.61	10,900		July 10, 1944	6.43	6,180
	June 15, 1937	5.81	7,150		July 13, 1944	6.42	6,130
	June 19, 1937	7.14	14,200				
	July 13, 1937	11.79	64,400	1945	Mar. 14, 1945	a8.96	-
	July 18, 1937	7.53	18,200		Mar. 16, 1945	8.46	20,200
					Mar. 26, 1945	7.77	15,200
1938	Mar. 1, 1938	a5.40	-		June 11, 1945	7.31	14,400
	June 24, 1938	7.28	16,300		June 15, 1945	6.64	8,520
	Sept. 7, 1938	5.55	6,770				
				1946	May 3, 1946	9.11	25,400
1939	May 23, 1939	6.23	10,400		May 25, 1946	10.47	38,500
	May 26, 1939	6.94	14,500		June 2, 1946	9.14	25,400
	July 3, 1939	5.28	6,400		June 15, 1946	7.05	8,210
					June 20, 1946	10.16	35,500
1940	Mar. 29, 1940	a6.80	-		June 24, 1946	8.47	17,800
	Apr. 29, 1940	4.95	5,100		June 27, 1946	7.75	11,600
					July 18, 1946	6.84	7,370
1941	Apr. 16, 1941	7.35	16,200				
	June 3, 1941	7.52	14,700	1947	Feb. 17, 1947	a8.03	b8,500
	June 8, 1941	7.99	17,700		Mar. 20, 1947	a6.9	b7,000
	June 11, 1941	12.2	59,000		Mar. 24, 1947	6.93	7,830
	July 15, 1941	5.73	6,480		Apr. 6, 1947	6.89	7,140
					June 11, 1947	6.54	6,020
1942	Apr. 26, 1942	5.38	5,760		June 23, 1947	12.3	50,000

a Backwater from ice.
b About.

Peak stages and discharges of Cheyenne River near Eagle Butte, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	July 1, 1947	8.26	14,300	1955	Mar. 12, 1955	a6.46	-
					Sept.22, 1955	8.55	17,600
1948	Mar. 19, 1948	a9.56	-				
	Mar. 21, 1948	7.16	10,400	1956	Mar. 19, 1956	a8.42	-
	Mar. 23, 1948	6.54	6,900		Mar. 22, 1956	6.55	6,870
	June 23, 1948	6.71	8,850				
	June 28, 1948	6.09	5,600	1957	May 21, 1957	8.14	12,800
					May 26, 1957	11.19	31,500
1949	Mar. 7, 1949	9.72	31,800		May 29, 1957	8.09	12,600
	Mar. 24, 1949	8.85	24,000		June 11, 1957	6.51	6,380
1950	Apr. 1, 1950	6.70	8,250	1958	June 17, 1958	6.66	7,460
	Apr. 5, 1950	7.25	12,400				
	Apr. 8, 1950	7.53	14,500	1959	May 6, 1959	5.85	6,380
	Apr. 16, 1950	7.37	13,800				
	May 10, 1950	7.34	13,100	1960	Mar. 21, 1960	a11.73	-
					Mar. 22, 1960	7.90	10,200
1951	Mar. 27, 1951	a9.46	-				
	Mar. 28, 1951	a7.32	b9,400	1961	July 28, 1961	5.10	3,140
1952	Feb. 10, 1952	a7.59	-	1962	Mar. 21, 1962	7.19	7,560
	Apr. 2, 1952	11.36	38,500		May 23, 1962	12.17	36,300
	May 23, 1952	7.64	15,100		May 27, 1962	9.45	17,900
	June 5, 1952	6.09	5,760		May 30, 1962	12.15	36,200
					June 19, 1962	11.62	32,400
1953	Mar. 12, 1953	a9.70	23,200		June 27, 1962	6.86	8,660
	Mar. 22, 1953	7.36	12,400		July 6, 1962	8.01	12,400
	May 3, 1953	7.16	11,200		July 16, 1962	8.12	12,100
	June 17, 1953	6.83	8,040				
	June 21, 1953	8.45	19,000	1963	June 8, 1963	7.12	9,080
					June 17, 1963	8.99	16,200
1954	June 11, 1954	6.83	9,350		June 23, 1963	5.59	5,740

a Backwater from ice. b About.

MISSOURI RIVER MAIN STEM

4400. Missouri River at Pierre, S. Dak.

Location.--Lat 44°22'25", long 100°22'20", in SE¼ sec.21, T.5 N., R.31 E., near right bank on downstream side of pier of Chicago and North Western Railway Co. bridge at Pierre, 1.3 miles upstream from Bad River, 5.8 miles downstream from Oahe Dam, and at mile 1,066.5.

Drainage area.--243,500 sq mi, approximately.

Gage.--Nonrecording at datum 2.00 ft higher prior to Mar. 11, 1932; recording at present datum thereafter. Datum of gage is 1,414.26 ft above mean sea level, datum of 1929. All gage heights adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Many diversions above station for irrigation. Flow regulated by Fort Peck Reservoir (usable capacity, 18,800,000 acre-ft) since November 1937, by Garrison Reservoir (capacity, 23,000,000 acre-ft) since November 1953, and by Oahe Reservoir (capacity, 23,630,000 acre-ft) since August 1958. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 12, 1930	a8.81	-	1937	June 20, 1937	12.00	120,000
	Apr. 7, 1930	-	74,600	1938	Mar. 22, 1938	12.95	171,000
				1939	Mar. 31, 1939	14.20	197,000
1931	June 12, 1931	8.58	46,400	1940	June 13, 1940	9.46	60,800
1932	June 15, 1932	10.96	121,000				
1933	May 28, 1933	-	119,000	1941	June 13, 1941	12.94	132,000
	June 25, 1933	10.40	-	1942	June 11, 1942	10.95	91,900
1934	Feb. 28, 1934	a10.65	-	1943	Apr. 6, 1943	19.65	281,000
	June 19, 1934	-	50,900	1944	Apr. 9, 1944	15.58	191,000
1935	July 14, 1935	12.25	131,000	1945	Mar. 20, 1945	10.50	108,000
1936	Mar. 19, 1936	a10.90	-	1946	June 20, 1946	10.05	83,000
	Apr. 17, 1936	-	104,000	1947	Apr. 1, 1947	16.50	241,000

a Backwater from ice.

Peak stages and discharges of Missouri River at Pierre, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Mar. 24, 1948	a14.07	154,000	1957	May 27, 1957	10.01	66,400
1949	Apr. 5, 1949	15.00	187,000	1958	Mar. 29, 1958	11.04	65,200
1950	Apr. 21, 1950	18.44	269,000	1959	Mar. 29, 1959	7.20	34,600
				1960	Aug. 9, 1960	-	31,800
1951	Apr. 8, 1951	12.26	127,000		Aug. 25, 1960	7.50	-
1952	Apr. 10, 1952	25.35	440,000				
1953	June 22, 1953	12.43	112,000	1961	Dec. 21, 1960	a7.46	-
1954	Oct. 29, 1953	8.05	46,600		May 7, 1961	-	30,900
1955	May 29, 1955	8.77	48,800	1962	May 10, 1962	6.14	30,700
				1963	Apr. 23, 1963	12.10	-
1956	Mar. 24, 1956	11.11	73,900		Aug. 8, 1963	-	40,500

a Backwater from ice.

BAD RIVER BASIN

4405. North Fork Bad River at Philip, S. Dak.

Location.--Lat 44°02', long 101°41', in SW¼SW¼ sec.14, T.1 N., R.20 E., near center of span on downstream side of highway bridge, half a mile west of Philip and 1¼ miles upstream from confluence with Cottonwood Creek.

Drainage area.--164 sq mi, approximately.

Gage.--Nonrecording. Datum of gage is 2,154.19 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs.

Bankfull stage.--15 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	May 1927	18.2	-	1941	June 11, 1941	a10.2	-
				1942	June 4, 1942	14.7	1,640
1939	May 25, 1939	10.5	1,000	1943	June 14, 1943	13.72	1,470
1940	Apr. 30, 1940	2.15	3.6	1944	Apr. 7, 1944	6.40	352
1941	May 1, 1941	-	762				

a Backwater from Cottonwood Creek.

4410. Bad River near Midland, S. Dak.

Location.--Lat 44°04'05", long 101°07'45", in SE¼SE¼ sec.5, T.1 N., R.25 E., on left bank near downstream side of highway bridge, three-fifths of a mile downstream from Ash Creek, 1¼ miles east of Midland, and 2¼ miles downstream from Mitchell Creek.

Drainage area.--1,500 sq mi, approximately.

Gage.--Nonrecording prior to Feb. 21, 1961; recording thereafter. Datum of gage is 1,833.42 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 500 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges of Bad River near Midland, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	June 20, 1946	5.74	1,020	1955	Mar. 9, 1955	a6.56	2,200
					May 29, 1955	5.59	1,440
1947	June 24, 1947	6.15	1,480		Sept.23, 1955	5.5	1,120
1948	Mar. 16, 1948	a5.00	-	1956	Mar. 2, 1956	a5.62	570
	May 10, 1948	4.50	640		Mar. 20, 1956	6.71	2,460
	June 17, 1948	10.5	5,080		July 4, 1956	5.20	1,170
	June 21, 1948	8.90	3,660				
	June 24, 1948	6.75	1,840	1957	May 22, 1957	6.81	2,440
					May 26, 1957	8.80	4,680
1949	Mar. 10, 1949	a6.30	1,000		June 12, 1957	9.40	5,400
	Mar. 24, 1949	7.05	1,970				
				1958	Apr. 27, 1958	4.13	603
1950	Mar. 25, 1950	9.38	4,040		June 3, 1958	4.22	719
	Apr. 1, 1950	11.00	5,570		June 14, 1958	4.98	1,060
	May 6, 1950	8.60	3,300		June 18, 1958	4.08	643
1951	Mar. 28, 1951	3.84	542	1959	May 7, 1959	4.84	1,030
	June 8, 1951	5.50	1,200		May 28, 1959	3.86	636
	Sept. 4, 1951	4.51	793		May 31, 1959	3.98	684
					July 14, 1959	5.95	1,730
1952	Feb. 14, 1952	a4.87	550		Sept. 1, 1959	4.98	1,110
	Apr. 2, 1952	14.00	11,200				
	Apr. 5, 1952	13.60	10,300	1960	Mar. 23, 1960	11.04	7,480
	Apr. 7, 1952	12.10	7,560		Mar. 26, 1960	6.82	2,550
	May 24, 1952	5.00	836		June 21, 1960	5.40	1,330
	June 4, 1952	6.64	1,890				
	June 28, 1952	9.12	3,840	1961	June 14, 1961	7.70	3,290
1953	Mar. 14, 1953	9.38	5,380	1962	Mar. 28, 1962	6.20	1,940
	Mar. 18, 1953	8.43	4,250		May 21, 1962	3.53	512
	Mar. 21, 1953	9.40	5,400		May 24, 1962	4.48	861
	May 3, 1953	10.16	6,340		June 1, 1962	4.48	861
	June 15, 1953	6.45	2,380		June 18, 1962	7.68	3,430
	Aug. 3, 1953	7.5	3,330		July 16, 1962	5.46	1,380
	Aug. 5, 1953	4.95	1,050				
				1963	May 26, 1963	3.75	560
1954	May 25, 1954	5.04	1,050		May 31, 1963	6.01	1,560
					June 8, 1963	6.64	2,090
1955	Mar. 9, 1955	a7.03	-		June 18, 1963	6.93	2,370

a Backwater from ice.

4415. Bad River near Fort Pierre, S. Dak.

Location.--Lat 44°19'40", long 100°23'00", in NW¼ sec.10, T.4 N., R.31 E., on right bank on downstream side of pier of highway bridge, 2½ miles south of Fort Pierre, 4¾ miles downstream from Willow Creek, and 5 miles upstream from mouth.

Drainage area.--3,107 sq mi.

Gage.--Nonrecording prior to July 10, 1951; recording thereafter. Datum of gage is 1,427.83 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 33,000 cfs.

Bankfull stage.--16 ft.

Historical data.--Flood in April 1927 reached at stage of 30.89 ft, from floodmark (discharge, about 50,000 cfs). From House Document 189, flood in July 1905 reached a stage about 2 ft higher than that of 1927. Roughly estimated discharge for 1905 flood is 70,000 cfs. Floods in 1915 and June 1920 reached stages of 29.6 and 27.4 ft, respectively.

Remarks.--Base for partial-duration series, 1,100 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges of Bad River near Fort Pierre, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)
1905	July 1905	a32.9	a70,000
1915	-	29.6	-
1920	June 1920	27.4	-
1927	April 1927	30.89	a50,000
1929	Apr. 25, 1929	21.18	11,800
1930	Aug. 19, 1930	20.20	10,200
1931	Jan. 30, 1931	8.40	2,300
1932	May 7, 1932	17.24	7,350
1934	July 26, 1934	9.98	3,100
1935	Apr. 26, 1935	12.60	4,480
1936	Mar. 11, 1936	5.11	844
1937	June 13, 1937	21.85	12,400
1938	Sept. 8, 1938	17.6	8,700
1939	Mar. 20, 1939	b9.80	-
	Aug. 27, 1939	-	2,720
1940	Apr. 1, 1940	5.83	1,070
1941	June 11, 1941	11.22	4,100
1942	May 1, 1942	27.8	34,200
1943	Mar. 23, 1943	16.04	6,930
	June 14, 1943	-	6,930
1944	Apr. 1, 1944	10.75	3,930
1945	Mar. 2, 1945	b10.72	-
	June 13, 1945	-	1,240
1946	July 2, 1946	12.53	4,600
1947	Mar. 21, 1947	b11.4	-
	June 22, 1947	-	2,290
1948	Feb. 26, 1948	b7.38	1,100
	Mar. 15, 1948	b15.0	2,600
	Mar. 19, 1948	b10.95	2,700
	May 10, 1948	9.45	2,350
	June 18, 1948	13.97	5,380
	June 21, 1948	12.00	3,830
	June 24, 1948	12.00	3,830
	July 20, 1948	6.52	1,800
	Aug. 9, 1948	15.96	7,180
1949	Mar. 8, 1949	7.6	1,360
	Mar. 22, 1949	b11.6	-
	Mar. 27, 1949	10.81	3,350
	Apr. 10, 1949	6.91	1,100
	June 1, 1949	7.75	1,620
1950	Oct. 11, 1949	7.90	1,540
	Mar. 5, 1950	9.00	(c)
	Mar. 17, 1950	15.15	(c)
	Mar. 25, 1950	21.20	12,700
	Apr. 2, 1950	23.40	16,700
	May 8, 1950	16.95	8,120
	Sept.21, 1950	19.80	10,800
1951	Mar. 27, 1951	12.63	4,420
	June 8, 1951	19.50	10,500
	June 24, 1951	9.62	2,330
	July 3, 1951	15.60	6,680
1952	Oct. 4, 1951	15.13	6,260
	Apr. 1, 1952	b27.24	-
	Apr. 7, 1952	27.03	28,100
	June 5, 1952	11.38	3,410
	June 23, 1952	8.30	1,620
	June 29, 1952	12.55	4,260
1953	Mar. 14, 1953	19.78	10,100
	Mar. 21, 1953	18.88	10,500
	May 2,3, 1953	19.80	11,700
	June 15, 1953	11.25	3,020
	Aug. 2, 1953	9.37	2,110
	Aug. 5, 1953	11.19	3,260
1954	June 11, 1954	23.35	16,600
1955	Mar. 10, 1955	b22.90	-
	Mar. 14, 1955	b8.67	1,620
	June 1, 1955	13.68	5,120
	June 4, 1955	11.16	3,240
	June 28, 1955	9.43	2,170
1956	Mar. 4, 1956	7.71	1,460
	Mar. 17, 1956	b12.25	-
	Mar. 17, 1956	b11.03	2,300
	Mar. 20, 1956	10.41	3,050
	Mar. 27, 1956	7.45	1,330
	July 6, 1956	7.50	1,440
	Aug. 12, 1956	7.27	1,330
1957	Apr. 20, 1957	10.50	3,100
	May 17, 1957	9.48	2,350
	May 21, 1957	11.38	3,460
	May 23, 1957	9.47	2,350
	May 27, 1957	12.07	3,930
	May 31, 1957	7.50	1,290
	June 11, 1957	15.26	6,390
	June 16, 1957	7.91	1,420
	Aug. 30, 1957	8.62	1,770
1958	Apr. 5, 1958	10.41	3,050
	June 3, 1958	8.68	2,040
	June 13, 1958	7.33	1,280
1959	May 30, 1959	8.06	1,640
1960	Mar. 27, 1960	23.36	16,600
	Apr. 4, 1960	8.63	1,950
	May 26, 1960	8.05	1,570
	June 21, 1960	17.00	7,940
	Aug. 19, 1960	8.60	1,900
	Aug. 25, 1960	20.38	11,600
1961	May 17, 1961	21.93	12,800
	June 14, 1961	20.21	10,600
1962	Mar. 28, 1962	11.98	3,870
	May 17, 1962	8.01	1,680
	May 19, 1962	8.10	1,730
	May 21, 1962	19.70	10,500
	May 29, 1962	7.46	1,420
	June 17, 1962	14.00	5,220
	June 19, 1962	9.55	2,360
	June 25, 1962	12.45	4,200
	July 5, 1962	15.57	6,520
	July 15, 1962	6.77	1,110
	July 18, 1962	7.21	1,300
1963	May 12, 1963	7.82	1,590
	May 31, 1963	6.68	1,270
	June 2, 1963	6.64	1,250
	June 7, 1963	7.10	1,250
	June 9, 1963	8.07	1,720
	June 19, 1963	8.52	1,940
	July 7, 1963	7.81	1,560
	Sept. 4, 1963	11.88	3,800

a About.
b Backwater from ice.
c Unknown; greater than 1,100 cfs.

4416.5. Mush Creek near Pierre, S. Dak.

Location.--Lat 44°20', long 100°13', in NE¼ sec.16, T.110 N., R.78 W., at bridge on State Highway 34, 7½ miles east of Pierre.

Drainage area.--14.6 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs and extended above on basis of slope-area measurements at 686 and 3,620 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 10, 1956	7.49	3,620	1961	July 25, 1961	1.75	75
1957	Nov. 2, 1956	2.14	80	1962	June 15, 1962	5.82	1,560
1958	March 1958	a2.32	20	1963	June 6, 1963	4.20	686
1959	July 14, 1959	2.78	210	1964	May 2, 1964	3.15	275
1960	May 18, 1960	6.30	2,070				

a Backwater from ice.

UNNAMED MISSOURI RIVER TRIBUTARIES

4416.7. Missouri River tributary near Pierre, S. Dak.

Location.--Lat 44°20', long 100°12', in NE¼ sec.15, T.110 N., R.78 W., at culvert on State Highway 34, 8 miles east of Pierre.

Drainage area.--0.42 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 20 cfs and extended above on basis of indirect measurements at 559 and 705 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 10, 1956	10.38	705	1961	June 1961	2.54	43
1957	June 10, 1957	2.53	43	1962	June 15, 1962	4.43	147
1958	March 1958	a2.47	5	1963	June 6, 1963	3.86	110
1959	May 30, 1959	2.97	62	1964	May 2, 1964	2.10	24
1960	May 18, 1960	9.24	559				

a Backwater from ice.

4417.5. Missouri River tributary near Canning, S. Dak.

Location.--Lat 44°20', long 100°10', in NW¼ sec.13, T.110 N., R.78 W., at culvert on State Highway 34, 8 miles southwest of Canning.

Drainage area.--0.20 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 12 cfs and extended above on basis of indirect measurements at 172 and 284 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Missouri River tributary near Canning, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 10, 1956	6.40	172	1961	June 1961	3.97	71
1957	June 10, 1957	3.88	67	1962	June 15, 1962	6.22	162
1958	March 1958	a2.45	1	1963	June 6, 1963	3.93	70
1959	July 14, 1959	4.52	92	1964	July 10, 1964	4.59	95
1960	May 18, 1960	7.40	284				

a Backwater from ice.

MEDICINE KNOLL CREEK BASIN

4420. Medicine Knoll Creek near Blunt, S. Dak.
(Published as "Medicine Creek" prior to October 1959)

Location.--Lat 44°33'45", long 99°54'40", in NW¼ sec.31, T.113 N., R.75 W., on left bank at downstream side of highway bridge, 3 miles upstream from South Fork Medicine Knoll Creek and 5 miles northeast of Blunt.

Drainage area.--455 sq mi, approximately.

Gage.--Nonrecording prior to Oct. 31, 1950; recording thereafter. Altitude of gage is 1,612 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1917	-	a15	-	1956	Mar. 21, 1956	b9.00	12
1950	Mar.26-29, 1950	b13.2	-	1957	May 26, 1957	8.32	15
	Mar. 30, 1950	-	c1,300				
				1958	Mar. 26, 1958	b10.15	c100
1951	Mar. 28, 1951	b9.00	-				
	Aug. 16, 1951	8.55	52	1959	June 20, 1959	7.72	4.1
1952	Apr. 5, 1952	12.34	1,830	1960	Mar. 27, 1960	b12.30	-
					Apr. 1, 1960	12.05	1,540
1953	Mar. 14, 1953	b11.89	-		Apr. 5, 1960	11.39	932
	Mar. 17, 1953	b11.58	330		Aug. 30, 1960	9.25	102
	Mar. 22, 1953	b11.27	444				
	May 2, 1953	8.47	52	1961	May 20, 1961	8.18	21
	Aug. 2, 1953	11.04	458				
				1962	Mar. 27, 1962	b10.70	140
1954	June 13, 1954	7.91	12		June 18, 1962	9.10	57
					June 22, 1962	9.08	56
1955	Mar. 11, 1955	b12.04	526		Aug. 11, 1962	10.22	184
1956	Mar. 19, 1956	b9.85	-	1963	Apr. 16, 1963	7.81	6.3

a Annual peak only; about.
b Backwater from ice.
c About.

UNNAMED MISSOURI RIVER TRIBUTARIES

4420.5. Missouri River tributary near De Grey, S. Dak.

Location.--Lat 44°18', long 99°59', in SW¼ sec.28, T.110 N., R.76 W., at culvert on State Highway 34, 3½ miles northwest of De Grey.

Drainage area.--1.64 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 125 cfs and extended above on basis of indirect measurements at 470 and 976 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Missouri River tributary near De Grey, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 7, 1956	6.99	976	1961	June 1961	1.81	79
1957	June 10, 1957	5.96	750	1962	June 15, 1962	5.93	745
1958	March 1958	a1.50	10	1963	June 6, 1963	5.52	660
1959	Sept.18, 1959	1.85	85	1964	July 10, 1964	.60	310
1960	Aug. 24, 1960	4.60	485				

a Backwater from ice.

MEDICINE CREEK BASIN

4423.5. North Fork Medicine Creek near Vivian, S. Dak.

Location.--Lat 43°57', long 100°20', in SW¼ sec.28, T.106 N., R.79 W., at bridge on U.S. Highway 83, 2¾ miles northwest of Vivian.

Drainage area.--45.9 sq mi.

Gage.--Crest-stage gage. At site 1,300 ft upstream at different datum prior to June 1961.

Stage-discharge relation.--Defined by current-meter measurements below 500 cfs 1956-60 and throughout 1961-64.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 24, 1956	2.62	36	1961	June 14, 1961	3.79	61
1957	Apr. 18, 1957	3.83	195	1962	June 25, 1962	7.78	665
1958	Apr. 7, 1958	2.92	56	1963	June 6, 1963	4.77	113
1959	-	-	0	1964	Apr. 27, 1964	4.47	95
1960	Apr. 3, 1960	7.05	1,080				

4423.8. Medicine Creek tributary near Vivian, S. Dak.

Location.--Lat 44°06', long 100°20', in SE¼ sec.5, T.107 N., R.79 W., at culvert on former U.S. Highway 83, 12¼ miles northwest of Vivian.

Drainage area.--0.30 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 20 cfs and extended above on basis of indirect measurement at 214 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 10, 1956	3.91	37	1961	June 14, 1961	3.20	18
1957	Apr. 18, 1957	7.81	202	1962	June 15, 1962	9.72	302
1958	Apr. 6, 1958	4.32	50	1963	March 1963	3.09	15
1959	Sept. 1, 1959	8.03	214	1964	May 3, 1964	5.71	104
1960	May 18, 1960	6.29	128				

4424. Medicine Creek tributary No. 2 near Vivian, S. Dak.

Location.--Lat 44°02', long 100°19', in NW¼ sec.33, T.107 N., R.79 W., at culvert on U.S. Highway 83, 8 miles northwest of Vivian.

Drainage area.--8.62 sq mi.

Gage.--Crest-stage gage. At site 50 ft upstream at different datum prior to June 1961.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 19, 1956	a6.67	50	1961	June 14, 1961	3.56	60
1957	Apr. 18, 1957	4.58	340	1962	May 16, 1962	a6.36	180
1958	Apr. 6, 1958	4.00	120	1963	June 6, 1963	3.76	72
1959	Sept.18, 1959	3.43	35	1964	May 3, 1964	5.14	185
1960	Mar. 26, 1960	4.80	475				

a Backwater from ice.

4425. Medicine Creek at Kennebec, S. Dak.

Location.--Lat 43°54', long 99°52', in NW¼NE¼ sec.18, T.105 N., R.75 W., on right bank 4 ft downstream from highway bridge, half a mile west of Kennebec, and half a mile downstream from nearest tributary.

Drainage area.--465 sq mi.

Gage.--Recording. Datum of gage is 1,659.64 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	April 1952	a17.0	-	1960	Mar. 28, 1960	16.71	8,970
					Apr. 5, 1960	14.28	2,620
1955	Mar. 10, 1955	13.54	1,840		May 19, 1960	15.21	3,780
	Apr. 1, 1955	3.34	117		May 26, 1960	5.20	253
	June 4, 1955	8.66	682				
				1961	May 18, 1961	3.79	144
1956	Mar. 22, 1956	5.65	271		June 16, 1961	4.40	191
	Mar. 26, 1956	4.59	210				
	Apr. 2, 1956	4.84	229	1962	Mar. 31, 1962	d10.38	700
	Apr. 6, 1956	3.24	107		May 17, 1962	13.04	1,760
					May 23, 1962	9.74	869
1957	Apr. 19, 1957	b6.42	c150		May 30, 1962	14.25	2,590
	Apr. 21, 1957	12.36	1,420		June 18, 1962	10.73	1,020
	May 23, 1957	5.36	260		June 23, 1962	6.77	457
	June 9, 1957	5.17	251		June 27, 1962	10.49	989
	June 12, 1957	9.73	694		July 2, 1962	10.82	1,040
	June 14, 1957	4.95	233		July 7, 1962	3.76	146
	June 18, 1957	10.02	910		July 15, 1962	10.97	1,030
	Aug. 31, 1957	5.91	315				
				1963	June 9, 1963	4.23	172
1958	Mar. 28, 1958	7.34	490				
	Apr. 8, 1958	9.86	889	1964	Apr. 28, 1964	12.44	e1,490
	May 17, 1958	3.93	152				
1959	-	-	0				

a Annual peak only; from floodmarks. b Backwater from temporary dam. c About.
d Backwater from ice. e Annual peak only.

4430. Missouri River at Chamberlain, S. Dak.

Location.--Lat 43°48'40", long 99°20'10", in NE¼ sec.16, T.104 N., R.71 W., near left bank on downstream side of bridge on U.S. Highway 16 at Chamberlain, at mile 1,012.8.

Drainage area.--250,800 sq mi, approximately.

Gage.--Nonrecording, except recording Aug. 27, 1945, to Jan. 18, 1954. At site 1,800 ft upstream at datum 4.00 ft higher Aug. 19, 1928, to Sept. 30, 1929. At site 600 ft upstream Mar. 7, 1945, to May 26, 1953, and at site 1,800 ft upstream May 27, 1953, to Jan. 18, 1954; both at present datum. Datum of gage is 1,320.11 ft above mean sea level, datum of 1929. Gage heights adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--18 ft.

Remarks.--Flow regulated by Fort Peck Reservoir (usable capacity, 18,800,000 acre-ft) since November 1937, and by Garrison Reservoir (capacity, 23,000,000 acre-ft) since November 1953. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 30, 1929	13.26	-	1948	Mar. 25, 1948	11.82	122,000
	June 4, 1929	-	151,000	1949	Apr. 6, 1949	15.02	177,000
				1950	Apr. 22, 1950	18.80	250,000
1943	Apr. 7, 1943	19.3	-				
				1951	Apr. 8, 1951	11.52	113,000
1945	Mar. 21, 1945	11.45	107,800	1952	Apr. 11, 1952	25.55	440,000
				1953	June 18, 1953	13.97	112,000
1946	June 21, 1946	10.35	81,000	1954	Oct. 30, 1953	8.66	47,500
1947	Apr. 2, 1947	16.22	213,000		Sept.30, 1954	a13.83	-

a Backwater from Fort Randall Reservoir.

WHITE RIVER BASIN

4432. White River tributary near Glen, Nebr.

Location.--Lat 42°37', long 103°39', in W½ sec.34, T.31 N., R.54 W., on left upstream wingwall of steel truss bridge on unimproved road, 4.5 miles west of Glen.

Drainage area.--7.97 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 41 cfs and extended above on basis of slope-area measurements at 229 and 300 cfs.

Bankfull stage.--13 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 19, 1953	11.71	42	1959	June 29, 1959	10.76	11
1954	May 22, 1954	10.81	12	1960	Mar. 18, 1960	12.18	42
1955	Sept.20, 1955	13.30	229				
				1961	Aug. 1, 1961	10.48	2.5
1956	June 16, 1956	10.55	8	1962	July 31, 1962	14.40	435
1957	May 25, 1957	11.17	19	1963	June 6, 1963	14.22	380
1958	Aug. 7, 1958	11.32	24				

4433. Deep Creek near Glen, Nebr.

Location.--Lat 42°37', long 103°34', in SE¼SE¼ sec.32, T.31 N., R.53 W., on right downstream side of bridge on dirt road 1.4 miles east of Glen.

Drainage area.--10.9 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by low-flow estimates, and slope-area measurements at 187 and 3,050 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Aug. 15, 1953	14.92	3,050	1959	May 14, 1959	7.43	1
1954	May 22, 1954	7.5	2	1960	Aug. 24, 1960	12.4	187
1955	Sept.20, 1955	11.76	140	1961	Aug. 1, 1961	10.48	5
1956	May 27, 1956	10.37	50	1962	July 31, 1962	10.58	160
1957	May 23, 1957	5.84	1.5	1963	June 6, 1963	8.30	30
1958	July 9, 1958	10.88	80				

4437. Soldiers Creek near Crawford, Nebr.

Location.--Lat 42°41', long 103°32', in NE¼SW¼ sec.3, T.31 N., R.53 W., 75 ft upstream from wooden bridge near stockyard on James Ranch, 0.4 mile upstream from boundary fence on Fort Robinson Military Reservation, 0.7 mile upstream from reservoir on Fort Robinson Military Reservation, and 6 miles west of Crawford.

Drainage area.--52.6 sq mi.

Gage.--Crest-stage gage. At datum 0.67 ft higher prior to Aug. 22, 1961.

Stage-discharge relation.--Defined by low-flow estimates, and three indirect measurements at 64, 949, and 3,970 cfs; subject to change owing to beaver activity.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Sept.20, 1955	16.49	949	1960	Mar. 18, 1960	16.12	840
1956	Oct. 4, 1955	9.79	5	1961	Aug. 1, 1961	9.55	9
1957	July 20, 1957	11.72	55	1962	June 16, 1962	11.87	33
1958	July 10, 1958	21.90	3,970	1963	Feb. 2, 1963	a13.03	b30
1959	Apr. 9, 1959	10.27	3.5				

a Backwater from ice.
b Estimated.

4439. White River tributary No. 2 near Crawford, Nebr.

Location.--Lat 42°39', long 103°24', on east line of sec.22, T.31 N., R.52 W., at box culvert on State Highway 2, 2.2 miles south of junction of State Highway 2 and U.S. Highway 20, and 3 miles south of Crawford.

Drainage area.--5.45 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by low-flow estimates, and slope-area measurement at 698 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of White River tributary No. 2, near Crawford, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	-	-	0	1959	-	-	0
1954	May 22, 1954	10.36	1.6	1960	May 24, 1960	11.12	698
1955	-	-	0	1961	-	-	0
1956	-	-	0	1962	-	-	0
1957	-	-	0	1963	June 6, 1963	(a)	b .5
1958	July 10, 1958	11.29	450				

a Below 10.0 ft.
b Estimated.

4440. White River at Crawford, Nebr.

Location.--Lat 42°41', long 103°25', in W½ sec.3, T.31 N., R.52 W., on right bank 15 ft downstream from bridge in city park at Crawford.

Drainage area.--313 sq mi. At site used Oct. 3, 1933, to Sept. 30, 1943, 295 sq mi.

Gage.--Nonrecording prior to Oct. 29, 1947; recording thereafter. At site half a mile upstream at different datum prior to Oct. 2, 1933. At site 1 mile upstream at different datum Oct. 3, 1933, to Sept. 30, 1943. Datum of gage is 3,659.52 ft above mean sea level, datum of 1929.

Stage-discharge relation.--1931-44: Defined by current-meter measurements below 120 cfs and extended above on basis of slope-area measurement at 1,100 cfs. 1947-63: Defined by current-meter measurements below 240 cfs and extended above on basis of logarithmic plotting.

Historical data.--Flood of May 20, 1920, reached a stage of about 9.9 ft, site and datum of 1934-44, from Chicago, Burlington, and Quincy Railroad records of stage comparative with the 1938 peak at railroad bridge 1¼ miles upstream (discharge, about 1,000 cfs). Data for flood of Aug. 20, 1944, was obtained from records of Nebraska Bureau of Roads and Bridges; maximum stage known for at least 1918-44 according to Crawford Tribune. Local reports indicate that a 1947 stage was higher than that of Mar. 15, 1948.

Remarks.--Base for partial-duration series, 60 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	May 20, 1920	a9.9	a1,000	1949	Jan. 8, 1949	b4.64	-
					May 21, 1949	1.74	60
1931	Aug. 16, 1931	3.7	136		May 29, 1949	2.24	129
1932	May 6, 1932	6.0	350		July 30, 1949	1.68	63
1933	Aug. 28, 1933	10.3	1,080		Aug. 19, 1949	2.05	109
1934	Mar. 30, 1934	2.10	42				
1935	June 16, 1935	6.02	452	1950	Jan. 19, 1950	b3.33	-
					Aug. 4, 1950	2.04	99
1936	Sept. 4, 1936	10.82	1,100				
1937	Feb. 15, 1937	2.32	81	1951	July 28, 1951	3.43	410
1938	Apr. 24, 1938	10.13	1,010		July 31, 1951	2.56	205
1939	Mar. 10, 1939	3.82	204		Sept. 3, 1951	4.37	681
1940	Aug. 2, 1940	11.2	1,170		Sept. 4, 1951	2.68	231
1941	Apr. 2, 1941	2.10	72	1952	Mar. 30, 1952	1.66	81
1942	May 12, 1942	11.6	1,230		June 27, 1952	3.02	315
1943	June 23, 1943	5.04	266				
1944	Aug. 20, 1944	14.4	a1,700	1953	June 7, 1953	2.61	257
					July 29, 1953	1.73	66
1948	Feb. 19, 1948	2.45	154		Aug. 16, 1953	6.05	1,270
	Mar. 15, 1948	6.88	1,580				
	Mar. 18, 1948	2.27	141	1954	May 23, 1954	2.42	172
	May 8, 1948	1.93	88		June 18, 1954	1.74	67
	May 24, 1948	1.77	62		July 28, 1954	1.91	93
	June 3, 1948	1.97	81				
	June 17, 1948	3.41	405	1955	June 3, 1955	1.68	62
	July 18, 1948	3.20	351		June 17, 1955	3.12	339
	Aug. 1, 1948	2.93	287		June 22, 1955	1.74	67
	Aug. 5, 1948	2.12	121		Aug. 6, 1955	1.97	104

a About; site and datum used 1934-43.
b Backwater from ice.

Peak stages and discharges of White River at Crawford, Nebr.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Sept.20, 1955	5.90	1,220	1960	May 15, 1960	-	145
					May 25, 1960	3.35	232
1956	May 27, 1956	1.75	66		Aug. 8, 1960	-	260
	June 17, 1956	2.42	182		Aug. 24, 1960	6.25	750
	July 2, 1956	5.10	958				
				1961	Oct. 13, 1960	1.95	62
1957	Feb. 6, 1957	b3.87	-		July 29, 1961	2.22	92
	May 20, 1957	1.72	65				
	May 25, 1957	1.76	68	1962	May 26, 1962	-	220
	May 31, 1957	1.94	86		May 28, 1962	-	120
	June 11, 1957	2.07	96		June 6, 1962	-	110
	Aug. 17, 1957	2.45	182		June 17, 1962	2.81	164
					July 10, 1962	-	150
1958	June 18, 1958	2.22	92		July 20, 1962	4.23	364
	July 10, 1958	7.7	1,060		July 31, 1962	-	280
	Aug. 7, 1958	2.55	126				
	Sept.12, 1958	3.21	212	1963	Feb. 2, 1963	b4.40	-
					May 31, 1963	2.06	76
1959	June 22, 1959	4.40	390		June 2, 1963	2.56	127
	July 16, 1959	3.82	303		June 7, 1963	-	150
					June 15, 1963	2.08	74
1960	Mar. 9, 1960	-	460		Aug. 18, 1963	2.30	100
	Mar. 21, 1960	-	740				

b Backwater from ice.

4450. White River below Cottonwood Creek, near Whitney, Nebr.

Location.--Lat 42°48'35", long 103°10'05", in NE¼NE¼ sec.26, T.33 N., R.50 W., on left bank half a mile downstream from Cottonwood Creek and 4½ miles northeast of Whitney.

Drainage area.--676 sq mi.

Gage.--Recording. Altitude of gage is 3,320 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 3,300 cfs.

Remarks.--Peak discharge not appreciably affected by diversions. Base for partial-duration series, 350 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Feb. 26, 1949	-	a560	1955	Aug. 11, 1955	16.20	1,230
	May 21, 1949	11.14	582		Sept.20, 1955	17.56	1,400
1950	May 9, 1950	10.76	498	1956	May 27, 1956	14.72	974
				1957	May 17, 1957	15.08	1,070
1951	June 19, 1951	10.48	551		May 20, 1957	20.09	4,480
	July 28, 1951	11.86	722		May 25, 1957	19.12	2,450
	Sept. 4, 1951	16.21	1,330				
				1958	July 10, 1958	16.66	995
1952	Mar. 20, 1952	b12.85	-		July 30, 1958	-	450
	June 28, 1952	8.96	359				
				1959	Mar. 18, 1959	b9.50	-
1953	Mar. 9, 1953	b12.04	-		June 30, 1959	8.90	243
	June 8, 1953	10.61	570				
	July 29, 1953	11.00	650	1960	Mar. 20, 1960	-	370
					May 28, 1960	11.98	528
1954	May 23, 1954	19.01	2,310				
				1961	July 20, 1961	14.55	765
1955	May 17, 1955	10.3	460		July 29, 1961	13.93	704
	May 27, 1955	15.70	1,090				
	June 3, 1955	14.44	919				

a Daily mean.
b Backwater from ice.

4455. White River near Chadron, Nebr.

Location.--Lat 42°50', long 103°07', in SE¼ sec.18, T.33 N., R.49 W., 20 ft downstream from bridge on U.S. Highway 20, 2 miles downstream from Dead Horse Creek, and 6 miles west of Chadron.

Drainage area.--750 sq mi, approximately.

Gage.--Nonrecording prior to Dec. 7, 1934; recording thereafter.

Stage-discharge relation.--Defined by current-meter measurements below 1,900 cfs and by slope-area measurement at 2,040 cfs.

Remarks.--Peak discharges not appreciably affected by diversions. Base for partial-duration series, 380 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Aug. 17, 1931	7.8	a320	1941	Apr. 14, 1941	11.26	619
					June 10, 1941	16.73	1,470
1932	Apr. 24, 1932	16.8	1,680		July 13, 1941	16.72	1,470
1933	Apr. 21, 1933	16.8	1,680	1942	May 1, 1942	-	1,670
					May 7, 1942	-	2,280
1934	Aug. 17, 1934	16.1	1,220		May 12, 1942	18.07	3,690
					May 13, 1942	-	3,560
1935	Apr. 26, 1935	17.12	2,040		May 18, 1942	-	708
	May 19, 1935	16.14	1,240		June 6, 1942	13.35	664
	June 1, 1935	10.27	502				
				1943	Oct. 14, 1942	12.52	582
1936	Sept. 4, 1936	17.36	2,350		May 30, 1943	16.22	1,170
					June 11, 1943	13.91	682
1937	May 30, 1937	10.32	532		Mar. 25, 1943	b17.24	-
	June 12, 1937	9.62	442				
				1947	June 22, 1947	19.1	5,500
1938	May 19, 1938	9.86	502				
				1949	-	-	a600
1939	May 24, 1939	16.65	1,550				
	Aug. 18, 1939	17.66	3,120	1950	-	-	a500
1940	Apr. 16, 1940	9.38	458	1951	-	-	a1,200
	Apr. 18, 1940	9.91	510				
	Sept. 6, 1940	16.82	1,700	1952	-	-	a360

a About.
b Backwater from ice.

4455.3. Chadron Creek at Chadron State Park, near Chadron, Nebr.

Location.--Lat 42°43', long 103°01', in SW¼ sec.31, T.32 N., R.48 W., on left downstream side of box culvert on U.S. Highway 385, 0.9 mile south of entrance to Chadron State Park and 9 miles south of Chadron.

Drainage area.--3.35 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Based on low-flow estimates and slope-area measurements at 22.9 and 165 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	-	-	0	1959	Aug. 21, 1959	10.47	10
1954	Sept. 2, 1954	11.34	40	1960	June 27, 1960	12.03	165
1955	May 26, 1955	9.20	2.0				
				1961	July 19, 1961	10.62	12
1956	-	-	0	1962	June 11, 1962	11.73	95
1957	-	-	0	1963	July 13, 1963	12.12	188
1958	-	-	0				

4455.6. Chadron Creek near Chadron, Nebr.

Location.--Lat 42°43', long 103°01', in NE¼ sec.36, T.32 N., R.49 W., on left downstream wingwall of concrete culvert, 100 ft south of entrance to Chadron State Park, 200 ft west of U.S. Highway 385, and 8 miles south of Chadron.

Drainage area.--14.9 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by low-flow estimates and current-meter measurements below 86 cfs, and extended above on basis of indirect measurements at 714, 1,610, and 2,020 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 16, 1953	10.66	75	1959	May 26, 1959	11.60	182
1954	Aug. 29, 1954	13.72	1,610	1960	June 27, 1960	14.05	2,020
1955	May 16, 1955	13.0	714	1961	July 17, 1961	9.88	22
1956	Sept.28, 1956	9.16	.6	1962	June 11, 1962	14.47	2,740
1957	May 24, 1957	10.33	50	1963	July 13, 1963	12.41	370
1958	July 12, 1958	10.69	80				

4460. White River near Oglala, S. Dak.

Location.--Lat 43°15'10", long 102°49'30", in SW¼NE¼ sec.24, T.38 N., R.47 W., on right bank at downstream side of highway bridge, 3 miles downstream from Blacktail Creek and 7 miles northwest of Oglala.

Drainage area.--2,200 sq mi, approximately.

Gage.--Nonrecording prior to May 6, 1947; recording thereafter. Datum of gage is 2,853.54 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,800 cfs and extended above by velocity-area studies.

Bankfull stage.--19 ft.

Remarks.--Base for partial-duration series, 800 cfs. Only annual peaks are shown prior to 1947.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	June 14, 1944	17.12	1,370	1955	June 17, 1955	13.46	807
1945	Mar. 26, 1945	13.68	968		Sept.21, 1955	19.19	2,110
1946	May 3, 1946	14.32	1,040	1956	Feb. 24, 1956	a17.04	-
1947	June 21, 1947	23.50	5,200		May 30, 1956	10.64	510
	June 30, 1947	19.35	2,010	1957	May 20, 1957	18.96	1,830
	July 10, 1947	19.05	1,880		May 26, 1957	19.54	2,040
1948	Mar. 20, 1948	a13.91	-		June 12, 1957	20.14	2,330
	Aug. 9, 1948	13.16	832	1958	July 13, 1958	12.98	750
1949	Mar. 4, 1949	20.60	2,670	1959	Mar. 23, 1959	a8.20	-
	Mar. 5, 1949	20.63	-		Sept.28, 1959	7.88	249
	Mar. 22, 1949	14.15	892	1960	Mar. 20, 1960	a17.81	-
1950	May 10, 1950	10.50	455		Mar. 23, 1960	16.42	1,210
1951	July 30, 1951	12.63	733	1961	July 22, 1961	9.08	355
1952	Mar. 13, 1952	a11.70	-	1962	June 14, 1962	21.73	2,720
	Mar. 31, 1952	10.42	513		June 17, 1962	21.12	2,450
1953	Mar. 13, 1953	a14.42	-		June 28, 1962	15.57	1,130
	Mar. 14, 1953	a13.99	830		July 17, 1962	14.12	934
1954	May 26, 1954	12.05	672	1963	June 16, 1963	17.97	1,560

a Backwater from ice.

4464. Cain Creek tributary at Imlay, S. Dak.

Location.--Lat 43°43'00", long 102°23'25", in SE¼NW¼ sec.12, T.4 S., R.14 E., at bridge on State Highway 40, half a mile east of Imlay.

Drainage area.--14.0 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs and extended above on basis of slope-area measurements at 1,030 and 2,110 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 8, 1956	4.90	320	1961	August 1961	4.44	220
1957	May 19, 1957	7.98	1,390	1962	June 15, 1962	11.57	-
1958	July 4, 1958	7.03	1,030	1963	May 31, 1963	7.64	1,260
1959	May 5, 1959	6.50	840	1964	June 17, 1964	9.34	2,110
1960	August 1960	6.20	730				

4465. White River near Interior, S. Dak.

Location.--Lat 43°42'30", long 102°01'10", in SE¼ sec.12, T.4 S., R.17 E., on right bank 700 ft upstream from highway bridge, 2 miles downstream from Potato Creek, and 2½ miles southwest of Interior.

Drainage area.--4,120 sq mi, approximately.

Gage.--Nonrecording. At site about 5 miles downstream at different datum June 24, 1904, to Nov. 30, 1906; at site 700 ft downstream at datum 1.98 ft lower Sept. 1, 1911, to Sept. 30, 1918; at site 700 ft downstream at same datum Aug. 9, 1928, to June 30, 1932, and Sept. 24, 1939, to June 4, 1942. Gage heights for 1912-18 given herein converted to 1929-42 datum. Altitude of gage is 2,330 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 7,100 cfs and extended above by logarithmic plotting.

Bankfull stage.--12 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1905	June 18, 1905	16.0	16,500	1918	July 17, 1918	7.0	5,500
1906	Aug. 20, 1906	7.4	3,410	1929	Mar. 5, 1929	7.5	6,300
				1930	Aug. 16, 1930	8.6	8,510
1912	Mar. 20, 1912	a8.9	-				
	Mar. 22, 1912	-	8,230	1931	Oct. 3, 1930	6.0	3,670
1913	June 14, 1913	6.0	4,720	1932	May 6, 1932	10.0	11,500
1914	June 30, 1914	5.4	3,650				
1915	June 12, 1915	11.0	13,300	1940	Mar. 15, 1940	a5.00	-
					July 26, 1940	-	1,940
1916	May 21, 1916	8.8	9,120	1941	June 10, 1941	7.7	8,730
1917	Mar. 23, 1917	a9.8	-	1942	May 1, 1942	12.4	17,100
	May 26, 1917	-	6,500				

a Backwater from ice.

4465.5. White River tributary near Interior, S. Dak.

Location.--Lat 43°45', long 101°57', in SE¼ sec.27, T.3 S., R.18 E., at culvert on U.S. Highway 16A, 2½ miles northeast of Interior.

Drainage area.--0.14 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 25 cfs and extended above on basis of culvert computations at 193 and 558 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 1956	8.17	490	1961	August 1961	4.76	105
1957	May 20, 1957	6.21	265	1962	July 27, 1962	6.86	338
1958	July 4, 1958	5.50	185	1963	June 15, 1963	4.95	125
1959	June 26, 1959	7.22	380	1964	June 8, 1964	8.76	558
1960	August 1960	4.30	57				

4470. White River near Kadoka, S. Dak.

Location.--Lat 43°45'10", long 101°31'30", in SE¼SE¼ sec.30, T.3 S., R.22 E., Black Hills meridian, near center of span on downstream side of bridge on State Highway 73, 5 miles upstream from Pass Creek, 5½ miles downstream from Cottonwood Creek, and 5¾ miles south of Kadoka.

Drainage area.--5,000 sq mi, approximately.

Gage.--Nonrecording July 19, 1942, to June 13, 1949, and Mar. 9, 1955, to May 17, 1957; intermittent recording and nonrecording June 14, 1949, to Mar. 8, 1955, and since May 17, 1957. At site a quarter of a mile downstream prior to Mar. 9, 1955. Datum of gage is 2,122.18 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 16,000 cfs and extended above by logarithmic plotting.

Bankfull stage.--16 ft.

Historical data.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks at site a quarter of a mile downstream (discharge, about 32,000 cfs). Floods of Mar. 8, 1905, and spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942.

Remarks.--Base for partial-duration series, 3,600 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	June 4, 1942	16.24	a32,000	1951	Mar. 23, 1951	8.33	4,850
1943	May 30, 1943	10.25	8,080		June 2, 1951	7.56	4,280
1944	Mar. 24, 1944	b12.2	-		June 7, 1951	13.83	21,700
	June 12, 1944	-	13,100		June 20, 1951	8.55	7,150
1945	Aug. 5, 1945	7.55	3,700		June 24, 1951	7.55	5,280
					Sept. 2, 1951	8.63	5,280
1946	June 19, 1946	9.95	7,940				
1947	June 23, 1947	12.20	16,500	1952	Mar. 29, 1952	11.35	11,800
					May 23, 1952	11.19	13,500
1948	Feb. 19, 1948	b10.0	4,500		June 28, 1952	10.53	11,400
	June 17, 1948	8.4	5,000				
	June 23, 1948	9.75	8,690	1953	Feb. 6, 1953	b11.43	9,600
	June 26, 1948	8.50	5,960		Mar. 10, 1953	b11.96	10,800
					Mar. 12, 1953	b9.14	6,790
1949	Mar. 7, 1949	9.40	6,840		May 2, 1953	10.46	10,800
	Aug. 18, 1949	7.70	4,250		July 28, 1953	13.08	18,800
					Aug. 2, 1953	13.2	19,300
1950	Mar. 23, 1950	b8.08	3,800				
	May 9, 1950	8.84	5,630	1954	May 23, 1954	8.78	7,710

a About.
b Backwater from ice.

Peak stages and discharges of White River near Kadoka, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 10, 1955	b12.43	-	1960	Mar. 19, 1960	b13.94	-
	Mar. 11, 1955	b9.54	5,150		Mar. 19, 1960	11.11	9,520
	May 27, 1955	8.80	4,770		May 25, 1960	8.71	4,620
	Sept.21, 1955	13.28	14,400				
				1961	June 14, 1961	8.11	3,660
1956	Feb. 27, 1956	b12.81	3,000		July 27, 1961	9.67	6,280
1957	Feb. 27, 1957	8.20	3,600	1962	Mar. 21, 1962	11.88	9,650
	May 17, 1957	9.68	5,530		May 22, 1962	11.45	8,920
	May 21, 1957	13.47	14,500		May 30, 1962	9.28	5,470
	May 26, 1957	12.46	13,300		June 13, 1962	9.24	5,410
	June 10, 1957	12.19	11,300		June 16, 1962	13.12	12,400
					June 18, 1962	14.95	19,600
1958	Apr. 26, 1958	8.13	3,690		June 21, 1962	9.43	5,700
	July 4, 1958	8.23	3,960		June 25, 1962	8.74	4,660
	July 20, 1958	8.94	4,910		July 13, 1962	10.24	6,930
	July 31, 1958	8.25	3,800				
				1963	Oct. 7, 1962	8.13	3,730
1959	May 5, 1959	12.23	12,000		May 31, 1963	8.54	4,150
	June 30, 1959	8.35	4,190		June 16, 1963	12.57	10,900

b Backwater from ice.

4495. South Fork White River near Rosebud, S. Dak.

Location.--Lat 43°19'30", long 100°53'05", in NW¼ sec.28, T.39 N., R.30 W., on left bank at downstream side of bridge on U.S. Highway 18, 4½ miles downstream from Rosebud Creek and 6½ miles northwest of Rosebud.

Drainage area.--1,020 sq mi, approximately, of which about 760 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to May 11, 1948; recording thereafter. Altitude of gage is 2,295 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 810 cfs and extended above by velocity-area studies.

Bankfull stage.--17 ft.

Remarks.--Base for partial-duration series, 330 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	May 17, 1944	13.92	4,470	1953	Feb. 10, 1953	a7.00	-
1945	Mar. 10, 1945	a9.96	-		Mar. 3, 1953	a7.00	-
	Mar. 12, 1945	-	b700		Mar. 15, 1953	4.91	436
					Mar. 18, 1953	5.13	510
1946	Feb. 18, 1946	a6.99	-		May 3, 1953	5.10	500
	Aug. 28, 1946	-	566				
1947	Mar. 10, 1947	a6.53	-	1954	Jan. 14, 1954	a5.92	-
	Mar.14,15, 1947	-	b417		Mar. 19, 1954	4.38	311
1948	Mar. 11, 1948	a7.33	-	1955	Mar. 10, 1955	a9.47	-
	Aug. 13, 1948	5.52	498		Mar. 11, 1955	a9.33	770
					Mar. 14, 1955	5.75	635
1949	Mar. 4, 1949	a10.28	1,250		Mar. 29, 1955	5.00	443
	Mar. 5, 1949	a11.87	-		June 2, 1955	4.74	368
	May 31, 1949	5.27	392		June 16, 1955	5.07	462
1950	Feb. 18, 1950	a7.75	400	1956	Mar. 16, 1956	a7.51	-
	Mar. 16, 1950	a7.92	1,100		Mar. 20, 1956	4.58	358
	Mar. 23, 1950	9.98	2,220				
	Mar. 31, 1950	5.88	596	1957	Jan. 7, 1957	a5.98	-
	July 18, 1950	5.56	491		Apr. 21, 1957	4.67	352
					May 26, 1957	4.70	387
1951	Mar. 22, 1951	a6.24	340		June 16, 1957	4.80	410
	Mar. 26, 1951	a6.35	-				
1952	Mar. 17, 1952	a7.63	650	1958	Mar. 2, 1958	a6.03	-
	Mar. 23, 1952	4.97	365		Apr. 8, 1958	4.65	358
	Mar. 29, 1952	6.75	942		June 12, 1958	5.40	575

a Backwater from ice.
b Maximum daily mean.

Peak stages and discharges of South Fork White River near Rosebud, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 24, 1958	4.81	416	1962	May 21, 1962	6.13	986
					May 25, 1962	4.52	367
1959	Aug. 20, 1959	6.62	943		May 30, 1962	4.65	416
					June 13, 1962	4.93	519
1960	Mar. 21, 1960	a10.27	-		June 17, 1962	7.30	1,430
	Mar. 21, 1960	9.52	2,370		June 21, 1962	5.58	785
	Mar. 25, 1960	6.83	1,290		July 4, 1962	4.42	356
	May 25, 1960	4.33	337		July 12, 1962	12.27	3,600
1961	Feb. 24, 1961	a6.06	-	1963	Dec. 23, 1962	a8.12	-
	May 19, 1961	4.22	299		June 21, 1963	4.64	378
					June 26, 1963	5.26	617
1962	May 16, 1962	4.59	394				

a Backwater from ice.

4497. South Fork White River tributary near Mission, S. Dak.

Location.--Lat 43°20', long 100°43', in NW¼ sec.25, T.39 N., R.29 W., at culvert on U.S. Highway 83, 3¼ miles northwest of Mission.

Drainage area.--2.62 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs and extended above on basis of indirect measurement at 646 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Mar. 19, 1956	a4.93	35	1961	Mar. 4, 1961	2.26	1
1957	June 1957	5.79	66	1962	June 1962	10.15	646
1958	June 24, 1958	5.01	42	1963	February 1963	a4.55	15
1959	July 1959	3.40	10	1964	July 30, 1964	5.12	45
1960	Mar. 21, 1960	7.95	245				

a Backwater from ice.

4505. South Fork White River below White River, S. Dak.
(Published as "near White River" 1929-32 and as "at White River" 1938-40)

Location.--Lat 43°36'00", long 100°43'50", in NE¼SE¼ sec.23, T.42 N., R.29 W., on right bank 1 mile upstream from small tributary, 2 miles downstream from Pine Creek, and 2½ miles northeast of town of White River.

Drainage area.--1,570 sq mi, approximately; 1,380 sq mi, approximately, at 1930-32 site; 1,420 sq mi, approximately, at 1939-40 site. About 260 sq mi is probably noncontributing.

Gage.--Nonrecording prior to August 1938; recording thereafter. At sites 7½ miles upstream 1929-32, and 2½ miles upstream 1938-40, at different datums. Altitude of gage is 1,906 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs 1929-32 and below 280 cfs 1938-40; extended above by velocity-area studies. Defined by current-meter measurements throughout at present site.

Bankfull stage.--7 ft.

Remarks.--Peaks affected by regulation at small powerplant 3 miles upstream subsequent to 1938. Discharges given herein converted to present site by drainage-area relationship. Only annual peaks are shown.

Peak stages and discharges of South Fork White River below White River, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	May 11, 1930	5.16	1,390	1955	Mar. 10, 1955	a3.35	-
					Mar. 11, 1955	4.03	2,840
1931	Feb. 4, 1931	3.48	438				
1932	May 6, 1932	8.22	4,110	1956	Mar. 20, 1956	a6.28	-
					Aug. 6, 1956	3.41	1,960
1939	Mar. 12, 1939	a7.88	-	1957	Dec. 12, 1956	a3.35	-
	May 23, 1939	4.25	909		Aug. 26, 1957	2.83	1,420
1940	Mar. 16, 1940	a4.21	-	1958	Mar. 4, 1958	a3.17	-
	June 3, 1940	3.41	b565		Apr. 6, 1958	2.63	1,330
				1959	Mar. 3, 1959	a3.41	-
1950	Mar. 24, 1950	a8.93	-		Aug. 20, 1959	2.61	1,210
				1960	Mar. 21, 1960	a8.86	-
1951	Mar. 24, 1951	a4.07	-		Mar. 22, 1960	6.66	6,050
	Aug. 1, 1951	3.59	1,830				
1952	Mar. 28, 1952	a10.90	-	1961	Aug. 12, 1961	3.46	1,920
	Mar. 29, 1952	6.15	5,850	1962	June 25, 1962	6.78	5,950
1953	Mar. 12, 1953	a4.93	-	1963	Feb. 14, 1963	a4.16	-
	Apr. 30, 1953	4.16	2,820		June 15, 1963	2.60	1,100
1954	Mar. 17, 1954	3.23	b1,870				

a Backwater from ice.
b Caused by regulation.

4515. White River at Westover, S. Dak.
(Published as "near Westover" 1913-17)

Location.--Lat 43°44'30", long 100°39'50", in SW¼ sec.33, T.3 S., R.29 E., at bridge on U.S. Highway 83, half a mile southeast of Westover and 2 miles downstream from South Fork White River.

Drainage area.--7,850 sq mi, approximately.

Gage.--Nonrecording. Datum of gage is 1,755.8 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 9,100 cfs.

Bankfull stage.--12 ft.

Remarks.--All gage heights are maximum observed. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1913	Apr. 14, 1913	10.9	6,660	1916	May 25, 1916	10.6	7,700
1914	May 4, 1914	9.6	3,630	1917	Mar. 22, 1917	a15.1	-
1915	Apr. 4, 1915	13.0	15,200		May 27, 1917	11.0	8,600
				1918	Feb. 25, 1918	a11.9	-
1916	Feb. 18, 1916	a11.8	-		June 1, 1918	10.8	7,550

a Backwater from ice.

4520. White River near Oacoma, S. Dak.

Location.--Lat 43°44'45", long 99°33'20", in SE¼SW¼ sec.3, T.103 N., R.73 W., near center of span at downstream side of bridge on State Highway 47, 8 miles southwest of Oacoma, 8¼ miles downstream from Black Dog Creek, and 16¼ miles upstream from mouth.

Drainage area.--10,200 sq mi, approximately.

Gage.--Nonrecording Aug. 24, 1928, to May 18, 1934, and May 10, 1942, to Sept. 30, 1951; recording May 19, 1934, to May 9, 1942, and since Oct. 1, 1951. At site 12¼ miles downstream at different datum Aug. 24, 1928, to Sept. 30, 1951; at site 1¼ miles downstream at different datum Oct. 1, 1951, to May 23, 1955; at site a quarter of a mile downstream at same datum May 24, 1955, to Feb. 26, 1960. Altitude of gage is 1,375 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 5,500 cfs. Only annual peaks are shown prior to 1934, and 1942-47.

Peak stages and discharges of White River near Oacoma, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 10, 1929	6.6	10,800
1930	Mar. 10, 1930	a14.02	-
	May 13, 1930	-	12,100
1931	Oct. 6, 1930	5.02	5,470
1932	May 8, 1932	6.8	12,100
1933	Sept. 1, 1933	5.30	6,580
1934	June 20, 1934	5.00	5,680
1935	Apr. 11, 1935	5.52	8,100
	Apr. 27, 1935	7.30	14,400
	May 21, 1935	6.60	11,200
	June 2, 1935	7.55	15,800
1936	Mar. 4, 1936	a7.36	-
	Mar. 5, 1936	a6.40	7,210
1937	Mar. 6, 1937	a8.68	-
	June 19, 1937	5.94	8,500
	July 15, 1937	5.15	5,640
	July 20, 1937	5.79	7,920
1938	Mar. 13, 1938	a8.70	-
	May 20, 1938	6.20	9,540
1939	Mar. 20, 1939	a10.62	-
	May 28, 1939	5.32	6,160
1940	Mar. 19, 1940	a7.00	-
	May 1, 1940	4.35	3,140
1941	June 2, 1941	5.66	7,970
	June 12, 1941	6.50	10,600
	July 5, 1941	6.21	9,960
1942	May 8, 1942	10.7	35,300
1943	June 1, 1943	4.68	6,980
1944	Mar. 23, 1944	a13.10	-
	June 14, 1944	-	14,600
1945	Mar. 12, 1945	5.05	6,200
1946	June 20, 1946	4.87	5,530
1947	Mar. 15, 1947	a7.65	-
	June 25, 1947	-	11,400
1948	Mar. 21, 1948	a5.60	-
	June 17, 1948	6.05	12,200
	June 24, 1948	5.59	11,400
1949	Mar. 1, 1949	a9.4	-
	Mar. 8, 1949	5.46	10,200
1950	Mar. 31, 1950	a17.6	b20,000
1950	May 10, 1950	6.30	11,100
1951	June 8, 1951	5.50	7,700
	June 21, 1951	5.65	8,100
	June 25 or 26, 1951	5.50	7,700
1952	Mar. 19, 1952	8.90	(c)
	Mar. 30, 1952	15.40	51,900
	May 24, 1952	6.50	11,300
	June 29, 1952	6.68	9,970
1953	Mar. 12, 1953	11.28	29,900
	Mar. 14, 1953	8.92	17,700
	Mar. 18, 1953	6.87	10,600
	May 3, 1953	9.82	19,100
	July 29, 1953	6.49	9,360
	Aug. 3, 1953	6.47	9,290
1954	May 25, 1954	5.04	4,990
1955	Mar. 9, 1955	a8.60	-
	Mar. 12, 1955	6.74	9,330
	Sept.22, 1955	6.19	10,200
1956	Mar. 9, 1956	a7.92	5,500
1957	Mar. 2, 1957	a7.57	d9,000
	May 22, 1957	7.24	10,000
	May 27, 1957	7.99	12,800
	June 12, 1957	7.50	11,000
	July 1, 1957	6.58	7,750
1958	Apr. 8, 1958	6.49	6,530
1959	May 7, 1959	6.65	9,020
1960	Mar. 21, 1960	a17.07	-
	Mar. 23, 1960	11.40	23,300
	Mar. 27, 1960	11.43	23,400
1961	June 16, 1961	6.46	6,050
1962	Mar. 27, 1962	a12.67	12,000
	May 19, 1962	6.74	6,320
	May 23, 1962	7.83	9,420
	May 31, 1962	8.83	13,500
	June 17, 1962	11.00	21,300
	June 26, 1962	9.76	14,700
	July 2, 1962	8.81	11,400
	July 15, 1962	11.67	23,200
1963	June 18, 1963	8.02	9,850

a Backwater from ice.
b Estimated.
c Unknown; greater than 5,500 cfs.
d About.

4530. Missouri River below Fort Randall Dam, S. Dak.

Location.--Lat 42°58'55", long 98°29'35", in SW¼NE¼ sec.28, T.35 N., R.10 W., sixth principal meridian, on right bank 6 miles downstream from Randall Creek, 7 miles downstream from Fort Randall Dam, 12 miles south of Lake Andes, and at mile 873.

Drainage area.--263,500 sq mi, approximately.

Gage.--Recording. Datum of gage is 1,230.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Historical data.--Maximum stage known (April 1881) is about 5 ft higher than that of April 1943.

Remarks.--Many diversions for irrigation above station. Flow regulated by Fort Peck Reservoir (usable capacity, 18,800,000 acre-ft) since November 1937, by Fort Randall Reservoir (capacity, 6,093,000 acre-ft) since December 1952, by Garrison Reservoir (capacity, 23,000,000 acre-ft) since November 1953, and by Oahe Reservoir (capacity, 23,630,000 acre-ft) since August 1958. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1943	Apr. 1, 1943	16.5	-	1955	Aug. 5, 1955	6.15	41,900
1948	Mar. 26, 1948	-	103,000	1956	June 14, 1956	7.76	53,400
	June 18, 1948	10.06	-	1957	June 7, 1957	6.39	44,700
1949	Apr. 6, 1949	12.36	182,000	1958	Aug. 11, 1958	6.06	42,500
1950	Apr. 23, 1950	15.83	249,000	1959	Sept.16, 1959	6.74	47,400
				1960	June 16, 1960	8.46	87,700
1951	Apr. 8, 1951	9.88	134,000				
1952	Apr. 12, 1952	20.82	447,000	1961	July 15, 1961	6.22	45,500
1953	June 24, 1953	11.96	109,000	1962	July 25, 1962	7.19	74,400
1954	Aug. 1, 1954	5.29	-	1963	July 3, 1963	6.07	52,700
	Sept.30, 1954	-	34,300				

PONCA CREEK BASIN

4535. Ponca Creek at Anoka, Nebr.

Location.--Lat 42°56'25", long 98°50'30", in NE¼ sec.9 T.34 N., R.13 W., on downstream side of left pier of bridge on U.S. Highway 281, half a mile southwest of Anoka and half a mile upstream from Dry Creek.

Drainage area.--410 sq mi, approximately.

Gage.--Nonrecording only prior to Sept. 13, 1950; recording above 3.7 ft Sept. 13, 1950, to Sept. 18, 1958, and above 1.6 ft since Sept. 18, 1958.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Apr. 6, 1949	5.45	930	1952	Mar. 17, 1952	6.24	874
					Mar. 31, 1952	9.23	2,940
1950	Mar. 5, 1950	7.32	a1,310	1953	Mar. 14, 1953	b8.78	-
	Mar. 26, 1950	14.20	5,950		Mar. 18, 1953	5.57	888
	Apr. 2, 1950	15.00	6,770		May 3, 1953	5.07	771
	July 9, 1950	4.90	580				
1951	June 2, 1951	5.36	760	1954	June 7, 1954	5.90	1,090
	June 19, 1951	6.95	1,300		June 16, 1954	4.59	604
	June 25, 1951	10.03	2,650		June 20, 1954	7.44	2,080
	Aug. 15, 1951	5.65	892		Aug. 22, 1954	4.78	637
	Aug. 20, 1951	6.35	1,100	1955	Mar. 8, 1955	b9.1	-
	Aug. 27, 1951	4.78	544				

a Daily mean.
b Backwater from ice.

Peak stages and discharges of Ponca Creek at Anoka, Nebr.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Mar. 10, 1955	-	(c)	1960	June 28, 1960	4.12	726
1956	Mar. 18, 1956	b5.97	-	1961	Aug. 18, 1961	12.78	5,510
	Mar. 18, 1956	4.62	582	1962	Mar. 27, 1962	9.10	3,060
1957	Apr. 20, 1957	4.38	522		Mar. 31, 1962	5.55	1,200
	May 25, 1957	8.73	2,230		Apr. 7, 1962	5.08	1,010
	July 3, 1957	4.70	650		May 17, 1962	10.73	4,240
					May 29, 1962	11.33	4,720
1958	Mar. 25, 1958	b6.63	-		June 7, 1962	8.46	2,680
	Mar. 26, 1958	5.14	729		June 17, 1962	11.06	4,510
	Apr. 6, 1958	4.50	671		June 23, 1962	10.52	4,080
	July 31, 1958	5.72	948		July 2, 1962	10.15	3,740
					July 15, 1962	9.77	3,390
1959	July 17, 1959	7.68	1,930		July 28, 1962	5.25	768
	Aug. 9, 1959	5.35	802		July 31, 1962	7.59	1,870
					Aug. 3, 1962	9.33	3,010
1960	Mar. 27, 1960	16.86	9,810		Sept.16, 1962	5.72	948
	Apr. 6, 1960	6.18	1,430				
	Apr. 12, 1960	3.42	516	1963	May 27, 1963	5.22	757
	May 6, 1960	5.13	1,060		July 5, 1963	5.67	928
	May 19, 1960	3.41	513		July 13, 1963	5.40	820

b Backwater from ice.
c Not determined; probably exceeded base discharge.

4536. Ponca Creek at Verdel, Nebr.

Location.--Lat 42°28'40", long 98°10'35", in NE¼NE¼ sec.30, T.33 N., R.7 W., near left bank at downstream side of bridge on State Highway 12, 0.6 mile east of Verdel and 3.1 miles upstream from mouth.

Drainage area.--820 sq mi, approximately.

Gage.--Nonrecording prior to Apr. 27, 1958, and Apr. 19, 1961, to Nov. 14, 1962; recording Apr. 27, 1958, to Apr. 18, 1961, and since Nov. 14, 1962. Near present site at datum 0.4 ft lower prior to Apr. 19, 1961. At site 1.1 miles upstream at different datum Apr. 19, 1961, to Sept. 4, 1962. Datum of gage is 1,239.9 ft above mean sea level (Nebraska Department of Highways reference marks).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Mar. 26, 1958	5.67	857	1962	Mar. 28, 1962	10.17	5,320
	July 8, 1958	7.10	1,800		Apr. 8, 1962	-	a1,300
	July 27, 1958	6.90	1,660		May 17, 1962	7.00	2,840
	July 31, 1958	5.95	1,020		May 30, 1962	-	(b)
					June 8, 1962	-	(b)
1959	May 31, 1959	5.89	984		June 18, 1962	-	a5,900
					June 24, 1962	-	a4,700
1960	Mar. 27, 1960	15.10	15,700		July 3, 1962	-	a2,800
	Apr. 1, 1960	6.30	1,690		July 14 or 15, 1962	-	a3,800
	Apr. 5, 1960	6.92	2,160		July 28, 1962	-	a800
	May 6, 1960	5.46	1,250		Aug. 1, 1962	4.26	1,110
	May 19, 1960	7.23	2,440		Aug. 3, 1962	-	a3,400
	Aug. 28, 1960	5.06	1,060		Sept.17, 1962	-	a1,000
1961	June 14, 1961	5.67	1,340	1963	Feb. 6, 1963	c6.95	-
	Aug. 18, 1961	7.45	2,640		July 27, 1963	4.84	2,060

a About.
b Not determined; probably exceeded base discharge.
c Backwater from ice.

4540. Niobrara River at Wyoming-Nebraska State line

Location.--Lat 42°39', long 104°04', in SW¼ sec.15, T.31 N., R.60 W., on left bank a quarter of a mile downstream from Van Tassel Creek, 0.3 mile upstream from Wyoming-Nebraska State line, and 3 miles east of Van Tassel, Wyo.

Gage.--Recording.

Stage-discharge relation.--Defined by current-meter measurements below 63 cfs.

Remarks.--Base for partial-duration series, 20 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Feb. 24, 1956	1.83	21	1961	Dec. 6, 1960	b3.81	-
					Apr. 17, 1961	1.54	12
1957	May 4, 1957	1.98	31				
	July 13, 1957	4.07	220	1962	Feb. 2, 1962	3.99	211
					Mar. 19, 1962	2.66	69
1958	Mar. 23, 1958	2.27	52		June 17, 1962	5.84	465
	Apr. 6, 1958	-	(a)				
				1963	Jan. 31 or Feb. 1, 1963	b6.47	c200
1959	June 21, 1959	3.35	140				
					Mar. 25, 1963	-	41
1960	Mar. 8, 1960	b5.15	290		May 31, 1963	1.71	21
	Mar. 19, 1960	4.86	332				
	Apr. 16, 1960	2.55	72				

a Not determined probably exceeded base discharge.
b Backwater from ice.
c About.

4541. Niobrara River at Agate, Nebr.

Location.--Lat 42°25', long 103°47', in SW¼ sec.6, T.28 N., R.55 W., on right bank 10 ft upstream from farm bridge, 300 ft upstream from bridge on State Highway 22, a quarter of a mile northwest of Agate, and 14½ miles upstream from Whistle Creek.

Gage.--Nonrecording prior to Nov. 3, 1960; recording thereafter. Altitude of gage is 4,440 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Peak flows are materially affected by diversions for irrigation of about 2,000 acres above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 19, 1958	3.40	60	1961	Mar. 18, 1961	a3.69	33
1959	June 23, 1959	5.00	181	1962	Mar. 22, 1962	3.42	63
1960	Mar. 11, 1960	4.42	133	1963	Feb. 4, 1963	4.37	129

a Backwater from beaver dam.

4545. Niobrara River above Box Butte Reservoir, Nebr.

Location.--Lat 42°27'35", long 103°10'15", in NE¼ sec.27, T.29 N., R.50 W., on right bank 1 mile upstream from high-water line of Box Butte Reservoir and 6 miles east of Marsland.

Gage.--Nonrecording prior to Nov. 27, 1949; recording thereafter. Datum of gage is 4,012.47 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 230 cfs.

Remarks.--Base for partial-duration series, 150 cfs.

Peak stages and discharges of Niobrara River above Box Butte Reservoir, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	June 17, 1947	7.00	350	1956	May 27, 1956	4.22	82.0
1948	June 17, 1948	6.54	280	1957	May 19, 1957	6.34	189
					May 25, 1957	5.88	166
1949	Mar. 8, 1949	5.90	162		May 29, 1957	6.47	196
					May 31, 1957	6.02	173
1950	Mar. 27, 1950	a5.90	-		June 10, 1957	7.59	259
	May 5, 1950	5.36	139		Aug. 18, 1957	6.02	173
1951	July 28, 1951	10.30	461	1958	July 10, 1958	6.36	192
	July 30, 1951	6.80	212		July 12, 1958	6.60	204
	Sept. 3, 1951	7.08	229		Aug. 8, 1958	6.44	196
	Sept. 4, 1951	7.97	282	1959	June 25, 1959	5.15	136
1952	June 22, 1952	7.79	271				
	June 28, 1952	6.36	187	1960	Mar. 10, 1960	5.91	170
	Aug. 21, 1952	7.88	279		Mar. 19, 1960	6.66	208
					Aug. 25, 1960	6.49	200
1953	Feb. 21, 1953	a6.09	-				
	Mar. 14, 1953	5.02	117	1961	July 28, 1961	8.27	300
1954	June 28, 1954	6.69	216	1962	May 14, 1962	6.15	182
					May 27, 1962	7.25	239
1955	June 16, 1955	4.82	107		July 14, 1962	6.49	200
1956	Dec. 14, 1955	a4.31	-	1963	Apr. 4, 1963	4.58	111

a Backwater from ice.

4559. Niobrara River near Dunlap, Nebr.
(Published as "at Dunlap" prior to Nov. 17, 1936)

Location.--Lat 42°27'45", long 102°55'25", on river and two diversion canals in SE¼NW¼ sec.26, T.29 N., R.48 W., at diversion dam 1,000 ft upstream from Cottonwood Creek and 2.5 miles east of Dunlap.

Drainage area.--1,550 sq mi, approximately.

Gage.--Nonrecording at site 0.3 mile upstream prior to Nov. 17, 1936; recording thereafter. At site half a mile upstream Nov. 17, 1936, to Sept. 30, 1942. Both gages at altitude 3,870 ft (from topographic map).

Stage-discharge relation.--Prior to Sept. 30, 1942, defined by current-meter measurements below 120 cfs, and by slope-area measurements at 801 and 2,890 cfs. Since September 1961, defined by current-meter measurements below 170 cfs and extended above on basis of flow-over-dam measurement at 2,930 cfs.

Remarks.--Since 1962, flow computed for each channel (or canal) and combined for total flow. Peak flows affected by regulation of Box Butte Reservoir (usable capacity, 30,400 acre-ft). Base for partial-duration series, 160 cfs. Only annual peaks are shown prior to 1937.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Aug. 4, 1931	4.7	374	1939	Aug. 1, 1939	4.16	372
1932	May 6, 1932	8.00	890				
1933	Aug. 26, 1933	10.62	1,270	1940	Dec. 26, 1939	a4.19	-
1934	Aug. 16, 1934	9.48	1,170		Mar. 21, 1940	2.88	160
1935	June 17, 1935	4.40	308	1941	Apr. 1, 1941	2.64	171
					June 9, 1941	4.98	554
1936	Mar. 6, 1936	2.90	123		June 28, 1941	7.80	1,200
1937	Mar. 25, 1937	2.41	162				
	Sept. 4, 1937	9.8	2,890	1942	May 13, 1942	10.04	2,600
					June 25, 1942	4.35	265
1938	Apr. 26, 1938	2.47	167				
	May 20, 1938	3.00	210	1962	July 30, 1962	-	3,230
	Aug. 27, 1938	4.65	496				

a Backwater from ice.

4562. Pebble Creek near Esther, Nebr.

Location.--Lat 42°36', long 103°04', in NW¼ sec.10, T.30 N., R.49 W., on post in creek channel, 5 miles west of U.S. Highway 385 at Esther (former post office) and 1.2 miles south of schoolhouse.

Drainage area.--3.07 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by slope-area measurements at 23, 25, 185, and 2,000 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 28, 1953	18.67	2,000	1959	-	-	0
1954	Apr. 22, 1954	12.19	170	1960	Aug. 25, 1960	12.25	185
1955	Apr. 26, 1955	11.07	18				
				1961	-	-	0
1956	-	-	0	1962	July 12, 1962	12.68	265
1957	July 20, 1957	11.57	48	1963	Feb. 3, 1963	11.55	43
1958	July 9, 1958	10.95	14				

4563. Pebble Creek near Dunlap, Nebr.

Location.--Lat 42°30', long 102°59', on south line sec.8, T.29 N., R.48 W., on tree 100 ft upstream from east-west road, 0.3 mile west of U.S. Highway 385, and 3 miles northwest of Dunlap.

Drainage area.--23.5 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,933 ft (from topographic map).

Stage-discharge relation.--Defined by low-flow estimates, current-meter measurements at 2 and 306 cfs, and extended above on basis of a culvert and contracted-opening measurement at 2,740 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 28, 1953	12.88	2,740	1959	Sept.18, 1959	9.18	0.2
1954	June 27, 1954	10.84	120	1960	Mar. 18, 1960	11.98	550
1955	May 17, 1955	11.65	310				
				1961	Aug. 13, 1961	10.2	1
1956	June 1, 1956	9.14	.1	1962	July 12, 1962	11.89	465
1957	May 20, 1957	11.82	410	1963	June 14, 1963	10.30	2
1958	-	9.2	.2				

4564. Cottonwood Creek near Dunlap, Nebr.

Location.--Lat 42°29', long 102°58', in NW¼ sec.16, T.29 N., R.48 W., on right downstream side of bridge on U.S. Highway 385, 2 miles northwest of Dunlap and 3 miles north of Niobrara River bridge.

Drainage area.--82.2 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 3,945 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs and extended above on basis of contracted-opening measurement at 28,100 cfs.

Remarks.--The June 17, 1948, peak was computed from a slope-area survey by the Bureau of Reclamation at a site about 1½ miles downstream. The stage for this discharge was not related to the gage and no adjustment has been attempted for the change in drainage area between the gage and the survey site. Only annual peaks are shown.

Peak stages and discharges of Cottonwood Creek near Dunlap, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 17, 1948	-	10,800	1957	May 20, 1957	12.52	570
				1958	July 9, 1958	11.21	80
1951	July 28, 1951	20.10	28,100	1959	May 4, 1959	10.29	1
1952	-	9.55	1	1960	Aug. 25, 1960	14.70	3,370
1953	July 28, 1953	13.60	1,540				
1954	May 22, 1954	14.33	2,640	1961	July 19, 1961	10.47	7
1955	May 17, 1955	12.28	440	1962	July 12, 1962	12.78	750
				1963	Feb. 3, 1963	(a)	b5
1956	July 5, 1956	11.00	50				

a Below 10.0 ft.
b Estimated.

4565. Niobrara River near Hay Springs, Nebr.

Location.--Lat 42°29'00", long 102°41'40", in NW¼ sec.23, T.29 N., R.46 W., on left bank 20 ft downstream from bridge on State Highway 87, 4 miles upstream from Box Butte Creek, and 14 miles south of Hay Springs.

Gage.--Recording. Datum of gage is 3,723.42 ft above mean sea level, datum of 1929. At site 500 ft upstream at datum 1.5 ft higher prior to July 31, 1951.

Stage-discharge relation.--Defined by current-meter measurements below 470 cfs and extended above on basis of slope-area measurement at 7,330 cfs.

Remarks.--Peak flows are materially affected by regulation and diversions. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Aug. 25, 1950	4.42	1,690	1957	May 20, 1957	4.87	2,690
				1958	June 2, 1958	3.15	964
1951	July 28, 1951	7.2	7,330	1959	Jan. 9, 1959	a2.54	-
1952	Jan. 26, 1952	a2.75	-		June 29, 1959	1.86	138
	Mar. 29, 1952	2.63	455	1960	Mar. 18, 1960	a4.23	-
1953	July 29, 1953	2.83	511		Aug. 24, 1960	4.10	2,260
1954	May 23, 1954	3.68	1,160				
1955	June 27, 1955	2.87	559	1961	Jan. 15, 1961	a1.71	-
					Sept.22, 1961	1.50	104
1956	Feb. 25, 1956	a3.12	-	1962	July 31, 1962	4.23	2,380
	July 3, 1956	2.13	141	1963	Aug. 26, 1963	3.42	1,430

a Backwater from ice.

4572. Berea Creek near Alliance, Nebr.

Location.--Lat 42°08'25", long 102°51'30", in NW¼SW¼ sec.18, T.25 N., R.47 W., on left downstream side of bridge on U.S. Highway 385, 1 mile north of cemetery and 3 miles north of junction of U.S. Highway 385 and State Highway 2 at east city limits of Alliance.

Drainage area.--34.0 sq mi.

Gage.--Crest-stage gage. Datum raised 1 ft Aug. 26, 1960. All gage heights adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements below 27 cfs and slope-area measurement at 110 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Aug. 18, 1953	11.31	63	1959	Sept.24, 1959	10.82	35
1954	May 16, 1954	9.51	1	1960	Mar. 18, 1960	11.87	107
1955	May 26, 1955	10.43	19				
				1961	May 31, 1961	10.55	23
1956	July 2, 1956	11.52	77	1962	June 15, 1962	11.13	47
1957	May 19, 1957	10.89	38	1963	May 30, 1963	11.32	60
1958	June 8, 1958	11.82	102				

4575. Niobrara River near Gordon, Nebr.

Location.--Lat 42°38'00", long 102°12'40", in NE¼ sec.26, T.31 N., R.42 W., on left bank 250 ft upstream from bridge on State Highway 27, 4 miles downstream from Rush Creek, and 11 miles south of Gordon.

Drainage area.--2,595 sq mi.

Gage.--Nonrecording at bridge 4 miles downstream at different datum Aug. 24, 1928, to June 30, 1932; recording at present site and datum since October 1945. Datum of gage is 3,434.49 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs.

Remarks.--Peak flows are materially affected by regulation and diversions. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	June 2, 1929	1.80	1,230	1954	May 23, 1954	2.33	627
1930	May 11, 1930	1.04	869	1955	Mar. 4, 1955	a4.53	-
					Mar. 6, 1955	1.86	546
1931	Apr. 1, 1931	1.66	1,220				
1932	May 6, 1932	2.40	2,630	1956	Dec. 25, 1955	a2.19	-
					Mar. 25, 1956	1.37	202
1946	Sept.18, 1946	3.79	3,550	1957	May 20, 1957	3.20	2,530
1947	June 18, 1947	3.11	2,040	1958	Feb. 14, 1958	a2.57	-
1948	June 17, 1948	4.47	5,410		June 2, 1958	1.72	516
1949	Feb. 26, 1949	3.09	2,470	1959	Jan. 21, 1959	a2.28	-
1950	Aug. 26, 1950	2.94	1,720		May 5, 1959	1.48	365
				1960	Mar. 10, 1960	a2.92	-
1951	July 28, 1951	4.81	5,940		Aug. 25, 1960	2.36	2,330
1952	Jan. 21, 1952	a2.64	-				
	Mar. 29, 1952	1.88	378	1961	Dec. 4, 1960	2.13	-
1953	Mar. 2, 1953	a3.04	-		May 14, 1961	1.10	334
	July 29, 1953	1.84	723	1962	May 21, 1962	5.25	9,130
1954	Jan. 21, 1954	a2.48	-	1963	Aug. 27, 1963	2.09	1,870

a Backwater from ice.

4577. Antelope Creek at Gordon, Nebr.

Location.--Lat 42°48', long 102°12', in SE¼ sec.25, T.33 N., R.42 W., on right upstream side of concrete arch culvert south of community building on Oak Street, between Third and Fourth Streets, in Gordon.

Drainage area.--61.1 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs and extended above on basis of indirect measurements at 172 and 444 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 29, 1953	11.09	47	1959	May 4, 1959	10.29	17
1954	July 19, 1954	11.36	64	1960	Mar. 18, 1960	15.57	380
1955	Mar. 9, 1955	13.95	220				
				1961	Aug. 12, 1961	11.00	42
1956	July 2, 1956	10.43	22	1962	June 12, 1962	14.60	348
1957	July 28, 1957	10.90	38	1963	June 15, 1963	12.90	246
1958	May 24, 1958	17.86	444				

4578. Antelope Creek tributary near Gordon, Nebr.

Location.--Lat 42°50', long 102°12', on west edge of sec.18, T.33 N., R.41 W., on 3-span concrete bridge of State Highway 27, 0.3 mile north of crossroad, 2 miles north of Gordon, and 2½ miles north of U.S. Highway 20.

Drainage area.--26.6 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 6 cfs and extended above on basis of contracted-opening measurement at 1,430 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 29, 1953	10.44	50	1959	-	-	0
1954	Aug. 29, 1954	9.42	3	1960	Mar. 18, 1960	15.85	1,560
1955	June 17, 1955	16.69	1,900	1961	-	-	0
1956	-	-	0	1962	June 12, 1962	15.15	1,260
1957	July 28, 1957	15.09	1,240	1963	-	-	0
1958	May 24, 1958	10.93	95				

4585. Bear Creek near Eli, Nebr.

Location.--Lat 42°54', long 101°31', in SW¼ sec.24, T.34 N., R.36 W., on left bank 3 miles south of Eli and 9 miles upstream from mouth.

Drainage area.--360 sq mi, approximately, of which 78 sq mi contributes directly to surface runoff.

Gage.--Nonrecording. At site half a mile downstream at different datum prior to Mar. 14, 1948. At present site at different datum Mar. 14, 1948, to June 24, 1949. Altitude of gage is 3,110 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual maximum observed stages and discharges are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Mar. 12, 1948	a4.15	-	1951	May. 20, 1951	5.07	145
	Mar. 19, 1948	-	90	1952	Apr. 1, 1952	4.80	115
1949	Mar. 28, 1949	2.44	51	1953	Mar. 14, 1953	a5.20	-
1950	May 11, 1950	4.48	138		May 3, 1953	-	127

a Backwater from ice.

4590. Niobrara River near Cody, Nebr.

Location.--Lat 42°49'50", long 101°17'20", in NW¼NE¼ sec.23, T.33 N., R.34 W., on left bank a quarter of a mile upstream from Mogle Bridge, 3 miles upstream from Medicine Creek, 5 miles downstream from Bear Creek, and 10 miles south of Cody.

Gage.--Recording. Altitude of gage is 2,770 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Peak flow affected to some extent by storage in Box Elder Reservoir and by diversions. Base for partial-duration series, 1,300 cfs.

Peak stages and discharges of Niobrara River near Cody, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Mar. 16, 1948	3.21	1,790	1953	Feb. 20, 1953	a2.59	-
	June 18, 1948	5.70	3,700		July 30, 1953	2.10	948
1949	Jan. 4, 1949	a4.08	-	1954	July 20, 1954	3.00	1,590
	Feb. 27, 1949	3.96	2,270				
	Mar. 1, 1949	3.60	2,140	1955	Mar. 5, 1955	a4.73	-
	Mar. 15, 1949	2.92	1,460		Mar 10, 1955	2.66	1,460
					Aug. 28, 1955	2.66	1,360
1950	Aug. 14, 1950	2.96	1,540				
	Aug. 27, 1950	3.84	2,360	1956	Aug. 8, 1956	2.08	968
1951	July 29, 1951	6.22	4,170	1957	May 21, 1957	4.96	3,160
	Sept. 5, 1951	4.70	2,790		June 12, 1957	2.59	1,360
					July 22, 1957	2.88	1,520
1952	Mar. 30, 1952	2.33	1,140				

a Backwater from ice.

4595. Snake River near Burge, Nebr.

Location.--Lat 42°39'20", long 100°51'00", in NE¼ sec.20, T.31 N., R.30 W., on right bank 150 ft downstream from Nebraska National Forest boundary, 6½ miles southwest of Burge, and 22 miles southwest of Valentine.

Drainage area.--620 sq mi, approximately, of which about 100 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 2,805.36 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 520 cfs and extended above on basis of slope-area measurement at 1,830 cfs.

Bankfull stage.--No overflow likely.

Remarks.--Backwater during ice conditions varies considerably during short intervals of time and cannot be determined reliably. Base for partial-duration series, 380 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Feb. 15, 1948	a2.86	-	1954	Mar. 16, 1954	2.56	414
	Sept.23, 1948	2.69	381		Mar. 19, 1954	2.59	424
					Mar. 25, 1954	2.50	396
1949	Oct. 29, 1948	-	378		Apr. 29, 1954	2.58	393
	Jan. 10, 1949	a3.13	-		May 30, 1954	2.75	446
	Feb. 26, 1949	2.67	452		June 7, 1954	2.58	418
	Mar. 24, 1949	-	382				
	July 6, 1949	-	386	1955	May 26, 1955	3.16	577
					Sept.20, 1955	2.60	390
1950	Oct. 10, 1949	2.74	443				
	Jan. 4, 1950	a3.33	-	1956	Nov. 21, 1955	2.56	390
	May 6, 1950	2.53	386		Mar.4-6, 1956	-	b400
	May 8, 1950	2.64	431		Aug. 3, 1956	2.95	491
	June 2, 1950	2.67	439				
				1957	Apr. 12, 1957	2.50	396
1951	Feb. 2, 1951	a4.04	-		Apr. 20, 1957	2.63	424
	Feb. 11, 1951	2.52	402		May 4, 1957	2.59	393
	Mar. 8, 1951	2.77	510		May 16, 1957	2.75	436
	May 19, 1951	2.57	414		June 13, 1957	2.62	399
	June 18, 1951	2.90	510		Aug. 17, 1957	2.55	380
	June 24, 1951	2.57	406				
	July 12, 1951	2.52	386	1958	Mar. 5, 1958	2.53	399
	Aug. 14, 1951	2.60	419		Apr. 2, 1958	2.84	501
	Sept. 4, 1951	2.56	402		Apr. 23, 1958	2.49	383
					Apr. 28, 1958	2.49	380
1952	Jan. 28, 1952	a3.52	-				
	May 16, 1952	2.69	436	1959	Mar. 20, 1959	c2.60	396
	May 23, 1952	2.50	377				
				1960	Mar. 23, 1960	2.86	476
1953	Jan. 15, 1953	a3.77	-		May 7, 1960	2.90	496
	Mar. 12, 1953	3.11	566		June 13, 1960	2.62	406
	May 2, 1953	2.86	484		June 19, 1960	2.57	393
	July 27, 1953	2.66	408		June 27, 1960	2.79	469
	July 30, 1953	2.72	427		Aug. 25, 1960	2.84	492

a Backwater from ice.
b About.
c Occurred May 7, 1959.

Peak stages and discharges of Snake River near Burge, Nebr.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	May 14, 1961	2.73	444	1962	June 30, 1962	5.39	1,830
					July 12, 1962	3.90	915
1962	Mar. 22, 1962	2.79	451		July 17, 1962	2.73	438
	May 17, 1962	2.72	451		July 31, 1962	3.23	602
	May 29, 1962	2.72	444				
	June 21, 1962	2.81	460	1963	Feb. 7, 1963	6.96	d3,170

d Result of release of storage behind temporary construction dike.

4610. Minnechaduza Creek at Valentine, Nebr.

Location.--Lat 42°53'10", long 100°33'10", in SW¼ sec.30, T.34 N., R.27 W., on right bank 500 ft downstream from powerplant in city park at north edge of Valentine and 4 miles upstream from mouth.

Drainage area.--510 sq mi, approximately, of which 200 sq mi contributes directly to surface runoff.

Gage.--Recording. Altitude of gage is 2,470 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--The powerplant reservoir 500 ft upstream has a limited storage capacity, but the operation of the plant can regulate appreciably all peaks below 400 cfs. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 5, 1948	a2.96	-	1956	Mar. 5, 1956	3.03	170
	Mar. 20, 1948	-	140	1957	Apr. 12, 1957	2.86	145
1949	May 29, 1949	4.21	326	1958	Apr. 29, 1958	b2.92	153
1950	Mar. 26, 1950	3.21	186	1959	Nov. 1, 1958	c2.92	154
				1960	Mar. 22, 1960	8.00	1,100
1951	Aug. 1, 1951	4.01	241				
1952	Mar. 30, 1952	6.58	894	1961	June 8, 1961	3.64	307
1953	Mar. 14, 1953	4.21	314	1962	May 22, 1962	3.34	278
1954	Mar. 23, 1954	2.86	141	1963	Sept. 2, 1963	2.77	173
1955	Mar. 10, 1955	5.99	663				

a Backwater from ice.
b Occurred July 4, 1958.
c Occurred Aug. 4, 1959.

4615. Niobrara River near Sparks, Nebr.

Location.--Lat 42°54'10", long 100°21'40", in SE¼ sec.22, T.34 N., R.26 W., on left bank 18 ft downstream from highway bridge, 2¼ miles downstream from Big Beaver Creek, 5½ miles downstream from Minnechaduza Creek, and 6½ miles southwest of Sparks.

Drainage area.--6,406 sq mi.

Gage.--Recording. Datum of gage is 2,287.57 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs.

Remarks.--Peak flows affected by storage in Box Elder Reservoir and by irrigation and power developments. Only annual peaks are shown.

Peak stages and discharges of Niobrara River near Sparks, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Sept.19, 1946	4.33	2,350	1956	Mar. 5, 1956	ε6.11	-
1947	Jan. 9, 1947	a7.14	-		May 7, 1956	-	2,280
	June 16, 1947	-	3,560	1957	May 21, 1957	4.86	4,460
1948	Aug. 11, 1948	5.23	5,200	1958	Aug. 10, 1958	c3.83	2,230
1949	Mar. 5, 1949	6.73	10,200	1959	Nov. 18, 1958	ε4.31	-
1950	Aug. 27, 1950	4.51	3,500		May 9, 1959	-	2,070
				1960	Nov. 6, 1959	5.60	b6,430
1951	July 29, 1951	5.29	5,470				
1952	Mar. 10, 1952	a5.56	-	1961	Dec. 5, 1960	ε4.32	2,800
	Mar. 30, 1952	-	2,560	1962	Feb. 15, 1962	ε8.09	-
1953	Feb. 23, 1953	a4.94	-		July 1, 1962	-	7,670
	May 2, 1953	-	2,640	1963	Dec. 11, 1962	-	b4,570
1954	Mar. 13, 1954	5.45	b6,180		Mar. 1, 1963	ε9.07	-
1955	Mar. 9, 1955	4.98	4,460				

a Backwater from ice.
b Release of temporary storage caused by ice jam at powerplant 6 miles upstream.
c Occurred Apr. 1, 1958.

4620. Niobrara River near Norden, Nebr.

Location.--Lat 42°47'13", long 100°02'06", in N½SW¼ sec.33, T.33 N., R.23 W., on left bank 60 ft downstream from bridge on county road, 1½ miles downstream from Fairfield Creek, and 6 miles south of Norden.

Gage.--Recording. Datum of gage is 2,109.93 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs and extended above on basis of slope-area measurement at 7,380 cfs.

Remarks.--Peak flows affected by storage in Box Elder Reservoir and by irrigation and power developments. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Feb. 23, 1953	a6.81	-	1958	Apr. 6, 1958	-	2,190
	June 20, 1953	-	2,940	1959	Dec. 10, 1958	a7.07	-
1954	Mar. 3, 1954	a5.21	-		May 7, 1959	-	1,870
	Mar. 14, 1954	-	3,060	1960	Jan. 31, 1960	a7.43	-
1955	Jan. 20, 1955	a6.00	-		Mar. 23, 1960	5.57	4,170
	Mar. 11, 1955	-	3,730				
				1961	Dec. 5, 1960	a6.06	b2,000
1956	Mar. 7, 1956	3.60	2,130	1962	July 1, 1962	7.10	7,380
1957	Feb. 11, 1957	a5.16	-	1963	Feb. 8, 1963	a7.83	-
	May 22, 1957	-	4,370		Aug. 29, 1963	-	2,330
1958	Jan. 31, 1958	a7.43	-				

a Backwater from ice.
b About.

4631. Bone Creek tributary near Ainsworth, Nebr.

Location.--Lat 42°34'30", long 99°55'50", in NW¼ sec.17, T.30 N., R.22 W., 15 ft downstream from north-south sanded road 3 miles west or U.S. Highway 20, and 1¼ miles north from Ainsworth.

Drainage area.--0.39 sq mi.

Gage.--Crest-stage gage. At datum 0.5 ft lower prior to Apr. 5, 1963. Gage heights adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements below 13 cfs and extended above on basis of slope-area measurements at 16.5, 17.2, 18.5, 22.6, and 150 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Bone Creek tributary near Ainsworth, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 6, 1956	10.43	3.0	1961	Aug. 21, 1961	11.30	82
1957	June 13, 1957	10.36	3	1962	Aug. 2, 1962	11.79	189
1958	-	10.94	22.6	1963	July 27, 1963	11.46	117
1959	July 3, 1959	11.61	150				
1960	June 27, 1960	11.85	202				

4632. Bone Creek tributary No. 2 near Ainsworth, Nebr.

Location.--Lat 42°34'45", long 99°48'02", in SW¼SE¼ sec.8, T.30 N., R.21 W., 800 ft east of half-section line, on right downstream abutment of culvert on east-west gravel road, 3.4 miles northeast of Ainsworth.

Drainage area.--2.18 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 12 cfs and extended above on basis of indirect measurements at 59.7 and 640 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	May 30, 1958	10.93	59.7	1961	Mar. 14, 1961	10.52	25
1959	July 16, 1959	10.40	18	1962	June 30, 1962	13.29	640
1960	Mar. 21, 1960	11.93	216	1963	June 26, 1963	10.49	53

4633. Sand Draw tributary near Ainsworth, Nebr.

Location.--Lat 42°36'00", long 99°57'00", in SW¼NW¼ sec.6, T.30 N., R.22 W., on north-south abandoned road right-of-way, 5½ miles northwest of Ainsworth.

Drainage area.--1.07 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by eight slope-area measurements below 747 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 6, 1956	10.90	16.3	1961	Mar. 14, 1961	11.39	30
1957	July 26, 1957	11.69	43.4	1962	June 30, 1962	14.4	747
1958	July 24, 1958	12.10	56.3	1963	Apr. 10, 1963	11.93	51
1959	July 3, 1959	12.54	126				
1960	June 27, 1960	13.75	710				

● 4635. Long Pine Creek near Riverview, Nebr.

Location.--Lat 42°41'20", long 99°41'20", in N½ sec.5, T.31 N., R.20 W., on right bank 7 ft downstream from county road bridge, 1 mile downstream from Bone Creek, and 5½ miles southwest of Riverview.

Drainage area.--390 sq mi, approximately.

Gage.--Recording. At site 100 ft upstream prior to Dec. 7, 1962. Datum of gage is 1,983.34 ft above mean sea level (levels by Bureau of Reclamation).

Stage-discharge relation.--Defined by current-meter measurements below 3,600 cfs and extended above on basis of slope-area measurement at 9,650 cfs.

Remarks.--Peak discharges not significantly affected by diversions and power development upstream. Base for partial-duration series, 650 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	June 12, 1949	5.77	1,100	1955	Sept.20, 1955	4.65	331
1950	Feb. 27, 1950	4.60	791	1956	June 16, 1956	5.37	1,060
	Mar. 23, 1950	4.55	688				
	Aug. 12, 1950	4.70	671	1957	July 21, 1957	6.43	1,880
					July 27, 1957	6.41	1,870
1951	May 17, 1951	4.50	805				
	June 2, 1951	4.93	926	1958	Apr. 6, 1958	4.35	773
	June 18, 1951	5.70	1,220				
	June 26, 1951	9.00	4,010	1959	July 16, 1959	3.77	524
	Aug. 1, 1951	5.21	674				
	Aug. 20, 1951	10.24	5,410	1960	Mar. 21, 1960	7.11	2,310
					June 20, 1960	6.03	1,600
1952	May 17, 1952	6.64	868		June 27, 1960	6.33	1,780
	May 24, 1952	6.57	762				
	Aug. 7, 1952	8.70	2,840	1961	June 10, 1961	2.78	266
1953	Feb. 21, 1953	a7.41	-	1962	July 1, 1962	15.68	9,650
	Mar. 12, 1953	6.32	882		July 14, 1962	7.42	2,450
	June 15, 1953	6.95	1,220		Aug. 1, 1962	7.17	2,200
	June 19, 1953	6.74	1,190		Sept. 2, 1962	6.12	1,150
	Aug. 3, 1953	6.22	651				
				1963	Jan. 11, 1963	a7.56	-
1955	Feb. 20, 1955	a8.15	-		May 26, 1963	5.62	638

a Backwater from ice.

4640. Keya Paha River near Hidden Timber, S. Dak.

Location.--Lat 43°12'30", long 100°21'20", in SE¼NE¼ sec.2, T.37 N., R.26 W., on left bank A-frame of cableway, 3 miles southeast of Hidden Timber, 3 miles downstream from confluence of Antelope Creek and Rock Creek, 7½ miles upstream from Eagle Creek, and 10½ miles south of Okreek.

Drainage area.--320 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 2,330 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements below 380 cfs and extended above by slope-area measurement at 2,710 cfs.

Bankfull stage.--10 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Mar. 15, 1948	a6.87	150	1951	Mar. 24, 1951	5.41	b225
1949	Feb. 26, 1949	a8.08	-	1952	Mar. 30, 1952	10.6	2,710
	Mar. 4, 1949	a7.32	120	1953	Mar. 14, 1953	-	b1,000
1950	Mar. 24, 1950	10.87	1,680				

a Backwater from ice.
b Maximum daily discharge.

4645. Keya Paha River at Wewela, S. Dak.

Location.--Lat 43°01'40", long 99°46'45", in NE¼SE¼ sec.24, T.95 N., F.76 W., on left bank 13 ft downstream from bridge on U.S. Highway 183, three-quarters of a mile north of Wewela, 4½ miles upstream from Holt Creek, and 11½ miles downstream from Lost Creek.

Drainage area.--1,070 sq mi, approximately.

Gage.--Nonrecording prior to June 21, 1957; recording thereafter. Datum of gage is 2,049.78 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 250 cfs. Only annual peaks are shown prior to 1956.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 14, 1939	a4.45	-	1959	Mar. 19, 1959	3.11	338
	Mar. 16, 1939	4.32	378		May 29, 1959	3.78	497
1940	Apr. 29, 1940	3.29	239				
				1960	Mar. 24, 1960	10.56	4,210
1950	Mar. 25, 1950	a13.5	2,500		Apr. 6, 1960	4.23	700
					Apr. 18, 1960	2.86	272
1951	July 4, 1951	4.29	262		Apr. 30, 1960	2.92	292
1952	Mar. 31, 1952	b13.45	5,430		May 6, 1960	4.03	634
1953	Mar. 15, 1953	7.70	2,020				
1954	Mar. 22, 1954	-	400	1961	Feb. 18, 1961	a4.44	-
1955	Mar. 10, 1955	a9.77	-		May 18, 1961	2.24	156
	July 29, 1955	-	1,880				
				1962	Mar. 29, 1962	a6.83	1,300
1956	Mar. 4, 1956	a5.91	(c)		May 15, 1962	8.53	2,950
	Mar. 19, 1956	(a)	(d)		May 23, 1962	4.68	880
	Apr. 6, 1956	3.10	314		May 30, 1962	5.22	1,140
	May 4, 1956	2.82	251		June 6, 1962	4.14	668
					June 17, 1962	6.06	1,700
1957	Apr. 19, 1957	7.66	2,160		June 23, 1962	4.49	917
	May 17, 1957	4.36	707		June 26, 1962	4.33	845
	June 16, 1957	4.3	680		July 1, 1962	7.13	2,290
	July 1, 1957	3.76	491		July 5, 1962	4.36	858
					July 14, 1962	7.70	2,460
1958	Feb. 24, 1958	a3.16	270		July 27, 1962	3.55	422
	Mar. 26, 1958	2.88	280		Aug. 2, 1962	5.41	1,190
	Apr. 8, 1958	3.62	484				
	Apr. 25, 1958	3.02	300	1963	Feb. 8, 1963	a3.65	-
	July 27, 1958	4.18	673		Mar. 24, 1963	2.93	288
	July 31, 1958	3.45	420		Apr. 11, 1963	2.96	296

a Backwater from ice. b Occurred on preceding day. c Unknown; probably greater than 360 cfs. d Unknown; probably greater than 460 cfs.

4649. Keya Paha River near Naper, Nebr.

Location.--Lat 42°55'00", long 99°05'50", in SE¼SE¼ sec.17, T.34 N., R.15 W., on left bank 8 ft downstream from highway bridge, 3.3 miles south of Naper, and 8.6 miles upstream from mouth.

Gage.--Nonrecording prior to May 2, 1958; recording thereafter. Altitude of gage is 1,680 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs.

Remarks.--Base for partial-duration series, 900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Apr. 5, 1958	-	(a)	1960	Mar. 23, 1960	b13.34	-
	July 27, 1958	6.84	1,940		Mar. 27, 1960	9.82	6,890
	July 30, 1958	6.95	2,150		Apr. 6, 1960	5.92	1,240
					May 6, 1960	7.18	2,520
1959	Mar. 30, 1959	b7.30	-				
	May 28, 1959	6.29	1,590	1961	Feb. 22, 1961	b6.65	-

a Not determined; probably exceeded base discharge.
b Backwater from ice.

Peak stages and discharges of Keya Paha River near Naper, Nebr.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	Aug. 18, 1961	5.77	646	1962	July 5, 1962	6.19	1,430
					July 13, 1962	9.90	7,050
1962	Mar. 29, 1962	6.82	2,340		July 27, 1962	7.43	3,060
	May 16, 1962	8.65	4,910		July 31, 1962	8.21	4,220
	May 23, 1962	6.05	1,360		Aug. 2, 1962	8.00	3,900
	May 28, 1962	7.81	3,620		Aug. 5, 1962	5.99	1,200
	June 6, 1962	6.36	1,650				
	June 17, 1962	7.60	3,300	1963	May 26, 1963	6.52	1,180
	June 23, 1962	7.68	3,420		June 10, 1963	6.32	970
	June 25, 1962	6.41	1,600		July 8, 1963	8.66	4,570
	July 1, 1962	10.91	9,280				

4650. Niobrara River near Spencer, Nebr.

Location.--Lat 42°48'33", long 98°30'19", in SE¼NW¼ sec.30, T.33 N., R.11 W., at Spencer powerplant dam 5 miles southeast of Spencer.

Drainage area.--10,400 sq mi, approximately.

Gage.--Nonrecording May to December 1908 on former highway bridge 275 ft downstream, and Aug. 1, 1913, to Sept. 30, 1915, at highway bridge 10 miles downstream, at different datums. Aug. 1, 1927, to Sept. 30, 1936, and June 14, 1940, to Sept. 30, 1944, discharge computed as flow through powerhouse and over dam. Recording Oct. 1, 1944, to Nov. 10, 1954, at highway bridge 225 ft downstream, and Nov. 11, 1954, to Sept. 30, 1957, at site 0.3 mile downstream at datum 9.78 ft lower. Oct. 1, 1957, to Oct. 21, 1958, discharge computed as flow through powerhouse and over dam. Recording Oct. 22, 1958, to Aug. 13, 1963, at site 225 ft downstream at present datum. Since Aug. 13, 1963, recording and hourly log of powerplant operation. Datum of gage is 1,473.67 ft above mean sea level, datum of 1929. Elevation of taintor gate sill, 1,491.12 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 22,000 cfs and by slope-area measurement at 27,400 cfs.

Remarks.--Peak flows affected by irrigation and power developments. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1908	Aug. 6, 1908	7.0	a13,000	1945	Mar. 12, 1945	3.90	11,700
1914	May 24, 1914	4.8	a9,200	1946	Aug. 5, 1946	3.15	8,480
1915	May 26, 1915	6.6	-	1947	Oct. 5, 1946	4.00	15,400
				1948	June 13, 1948	3.00	8,550
1928	June 28, 1928	-	4,300	1949	Aug. 3, 1949	3.36	10,900
1929	June 6, 1929	-	6,720	1950	Mar. 6, 1950	6.0	a18,800
1930	Sept. 6, 1930	-	15,200				
				1951	Aug. 2, 1951	2.80	8,870
1931	Mar. 31, 1931	-	7,180	1952	Dec. 27, 1951	b2.93	-
1932	May 26, 1932	-	7,910		Apr. 1, 1952	2.80	10,100
1933	July 11, 1933	-	10,700	1953	Mar. 15, 1953	2.68	12,400
1934	Sept.24, 1934	-	11,500	1954	Mar. 29, 1954	2.10	10,900
1935	Mar. 1, 1935	-	a7,000	1955	Mar. 12, 1955	12.16	27,400
1936	May 22, 1936	-	10,200	1956	Mar. 18, 1956	-	2,990
				1957	May 19, 1957	-	6,710
1938	May 1938	-	a9,100	1958	Feb. 26, 1958	-	5,840
1939	March 1939	-	a7,900	1959	Mar. 29, 1959	7.25	11,000
1940	March 1940	-	a5,400	1960	Mar. 27, 1960	8.6	23,400
1941	Dec. 12, 1940	-	4,980	1961	Dec. 6, 1960	4.80	6,800
1942	May 16, 1942	-	12,800	1962	July 1, 1962	12.0	27,000
1943	June 14, 1943	-	21,500	1963	July 27, 1963	5.80	8,560
1944	June 13, 1944	-	11,200				

a About.
b Backwater from ice.

4652. Honey Creek near O'Neill, Nebr.

Location.--Lat 42°34'52" long 98°41'45", in SW corner of sec.11, T.30 N., R.12 W., on left side and downstream end of culvert on east-west county road, 9 miles northwest of O'Neill.

Drainage area.--2.54 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by a current-meter measurement at 16.4 cfs and an indirect measurement at 68.6 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Apr. 23, 1958	11.86	61	1961	July 27, 1961	10.95	10
1959	Aug. 22, 1959	11.30	25	1962	July 11, 1962	12.18	85
1960	Mar. 27, 1960	14.74	70	1963	July 9, 1963	11.41	33

4653. Camp Creek near O'Neill, Nebr.

Location.--Lat 42°39'08", long 98°39'26", in NW¼SW¼ sec.19, T.31 N., R.11 W., on left downstream wingwall of culvert, 13 miles north of O'Neill or U.S. Highway 281.

Drainage area.--1.65 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Based on estimates, and a slope-area measurement at 68.9 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Apr. 23, 1958	-	0.5	1961	July 27, 1961	10.17	27
1959	Mar. 26, 1959	a11.02	b6	1962	July 11, 1962	10.68	68.9
1960	Mar. 27, 1960	a12.80	b50	1963	Feb. 5, 1963	a11.22	b10

a Backwater from ice.
b Approximate.

4654. Blackbird Creek tributary near O'Neill, Nebr.

Location.--Lat 42°33'42", long 98°38'47", in SW¼NE¼ sec.19, T.30 N., R.11 W., in open pasture 7¼ miles north of O'Neill.

Drainage area.--0.60 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by field estimates below 3 cfs and extended above on basis of slope-area measurement at 68.2 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 26, 1958	12.81	94	1961	Mar. 14, 1961	10.64	2.0
1959	Aug. 22, 1959	11.19	10	1962	July 11, 1962	12.41	68.2
1960	Mar. 27, 1960	12.04	47	1963	Feb. 5, 1963	a11.90	b20

a Backwater from ice.
b Estimated.

4655. Niobrara River near Verdel, Nebr.

Location.--Lat 42°44'25", long 98°12'45", near center of N½ sec.23, T.32 N., R.8 W., on left bank 4 ft downstream from Pishelville bridge, 6 miles south of Verdel, and 6 miles upstream from Verdigre Creek.

Drainage area.--10,900 sq mi, approximately.

Gage.--Nonrecording prior to June 14, 1940; recording thereafter. Datum of gage is 1,308.12 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 32,000 cfs.

Remarks.--Peak flows affected by irrigation and power developments. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	May 2, 1938	5.70	10,000	1961	May 14, 1961	5.62	6,290
1939	Mar. 20, 1939	5.49	8,700	1962	Mar. 27, 1962	a9.68	-
1940	Mar. 18, 1940	4.95	5,900		July 1, 1962	-	25,600
				1963	Feb. 8, 1963	a7.35	-
1959	Mar. 19, 1959	a6.69	7,670		July 27, 1963	-	10,100
1960	Mar. 27, 1960	10.1	39,000				

a Backwater from ice.

BAZILE CREEK BASIN

4665. Bazile Creek near Niobrara, Nebr.

Location.--Lat 42°45'00", long 97°56'10", in NE¼ sec.18, T.32 N., R.5 W., on downstream side of left pier of bridge on State Highway 12, 2½ miles upstream from mouth and 4½ miles east of Niobrara.

Drainage area.--440 sq mi, approximately.

Gage.--Nonrecording. Supplementary recording gage above 4.2 ft at datum 4 ft higher Dec. 16, 1952, to June 16, 1947. Supplementary recording gage above 8.2 ft at present datum June 17, 1947, to Sept. 14, 1958. Supplementary gage above 4.3 ft since Sept. 14, 1958. All gage heights adjusted to present datum. Datum of gage is 1,210.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1949.

Stage-discharge relation.--Defined by current-meter measurements below 6,500 cfs and extended above on basis of contracted-opening measurements at 24,400 and 68,600 cfs.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges of Bazile Creek near Niobrara, Nebr.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	June 19, 1951	15.36	a24,400	1959	May 31, 1959	14.59	16,300
					June 26, 1959	9.88	3,580
1952	May 27, 1952	9.15	b776		June 27, 1959	10.32	4,560
					Aug. 10, 1959	7.10	1,620
1953	Mar. 10, 1953	c17.06	d3,000				
	June 8, 1953	13.85	11,600	1960	Apr. 1, 1960	12.80	7,810
	July 30, 1953	9.96	1,260		Apr. 6, 1960	9.26	2,450
					Apr. 12, 1960	10.60	3,800
1954	May 31, 1954	13.80	10,400		May 6, 1960	10.40	3,580
	June 6, 1954	15.51	26,100		May 19, 1960	12.78	7,750
	June 18, 1954	10.03	1,320		May 25, 1960	7.88	1,340
	June 20, 1954	10.96	1,960		June 10, 1960	8.36	1,710
					June 16, 1960	8.20	1,580
1955	Mar. 3, 1955	c16.65	(e)		June 28, 1960	8.13	1,520
	Sept.21, 1955	11.20	2,440		July 18, 1960	7.64	1,160
					Aug. 28, 1960	13.62	10,700
1956	Mar. 2, 1956	c9.68	-				
	July 15, 1956	7.41	237	1961	Feb. 12, 1961	c11.54	-
					May 30, 1961	10.13	2,320
1957	Oct. 29, 1956	10.23	1,490		June 15, 1961	9.98	2,140
	Apr. 20, 1957	14.33	14,400		July 22, 1961	10.60	2,980
	May 21, 1957	9.57	1,600				
	June 16, 1957	19.96	68,600	1962	Mar. 27, 1962	c17.93	6,600
	July 1, 1957	11.47	4,860		June 10, 1962	13.57	10,500
					June 17, 1962	12.97	8,350
1958	Mar. 23, 1958	7.23	2,250		July 1, 1962	9.77	1,910
	July 27, 1958	14.6	28,000				
				1963	Aug. 5, 1963	11.98	4,640
1959	May 29, 1959	12.66	7,380				

a Annual peak only. b Maximum observed during period May 7 to Sept. 30.
c Backwater from ice. d About. e Not determined.

MISSOURI RIVER MAIN STEM

4675. Missouri River at Yankton, S. Dak.

Location.--Lat 42°52', long 97°24', between sec.18, T.93 N., R.55 W., and sec.13, T.93 N., R.56 W., on downstream end of left pier of Meridian Highway Bridge on U.S. Highway 281 in Yankton, 8.3 miles upstream from James River, 5.3 miles downstream from Gavins Point Dam, and at mile 805.8.

Drainage area.--279,500 sq mi, approximately.

Gage.--Nonrecording prior to Sept. 20, 1932; recording thereafter. Datum of gage is 1,159.68 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Historical data.--The stage that occurred Apr. 5, 1881, is the maximum known.

Remarks.--In addition to regulation shown for station below Fort Randall Dam, flows at this station have been regulated by Lewis and Clark Lake (capacity, 541,300 acre-ft) since July 1955. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1881	Apr. 5, 1881	a30.5	-	1939	Apr. 1, 1939	b10.10	176,000
				1940	June 15, 1940	7.42	50,800
1931	June 15, 1931	7.22	46,500				
1932	Mar. 22, 1932	a14.80	-	1941	June 14, 1941	10.29	137,000
	June 18, 1932	9.68	124,000	1942	May 15, 1942	10.20	126,000
1933	May 29, 1933	-	111,000	1943	Apr. 8, 1943	b13.60	282,000
	June 28, 1933	8.64	-	1944	Apr. 9, 1944	10.82	172,700
1934	Mar. 3, 1934	a10.30	112,000	1945	Mar. 12, 1945	a8.20	-
1935	July 16, 1935	8.90	130,000		Mar. 22, 1945	7.63	98,300
1936	Mar. 21, 1936	a7.85	-	1946	June 22, 1946	8.57	87,300
	Apr. 18, 1936	7.60	102,000	1947	Apr. 3, 1947	11.00	176,000
1937	June 22, 1937	9.60	112,000	1948	Mar. 21, 1948	a9.05	-
1938	Mar. 24, 1938	-	146,000		Mar. 26, 1948	8.60	110,000
	July 12, 1938	10.15	-	1949	Apr. 7, 1949	-	173,000

a Backwater from ice.
b Occurred on following day.

Peak stages and discharges of Missouri River at Yankton, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Apr. 10, 1949	10.55	-	1957	Oct. 10, 1956	4.62	-
1950	Apr. 24, 1950	11.60	237,000	1958	Oct. 3, 1957	4.07	-
					Oct. 7, 1957	-	35,300
1951	Apr. 7, 1951	8.43	134,000	1959	Oct. 7, 1958	3.59	-
1952	Apr. 13, 1952	15.5	480,000		Aug. 28, 1959	-	33,900
1953	June 25, 1953	8.59	112,000	1960	Mar. 29, 1960	3.59	34,700
1954	June 7, 1954	4.79	38,600				
1955	Mar. 11, 1955	a5.61	-	1961	Nov. 2, 1960	3.00	-
	Aug. 25, 1955	4.85	38,500		July 6, 1961	-	31,800
				1962	July 4, 1962	3.33	35,900
1956	Aug. 24, 1956	5.05	47,000	1963	July 25, 1963	2.80	33,800
1957	Oct. 2, 1956	-	38,600				

a Backwater from ice.

JAMES RIVER BASIN

4676. James River near Manfred, N. Dak.

Location.--Lat 47°38'40", long 99°49'40", near midpoint of north line sec.15, T.148 N., R.72 W., on left upstream wingwall of bridge on U.S. Highway 52, 5 miles southwest of Manfred.

Drainage area.--290 sq mi, approximately, of which about 50 sq mi probably contributes directly to surface runoff.

Gage.--Crest-stage gage prior to Sept. 16, 1957; recording and crest-stage gages thereafter. Datum of gage is 1,605.73 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--7 ft.

Remarks.--Base for partial-duration series, 30 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	April 1950	a9	-	1960	Mar. 27, 1960	6.15	555
1955	Mar. 30, 1955	b3.80	110	1961	Mar. 14, 1961	1.24	-
					May 12-16, 1961	-	.3
1956	Aug. 13, 1956	b5.98	250				
				1962	Mar. 25, 1962	b3.42	-
1957	Apr. 11, 1957	2.02	35		Mar. 28, 1962	b2.94	40
1958	Mar. 30, 1958	b1.90	26	1963	June 26, 1963	1.37	2.7
1959	Mar. 12, 1959	b2.8	-	1964	June 20, 1964	3.52	73
	Mar. 18, 1959	b1.88	6				

a About; caused by ice jam.
b Backwater from ice or snow.

4676.5. James River tributary near Manfred, N. Dak.

Location.--Lat 47°38'50", long 99°54'20", in SW¼ sec.7, T.148 N., R.72 W., at bridge on county highway, 8 miles southwest of Manfred.

Drainage area.--95.9 sq mi, of which 37.2 sq mi probably contributes directly to surface runoff.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 132 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of James River tributary near Manfred, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	March 1955	1.88	110	1960	March 1960	2.70	-
1956	Apr. 1, 1956	a1.98	50	1961	-	-	0
1957	March 1957	1.58	b2	1962	Mar. 29, 1962	2.5	-
1958	April or May 1958	1.50	b5	1963	June or July 1963	a1.21	b1
1959	March 1959	1.0	b3	1964	June 1964	-	b6

a Backwater present.
b Estimated.

4678. James River tributary No. 3 near Manfred, N. Dak.

Location.--Lat 48°38'40", long 99°45'30", in NE¼NE¼ sec.18, T.148 N., R.71 W., at culvert on former U.S. Highway 52, 3½ miles south of Manfred.

Drainage area.--21.3 sq mi, of which about 20 sq mi probably contributes directly to surface runoff.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurement below 20.4 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	March 1955	a3.35	-	1960	March 1960	2.7	70
	March 1955	a1.70	9				
				1961	-	-	0
1956	April 1956	a3.98	b50	1962	-	2.87	2
1957	Aug. 12, 1957	2.24	18	1963	Summer 1963	-	.1
1958	Mar. 26, 1958	2.07	14	1964	May or June 1964	2.33	17
1959	March 1959	a2.31	-				
	March 1959	a2.00	1				

a Backwater from snow or ice.
b Estimated.

4680. James River at New Rockford, N. Dak.

Location.--Lat 47°41'05", long 99°07'30", on line between secs. 32 and 33, T.149 N., R.66 W., on right bank 90 ft downstream from U.S. Highway 281 bridge at New Rockford, 7 miles upstream from small tributary.

Drainage area.--596 sq mi, of which about 406 sq mi probably contributes directly to surface runoff.

Gage.--Nonrecording prior to Aug. 8, 1951; recording thereafter. Datum of gage is 1,500.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 470 cfs.

Bankfull stage.--10 ft.

Historical data.--Flood of April 1948 is greatest known since at least 1925, from information by local resident.

Remarks.--Considerable channel storage above gage does not materially affect the higher peak flows. Only annual peaks are shown.

Peak stages and discharges of James River at New Rockford, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	April 1948	a13	-	1956	Apr. 16, 1956	b8.70	306
				1957	Sept.18, 1957	8.79	24
1950	April 1950	11.3	-	1958	Nov. 9, 1957	8.89	45
				1959	-	-	0
1951	Apr. 12, 1951	9.20	840	1960	Apr. 3, 1960	10.16	670
1952	Apr. 8, 1952	b8.85	380				
1953	July 11, 1953	6.36	4.1	1961	-	-	0
1954	June 16, 1954	6.85	21	1962	-	-	0
1955	Apr. 8 or 9 1955	7.52	75	1963	-	-	0

a About.
b Backwater from ice.

4685. James River near Pingree, N. Dak.

Location.--Lat 47°08'30", long 98°47'00", in SW¼SW¼ sec.3, T.142 N., R.64 W., on right bank 500 ft upstream from dam at outlet of DePuy Marsh, 6¼ miles southeast of Pingree, and 6¼ miles northeast of Buchanan.

Drainage area.--1,580 sq mi, approximately, of which about 1,140 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,400.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Remarks.--Peak flows are materially affected by storage above station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	June 25, 1953	37.16	160	1959	Oct.1 to Dec.8, 1958	-	0.2
1954	June 15, 1954	37.08	107				
1955	May 4, 1955	37.25	237	1960	Apr. 13, 1960	37.62	293
1956	June 6, 1956	37.32	175	1961	-	-	0
1957	May 26, 1957	32.06	80	1962	July 7, 1962	37.19	113
1958	Apr. 28, 1958	37.52	245	1963	-	-	0

4695. Pipestem Creek near Buchanan, N. Dak.

Location.--Lat 47°03'59", long 98°55'07", at north line of sec.4, T.141 N., R.65 W., on left bank 30 ft downstream from bridge on county road, 4½ miles west of Buchanan.

Drainage area.--925 sq mi, of which 475 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to July 11, 1950; recording thereafter. Datum of gage is 1,467.01 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--8 ft.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges of Pipestem Creek near Buchanan, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Apr. 6, 1950	a11.28	900	1957	Mar. 22, 1957	a4.38	-
	Apr. 9, 1950	a11.89	-		Sept.11, 1957	3.55	55
	Apr. 17, 1950	10.77	4,480				
	May 12, 1950	10.34	3,440	1958	Feb. 27, 1958	-	370
					Mar. 30, 1958	a7.12	400
1951	Apr. 4, 1951	a8.38	-				
	Apr. 6, 1951	7.84	826	1959	Mar. 30, 1959	a2.56	4.3
1952	Apr. 4, 1952	a9.48	-	1960	Mar. 27, 1960	7.6	678
	Apr. 4, 1952	a9.4	a1,100				
				1961	Mar. 3, 1961	a4.09	-
1953	Mar. 14, 1953	a5.1	-		Apr. 6, 1961	2.89	15
	June 20, 1953	4.41	116				
				1962	Mar. 29, 1962	a6.38	320
1954	June 7, 1954	7.27	539		July 6, 1962	8.26	894
	June 12, 1954	6.02	316		July 19, 1962	8.14	854
1955	Mar. 31, 1955	a7.20	-	1963	Mar. 24, 1963	a3.72	28
	Apr. 2, 1955	6.77	491				
				1964	June 18, 1964	7.61	681
1956	May 30, 1956	6.88	516				
	June 7, 1956	7.06	560				

a Backwater from ice.

4696. Minneapolis Flats Creek tributary near Eldridge, N. Dak.

Location.--Lat 46°53'25", long 98°55'30", at section line 5-6, T.139 N., R.65 W., at culverts on county highway, 3½ miles west of Eldridge.

Drainage area.--9.91 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 28 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 1955	1.90	5.6	1961	March or April 1961	1.85	0.2
1956	June 6, 1956	2.68	33	1962	July 6 or 7, 1962	3.36	60
1957	Spring 1957	2.08	10.5	1963	-	-	0
1958	March 1958	a2.78	10	1964	May or June 1964	3.28	58
1959	-	-	0				
1960	Apr. 5, 1960	2.46	30				

a Backwater from ice.

4700. James River at Jamestown, N. Dak.

Location.--Lat 46°53'45", long 98°41'28", in NW¼SW¼ sec.31, T.140 N., R.63 W., on right bank 80 ft downstream from Asylum Bridge at southeast corner of Jamestown and 2.5 miles downstream from Pipestem Creek.

Drainage area.--2,840 sq mi, of which about 1,890 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 1, 1949; recording thereafter. At site 80 ft upstream at datum 5.00 ft lower June 1928 to August 1933. At site 80 ft upstream at present datum August 1937 to September 1939 and March 1943 to Sept. 30, 1949. Datum of gage is 1,375.27 ft above mean sea level, datum of 1929. Gage heights given herein converted to present site and datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Historical data.--Flood of Apr. 27, 1897, was about the same as flood of May 13, 1950. Flood of Mar. 27, 1902, was about 2 ft lower and flood of Apr. 11, 1919, was about 1 ft lower than the 1950 flood. Floods also occurred in 1876, 1881, 1882, 1883.

Remarks.--Flow regulated by Arrowood and Jim Lakes (combined capacity, 16,000 acre-ft) and by Jamestown Reservoir since 1954 (capacity, 229,500 acre-ft). Base for partial-duration series, 200 cfs. Only annual peaks are shown prior to Oct. 1, 1949, and since 1953.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	July 5, 1928	7.4	786	1950	June 26, 1950	4.51	328
1929	Mar. 14, 1929	9.2	1,100				
1930	Mar. 11, 1930	a6.8	580	1951	Mar. 29, 1951	a9.63	1,100
					Apr. 5, 1951	9.48	1,180
1931	Apr. 6, 1931	2.44	91				
1932	Feb. 28, 1932	a7.38	722	1952	Apr. 4, 1952	10.18	1,360
1933	Feb. 28, 1933	a6.78	642		Apr. 8, 1952	11.12	1,620
1938	Mar. 15, 1938	3.90	162	1953	May 30, 1953	6.48	617
1939	Mar. 24, 1939	4.65	250		June 15, 1953	6.14	559
					June 20, 1953	6.63	642
1943	Mar. 31, 1943	a12.77	1,900		June 27, 1953	5.69	486
1944	May 28, 1944	5.58	370				
1945	Mar. 14, 1945	5.62	434	1954	June 8, 1954	6.95	637
				1955	Apr. 3, 1955	6.10	552
1946	Mar. 23, 1946	4.41	-				
	Apr. 10, 1946	-	159	1956	June 16, 1956	8.86	937
1947	Mar. 24, 1947	a7.60	-	1957	Mar. 26, 1957	-	92
	Apr. 12, 1947	-	697		Sept.19, 1957	c5.24	-
1948	Apr. 23, 1948	b14.31	3,250	1958	Feb. 28, 1958	a8.62	600
1949	Apr. 4, 1949	10.06	1,350	1959	June 27, 1959	3.18	135
				1960	Mar. 27, 1960	a11.76	1,710
1950	Apr. 7, 1950	a12.85	1,680				
	Apr. 17, 1950	15.73	6,020	1961	Mar. 7, 1961	2.43	32
	May 13, 1950	15.82	6,390	1962	July 20, 1962	11.42	1,630
	June 12, 1950	6.17	589	1963	July 11, 1963	3.45	123

a Backwater from ice.
b Occurred on following day.
c Backwater from temporary fill.

4702. Beaver Creek tributary near Eldridge, N. Dak.

Location.--Lat 46°52'15", long 98°55'30", at section line 7-8, T.139 N., R.65 W., at culvert on county highway, 4 miles southwest of Eldridge.

Drainage area.--0.19 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 3 cfs and extended above on basis of estimate at 45 cfs based on stage and culvert geometry.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Beaver Creek tributary near Eldridge, N. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 1955	3.90	28	1961	February 1961	3.88	-
					Feb. 27, 1961	-	a0.1
1956	May 29, 1956	3.00	14	1962	July 19, 1962	5.55	45
1957	-	-	0	1963	April 1963	2.52	11
1958	Feb. 27, 1958	2.37	9.5	1964	May or June 1964	4.80	38
1959	March 1959	-	a.1				
1960	March 1960	3.00	13				

a Estimated.

4703. Beaver Creek near Sydney, N. Dak.

Location.--Lat 46°45'00", long 98°47'50", in SW¼SW¼ sec.20, T.138 N., R.64 W., at bridge on county highway 2 miles northwest of Sydney.

Drainage area.--92.2 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 440 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	June 1955	3.18	180	1961	March 1961	b2.66	a2.5
				1962	July 8, 1962	7.66	700
1956	June 6, 1956	4.82	490	1963	April or May 1963	2.39	70
1957	May 1957	1.60	a5				
1958	Feb. 28, 1958	b4.48	290	1964	May or June 1964	3.52	-
1959	July 15, 1959	1.50	2.1				
1960	Mar. 27, 1960	4.44	410				

a Estimated.
b Backwater from ice.

4704. Buffalo Creek tributary near Sydney, N. Dak.

Location.--Lat 46°42'40", long 98°50'20", in SW¼NW¼ sec.1, T.137 N., R.65 W., at bridge on county highway, 3½ miles southwest of Sydney.

Drainage area.--26.2 sq mi.

Gage.--Crest-stage gage. At different datum prior to March 1959.

Stage-discharge relation.--Prior to March 1959, defined by current-meter measurements below 120 cfs. After March 1959, defined by current-meter measurements below 57 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	Summer 1955	5.93	72	1961	March 1961	2.00	5
				1962	July 5, 1962	3.45	125
1956	June 6, 1956	6.16	130	1963	March or April 1963	2.35	20
1957	March 1957	a4.68	-				
	May 25, 1957	-	4	1964	May or June 1964	1.86	2
1958	Feb. 28, 1958	a6.58	40				
1959	July 14, 1959	3.04	120				
1960	Mar. 27, 1960	2.71	66				

a Backwater from ice.

4705. James River at La Moure, N. Dak.

Location.--Lat 46°21'20", long 98°18'15", at northeast corner of sec.11, T.133 N., R.61 W., on left bank 80 ft downstream from State Highway 13, half a mile west of La Moure, and 12 miles upstream from Cottonwood Creek.

Drainage area.--5,740 sq mi, approximately, of which about 2,940 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Sept. 2, 1951; recording thereafter. Datum of gage is 1,290.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--14 ft.

Historical data.--A long-time local resident states that the 1950 flood was the highest since 1882, with stage in either 1942 or 1943 being almost as high due to large ice jams.

Remarks.--Flow regulated by Arrowood and Jim Lakes (combined capacity, 16,000 acre-ft) and by Jamestown Reservoir since 1954 (capacity, 229,500 acre-ft). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 16, 1950	15.34	5,730	1957	Mar. 31, 1957	7.59	82
				1958	Mar. 5, 1958	8.79	762
1951	Apr. 3, 1951	a11.45	-	1959	Apr. 6, 1959	7.71	126
	Apr. 8, 1951	-	2,000	1960	Apr. 2, 1960	a11.06	-
1952	Apr. 9, 1952	a15.15	-		Apr. 9, 1960	-	1,610
	Apr. 11, 1952	-	3,600				
1953	June 18, 1953	9.51	1,250	1961	Apr. 4, 1961	7.60	93
1954	July 5, 1954	8.90	845	1962	July 11, 1962	11.59	2,250
1955	Apr. 5, 1955	8.62	639	1963	Apr. 3, 1963	7.74	171
1956	June 9, 1956	9.38	1,150				

a Backwater from ice.

4710. James River at Columbia, S. Dak.

Location.--Lat 45°37'05", long 98°19'30", in NE¼NW¼ sec.29, T.125 N., R.62 W., on left bank 10 ft downstream from highway bridge, three-quarters of a mile northwest of Columbia, 2½ miles upstream from Chicago and North Western Railway Co. bridge, 3½ miles upstream from Elm River, and 9 miles downstream from Sand Lake.

Drainage area.--7,050 sq mi, approximately, of which about 4,050 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 5, 1957; recording thereafter. Datum of gage is 1,274.54 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Occasional reverse flow caused by Elm River (maximum, 1,860 cfs Apr. 8, 1952). Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	May 25, 1946	7.56	121	1956	June 22, 1956	8.93	237
1947	Apr. 18, 1947	a15.20	-	1957	Apr. 20, 1957	7.43	93
	May 2, 1947	-	1,170	1958	Mar. 10, 1958	b9.50	-
1948	May 10, 1948	15.59	1,950		Apr. 2a, 1958	-	216
1949	Apr. 27, 1949	12.61	857	1959	-	-	0
1950	May 24, 1950	16.89	5,420	1960	Apr. 29, 1960	12.06	589
1951	Apr. 21, 1951	13.51	1,040	1961	Mar. 19, 1961	-	10
1952	Apr. 17, 1952	16.53	3,580		May 18, 1961	6.12	-
1953	June 27, 1953	a13.74	-	1962	Aug. 1, 1962	a14.36	-
	July 3, 1953	-	766		Aug. 19, 1962	-	914
1954	June 17, 1954	a10.08	-	1963	June 15, 1963	9.54	357
	July 6, 1954	-	185				
1955	July 19, 1955	a.14	143				

a Backwater from Elm River. b Backwater from ice.

4710.5. Elm River tributary near Leola, S. Dak.

Location.--Lat 45°51', long 98°46', in NE¼ sec.3, T.127 N., R.66 W., at culvert on county highway, 12¼ miles northeast of Leola.

Drainage area.--14.7 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 80 cfs and extended above on basis of indirect measurement at 418 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 17, 1956	3.08	37	1961	Apr. 23, 1961	2.63	6
1957	Aug. 8, 1957	3.74	41	1962	Apr. 2, 1962	3.85	42
1958	June 1958	4.89	87	1963	June 9, 1963	4.10	52
1959	Mar. 25, 1959	2.10	.2	1964	May 3, 1964	8.62	418
1960	Mar. 28, 1960	6.35	185				

4712. Maple River at North Dakota-South Dakota State line

Location.--Lat 45°56'20", long 98°27'10", in SW¼SE¼ sec.33, T.129 N., R.62 W., on left bank 0.4 mile upstream from State line, 8 miles northeast of Frederick, S. Dak., and 15½ miles upstream from mouth.

Drainage area.--750 sq mi, approximately, of which about 480 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site 0.4 mile downstream at datum 0.94 ft lower prior to June 14, 1962; recording thereafter. Altitude of gage is 1,365 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	July 30, 1957	4.15	49	1962	Mar. 30, 1962	a10.74	1,500
					June 24, 1962	6.48	329
1958	Mar. 3, 1958	a8.32	496		July 9, 1962	10.97	2,030
	Mar. 6, 1958	7.50	390		July 22, 1962	6.18	348
	May 16, 1958	5.55	163		Aug. 13, 1962	4.51	56
1959	-	-	0	1963	Mar. 29, 1963	4.61	55
					May 27, 1963	4.74	88
1960	Mar. 29, 1960	6.85	589		June 7, 1963	5.77	270
	Apr. 9, 1960	6.48	508				
	May 29, 1960	5.97	350	1964	June 26, 1964	7.21	b598
1961	Mar. 13, 1961	3.90	45				

a Backwater from ice.
b Annual peak only.

4713.5. Maple River at Frederick, S. Dak.

Location.--Lat 45°49'57", long 98°30'45", in NE¼SW¼NW¼ sec.11, T.127 N., R.64 W., at dam on Maple River in City Park, at west edge of Frederick.

Drainage area.--822 sq mi, of which 532 sq mi contributes directly to surface runoff.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Maple River at Frederick, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May 1956	6.45	44	1961	Mar. 30, 1961	6.39	35
1957	July 31, 1957	6.47	48	1962	July 10, 1962	9.72	2,800
1958	Mar. 4, 1958	7.18	250	1963	July 26, 1963	7.03	200
1959	-	-	0	1964	June 27, 1964	7.74	500
1960	Mar. 30, 1960	8.14	820				

4714. Willow Creek tributary near Leola, S. Dak.

Location.--Lat 45°44', long 98°46', in SW¼ sec.11, T.126 N., R.66 W., at culvert on former State Highway 10, 8¾ miles northeast of Leola.

Drainage area.--3.74 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 12 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	-	0	1961	-	-	0
1957	Aug. 8, 1957	1.85	15	1962	July 4, 1962	2.07	20
1958	Mar. 4, 1958	2.18	23	1963	June 9, 1963	1.51	7
1959	March 1959	a1.09	(b)	1964	May 3, 1964	2.58	33
1960	Mar. 30, 1960	2.25	25				

a Backwater from ice.
b Less than 0.5 cfs.

4714.5. Willow Creek tributary near Barnard, S. Dak.

Location.--Lat 45°44', long 98°38', in SW¼ sec.11, T.126 N., R.65 W., at culvert on former State Highway 10, 6½ miles west of Barnard.

Drainage area.--0.18 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	-	0	1961	-	-	0
1957	-	-	0	1962	July 4, 1962	1.98	9
1958	Mar. 4, 1958	2.24	14	1963	June 9, 1963	1.95	8.5
1959	February 1959	a1.47	(b)	1964	May 3, 1964	1.73	5.0
1960	Apr. 5, 1960	a2.59	20				

a Backwater from ice.
b Less than 1 cfs.

4715. Elm River at Westport, S. Dak.

Location.--Lat 45°39'20", long 98°29'50", in SW¼NW¼ sec.12, T.125 N., R.64 W., on right bank 12 ft downstream from highway bridge (formerly U.S. Highway 281), half a mile north of Westport, three-quarters of a mile upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 9½ miles downstream from Willow Creek, and 30½ miles upstream from mouth.

Drainage area.--1,680 sq mi, approximately, of which about 1,170 sq mi contributes directly to surface runoff.

Gage.--Nonrecording Oct. 1, 1945, to Aug. 5, 1951, and Apr. 8 to Sept. 9, 1952; recording Aug. 6, 1951, to Apr. 7, 1952, and since Sept. 10, 1952. Datum of gage is 1,309.3 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--8 ft.

Remarks.--Flow regulated for Aberdeen municipal water supply by Elm Lake and other small reservoirs (combined capacity, about 16,000 acre-ft). Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Apr. 14, 1947	11.45	a2,100	1955	July 16, 1955	7.08	453
1948	Mar. 13, 1948	b8.27	400	1956	Mar. 22, 1956	b5.57	-
	Mar. 29, 1948	12.51	2,870		Apr. 15, 1956	5.56	111
1949	Mar. 12, 1949	b8.25	450	1957	Sept. 3, 1957	5.54	89
	Apr. 2, 1949	8.20	840				
				1958	Feb. 28, 1958	7.52	537
1950	Mar. 28, 1950	b8.12	400		Mar. 4, 1958	9.20	1,060
	Apr. 6, 1950	b11.74	1,400		Mar. 7, 1958	7.98	676
	Apr. 20, 1950	6.50	314		May 17, 1958	6.26	207
	May 11, 1950	10.79	1,870				
	May 23, 1950	6.76	329	1959	July 15, 1959	4.95	39
1951	Apr. 2, 1951	b9.40	550	1960	Mar. 29, 1960	b11.26	1,100
					Apr. 9, 1960	8.88	1,170
1952	Apr. 8, 1952	20.10	7,520		May 30, 1960	7.17	549
1953	Mar. 19, 1953	b8.68	700	1961	Mar. 28, 1961	4.89	34
	June 20, 1953	10.00	1,420				
	June 24, 1953	9.73	1,320	1962	Mar. 31, 1962	b13.52	2,100
					June 20, 1962	6.58	343
1954	June 14, 1954	10.50	1,560		June 25, 1962	7.53	645
					July 10, 1962	12.85	2,670
1955	Mar. 12, 1955	b6.40	160		July 23, 1962	6.70	396
	Mar. 19, 1955	b7.62	300				
	Apr. 4, 1955	5.91	168	1963	May 29, 1963	5.80	151
	July 12, 1955	6.12	220		June 9, 1963	6.78	348

a Annual peak only.
b Backwater from ice.

4720. James River near Stratford, S. Dak.

Location.--Lat 45°14'30", long 98°23'30", in NE¼NE¼NE¼ sec.3, T.120 N., R.63 W., on right bank 30 ft downstream from highway bridge, 6¾ miles southwest of Stratford, and 8¾ miles upstream from Mud Creek.

Drainage area.--9,990 sq mi, approximately, of which about 6,070 sq mi contributes directly to surface runoff.

Gage.--Nonrecording March 1950 to August 1951; recording thereafter. Datum of gage is 1,254.29 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--14 ft.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 14, 1950	17.8	a5,580	1958	Mar. 26, 1958	b12.25	277
1951	May 19, 1951	15.47	870	1959	-	-	0
1952	Apr. 19, 1952	18.13	4,970	1960	May 12, 1960	13.76	362
1953	July 13, 1953	15.16	718	1961	Apr. 7-10, 1961	-	14
					May 30, 1961	6.01	-
1954	June 28, 1954	11.33	321	1962	Aug. 12, 1962	-	861
1955	July 28, 1955	9.63	185		Aug. 14, 1962	15.77	-
1956	July 6, 1956	9.55	177	1963	June 28, 1963	11.65	314
1957	June 18, 1957	9.06	153				

a Annual peak only.
b Backwater from ice.

4725. Mud Creek near Stratford, S. Dak.

Location.--Lat 45°14'30", long 98°18'00", in NE¼NW¼ sec.4, T.120 N., R.62 W., on right bank 20 ft downstream from highway bridge, three-quarters of a mile upstream from nearest tributary, 5¼ miles south of Stratford, and 9½ miles upstream from mouth.

Drainage area.--740 sq mi, approximately, of which about 470 sq mi contributes directly to surface runoff.

Gage.--Recording. Datum of gage is 1,263.32 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Apr. 15, 1956	5.48	12	1961	May 14, 1961	5.03	7
1957	Mar. 28, 1957	7.69	95	1962	Mar. 28, 1962	10.53	637
	May 31, 1957	6.91	52		May 27, 1962	7.76	100
					June 17, 1962	8.40	141
1958	(a)	4.36	2.5		June 21, 1962	8.39	140
1959	Apr. 4, 1959	4.74	1.7	1963	June 1, 1963	5.34	9.9
1960	Apr. 4, 1960	9.16	196				

a Maximum discharge occurred on many days. Maximum gage height occurred May 2, 1958.

4730. James River at Ashton, S. Dak.

Location.--Lat 45°00'02", long 98°28'57", in SE¼SW¼ sec.25, T.118 N., R.64 W., on right bank 900 ft upstream from highway bridge, half a mile east of Ashton, 6 miles upstream from Snake Creek, and 14 miles upstream from Turtle Creek.

Drainage area.--11,000 sq mi, approximately, of which about 6,810 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site 900 ft downstream at same datum prior to December 1957; recording thereafter. Datum of gage is 1,244.4 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Remarks.--Occasional reverse flow caused by Snake Creek (maximum, 1,500 cfs Apr. 10, 1952). Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 28, 1946	7.12	494	1955	July 30, 1955	5.84	194
1947	May 22, 1947	8.83	786	1956	July 7, 1956	5.57	204
1948	Mar. 25, 1948	a13.78	-	1957	June 22, 1957	5.54	170
	May 16, 1948	10.90	1,110	1958	Mar. 30, 1958	7.46	373
1949	May 21, 1949	7.94	579	1959	-	-	0
1950	May 19, 1950	19.14	5,170	1960	Apr. 4, 1960	b12.96	-
1951	May 18, 1951	9.39	840		Apr. 10, 1960	a12.04	520
1952	Apr. 23, 1952	19.59	4,860	1961	May 25, 1961	4.52	16
1953	Aug. 3, 1953	a10.64	-	1962	Apr. 3, 1962	b12.37	-
	Aug. 4, 1953	-	1,000		May 4, 1962	9.03	602
1954	June 30, 1954	6.34	317		Aug. 30, 1962	10.08	805
1955	Mar. 15, 1955	b8.56	-	1963	June 30, 1963	6.51	320

a Backwater from Snake Creek.
b Backwater from ice.

4735. West Branch Snake Creek near Athol, S. Dak.

Location.--Lat 45°03'20", long 98°44'10", in SE¼NE¼ sec.11, T.118 N., R.66 W., on left bank at upstream side of highway bridge, 3 miles downstream from confluence of Nixon River and Perry Creek and 7½ miles northwest of Athol.

Drainage area.--1,820 sq mi, approximately, of which about 1,090 sq mi contributes directly to surface runoff.

Gage.--Nonrecording at site half a mile upstream at datum 4.78 ft higher prior to May 1951; recording thereafter. Altitude of gage is 1,325 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 75 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 27, 1950	a8.68	-	1952	Apr. 9, 1952	a16.42	2,200
	Apr. 3, 1950	8.05	395		Apr. 28, 1952	9.59	88
	May 12, 1950	5.63	102	1953	Mar. 23, 1953	a12.50	480
1951	Mar. 28, 1951	a5.90	70		June 20, 1953	10.53	153

a Backwater from ice.

Peak stages and discharges of West Branch Snake Creek near Athol, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	July 30, 1953	13.99	955	1959	-	-	0
	Aug. 6, 1953	13.06	601				
	Aug. 11, 1953	12.52	416	1960	Apr. 3, 1960	a12.98	650
					Apr. 8, 1960	13.78	1,170
1954	June 8, 1954	9.37	63				
				1961	-	-	0
1955	Mar. 12, 1955	a11.88	290				
				1962	Mar. 29, 1962	a14.05	870
1956	June 17, 1956	7.44	8		Apr. 2, 1962	11.29	270
					June 16, 1962	10.92	155
1957	June 16, 1957	8.98	49				
				1963	June 16, 1963	7.58	7.4
1958	Mar. 26, 1958	8.67	28				

a Backwater from ice.

4737. Snake Creek near Ashton, S. Dak.

Location.--Lat 45°02', long 98°34', in SW¼SW¼ sec.17, T.118 N., R.64 W., on right bank 7 ft downstream from highway bridge, 700 ft downstream from West Branch Snake Creek, 4½ miles northwest of Ashton, and 16¼ miles upstream from mouth.

Drainage area.--2,620 sq mi, approximately, of which about 1,770 sq mi contributes directly to surface runoff.

Gage.--Recording October 1955 to October 1957 at site 9 miles downstream at different datum; nonrecording October 1957 to May 1958; recording thereafter. Altitude of gage is 1,265 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 75 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 29, 1956	5.57	16	1960	Apr. 9, 1960	12.87	1,150
1957	May 27, 1957	6.64	77	1961	Mar. 21, 1961	a7.22	16
	June 28, 1957	7.12	77				
				1962	Mar. 31, 1962	12.87	891
1958	Mar. 29, 1958	7.60	112		May 22, 1962	8.69	132
					June 20, 1962	10.27	256
1959	-	-	0				
				1963	Apr. 30, 1963	4.93	3.4
1960	Apr. 2, 1960	12.22	897				

a Backwater from vegetation.

4738. Matter Creek tributary near Orient, S. Dak.

Location.--Lat 44°48'10", long 99°04'05", in SE¼NE¼ sec.1, T.115 N., R.69 W., at culvert on county highway, 6¾ miles southeast of Orient.

Drainage area.--5.41 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,535 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	3.08	9	1961	-	-	0
1957	July 3, 1957	4.83	53	1962	Mar. 27, 1962	a6.34	80
1958	Feb. 27, 1958	3.60	18	1963	Apr. 16, 1963	2.08	.2
1959	-	-	0	1964	May 3, 1964	2.56	3.0
1960	Mar. 30, 1960	7.41	325				

a Backwater from ice.

4738.2. Shaefer Creek near Orient, S. Dak.

Location.--Lat 44°46'45", long 99°02'40", in NW¼NW¼ sec.17, T.115 N., R.68 W., on downstream side of bridge on county highway, 8½ miles southeast of Orient.

Drainage area.--45.1 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,495 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	(a)	(b)	1961	May 17, 1961	1.80	10
1957	July 3, 1957	3.24	250	1962	Mar. 27, 1962	c5.47	190
1958	Feb. 27, 1958	2.64	68	1963	July 26, 1963	1.98	18
1959	-	-	0	1964	May 3, 1964	2.76	82
1960	Mar. 30, 1960	5.12	870				

a Peak stage did not reach bottom of gage. b Less than 10 cfs. c Backwater from ice.

4738.5. Shaefer Creek tributary near Orient, S. Dak.

Location.--Lat 44°44', long 98°59', in SE¼ sec.34, T.115 N., R.68 W., at culvert on State Highway 45, 13 miles southeast of Orient.

Drainage area.--6.08 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 150 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	3.50	24	1961	May 17, 1961	3.01	1.0
1957	July 3, 1957	4.47	93	1962	Mar. 27, 1962	a5.67	100
1958	Feb. 27, 1958	3.37	15	1963	July 26, 1963	3.62	32
1959	-	-	0	1964	May 3, 1964	3.29	9.0
1960	Mar. 30, 1960	6.12	221				

a Backwater from ice.

4738.8. Shaefer Creek tributary near Miller, S. Dak.

Location.--Lat 44°42', long 98°59', in NE¼ sec.10, T.114 N., R.68 W., at culvert on State Highway 45, 15 miles north of Miller.

Drainage area.--5.75 sq mi.

Gage.--Crest-stage gage. Datum of gage is 1,455.74 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 50 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	3.49	45	1961	May 17, 1961	2.94	6
1957	May 20, 1957	3.04	10	1962	June 16, 1962	3.53	50
1958	May 1958	3.04	10	1963	July 26, 1963	2.82	2.0
1959	-	-	0	1964	May 3, 1964	3.25	25
1960	Mar. 30, 1960	4.61	-				

4745. Turtle Creek at Redfield, S. Dak.

Location.--Lat 44°53'00", long 98°30'45", in SW¼SE¼ sec.3, T.116 N., R.64 W., near center of span at downstream side of bridge on U.S. Highway 281, at north edge of Redfield, 6¾ miles upstream from mouth.

Drainage area.--1,540 sq mi, approximately.

Gage.--Nonrecording October 1945 to May 1951; recording May 1951 to September 1962; nonrecording thereafter. Datum of gage is 1,259.3 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--9 ft.

Remarks.--Peaks are probably affected by offstream storage in Twin Lakes and by regulation at Lake Redfield (capacity, 1,570 acre-ft). Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 2, 1946	4.45	-	1955	Mar. 15, 1955	7.32	369
	July 10, 1946	4.05	24		June 9, 1955	5.45	73
1947	Apr. 11, 1947	6.52	60	1956	June 17, 1956	5.20	51
1948	Mar. 23, 1948	12.38	3,160	1957	Apr. 20, 1957	6.37	207
	June 27, 1948	7.00	255		Apr. 24, 1957	7.52	451
	July 21, 1948	6.37	133		May 21, 1957	5.20	65
					May 25, 1957	5.45	92
1949	Mar. 5, 1949	5.58	45		May 29, 1957	5.49	97
					June 11, 1957	5.10	55
1950	Mar. 31, 1950	a11.30	2,340		July 4, 1957	5.57	109
	Apr. 11, 1950	7.51	398		July 12, 1957	5.96	154
	Apr. 30, 1950	5.78	86				
	May 13, 1950	7.09	296	1958	Mar. 25, 1958	5.25	68
	May 22, 1950	8.90	1,020		Apr. 1, 1958	7.34	402
					Apr. 11, 1958	6.12	197
1951	Mar. 31, 1951	7.53	433		Apr. 28, 1958	5.03	57
	Apr. 22, 1951	5.33	51				
				1959	July 17, 1959	4.73	21
1952	Mar. 15, 1952	5.41	b58				
	Mar. 25, 1952	5.37	b54	1960	Mar. 31, 1960	a11.95	2,580
	Apr. 10, 1952	15.51	6,420		Apr. 9, 1960	10.78	2,070
	June 28, 1952	7.24	350				
				1961	May 18, 1961	5.29	64
1953	Feb. 27, 1953	5.35	b59				
	Mar. 14, 1953	6.92	278	1962	Apr. 5, 1962	8.08	556
	Mar. 18, 1953	7.41	393		Apr. 8, 1962	6.54	225
	Mar. 23, 1953	7.98	577		May 22, 1962	6.78	289
	Apr. 12, 1953	5.81	111		May 30, 1962	5.57	103
	May 7, 1953	7.16	335		June 8, 1962	5.72	120
	June 15, 1953	5.51	78		June 24, 1962	7.38	379
	June 20, 1953	5.56	78		July 1, 1962	6.51	222
	July 28, 1953	5.51	74		July 11, 1962	6.87	301
1954	June 7, 1954	5.56	95	1963	Oct. 27, 1962	2.05	3.0
					Aug. 26, 1963	2.24	-
1955	Mar. 11, 1955	5.80	108				

a Backwater from ice.
b Release from Lake Redfield.

4750. James River near Redfield, S. Dak.

Location.--Lat 44°55'10", long 98°25'50", in SW¼NW¼ sec.28, T.117 N., R.63 W., on right bank just downstream from highway bridge, 4½ miles northeast of Redfield, and 5¼ miles downstream from Turtle Creek.

Drainage area.--14,800 sq mi, approximately, of which about 10,200 sq mi contributes directly to surface runoff.

Gage.--Nonrecording March 1950 to July 1951; recording thereafter. Datum of gage is 1,236.3 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--20 ft.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	May 22, 1950	20.68	a5,290	1957	Apr. 22, 1957	c8.60	-
					Apr. 24, 1957	6.76	477
1951	Apr. 2, 1951	b8.87	-				
	May 18, 1951	8.32	831	1958	Apr. 1, 1958	8.56	719
1952	Apr. 11, 1952	22.12	6,100	1959	Mar. 4, 1959	3.43	22
	Apr. 24, 1952	20.96	5,300				
	June 28, 1952	10.58	1,380	1960	Apr. 4, 1960	18.47	2,960
1953	Mar. 18, 1953	b11.19	-	1961	May 19, 1961	4.73	65
	Mar. 24, 1953	10.47	1,350				
	Aug. 4, 1953	11.01	1,310	1962	Mar. 31, 1962	b16.60	-
					Apr. 4, 1962	b16.54	2,000
1954	Mar. 27, 1954	b7.77	-		May 22, 1962	9.34	955
	July 5, 1954	5.78	330		June 23, 1962	9.59	1,020
					Sept. 2, 1962	8.81	826
1955	Mar. 16, 1955	b9.67	525				
	July 30, 1955	c10.01	-	1963	July 3, 1963	6.32	314
1956	May 27, 1956	5.53	293				

a Annual peak only.
b Backwater from ice.
c Backwater from temporary dam downstream.

4755. Dry Run near Frankfort, S. Dak.

Location.--Lat 44°56'15", long 98°19'45", in NW¼NW¼ sec.20, T.117 N., R.62 W., on left bank 8 ft downstream from highway bridge, 400 ft downstream from small tributary, 4 1/3 miles north of Frankfort, and 7 miles upstream from mouth.

Drainage area.--225 sq mi.

Gage.--Recording. Altitude of gage is 1,255 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 10 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 22, 1956	3.71	6	1962	Mar. 29, 1962	9.16	772
					May 18, 1962	4.95	24
1957	Apr. 21, 1957	3.60	6		May 24, 1962	5.68	49
					May 29, 1962	4.77	21
1958	Mar. 28, 1958	3.00	.5		June 5, 1962	4.72	21
					June 10, 1962	4.99	29
1959	June 17, 1959	3.77	7		June 19, 1962	5.97	56
1960	Mar. 28, 1960	8.29	405	1963	-	-	0
1961	-	-	0	1964	-	-	0

4760. James River at Huron, S. Dak.

Location.--Lat 44°21'55", long 98°11'45", in SW¼SE¼NE¼ sec.6, T.110 N., R.61 W., on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Chicago and North Western Railway Co. bridge, and 165 ft upstream from bridge on U.S. Highway 14.

Drainage area.--16,800 sq mi, approximately, of which about 12,010 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 18, 1951; recording thereafter. Datum of gage is 1,223.44 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements. Controlled below 1,500 cfs by masonry dam since August 1943.

Bankfull stage.--9 ft.

Historical data.--Maximum stage known, that of April 1881, from U.S. Weather Bureau publication.

Remarks.--Base for partial-duration series, 1,000 cfs. Only annual peaks are shown prior to August 1943.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1881	April 1881	19.8	-	1952	Apr. 15, 1952	15.23	5,580
					June 30, 1952	9.12	1,440
1929	Mar. 20, 1929	a12.00	2,650				
1930	May 13, 1930	5.12	560	1953	Mar. 20, 1953	9.74	1,950
					Aug. 6, 1953	10.86	2,690
1931	Apr. 24, 1931	4.10	345	1954	July 6, 1954	8.24	373
1932	Mar. 4, 1932	a9.52	650				
				1955	Mar. 13, 1955	a8.65	835
1944	Mar. 31, 1944	10.48	2,460		Mar. 15, 1955	9.60	-
	Apr. 8, 1944	9.66	1,920				
	May 14, 1944	8.90	1,270	1956	Aug. 4, 1956	8.76	984
1945	Mar. 21, 1945	9.68	1,920	1957	May 26, 1957	8.52	674
	June 6, 1945	9.06	1,450				
				1958	Apr. 2, 1958	8.63	809
1946	Mar. 21, 1946	9.60	1,850				
				1959	Apr. 2, 1959	7.78	51
1947	Apr. 11, 1947	9.00	1,360				
				1960	Apr. 6, 1960	15.42	6,050
1948	Mar. 27, 1948	14.48	4,630				
	May 20, 1948	8.84	1,220	1961	May 14, 1961	9.26	318
1949	May 18, 1949	8.44	672	1962	Apr. 2, 1962	15.80	6,250
					May 24, 1962	11.59	2,590
1950	Apr. 7, 1950	a12.18	3,020		June 11, 1962	10.30	1,820
	May 24, 1950	14.30	4,840		June 24, 1962	10.48	1,920
1951	Apr. 5, 1951	8.70	900	1963	Apr. 29, 1963	9.42	708

a Backwater from ice.

4765. Sand Creek near Alpena, S. Dak.

Location.--Lat 44°09'20", long 98°26'10", in NE¼NE¼ sec.19, T.108 N., R.63 W., on left bank 5 ft downstream from highway bridge, 4 miles southwest of Alpena, 7 miles upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 10½ miles upstream from interlink with Cain Creek.

Drainage area.--240 sq mi, approximately.

Gage.--Nonrecording March 1950 to September 1951; recording thereafter. Altitude of gage is 1,315 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 28, 1950	a14.1	1,000	1957	July 7, 1957	9.96	69
1951	Mar. 28, 1951	a11.70	750	1958	Mar. 26, 1958	10.89	315
	May 21, 1951	9.52	285		Apr. 8, 1958	9.91	181
	June 5, 1951	8.87	128				
	July 1, 1951	9.82	363	1959	Mar. 2, 1959	a6.70	-
					Apr. 20, 1959	-	.5
1952	Apr. 3, 1952	a12.68	1,130				
	Apr. 9, 1952	12.30	1,050	1960	Mar. 28, 1960	13.35	2,240
					Apr. 7, 1960	11.43	641
1953	Mar. 17, 1953	a10.22	190		Apr. 12, 1960	8.95	61
	May 3, 1953	9.62	174		Apr. 14, 1960	8.95	61
	June 9, 1953	10.63	434				
	July 12, 1953	10.82	504	1961	June 14, 1961	10.56	332
1954	June 11, 1954	8.85	64	1962	Mar. 31, 1962	a12.96	1,000
	June 17, 1954	9.43	136		May 19, 1962	8.66	51
					May 23, 1962	11.77	880
1955	Mar. 12, 1955	12.10	788		May 29, 1962	9.74	218
					June 9, 1962	11.37	680
1956	Aug. 3, 1956	9.78	145		June 17, 1962	9.71	199
					July 4, 1962	10.86	506
1957	Mar. 24, 1957	a9.55	70		July 13, 1962	8.94	106
	Apr. 22, 1957	9.58	169				
	May 22, 1957	8.77	60	1963	Mar. 23, 1963	7.98	17
	May 25, 1957	9.08	86				
	July 4, 1957	10.91	231	1964	May 5, 1964	8.39	37

a Backwater from ice.

4770. James River near Forestburg, S. Dak.

Location.--Lat 43°58'45", long 98°04'05", in SW¼SW¼NW¼ sec.20, T.106 N., R.60 W., on right bank 5 ft downstream from highway bridge, 3¾ miles southeast of Forestburg, 4½ miles downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 5¼ miles downstream from Sand Creek.

Drainage area.--18,600 sq mi, approximately, of which about 13,810 sq mi contributes directly to surface runoff.

Gage.--Nonrecording March 1950 to September 1951; recording thereafter. Altitude of gage is 1,205 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Historical data.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges of James River near Forestburg, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1920	March 1920	a18	-	1956	Aug. 6, 1956	7.19	920
1922	March 1922	a18	-	1957	May 30, 1957	7.02	864
1950	Apr. 10, 1950	13.39	3,180	1958	Apr. 6, 1958	7.21	924
	May 27,30, 1950	15.06	5,180	1959	June 13, 1959	3.35	80
1951	Mar. 31, 1951	b10.84	1,600	1960	Apr. 2, 1960	16.27	10,900
	July 1, 1951	8.67	1,230	1961	Mar. 6, 1961	b7.24	702
1952	Apr. 16, 1952	15.46	6,290	1962	Mar. 31, 1962	16.40	12,000
	July 2, 1952	8.62	1,220		Apr. 5, 1962	15.87	8,280
1953	Mar. 19, 1953	11.17	2,080		May 26, 1962	14.97	5,000
	Aug. 12, 1953	11.10	2,060		June 12, 1962	14.67	4,390
1954	July 6, 1954	4.86	332	1963	Oct. 1, 1962	6.17	599
1955	Mar. 19, 1955	b9.69	1,210				

a Annual peak only, about; from information by local residents.
b Backwater from ice.

4775. Firesteel Creek near Mount Vernon, S. Dak.

Location.--Lat 43°46', long 98°15', in SW¼SW¼ sec.26, T.104 N., R.62 W., near center of span on downstream side of highway bridge, 4½ miles north of Mount Vernon, 5¼ miles downstream from West Firesteel Creek, and 12 miles northwest of Mitchell.

Drainage area.--540 sq mi, approximately.

Gage.--Nonrecording. Altitude of gage is 1,310 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 6, 1956	4.6	174	1962	Mar. 31, 1962	a16.85	3,600
1957	Mar. 26, 1957	a4.00	110		May 18, 1962	10.70	1,900
	May 24, 1957	6.14	519		May 23, 1962	9.75	1,440
	May 27, 1957	6.18	523		May 30, 1962	10.55	1,820
	July 8, 1957	6.60	539		June 9, 1962	12.61	3,170
1958	Mar. 27, 1958	5.66	416		June 17, 1962	13.25	3,800
	Apr. 8, 1958	4.48	189		July 6, 1962	5.07	268
1959	Mar. 2, 1959	a2.90	1.1		July 13, 1962	5.09	271
1960	Mar. 28, 1960	15.13	5,780		July 17, 1962	4.76	216
1961	June 16, 1961	4.76	225		Aug. 10, 1962	6.13	466
				1963	Mar. 27, 1963	2.94	29

a Backwater from ice.

4782.5. North Branch Dry Creek tributary near Parkston, S. Dak.

Location.--Lat 43°22', long 97°55', in NE¼ sec.27, T.99 N., R.60 W., at culvert on county highway, 3¾ miles southeast of Parkston.

Drainage area.--3.19 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,350 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 120 cfs and extended above by wier formula.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of North Branch Dry Creek tributary near Parkston, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	July 7, 1956	4.32	17	1961	Feb. 22, 1961	4.14	6
1957	June 17, 1957	4.15	6	1962	July 1962	5.66	183
1958	Mar. 28, 1958	4.47	27	1963	Mar. 20, 1963	4.02	.5
1959	-	-	0	1964	April 1964	-	(a)
1960	Mar. 27, 1960	6.52	340				

a Less than 1 cfs.

4782.6. North Branch Dry Creek near Parkston, S. Dak.

Location.--Lat 43°22', long 97°51', in NE¼ sec.29, T.99 N., R.59 W., at bridge on county highway, 7½ miles southeast of Parkston.

Drainage area.--37.0 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,275 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	2.59	26	1961	Aug. 21, 1961	3.47	68
1957	June 17, 1957	3.18	51	1962	July 1962	8.76	1,540
1958	Mar. 26, 1958	4.50	182	1963	Mar. 19, 1963	a3.94	80
1959	Mar. 3, 1959	a2.30	3.2	1964	Mar. 11, 1964	1.30	1.0
1960	Mar. 27, 1960	8.55	1,470				

a Backwater from ice.

4782.8. South Branch Dry Creek near Parkston, S. Dak.

Location.--Lat 43°21', long 97°50', in NW¼ sec.33, T.99 N., R.59 W., at bridge on county highway, 8¼ miles southeast of Parkston.

Drainage area.--17.1 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,270 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 400 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	2.67	7	1961	Aug. 21, 1961	4.69	160
1957	June 17, 1957	3.42	27	1962	July 1962	6.81	750
1958	Mar. 26, 1958	4.26	92	1963	Mar. 19, 1963	4.30	97
1959	May 31, 1959	4.36	104	1964	Apr. 3, 1964	1.24	.1
1960	Mar. 27, 1960	7.37	920				

4783. Dry Creek near Parkston, S. Dak.

Location.--Lat 43°22', long 97°49', in SE¼ sec.21, T.99 N., R.59 W., at bridge on county highway, 8½ miles southeast of Parkston.

Drainage area.--76.8 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,240 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and extended above on basis of slope-area measurement at 4,210 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Dry Creek near Parkston, S. Dak.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	March 1956	3.27	24	1961	Aug. 21, 1961	5.14	165
1957	June 17, 1957	4.30	78	1962	July 1962	10.70	2,740
1958	Mar. 26, 1958	5.62	234	1963	Apr. 29, 1963	4.52	94
1959	May 31, 1959	5.07	144	1964	Apr. 27, 1964	3.37	28
1960	Mar. 27, 1960	12.70	4,210				

4785. James River near Scotland, S. Dak.

Location.--Lat 43°11'00", long 97°37'55", in SW¼SW¼ sec.30, T.97 N., R.57 W., on left bank 50 ft upstream from highway bridge, 500 ft upstream from Dawson Creek, and 5 miles northeast of Scotland.

Drainage area.--21,550 sq mi, approximately, of which about 16,760 sq mi contributes directly to surface runoff.

Gage.--Nonrecording September 1928 to November 1934; recording thereafter. Datum of gage is 1,168.51 ft above mean sea level, datum of 192?.

Stage-discharge relation.--Defined by current-meter measurements. Large change occurred between 1942 and 1950 floods; stage-discharge relation for intervening years not defined above 13 ft.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 31, 1929	11.92	2,970	1944	May 5, 1944	10.99	2,290
	Apr. 26, 1929	8.28	1,670		May 25, 1944	9.60	1,790
	May 30, 1929	8.80	1,850		June 5, 1944	8.91	1,590
					June 13, 1944	14.14	5,270
1930	May 12, 1930	5.63	856		July 15, 1944	11.69	2,590
					Aug. 3, 1944	10.26	2,030
1931	Apr. 28, 1931	3.12	289		Aug. 31, 1944	6.81	1,100
1932	Mar. 2, 1932	11.40	2,500	1945	Mar. 13, 1945	a10.46	1,730
	Mar. 29, 1932	7.64	1,450		Mar. 31, 1945	8.79	1,570
					Apr. 18, 1945	8.36	1,470
1933	July 23, 1933	4.08	441		May 20, 1945	6.78	1,100
					June 18, 1945	11.49	2,500
1934	Sept.25, 1934	7.22	1,110				
				1946	Mar. 22, 1946	8.92	1,760
1935	June 29, 1935	3.12	296				
				1947	Apr. 16, 1947	11.37	2,460
1936	Mar. 10, 1936	a8.30	-		June 10, 1947	9.41	1,730
	May 23, 1936	10.29	2,240		June 23, 1947	8.57	1,520
1937	Mar. 20, 1937	6.69	1,040	1948	Mar. 5, 1948	a7.29	-
	Apr. 25, 1937	7.06	1,140		Apr. 4, 1948	15.26	5,510
	June 27, 1937	8.42	1,460		June 28, 1948	11.97	3,040
	Aug. 20, 1937	10.72	2,180		July 23, 1948	7.63	1,280
					Aug. 2, 1948	8.63	1,520
1938	Mar. 3, 1938	10.52	2,100				
	May 25, 1938	7.67	1,360	1949	Mar. 9, 1949	a14.56	2,600
					Mar. 22, 1949	7.39	1,010
1939	Apr. 1, 1939	4.82	622		Mar. 30, 1949	11.67	2,590
					Apr. 8, 1949	13.18	3,600
1940	June 24, 1940	5.94	910				
				1950	Mar. 7, 1950	-	1,500
1941	Mar. 10, 1941	4.99	710		Apr. 1, 1950	15.89	6,280
					June 6, 1950	14.56	4,720
1942	May 15, 1942	15.50	10,800		Aug. 4, 1950	7.99	1,550
	June 21, 1942	8.51	1,490		Sept.22, 1950	8.10	1,580
	July 10, 1942	8.56	1,520				
	Aug. 5, 1942	7.62	1,260	1951	Mar. 29, 1951	15.00	5,200
					May 21, 1951	8.54	1,660
1943	Mar. 8, 1943	8.00	1,350		June 5, 1951	11.00	2,460
	Apr. 14, 1943	12.65	3,110		June 19, 1951	9.96	2,130
	June 12, 1943	10.28	2,030		July 8, 1951	13.10	3,300
	June 16, 1943	10.86	2,250				
				1952	Feb. 17, 1952	a10.94	1,500
1944	Mar. 16, 1944	a11.30	1,100		Apr. 23, 1952	16.23	6,480
	Apr. 1, 1944	11.19	2,370		July 7, 1952	7.16	1,240

a Backwater from ice.

Peak stages and discharges of James River near Scotland, S. Dak.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Mar. 28, 1953	8.99	1,830	1958	Apr. 8, 1958	7.24	1,240
	May 8, 1953	8.06	1,550				
	June 9, 1953	9.35	1,940	1959	May 28, 1959	3.62	216
	July 2, 1953	7.56	1,410				
	Aug. 18, 1953	9.14	1,880	1960	Apr. 6, 1960	18.66	13,900
1954	June 20, 1954	b12.22	-	1961	May 15, 1961	b9.63	-
	June 20, 1954	11.35	2,160		June 16, 1961	8.25	1,430
1955	Mar. 13, 1955	10.18	2,220	1962	Apr. 3, 1962	18.74	15,200
					June 12, 1962	16.94	8,990
1956	Aug. 11, 1956	5.96	955		July 6, 1962	15.33	5,640
					Aug. 11, 1962	11.56	2,480
1957	June 1, 1957	6.62	1,030		Sept. 4, 1962	7.24	1,140
	June 17, 1957	9.48	1,960				
				1963	Oct. 1, 1962	9.57	1,720
1958	Mar. 29, 1958	6.82	1,120				

b Backwater from Dawson Creek.

VERMILLION RIVER BASIN

4788. Saddlerock Creek near Canton, S. Dak.

Location.--Lat 43°12', long 96°44', in SW¼ sec.23, T.97 N., R.50 W., at bridge on county highway, 9¾ miles southwest of Canton.

Drainage area.--14.8 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,405 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	D'scharge (cfs)
1956	July 7, 1956	3.66	42	1961	Mar. 15, 1961	3.67	44
1957	June 17, 1957	5.38	205	1962	May 18, 1962	7.57	610
1958	Feb. 26, 1958	3.66	42	1963	Mar. 26, 1963	3.17	21
1959	May 28, 1959	5.14	175	1964	July 30, 1964	3.89	52
1960	Apr. 1, 1960	7.83	650				

4788.2. Saddlerock Creek tributary near Beresford, S. Dak.

Location.--Lat 43°13', long 96°46', in SW¼ sec.16, T.97 N., R.50 W., at culvert on U.S. Highway 77, 9¼ miles north of Beresford.

Drainage area.--2.32 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,360 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 40 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	July 7, 1956	3.25	2.7	1961	-	4.52	32
1957	June 17, 1957	4.17	23	1962	May 18, 1962	6.69	94
1958	Feb. 26, 1958	4.06	20	1963	Mar. 19, 1963	a3.58	4
1959	May 30, 1959	4.06	20	1964	Sept.17, 1964	3.54	8.0
1960	Apr. 12, 1960	5.93	72				

a Backwater from ice.

4788.4. Saddlerock Creek near Beresford, S. Dak.

Location.--Lat 43°13', long 96°50', in SE¼ sec.14, T.97 N., R.51 W., at bridge on county highway, 9¾ miles northwest of Beresford.

Drainage area.--26.3 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,300 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	-	(a)	(b)	1961	Feb. 14, 1961	c2.80	17
1957	June 17, 1957	4.91	140	1962	June 16, 1962	6.32	340
1958	Mar. 26, 1958	2.42	16	1963	Mar. 19, 1963	2.54	19
1959	May 28, 1959	3.70	57	1964	May 12, 1964	2.30	13
1960	Apr. 1, 1960	-	1,100				

a Peak stage did not reach bottom of gage.
b Less than 10 cfs.
c Backwater from ice.

4790. Vermillion River near Wakonda, S. Dak.

Location.--Lat 42°59'20", long 96°57'50", in SW¼NW¼ sec.2, T.94 N., R.52 W., on left bank 40 ft downstream from bridge on State Highway 19, 3½ miles downstream from Frog Creek, 7½ miles southeast of Wakonda, and 16⅔ miles downstream from Turkey Ridge Creek.

Drainage area.--1,680 sq mi, approximately.

Gage.--Nonrecording October 1945 to September 1954; recording thereafter. Datum of gage is 1,150.9 ft above mean sea level (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--14 ft.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Feb. 24, 1946	a10.88	-	1953	June 11, 1953	15.23	1,900
	Mar. 16, 1946	10.67	730				
				1954	June 19, 1954	b16.56	-
1947	Apr. 15, 1947	15.00	2,190		June 21, 1954	15.83	3,790
	June 13, 1947	16.63	3,010				
				1955	Mar. 12, 1955	12.42	1,080
1948	Mar. 3, 1948	a15.82	1,100				
	Mar. 18, 1948	15.76	2,440	1956	June 8, 1956	5.86	156
	Aug. 2, 1948	12.62	1,060				
				1957	June 21, 1957	16.48	2,990
1949	Mar. 5, 1949	b15.90	-		July 6, 1957	12.47	1,120
	Mar. 8, 1949	15.28	2,650				
	Mar. 29, 1949	12.50	1,120	1958	Apr. 8, 1958	6.84	303
	Apr. 8, 1949	13.20	1,290				
				1959	June 2, 1959	13.95	1,480
1950	Mar. 25, 1950	a13.99	-				
	Mar. 27, 1950	13.84	1,470	1960	Apr. 1, 1960	16.94	7,300
					Apr. 8, 1960	15.39	6,800
1951	Mar. 30, 1951	b16.25	-				
	Apr. 5, 1951	14.83	2,650	1961	June 14, 1961	12.96	1,210
	July 8, 1951	15.69	2,530		June 17, 1961	14.08	1,500
	Sept. 9, 1951	13.06	1,190				
				1962	Mar. 28, 1962	b16.75	-
1952	Feb. 17, 1952	a13.54	1,200		Mar. 31, 1962	16.67	8,660
	Mar. 22, 1952	a15.10	1,750		June 11, 1962	11.78	1,200
	Mar. 31, 1952	b16.37	-		June 18, 1962	12.06	1,390
	Apr. 4, 1952	15.40	3,280		July 11, 1962	11.89	1,520
1953	Mar. 14, 1953	a13.60	1,100	1963	Mar. 27, 1963	5.97	203

a Backwater from ice. b Peak gage height only; occurred just before levee break.

4792. Big Sioux River near Ortley, S. Dak.

Location.--Lat 45°13', long 97°10', in NW¼ sec.34, T.121 N., R.52 W., at bridge on county highway, 7¾ miles southeast of Ortley and 9½ miles southeast of Waubay.

Drainage area.--53.8 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 640 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May 28, 1956	a4.25	56	1961	May 17, 1961	a3.97	41
1957	Mar. 21, 1957	a5.02	110	1962	July 1, 1962	5.73	950
1958	Apr. 6, 1958	a5.25	126	1963	July 26, 1963	4.92	285
1959	May 30, 1959	a3.75	30	1964	Apr. 16, 1964	4.21	66
1960	Mar. 29, 1960	5.39	495				

a Backwater from ice or vegetation.

4792.3. Big Sioux River tributary near Summit, S. Dak.

Location.--Lat 45°14', long 97°06', in NW¼ sec.30, T.121 N., R.51 W., at culvert on U.S. Highway 81, 5½ miles southwest of Summit and 11¼ miles southeast of Waubay.

Drainage area.--1.27 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Apr. 2, 1956	a4.99	6	1961	-	-	(b)
1957	Aug. 20, 1957	2.65	-	1962	July 1, 1962	2.36	92
1958	Apr. 6, 1958	3.10	-	1963	June 9, 1963	2.03	45
1959	Mar. 6, 1959	a3.39	4	1964	Apr. 5, 1964	2.67	-
1960	Apr. 5, 1960	a4.33	45				

a Backwater from ice.
b Peak stage did not reach bottom of gage; discharge less than 2 cfs.

4792.4. Big Sioux River tributary No. 2 near Summit, S. Dak.

Location.--Lat 45°14', long 97°06', in SW¼ sec.30, T.121 N., R.51 W., at culvert on U.S. Highway 81, 5¾ miles southwest of Summit and 11½ miles southeast of Waubay.

Drainage area.--0.26 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurments.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Apr. 2, 1956	a2.68	3	1961	April 1961	1.76	2.6
1957	Mar. 20, 1957	a3.02	5	1962	July 1, 1962	5.16	-
1958	Apr. 6, 1958	2.98	18	1963	June 9, 1963	1.99	4.6
1959	Mar. 6, 1959	a2.02	.5	1964	Apr. 5, 1964	2.70	13
1960	April 1960	3.47	26				

a Backwater from ice.

4792.6. Big Sioux River tributary No. 3 near Summit, S. Dak.

Location.--Lat 45°13', long 97°06', in SE¼ sec.25, T.121 N., R.52 W., at culvert on county highway, 6½ miles southwest of Summit and 11½ miles southeast of Waubay.

Drainage area.--6.60 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Apr. 2, 1956	a4.96	40	1961	May 17, 1961	3.33	14
1957	May 21, 1957	4.40	88	1962	July 1, 1962	10.68	-
1958	Apr. 6, 1958	4.82	172	1963	June 9, 1963	4.78	157
1959	May 30, 1959	2.71	1.4	1964	Apr. 5, 1964	4.50	100
1960	Mar. 30, 1960	5.17	275				

a Backwater from ice.

4795. Big Sioux River at Watertown, S. Dak.

Location.--Lat 44°56'30", long 97°08'50", in SW¼SW¼NW¼ sec.13, T.117 N., R.53 W., on right bank 20 ft downstream from highway bridge, 1 mile downstream from inlet-outlet to Lake Kampeska, 2½ miles northwest of Watertown, and 7¼ miles upstream from Willow Creek.

Drainage area.--1,800 sq mi, approximately, of which about 400 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Oct. 16, 1958; recording thereafter. Altitude of gage is 1,710 ft (from river-profile map).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--8 ft.

Remarks.--Water is stored naturally offstream in Lake Kampeska (capacity, 35,500 acre-ft) during periods when river is rising and then naturally released, in part, when river is falling. Base for partial-duration series, 400 cfs. Only annual peaks are shown prior to 1948.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Mar. 15, 1946	a8.25	684	1957	Mar. 21, 1957	a8.56	-
1947	Apr. 13, 1947	8.93	952		May 26, 1957	6.51	304
1948	Mar. 26, 1948	8.30	762	1958	Apr. 11, 1958	5.10	140
1949	Apr. 2, 1949	6.07	229	1959	Mar. 7, 1959	6.06	-
					May 31, 1959	4.92	4.1
1950	Mar. 27, 1950	a7.22	320				
				1960	Mar. 30, 1960	a10.29	727
1951	Mar. 29, 1951	a7.80	-				
	Apr. 7, 1951	6.34	229	1961	Mar. 14, 1961	a5.94	-
					May 18, 1961	-	8
1952	Apr. 4, 1952	a10.35	-				
	Apr. 9, 1952	a10.30	2,220	1962	Mar. 28, 1962	9.41	677
					May 23, 1962	9.46	1,380
1953	July 28, 1953	8.92	876		June 8, 1962	7.94	552
					June 17, 1962	7.87	549
1954	June 7, 1954	7.55	624		July 8, 1962	7.70	559
1955	Mar. 10, 1955	a7.58	273	1963	May 13, 1963	8.14	162
					June 10, 1963	8.77	-
1956	June 22, 1956	5.80	194				

a Backwater from ice.

4797.5. Peg Munky Run near Estelline, S. Dak.

Location.--Lat 44°34', long 96°51', in N½ sec.29, T.113 N., R.50 W., at bridge on State Highway 28, 2½ miles east of Estelline.

Drainage area.--25.4 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs and extended above on basis of indirect measurement at 1,080 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	Aug. 2, 1956	6.02	667	1961	June 7, 1961	5.50	440
1957	Mar. 21, 1957	a4.67	80	1962	Mar. 27, 1962	6.58	1,010
1958	July 13, 1958	4.42	202	1963	July 28, 1963	4.43	208
1959	Mar. 7, 1959	5.34	390	1964	Apr. 1, 1964	3.26	73
1960	Apr. 6, 1960	6.68	1,080				

a Backwater from ice.

4798. North Deer Creek near Estelline, S. Dak.

Location.--Lat 44°28', long 96°47', in SE¼ sec.35, T.112 N., R.50 W., at bridge on U.S. Highway 77, 9¾ miles southeast of Estelline.

Drainage area.--48.3 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 260 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	July 7, 1956	6.30	218	1961	June 7, 1961	6.04	175
1957	June 16, 1957	4.10	29	1962	July 4, 1962	7.61	590
1958	Mar. 25, 1958	3.91	22	1963	July 28, 1963	7.52	560
1959	Mar. 9, 1959	a3.63	12	1964	Apr. 27, 1964	4.70	56
1960	Apr. 6, 1960	7.40	520				

a Backwater from ice.

4799. Sixmile Creek tributary near Brookings, S. Dak.

Location.--Lat 44°23', long 96°41', in NW¼ sec.35, T.111 N., R.49 W., at bridge on county highway, 7¼ miles northeast of Brookings.

Drainage area.--9.42 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 110 cfs and extended above on basis of indirect measurement at 595 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	3.88	12	1961	June 7, 1961	6.29	655
1957	Mar. 21, 1957	a4.83	20	1962	July 4, 1962	6.68	820
1958	Mar. 25, 1958	3.80	10	1963	July 28, 1963	6.64	805
1959	Mar. 9, 1959	3.78	11	1964	Apr. 27, 1964	4.85	160
1960	Apr. 6, 1960	6.16	595				

a Backwater from ice.

4799.5. Deer Creek near Brookings, S. Dak.

Location.--Lat 44°23', long 96°37', in SW¼ sec.29, T.111 N., R.48 W., at bridge on county highway, 9¾ miles northeast of Brookings.

Drainage area.--4.21 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 15, 1956	2.66	0.4	1961	June 7, 1961	5.83	194
1957	Mar. 19, 1957	a4.79	30	1962	July 4, 1962	5.74	185
1958	Mar. 25, 1958	2.79	1.8	1963	July 28, 1963	5.76	187
1959	Mar. 9, 1959	a3.46	10	1964	Apr. 1, 1964	3.68	26
1960	Apr. 6, 1960	5.74	185				

a Backwater from ice.

4800. Big Sioux River near Brookings, S. Dak.

Location.--Lat 44°11', long 96°45', in NW¼NW¼ sec.8, T.108 N., R.49 W., on right bank 3 ft downstream from highway bridge, 1½ miles downstream from Deer Creek, and 9½ miles southeast of Brookings.

Drainage area.--4,420 sq mi, approximately, of which about 2,450 sq mi contributes directly to surface runoff.

Gage.--Nonrecording August 1953 to May 1959; recording thereafter. Altitude of gage is 1,545 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1954	Mar. 22, 1954	9.79	1,970	1959	Mar. 7, 1959	-	b240
1955	Mar. 12, 1955	a8.62	1,180	1960	Mar. 30, 1960	12.28	9,620
					Apr. 7, 1960	11.58	4,820
1956	Mar. 24, 1956	a4.42	-				
	Aug. 8, 1956	4.00	287	1961	Mar. 2, 1961	8.50	1,340
1957	Mar. 24, 1957	8.40	1,240	1962	Mar. 29, 1962	12.95	10,600
	June 17, 1957	11.67	5,320		Apr. 7, 1962	9.48	1,900
					June 11, 1962	8.77	1,360
1958	Mar. 27, 1958	4.58	382		July 7, 1962	11.14	3,680
1959	Mar. 5, 1959	a5.00	-	1963	Aug. 2, 1963	9.72	1,880

a Backwater from ice.
b Maximum daily.

4810. Big Sioux River near Dell Rapids, S. Dak.

Location.--Lat 43°47'25", long 96°44'45", in NW¼NW¼ sec.29, T.104 N., R.49 W., on right bank at downstream side of highway bridge, a quarter of a mile downstream from confluence of divided channels, 1¾ miles upstream from nearest tributary, and 3 miles southwest of Dell Rapids.

Drainage area.--5,060 sq mi, approximately, of which about 3,090 sq mi contributes directly to surface runoff.

Gage.--Nonrecording May 1948 to November 1949; recording thereafter. At datum 0.04 ft lower prior to October 1951. Gage heights given herein are adjusted to present datum. Altitude of gage is 1,455 ft (by barometer).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Historical data.--In 1952, a local resident who had been in Dell Rapids for 61 years stated that the flood of April 1952 was the greatest and that of April 1951 was the next greatest within his memory.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Mar. 28, 1949	a10.08	2,040	1955	Mar. 12, 1955	a7.94	1,110
	Apr. 6, 1949	9.46	2,700		Mar. 16, 1955	a8.72	1,380
1950	Apr. 1, 1950	a11.83	2,800	1956	July 14, 1956	8.65	1,750
	Apr. 20, 1950	6.57	1,210				
	May 12, 1950	6.04	1,030	1957	Mar. 24, 1957	a10.04	2,000
	June 12, 1950	6.62	1,260		June 18, 1957	14.93	15,500
					June 25, 1957	9.56	2,190
1951	Apr. 1, 1951	a12.47	3,750		July 3, 1957	9.09	1,980
	Apr. 4, 1951	41.32	12,300		July 21, 1957	6.79	1,070
	June 28, 1951	8.27	1,690				
	July 4, 1951	6.75	1,110	1958	June 4, 1958	4.78	450
1952	Apr. 5, 1952	14.85	15,400	1959	Mar. 10, 1959	a5.08	-
	June 17, 1952	8.88	1,980		May 28, 1959	4.56	380
	July 6, 1952	7.03	1,220				
	July 21, 1952	6.59	1,050	1960	Mar. 31, 1960	a14.83	-
					Apr. 1, 1960	14.42	11,900
1953	Mar. 15, 1953	a8.34	1,350		Apr. 6, 1960	12.86	5,550
	Mar. 22, 1953	7.71	1,740				
	May 5, 1953	7.72	1,640	1961	Mar. 3, 1961	a9.68	1,600
	May 15, 1953	7.09	1,350		Mar. 15, 1961	7.39	1,330
	May 25, 1953	8.05	1,800				
	June 27, 1953	6.83	1,320	1962	Mar. 30, 1962	15.14	18,400
	Aug. 6, 1953	7.07	1,410		May 24, 1962	7.99	1,590
	Aug. 11, 1953	6.23	1,030		June 8, 1962	8.53	1,810
					July 11, 1962	10.43	3,000
1954	Mar. 19, 1954	a11.22	2,740				
	Mar. 25, 1954	10.65	2,960	1963	Aug. 4, 1963	8.20	1,740

a Backwater from ice.

4815. Skunk Creek near Sioux Falls, S. Dak.

Location.--Lat 43°32'35", long 96°48'30", in NW¼NW¼ sec.23, T.101 W., R.50 W., on left bank at downstream side of bridge on U.S. Highway 16, 600 ft upstream from nearest tributary, 2½ miles upstream from mouth, and 4 miles west of Sioux Falls.

Drainage area.--520 sq mi, approximately.

Gage.--Nonrecording May 1948 to October 1949; recording thereafter. Datum of gage is 1,415.29 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Stage-discharge relation.--Defined by current-meter measurements below 8,100 cfs and extended above on basis of slope-area measurement at 29,400 cfs.

Bankfull stage.--7 ft.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Mar. 5, 1949	a7.81	1,940	1957	Mar. 24, 1957	a7.11	1,800
	Mar. 28, 1949	5.37	853		June 17, 1957	17.78	29,400
	Apr. 6, 1949	5.73	1,060		June 28, 1957	4.52	534
					July 3, 1957	8.10	2,640
1950	Mar. 25, 1950	5.66	1,030				
	May 19, 1950	5.19	803	1958	Apr. 6, 1958	4.11	344
	June 12, 1950	4.75	592				
				1959	May 28, 1959	7.96	2,580
1951	Mar. 29, 1951	a9.25	2,150		Aug. 2, 1959	4.73	675
	Apr. 4, 1951	7.78	2,150				
	June 18, 1951	5.46	928	1960	Mar. 30, 1960	13.64	8,200
	June 26, 1951	9.48	3,070		Apr. 1, 1960	10.27	4,120
					Apr. 6, 1960	10.79	4,640
1952	Feb. 12, 1952	a5.17	-		Apr. 13, 1960	5.09	799
	Mar. 20, 1952	a7.19	750		May 19, 1960	4.63	578
	Mar. 29, 1952	12.16	5,770				
	Apr. 22, 1952	5.08	813	1961	Feb. 23, 1961	a6.54	-
					Mar. 15, 1961	4.48	525
1953	Mar. 11, 1953	a6.64	700				
	June 8, 1953	6.97	1,880	1962	Mar. 28, 1962	12.43	6,430
	June 27, 1953	8.28	2,770		Apr. 4, 1962	6.62	1,760
					May 28, 1962	4.96	665
1954	Mar. 19, 1954	7.19	2,000		June 17, 1962	4.68	538
					July 5, 1962	4.56	500
1955	Mar. 9, 1955	a6.05	797		July 20, 1962	4.67	546
1956	June 4, 1956	5.02	781	1963	Mar. 23, 1963	a3.83	-
	Aug. 12, 1956	4.79	680		Mar. 24, 1963	3.38	149

a Backwater from ice.

4821. Big Sioux River near Brandon, S. Dak.
(Published as "at Sioux Falls" prior to 1960)

Location.--Lat 43°36', long 96°38', in NE¼SE¼ sec.30, T.102 N., R.48 W., on left bank 130 ft upstream from Great Northern Railway bridge, 2¾ miles northwest of Brandon, and 7 miles upstream from Split Rock Creek.

Drainage area.--5,810 sq mi, approximately, of which about 3,840 sq mi contributes directly to surface runoff; 5,750 sq mi, approximately, of which about 3,780 sq mi contributes directly to surface runoff at 1943-59 site.

Gage.--Nonrecording August 1943 to September 1954; recording thereafter. At site 14¾ miles upstream at datum 109.45 ft higher prior to October 1959. Datum of gage is 1,283.38 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of Apr. 7, 1952, is greatest since at least 1881, according to records of Sioux Falls city engineer.

Remarks.--During periods of high stage, part of flow leaves the main channel upstream from the 1943-59 gage site and is diverted through a bypass canal across the loop of river on which the gage was located. Bypass canal flow (maximum 1951-59, 2,820 cfs June 19, 1957) returns to main channel at a point about 7 miles upstream from 1960-63 gage site; records prior to March 1951 do not include bypass flow. Base for partial-duration series, 2,600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Feb. 26, 1944	10.24	5,250	1952	Apr. 2, 1952	11.65	7,660
	May 24, 1944	7.08	2,640		Apr. 7, 1952	14.50	13,500
	July 11, 1944	8.30	3,540				
				1953	Mar. 16, 1953	a7.74	-
1945	Feb. 15, 1945	a9.4	-		June 27, 1953	8.28	3,360
	Mar. 12, 1945	a9.4	2,640				
	Mar. 18, 1945	7.19	2,700	1954	Mar. 20, 1954	a8.79	3,870
	June 4, 1945	7.06	2,710		Mar. 26, 1954	7.97	3,240
1946	Mar. 14, 1946	a8.0	-	1955	Mar. 10, 1955	a8.83	-
	Mar. 19, 1946	8.20	3,460		Mar. 10, 1955	a8.43	1,820
1947	Apr. 17, 1947	8.86	3,320	1956	July 15, 1956	4.03	895
	June 10, 1947	10.80	5,000				
				1957	Mar. 25, 1957	7.81	3,100
1948	Feb. 28, 1948	a13.9	(b)		June 17, 1957	16.01	16,200
	Mar. 18, 1948	a9.75	3,440		July 4, 1957	9.48	4,020
	Mar. 26, 1948	9.92	4,250				
	July 21, 1948	8.55	3,380	1958	Mar. 2, 1958	a4.37	-
	July 29, 1948	10.00	4,330		Apr. 6, 1958	3.49	493
1949	Mar. 5, 1949	a9.67	-	1959	May 28, 1959	7.58	2,850
	Apr. 6, 1949	8.25	3,140				
				1960	Apr. 1, 1960	18.61	14,400
1950	Mar. 26, 1950	a8.1	-		Apr. 6, 1960	17.51	10,700
	Apr. 3, 1950	7.33	2,560				
				1961	Mar. 4, 1961	8.97	1,780
1951	Mar. 30, 1951	a11.17	4,700				
	Apr. 6, 1951	14.30	13,100	1962	Mar. 31, 1962	19.93	17,100
	June 26, 1951	8.51	3,340		July 12, 1962	10.84	2,680
1952	Mar. 30, 1952	a12.85	7,900	1963	Aug. 5, 1963	8.68	1,640

a Backwater from ice.
b Discharge unknown; greater than 2,600 cfs.

4828.7. Little Beaver Creek tributary near Canton, S. Dak.

Location.--Lat 43°15', long 96°38', in NE¼ sec.4, T.97 N., R.49 W., at culvert on county highway, 4 miles southwest of Canton.

Drainage area.--0.22 sq mi.

Gage.--Crest-stage gage. Altitude of gage is 1,330 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 16 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	June 4, 1956	2.04	11	1961	Mar. 15, 1961	2.03	11
1957	July 27, 1957	2.60	23	1962	June 16, 1962	3.49	-
1958	Feb. 27, 1958	1.98	10	1963	Sept. 4, 1963	2.56	22
1959	May 21, 1959	3.78	-	1964	May 12, 1964	2.78	27
1960	Apr. 1, 1960	2.49	20				

4834.1. Otter Creek north of Sibley, Iowa

Location.--Lat 43°28', long 95°45', at northeast corner of sec.25, T.100 N., R.41 W., at bridge on county road "H", 4 miles north of Sibley.

Drainage area.--11.9 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 340 cfs and by contracted-opening measurement at 952 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	6.95	108	1958	-	(a)	-
1953	June 7, 1953	8.06	982	1959	May 30, 1959	7.62	674
1954	June 20, 1954	7.73	751	1960	Apr. 30, 1960	6.60	229
1955	Apr. 23, 1955	4.56	52	1961	Mar. 27, 1961	(a)	(b)
1956	Mar. 28, 1956	4.12	45	1962	Mar. 31, 1962	8.49	1,410
1957	-	(a)	-	1963	-	(a)	(b)

a Below bottom of gage. b Peak discharge less than 68 cfs.

4834.2. Schutte Creek near Sibley, Iowa

Location.--Lat 43°29', long 95°46', near northwest corner sec.23, T.100 N., R.42 W., at culvert 6 miles northwest of Sibley.

Drainage area.--143 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 75 cfs and by indirect measurement at 503 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	4.49	175	1958	-	(a)	15
1953	June 7, 1953	5.15	503	1959	May 30, 1959	3.84	62
1954	June 19, 1954	4.04	86	1960	Mar. 30, 1960	4.17	100
1955	Apr. 23, 1955	3.84	62	1961	Mar. 27, 1961	3.76	54
1956	Aug. 13, 1956	3.55	46	1962	June 17, 1962	3.77	55
1957	June 18, 1957	3.81	60	1963	-	(a)	(b)

a Below bottom of gage. b Peak discharge less than 15 cfs.

4834.3. Otter Creek at Sibley, Iowa

Location.--Lat 43°24', long 95°46', near NW¼ corner sec.14, T.99 N., R.42 W., at bridge on old State Highway 9, 1 mile northeast of Sibley.

Drainage area.--29.9 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs, and by indirect measurement at 5,430 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	8.14	822	1958	June 4, 1958	6.12	120
1953	June 7, 1953	9.82	5,400	1959	May 30, 1959	7.98	698
1954	June 20, 1954	9.49	3,860	1960	Mar. 30, 1960	7.74	554
1955	Apr. 23, 1955	5.96	107	1961	Mar. 27, 1961	7.07	281
1956	Mar. 28, 1956	5.24	64	1962	Mar. 31, 1962	-	2,000
1957	Mar. 25, 1957	6.59	175	1963	-	(a)	-

a Below bottom of gage.

4834.4. Dawson Creek near Sibley, Iowa

Location.--Lat 43°24', long 95°44', near NW¼ sec.20, T.99 N., R.41 W., at culvert on county road "D", 2 miles southeast of Sibley.

Drainage area.--4.35 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 370 cfs, and by indirect measurement at 4,290 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	5.31	460	1958	June 4, 1958	4.81	140
1953	June 7, 1953	6.21	4,290	1959	May 30, 1959	5.73	1,290
1954	June 20, 1954	5.25	400	1960	Mar. 30, 1960	5.27	440
1955	Apr. 23, 1955	4.71	110	1961	Mar. 27, 1961	4.67	110
1956	Aug. 13, 1956	4.06	52	1962	June 5, 1962	4.66	113
1957	July 3, 1957	4.81	140	1963	July 24, 1963	5.16	328

4834.5. Wagner Creek near Ashton, Iowa

Location.--Lat 43°21', long 95°47', on south line of sec.35, T.99 N., R.42 W., at bridge 3 miles northeast of Ashton.

Drainage area.--7.09 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 280 cfs, and by indirect measurements at 1,170 and 2,840 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges of Wagner Creek near Ashton, Iowa

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	4.31	390	1958	Apr. 5, 1958	3.52	24
1953	June 7, 1953	5.37	2,840	1959	May 30, 1959	5.29	2,600
1954	June 20, 1954	5.29	2,600	1960	Mar. 30, 1960	4.33	475
1955	Apr. 23, 1955	3.60	40				
				1961	Mar. 27, 1961	3.64	52
1956	Aug. 13, 1956	3.56	32	1962	Mar. 31, 1962	4.58	516
1957	July 3, 1957	3.96	180	1963	-	(a)	-

a Below bottom of gage.

4834.6. Otter Creek near Ashton, Iowa

Location.--Lat 43°20', long 95°46', near SE corner sec.2, T.98 N., R.42 W., at bridge on county road, 2 miles northeast of Ashton.

Drainage area.--88.0 sq mi.

Gage.--Crest-stage gage.

Stage-discharge relation.--Defined by current-meter measurements below 5,600 cfs, and by indirect measurements at 7,080 and 17,800 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 29, 1952	9.88	2,100	1958	Apr. 5, 1958	7.01	367
1953	June 7, 1953	12.16	17,400	1959	May 30, 1959	10.27	2,880
1954	June 20, 1954	11.17	6,320	1960	Mar. 30, 1960	9.37	1,300
1955	Apr. 23, 1955	7.14	393				
				1961	Mar. 27, 1961	7.01	367
1956	Aug. 13, 1956	7.62	489	1962	Mar. 31, 1962	10.65	3,990
1957	July 3, 1957	8.51	754	1963	June 10, 1963	6.61	303

4835. Rock River near Rock Valley, Iowa

Location.--Lat 43°12'05", long 96°20'15", in NE¼NE¼ sec.25, T.97 N., R.47 W., on downstream side of bridge on U.S. Highway 18, 1.8 miles west of Rock Valley and 16.4 miles upstream from mouth.

Drainage area.--1,600 sq mi.

Gage.--Nonrecording prior to Aug. 13, 1952, recording thereafter (June 4, 1949, to Aug. 12, 1952, supplementary recording gage above 6.2 ft gage height). Datum of gage is 1,216.00 ft above mean sea level (State Highway Commission bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 23,000 cfs.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 3,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1897	-	17.0	-	1950	Mar. 28, 1950	11.33	4,320
1948	July 23, 1948	10.9	a4,090	1951	Mar. 30, 1951	11.37	5,170
					Apr. 5, 1951	14.77	14,300
1949	Mar. 6, 1949	12.30	5,790		June 30, 1951	11.08	4,740
	Mar. 29, 1949	11.75	5,160				
	Apr. 8, 1949	12.10	5,530	1952	Mar. 20, 1952	12.55	6,100
					Mar. 31, 1952	15.30	17,300
1950	Mar. 5, 1950	b11.60	-				
	Mar. 25, 1950	11.48	4,560	1953	Mar. 14, 1953	10.83	4,220

a Maximum for period June to September. b Backwater from ice.

Peak stages and discharges of Rock River near Rock Valley, Iowa--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 27, 1953	10.27	3,520	1959	June 1, 1959	14.06	10,200
	June 8, 1953	15.99	18,900				
	June 29, 1953	9.95	3,150	1960	Mar. 31, 1960	15.38	16,700
	Aug. 6, 1953	10.83	4,220		Apr. 2, 1960	14.93	14,100
1954	Mar. 20, 1954	12.11	5,300	1961	Mar. 2, 1961	13.06	8,580
	June 21, 1954	15.86	19,200		Mar. 16, 1961	10.29	3,410
1955	Mar. 12, 1955	9.31	2,370	1962	Mar. 30, 1962	16.91	28,400
					Apr. 5, 1962	14.26	11,000
1956	July 2, 1956	7.59	1,160		May 24, 1962	11.02	4,260
					June 18, 1962	11.80	5,220
1957	June 19, 1957	10.55	3,770				
	July 3, 1957	9.97	3,050	1963	June 12, 1963	7.50	1,300
1958	Apr. 7, 1958	6.18	545				

4840. Dry Creek at Hawarden, Iowa

Location.--Lat 42°59'45", long 96°28'15", in NE¼NE¼ sec.2, T.94 N., R.48 W., on left bank 6 ft downstream from bridge on State Highway 10 at east edge of Hawarden and 1.7 miles upstream from mouth.

Drainage area.--48.4 sq mi.

Gage.--Nonrecording prior to Oct. 30, 1949; recording thereafter. Datum of gage is 1,170.42 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 860 cfs and extended above on basis of contracted-opening measurement at 10,900 cfs.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	September1926	18.0	-	1955	Mar. 2, 1955	a8.68	-
					Mar. 9, 1955	6.96	81
1934	-	15.8	-				
				1956	July 31, 1956	8.09	152
1949	Mar. 5, 1949	13.10	686				
				1957	July 4, 1957	12.00	606
1950	Mar. 24, 1950	a13.5	500				
				1958	Apr. 6, 1958	5.92	17
1951	Mar. 27, 1951	13.83	950				
	Mar. 29, 1951	13.29	(b)	1959	May 28, 1959	11.18	376
	Apr. 3, 1951	9.92	319		May 31, 1959	14.75	1,000
	June 25, 1951	11.41	509				
	July 3, 1951	13.28	850	1960	Mar. 28, 1960	15.10	2,430
					Apr. 2, 1960	15.36	3,000
1952	Mar. 18, 1952	11.0	451		Apr. 12, 1960	10.32	388
	Mar. 30, 1952	14.14	1,020				
	July 7, 1952	12.59	714	1961	Feb. 23, 1961	a13.04	500
	Aug. 28, 1952	11.74	556		Mar. 14, 1961	10.66	425
1953	June 7, 1953	17.57	10,900	1962	Mar. 28, 1962	15.88	2,330
					Aug. 30, 1962	9.07	360
1954	Mar. 16, 1954	11.24	479				
	June 10, 1954	11.76	566	1963	Feb. 7, 16, 1963	a6.83	-
	June 19, 1954	12.14	630		July 5, 1963	6.77	101

a Backwater from ice.
b Not determined; exceeded base discharge.

4855. Big Sioux River at Akron, Iowa

Location.--Lat 42°49'40", long 96°33'50", in W½ sec.31, T.93 N., R.48 W., on left bank at west edge of Akron, three-quarters of a mile downstream from State Highway 48 and 2¾ miles upstream from Union Creek.

Drainage area.--9,030 sq mi, approximately, of which about 7,060 sq mi contributes directly to surface runoff.

Gage.--Nonrecording October 1928 to December 1934; recording thereafter. Datum of gage is 1,118.90 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements; subject to extensive changes due to levee breaks in vicinity of the gage.

Bankfull stage.--15 ft.

Remarks.--Base for partial-duration series, 3,500 cfs. Only annual peaks are shown prior to 1935.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Mar. 15, 1929	18.63	20,800	1944	June 18, 1944	17.01	11,100
1930	June 6, 1930	9.92	3,740		July 15, 1944	16.51	9,840
					Aug. 7, 1944	12.89	4,770
1931	Aug. 9, 1931	5.60	1,390				
1932	Mar. 1, 1932	18.04	16,900	1945	Feb. 20, 1945	12.03	4,150
1933	Sept. 5, 1933	17.8	14,200		Mar. 14, 1945	17.42	12,300
1934	June 8, 1934	16.08	10,600		May 23, 1945	10.86	3,500
					May 30, 1945	12.07	4,220
1935	Mar. 7, 1935	a12.24	-		June 17, 1945	16.48	9,820
	Mar. 10, 1935	a10.06	3,000		July 16, 1945	11.40	3,790
1936	Mar. 12, 1936	18.63	18,000	1946	Mar. 5, 1946	15.28	8,970
	May 26, 1936	11.79	5,300		Mar. 17, 1946	15.05	8,400
	Sept.16, 1936	12.92	6,720		Apr. 22, 1946	11.45	4,040
1937	Mar. 10, 1937	a12.99	5,300	1947	Apr. 14, 1947	14.44	7,400
	Apr. 14, 1937	12.23	4,880		May 2, 1947	12.90	5,120
	May 26, 1937	13.14	5,760		June 15, 1947	16.84	10,500
					June 26, 1947	12.86	4,660
1938	Mar. 5, 1938	a12.90	4,200		July 2, 1947	12.43	4,290
	Mar. 18, 1938	17.21	11,200				
	May 6, 1938	10.58	3,540	1948	Mar. 2, 1948	a18.50	6,500
	July 4, 1938	17.53	12,700		Mar. 21, 1948	16.87	10,800
	Sept.12, 1938	11.03	3,800		May 12, 1948	11.08	3,610
	Sept.17, 1938	16.58	9,800		July 25, 1948	14.49	6,600
					Aug. 2, 1948	11.58	3,910
1939	Mar. 17, 1939	a15.45	6,300				
	Mar. 21, 1939	11.59	4,370	1949	Mar. 8, 1949	17.08	11,400
					Mar. 31, 1949	16.22	9,170
1940	Mar. 22, 1940	a11.06	-		Apr. 9, 1949	17.11	11,400
	Apr. 2, 1940	17.32	11,700				
				1950	Mar. 7, 1950	a12.56	4,000
1941	Mar. 4, 1941	a10.98	-		Mar. 28, 1950	13.36	5,260
	Mar. 12, 1941	13.24	5,550		June 18, 1950	13.40	5,450
	Mar. 25, 1941	13.52	5,820				
	Apr. 2, 1941	11.78	4,350	1951	Apr. 6, 1951	19.66	28,800
					July 1, 1951	16.08	8,390
1942	May 16, 1942	12.98	4,870		July 4, 1951	15.54	7,580
	May 30, 1942	15.74	7,940				
	June 4, 1942	19.23	21,400	1952	Feb. 15, 1952	a11.81	4,300
	June 29, 1942	13.96	5,810		Mar. 22, 1952	16.10	9,650
	Aug. 2, 1942	18.28	16,600		Apr. 1, 1952	19.75	33,000
	Aug. 31, 1942	15.23	7,280		Apr. 10, 1952	17.71	16,500
	Sept. 5, 1942	16.18	8,620		June 19, 1952	10.92	3,840
	Sept.21, 1942	11.52	3,680		July 7, 1952	15.36	8,180
1943	Feb. 24, 1943	15.17	7,200	1953	Mar. 16, 1953	14.22	6,780
	Mar. 27, 1943	11.86	3,920		May 28, 1953	12.71	5,090
	June 18, 1943	17.35	12,000		June 8, 1953	19.33	21,800
	June 27, 1943	14.69	6,630		June 30, 1953	13.31	5,560
	July 7, 1943	11.65	3,920		Aug. 7, 1953	13.04	5,340
	Aug. 15, 1943	12.03	4,160				
				1954	Mar. 22, 1954	18.11	15,600
1944	Feb. 29, 1944	18.24	15,900		June 22, 1954	19.95	21,700
	May 7, 1944	12.95	4,820				
	May 15, 1944	14.60	6,600	1955	Mar. 11, 1955	12.25	4,940
	May 21, 1944	11.24	3,510				
	June 4, 1944	11.45	3,640	1956	July 17, 1956	8.13	1,840
	June 12, 1944	17.18	11,600				

a Backwater from ice.

Peak stages and discharges of Big Sioux River at Akron, Iowa.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Mar. 26, 1957	12.14	4,580	1961	Mar. 17, 1961	14.12	5,840
	June 21, 1957	19.57	19,400				
	July 5, 1957	14.40	5,980	1962	Mar. 31, 1962	22.08	54,300
					May 26, 1962	16.11	8,500
1958	Apr. 8, 1958	5.98	1,120		May 31, 1962	12.98	4,620
					June 10, 1962	12.34	4,100
1959	June 3, 1959	16.93	8,430		June 19, 1962	16.78	9,010
					July 8, 1962	12.34	4,240
1960	Apr. 1, 1960	21.56	49,500				
	Apr. 15, 1960	16.18	8,930	1963	Aug. 7, 1963	7.59	1,650
1961	Mar. 5, 1961	16.18	9,050				

MISSOURI RIVER MAIN STEM

4860. Missouri River at Sioux City, Iowa

Location.--Lat 42°29'10", long 96°24'45", in NW¼SE¼ sec.16, T.29 N., R.9 E., sixth principal meridian, on right bank on upstream side of bridge on U.S. Highway 77 at Sioux City, 2.0 miles downstream from Big Sioux River.

Drainage area.--314,600 sq mi, approximately.

Gage.--Nonrecording at various sites within 1.7 miles of present site at various datums prior to Jan. 1, 1906, and at present site and datum Jan. 1, 1906, to Feb. 14, 1935; recording thereafter. Datum of gage is 1,076.96 ft above mean sea level, datum of 1929. All gage heights adjusted to present datum.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Annual maximum stages prior to 1929 and 1932-38 from publication of Mississippi River Commission. Peak discharges affected by upstream mainstem reservoirs beginning with construction of Fort Peck reservoir in 1937. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1879	Apr. 7, 1879	a15.5	-	1906	June 16, 1906	15.2	-
1880	July 7, 1880	14.0	-	1907	May 30, 1907	15.2	-
				1908	June 23, 1908	15.2	-
1881	Apr. 23, 1881	a22.5	-	1909	June 15, 1909	14.7	-
1882	June 27, 1882	13.4	-	1910	Mar. 20, 1910	a16.6	-
1883	July 9, 1883	13.5	-				
1884	Apr. 4, 1884	15.9	-	1911	June 30, 1911	12.0	-
1885	June 15, 1885	15.1	-	1912	Apr. 10, 1912	a16.1	-
				1913	Apr. 12, 1913	a16.4	-
1886	Mar. 20, 1886	a14.4	-	1914	June 13, 1914	13.5	-
1887	Mar. 26, 1887	a17.4	-	1915	-	14.9	-
1888	Mar. 21, 1888	a16.4	-				
1889	Mar. 29, 1889	a9.4	-	1916	July 10, 1916	14.9	-
1890	June 7, 1890	11.7	-	1917	Apr. 13, 1917	a16.5	-
				1918	Mar. 29, 1918	a14.7	-
1891	July 5, 1891	12.9	-	1919	Apr. 10, 1919	a13.6	-
1892	July 12, 1892	14.6	-	1920	May 16, 1920	16.1	-
1893	Apr. 10, 1893	a13.6	-				
1894	Apr. 12, 1894	a14.1	-	1921	June 27, 1921	14.2	-
1895	June 6, 1895	11.1	-	1922	June 24, 1922	13.1	-
				1923	Mar. 23, 1923	a16.8	-
1896	June 14, 1896	12.7	-	1924	Apr. 13, 1924	a12.6	-
1897	Apr. 11, 1897	a14.7	-	1925	June 11, 1925	13.6	-
1898	June 30, 1898	13.0	-				
1899	Apr. 22, 1899	a16.0	-	1926	June 21, 1926	10.2	-
1900	Apr. 8, 1900	a12.4	-	1927	May 13, 1927	16.6	-
				1928	Feb. 5, 1928	12.6	-
1901	June 21, 1901	13.5	-	1929	Apr. 1, 1929	a12.5	190,000
1902	June 12, 1902	12.4	-	1930	Mar. 6, 1930	9.4	108,000
1903	July 10, 1903	13.2	-		Apr. 10, 1930	a9.8	-
1904	Apr. 12, 1904	a15.7	-				
1905	July 6, 1905	18.0	-	1931	June 16, 1931	9.79	54,700

a Probably backwater from ice.

Peak stages and discharges of Missouri River at Sioux City, Iowa.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 16,19,1932	11.7	-	1948	Mar. 27, 1948	b9.8	115,000
1933	May 28, 1933	10.9	-	1949	Apr. 10, 1949	15.72	178,000
1934	Mar. 3, 1934	a13.4	-	1950	Apr. 25, 1950	18.44	252,000
1935	July 17, 1935	12.9	-				
				1951	Apr. 8, 1951	13.04	152,000
1936	Mar. 8, 1936	a11.1	-	1952	Apr. 14, 1952	24.28	441,000
1937	June 21, 1937	11.8	-	1953	June 25, 1953	c9.19	109,000
1938	Mar. 24, 1938	13.2	-	1954	June 21, 1954	6.83	51,300
1939	Apr. 3, 1939	14.35	168,000	1955	Mar. 12, 1955	d6.19	56,200
1940	June 16, 1940	8.90	55,700				
				1956	Aug. 18, 1956	7.10	38,900
1941	June 15, 1941	13.00	121,000	1957	Oct. 3, 1956	6.43	36,200
1942	June 8, 1942	13.77	127,000	1958	July 2, 1958	7.28	39,500
1943	Apr. 10, 1943	18.72	212,000	1959	May 31, 1959	6.50	33,600
1944	Apr. 12, 1944	15.45	180,300	1960	Apr. 3, 1960	10.52	101,000
1945	Mar. 22, 1945	9.35	116,400				
				1961	Aug. 10, 1961	5.77	32,700
1946	June 21, 1946	8.6	87,900	1962	Apr. 2, 1962	6.92	71,600
1947	Apr. 4, 1947	15.10	178,000	1963	June 2, 1963	6.00	34,400

a Probably backwater from ice.
b Occurred June 27, 1948.
c Occurred June 19, 1953.
d Occurred June 10, 1955.
Note.--Stages listed prior to 1900 are average of morning and afternoon readings. Those listed for 1900-28 and 1932-38 are afternoon readings.

Beckman, E. W., and Hutchison, N. E., 1962, Floods in Nebraska on small drainage areas, magnitude and frequency: U.S. Geol. Survey Circ. 458, 33 p.

Benson, M. A., 1960, Characteristics of frequency curves based on a theoretical 1,000-year record, in Dalrymple, Tate, 1960, p. 51-74.

_____ 1962, Evolution of methods for evaluating the occurrence of floods: U.S. Geol. Survey Water-Supply Paper 1580-A, 30 p.

Berwick, V. K., 1958, Floods in eastern Montana, magnitude and frequency: U.S. Geol. Survey open-file report, 23 p.

Carter, J. R., and Green, A. R., 1963, Floods in Wyoming, magnitude and frequency: U.S. Geol. Survey Circ. 478, 27 p.

Dalrymple, Tate, 1950, Regional flood frequency: Highway Research Board, Research Rept. no. 11-B, p. 4-20.

_____ 1960, Flood-frequency analyses: U.S. Geol. Survey Water-Supply Paper 1543-A, 80 p.

Fenneman, N. M., 1931, Physiography of western United States: New York, McGraw-Hill Book Co., 534 p.

Furness, L. W., 1955, Floods in Nebraska, magnitude and frequency: Nebraska Dept. of Roads and Irrigation, 103 p.

Langbein, W. B., 1949, Annual floods and partial-duration flood series: Am. Geophys. Union Trans., v. 30, p. 879-881.

McCabe, J. A., and Crosby, O. A., 1959, Floods in North and South Dakota, frequency and magnitude: U.S. Geol. Survey open-file report, 132 p.

Powell, R. W., 1943, A simple method of estimating flood frequency: Civil Eng., v. 13, no. 2, p. 105-107.

Prior, C. H., and Hess, J. H., 1961, Floods in Minnesota, magnitude and frequency: Minnesota Dept. Conserv., Div. of Waters Bull. 12, 141 p.

Schwob, H.H., 1953, Iowa floods, magnitude and frequency: Iowa Highway Comm., Highway Research Board Bull. 1, 171 p.

INDEX

U. S. GOVERNMENT PRINTING OFFICE : 1966 O - 2'9-848