Correlative Estimates of Streamflow in the Upper Colorado River Basin

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1875

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By L. E. CARROON

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INTRODUCTION

PURPOSE AND SCOPE

Most hydrologic analyses, whether for appraisal of the water resource, feasibility of a particular development, design of a system of operation, assessment of gains or losses from acts of man or natural changes, or almost any other use, require the extension in time of some streamflow records. In the Upper Colorado River Basin, streamflow records have been extended by various agencies from time to time to fulfill their individual needs, resulting in different estimates of flow for the same point and time. The purpose of this report is to provide correlative estimates of monthly mean discharge at discontinued streamflow gaging stations so that all users will have access to a single set of data.

Estimates of monthly mean discharge for periods other than the period of actual record are given for certain discontinued streamflow gaging stations. The stations selected were discontinued in recent years, but they have a sufficient length of record to permit development of a meaningful correlation with the records for a nearby long-term gaging station. Where possible, estimates of monthly mean discharge are made to provide a complete record, estimated or measured, from 1930 to 1965. However, where the long-term gaging station record encompasses a shorter period, the estimates cover only that shorter period. Estimates for periods prior to 1930 were not made, although these may be computed for a few stations. Lack of a related long-term gaging-station record prevented the extension of records at many discontinued stations.

The area covered in this report (fig. 1) is that defined in the Colorado River Compact of 1922, as the Upper Basin—"those parts of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming within and from which waters naturally drain into the Colorado River

System above Lee Ferry,"[1] but excluding "all parts of said States located without the drainage area of the Colorado River System which are now and shall hereafter be beneficially served by waters diverted from the System above Lee Ferry" (Wilbur and Ely, 1948, p. A18).

FIGURE 1.—Index map, showing report area.

[1] The term "Lee Ferry" means a point in the main stream of the Colorado River 1 mile below the mouth of the Paria River. It is not the same location as the U.S. Geological Survey streamflow gaging station at Lees Ferry, Arizona, which is above the mouth of the Paria River.

BACKGROUND OF PROJECT

The U.S. Geological Survey, in the years 1954–57, made a nationwide appraisal of the adequacy of the stream-gaging network by means of correlation analysis. This appraisal indicated that records for certain streamflow gaging stations were sufficiently related to records for others that some stations could be discontinued with little loss of information. Consequently, a number of these stations were discontinued, but no systematic effort was made to extend records at the discontinued sites on the basis of information obtained at the continuing ones. Data users in the Upper Colorado River Basin considered using the relationships developed for the national appraisal as an economical means of extending records. However, further study of statistical theory indicated that although the relationships developed for the network appraisal adequately described the dependence between stations, they were unsuitable for extending streamflow records. Hence, a special study was initiated in 1964 to estimate monthly runoff for periods before or after the period of actual record at selected gaging stations. Results of the study are given in this report.

HYDROLOGIC CONDITIONS

The Upper Colorado River Basin contains approximately 109,300 square miles and has a great range in physical characteristics that affect streamflow characteristics and, hence, streamflow relationships. Most of the water in the Colorado River at Lees Ferry, Ariz., comes from the small part of the basin in the highest part of the Rocky Mountains, central and northern Colorado; the Wind River Range, Wyo.; the Uinta Mountains, Utah; and the San Juan Mountains, southwestern Colorado.

Most of the precipitation in these areas is snow, and the runoff is largely snowmelt. Because of this, 60–90 percent of the annual streamflow usually occurs in the three months May–July (fig. 2). Because snowmelt is produced by heat, and the amount of heat varies inversely with latitude and altitude, streamflow characteristics are similar only where similar percentages of the drainage basins are in the same latitude and altitude zones. Latitude in the basin varies from approximately 35°30′ along the Continental Divide in New Mexico to about 43°30′ in western Wyoming, which is sufficient to cause considerable difference in snowmelt patterns from that source alone. The altitude of the basin ranges from about 3,000 feet near Lees Ferry, Ariz., to more than 14,000 feet in western Colorado.

Streams that derive any considerable part of their annual flow from

rain are generally those which drain the arid or semiarid parts of the basin, where runoff is derived largely from thunderstorms. Flows in such streams generally have little relation to flows in nearby streams and frequently have little or no relation to flows in the more distant parts of the same stream.

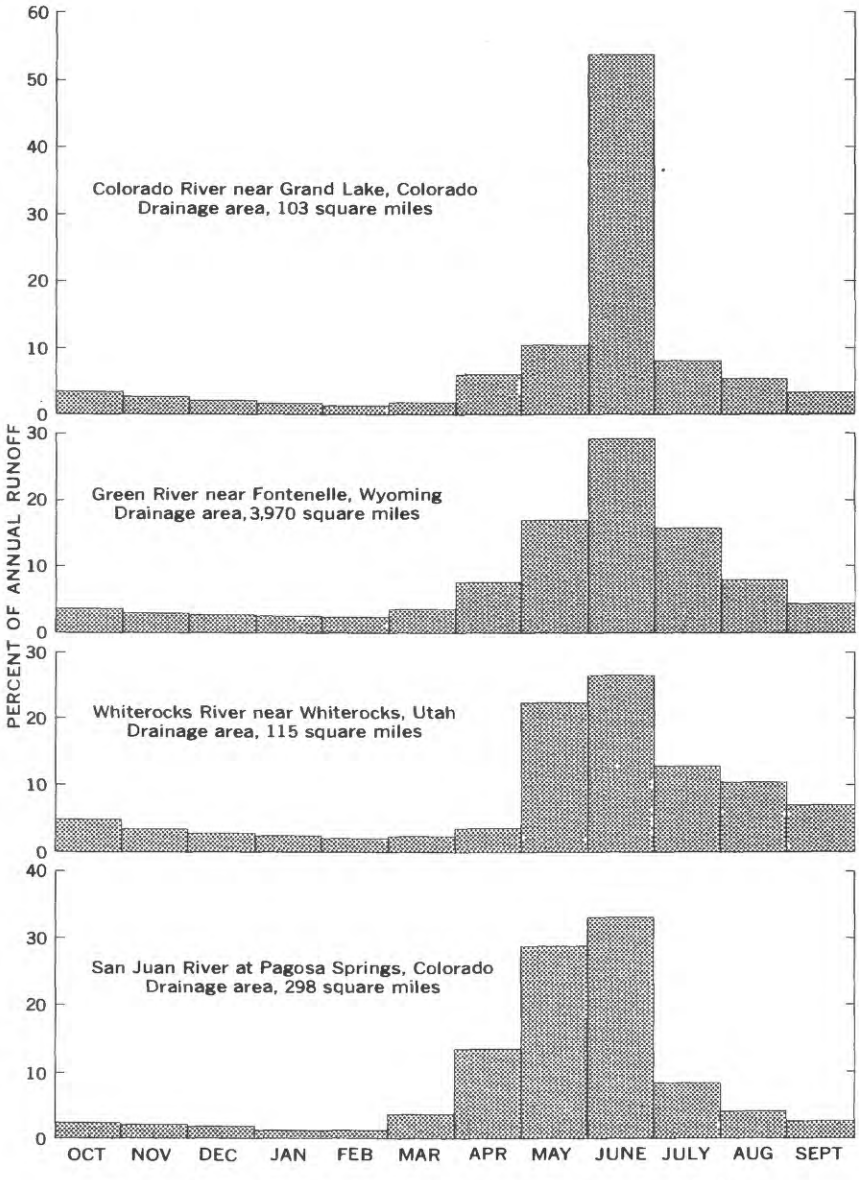

FIGURE 2.—Seasonal distribution of streamflow at selected sites.

Figure 3 shows, by means of histograms of annual flow, the long-term trend at several key points in the basin. Thomas and others (1963) demonstrated by use of 5-year moving averages that flows since 1930 have averaged substantially less in the Upper Colorado River Basin than those that were observed earlier.

ACKNOWLEDGMENTS

The streamflow records which form the basis of the report have been compiled over many years by personnel of the various districts, Water Resources Division, U.S. Geological Survey, as a part of the nationwide program to investigate and appraise the Nation's water resources. The program has been carried out under the direction of the district chiefs and in cooperation with the various States, subdivisions thereof, municipalities, corporations, and Federal agencies, which are listed individually in the annual reports of streamflow for the area. This report has been prepared in the Rocky Mountain Region office, Water Resources Division, Denver, Colo., under the technical direction of M. R. Williams, Chief, Branch of Surface Water, Washington D.C.

REPORTS CONTAINING BASIC STREAMFLOW DATA

Streamflow data for the Upper Colorado River Basin have been published annually. Records prior to October 1, 1960, are contained in the annual series of Water-Supply Papers "Surface-Water Supply of the United States, Part 9, Colorado River Basin," and include figures of daily mean discharge. Annual and monthly mean discharges have been compiled and published in two volumes, Water-Supply Paper 1313 of the series "Compilation of Records of Surface Water of the United States through September 1950," and Water-Supply Paper 1733 of the series "Compilation of Records of Surface Waters of the United States, October 1950 to September 1960." Records of daily and monthly mean discharge since October 1960 have been published in the series of annual basic-data releases of surface-water records for each State. Data for the Upper Colorado River Basin are contained in the reports for Arizona, Colorado, New Mexico, Utah, and Wyoming. These data are to be compiled and published in Water-Supply Papers 1924 and 1925 of the series "Surface Water Supply of the United States, 1961–65."

METHODS OF ANALYSIS

In this report graphical methods of simple correlation of monthly mean discharge were used exclusively. That is, monthly discharge, in acre-feet, at a short-term streamflow gaging station was correlated with contemporaneous streamflow at a long-term gaging station and

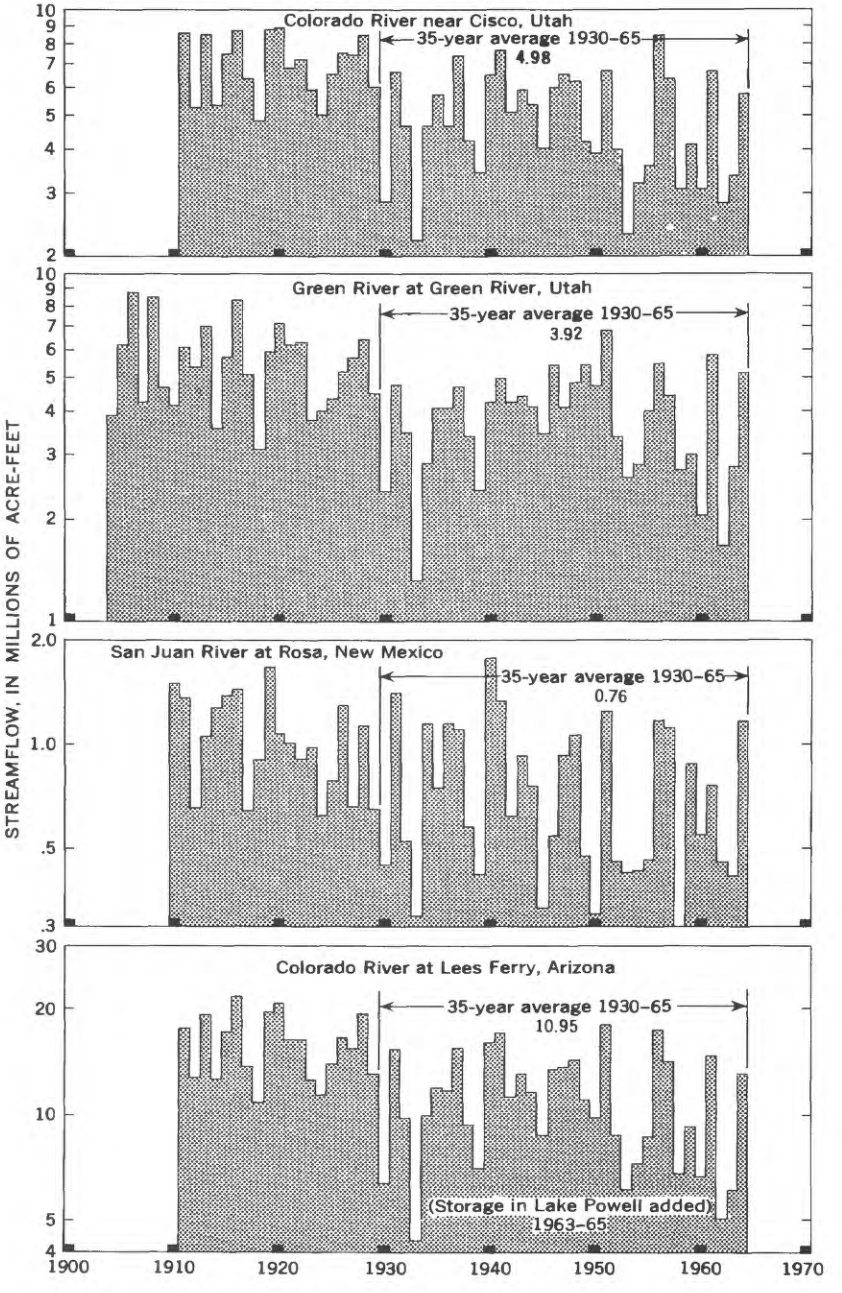

FIGURE 3—Histograms of annual streamflow at selected sites.

a regression line was determined graphically for each month or group of months (season), as indicated by the data. Then, estimates of flow at the short-term station were made by entering the appropriate graph with the observed value at the long-term station and determining the short-term station value from the regression line.

For most streams, but not all, the graphical relationships between streamflow at one point and streamflow at a nearby point, or in an adjacent drainage, were found to form a straight line when logarithms of the discharge are used. Hence, logarithmic transformations of the data were used in all correlations by the simple expedient of using logarithmic coordinate paper.

The equation of a straight line on log paper is

$$\text{Log } Y = b \text{ log } X - c,$$

where Y is the monthly mean discharge at the short-time gaging station, X is the contemporaneous monthly mean discharge at the long-term gaging station, and b and c are constants that determine the position of the line. In a few calculations, further transformation by subtracting a constant from Y or X was used, resulting in the following formula:

$$\text{Log } (Y-a) = b \text{ log } X - c, \text{ or}$$

$$\text{Log } Y = b \text{ log } (X-a) - c.$$

In the few instances where curvilinear relations were found after transformation, the more complex equation was not determined.

Both correlation and regression analysis require that the data be statistically homogeneous—that is, of the same kind. Successive monthly streamflows are nonhomogeneous in the area of study because for most streams the seasonal streamflows result from different generative conditions and, hence, have different ranges of means and variances for each month. The nonhomogeneity of monthly streamflows for different calendar months was noted very early by Dennis (1921) and more recently by H. C. Riggs (written commun., 1966).

Because of the nonhomogeneity mentioned above, the methods of analysis given by Searcy (1960) and the method for seasonal adjustment developed by Somers (1954) were found not to apply in the basin under study. Both methods require that the individual monthly regressions be parallel, which has been found to be of infrequent occurrence.

The method of analysis used has been subjective. In the drawing of regression lines, the occasional outlying points, the regressions for adjacent months, and the relative position of the group of points in relation to the line of equal discharge per unit area (equal-yield line)

have all been given weight based on judgment, and not on the mathematically determined line of best fit.

This method is believed to be justifiable because of the relatively short periods of concurrent record, most of which do not cover the extremes that have happened in the past and that may be exceeded in the future. Also, reasoning and the available evidence indicate that some cyclical (seasonal) relationship exists between regressions for the various months. For example, the May regression should have some general relation to the April and June regressions, although a readily workable mathematical expression has not come to the writer's attention. Only where plottings of adjacent months indicate that the relationships are the same in all probability are months grouped together.

In some correlations there are, as mentioned above, occasional outlying points that do not appear to be part of the general grouping for that month. These points may represent a single time when discharge was much greater or much less than the average for the month. Some are found to fit better in the correlation for an adjacent month; if so, the runoff conditions for that single month are assumed to be more like those generally prevailing in the adjacent month. Other outlying points may not fit in any group and can only be assumed to represent unusual runoff in one basin but not in the adjacent basin.

ESTIMATES OF STREAMFLOW

The estimates of discharge for each streamflow station for each month have been obtained from the graphical relation for that month drawn to a large scale. The graph is entered with the monthly mean discharge, in acre-feet, for the independent (long-term) station, and an estimate of the concurrent discharge, in acre-feet, at the dependent station is read from the intercept on the regression line. The equation of the regression line is also determined for the user who may wish to duplicate the graphs to an enlarged scale. Use of the original graphs or application of the equations should give the same results, within the limits of accuracy being applied. The monthly estimates are rounded as follows:

1–99 acre-feet: one significant figure unless average annual total is less than 1,000 acre-feet; if less, all monthly figures greater than 10 acre-feet are rounded to two significant figures.

100–9,900 acre-feet: two significant figures.

10,000 acre-feet and above: three significant figures.

The annual figures shown are the sum of the 12 monthly estimates, rounded to one more significant figure than given for the individual months.

Where the mean discharge for a month at the independent station was much greater or much less than that represented by the historical record, and where extrapolation would yield a value at the dependent station that seemed to be unreasonable when compared with concurrent streamflow at nearby points, it was necessary to assume that the discharge relation for that one month was more nearly represented by that for an adjacent month, or that, for extremely high discharge, the relationship approached equal discharge per unit area. Such individual values are noted in the tables wherever used.

Some streams decline to no flow during varying periods for some or most years. Such periods cannot be estimated by regression methods. Where several years contain months of no flow, flat estimates were used for those months based on the average flow for the month computed from the historic record. Such periods are noted in the tables.

In a few instances, flat estimates have also been made for periods of winter flow. These periods are also noted and the regression for that month is shown as a horizontal line.

Flow figures, previously estimated for the compilation reports (Water-Supply Papers 1313 and 1733) have not been used in defining regressions for this report. However, in those calculations where winter flow at the independent station was estimated for the 1950 compilation (Water-Supply Paper 1313) on the basis of hydrographic comparison to bridge short gaps in the record, the estimates have been reappraised by correlative procedures. If no inconsistency was found they were used as the basis for estimates at the dependent station. Such estimates are of poorer quality than the other estimates and should be used with caution. However, in most estimates these periods represent only 10–20 percent of the total annual flow, so that the effects on the annual streamflow figures are small.

TEST OF ESTIMATED STREAMFLOW

The estimated annual streamflow (sum of the 12 monthly figures) has been tested by plotting, to a large scale, a graphical correlation of annual flow, and determining the maximum departure of the estimated annual flow from the line of relation through the points representing the concurrent historical annual flow. (See fig. 4.)

Figure 4 shows that the spread of the estimated annual streamflows about the graphical line of relation is about the same as that for the historic record. All the estimates but one are within 20 percent of the line of relation.

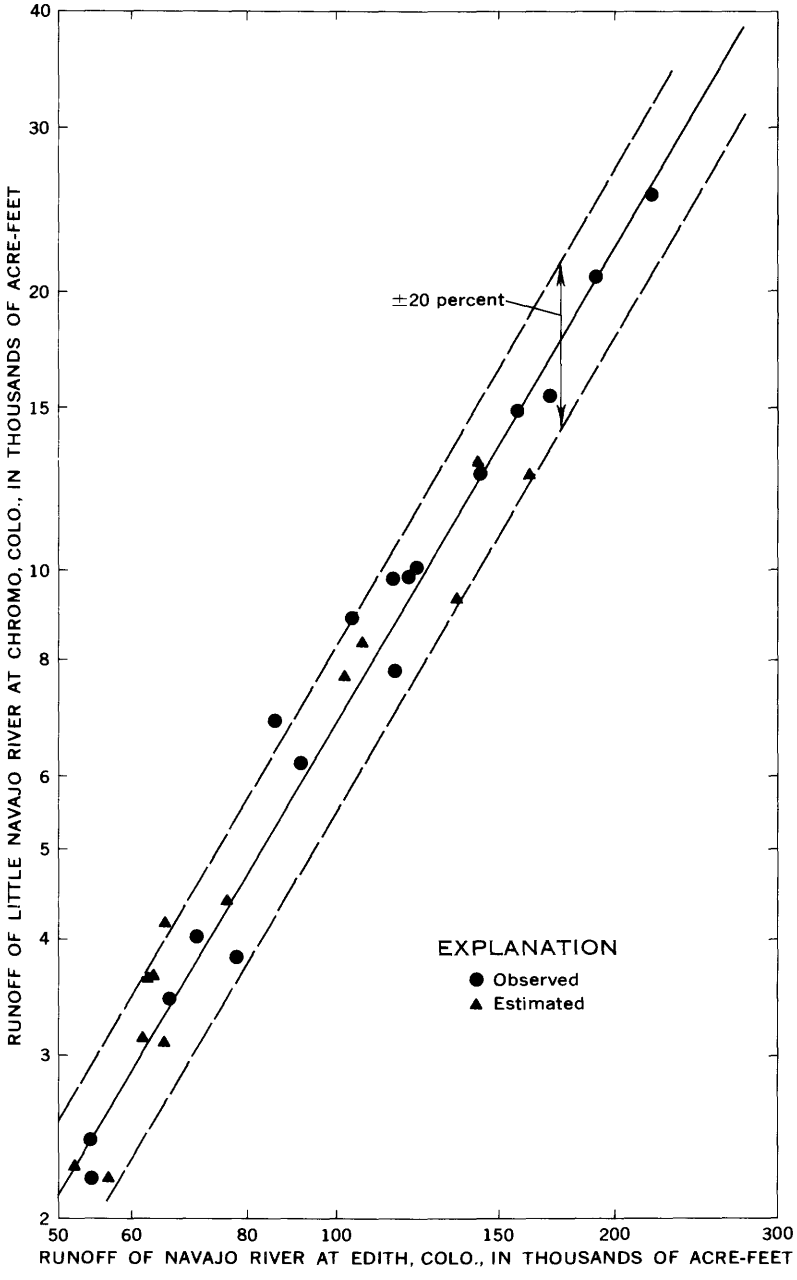

FIGURE 4—Relation of annual streamflow of Little Navajo River at Chromo, Colo., and Navajo River at Edith, Colo.

EXPLANATION OF DATA

The gaging-station records are arranged in downstream order. The order used is that adopted for use in the annual series of reports on surface-water supply beginning with the water-year 1951. Records are listed in a downstream direction along the main stem, and all stations on a tributary entering upstream from a main-stem station are listed before that station. A similar order is followed in listing stations on first rank, second rank, and other rank tributaries. As an added means of identification, each gaging station was assigned a number which is a part of the station name both in the heading of the description in text and as shown in plate 1. The numbers were assigned in downstream order in each part (major basin). Gaps were left in the numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete number of each station includes a part number and a six-digit station number. Because all stations in this report are in Part 9 (Colorado River Basin), the part number was omitted, and only the essential digits of the station numbers are shown. For example, the complete number 9–0795.00 would appear as 795, just to the left of the station name.

The stations included in this report are those that were discontinued in recent years and that meet the following criteria:

1. If discontinued prior to October 1, 1955, have 15 or more years of record since October 1, 1930.
2. If discontinued after October 1, 1955, have 6 or more years of record.
3. Are free of extensive regulation or large-scale changes in storage or diversions.
4. Are not essentially equivalent to a currently active streamflow gaging station.
5. A correlative long-term streamflow station exists.

These criteria were selected after study of the trends in flow and the available records and by estimating the gain in information for various changes in the criteria. The investigation showed that 10–15 years of record frequently establish a reasonably good correlation. Some shorter term records, where the correlation is good (coefficients of correlation greater than 0.8) appear to give reasonably good figures of monthly streamflow. For purposes of this report a general guideline has been established that the annual flow (sum of 12 monthly estimates) should be within 25 percent of the annual regression line.

A number of stations meet all the criteria listed except the last and were omitted because no long-term station existed from which to make estimates. They are listed below with those stations which did not correlate owing to excessive diversion, regulation, or storage, or that are equivalent or nearly equivalent to an active station.

Station No. (pl. 1)	Name	Period of record	Remarks
150	Colorado River below Shadow Mountain Reservoir, Colo.	10–47 to 9–59	Regulated.
205	Willow Creek above Willow Creek Reservoir, Colo.	8–53 to 9–60	Near equivalence to station 200.
340	Fraser River at Granby, Colo.	7–04 to 9–09 9–37 to 12–55	Diversions to Moffat tunnel.
348	Little Muddy Creek near Parshall, Colo.	10–58 to 9–65	No correlation.
372	Skylark Creek near Parshall, Colo.	10–58 to 9–65	Do.
470	Blue River at Dillon, Colo.	10–10 to 4–61	Near equivalence to station 466.
480	Snake River at Dillon, Colo.	10–10 to 9–19 10–29 to 4–64	Site inundated by Dillon Reservoir.
505	Tenmile Creek at Dillon, Colo.	10–10 to 9–19 10–29 to 4–61	Do.
608	Big Alkali Creek near Burns, Colo.	10–58 to 9–65	No correlation.
609	Catamount Creek near Burns, Colo.	10–55 to 9–61	Do.
673	Alkali Creek near Wolcott, Colo.	10–58 to 9–65	Do.
846	Fourmile Creek near Glenwood Springs, Colo.	10–57 to 9–65	Do.
880	Baldy Creek near New Castle, Colo.	10–55 to 9–61	Do.
907	East Divide Creek near Silt, Colo.	10–59 to 9–65	Do.
915	East Rifle Creek near Rifle, Colo.	10–36 to 10–43 10–56 to 9–64	Do.
920	Rifle Creek near Rifle, Colo.	10–39 to 9–46 10–52 to 9–64	Do.
958	Plateau Creek near Heiberger, Colo.	5–58 to 9–64	Diversion to Buzzard Creek drainage.
1825	Castle Creek near Moab, Utah.	7–50 to 9–55 5–57 to 9–58	No correlation.
1830	Courthouse Wash near Moab, Utah.	10–49 to 9–55 4–57 to 9–57	Do.
1870	Cottonwood Creek near Monticello, Utah.	10–49 to 9–57	Do.
1875	Indian Creek above Harts Draw, near Monticello, Utah.	10–49 to 9–57	Do.
1890	Beaver Creek near Daniel, Wyo.	10–38 to 9–54	Do.
1915	Cottonwood Creek near Daniel, Wyo.	10–38 to 9–54	Do.
1980	Pine Creek at Pinedale, Wyo.	10–03 to 10–04 10–14 to 9–54	Regulated.
2095	Green River near Fontenelle, Wyo.	10–46 to 3–65	Site inundated by Fontenelle Reservoir.
2110	Fontenelle Creek near Fontenelle, Wyo.	5–14 to 9–19 10–31 to 9–53	No correlation.
2165	Green River at Green River, Wyo.	7–91 to 8–91 10–94 to 12–99 9–00 to 12–06 9–14 to 10–45	Near equivalence to station 2170.
2190	Blacks Fork near Urie, Wyo.	10–13 to 9–24 10–37 to 9–55	No correlation, extensive diversions.
2250	Blacks Fork near Green River, Wyo.	8–47 to 9–62	Near equivalence to station 2247.
2255	Green River near Linwood, Utah.	10–28 to 3–63	Site inundated by Flaming Gorge Reservoir.

Station No. (pl. 1)	Name	Period of record	Remarks
2270	East Fork Beaver Creek near Lonetree, Wyo.	10–48 to 9–62	No correlation.
2320	Sheep Creek near Manila, Utah	4–42 4–43 to 9–61	No correlation, extensive diversions.
2325	Sheep Creek at mouth, near Manila. Utah.	10–46 to 9–61	No correlation, site inundated by Flaming Gorge Reservoir.
2518	North Fork Little Snake River near Encampment, Wyo.	10–56 to 9–65	No correlation, transbasin diversion above station.
2605	Jones Hole Creek near Jensen, Utah.	10–50 to 9–56 10–60 to 9–61	No correlation, spring fed.
2635	Brush Creek near Jensen, Utah	4–39 to 9–65	No correlation, many diversions.
2730	Duchesne River at Provo River Trail, near Hanna, Utah.	7–29 to 9–33 10–35 to 9–43 10–44 to 9–54	No correlation, most of flow diverted for use in Great Basin.
2865	Red Creek near Fruitland, Utah	10–17 to 9–22	No correlation, regulation and diversion.
3005	Uinta River at Fort Duchesne, Utah.	9–99 to 9–20 (fragmentary) 10–42 to 9–58	No correlation, many diversions.
3010	Dry Gulch near Neola, Utah	10–50 to 9–58	No correlation, no flow much of time.
3041	Big Beaver Creek near Buford, Colo.	10–55 to 9–64	No correlation.
3295	Fremont River near Fremont, Utah.	7–49 to 9–58	Do.
3300	Fremont River near Bicknell, Utah.	5–09 to 12–12 10–37 to 9–58	No correlation, regulated.
3325	Muddy Creek below Ivie Creek, near Emery, Utah.	8–50 to 9–61	No correlation, many diversions.
3350	Colorado River at Hite, Utah	8–47 to 9–58	Site inundated by Lake Powell.
3505	San Juan River at Rosa, N. Mex.	7–95 to 11–95 5–96 to 12–97 4–98 to 12–98 5–99 to 9–99 7–10 to 5–65	Site inundated by Navajo Reservoir.
3565	San Juan River near Blanco, N. Mex.	6–07 to 10–10 (fragmentary) 10–27 to 1–55	Near equivalence to station 3555.
3570	San Juan River at Bloomfield, N. Mex.	1–10 to 9–11 8–27 to 12–31 11–55 to 1–64	No correlation, many diversions.
3595	Animas River above Tacoma, Colo.	10–45 to 9–56	No correlation, part of flow bypasses gage.
3620	Lightner Creek near Durango, Colo.	7–27 to 9–49	No correlation.
3629	Florida River near Hermosa, Colo.	10–55 to 9–63	Do.
3631	Salt Creek near Oxford, Colo	10–56 to 9–63	Do.
3660	Cherry Creek near Red Mesa, Colo.	5–28 to 9–50	Do.

The data presented for each gaging station consist of a station description, a table of the previously published monthly and annual streamflow, in acre-feet, in the period 1930–65, a table of correlative estimates of monthly and annual streamflow, in acre-feet, and, on the facing page, a figure showing the correlations for each month or group of months.

The station description gives the name of the subbasin, the station name and number, location, altitude or datum, drainage area, records available, stations with which correlations were established, regression equation, average discharge, extremes of discharge, and remarks about diversions, storage, and quality of estimates.

The location and altitude of the gaging station is that for the last-used site, if more than one site was used in the period of record.

The "Records Available" paragraph lists all periods for which there are previously published records generally equivalent to those at the site given under "Location."

The "Estimates of Streamflow" paragraph gives the name or names of the station(s) with which correlations were established, the equation of the regression line used in making the estimates, and a table of constants used in the equation. Where more than one regression line has been used for a given month, the periods of use of each are given.

The average discharge for a station is the average of all complete water years of record available since 1930, both historical and estimated. For some stations, no suitable independent stations could be found to permit extensions to cover the complete period 1930–65. Hence, the average for a shorter period is shown.

Under "Extremes" are given the date and discharge of the highest and lowest momentary discharges during the period of historic record. In the instances where momentary data have not been determined, maximum or minimum daily figures are given. Where extremes are known outside the period of historic record, they are given in a second paragraph.

The "Remarks" paragraph contains information, where known, on diversion, utilization and storage, and changes during the period. A statement is given on the maximum deviation of the estimates of annual streamflow (sum of the 12 calendar monthly values) from the line of relation of the annual flows as a general guide to the reliability of the figures. In general, the annual figures are somewhat more reliable than those for individual months.

The table of monthly and annual streamflow summarizes previously published streamflow records. The figures represent flow past the station and are unadjusted for upstream storage or diversion unless otherwise stated under "Remarks" for the individual stations. Where

the figures represent estimates prepared for previous reports they are footnoted, indicating that they were not used in the correlation analysis. Flows for partial months or partial years are not listed.

Values in the table of estimated monthly and annual streamflows have been picked graphically by entering the graph for the individual month with the long-term (primary or independent) value and estimating the short-term (secondary or dependent) value. The annual figures are the sums of the 12 monthly values.

The graphs for each station show the plotting position for the concurrent monthly flows for the long-term and short-term gaging stations and the regression line of best fit, determined graphically.

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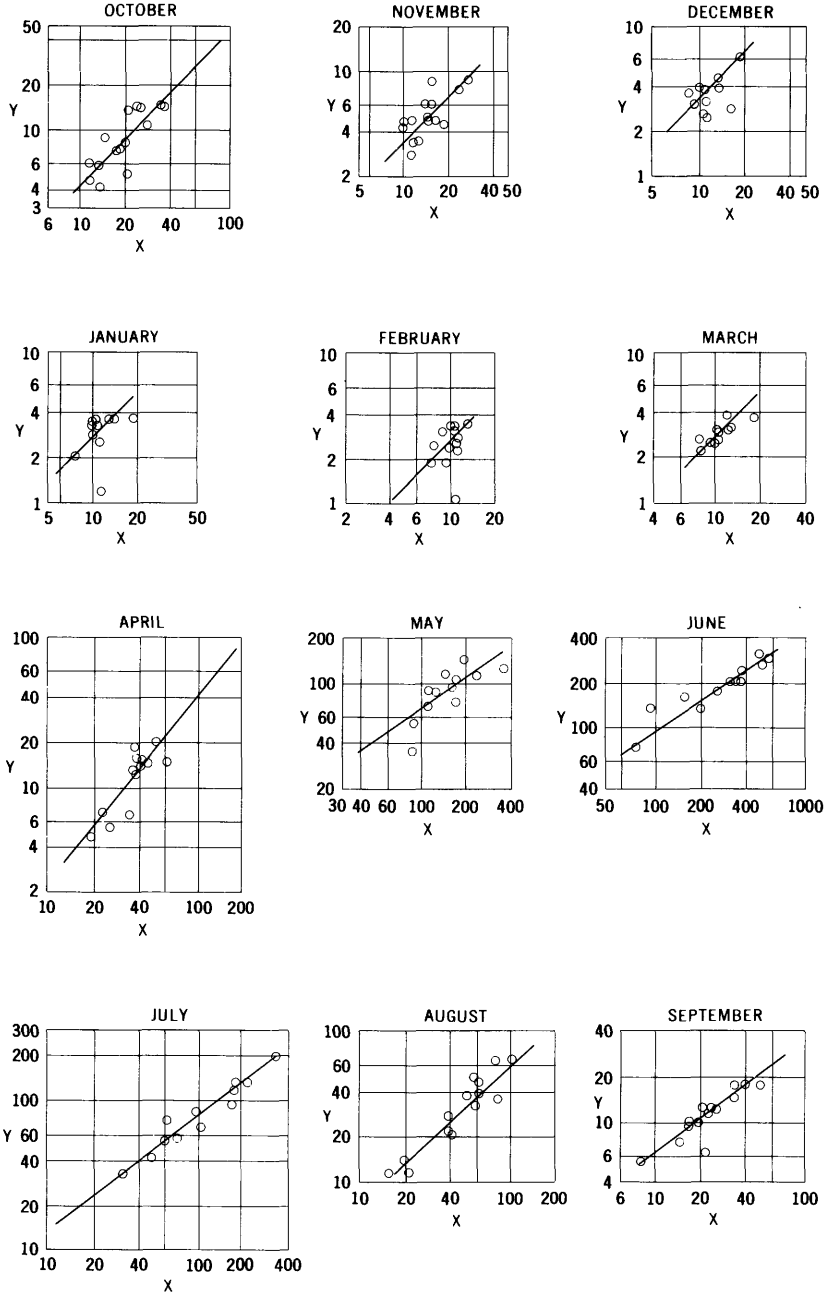
GAGING-STATION RECORDS



Relationships of monthly mean discharge of North Inlet at Grand Lake, Colo. (Y), to sum of monthly mean discharges of Colorado River near Grand Lake, Colo., and Grand River ditch (X). Discharge in hundreds of acre-feet.

125. North Inlet at Grand Lake, Colo.

Location.--Lat 40°15'10", long 105°48'50", in NE¼ sec.5, T.3 N., R.75 W., on right bank at north edge of town of Grand Lake, 300 ft downstream from Tonahutu Creek and 1,600 ft upstream from high-water line of Grand Lake. Datum of gage is 8,434.48 ft above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--46.6 sq mi.

Records available.--August 1905 to September 1909, October 1910 to September 1912, October 1947 to December 1955. Monthly discharge only for some periods. Prior to October 1947, published as North Inlet to Grand Lake at Grand Lake.

Estimates of streamflow.--June 1934 to September 1947, January 1956 to September 1965, based on relationships of monthly mean discharge with Colorado River near Grand Lake, Colo., adjusted for transmountain diversion through Grand River ditch. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of North Inlet at Grand Lake, Colo., and X is the sum of discharges of Colorado River near Grand Lake, Colo. and Grand River ditch, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.02	1.00	1.02	1.02	1.02	1.03	1.26	0.67	0.66	0.75	0.90	0.74
c	.43	.45	.54	.61	.64	.55	1.44	-1.15	-1.35	-.92	-.15	-.60

Average discharge.--31 years (1934-65), 45,120 acre-feet per year (62.3 cfs).

Extremes.--1905-9, 1910-12, 1947-55: Maximum discharge, 1,110 cfs June 7, 1952; minimum daily, 1.5 cfs Feb. 5, 6, 1949.

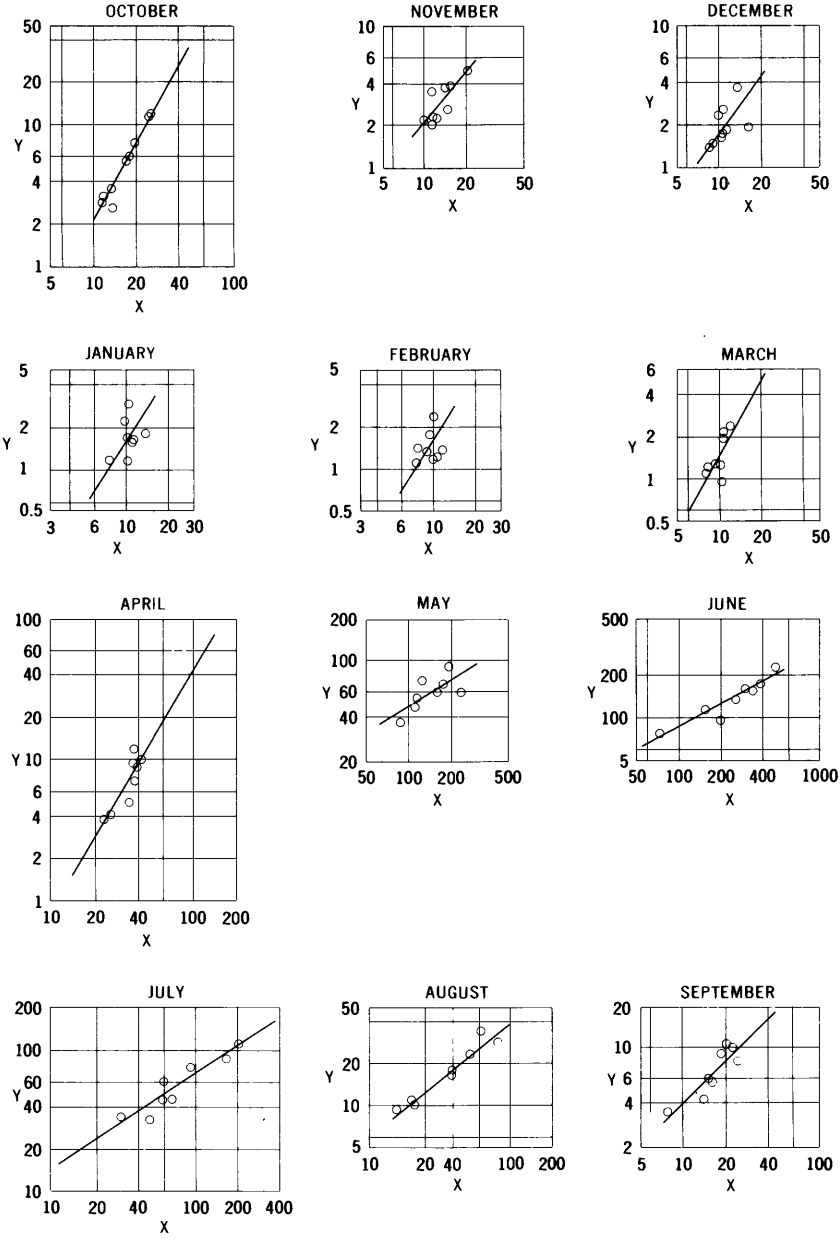
Remarks.--Transmountain diversion above station by Eureka ditch. Flow of Eureka ditch rarely equals or exceeds 1 percent of flow in North Inlet. Estimates of annual flow are within about 20 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1948	1,470	762	463	357	336	380	1,260	14,080	13,150	4,280	1,390	546	38,470
1949	473	347	250	122	108	304	1,600	9,470	24,570	12,190	2,760	990	53,180
1950	764	472	358	348	304	294	672	5,490	17,830	5,560	1,150	1,260	34,500
1951	752	615	376	282	192	258	555	10,390	20,670	13,530	3,600	1,230	52,450
1952	845	490	277	369	230	252	1,870	11,120	31,570	8,510	3,930	1,240	60,700
1953	596	287	258	258	239	246	704	7,130	20,220	5,750	3,730	958	40,380
1954	618	440	309	204	192	222	1,530	8,870	7,740	3,390	1,170	984	25,670
1955	1,430	612	390	336	251	268	1,320	8,890	16,030	7,540	2,210	749	40,030
1956	414	346	318	-	-	-	-	-	-	-	-	-	-

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	-	-	-	-	-	-	-	-	7,000	1,600	1,100	820	-
1935	440	390	330	220	170	180	610	5,500	21,300	11,700	2,300	960	44,100
1936	620	330	270	310	250	260	6,600	14,700	21,500	9,400	4,000	1,100	59,340
1937	780	520	450	350	320	390	1,000	10,300	14,700	7,500	2,000	1,200	39,510
1938	1,300	780	540	430	350	330	2,200	11,700	25,700	11,800	2,700	2,000	59,830
1939	860	510	370	310	240	360	1,900	12,600	16,800	5,400	1,400	930	41,680
1940	740	390	240	200	180	270	1,000	9,100	16,400	5,400	1,200	1,200	36,320
1941	1,100	560	360	260	200	260	620	12,200	18,300	7,200	1,800	1,200	44,060
1942	900	520	490	360	230	250	1,300	6,800	19,700	8,100	1,400	740	40,790
1943	500	370	300	240	220	270	2,400	8,000	18,500	8,000	2,000	710	41,510
1944	760	500	280	170	160	190	540	8,700	18,600	8,700	1,200	620	40,420
1945	420	340	220	190	170	220	520	8,400	18,400	13,200	4,100	1,000	47,180
1946	720	460	290	310	240	280	2,100	6,500	16,500	5,600	1,700	1,000	35,700
1947	780	560	320	230	200	280	590	11,300	21,000	14,400	3,200	1,300	54,160
1956	-	-	-	250	240	260	1,200	12,500	19,000	4,000	2,100	740	41,370
1957	510	310	240	230	190	230	400	8,000	23,300	22,100	5,600	1,600	62,710
1958	1,300	660	530	340	270	300	490	13,000	19,300	4,000	1,700	760	42,650
1959	440	360	290	240	200	220	510	7,400	19,900	6,400	2,800	1,200	39,960
1960	1,700	960	470	280	240	540	3,300	9,400	22,000	7,200	2,000	1,000	49,090
1961	720	450	280	240	210	220	350	8,100	18,800	6,500	2,600	2,900	41,370
1962	3,700	1,100	700	370	320	370	3,200	12,500	22,700	14,400	3,900	1,200	64,460
1963	900	340	310	180	160	260	1,300	8,800	12,400	3,400	3,500	1,500	33,050
1964	680	480	330	190	160	200	320	9,200	16,000	8,100	2,800	1,700	39,460
1965	550	360	290	270	200	220	720	8,700	23,200	14,300	4,100	1,700	54,610



Relationships of monthly mean discharge of East Inlet near Grand Lake, Colo. (Y), to sum of monthly mean discharges of Colorado River near Grand Lake, Colo., and Grand River ditch (X). Discharge in hundreds of acre-feet.

135. East Inlet near Grand Lake, Colo.

Location.--Lat 40°14'20", long 105°48'00", in NW¼ sec.9, T.3 N., R.75 W., on right bank 1,200 ft upstream from high-water line of Grand Lake and 1 mile southeast of town of Grand Lake. Datum of gage is 8,370.49 ft above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--27.1 sq mi.

Records available.--October 1947 to December 1955.

Estimates of streamflow.--June 1934 to September 1947, January 1956 to September 1965, based on relationships of monthly mean discharge with Colorado River near Grand Lake, adjusted for transmountain diversion through Grand River ditch. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of East Inlet near Grand Lake, Colo., and X is the sum of discharges of Colorado River near Grand Lake, Colo. and Grand River ditch, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.73	1.22	1.33	1.56	1.56	1.79	1.68	0.81	0.54	0.66	0.78	0.98
c	2.86	1.35	1.74	2.48	2.48	3.20	3.08	-1.25	-1.76	-1.18	-.46	.34

Average discharge.--31 years (1934-65), 33,585 acre-feet per year (46.4 cfs).

Extremes.--1947-55: Maximum discharge, 710 cfs June 17, 1949; minimum daily determined, 1.5 cfs Mar. 11 to Apr. 1, 1949.

Remarks.--No diversion above station. Estimated annual flow is within about 5 percent of regression line.

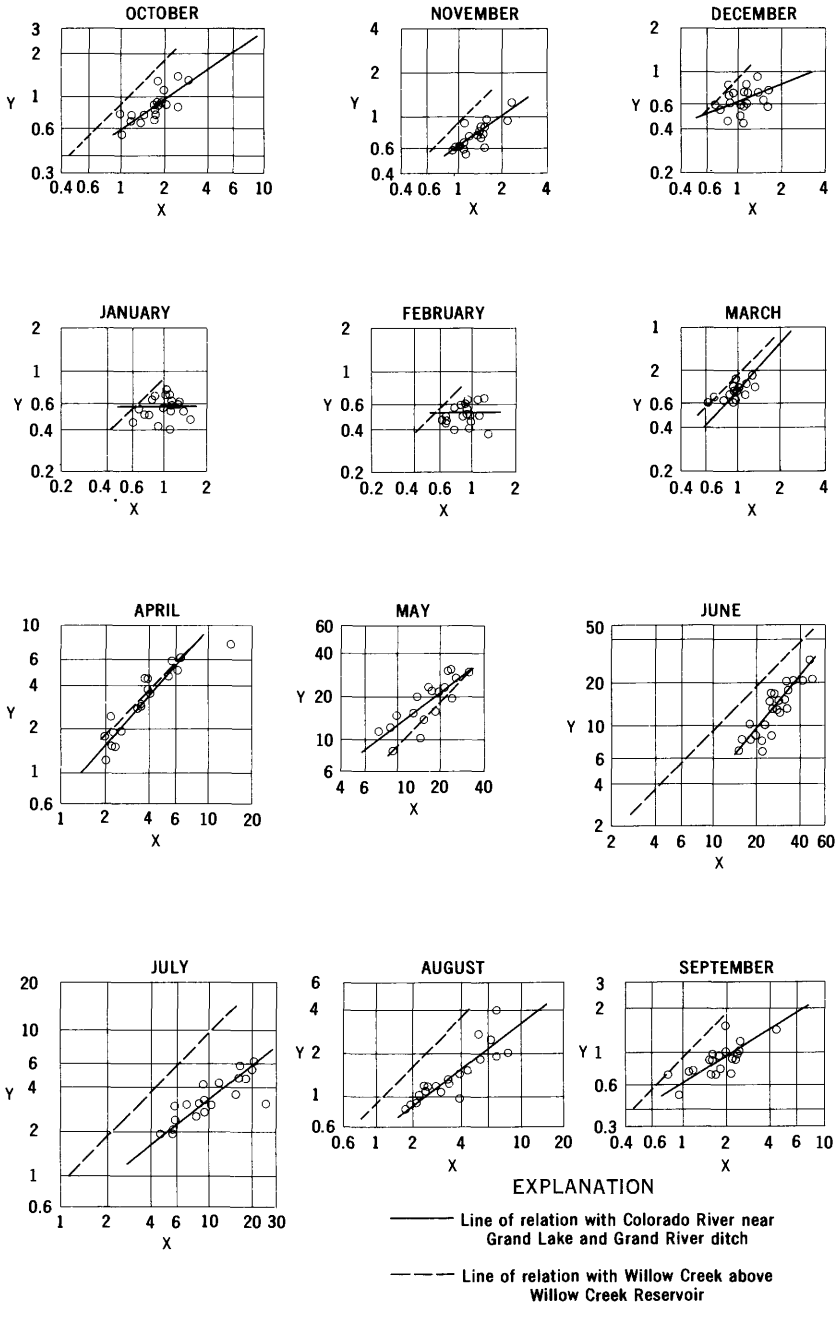
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1948	1,130	575	373	294	234	238	700	9,130	9,600	3,200	1,090	352	26,920
1949	312	226	184	166	122	95	889	5,910	17,750	8,620	1,780	600	36,650
1950	596	343	143	114	133	215	511	3,620	13,720	4,400	954	998	25,750
1951	542	363	263	220	177	189	417	6,670	15,320	11,270	2,790	818	39,040
1952	741	259	196	178	136	129	1,170	5,990	22,950	7,520	3,410	1,040	43,720
1953	354	203	173	159	117	125	375	4,670	16,180	4,390	2,350	577	29,670
1954	285	214	151	117	111	121	994	7,150	7,740	3,420	1,030	919	22,250
1955	1,200	373	239	168	142	114	934	5,330	11,440	5,880	1,620	431	27,870
1956	259	226	185	-	-	-	-	-	-	-	-	-	-

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	-	-	-	-	-	-	-	-	6,500	1,600	920	540	-
1935	230	230	180	110	90	70	340	3,900	16,200	9,000	1,800	680	32,830
1936	410	190	140	190	150	140	[a]6,000	9,500	16,400	7,500	2,800	810	44,230
1937	620	320	270	230	220	270	670	6,900	11,900	6,100	1,500	960	29,960
1938	1,400	530	340	310	250	200	1,900	7,800	19,000	9,100	2,000	1,800	44,830
1939	710	320	210	180	140	240	1,600	8,200	13,400	4,600	1,200	640	31,440
1940	560	230	120	100	90	140	710	6,100	13,100	4,600	1,000	870	27,620
1941	1,100	350	200	140	110	140	360	8,000	14,300	5,900	1,400	890	32,890
1942	790	330	300	240	130	130	960	4,700	15,200	6,500	1,100	470	30,850
1943	290	210	160	130	120	140	2,100	5,500	14,500	6,500	1,500	440	31,590
1944	590	310	150	70	80	80	290	6,000	14,500	7,000	970	380	30,420
1945	210	200	110	90	80	100	280	5,800	14,400	10,000	2,900	720	34,890
1946	540	280	190	190	140	150	1,700	4,500	13,200	4,700	1,300	730	27,620
1947	620	350	210	120	100	150	330	7,500	16,000	10,800	2,400	1,000	39,580
1956	-	-	-	130	140	130	830	8,200	14,800	3,500	1,600	470	30,470
1957	300	170	120	110	100	110	200	5,500	17,400	15,800	3,800	1,300	44,910
1958	1,400	440	330	220	170	170	260	8,400	15,000	3,500	1,300	500	31,690
1959	230	210	150	130	110	100	280	5,100	15,300	5,300	2,100	870	29,880
1960	2,300	690	290	160	140	480	3,200	6,400	16,600	6,000	1,600	750	38,610
1961	530	270	150	120	110	100	160	5,500	14,700	5,400	2,000	2,800	31,840
1962	[b]3,200	840	480	250	220	250	3,200	8,100	17,100	10,800	2,800	960	48,200
1963	780	190	160	90	80	130	900	6,000	10,400	3,100	2,500	1,200	25,530
1964	490	290	120	90	70	80	150	6,200	12,800	6,500	2,100	800	29,690
1965	340	210	150	150	110	100	440	5,900	17,400	10,800	2,900	1,400	39,900

a Estimated on basis of May regression.
b Estimated on basis of September regression.



Relationships of monthly mean discharge of Willow Creek near Granby, Colo. (Y), to monthly mean discharge of Willow Creek above Willow Creek Reservoir, or sum of monthly mean discharges of Colorado River near Grand Lake, Colo., and Grand River ditch (X). Discharge in thousands of acre-feet.

200. Willow Creek near Granby, Colo.

Location.--Lat 40°11', long 106°00', in NW¼ sec.34, T.3 N., R.77 W., on right bank 10 ft upstream from bridge on State Highway 125, 100 ft downstream from Gold Run Creek, and 7 miles northwest of Granby. Datum of gage is 8,236.88 ft above mean sea level, unadjusted.

Drainage area.--105 sq mi.

Records available.--October 1934 to September 1953. Prior to April 1935 monthly discharge only.

Estimates of streamflow.--October 1953 to September 1960, based on assumption that relationships of monthly mean discharge with Willow Creek above Willow Creek Reservoir, Colo. are equal to the square root of the drainage area ratio. October 1960 to September 1965, based on relationships of monthly mean discharge with Colorado River near Grand Lake, Colo. adjusted for transmountain diversion through Grand River ditch. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Willow Creek near Granby, Colo., and X is discharge of Willow Creek above Willow Creek Reservoir, Colo., or sum of discharges of Colorado River near Grand Lake, Colo., and Grand River ditch, all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct. 1953 to Sept. 1960	b	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	c	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Oct. 1960 to Sept. 1965	b	.69	.69	.38	-	-	1.13	1.13	.76	1.17	.76	.76	.62
	c	-.71	-.72	-1.66	-	-	.53	.54	1.06	1.05	-.46	-.48	-.92

Average discharge.--31 years (1934-65), 46,404 acre-feet per year (64.1 cfs).

Extremes.--1934-53: Maximum discharge, 956 cfs June 8, 1952; minimum daily, 6 cfs Feb. 17-24, 1938, Dec. 15, 16, 27, 1941.

Remarks.--Diversions above station for irrigation of hay meadows. Estimates of annual flow are within about 15 percent of regression line.

Monthly and annual streamflow, in acre-feet

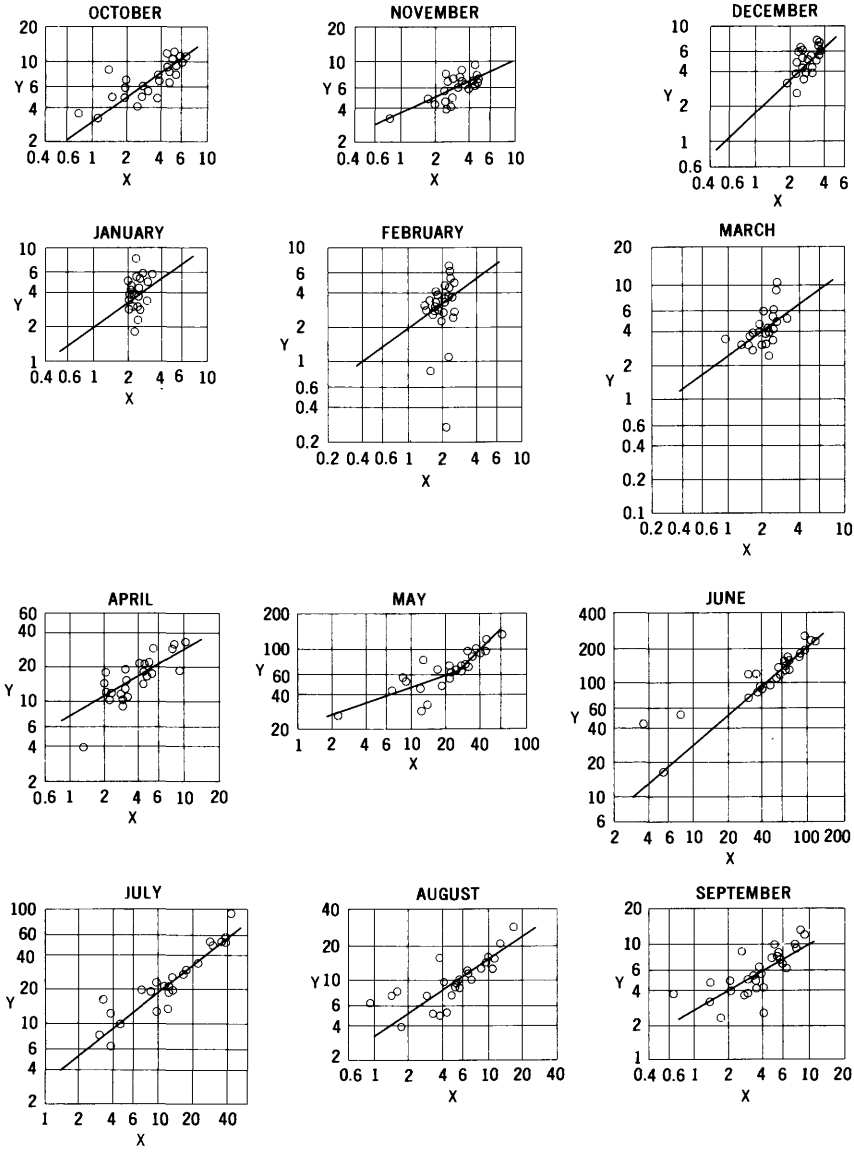
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	‡553	‡595	‡492	‡492	‡444	‡615	1,480	11,360	20,440	3,490	986	696	‡41,640
1936	750	595	461	400	403	799	7,910	29,700	13,050	4,240	4,060	1,510	63,880
1937	1,280	821	707	584	666	799	2,710	15,430	7,930	3,060	1,360	972	36,320
1938	1,310	948	746	460	371	686	5,040	29,140	20,960	4,560	1,530	1,410	67,160
1939	944	843	706	688	629	964	4,570	26,740	10,280	2,000	1,120	706	50,190
1940	700	661	565	498	475	732	2,750	13,640	6,620	1,880	908	706	30,140
1941	869	612	438	420	415	610	1,500	19,360	8,610	2,490	1,090	873	37,290
1942	891	726	616	601	495	707	3,520	14,240	14,520	2,660	1,210	734	40,920
1943	709	625	714	676	595	748	6,190	15,100	16,420	3,210	1,250	732	46,970
1944	811	795	617	436	463	685	1,210	9,890	13,100	2,950	895	497	32,350
1945	762	639	592	553	492	638	1,760	19,320	16,780	4,430	1,940	902	48,810
1946	904	748	590	615	555	900	5,890	8,360	7,880	2,340	1,280	764	30,830
1947	938	978	809	631	565	718	2,440	22,730	15,110	5,840	1,860	1,180	53,800
1948	1,400	1,240	920	748	704	831	4,470	21,700	8,600	1,910	1,040	696	44,260
1949	764	724	590	584	633	768	3,790	23,070	20,790	5,410	1,430	877	59,610
1950	899	902	696	680	607	752	2,850	12,010	14,770	2,960	836	877	38,840
1951	764	748	722	561	503	681	1,880	21,880	17,810	5,150	2,040	982	53,720
1952	1,110	705	566	538	496	710	4,430	30,000	28,910	4,250	2,520	992	75,230
1953	673	546	575	535	441	641	1,880	11,290	12,260	3,030	2,770	960	35,600

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1954	730	670	570	470	460	500	3,900	9,200	2,700	950	720	510	21,380
1955	680	650	520	530	400	590	3,700	11,600	7,900	2,300	1,300	570	30,740
1956	580	560	580	580	500	610	3,800	28,200	12,200	2,000	1,100	390	51,100
1957	390	680	530	510	520	550	1,700	16,800	42,400	14,000	3,500	1,600	83,180
1958	1,300	930	750	710	730	810	1,900	23,900	9,900	1,500	920	640	43,990
1959	610	660	510	460	440	650	1,900	12,500	9,000	2,100	1,400	970	31,200
1960	2,100	1,500	910	760	700	1,600	8,700	19,000	15,100	3,000	1,200	860	55,430
1961	850	720	600	e570	e530	560	1,100	15,400	13,800	2,500	1,700	2,000	45,330
1962	2,600	1,400	830	e570	e530	1,000	7,800	25,000	19,000	5,500	2,400	1,000	67,630
1963	990	600	610	e570	e530	670	3,300	17,200	6,500	1,300	2,200	1,200	35,670
1964	820	770	560	e570	e530	500	1,000	17,800	10,200	3,100	1,800	930	38,580
1965	710	640	610	e570	e530	560	2,100	**16,600**	20,000	5,600	2,500	1,300	51,720

e Flat estimate based on average streamflow for month.



Relationships of monthly mean discharge of Ranch Creek near Tabernash, Colo. (Y), to monthly mean discharge of Ranch Creek near Fraser, Colo. (X). Discharge in hundreds of acre-feet.

325. Ranch Creek near Tabernash, Colo.

Location.--Lat 39°59'51", long 105°49'22", in NE¼NW¼ sec.6, T.1 S., R.75 W., on right bank a quarter of a mile upstream from Meadow Creek and 1.2 miles east of Tabernash. Datum of gage is 8,339.79 ft above mean sea level, datum of 1929.

Drainage area.--50.7 sq mi.

Records available.--September 1934 to September 1960. Records since May 15, 1949, equivalent to earlier records if diversion to Moffat water tunnel is added to flow past station.

Estimates of streamflow.--August 1934, October 1960 to September 1965, based on relationships of monthly mean discharge with Ranch Creek near Fraser, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Ranch Creek near Tabernash, Colo., and X is discharge of Ranch Creek near Fraser, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	*May	June	July	Aug.	Sept.
b	0.71	0.16	0.94	0.72	0.71	0.72	0.59	1.00	0.90	0.79	0.67	0.58
c	-1.05	-1.64	-.37	-.86	-.88	-.96	-1.69	-2.58	-.63	-.90	-1.18	-1.31

* Compound curve: Where X > 2,600 acre-feet, use Log Y = log X + .40.

Average discharge.--31 years (1934-65), 25,054 acre-feet per year (34.6 cfs).

Extremes.--1934-60: Maximum discharge, 754 cfs June 29, 1957; no flow Feb. 15 to Mar. 13, 1937, Feb. 13, 1947, and perhaps other days.

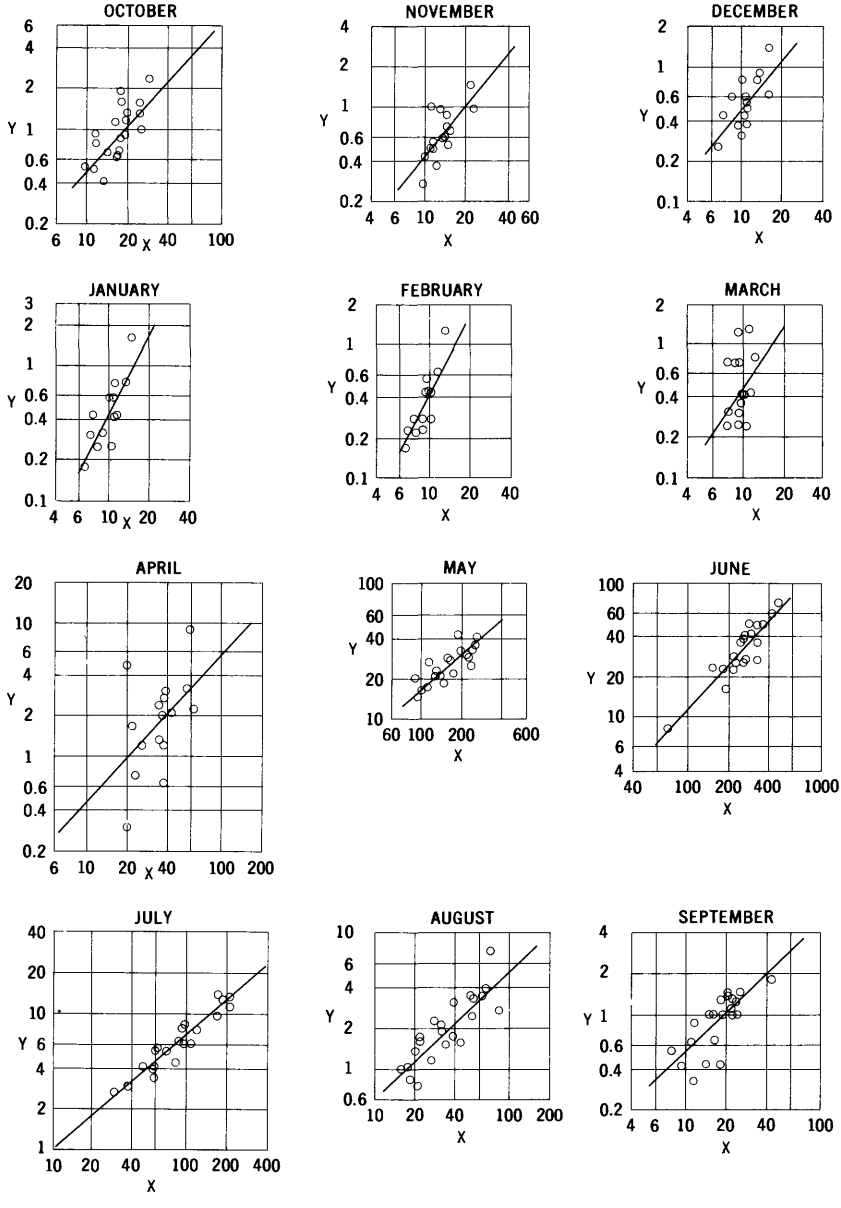
Remarks.--Transmountain diversion above station to Moffat water tunnel since May 1949. Small diversion to Fraser River basin and several small diversions for irrigation of about 300 acres of hay meadows above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	-	-	-	-	-	-	-	-	-	-	-	489	-
1935	401	625	439	365	314	370	994	2,950	14,040	5,590	1,450	693	28,230
1936	656	672	553	553	374	338	1,900	13,670	10,340	2,930	2,110	1,030	35,130
1937	964	720	514	287	27	11	1,860	7,060	5,990	2,590	1,220	799	22,040
1938	1,150	944	740	445	378	430	2,240	10,330	18,840	4,940	1,070	1,360	42,920
1939	909	648	582	536	471	488	1,790	9,920	7,880	1,280	505	384	25,390
1940	580	787	609	379	257	401	1,690	6,680	7,450	2,020	916	1,010	22,780
1941	1,030	688	536	414	387	604	1,890	9,340	9,370	1,980	1,040	766	28,040
1942	877	626	526	505	410	417	1,450	6,940	15,730	3,370	901	540	32,290
1943	544	642	632	447	346	380	3,260	7,430	11,850	2,720	1,170	574	30,000
1944	588	581	349	234	229	465	1,020	4,760	10,240	2,730	737	376	22,290
1945	486	415	256	281	338	395	1,160	6,210	10,710	5,150	3,030	1,260	29,690
1946	1,190	850	553	584	611	922	3,380	5,720	7,620	1,910	934	647	24,920
1947	762	711	400	184	83	277	1,130	8,600	11,840	5,270	1,600	952	31,810
1948	1,090	754	664	498	452	549	2,190	8,860	7,780	2,070	874	424	26,200
1949	474	494	430	307	111	246	2,150	6,620	13,650	5,370	1,330	647	31,830
1950	762	611	394	332	250	523	2,160	3,330	6,650	1,390	532	426	17,360
1951	404	450	381	365	274	312	1,490	7,170	12,130	5,190	1,300	770	30,240
1952	829	637	503	449	492	389	2,950	9,600	19,720	3,290	1,630	857	41,350
1953	660	587	403	373	357	390	1,290	4,530	9,460	2,080	966	504	21,600
1954	480	480	381	304	286	312	1,170	2,580	1,300	786	415	490	8,980
1955	669	324	322	357	306	346	1,430	4,410	3,360	1,240	762	397	13,920
1956	325	395	393	345	285	404	1,800	8,090	4,140	979	770	231	18,160
1957	579	652	371	304	289	309	397	5,600	20,650	9,460	1,600	862	41,070
1958	1,090	708	720	608	540	626	918	12,330	8,950	636	537	320	27,980
1959	354	432	426	397	324	423	1,070	5,270	9,220	1,640	833	476	20,860
1960	871	714	615	799	690	1,100	2,930	6,600	13,380	1,980	640	372	30,690

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	-	-	-	-	-	-	-	-	-	-	920	-	-
1961	300	450	150	150	150	200	720	3,900	2,000	620	480	560	9,680
1962	1,700	1,000	800	490	310	440	2,900	6,300	8,700	3,900	390	230	27,160
1963	210	350	150	170	150	220	1,100	3,000	730	410	650	490	7,630
1964	290	310	150	130	110	130	800	4,000	860	470	350	250	7,850
1965	340	300	100	140	130	190	1,000	4,400	7,200	2,500	1,800	1,470	18,570



Relationships of monthly mean discharge of Meadow Creek near Tabernash, Colo. (Y), to sum of monthly mean discharges of Colorado River near Grand Lake, Colo., and Grand River ditch (X). Discharge in hundreds of acre-feet.

330. Meadow Creek near Tabernash, Colo.

Location.--Lat 40°02'55", long 105°46'30", in sec.15, T.1 N., R.75 W., on right bank 30 ft upstream from bridge and 5 miles northeast of Tabernash. Altitude of gage is 9,780 ft (from topographic map).

Drainage area.--7.0 sq mi, approximately.

Records available.--October 1935 to September 1956.

Estimates of streamflow.--June 1934 to September 1935, October 1956 to September 1965, based on relationships of monthly mean discharge with Colorado River near Grand Lake, Colo., adjusted for diversion through Grand River ditch. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Meadow Creek near Tabernash, Colo., and X is the sum of discharges of Colorado River near Grand Lake, Colo. and Grand River ditch, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.11	1.20	1.19	1.95	1.95	1.42	1.10	0.88	1.08	0.85	0.92	0.93
c	1.65	1.97	1.89	4.20	4.20	2.58	1.63	.30	1.26	.54	.98	1.07

Average discharge.--31 years (1934-65), 7,919 acre-feet per year (10.9 cfs).

Extremes.--1935-56: Maximum discharge, 316 cfs June 10, 1952; probably no flow at times during ice periods.

Remarks.--No diversion above station. Estimates of annual flow are within about 15 percent of regression line.

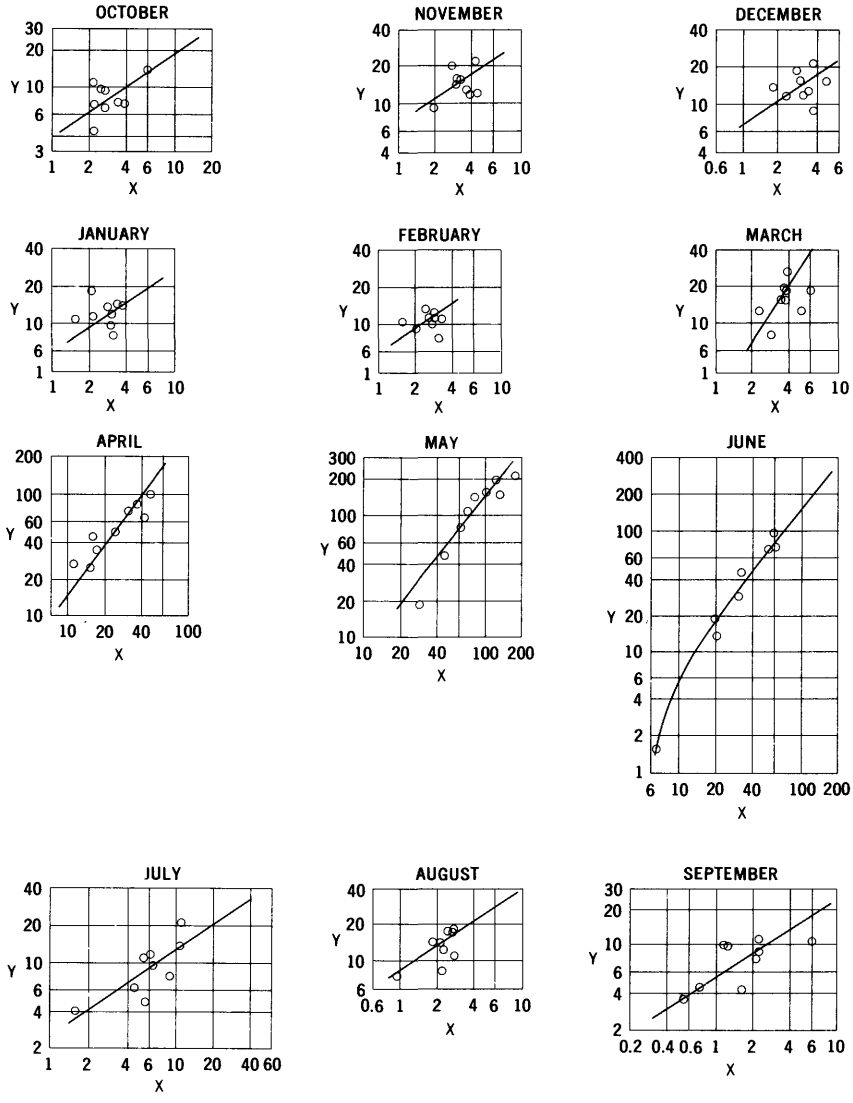
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1936	‡92	‡60	‡61	‡61	‡58	‡92	‡298	‡4,920	2,670	762	393	140	‡9,610
1937	190	‡89	‡92	‡92	‡83	‡61	‡179	4,250	2,270	627	211	123	‡8,270
1938	233	142	135	166	128	129	220	2,840	5,750	972	156	182	11,050
1939	89	60	55	55	44	80	319	4,060	2,500	331	162	102	7,860
1940	62	49	44	31	23	31	131	2,870	2,270	406	84	110	6,110
1941	131	‡70	‡61	‡61	‡56	‡61	‡60	3,270	2,500	428	224	131	‡7,050
1942	133	86	‡92	‡92	‡56	‡61	‡149	1,620	4,970	839	166	87	‡8,350
1943	92	‡65	‡61	‡92	‡56	‡92	‡298	2,240	5,820	600	188	63	‡7,670
1944	69	‡86	‡61	‡61	‡58	‡61	30	1,840	4,030	589	102	42	‡7,030
1945	52	27	25	18	17	74	476	2,110	3,440	1,250	670	129	8,290
1946	110	95	80	74	56	123	893	1,480	2,870	528	117	42	6,470
1947	85	65	49	25	28	74	165	2,980	3,710	1,130	335	147	8,790
1948	155	94	80	55	46	43	119	3,160	1,620	407	133	54	5,970
1949	77	55	49	43	28	43	308	2,730	4,930	1,350	307	107	10,030
1950	157	100	61	55	28	25	235	2,000	3,560	404	99	107	6,830
1951	63	58	61	55	44	43	119	2,200	4,800	1,340	265	99	9,150
1952	114	71	61	74	63	74	268	2,480	6,980	779	342	145	11,450
1953	65	48	43	43	44	37	71	1,720	4,190	526	241	66	7,090
1954	50	43	37	43	28	31	216	2,030	827	261	76	101	3,740
1955	99	51	31	25	22	25	201	2,630	2,350	551	173	43	6,200
1956	42	36	37	31	23	25	63	3,570	2,700	294	150	33	7,000

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	-	-	-	-	-	-	-	-	650	110	90	70	-
1935	50	50	50	30	20	20	110	1,300	4,200	1,100	200	80	7,210
1957	60	40	30	30	20	40	80	2,000	4,800	2,200	500	160	9,960
1958	150	90	80	60	50	50	90	3,800	3,600	310	150	60	8,490
1959	50	40	40	30	30	30	100	1,900	3,700	520	260	110	6,810
1960	210	150	70	40	40	120	480	2,600	4,400	610	180	90	8,990
1961	80	60	40	30	30	30	70	2,100	3,500	540	230	330	7,040
1962	490	180	110	80	60	70	470	3,600	4,600	1,300	350	120	11,430
1963	110	40	40	20	20	40	210	2,400	1,200	260	310	140	5,290
1964	80	60	30	20	20	30	60	2,500	2,600	700	250	100	6,450
1965	60	40	40	40	30	30	130	2,300	4,800	1,800	370	170	9,810



Relationships of monthly mean discharge of Troublesome Creek near Troublesome, Colo. (Y), to monthly mean discharge of East Fork Troublesome Creek near Troublesome, Colo. (X). Discharge in hundreds of acre-feet.

405. Troublesome Creek near Troublesome, Colo.

Location.--Lat 40°04', long 106°19', in sec.12, T.1 N., R.80 W., on left bank 50 ft upstream from bridge on U. S. Highway 40, half a mile upstream from mouth, and half a mile west of old Troublesome Post Office. Datum of gage is 7,344.13 ft above mean sea level, datum of 1929.

Drainage area.--178 sq mi.

Records available.--July 1904 to October 1905, October 1921 to September 1924, July 1937 to September 1956. Monthly discharge only for some periods. Published as "at Troublesome" 1904-5.

Estimates of streamflow.--October 1956 to September 1965, based on relationships of monthly mean discharge with East Fork Troublesome Creek near Troublesome, Colo. The regression equation used is:

$$\text{Log } Y = b \text{ log } X - c$$

(where Y is discharge of Troublesome Creek near Troublesome, Colo., and X is discharge of East Fork Troublesome Creek near Troublesome, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	*May	*June	July	Aug.	Sept.
b	0.68	0.66	0.66	0.66	0.66	1.08	1.00	1.12	1.12	0.67	0.66	0.65
c	-1.23	-1.52	-1.52	-1.45	-1.45	-.46	-.30	.33	.33	-1.10	-1.60	-1.43

* Curvilinear relation: use Log (Y + 500 a.f.) = b log X - c.

Average discharge.--28 years (1937-65), 36,770 acre-feet per year (50.8 cfs).

Extremes.--1904-5, 1921-24, 1937-56: Maximum discharge, 1,230 cfs July 23, 1945, from rating curve extended above 370 cfs; minimum daily, 1 cfs July 19-21, 26, 27, 1922.

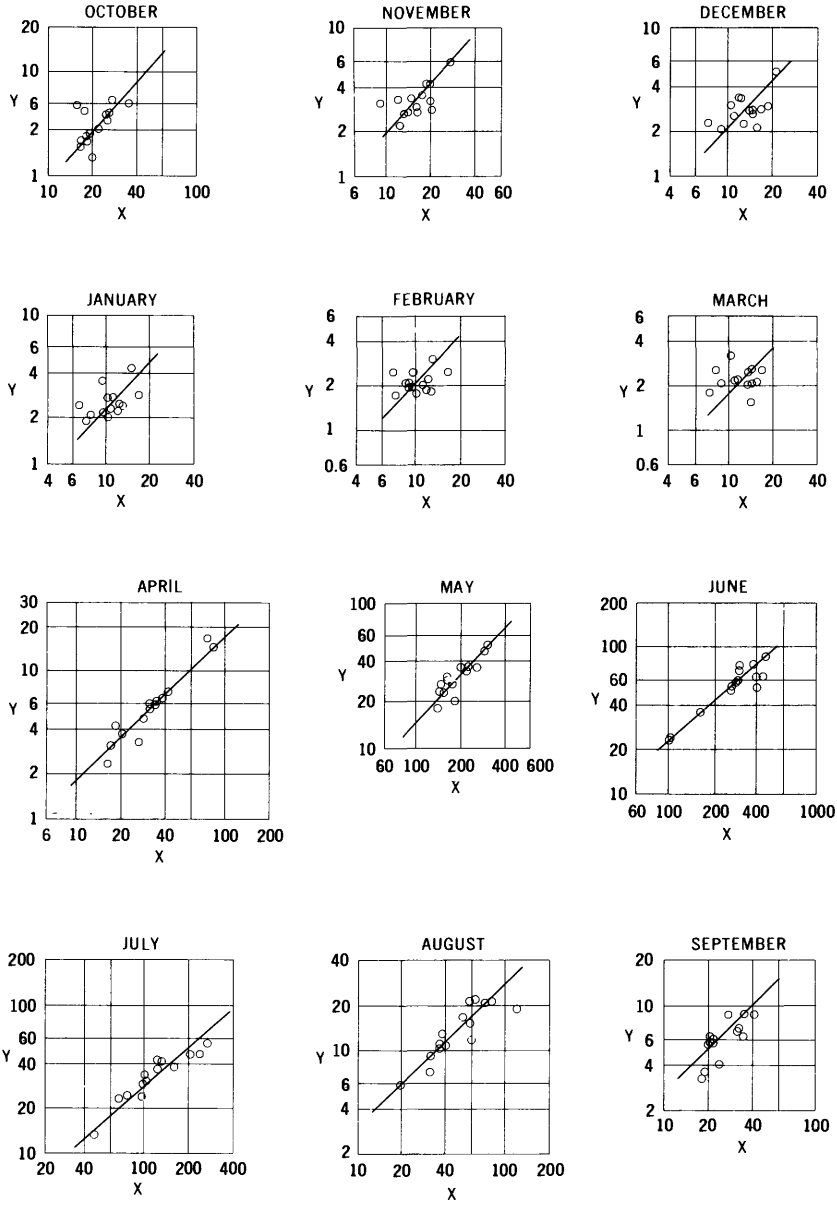
Remarks.--Diversions for irrigation of about 4,000 acres above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1937	-	-	-	-	-	-	-	-	-	2,100	1,700	659	-
1938	1,420	2,210	1,290	978	1,000	2,570	8,330	20,640	9,640	944	930	1,050	51,000
1939	746	1,210	1,540	1,410	1,110	1,840	6,460	19,030	3,000	480	1,390	865	39,080
1940	760	1,590	1,540	1,350	1,150	1,840	3,530	8,000	1,930	1,110	1,100	1,130	25,030
1941	‡1,730	‡1,190	‡861	‡799	‡778	‡1,230	‡2,790	‡15,210	‡3,890	‡349	‡1,570	‡1,210	‡31,610
1942	972	2,040	1,370	1,100	1,080	1,280	7,330	14,380	7,130	777	1,460	362	39,280
1943	1,090	1,610	2,070	1,460	1,100	1,510	9,860	10,650	7,520	1,370	1,720	948	40,910
1944	877	1,890	1,490	1,100	1,090	1,290	2,160	8,460	6,240	749	711	264	26,320
1945	687	1,470	1,350	1,230	1,330	1,600	2,130	13,100	5,850	2,570	2,440	1,130	34,890
1946	1,450	1,440	1,350	1,350	1,390	1,840	7,670	7,250	2,330	378	1,170	827	28,440
1947	1,110	1,860	1,760	1,270	1,080	2,360	4,440	16,160	7,000	2,400	2,000	1,400	42,840
1948	1,890	2,530	1,880	1,250	982	1,200	6,570	18,370	2,290	1,070	2,050	1,050	41,130
1949	1,330	1,280	1,340	1,230	1,150	1,770	5,030	14,530	11,800	3,200	1,790	1,780	46,230
1950	1,490	1,520	1,390	962	910	1,680	4,610	6,930	4,890	1,330	1,230	1,150	28,090
1951	984	1,590	1,700	1,360	1,240	1,730	3,760	16,690	9,450	2,530	2,460	1,280	44,770
1952	1,470	1,890	1,690	1,250	1,140	1,240	9,330	26,810	16,550	2,590	2,390	1,600	67,950
1953	1,260	1,350	1,580	1,430	1,180	1,730	3,160	6,710	5,310	2,260	2,040	653	28,660
1954	727	1,290	1,190	1,190	1,270	1,550	2,560	1,920	161	418	754	428	13,460
1955	692	928	1,170	1,020	930	811	4,550	4,670	1,410	622	1,240	445	18,490
1956	460	1,460	1,890	1,370	1,350	1,930	4,890	14,610	4,600	1,170	1,790	1,000	36,520

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1957	730	1,200	1,200	1,200	1,200	1,700	2,000	12,800	30,000	3,000	3,600	1,600	60,230
1958	1,200	2,100	2,000	1,500	1,400	2,200	3,000	18,800	4,200	890	1,700	870	39,860
1959	800	1,400	1,500	1,300	1,200	1,600	1,800	5,800	3,000	980	2,300	1,200	22,880
1960	1,700	2,300	1,500	1,400	1,200	3,500	10,000	10,600	5,700	1,200	1,600	1,200	41,900
1961	1,000	1,600	1,400	1,100	1,200	1,900	1,800	6,800	3,300	790	1,300	2,100	24,290
1962	2,600	2,000	1,600	1,300	1,400	2,000	16,700	25,800	8,900	1,800	2,300	1,100	67,500
1963	1,100	1,700	1,300	1,100	1,400	2,300	2,500	4,300	940	590	2,000	1,100	20,330
1964	700	1,200	720	780	850	940	1,300	7,900	3,500	950	2,200	820	21,860
1965	640	1,200	1,100	940	1,000	1,200	4,100	16,900	12,700	1,700	3,000	1,600	46,080



Relationships of monthly mean discharge of Rock Creek near Dillon, Colo. (Y), to monthly mean discharge of Tenmile Creek at Dillon, Colo. (X). Discharge in hundreds of acre-feet.

520. Rock Creek near Dillon, Colo.

Location.--Lat 39°43'25", long 106°07'40", in NE¼ sec.9, T.4 S., R.78 W., on left bank 500 ft upstream from bridge on State Highway 9, a quarter of a mile upstream from mouth, and 9 miles northwest of Dillon. Datum of gage is 8,502.52 ft above mean sea level, unadjusted.

Drainage area.--15.8 sq mi.

Records available.--July 1942 to September 1956.

Estimates of streamflow.--October 1930 to July 1942, October 1956 to April 1965, based on relationships of monthly mean discharge with Tenmile Creek at Dillon, Colo. (Tenmile Creek at Dillon, Colo. discontinued April 1961; records for May 1961 to September 1965 were estimated for use in this relationship on the basis of discharge of Tenmile Creek below North Fork, at Frisco, Colo.). The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Rock Creek near Dillon, Colo., and X is discharge of Tenmile Creek at Dillon, Colo., estimated after April 1961, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.12	1.11	1.06	1.06	1.04	1.01	1.01	1.08	0.89	0.89	0.96	0.98
c	1.09	1.04	.85	.83	.80	.78	.77	1.14	.21	.10	.39	.52

Average discharge.--35 years (1930-65), 16,570 acre-feet per year (22.9 cfs).

Extremes.--1942-56: Maximum discharge, 260 cfs June 18, 1951, from rating curve extended above 190 cfs; minimum daily determined, 2.2 cfs Apr. 13, 17, 1945.

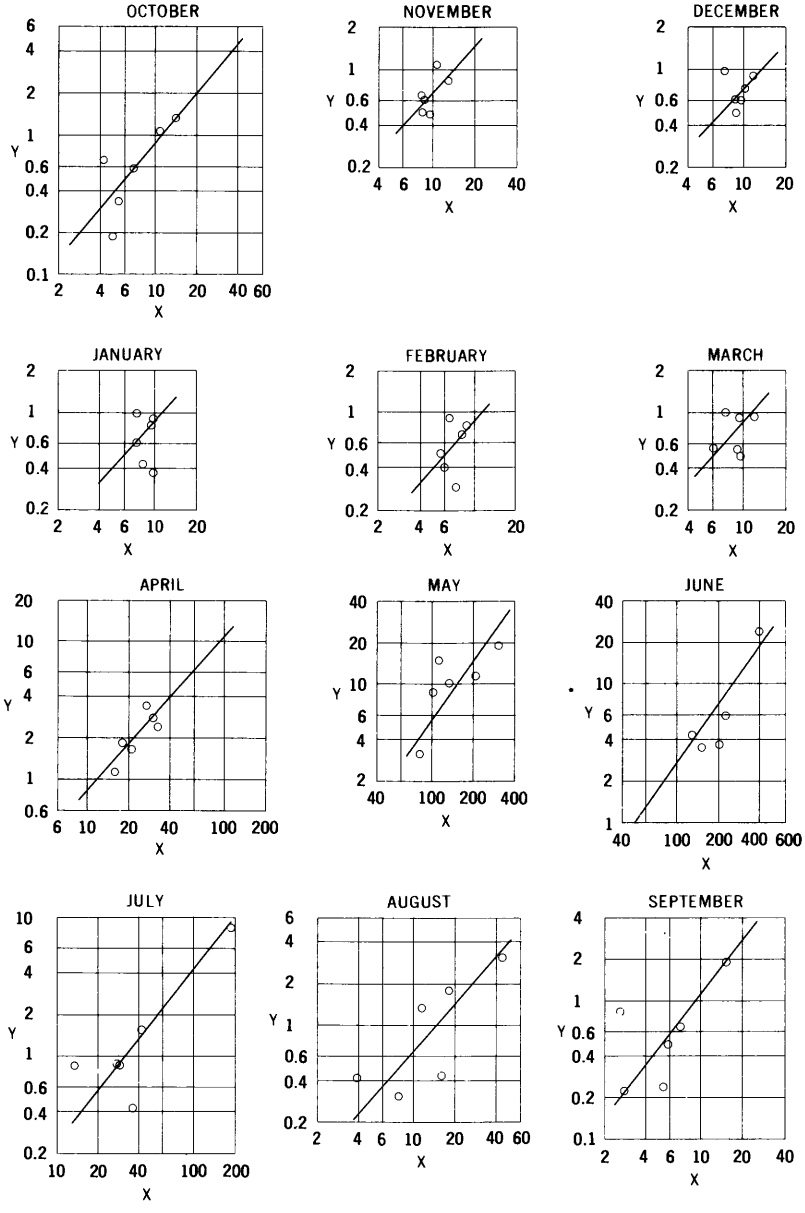
Remarks.--A few small diversions for irrigation of hay meadows above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1942	-	-	-	-	-	-	-	-	-	-	1,090	557	-
1943	314	270	265	234	206	220	1,690	3,670	6,690	4,300	2,120	899	20,880
1944	500	343	345	192	249	326	312	3,020	5,770	3,360	923	355	15,700
1945	259	224	234	246	194	154	238	2,760	4,990	3,880	1,920	628	15,730
1946	516	424	338	277	211	258	1,490	2,140	5,380	2,440	1,300	544	15,320
1947	374	357	277	221	189	209	372	3,550	5,190	4,870	2,090	877	18,580
1948	610	585	516	435	306	258	658	5,030	7,640	3,010	1,120	627	20,800
1949	533	335	307	357	211	258	561	3,080	6,330	4,750	1,530	711	18,960
1950	644	417	215	277	250	246	595	2,770	6,340	3,080	718	579	16,130
1951	341	295	268	242	184	224	427	3,560	6,180	5,860	2,150	691	20,220
1952	458	288	283	250	222	205	725	3,490	8,520	4,300	2,210	878	21,830
1953	403	274	283	221	178	209	330	1,920	6,360	3,630	1,670	542	16,020
1954	364	277	229	207	198	219	612	2,480	2,310	1,340	584	580	9,400
1955	585	318	212	213	173	182	622	2,460	3,560	2,370	1,180	404	12,280
1956	336	322	299	285	260	254	482	4,750	5,820	2,460	1,030	326	16,620

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	680	450	340	280	210	270	960	2,800	3,900	1,600	860	540	12,890
1932	460	300	210	160	170	160	560	3,300	5,800	3,300	1,500	780	16,700
1933	520	340	330	280	260	270	350	2,300	8,000	3,200	1,200	760	17,810
1934	410	320	290	360	250	250	840	3,800	2,300	1,100	860	480	11,260
1935	290	260	290	290	250	200	350	1,200	6,400	3,000	1,500	840	14,870
1936	580	440	270	290	280	280	1,400	7,000	6,000	3,500	2,300	800	23,140
1937	340	330	310	370	330	350	600	2,900	3,400	2,100	960	600	12,590
1938	420	450	390	270	230	260	640	3,400	8,000	3,400	1,500	1,000	19,960
1939	540	430	340	310	210	280	720	5,400	4,500	2,100	960	600	16,390
1940	320	210	190	170	150	200	580	2,500	3,500	1,900	780	600	11,100
1941	480	270	250	210	190	250	340	3,400	4,700	2,200	1,000	600	13,890
1942	400	310	240	220	240	220	580	2,300	6,000	3,700	-	-	15,860
1957	270	270	290	270	180	160	270	1,300	8,800	9,100	2,800	920	24,630
1958	500	370	360	300	210	220	290	4,700	6,000	1,700	700	500	15,850
1959	360	240	250	280	230	200	520	2,000	6,600	2,600	1,100	620	15,000
1960	560	360	320	240	190	180	640	2,100	6,800	2,500	880	400	15,170
1961	280	240	230	180	140	160	220	2,100	4,300	1,800	1,300	1,400	12,330
1962	1,300	700	500	370	280	250	1,200	4,200	7,200	4,800	1,500	640	22,940
1963	350	260	220	180	220	200	540	2,200	2,500	1,400	1,500	840	10,410
1964	350	250	220	190	150	140	200	3,000	5,000	2,800	1,400	470	14,170
1965	280	230	230	250	200	160	350	2,600	9,200	6,800	5,200	970	24,470



Relationships of monthly mean discharge of Sunnyside Creek near Burns, Colo. (Y), to monthly mean discharge of Piney River near State Bridge, Colo. (X). Discharge in hundreds of acre-feet.

610. Sunnyside Creek near Burns, Colo.

Location.--Lat 39°58', long 106°57', in sec.17, T.1 S., R.85 W., on left bank 6 ft downstream from bridge, 7 miles upstream from mouth, and 7½ miles northwest of Burns. Altitude of gage is 8,220 ft (by barometer).

Drainage area.--10 sq mi, approximately.

Records available.--October 1952 to September 1958.

Estimates of streamflow.--June 1944 to September 1952, October 1958 to September 1965, based on relationships of monthly mean discharge with Piney River near State Bridge, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Sunnyside Creek near Burns, Colo., and X is discharge of Piney River near State Bridge, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.18	1.11	1.06	1.09	1.10	1.10	1.12	1.41	1.41	1.27	1.14	1.29
c	1.58	1.48	1.33	1.34	1.38	1.38	1.44	2.90	3.20	2.44	1.60	1.81

Average discharge.--21 years (1944-65), 3,128 acre-feet per year (4.32 cfs).

Extremes.--1952-58: Maximum discharge, 110 cfs May 28, 1957; minimum daily, 0.1 cfs Aug. 31, 1955; Aug. 2-4, 1958.

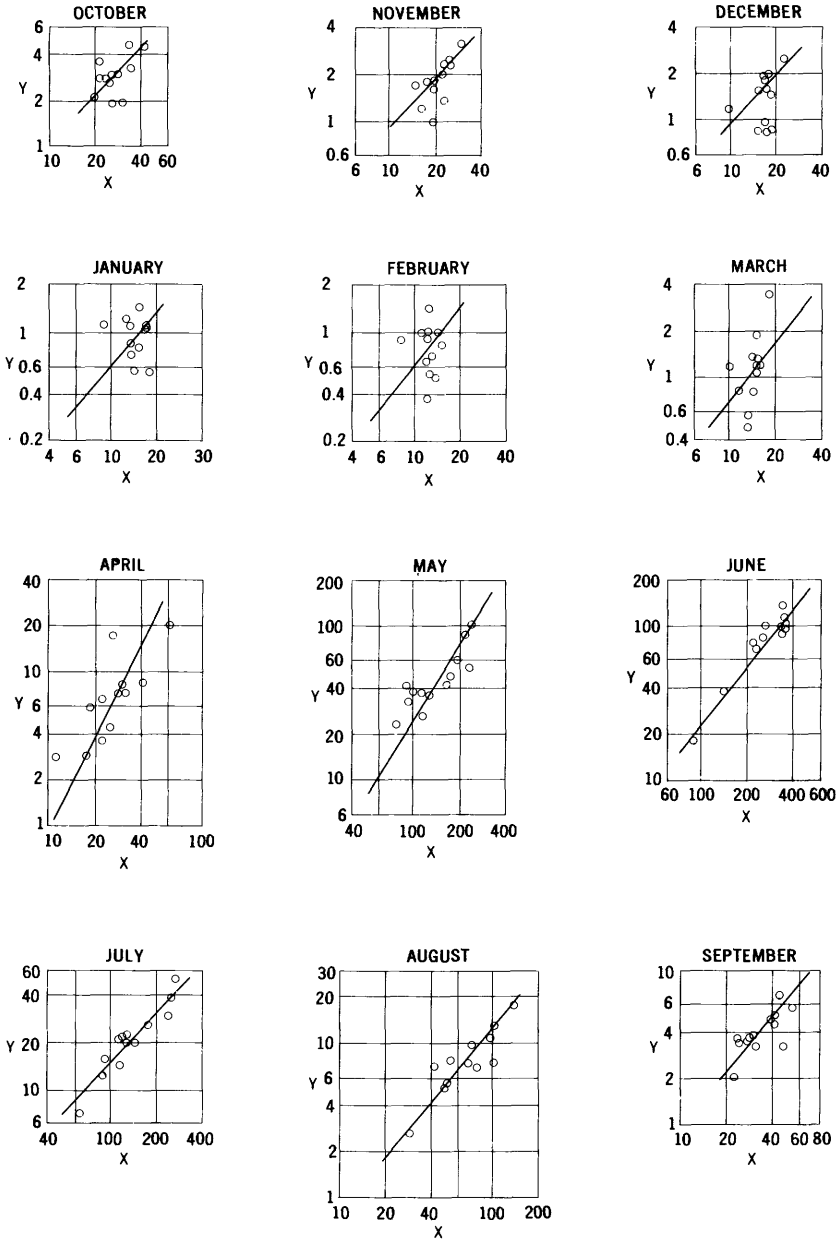
Remarks.--Two small diversions above station for irrigation of about 50 acres above and below station. Estimates of annual flow are within about 20 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1953	58	48	61	92	67	92	182	881	582	155	180	24	2,420
1954	34	60	98	98	89	101	343	316	106	86	42	67	1,440
1955	107	65	61	61	50	55	278	1,050	431	42	44	22	2,270
1956	19	50	49	43	40	49	242	1,140	354	87	135	85	2,290
1957	67	108	74	37	28	55	115	1,530	2,440	860	307	193	5,810
1958	132	83	92	80	78	93	165	1,930	362	85	31	49	3,180

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1944	-	-	-	-	-	-	-	-	830	250	70	20	-
1945	50	60	50	50	50	60	150	1,200	730	290	220	50	2,960
1946	110	90	70	70	70	120	770	830	560	110	90	80	2,970
1947	130	90	80	70	60	80	310	1,800	880	450	140	140	4,230
1948	140	120	100	100	80	100	340	2,200	620	160	100	60	4,120
1949	40	70	80	90	70	90	390	960	900	330	120	60	3,200
1950	110	90	80	80	70	80	300	700	680	120	50	60	2,420
1951	60	60	70	70	70	50	170	1,000	760	460	170	70	3,010
1952	100	50	60	70	50	60	590	1,500	1,400	240	180	120	4,420
1959	70	50	40	40	60	80	140	740	860	150	110	130	2,470
1960	210	110	90	80	70	80	520	940	730	140	70	60	3,100
1961	50	70	60	60	50	70	80	660	360	70	80	360	1,970
1962	430	150	110	80	90	100	1,100	1,800	1,100	430	150	90	5,630
1963	90	50	40	40	50	60	230	510	150	40	100	70	1,430
1964	40	40	50	60	50	50	200	860	420	140	80	60	2,050
1965	40	50	60	70	60	70	200	1,000	1,400	660	370	320	4,300



Relationships of monthly mean discharge of Turkey Creek at Red Cliff, Colo. (Y), to the sum of monthly mean discharges of Blue River at Dillon, Colo., Boreas Pass ditch, and either East Hoosier ditch and West Hoosier ditch or Hoosier Pass tunnel (X). Discharge in hundreds of acre-feet.

635. Turkey Creek at Red Cliff, Colo.

Location.--Lat 39°30'50", long 106°22'05", in sec.19, T.6 S., R.80 W., on left bank at Red Cliff, 1,000 ft upstream from mouth. Datum of gage is 8,641.79 ft above mean sea level, datum of 1929.

Drainage area.--28.6 sq mi.

Records available.--July 1913 to September 1921, May 1944 to September 1956.

Estimates of streamflow.--October 1930 to May 1944, based on relationships of monthly mean discharge with Blue River at Dillon, Colo., adjusted for diversion through Boreas Pass ditch (from October 1932), East Hoosier ditch (June 1935 to September 1940), and West Hoosier ditch (June 1935 to September 1939), diversions prior to above dates were ungaged. October 1956 to April 1961, based on relationships of monthly mean discharge with Blue River at Dillon, Colo., adjusted for diversion through Boreas Pass ditch, and Hoosier Pass tunnel. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Turkey Creek at Red Cliff, Colo., and X is the sum of discharges of Blue River at Dillon, Colo., Boreas Pass ditch, and either East Hoosier ditch and West Hoosier ditch, or Hoosier Pass tunnel, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.02	1.06	1.07	1.16	1.26	1.25	2.03	1.63	1.24	1.05	1.21	1.20
c	1.04	1.23	1.23	1.70	2.01	1.90	4.13	3.13	1.60	1.03	1.75	1.61

Average discharge.--30 years (1930-60), 17,340 acre-feet per year (24.0 cfs).

Extremes.--1913-21, 1944-56: Maximum discharge observed, 670 cfs June 13, 1918; minimum daily, 0.4 cfs Feb. 21, 1955, Feb. 3, 1956.

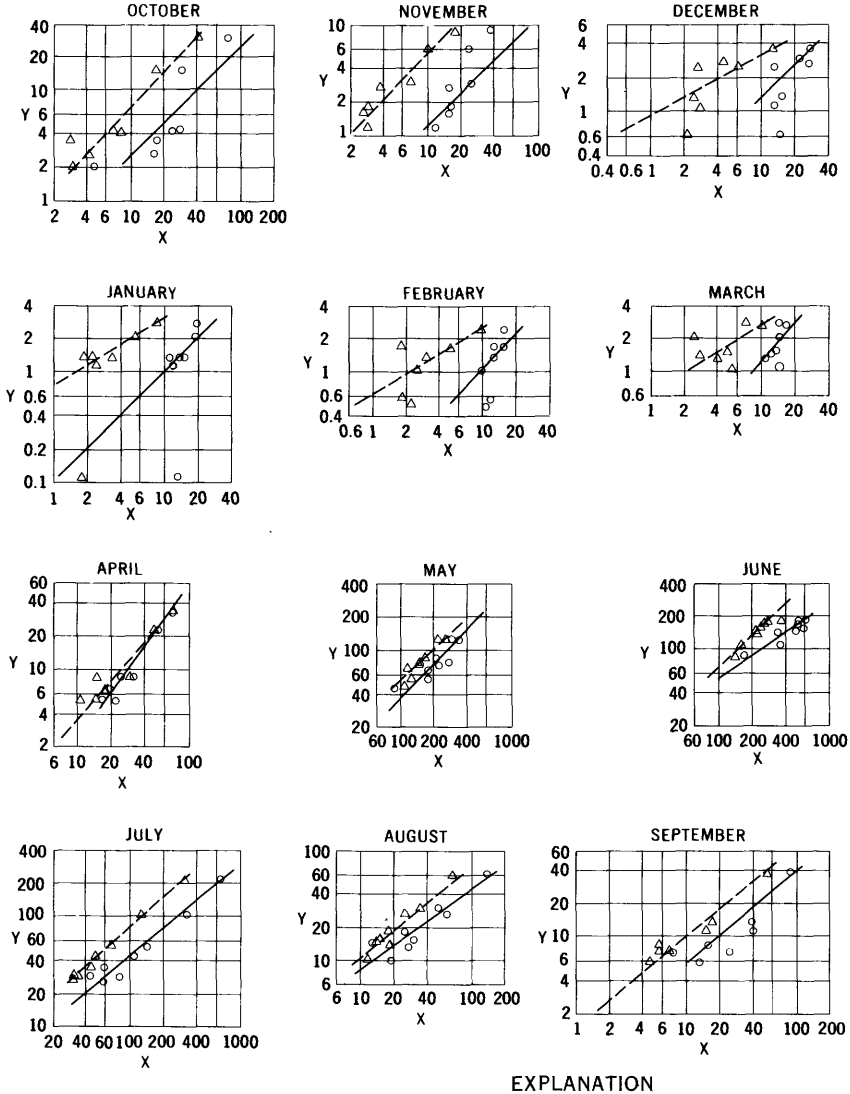
Remarks.--Diversion above station for municipal supply of Red Cliff. Small diversions for irrigation of hay meadows above station. Estimates of annual flow are within about 25 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1944	-	-	-	-	-	-	-	-	8,440	2,220	731	358	-
1945	351	170	119	113	90	119	280	4,240	7,810	2,560	1,800	694	18,350
1946	459	249	193	144	145	342	2,050	3,560	7,070	1,440	524	318	16,490
1947	276	238	197	123	100	135	581	6,120	11,240	5,160	1,120	582	25,870
1948	446	318	245	107	100	188	1,710	8,630	8,880	2,020	796	369	23,810
1949	283	184	158	106	84	119	728	3,860	9,720	3,020	986	507	19,760
1950	324	233	147	110	102	131	824	3,750	10,130	2,110	705	381	18,950
1951	275	186	154	85	71	108	360	4,210	9,780	3,930	1,300	438	20,900
1952	294	203	182	123	92	83	861	4,710	13,580	2,280	718	468	23,590
1953	261	162	97	80	65	80	285	2,600	10,460	2,030	768	347	17,240
1954	208	121	85	72	54	47	431	2,320	1,820	711	285	202	6,340
1955	193	100	83	57	37	56	737	3,220	3,750	1,590	762	322	10,910
1956	192	138	86	56	51	120	669	5,360	7,560	1,250	572	341	16,400

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	430	220	180	80	60	90	780	2,900	6,000	1,500	580	350	13,270
1932	280	150	130	70	80	110	620	4,800	6,200	2,300	900	470	16,110
1933	290	160	150	80	70	110	280	1,900	9,700	1,900	540	390	14,470
1934	270	160	150	80	80	100	1,100	5,600	2,700	780	500	350	11,870
1935	210	160	120	70	60	80	280	940	7,000	2,000	900	580	12,400
1936	310	170	120	90	90	120	2,800	14,000	9,600	2,200	1,800	680	31,970
1937	370	180	100	30	50	110	860	2,500	4,200	1,400	500	430	10,730
1938	260	170	130	60	60	90	540	4,300	12,000	2,300	880	920	21,710
1939	410	220	170	90	70	140	1,300	10,000	5,800	1,300	440	330	20,270
1940	230	140	100	50	50	80	360	2,500	3,900	1,100	340	430	9,280
1941	340	160	130	70	60	80	180	4,400	6,600	1,800	680	400	14,900
1942	350	210	170	100	80	100	800	3,700	8,800	1,800	660	350	17,120
1943	230	180	140	50	40	60	2,400	4,000	7,600	2,000	840	400	17,940
1944	250	160	110	40	30	60	160	2,500	-	-	-	-	15,060
1957	180	180	180	110	110	100	380	2,400	12,000	5,000	1,900	640	23,180
1958	360	240	220	130	100	130	330	9,800	18,200	1,200	460	330	21,500
1959	230	160	160	110	100	110	290	2,600	8,600	1,800	680	320	15,160
1960	340	220	190	100	90	120	1,300	2,200	7,600	1,800	540	300	14,790
1961	240	170	140	70	50	70	160	-	-	-	-	-	-



Relationships of monthly mean discharge of Cross Creek near Minturn, Colo. (Y), to sum of monthly mean discharges of Roaring Fork River at Aspen, Colo., and Twin Lakes tunnel or monthly mean discharge of Homestake Creek near Red Cliff, Colo. (X). Discharge in hundreds of acre-feet.

651. Cross Creek near Minturn, Colo.

Location.--Lat 39°34'05", long 106°24'45", in SW¼ sec.36, T.5 S., R.81 W., on right bank 0.4 mile upstream from mouth and 1½ miles southeast of Minturn. Altitude of gage is 7,990 ft (from topographic map).

Drainage area.--33.5 sq mi.

Records available.--May 1956 to September 1963.

Estimates of streamflow.--October 1931 to June 1944, based on relationships of monthly mean discharge with Roaring Fork River at Aspen, Colo., adjusted for diversion through Twin Lakes tunnel; June 1944 to April 1956 and October 1963 to September 1965, based on relationships of monthly mean discharge with Homestake Creek near Red Cliff, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Cross Creek near Minturn, Colo. and X is the sum of discharges of Roaring Fork River at Aspen, Colo. and Twin Lakes tunnel, or discharge of Homestake Creek near Red Cliff, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct 1931 to May 1944	b	1.00	1.00	1.00	1.00	1.05	1.13	1.39	1.02	0.67	0.83	0.72	0.83
	c	.60	.93	.89	1.00	1.11	1.31	1.79	.51	-1.06	-.32	-.76	-.26
June 1949 to April 1956 Oct 1963 to Sept 1965	b	1.06	1.06	0.54	0.61	0.59	0.60	1.17	0.93	0.93	0.87	0.85	0.81
	c	.35	-.45	-.88	-.64	-.62	-.60	.96	-.01	-.12	-.43	-.46	.54

Average discharge.--34 years (1931-65), 36,570 acre-feet per year (50.5 cfs).

Extremes.--1956-63: Maximum discharge, 754 cfs June 30, 1957; minimum daily, 0.1 cfs Dec. 27-31, 1962; Jan. 6-8, 11-15, 1963.

Remarks.--Diversion above station for municipal supply of Minturn. Estimates of annual flow are within about 10 percent of regression line, prior to 1944, and within about 5 percent thereafter.

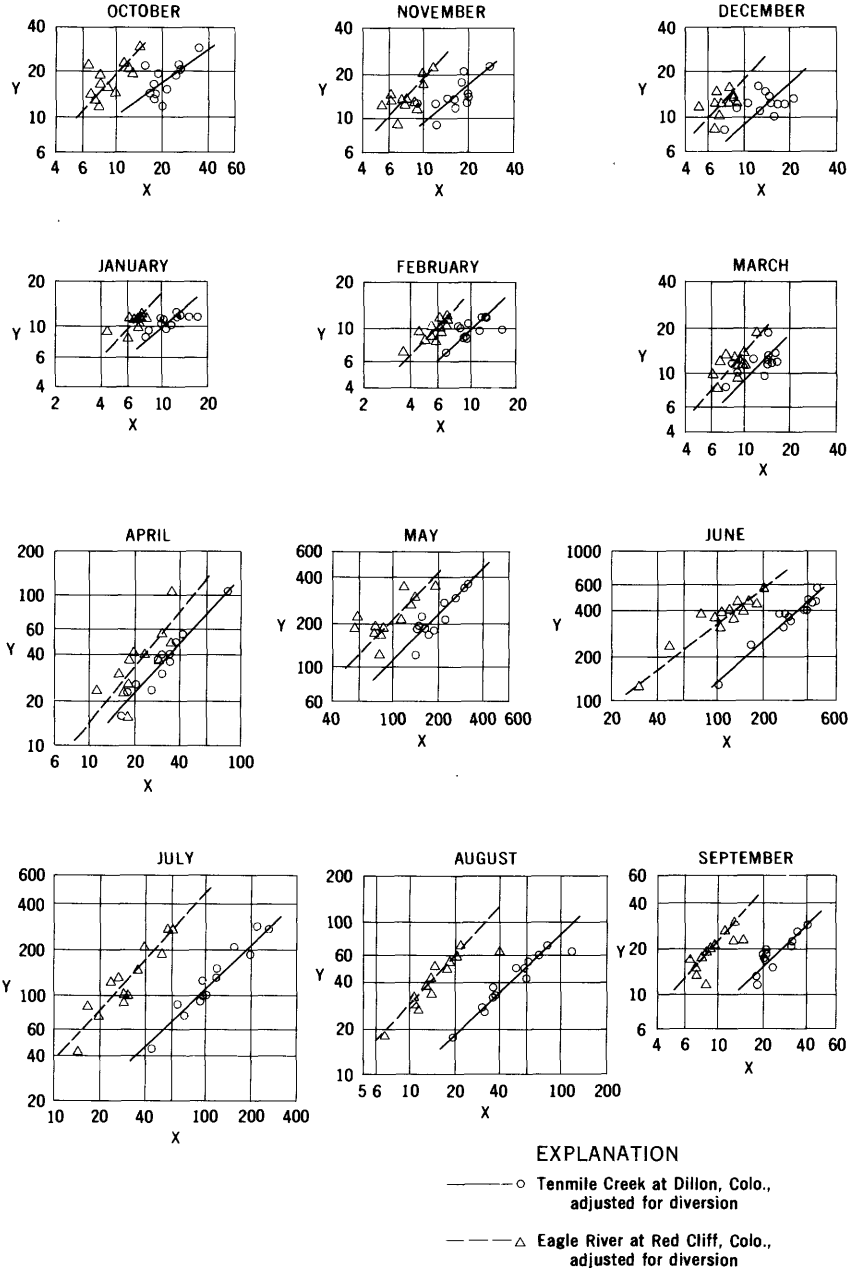
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	-	-	-	-	-	-	-	12,740	13,800	3,520	1,470	214	-
1957	209	118	111	115	105	131	655	4,720	18,400	21,830	5,880	1,110	53,370
1958	442	295	253	209	167	153	529	12,700	14,500	2,930	1,010	590	33,780
1959	356	160	131	138	170	202	854	5,470	18,520	4,410	1,540	841	32,790
1960	1,570	612	287	138	138	274	2,280	6,690	17,170	5,550	1,360	740	36,810
1961	262	266	250	136	58	141	533	7,580	10,790	2,710	1,820	3,870	28,420
1962	3,050	926	370	275	240	261	3,430	7,750	15,530	10,690	2,670	737	45,930
1963	425	182	61	11	50	107	855	8,420	8,750	2,980	2,940	1,350	26,130

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	‡540	‡170	‡160	‡120	‡120	‡200	‡1,800	9,000	15,300	8,300	3,000	1,100	39,820
1933	670	290	260	‡180	‡180	‡240	‡940	7,000	17,000	4,500	2,100	1,300	34,660
1934	‡680	‡210	‡160	100	130	210	3,300	10,900	5,600	1,300	1,000	1,100	24,690
1935	550	220	220	150	160	210	840	3,100	16,500	6,800	2,400	1,800	32,950
1936	720	210	190	160	150	180	5,000	18,000	12,700	4,300	3,200	1,200	46,010
1937	710	240	220	150	140	180	820	11,600	10,400	4,300	1,600	720	31,080
1938	510	210	190	150	130	160	1,500	7,200	18,800	8,600	2,700	2,300	42,450
1939	880	320	320	190	200	240	2,100	14,300	11,700	3,300	1,200	600	35,350
1940	230	120	130	110	100	140	1,200	8,000	10,000	2,100	760	660	23,550
1941	810	200	190	140	120	150	450	9,600	13,000	5,000	1,700	940	32,300
1942	830	250	220	140	130	140	1,000	6,800	17,100	7,200	1,900	900	36,610
1943	450	200	250	170	140	180	3,200	8,400	15,200	6,300	4,600	1,900	40,990
1944	670	290	270	150	160	170	490	7,200	14,300	6,800	1,100	310	31,910
1945	200	160	170	160	120	140	250	7,000	13,100	10,000	5,400	1,200	37,900
1946	860	560	260	190	130	200	3,600	6,000	15,200	5,600	1,500	640	34,740
1947	600	450	250	140	90	140	720	9,200	17,000	12,800	3,300	2,000	46,690
1948	1,500	750	250	170	140	170	1,600	10,600	14,900	6,000	1,500	460	38,040
1949	400	230	170	140	130	170	1,800	7,000	17,900	11,700	2,100	1,300	43,040
1950	1,200	620	310	250	180	190	1,600	7,000	17,000	5,400	970	740	35,460
1951	320	200	220	150	120	160	900	8,600	18,200	13,300	3,400	740	46,310
1952	600	270	200	180	130	150	1,400	8,400	22,100	8,600	3,700	1,500	47,230
1953	390	240	200	190	150	150	740	5,600	18,500	7,600	2,700	580	37,240
1954	260	240	190	160	120	130	1,200	6,600	5,600	2,600	940	820	18,860
1955	960	380	240	170	110	140	1,400	6,400	11,200	5,200	2,700	700	29,600
1956	270	290	240	200	160	200	1,700	-	-	-	-	-	34,800
1964	420	260	180	160	130	140	490	8,000	11,300	6,400	2,800	900	31,240
1965	350	240	220	200	140	150	1,100	7,400	19,100	16,800	5,600	2,400	53,700

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Gore Creek near Minturn, Colo. (Y), to sum of monthly mean discharges of Tenmile Creek at Dillon, Colo., and Fremont Pass ditch, or sum of monthly mean discharges of Eagle River at Red Cliff, Colo., and Ewing, Wurtz, and Columbine ditches (X). Discharge in hundreds of acre-feet.

665. Gore Creek near Minturn, Colo.

Location.--Lat 39°36'55", long 106°26'25", in SE¼ sec.15, T.5 S., R.81 W., on right bank half a mile upstream from mouth and 2 miles north of Minturn. Datum of gage is 7,756.24 ft above mean sea level, unadjusted.

Drainage area.--100 sq mi.

Records available.--July 1911 to September 1914, May 1944 to September 1956.

Estimates of streamflow.--October 1930 to May 1944, based on relationships of monthly mean discharge with Tenmile Creek at Dillon, Colo., adjusted for diversion through Fremont Pass ditch; October 1956 to September 1965, based on relationships of monthly mean discharge with Eagle River at Red Cliff, Colo., adjusted for diversion through Ewing, Wurtz, and Columbine ditches. The regression equation used is:

$$\text{Log } Y = b \text{ log } X - c$$

(where Y is discharge of Gore Creek near Minturn, Colo., and X is the sum of discharges of Tenmile Creek at Dillon, Colo. and Fremont Pass ditch, or the sum of discharges of Eagle River at Red Cliff, Colo. and Ewing, Wurtz, and Columbine ditches, all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct. 1930 to May 1944	b	0.72	0.84	0.90	0.90	0.95	0.97	1.09	1.03	0.90	0.95	0.94	0.94
	c	-.82	-.45	-.26	-.28	-.12	-.06	.24	.07	-.53	-.24	-.07	-.16
Oct. 1956 to Sept. 1965	b	1.10	1.06	1.06	1.10	1.10	1.10	1.22	1.06	.76	1.08	1.10	1.10
	c	.01	-.07	-.06	.07	.09	.16	.50	-.08	-1.47	-.34	-.14	-.04

Average discharge.--35 years (1930-65), 89,520 acre-feet per year (124 cfs).

Extremes.--1944-56: Maximum discharge, 1,780 cfs June 7, 1952, from rating curve extended above 1,300 cfs; minimum daily, 10 cfs Feb. 21, 1955. At site 1 mile downstream a discharge of 1,540 cfs was measured June 24, 1912, and a stage 1.5 ft higher than the measurement was observed June 8, 1912.

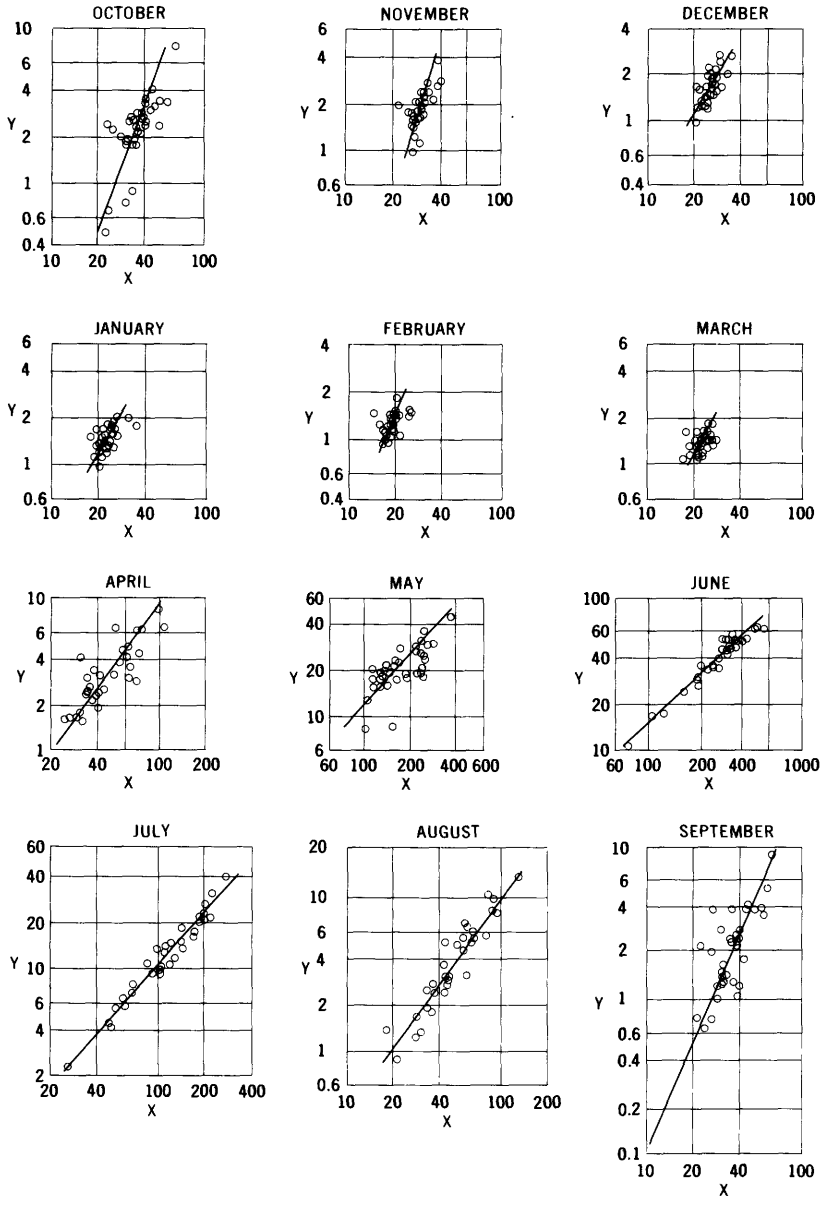
Remarks.--Diversions for irrigation of about 600 acres of hay meadows above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1944	-	-	-	-	-	-	-	-	38,460	12,570	2,640	1,170	-
1945	1,200	932	845	833	847	1,140	1,560	18,500	39,150	20,070	6,530	2,250	93,860
1946	2,290	2,060	1,600	1,110	1,000	1,840	10,820	17,790	31,260	9,080	3,330	1,980	84,160
1947	1,990	1,740	1,480	1,060	944	1,180	2,560	29,090	46,980	27,780	6,050	2,940	123,800
1948	2,910	2,240	1,350	1,160	1,180	1,380	4,840	35,920	35,390	10,110	3,750	1,860	102,100
1949	1,690	1,250	1,230	1,110	1,030	1,160	4,050	18,340	40,990	18,750	5,050	2,220	96,870
1950	2,110	1,290	1,030	1,020	825	964	3,680	16,700	40,490	10,000	2,760	1,870	82,740
1951	1,450	1,200	1,230	1,170	1,170	1,230	2,280	20,910	45,130	27,750	6,980	2,100	112,600
1952	1,930	1,400	1,240	1,170	1,180	1,310	5,620	26,900	57,640	14,720	5,590	2,630	121,300
1953	1,560	1,380	1,370	1,210	1,050	1,260	2,330	12,160	46,540	13,040	5,070	1,790	88,760
1954	1,340	1,360	1,100	976	881	996	3,020	18,160	12,940	4,370	1,770	1,700	48,610
1955	2,210	1,280	1,150	926	696	817	4,120	21,830	23,460	8,640	4,340	1,500	70,970
1956	1,420	1,450	1,260	1,160	968	1,200	3,760	34,780	36,820	7,450	3,170	1,340	94,780

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	2,400	1,800	1,300	1,200	940	1,400	6,700	20,100	24,200	6,000	2,700	1,500	70,240
1932	1,900	1,300	900	730	780	860	3,600	24,100	37,200	13,500	4,700	2,200	91,770
1933	2,100	1,500	1,300	1,200	1,100	1,400	2,200	16,200	51,500	13,000	3,800	2,200	97,500
1934	1,800	1,400	1,200	1,400	1,100	1,300	5,700	27,000	14,100	4,400	2,700	1,400	63,500
1935	1,500	1,200	1,200	1,300	1,100	1,000	2,200	8,600	41,200	12,200	4,700	2,400	78,600
1936	2,200	1,800	1,100	1,300	1,200	1,500	9,900	46,500	38,200	13,800	7,100	2,300	126,900
1937	1,600	1,400	1,200	1,500	1,400	1,800	3,900	21,000	20,800	8,100	2,900	1,800	67,400
1938	1,800	1,800	1,500	1,100	1,000	1,300	4,200	23,000	50,600	13,900	4,500	2,900	107,600
1939	2,100	1,700	1,400	1,200	920	1,400	4,800	37,800	28,500	8,000	2,900	1,700	92,420
1940	1,500	1,000	800	760	680	1,000	3,800	17,800	22,000	7,200	2,400	1,800	60,740
1941	1,900	1,200	1,000	920	820	1,300	2,100	24,000	29,000	8,200	3,000	1,800	75,240
1942	1,700	1,400	1,000	950	1,000	1,100	3,900	16,600	37,400	14,300	3,400	1,500	84,250
1943	1,600	1,200	1,000	1,100	1,000	1,000	9,800	23,100	37,400	14,000	4,900	2,000	98,100
1944	2,000	1,300	1,100	760	680	970	1,900	18,500	-	-	-	-	82,050
1957	1,200	1,100	1,000	920	760	760	1,100	11,500	69,500	43,500	9,800	3,200	144,340
1958	2,200	1,600	1,400	1,100	900	800	1,300	31,200	34,000	9,500	2,900	2,000	88,900
1959	1,400	1,200	1,100	920	650	660	1,100	15,800	38,500	12,300	3,700	1,700	79,030
1960	2,000	1,300	980	990	770	880	5,200	18,000	49,000	14,800	3,600	1,700	99,200
1961	1,400	1,100	920	930	800	600	1,300	12,300	24,100	8,000	3,700	4,500	59,650
1962	4,000	2,500	1,500	1,000	1,000	840	7,000	28,700	39,400	17,300	4,000	1,700	108,940
1963	1,900	1,200	1,100	780	660	1,100	2,600	10,800	15,100	4,900	7,600	3,000	50,740
1964	1,600	1,100	780	840	780	820	1,100	18,200	28,600	10,000	4,400	1,800	70,020
1965	1,300	900	870	860	720	780	2,400	17,000	49,400	27,000	9,500	4,800	115,530



Relationships of sum of monthly mean discharges of Roaring Fork River at Aspen, Colo., and Twin Lakes tunnel (Y), to sum of monthly mean discharges of Roaring Fork River at Glenwood Springs, Colo., Twin Lakes tunnel and Busk-Ivanhoe tunnel (X). Discharge in thousands of acre-feet.

735. Roaring Fork River at Aspen, Colo.

Location.--Lat 39°11'20", long 106°48'55", in sec.7, T.10 S., R.84 W., on right bank at Aspen, three-quarters of a mile upstream from Hunter Creek. Datum of gage is 7,884.58 ft above mean sea level, datum of 1929.

Drainage area.--109 sq mi.

Records available.--October 1910 to September 1921, October 1931 to September 1964. Records since May 24, 1935, are equivalent to prior records if diversion to Twin Lanes tunnel is added to flow past station.

Estimates of streamflow.--October 1930 to September 1931, based on relationships of monthly mean discharge with Roaring Fork River at Glenwood Springs, Colo., adjusted for flow through Twin Lakes tunnel and Busk-Ivanhoe tunnel. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is the sum of discharges of Roaring Fork River at Aspen, Colo. and Twin Lakes tunnel, and X is the sum of discharges of Roaring Fork River at Glenwood Springs, Colo., Twin Lakes tunnel, and Busk-Ivanhoe tunnel, all in acre-feet per month).
October 1964 to September 1965 based on records for Roaring Fork River near Aspen, Colo.

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	2.76	3.22	1.63	1.84	2.41	1.92	1.39	1.12	0.95	1.13	1.39	2.35
c	9.23	11.13	3.95	4.83	7.22	5.17	2.98	1.50	.56	1.65	2.95	7.39

Average discharge.--35 years (1930-65), 100,990 acre-feet per year (139 cfs), including diversion by Twin Lakes tunnel.

Extremes.--1910-21, 1931-64: Maximum discharge, 3,170 cfs June 18, 1917 (from flood marks), from rating curve extended above 1,200 cfs; minimum daily prior to construction of Twin Lakes tunnel, 15 cfs July 15, 16, 1934; minimum daily since diversion through Twin Lakes tunnel, 0.4 cfs Sept. 24, 27, 28, 1956.

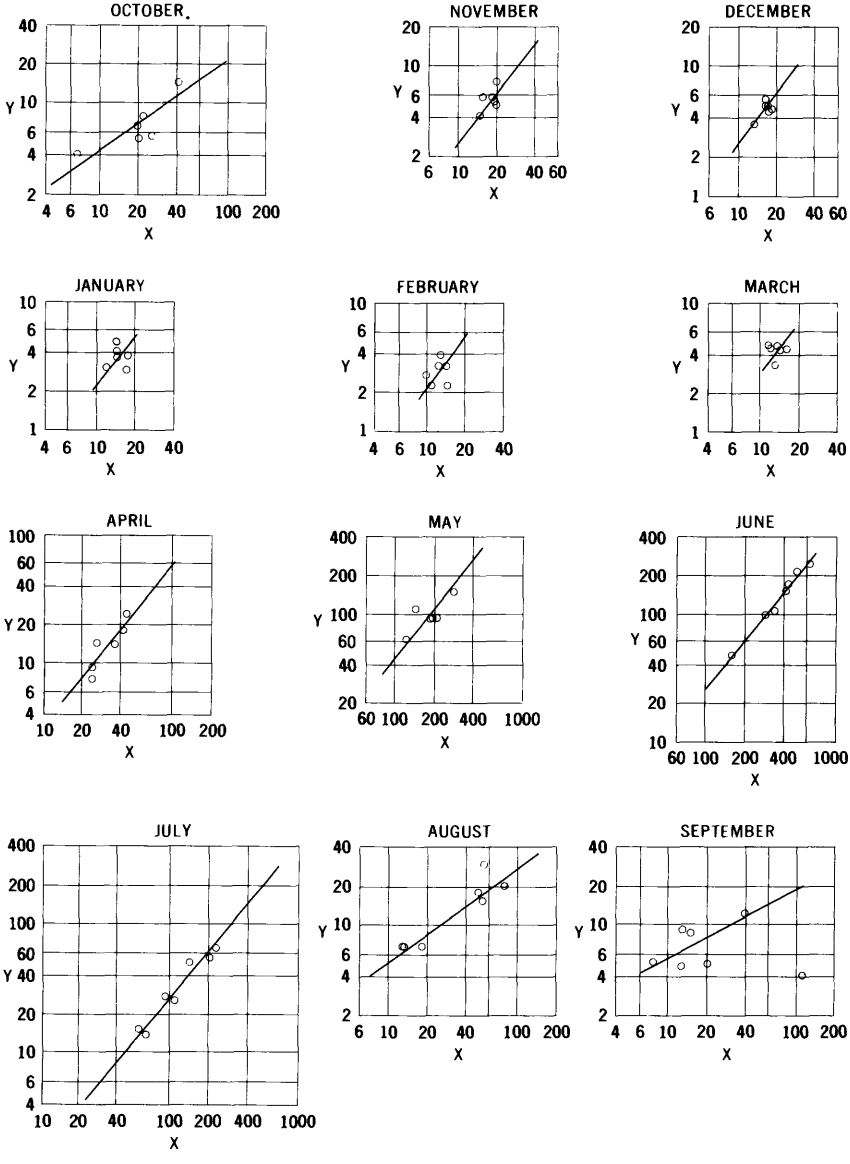
Remarks.--Transmountain diversion through Twin Lakes tunnel to Arkansas River basin since May 24, 1935, not included in figures below. Salvation ditch diverts water above station for irrigation of about 1,000 acres below. Estimates of annual flow are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	‡2,150	‡1,490	‡1,230	‡1,230	‡1,150	‡1,540	‡4,170	23,990	46,270	21,570	5,740	2,340	‡112,900
1933	2,690	2,450	2,030	‡1,840	‡1,670	‡1,840	‡2,680	18,550	52,740	10,280	3,600	2,620	‡103,000
1934	‡2,710	‡1,790	‡1,230	984	1,170	1,650	6,430	28,630	10,320	2,340	1,390	2,210	‡60,850
1935	2,200	1,930	1,690	1,550	1,480	1,610	2,470	7,810	39,980	13,060	3,290	3,160	80,210
1936	2,360	1,620	1,300	1,320	1,280	1,280	7,770	37,680	26,740	6,850	4,420	2,530	95,150
1937	2,840	2,060	1,690	1,480	1,160	1,280	2,190	18,470	13,560	4,700	1,230	714	51,370
1938	1,810	1,560	1,300	1,380	1,050	1,170	3,280	14,400	37,790	11,960	2,600	3,030	81,330
1939	2,830	2,340	1,960	1,560	1,320	1,820	4,610	22,560	15,990	3,290	1,120	815	60,220
1940	625	868	948	1,100	908	1,070	2,660	12,380	10,660	1,770	794	1,130	34,910
1941	2,230	1,370	1,200	1,200	980	1,090	1,460	15,390	20,910	4,840	1,120	1,580	53,370
1942	2,680	1,770	1,450	1,280	1,060	1,050	2,680	13,750	54,200	12,690	1,960	1,280	95,850
1943	1,520	1,490	1,790	1,620	1,160	1,290	5,430	14,100	24,180	7,140	4,490	2,520	66,730
1944	2,370	1,960	1,550	1,280	1,160	1,260	1,600	13,380	22,650	7,740	1,420	349	56,720
1945	675	920	1,030	1,160	944	1,050	1,510	11,900	20,660	10,440	4,690	1,770	56,750
1946	1,990	1,960	1,950	1,710	1,390	1,590	4,800	9,940	23,100	5,110	1,730	870	56,140
1947	1,620	1,440	1,260	1,590	1,270	1,280	2,210	19,050	37,620	29,700	4,290	1,980	103,300
1948	2,390	2,250	1,710	1,380	1,320	1,330	2,910	26,310	37,530	6,340	1,470	535	85,480
1949	1,870	1,630	1,770	1,690	1,370	1,660	3,570	10,600	28,050	18,070	2,940	2,430	75,650
1950	2,380	1,760	1,620	1,540	1,280	1,350	3,000	10,040	20,190	4,990	1,000	1,130	50,280
1951	1,770	1,470	1,480	1,260	1,140	1,290	2,170	13,350	22,450	9,580	2,400	789	59,150
1952	1,720	1,540	1,550	1,420	1,270	1,140	3,850	14,560	38,760	9,170	3,700	2,610	81,290
1953	2,090	1,730	1,610	1,480	1,190	1,360	2,100	9,090	28,750	5,710	2,620	1,660	59,390
1954	2,000	1,710	1,470	1,340	1,120	1,210	3,210	10,060	6,110	1,900	1,130	1,290	32,550
1955	2,630	1,550	1,650	1,330	932	1,080	2,950	11,380	13,550	3,450	2,270	689	43,460
1956	679	1,350	1,260	1,130	1,010	1,110	2,460	15,510	15,560	2,620	1,030	111	43,830
1957	455	1,060	1,140	1,120	916	1,010	1,870	7,390	49,700	55,190	8,450	2,680	131,000
1958	2,290	2,070	2,400	1,850	1,360	1,260	2,020	24,290	39,350	4,090	1,410	1,010	84,400
1959	1,780	1,540	1,350	1,280	1,180	1,370	2,390	11,440	28,830	4,270	1,280	1,200	57,910
1960	2,890	2,090	2,070	1,520	1,190	1,380	4,430	11,280	27,750	5,560	1,220	742	62,100
1961	1,770	1,410	1,220	1,070	1,090	1,130	1,570	12,600	18,370	2,680	818	4,330	48,060
1962	4,640	2,770	2,140	1,800	1,340	1,430	6,010	18,650	34,610	15,900	2,740	1,580	93,610
1963	1,940	1,400	1,210	1,110	889	1,250	2,400	9,800	5,920	1,120	2,250	1,930	31,220
1964	1,640	1,460	1,170	1,230	1,040	930	1,480	13,830	15,860	6,270	3,350	2,450	50,710

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	2,600	1,600	1,700	1,500	1,000	1,100	1,600	10,200	24,500	5,600	1,500	1,600	54,500
1965	1,700	1,400	1,500	1,400	1,200	1,200	2,800	10,900	30,700	32,500	5,400	4,100	94,800



Relationships of monthly mean discharge of Hunter Creek near Aspen, Colo. (Y), to sum of monthly mean discharges of Roaring Fork River at Aspen, Colo., and Twin Lakes tunnel (X). Discharge in hundreds of acre-feet.

740. Hunter Creek near Aspen, Colo.

Location.--Lat 39°12'20", long 106°48'00", in SW¼ sec.5, T.10 S., R.84 W., on right bank 60 ft upstream from headgate of Red Mountain ditch, 100 ft upstream from road bridge, 1½ miles upstream from mouth, and 1½ miles northeast of Aspen. Altitude of gage is 8,600 ft (from topographic map).

Drainage area.--40 sq mi, approximately.

Records available.--June 1950 to September 1956.

Estimates of streamflow.--October 1931 to May 1950, October 1956 to September 1965, based on relationships of monthly mean discharge with Roaring Fork River at Aspen, Colo., adjusted for diversion through Twin Lakes tunnel since 1935. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Hunter Creek near Aspen Colo., and X is the sum of discharges of Roaring Fork River at Aspen, Colo. and Twin Lakes tunnel, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.71	1.31	1.31	1.32	1.32	1.30	1.26	1.26	1.26	1.20	0.72	0.54
c	-.50	1.55	1.55	1.62	1.62	1.43	1.27	1.38	1.64	1.37	-.56	-1.13

Average discharge.--34 years (1931-65), 40,422 acre-feet per year (55.8 cfs).

Extremes.--1950-56: Maximum discharge, 1,010 cfs June 13, 1953, from rating curve extended above 580 cfs; minimum not determined.

Remarks.--Several small diversions above station for irrigation of hay meadows above and below station. Estimates of annual flow are within about 15 percent of regression line.

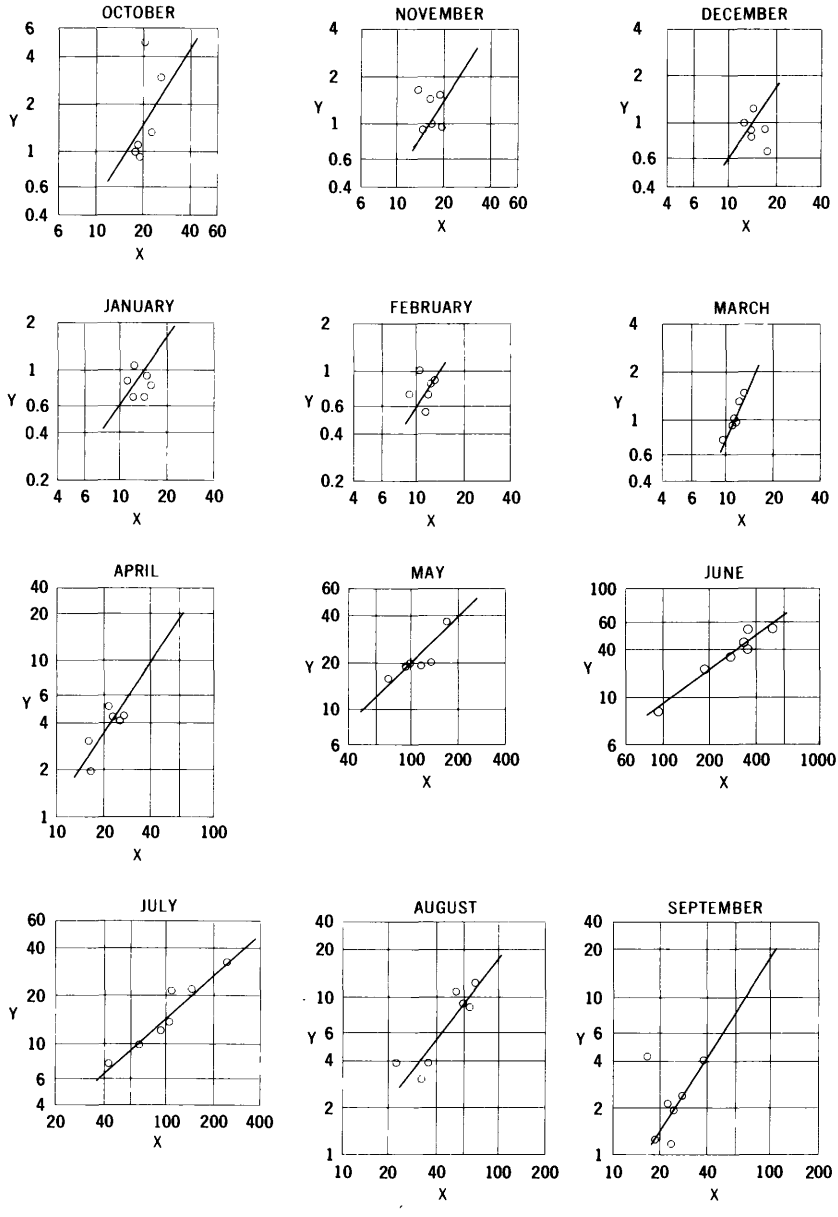
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	-	-	-	-	-	-	-	-	15,020	2,510	689	876	-
1951	676	567	555	467	400	430	935	9,270	17,190	6,540	1,570	490	39,090
1952	815	576	449	301	230	333	2,390	11,130	24,560	5,550	2,020	1,250	49,600
1953	572	504	462	384	331	344	752	6,210	21,170	5,040	2,970	501	39,240
1954	536	531	492	430	333	364	1,880	9,390	4,740	1,400	682	922	21,700
1955	1,460	742	492	369	278	369	1,440	9,170	10,180	2,740	1,810	520	29,570
1956	402	405	355	307	230	458	1,450	14,890	10,530	1,470	678	429	31,600

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	‡740	‡410	‡320	‡290	‡270	‡510	‡2,000	13,700	17,500	6,700	1,800	890	45,130
1933	860	790	630	‡500	‡440	‡640	‡1,100	9,900	20,400	2,700	1,300	950	40,210
1934	‡870	‡520	‡320	220	270	560	3,400	17,000	2,700	470	660	860	27,850
1935	750	580	490	400	370	540	1,000	3,700	19,800	5,100	1,500	1,200	35,430
1936	900	520	400	410	360	460	5,000	31,800	12,000	2,500	2,000	920	57,270
1937	900	620	490	390	310	470	980	18,400	8,500	2,600	960	660	35,280
1938	710	540	420	390	270	410	1,700	10,400	24,800	7,000	1,700	1,400	49,740
1939	1,000	900	800	540	500	640	2,200	24,000	10,400	1,700	760	580	44,020
1940	400	240	240	260	200	340	1,400	11,800	7,700	940	480	620	24,620
1941	990	510	390	340	250	380	580	14,800	12,600	3,300	1,100	780	36,020
1942	1,000	660	480	360	280	350	1,200	9,600	21,200	5,400	1,200	760	42,490
1943	650	480	580	460	300	460	3,300	12,700	17,200	4,500	2,800	1,200	44,630
1944	860	800	650	400	370	440	620	10,300	15,600	4,700	1,000	440	36,180
1945	350	280	310	300	230	350	680	9,200	14,200	7,400	2,700	1,000	37,000
1946	860	670	660	500	370	560	3,300	8,000	16,600	3,300	1,200	680	36,700
1947	690	470	390	450	330	460	1,000	15,100	19,300	14,400	2,400	1,100	56,090
1948	1,000	960	600	390	360	470	1,300	18,800	17,200	3,900	1,200	580	46,760
1949	780	480	550	510	390	620	1,800	8,200	18,800	8,600	1,600	980	43,310
1950	830	610	520	440	340	480	1,400	8,000	-	-	-	-	31,720
1957	260	330	310	280	210	320	760	3,800	25,800	25,800	3,500	1,200	62,570
1958	920	860	900	560	390	430	860	19,500	18,600	2,000	840	660	46,520
1959	650	460	420	340	300	480	1,000	9,500	20,800	2,900	1,200	720	38,770
1960	960	790	700	410	300	470	2,400	9,200	20,300	3,900	1,100	480	41,010
1961	640	460	360	270	270	380	620	11,800	12,400	1,300	1,000	1,900	31,400
1962	1,900	1,500	890	570	390	570	3,600	15,900	23,000	10,800	1,900	910	61,930
1963	810	490	410	330	240	480	1,300	11,400	4,600	1,000	1,700	1,200	23,960
1964	900	510	450	340	300	330	620	13,100	11,500	4,300	2,000	1,000	35,250
1965	720	470	480	440	350	440	1,300	7,600	19,800	15,500	3,000	1,600	51,700

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Lime Creek at Troutville, Colo. (Y), to sum of monthly mean discharges of Williams Fork near Leal, Colo., and August P. Gumlick tunnel (X). Discharge in hundreds of acre-feet.

790. Lime Creek at Troutville, Colo.

Location.--Lat 39°25'10", long 106°38'30", in sec.22, T.7 S., R.83 W., on right bank a quarter of a mile downstream from Woods Lake and three-quarters of a mile west of Troutville. Altitude of gage is 9,390 ft (from topographic map).

Drainage area.--8.4 sq mi, approximately.

Records available.--June 1950 to September 1956.

Estimates of streamflow.--July 1933 to May 1950, October 1956 to September 1965, based on relationships of monthly mean discharge with Williams Fork near Leal, Colo., adjusted for diversion through August P. Gumlick tunnel since 1940. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Lime Creek at Troutville, Colo., and X is the sum of discharges of Williams Fork near Leal, Colo. and August P. Gumlick tunnel, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.60	1.60	1.50	1.50	1.50	2.18	1.52	1.01	0.73	0.88	1.32	1.62
c	3.12	3.12	2.72	2.72	2.72	4.65	2.47	.73	-.33	.36	2.01	3.18

Average discharge.--32 years (1933-65), 10,350 acre-feet per year (14.3 cfs).

Extremes.--1950-56: Maximum discharge, 214 cfs June 13, 1953, from rating curve extended above 140 cfs; minimum daily, 0.3 cfs Oct. 29-31, 1950.

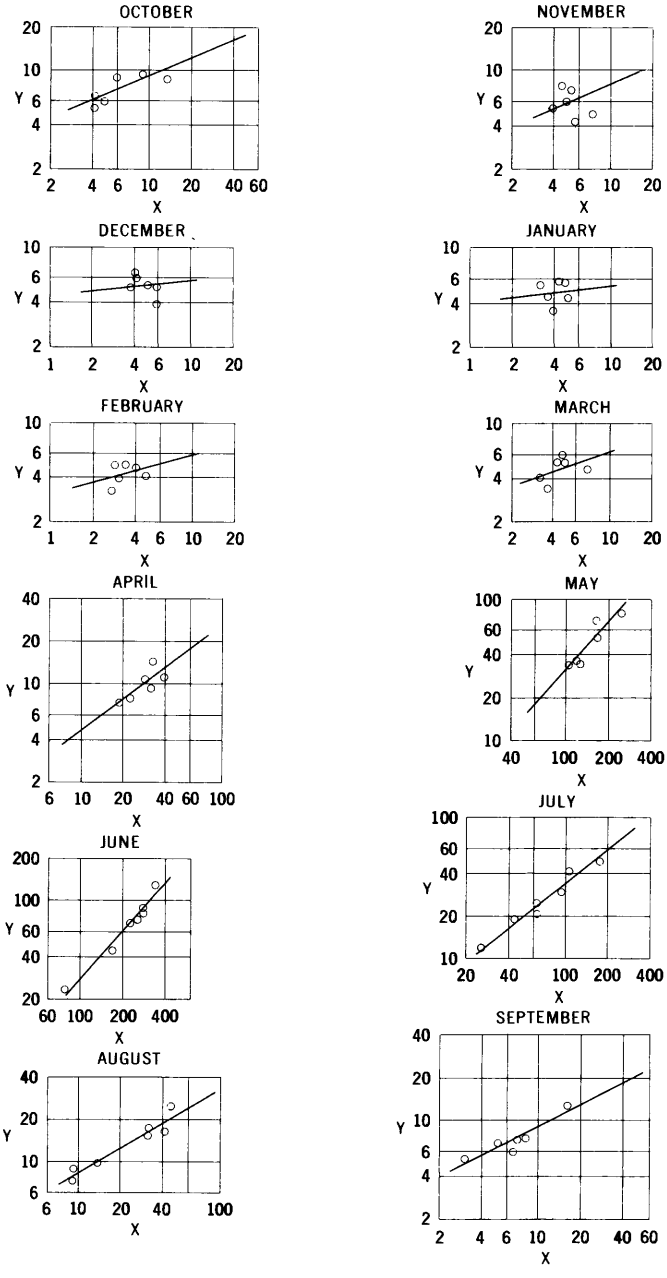
Remarks.--Flow regulated by several small lakes above station. No diversions above station. Estimates of annual flow are within 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	-	-	-	-	-	-	-	-	4,460	1,370	303	201	-
1951	110	90	84	68	56	102	306	1,900	4,090	3,300	882	246	11,230
1952	294	150	92	80	81	93	449	3,040	5,500	2,180	1,260	397	12,620
1953	131	97	68	68	72	130	199	1,610	5,580	2,130	914	119	11,120
1954	94	140	123	107	100	92	421	2,050	1,620	742	387	427	6,310
1955	497	163	102	86	72	74	511	1,920	3,030	1,190	1,090	214	8,950
1956	99	98	92	92	86	147	446	3,700	3,690	979	390	128	9,950

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1933	-	-	-	-	-	-	-	-	-	1,900	620	250	-
1934	160	90	100	90	70	160	820	3,800	2,100	590	370	170	8,520
1935	110	90	80	70	50	80	270	1,000	4,500	2,200	890	310	9,650
1936	200	150	100	80	70	100	1,200	4,800	4,100	1,700	1,100	340	13,940
1937	250	130	100	80	70	110	350	2,600	2,800	1,300	420	240	8,450
1938	250	160	130	100	80	130	450	2,800	6,500	2,500	750	470	14,320
1939	210	140	140	110	80	130	580	4,100	3,900	1,200	400	160	11,150
1940	150	90	60	60	50	110	380	2,300	3,200	1,000	290	240	7,930
1941	220	100	100	90	60	90	230	3,000	3,800	1,600	530	240	10,060
1942	230	100	110	80	50	90	410	2,100	5,200	1,900	600	180	11,050
1943	150	100	100	80	60	100	910	2,100	4,300	1,900	750	230	10,780
1944	190	130	100	80	70	90	160	1,700	4,000	1,900	460	120	9,000
1945	120	90	80	70	60	90	210	1,800	3,600	2,700	1,700	330	10,850
1946	280	200	160	130	90	180	1,600	2,200	3,900	1,400	500	220	10,860
1947	180	130	120	80	60	130	220	2,600	4,300	3,800	1,200	470	13,290
1948	330	210	160	120	80	120	420	3,600	3,800	1,200	450	110	10,600
1949	120	100	110	80	60	110	450	1,900	4,400	2,600	800	220	10,950
1950	180	100	90	80	60	130	370	1,800	-	-	-	-	9,144
1957	120	100	90	90	60	100	220	1,100	4,400	4,300	1,500	440	12,520
1958	260	170	150	110	80	140	260	4,100	4,200	990	450	180	11,090
1959	130	90	100	80	60	80	260	1,700	4,000	1,300	530	150	8,480
1960	200	150	120	90	60	120	640	2,000	4,600	1,700	470	170	10,320
1961	110	100	90	50	60	90	180	1,900	3,500	1,100	600	830	8,610
1962	890	300	180	120	100	170	1,200	3,200	4,600	2,600	710	180	14,250
1963	160	100	100	80	60	100	370	1,700	1,800	600	440	170	5,680
1964	80	70	60	50	50	60	180	2,000	3,100	1,500	500	110	7,760
1965	70	70	70	80	70	80	310	1,600	4,300	3,200	1,600	430	11,880



Relationships of monthly mean discharge of Lime Creek at Thomasville, Colo. (Y), to monthly mean discharge of Homestake Creek near Red Cliff, Colo. (X). Discharge in hundreds of acre-feet.

795. Lime Creek at Thomasville, Colo.

Location.--Lat 39°21'20", long 106°41'30", in sec.18, T.8 S., R.83 W., on right bank 150 ft upstream from mouth, half a mile southeast of Thomasville, and 1½ miles downstream from Spring Creek. Altitude of gage is 8,050 ft (from topographic map).

Drainage area.--32 sq mi, approximately.

Records available.--June 1950 to September 1956.

Estimates of streamflow.--June 1944 to May 1950, October 1956 to September 1965, based on relationships of monthly mean discharge with Homestake Creek near Red Cliff, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Lime Creek at Thomasville, Colo., and X is discharge of Homestake Creek near Red Cliff, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.43	0.43	0.11	0.11	0.28	0.36	0.75	1.13	1.13	0.79	0.60	0.52
c	-1.68	-1.61	-2.43	-2.40	-1.93	-1.72	-.42	1.02	1.08	-.37	-1.12	-1.40

Average discharge.--21 years (1944-65), 22,461 acre-feet per year (31.0 cfs).

Extremes.--1950-56: Maximum discharge, 344 cfs June 11, 1952; minimum daily, 4.5 cfs Feb. 21, 1955.

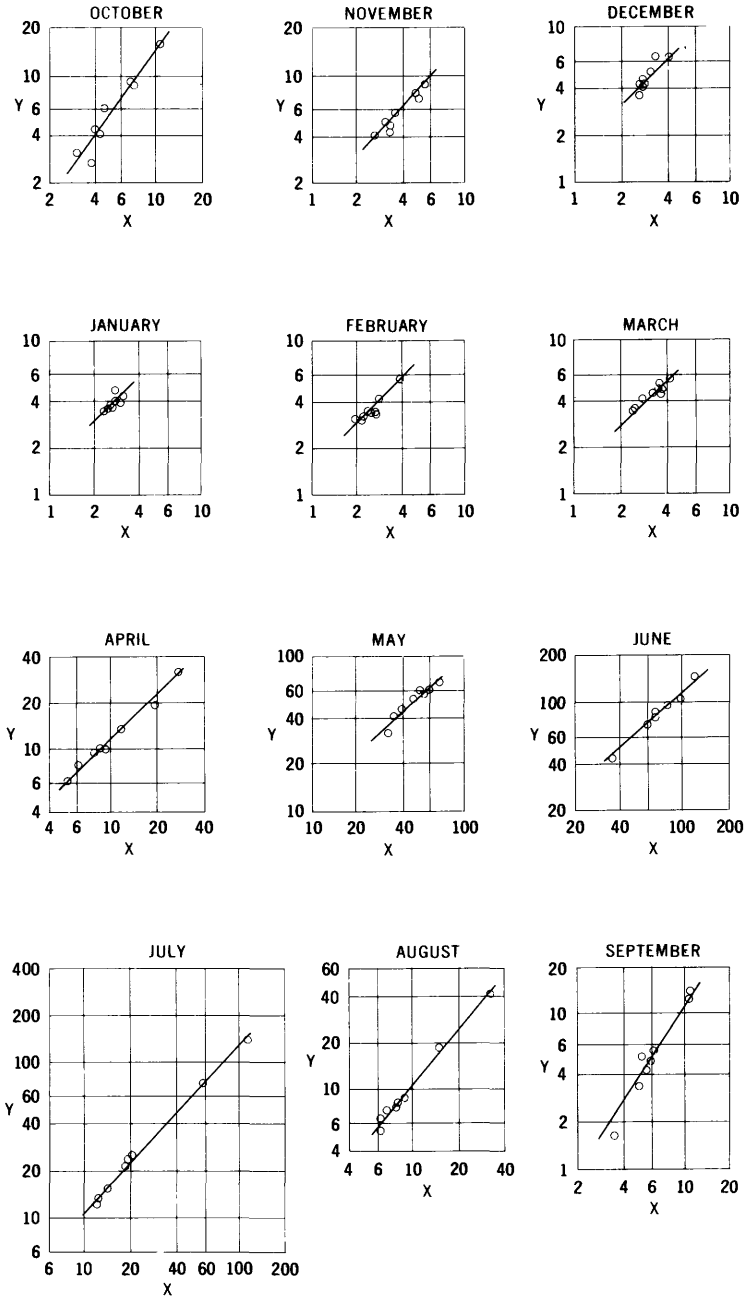
Remarks.--Small diversions for irrigation above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun	July	Aug.	Sept.	Annual
1950	-	-	-	-	-	-	-	-	7,390	2,440	899	731	-
1951	606	533	533	536	504	597	781	5,270	7,990	4,930	1,650	751	24,680
1952	938	720	606	583	504	531	1,410	6,990	12,890	4,120	2,480	1,260	33,030
1953	889	764	650	576	476	530	738	3,390	8,810	2,950	1,720	689	22,180
1954	635	592	522	453	408	419	1,060	3,450	2,300	1,190	733	750	12,510
1955	885	493	510	359	325	352	936	3,620	4,430	2,060	1,550	599	16,120
1956	546	457	391	443	418	471	1,110	7,850	6,810	1,890	982	515	21,860

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1944	-	-	-	-	-	-	-	-	6,600	2,900	890	450	-
1945	560	480	510	480	410	440	380	4,400	6,000	4,200	2,700	1,000	21,560
1946	1,000	810	550	490	440	550	2,000	3,700	7,100	2,500	1,100	700	20,940
1947	880	740	540	470	360	450	740	6,000	8,000	5,200	1,900	1,500	26,780
1948	1,300	910	540	480	450	490	1,200	7,200	6,800	2,600	1,100	570	23,640
1949	740	560	510	470	440	490	1,300	4,300	8,600	4,700	1,400	1,100	24,610
1950	1,200	840	570	520	500	540	1,200	4,400	-	-	-	-	21,230
1957	550	470	500	460	400	460	700	3,200	11,800	8,200	2,600	1,100	30,440
1958	820	690	540	500	480	490	600	7,600	6,600	1,400	920	620	21,260
1959	550	460	490	460	360	390	610	4,000	8,500	1,900	1,100	680	19,500
1960	1,200	810	530	480	420	570	1,500	3,700	8,000	2,500	1,200	680	21,590
1961	640	530	500	460	370	400	470	4,700	4,600	1,300	1,200	2,200	17,370
1962	1,800	1,000	590	530	590	640	2,100	5,000	7,400	4,000	1,400	760	25,810
1963	860	470	490	450	390	510	1,000	5,600	4,000	1,400	1,700	1,200	18,070
1964	750	590	500	480	430	440	580	5,200	4,900	2,800	1,700	880	19,250
1965	700	570	530	490	450	470	950	4,700	9,400	6,600	2,800	1,600	29,260



Relationships of monthly mean discharge of Crystal River near Redstone, Colo. (Y), to monthly mean discharge of Crystal River above Avalanche Creek near Redstone, Colo. (X). Discharge in thousands of acre-feet.

825. Crystal River near Redstone, Colo.

Location.--Lat 39°18', long 107°13', in NE¼ sec.9, T.9 S., R.88 W., on right bank 20 ft downstream from private bridge, 75 ft downstream from Nettle Creek, and 7 miles north of Redstone. Datum of gage is 6,483.77 ft above mean sea level, datum of 1929.

Drainage area.--220 sq mi.

Records available.--May 1935 to September 1963.

Estimates of streamflow.--October 1963 to September 1965 based on relationships of monthly mean discharge with Crystal River above Avalanche Creek, near Redstone, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Crystal River near Redstone, Colo., and X is discharge of Crystal River above Avalanche Creek, near Redstone, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.37	1.02	0.98	0.99	1.01	1.02	0.98	0.16	0.87	1.06	1.19	1.48
c	1.33	-.12	-.26	-.21	-.15	-.07	-.23	-.55	-.72	.20	.74	1.88

Average discharge.--30 years (1935-65), 256,830 acre-feet per year (355 cfs).

Extremes.--1935-63: Maximum discharge, 4,400 cfs June 21, 1938, from rating curve extended above 2,400 cfs; minimum daily, 16 cfs Oct. 9, 1956.

Remarks.--Diversions above station for irrigation of about 115 acres above and about 2,040 acres below station. Estimates of annual flow are within about 5 percent of regression line.

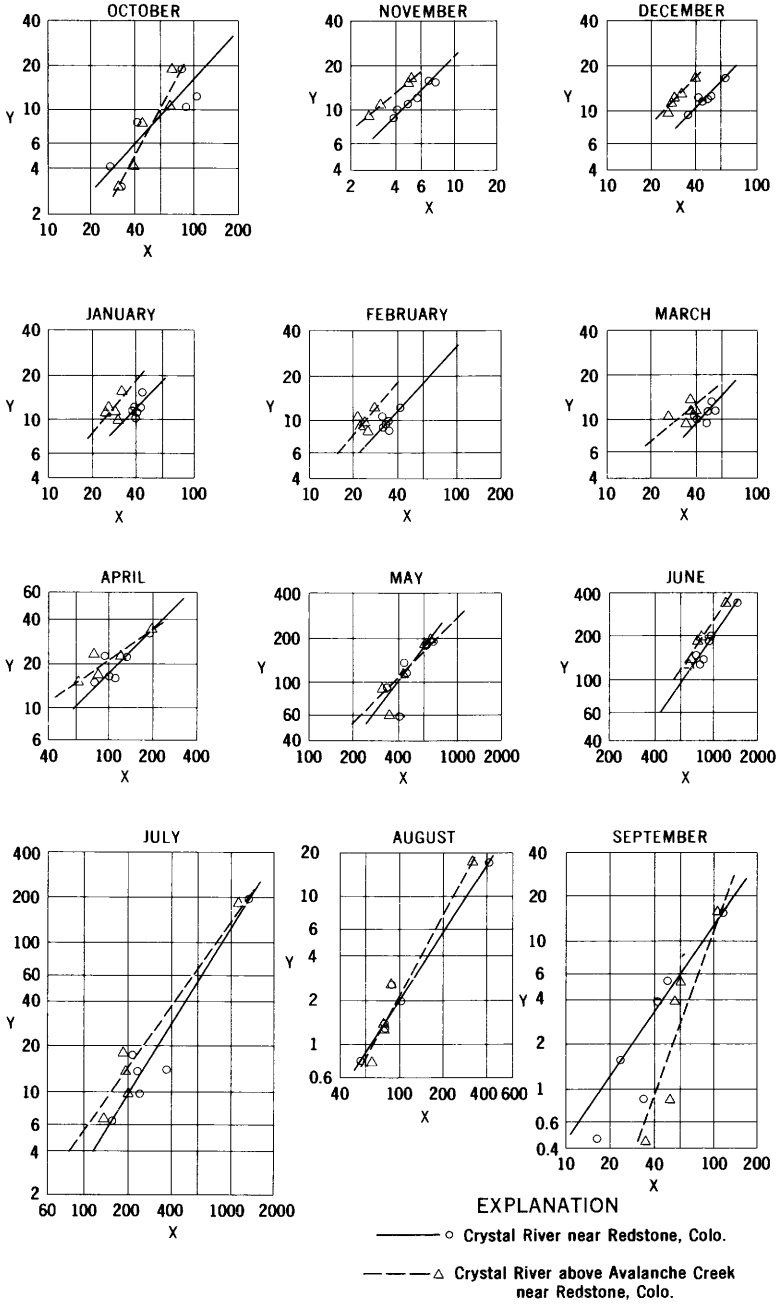
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	‡33,820	104,400	56,540	15,660	10,160	-
1936	7,220	5,880	5,010	4,250	3,810	5,080	20,380	90,310	93,160	28,380	15,040	8,220	286,700
1937	6,370	5,030	4,370	4,080	4,340	4,910	11,800	78,270	72,760	31,540	11,410	9,210	244,100
1938	6,640	5,510	5,040	4,500	3,630	5,210	17,220	64,870	132,000	66,620	17,600	12,900	341,700
1939	8,260	6,430	5,690	5,040	3,660	5,500	14,350	68,570	63,710	17,840	5,770	9,690	214,500
1940	6,180	4,870	3,900	3,640	3,320	4,610	13,380	65,400	58,850	13,560	6,170	10,490	194,400
1941	10,310	6,200	4,920	4,240	4,020	5,050	10,210	93,290	99,930	46,470	13,030	11,680	309,200
1942	18,780	9,740	6,870	4,820	4,240	4,800	22,190	58,930	108,600	45,930	10,920	4,970	300,800
1943	5,240	5,410	4,230	3,880	3,660	4,940	22,800	55,250	104,400	44,930	17,270	6,910	278,900
1944	5,960	5,120	4,760	4,410	3,570	3,950	7,010	56,960	106,000	69,050	12,100	4,400	283,300
1945	7,190	5,940	3,970	3,840	3,600	4,560	7,130	61,630	82,090	64,970	15,520	5,990	266,400
1946	6,330	6,300	5,700	4,350	3,790	4,660	21,400	53,070	92,760	23,680	7,810	6,130	236,000
1947	5,660	6,040	4,740	4,160	3,630	5,220	11,030	57,130	79,680	72,700	18,480	10,650	279,100
1948	11,470	7,690	5,570	4,720	4,800	5,100	13,050	68,730	92,750	40,360	12,330	5,100	271,700
1949	7,700	5,250	4,510	4,080	4,040	5,010	14,000	38,540	103,900	59,970	9,970	5,440	262,400
1950	6,400	5,970	5,010	4,380	3,770	4,050	11,440	34,360	117,100	40,960	7,190	4,980	245,600
1951	4,380	5,090	4,880	4,300	3,730	4,260	8,690	48,100	99,450	55,780	12,700	4,790	256,200
1952	5,230	5,660	4,910	4,390	3,670	3,800	21,340	70,470	140,700	64,000	23,370	8,640	356,200
1953	4,430	5,080	6,130	5,150	4,260	5,750	7,280	23,860	104,100	30,590	10,660	4,130	211,400
1954	5,130	5,140	4,190	3,890	3,380	3,390	10,510	37,920	37,890	18,140	5,440	7,440	142,500
1955	10,390	5,800	4,890	4,150	3,340	3,930	11,080	43,210	76,840	36,720	10,470	2,390	213,200
1956	2,660	4,240	4,220	3,780	3,240	4,770	13,520	62,140	81,300	15,570	5,510	1,650	202,600
1957	3,140	4,090	3,590	3,870	3,470	4,530	10,170	40,450	140,700	138,400	41,520	12,110	406,000
1958	8,680	7,680	6,370	4,380	4,210	4,960	9,590	68,920	95,820	23,250	8,070	4,940	246,900
1959	4,080	4,920	4,430	3,670	3,160	3,680	7,910	32,950	95,400	21,200	8,780	4,330	194,500
1960	8,410	6,900	5,060	4,020	3,480	5,280	19,160	44,790	85,400	24,990	7,600	3,370	218,500
1961	4,390	4,820	4,120	3,560	3,150	4,240	6,250	52,430	71,950	13,240	6,460	13,440	188,000
1962	14,760	8,760	6,380	4,670	5,610	5,770	31,040	58,430	106,800	72,970	18,130	5,780	339,100
1963	6,020	5,780	4,380	3,790	3,560	4,500	9,930	61,130	44,680	12,170	7,290	5,150	168,400

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1964	3,100	4,500	3,700	3,100	2,400	2,700	6,000	55,000	78,800	33,600	11,400	4,400	208,700
1965	3,900	5,000	4,300	4,200	3,700	3,900	12,800	50,200	112,000	100,000	22,700	15,200	337,900



Relationships of monthly mean discharge of Canyon Creek near New Castle, Colo. (Y), to monthly mean discharge of Crystal River near Redstone, Colo., or Crystal River above Avalanche Creek near Redstone, Colo. (X). Discharge in hundreds of acre-feet.

855. Canyon Creek near New Castle, Colo.

Location.--Lat 39°34'30", long 107°26'50", in NW¼ sec.36, T.5 S., R.90 W., on left bank 20 ft upstream from the Denver & Rio Grande Western Railroad Co. bridge, 250 ft upstream from mouth, and 5 miles east of New Castle. Altitude of gage is 5,620 ft (from river-profile map).

Drainage area.--54.3 sq mi.

Records available.--October 1954 to September 1960.

Estimates of streamflow.--May 1935 to September 1954, October 1960 to September 1963, based on relationships of monthly mean discharge with Crystal River near Redstone, Colo.; October 1963 to September 1965, based on relationships of monthly mean discharge with Crystal River above Avalanche Creek near Redstone, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Canyon Creek near New Castle, Colo., and X is discharge of Crystal River near Redstone, Colo., or Crystal River above Avalanche Creek near Redstone, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
May 1935 to Sept 1954	b	1.10	0.99	1.01	1.08	1.08	1.06	1.00	1.00	1.43	1.58	1.53	1.41
Oct 1960 to Sept 1963	c	1.19	.58	.62	.82	.82	.83	.78	.56	2.85	3.82	3.81	2.56
Oct 1963 to Sept 1965	b	1.91	0.85	1.04	1.19	1.19	0.81	0.71	1.30	1.47	1.43	1.80	2.86
	c	4.18	-.06	.52	1.02	1.02	-.19	-.47	1.97	2.95	3.00	4.90	8.35

Average discharge.--30 years (1935-65), 47,510 acre-feet per year (65.6 cfs).

Extremes.--1954-60: Maximum discharge, about 1,000 cfs June 29, 1957; minimum daily, 0.5 cfs Oct. 8-10, 1956.

Remarks.--Diversions above station for irrigation of about 1,100 acres, of which about 800 acres is along the Colorado River. Estimates of annual flow are within about 10 percent of regression line.

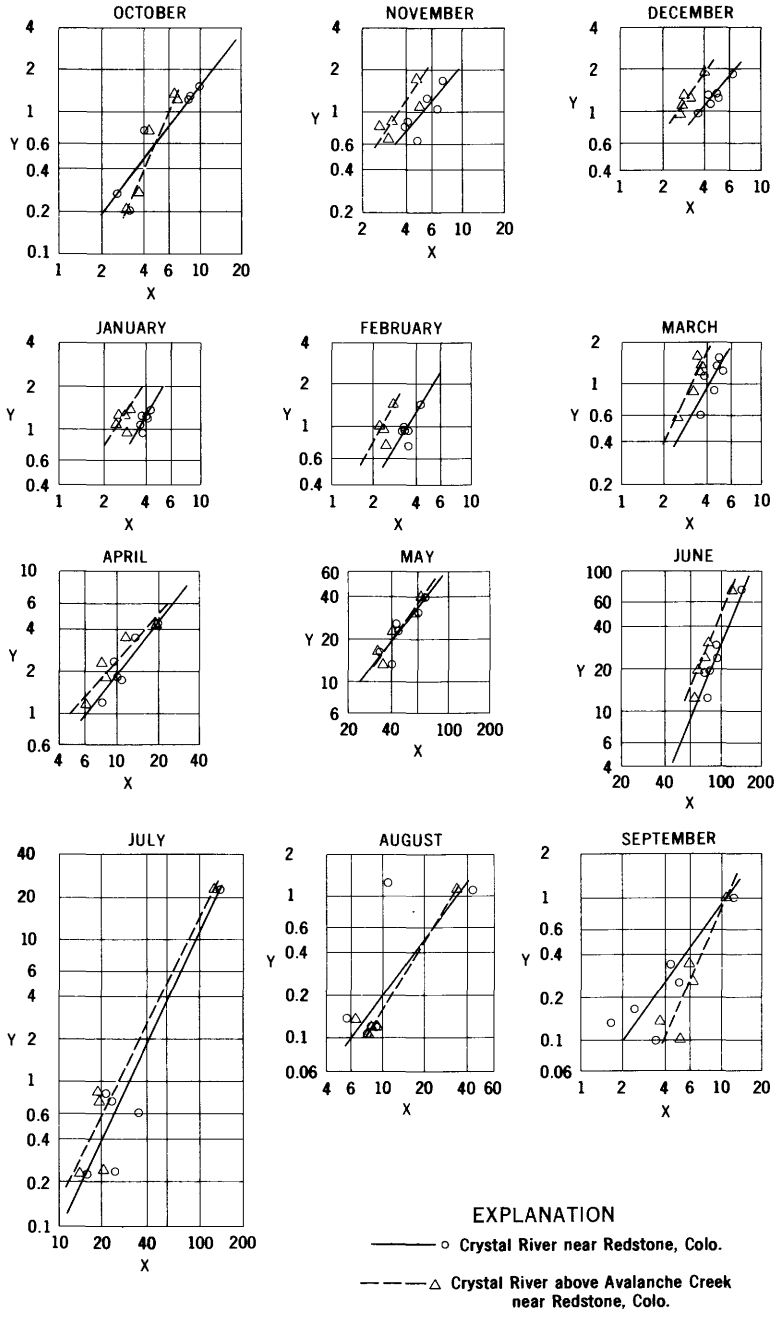
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1955	1,230	1,210	1,220	1,160	930	974	1,550	13,250	14,650	1,370	195	155	37,890
1956	413	1,040	1,240	1,190	918	1,130	2,200	17,870	12,470	629	78	47	39,220
1957	307	916	946	978	835	932	1,610	5,850	33,220	19,090	1,730	1,550	67,960
1958	1,060	1,580	1,670	1,500	1,200	1,330	2,230	18,690	19,600	1,360	125	529	50,870
1959	823	1,120	1,140	1,090	1,040	1,060	1,450	9,030	18,420	1,730	257	388	37,550
1960	1,920	1,610	1,290	1,130	960	1,150	3,230	10,140	13,450	957	139	85	36,060

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	‡9,200	21,200	4,700	380	1,200	-
1936	1,100	1,300	1,300	1,200	1,100	1,200	3,400	24,500	17,800	1,600	360	880	55,740
1937	1,000	1,200	1,100	1,200	1,200	1,200	2,000	21,300	12,500	1,900	230	1,000	45,830
1938	1,000	1,200	1,300	1,300	1,000	1,300	2,900	17,600	29,200	6,100	460	1,600	64,960
1939	1,300	1,500	1,500	1,500	1,000	1,400	2,400	18,600	10,300	760	80	1,100	41,440
1940	960	1,100	1,000	1,100	940	1,100	2,200	17,800	9,300	490	90	1,200	37,280
1941	1,700	1,400	1,300	1,200	1,200	1,300	1,700	25,300	19,600	3,500	290	1,400	62,500
1942	3,300	2,200	1,800	1,400	1,200	1,200	3,700	16,000	22,200	3,400	220	430	57,050
1943	810	1,200	1,100	1,200	1,000	1,200	3,800	15,000	21,200	3,300	440	690	50,940
1944	930	1,200	1,200	1,300	1,000	950	1,200	15,400	21,600	6,500	260	360	51,900
1945	1,100	1,400	1,000	1,100	1,000	1,100	1,200	16,700	14,800	5,900	380	560	46,240
1946	990	1,400	1,500	1,300	1,100	1,100	3,600	14,300	17,800	1,300	130	580	45,100
1947	880	1,400	1,200	1,200	1,100	1,300	1,900	15,400	14,200	7,000	490	1,300	47,370
1948	1,900	1,800	1,500	1,400	1,400	1,200	2,200	18,700	17,800	2,800	260	450	51,410
1949	1,200	1,200	1,200	1,200	1,200	1,200	2,300	10,300	21,200	5,200	190	490	46,880
1950	1,000	1,400	1,300	1,300	1,100	980	1,900	9,300	25,000	2,900	110	430	46,720
1951	660	1,200	1,300	1,300	1,100	1,000	1,500	13,000	19,400	4,600	280	410	45,750
1952	800	1,300	1,300	1,300	1,000	920	3,600	19,200	32,200	5,700	700	960	68,980
1953	670	1,200	1,600	1,500	1,200	1,400	1,200	6,400	21,200	1,800	210	330	38,710
1954	790	1,200	1,100	1,100	950	800	1,800	10,200	4,900	780	80	770	24,470
1961	660	1,100	1,100	1,000	880	1,000	1,000	14,200	12,300	470	100	1,700	35,510
1962	2,500	2,000	1,700	1,400	1,600	1,400	5,200	21,800	22,000	7,000	470	540	67,610
1963	940	1,300	1,200	1,100	1,000	1,100	1,700	16,600	6,200	410	120	460	32,130
1964	350	1,000	970	860	630	740	1,200	13,600	12,800	2,400	230	230	34,810
1965	490	1,100	1,100	1,200	1,000	970	2,200	12,000	23,200	10,300	660	2,200	56,420

‡ Based on estimates for 1950 compilation.



Relationships of monthly mean discharge of Elk Creek at New Castle, Colo. (Y), to monthly mean discharge of Crystal River near Redstone, Colo., or Crystal River above Avalanche Creek near Redstone, Colo. (X). Discharge in thousands of acre-feet.

875. Elk Creek at New Castle, Colo.

Location.--Lat 39°34'10", long 107°32'40", in SW¼ sec.31, T.5 S., R.90 W., on left bank at upstream side of the Denver & Rio Grande Western Railroad Co. bridge in New Castle, 300 ft upstream from mouth. Altitude of gage is 5,550 ft (from river-profile map).

Drainage area.--177 sq mi.

Records available.--March 1922 to September 1924, October 1954 to September 1960.

Estimates of streamflow.--May 1935 to September 1954, October 1960 to September 1963, based on relationships of monthly mean discharge with Crystal River near Redstone, Colo.; October 1963 to September 1965, based on relationships with Crystal River above Avalanche Creek, near Redstone, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Elk Creek at New Castle, Colo., and X is discharge of Crystal River near Redstone, Colo., or Crystal River above Avalanche Creek, near Redstone, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
May 1935 to Sept 1963	b	1.31	1.15	1.15	1.62	1.62	1.70	1.27	1.27	2.43	2.10	1.36	1.36
	c	2.05	1.28	1.11	2.74	2.74	3.16	1.81	1.56	7.71	6.45	3.14	2.49
Oct 1963 to Sept 1965	b	2.26	1.47	1.41	1.52	1.78	1.12	1.34	1.40	2.02	1.64	1.64	2.22
	c	5.57	2.23	1.81	2.14	2.96	1.10	2.00	2.14	5.93	4.33	4.33	5.95

Average discharge.--30 years (1935-65), 70,470 acre-feet per year (97.3 cfs).

Extremes.--1922-24, 1954-60: Maximum discharge, 1,770 cfs June 10, 1957; minimum daily, 1.1 cfs Sept. 11, 1958, July 17, 18, 1960.

Remarks.--Diversions above station for irrigation of about 3,500 acres, of which about 1,500 acres is along the Colorado River. Estimates of annual flow are within about 25 percent of regression line.

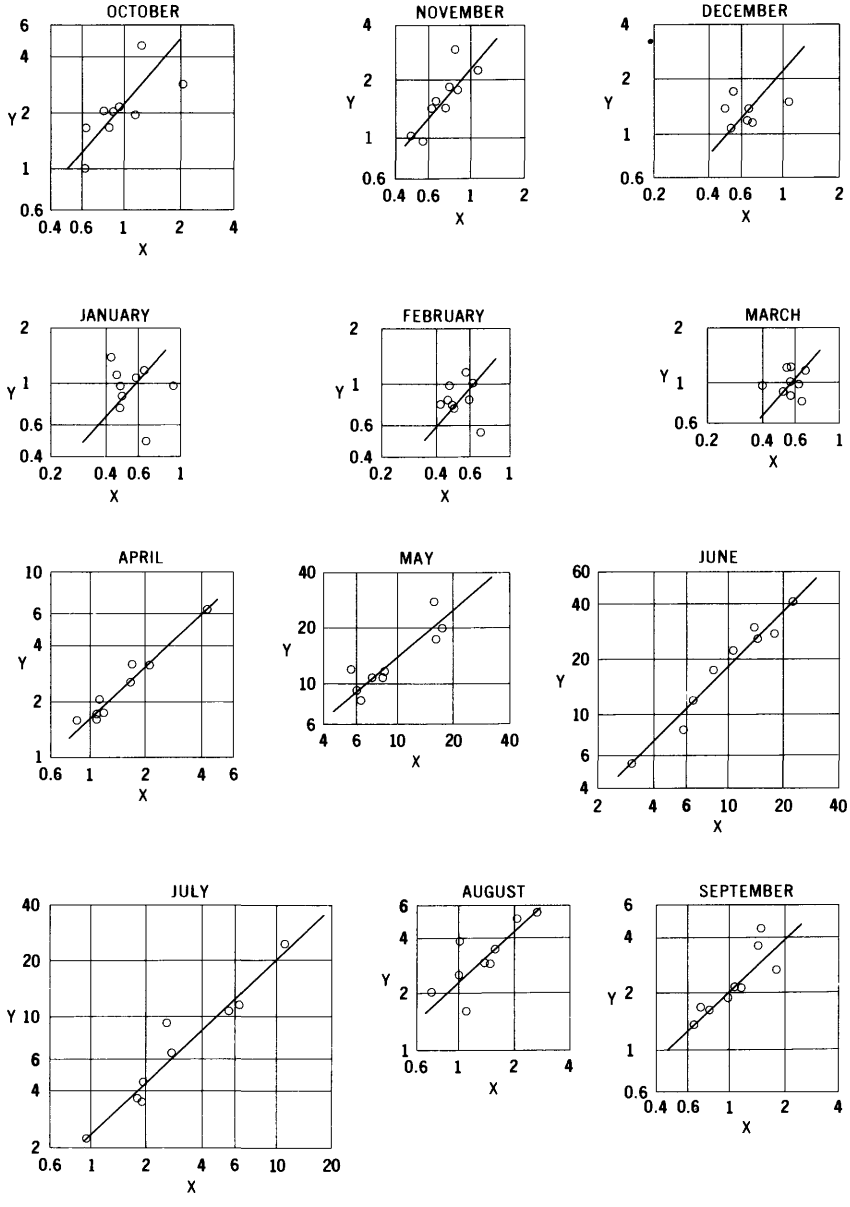
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1955	1,530	1,280	1,300	1,190	946	1,130	1,720	26,350	18,560	614	1,260	168	56,050
1956	267	857	1,300	1,240	998	1,350	3,460	30,670	12,330	227	138	133	52,970
1957	201	804	962	950	734	887	1,820	13,570	71,660	22,710	1,130	999	116,400
1958	1,300	1,690	1,860	1,380	1,460	1,550	2,360	39,750	29,620	735	120	252	82,080
1959	729	645	1,120	1,090	932	590	1,220	16,200	23,900	846	119	337	47,730
1960	1,250	1,080	1,240	1,240	952	1,210	4,270	23,320	19,090	233	108	98	54,090

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	‡15,500	31,400	3,400	370	900	-
1936	1,000	1,100	1,400	1,400	1,100	1,400	4,600	53,700	23,900	780	350	680	91,410
1937	850	950	1,200	1,300	1,400	1,300	2,300	45,200	13,000	1,000	240	800	69,540
1938	900	1,000	1,400	1,500	1,100	1,400	3,700	36,600	55,300	4,900	430	1,100	109,330
1939	1,200	1,300	1,600	1,800	1,100	1,600	2,900	38,200	9,400	300	90	860	60,350
1940	820	910	1,000	1,100	920	1,200	2,700	36,000	7,800	1,700	100	950	55,200
1941	1,600	1,200	1,400	1,400	1,200	1,300	1,900	56,500	28,100	2,200	290	1,000	98,090
1942	3,500	2,000	2,000	1,700	1,400	1,300	5,100	31,500	34,400	2,200	230	340	85,670
1943	660	1,000	1,100	1,200	1,100	1,300	5,300	29,000	31,400	2,100	420	530	75,110
1944	790	970	1,300	1,500	1,000	900	1,200	30,200	32,500	5,200	260	290	76,110
1945	1,000	1,100	1,100	1,100	1,000	1,100	1,200	33,300	17,500	4,600	370	430	63,800
1946	850	1,200	1,600	1,400	1,100	1,200	4,900	27,600	23,500	530	140	450	64,470
1947	730	1,200	1,300	1,300	1,000	1,400	2,100	30,300	16,200	5,900	460	960	62,850
1948	1,800	1,500	1,600	1,600	1,700	1,400	2,600	38,300	23,500	1,700	270	350	76,320
1949	1,100	1,000	1,200	1,300	1,300	1,300	2,900	18,400	31,000	3,900	200	390	63,990
1950	860	1,100	1,400	1,400	1,100	940	2,200	15,900	41,300	1,600	130	340	68,270
1951	520	950	1,400	1,400	1,100	1,000	1,600	24,300	27,800	3,300	280	320	63,970
1952	660	1,100	1,400	1,400	1,100	840	4,900	39,500	64,700	4,500	660	730	121,490
1953	530	950	1,800	1,900	1,400	1,700	1,200	10,000	31,100	920	220	260	51,980
1954	650	970	1,100	1,200	950	690	2,000	18,000	2,700	310	90	590	29,250
1961	520	900	1,100	1,000	840	1,000	1,000	27,200	12,700	170	110	1,300	47,840
1962	2,600	1,800	1,900	1,800	2,200	1,700	8,000	31,200	33,300	5,900	450	410	91,060
1963	800	1,100	1,200	1,100	1,000	1,100	1,800	33,000	4,000	130	130	360	45,720
1964	240	720	880	820	570	380	1,100	26,800	15,600	1,200	180	220	48,710
1965	350	830	1,100	1,300	1,200	780	2,600	23,300	41,000	9,900	480	1,400	84,240

‡ Based on estimates made for 1950 Compilation.



Relationships of monthly mean discharge of Battlement Creek near Grand Valley, Colo. (Y), to monthly mean discharge of Beaver Creek near Rifle, Colo. (X). Discharge in hundreds of acre-feet.

926. Battlement Creek near Grand Valley, Colo.

Location.--Lat 39°26'10", long 107°58'40", in NE¼SE¼ sec.15, T.7 S., R.95 W., on left bank 300 ft downstream from ford, 4½ miles upstream from mouth, and 5 miles southeast of Grand Valley. Altitude of gage is 6,630 ft (from topographic map).

Drainage area.--10.5 sq mi.

Records available.--October 1956 to September 1965.

Estimates of streamflow.--October 1952 to September 1956, based on relationships of monthly mean discharge with Beaver Creek near Rifle, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Battlement Creek near Grand Valley, Colo., and X is discharge of Beaver Creek near Rifle, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.15	1.15	1.15	1.15	1.14	1.14	0.96	0.85	1.01	0.94	0.90	0.94
c	-.04	-.05	-.05	.01	.04	-.01	-.28	-.59	-.24	-.49	-.57	-.43

Average discharge.--13 years (1952-65), 5,469 acre-feet per year (7.55 cfs).

Extremes.--1956-65: Maximum discharge, 102 cfs June 7, 1957; minimum not determined.

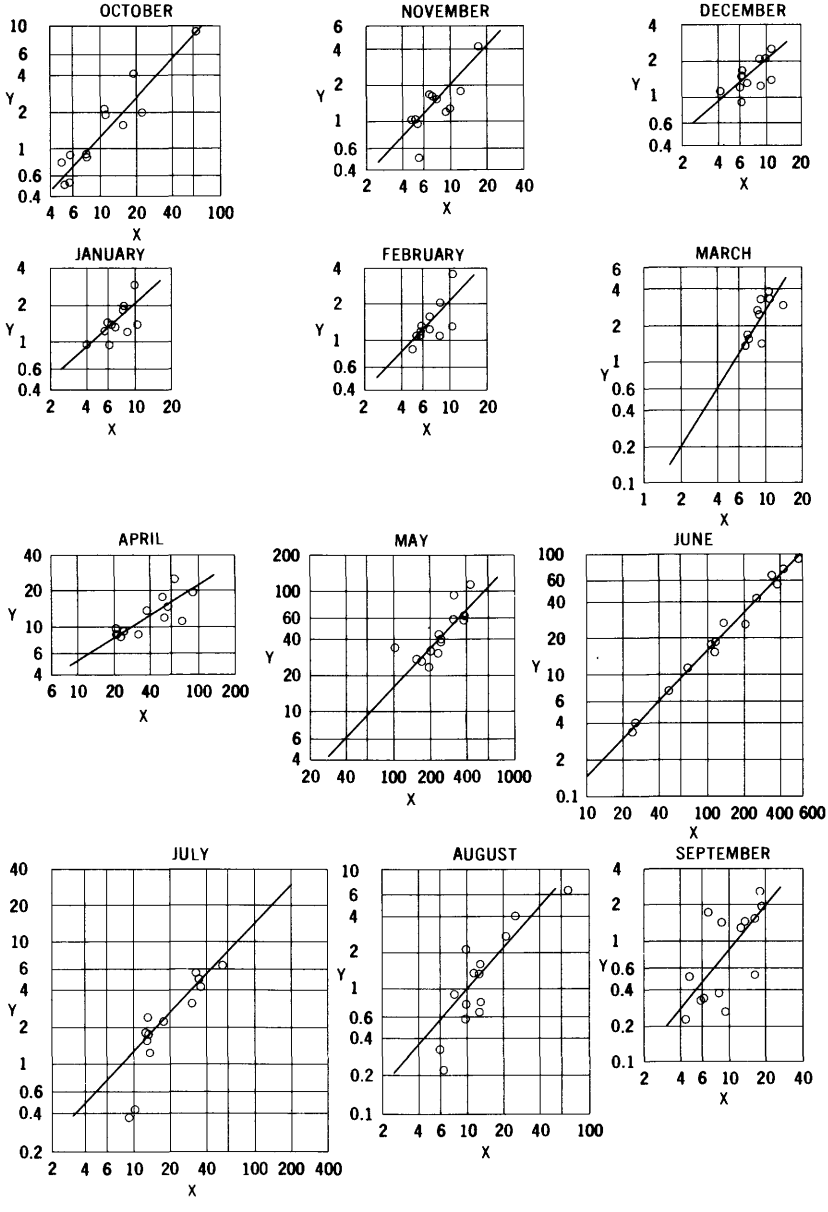
Remarks.--Slight regulation by Battlement Reservoir. No diversion above station. Estimates of annual flow are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1957	100	95	86	86	83	90	206	1,180	4,090	2,510	556	446	9,530
1958	466	299	172	111	78	123	314	2,810	2,990	926	382	217	8,890
1959	218	182	120	98	99	97	159	831	833	364	251	168	3,420
1960	168	102	86	74	75	101	315	1,160	1,750	445	206	132	4,610
1961	206	158	110	49	56	86	156	1,080	1,220	346	165	273	3,900
1962	286	230	151	97	103	119	634	2,000	2,560	1,070	350	192	7,790
1963	196	145	118	109	119	122	250	917	543	219	294	219	3,250
1964	209	180	142	138	83	80	169	1,730	2,270	632	289	161	6,080
1965	167	143	138	119	79	99	172	1,070	2,790	1,160	508	369	6,810

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1953	160	160	160	150	90	110	170	660	1,800	470	250	140	4,320
1954	130	110	90	60	50	70	330	1,300	690	360	200	160	3,550
1955	240	100	90	70	50	90	150	1,400	1,900	540	260	140	5,030
1956	120	100	100	70	60	90	190	1,200	1,200	400	290	100	3,920



Relationships of monthly mean discharge of Plateau Creek at upper station, near Collbran, Colo. (Y), to monthly mean discharge of Plateau Creek near Collbran, Colo. (X). Discharge in hundreds of acre-feet.

960. Plateau Creek at upper station, near Collbran, Colo.

Location.--Lat 39°13'20", long 107°48'00", in NW¼NW¼ sec.5, T.10 S., R.93 W., on left bank 1¼ miles upstream from Park Creek and 8½ miles southeast of Collbran. Altitude of gage is 7,885 ft (from topographic map).

Drainage area.--24 sq mi, approximately.

Records available.--May 1937 to September 1943, May 1951 to April 1958. Monthly discharge only for some periods.

Estimates of streamflow.--October 1930 to April 1937, September 1943 to April 1951, May 1958 to September 1965, based on relationships of monthly mean discharge with Plateau Creek near Collbran, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Plateau Creek at upper station, near Collbran, Colo., and X is discharge of Plateau Creek near Collbran, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.07	1.07	0.88	0.88	1.07	1.60	0.63	1.06	1.04	1.04	1.12	1.21
c	1.13	.92	.32	.32	.87	1.38	-.83	1.05	.96	1.02	1.36	1.70

Average discharge.--35 years (1931-65), 9,897 acre-feet per year (13.7 cfs).

Extremes.--1937-43, 1951-58: Maximum discharge, 450 cfs May 27, 1942 from rating curve extended above 180 cfs; no flow at times.

Remarks.--One small reservoir (capacity, 200 acre-feet) and diversions for irrigation of about 730 acres above station. Erie Canal diverts water above station to Buzzard Creek drainage for irrigation of about 140 acres. Estimates of annual flow are within 15 percent of regression line.

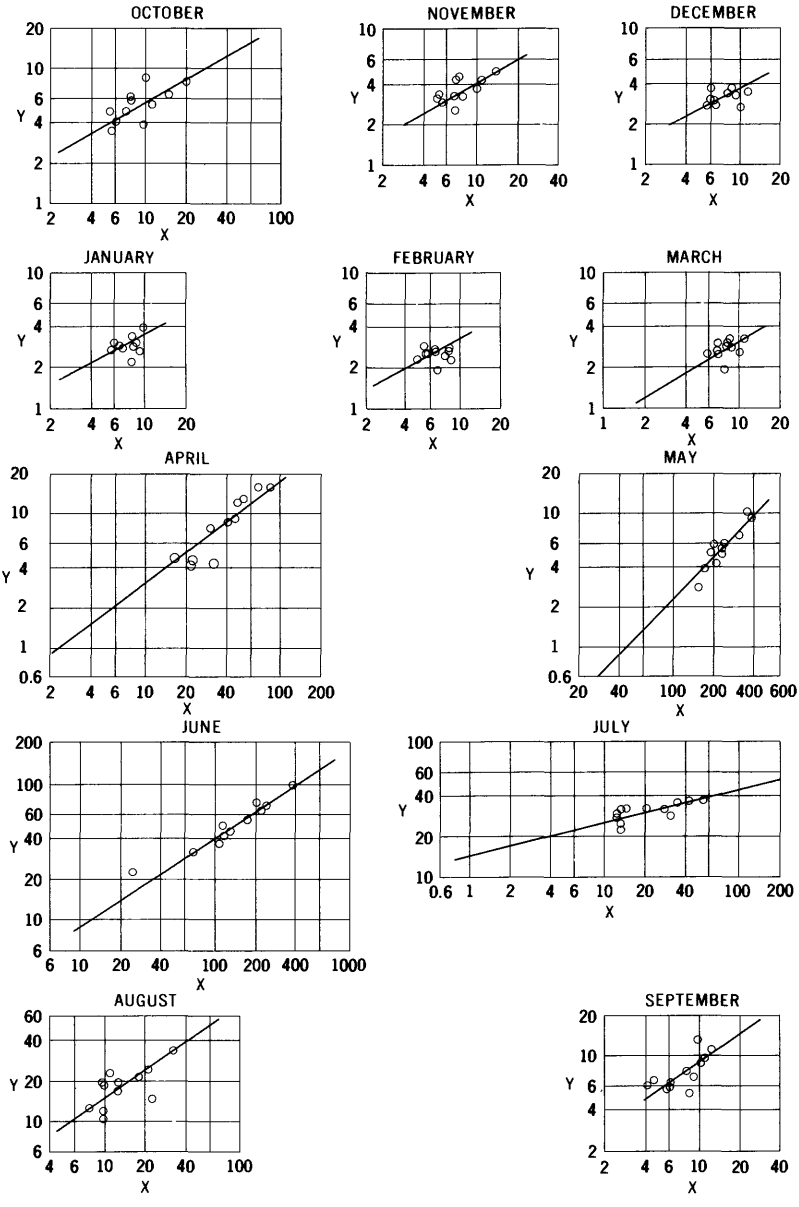
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1937	-	-	-	-	-	-	-	6,260	1,880	424	138	174	-
1938	209	129	207	183	210	325	1,990	5,910	7,590	638	65	153	17,610
1939	152	177	138	142	136	295	1,200	4,410	751	37	32	38	7,510
1940	51	103	112	96	86	327	1,490	4,040	410	43	22	54	6,830
1941	194	121	123	123	111	142	979	11,850	4,320	‡307	80	199	‡18,550
1942	885	‡407	‡307	‡277	‡250	‡293	2,560	9,490	6,770	561	167	145	‡22,110
1943	‡203	‡208	‡154	‡123	‡139	‡369	‡1,710	3,230	2,720	226	676	149	‡9,910
1951	-	-	-	-	-	-	-	2,630	1,740	173	58	39	-
1952	87	104	124	135	127	154	1,850	5,970	5,700	492	274	130	15,150
1953	83	153	206	193	161	240	824	2,790	2,630	243	214	52	7,790
1954	87	165	142	139	133	165	1,150	2,350	341	181	92	268	5,210
1955	188	161	161	149	125	155	928	4,160	1,580	155	136	36	7,930
1956	49	50	91	96	112	260	887	3,080	1,120	126	79	23	5,970
1957	75	96	131	123	112	133	873	3,420	9,390	2,810	411	254	17,830
1958	403	417	252	301	352	384	1,390	-	-	-	-	-	-

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	300	300	210	130	190	320	1,300	3,500	1,100	200	80	180	7,810
1932	150	250	260	230	260	430	1,900	7,600	5,500	1,100	270	70	18,020
1933	100	140	160	130	120	370	1,000	2,900	5,200	370	100	70	10,660
1934	70	100	140	130	170	280	1,700	1,300	150	50	50	40	4,180
1935	60	100	160	150	120	150	860	1,900	5,200	530	140	90	9,460
1936	90	170	170	180	150	220	1,900	4,500	1,000	180	120	60	8,740
1937	60	140	120	110	90	120	1,100	-	-	-	-	-	10,616
1944	150	290	180	160	160	210	760	5,300	6,700	1,000	160	50	15,120
1945	100	190	200	170	140	230	860	5,200	5,200	740	390	80	13,500
1946	120	200	210	190	180	290	2,000	3,300	2,100	190	250	90	9,120
1947	260	290	240	200	170	320	1,300	6,600	2,900	580	200	90	13,150
1948	190	220	200	180	190	230	1,500	6,200	1,900	270	130	50	11,260
1949	80	160	170	190	180	200	1,400	3,900	4,100	420	110	70	10,980
1950	120	130	140	170	150	190	1,100	3,400	3,800	370	100	70	9,470
1951	70	110	140	130	100	110	740	-	-	-	-	-	6,040
1958	-	-	-	-	-	-	-	6,100	2,600	170	100	80	12,550
1959	70	110	120	120	100	190	860	2,600	880	130	100	40	5,320
1960	100	120	130	110	120	200	1,200	3,400	1,500	160	130	50	7,220
1961	80	130	130	120	50	20	230	1,200	540	170	140	230	3,040
1962	360	210	130	130	110	260	1,600	1,500	4,100	700	180	120	9,400
1963	130	140	110	90	70	60	270	500	250	150	140	70	1,980
1964	70	50	80	70	60	40	200	1,300	420	180	170	90	2,730
1965	60	50	70	60	50	30	50	460	2,000	370	170	250	3,620



Relationships of monthly mean discharge of Big Creek at upper station, near Collbran, Colo. (Y), to monthly mean discharge of Plateau Creek near Collbran, Colo. (X). Discharge in hundreds of acre-feet.

995. Big Creek at upper station, near Collbran, Colo.

Location.--Lat 39°08', long 107°55', in NE¼ sec.5, T.11 S., R.94 W., on right bank at downstream side of bridge, half a mile downstream from Barter Creek, 8 miles south of Collbran, and 9 miles upstream from mouth. Altitude of gage is 8,590 ft (from topographic map).

Drainage area.--17 sq mi, approximately.

Records available.--June 1945 to September 1956.

Estimates of streamflow.--October 1930 to June 1945, October 1956 to September 1965, based on relationships of monthly mean discharge with Plateau Creek near Collbran, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Big Creek at upper station near Collbran, Colo., and X is discharge of Plateau Creek near Collbran, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.57	0.55	0.51	0.53	0.53	0.60	0.74	1.05	0.65	0.24	0.68	0.68
c	1.03	-.94	1.03	-.95	-.92	-.68	-.25	-.80	-.99	2.69	1.13	-.89

Average discharge.--35 years (1930-65), 19,572 acre-feet per year (27.0 cfs).

Extremes.--1945-56: Maximum discharge, 474 cfs May 21, 1948, from rating curve extended above 130 cfs; minimum not determined.

Remarks.--Flow regulated by several small storage reservoirs above station. No diversion above station. Estimates of annual flow are within about 15 percent of regression line.

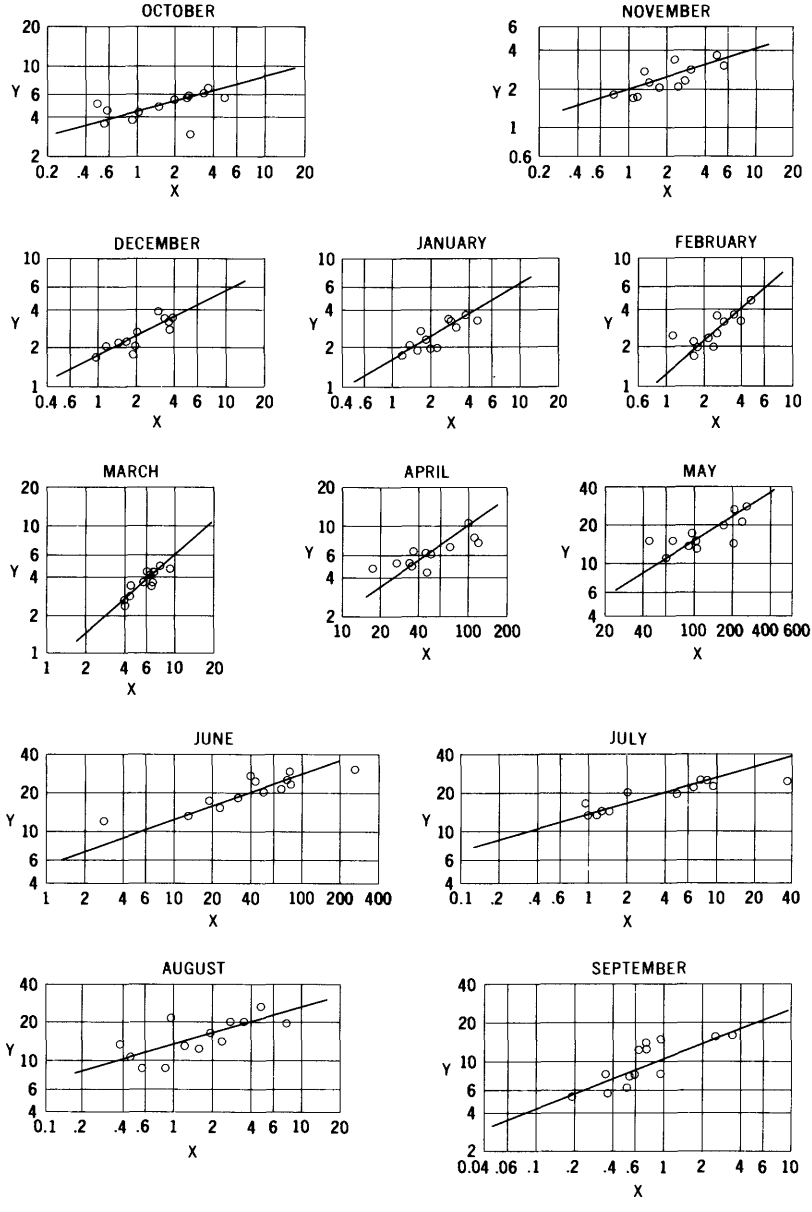
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1945	-	-	-	-	-	-	-	-	-	3,770	3,320	1,300	-
1946	839	359	264	264	262	257	1,560	5,820	4,420	3,140	1,450	883	19,520
1947	782	471	348	400	246	320	862	9,180	5,410	3,550	2,150	946	24,660
1948	630	419	330	281	225	330	1,260	10,040	4,180	3,160	1,660	635	23,150
1949	479	315	340	307	278	285	928	5,530	6,830	2,810	2,250	776	21,130
1950	370	241	278	221	189	191	427	4,290	6,300	3,170	1,930	521	18,130
1951	398	286	290	264	234	249	470	3,930	3,580	2,200	1,190	579	13,670
1952	617	311	275	277	265	295	1,210	6,820	9,770	3,530	2,400	1,130	26,900
1953	569	436	370	338	278	337	412	2,810	7,250	3,160	1,870	656	18,490
1954	336	316	307	293	254	263	1,580	5,210	2,250	2,910	1,220	696	15,640
1955	533	428	369	307	250	246	451	6,040	4,840	2,730	1,920	566	18,680
1956	474	327	307	307	288	311	770	5,050	3,130	2,430	1,040	612	15,050

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	880	480	360	270	310	320	920	5,000	3,000	2,800	1,300	1,400	17,040
1932	620	430	410	370	350	380	1,400	10,600	8,600	4,200	2,700	780	30,840
1933	490	320	310	270	240	350	640	4,100	8,200	3,300	1,500	780	20,500
1934	‡390	‡280	‡280	‡270	290	310	1,300	1,900	910	2,100	940	600	9,570
1935	380	280	310	290	240	250	540	2,700	8,200	3,500	1,800	960	19,450
1936	470	360	320	330	270	280	1,400	6,400	2,900	2,800	1,600	700	17,830
1937	390	330	270	240	200	230	720	9,400	4,400	3,500	1,600	680	21,960
1938	580	390	350	310	290	320	1,600	9,200	10,200	3,800	1,700	1,300	30,040
1939	700	430	380	360	330	370	1,000	5,400	2,400	2,500	1,000	780	15,650
1940	390	260	230	210	230	290	1,100	5,800	1,600	2,600	1,100	1,300	15,110
1941	860	370	340	330	290	290	520	10,300	7,300	3,400	1,800	1,400	27,500
1942	1,600	570	450	410	340	340	1,200	7,400	8,800	3,400	1,800	820	27,130
1943	470	350	280	260	260	380	1,400	4,700	4,800	2,900	5,400	1,100	22,300
1944	620	470	340	300	280	280	470	7,600	9,700	4,100	1,900	680	26,740
1945	500	380	360	310	260	290	540	7,400	8,300	-	-	-	26,730
1957	370	270	290	260	230	240	520	2,300	12,300	5,200	2,800	1,400	26,180
1958	800	530	370	350	330	320	800	8,800	5,400	2,700	1,500	880	22,780
1959	420	280	270	250	230	270	540	3,700	2,700	2,600	1,500	620	13,380
1960	490	300	270	240	240	270	820	4,900	3,700	2,700	1,700	680	16,310
1961	450	320	270	250	150	110	110	1,900	2,000	2,700	1,700	1,600	11,560
1962	980	410	270	260	230	300	1,200	2,200	7,100	3,800	2,100	1,100	19,950
1963	560	320	250	210	180	170	140	780	1,200	2,700	1,800	820	9,130
1964	420	200	210	180	170	140	100	2,000	1,700	2,800	2,000	900	10,820
1965	380	200	200	170	160	140	280	660	4,500	1,400	2,000	1,700	11,790

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Cottonwood Creek at upper station, near Molina, Colo. (Y), to monthly mean discharge of Buzzard Creek near Collbran, Colo. (X). Discharge in hundreds of acre-feet.

1005. Cottonwood Creek at upper station, near Molina, Colo.

Location.--Lat 39°07'40", long 107°59'40", in NE¼SW¼ sec.3, T.11 S., R.95 W., on left bank 6 miles southeast of Molina and 7 miles upstream from mouth. Altitude of gage is 7,685 ft (from topographic map).

Drainage area.--16 sq mi, approximately.

Records available.--May 1945 to September 1957.

Estimates of streamflow.--October 1930 to May 1945, October 1957 to September 1965, based on relationships of monthly mean discharge with Buzzard Creek near Collbran, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Cottonwood Creek at upper station near Molina, Colo., and X is discharge of Buzzard Creek near Collbran, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.29	0.31	0.52	0.60	0.88	0.88	0.70	0.52	0.35	0.28	0.28	0.39
c	-2.06	-1.67	-1.20	-1.02	-.36	-.17	-.20	-1.12	-2.03	-2.56	-2.56	-2.25

Average discharge.--35 years (1930-65), 11,400 acre-feet per year (15.7 cfs).

Extremes.--1945-57: Maximum discharge, 101 cfs May 18, 1948, from rating curve extended above 45 cfs; minimum not determined.

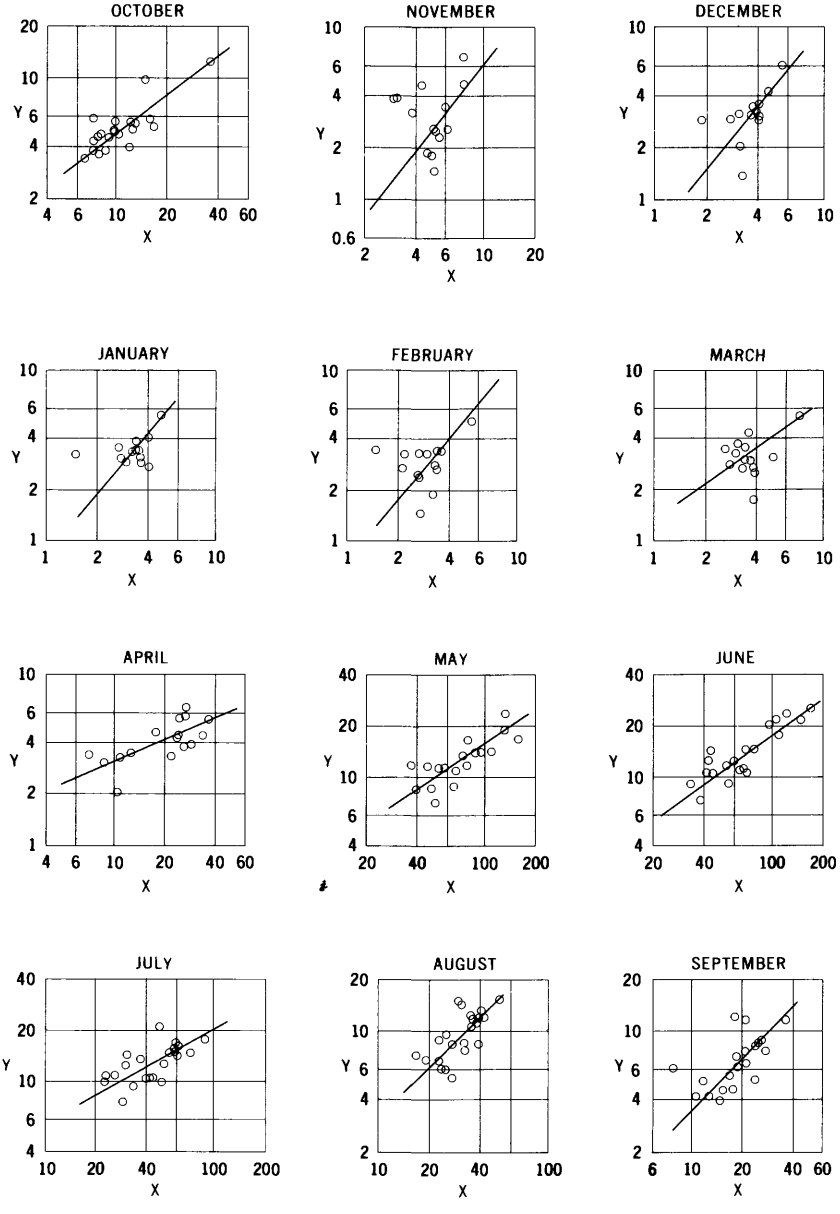
Remarks.--Flow regulated by several small reservoirs (combined capacity, about 3,200 acre-ft). No diversion above station. Estimates of annual flow are within about 20 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1945	-	-	-	-	-	-	-	-	2,560	2,280	1,930	1,380	-
1946	701	301	316	299	337	482	1,070	1,730	1,890	1,410	1,260	799	10,600
1947	630	280	330	277	265	378	618	2,700	2,190	2,450	2,010	1,560	13,690
1948	594	366	341	379	483	504	814	2,880	2,740	2,420	1,640	1,230	14,390
1949	563	238	277	338	333	440	682	2,030	2,920	2,500	2,150	1,250	13,720
1950	603	339	387	332	378	455	614	1,530	2,500	1,960	1,280	799	11,180
1951	454	273	219	209	245	361	470	1,190	1,540	1,370	891	621	7,840
1952	387	171	173	234	256	382	738	2,150	2,330	2,220	2,000	1,490	12,530
1953	440	226	265	344	364	450	506	1,310	2,020	2,040	1,400	771	10,140
1954	496	209	206	198	201	298	635	1,590	1,250	1,420	1,080	569	8,150
1955	307	208	215	197	178	246	508	1,380	1,740	1,650	1,350	801	8,780
1956	508	182	201	213	223	350	483	1,580	1,340	1,310	885	528	7,800
1957	369	172	167	179	205	280	435	1,460	3,090	2,480	2,680	1,570	13,090

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	830	370	480	550	580	750	670	1,700	1,600	1,500	1,200	1,800	12,030
1932	730	350	480	610	700	1,000	960	2,700	2,500	2,800	2,100	1,200	16,130
1933	690	410	580	750	780	1,100	380	2,000	2,700	2,000	1,200	1,300	13,890
1934	500	240	240	250	330	510	480	830	630	900	870	620	6,400
1935	290	140	130	160	110	320	440	1,700	2,900	2,000	1,000	1,200	10,390
1936	500	260	260	290	240	430	920	1,700	1,500	1,700	1,500	860	10,160
1937	520	250	190	170	160	250	520	1,900	1,700	2,700	1,300	850	10,510
1938	700	290	340	360	450	760	1,300	2,500	2,900	2,400	1,100	1,900	15,000
1939	680	300	320	350	330	780	800	1,500	1,400	1,300	1,200	850	9,810
1940	450	200	120	110	130	680	720	1,500	860	1,200	940	870	7,780
1941	690	270	210	220	200	320	650	2,800	2,500	2,200	1,600	1,600	13,260
1942	1,000	420	480	420	450	460	1,500	3,100	3,100	2,600	1,500	940	15,970
1943	580	290	300	280	330	590	780	1,300	2,000	1,600	2,700	1,700	12,450
1944	650	270	290	260	330	270	420	2,800	2,900	2,700	1,000	650	12,540
1945	550	310	210	260	270	330	470	2,200	-	-	-	-	12,750
1958	760	330	360	390	600	760	960	2,800	2,200	1,700	1,100	840	12,800
1959	430	220	240	270	260	240	430	1,300	1,400	1,500	1,200	520	8,010
1960	560	250	120	270	310	580	890	1,600	1,800	1,400	1,000	330	9,110
1961	330	180	160	120	140	360	380	1,500	1,400	1,500	1,300	2,000	9,370
1962	800	290	290	300	610	560	1,300	2,300	2,600	2,800	1,400	1,100	14,350
1963	580	280	240	240	450	1,000	390	760	1,000	1,400	1,100	920	8,360
1964	470	250	150	150	120	130	630	2,000	2,000	1,900	2,000	1,300	11,100
1965	490	240	220	260	320	200	800	2,000	2,800	3,100	2,100	2,400	14,930



Relationships of monthly mean discharge of Mesa Creek near Mesa, Colo. (Y), to monthly mean discharge of Surface Creek near Cedaredge, Colo. (X). Discharge in hundreds of acre-feet.

1045. Mesa Creek near Mesa, Colo.

Location.--Lat 39°05', long 108°07', in SW¼ sec.16, T.11 S., R.96 W., on right bank an eighth of a mile upstream from unnamed stream, 5½ miles southeast of Mesa, and 7½ miles upstream from mouth. Altitude of gage is 7,400 ft (by barometer).

Drainage area.--About 7 sq mi.

Records available.--May 1937 to September 1960. Prior to April 1941 monthly discharge only.

Estimates of streamflow.--October 1960 to September 1965, based on relationships of monthly mean discharge with Surface Creek near Cedaredge, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Mesa Creek near Mesa, Colo., and X is discharge of Surface Creek near Cedaredge, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.75	1.28	1.20	1.17	1.19	0.71	0.43	0.67	0.72	0.56	0.99	1.03
c	-.43	1.05	.58	.42	.51	-.68	-1.20	-.52	-.37	-1.08	.48	.56

Average discharge.--28 years (1937-65), 8,259 acre-feet per year (11.4 cfs).

Extremes.--1937-60: Maximum discharge observed, 140 cfs May 12, 1941, from rating curve extended above 50 cfs; minimum daily, 0.6 cfs Mar. 9, 11-14, 1946, Mar. 18-20, 1948.

Remarks.--Some regulation by small reservoirs above station. No diversion above station. Estimates of annual flow are within about 20 percent of regression line.

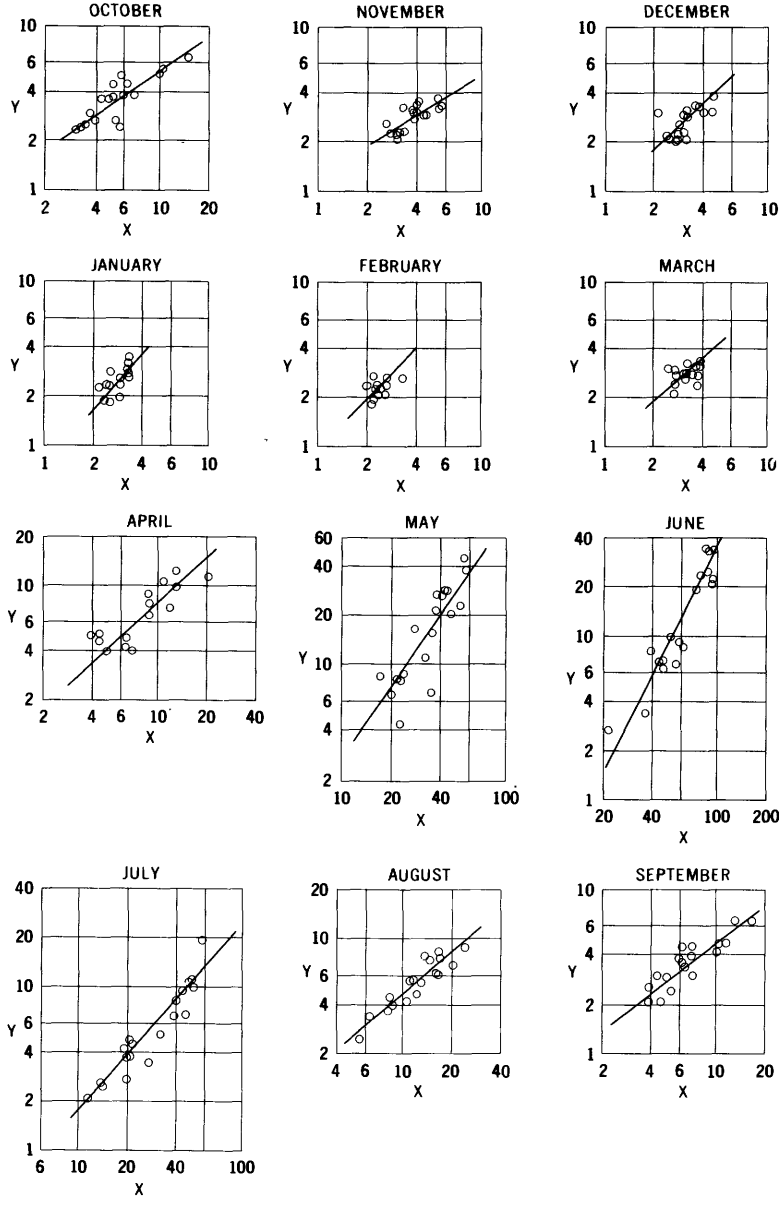
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1937	-	-	-	-	-	-	-	1,280	980	1,050	934	598	-
1938	490	263	316	136	246	291	474	1,320	1,940	1,760	1,450	742	9,430
1939	786	513	538	588	368	352	686	1,550	1,230	1,240	739	609	9,200
1940	430	304	212	215	230	277	568	1,640	1,420	1,450	682	451	7,880
1941	516	‡391	‡369	‡369	‡305	‡314	313	2,370	2,380	2,120	1,420	1,180	‡12,050
1942	1,230	600	590	615	555	664	815	2,140	2,200	1,590	1,550	1,230	13,760
1943	581	435	529	492	489	492	787	1,160	1,260	1,050	841	556	8,670
1944	452	154	228	289	286	322	329	1,470	1,760	1,490	1,310	836	8,930
1945	554	420	480	394	355	418	418	1,380	1,470	1,490	1,200	860	9,440
1946	553	364	392	359	288	182	649	1,170	1,060	1,100	899	617	7,630
1947	506	146	361	337	321	372	441	1,400	1,430	1,450	1,240	792	8,800
1948	570	470	422	404	338	174	385	1,410	1,240	1,290	1,040	652	8,400
1949	448	320	324	350	331	309	377	1,340	1,440	1,710	1,190	770	8,910
1950	491	230	293	356	328	439	424	885	1,060	1,050	836	526	6,910
1951	502	253	308	285	262	271	304	714	906	954	543	470	5,770
1952	396	346	342	345	275	299	440	1,690	2,130	1,620	1,110	900	9,890
1953	466	256	290	313	144	296	329	849	1,130	1,350	964	450	6,840
1954	359	198	206	311	268	348	556	1,140	912	990	605	418	6,300
1955	378	258	316	276	187	247	346	1,180	1,090	990	865	458	6,590
1956	479	465	312	288	233	266	463	1,100	1,070	1,080	675	402	6,830
1957	342	180	136	293	248	282	338	971	2,560	1,800	1,530	1,190	9,870
1958	976	675	599	556	503	531	566	1,910	2,030	1,500	1,210	718	11,770
1959	546	387	308	386	324	355	205	861	732	761	604	423	5,890
1960	380	387	288	334	342	324	333	1,130	1,150	1,060	772	515	7,010

‡ Estimated for 1950 compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1961	380	90	140	170	170	230	280	1,000	1,100	1,100	870	510	6,040
1962	420	170	240	260	240	280	550	1,300	1,800	1,400	1,200	690	8,550
1963	360	100	160	170	160	330	390	1,000	660	960	640	510	5,440
1964	330	90	130	150	140	200	240	1,100	980	1,200	920	710	6,190
1965	490	110	130	160	130	240	320	1,300	1,700	1,500	1,300	870	8,250



Relationships of sum of monthly mean discharges of Cebolla Creek at Powderhorn, Colo., and Tabor ditch (Y), to monthly mean discharge of Lake Fork at Gateview, Colo. (X). Discharge in thousands of acre-feet.

1220. Cebolla Creek at Powderhorn, Colo.

Location.--Lat 38°17'30", long 107°07'00", in SE¼ sec.29, T.47 N., R.2 W., on left bank 200 ft downstream from bridge on State Highway 149, 250 ft downstream from Powderhorn Creek, and half a mile north of Powderhorn. Altitude of gage is 8,000 ft (from topographic map).

Drainage area.--334 sq mi.

Records available.--October 1937 to December 1955.

Estimates of streamflow.--January 1956 to September 1965, based on relationships of monthly mean discharge, adjusted for transmountain diversion through Tabor ditch, with Lake Fork at Gateview, Colo. The regression equation used is:

$$\text{Log } (Y + d) = b \text{ log } X - c$$

(where Y is discharge of Cebolla Creek near Powderhorn, Colo., d is diversion through Tabor ditch at Spring Creek Pass, Colo., and X is discharge of Lake Fork at Gateview, Colo., all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.68	0.62	0.90	1.15	1.02	0.85	0.91	1.47	1.99	1.13	0.82	0.77
c	-1.01	-1.24	-.29	.58	.07	-.49	-.26	2.46	5.40	1.28	-.38	-.59

Average discharge.--28 years (1937-65), 72,073 acre-feet per year (99.6 cfs).

Extremes.--1937-55: Maximum discharge, 2,150 cfs May 16, 1944, from rating curve extended above 710 cfs; minimum daily, 20 cfs Nov. 11, 1950.

Remarks.--Diversions for irrigation of about 2,800 acres above station. Tabor ditch diverts water above station to Rio Grande Basin. Estimates of annual flow are within about 25 percent of regression line.

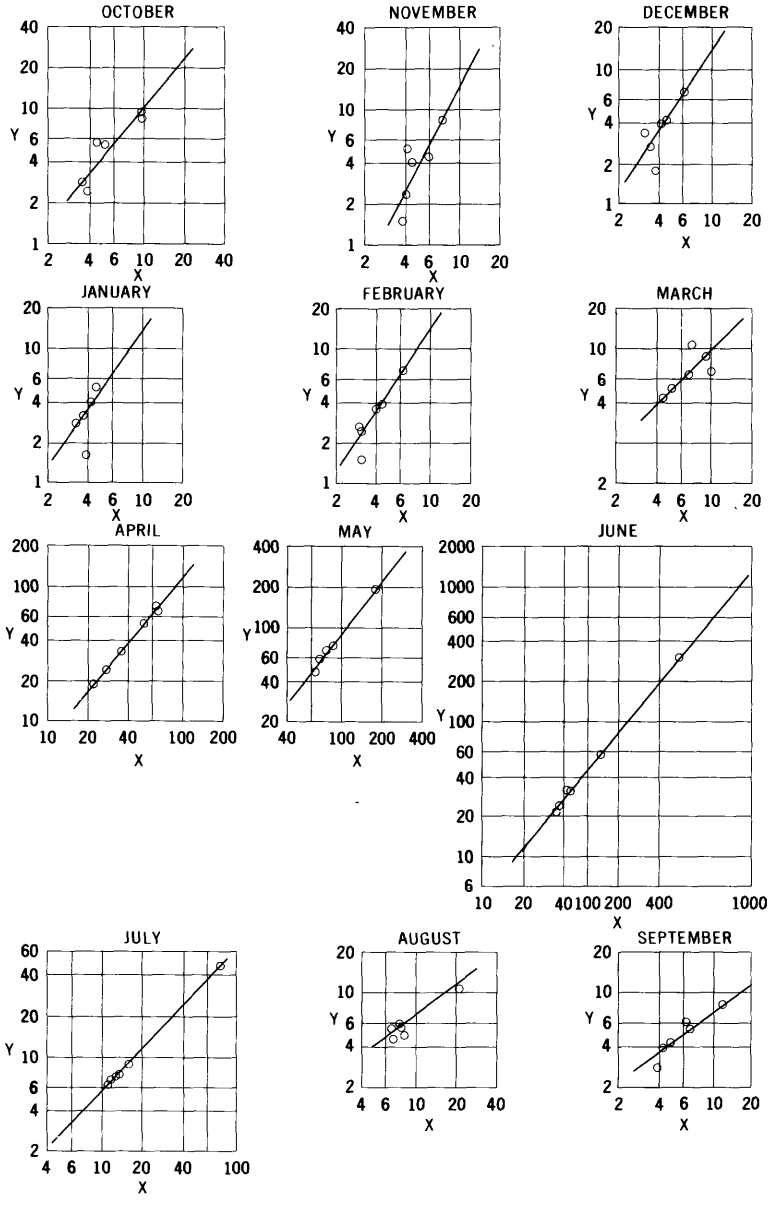
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1938	‡3,690	‡2,680	‡2,150	‡1,840	‡1,940	‡2,770	‡10,860	21,950	20,930	6,780	4,580	4,700	‡84,870
1939	5,480	‡3,680	‡2,150	‡1,840	‡1,670	‡3,050	9,000	15,500	7,950	2,420	3,630	3,020	‡53,390
1940	2,680	2,520	2,950	2,270	1,950	2,100	4,020	6,680	3,260	2,060	2,470	2,400	35,360
1941	2,450	2,300	2,050	1,970	2,090	3,050	4,960	28,480	23,660	10,930	7,410	4,300	93,650
1942	6,520	4,630	3,770	2,540	2,340	2,870	10,730	27,210	32,870	9,350	6,010	3,940	112,800
1943	3,630	2,860	2,550	2,340	1,670	2,340	8,570	11,070	6,630	3,500	8,840	6,500	60,500
1944	4,470	3,090	‡2,150	‡1,840	‡1,730	‡2,150	‡5,880	44,760	33,970	9,900	6,030	3,790	‡119,800
1945	3,700	2,740	2,020	1,890	2,340	2,980	5,080	16,690	9,780	5,180	8,400	4,510	65,310
1946	5,100	3,330	3,020	2,830	2,380	2,860	7,380	8,830	8,440	4,580	5,430	3,440	57,620
1947	3,680	3,050	2,880	2,360	2,210	3,160	6,610	23,230	18,880	10,580	7,620	6,560	90,820
1948	5,370	3,300	2,900	2,680	2,620	3,350	12,060	38,480	24,750	8,110	5,320	3,590	112,500
1949	3,800	2,940	3,000	2,770	2,670	3,280	9,960	26,680	34,670	19,560	7,810	4,460	121,600
1950	4,480	3,530	3,240	3,430	2,620	2,980	7,750	8,170	6,970	3,700	3,380	2,530	52,780
1951	2,500	2,170	2,290	2,410	2,350	2,800	3,990	7,900	6,180	2,650	3,900	2,050	41,190
1952	2,430	2,260	3,240	3,230	2,060	2,570	11,560	20,650	22,250	6,720	6,870	4,720	88,560
1953	3,830	2,960	2,830	2,970	2,480	3,130	4,180	8,480	9,120	4,520	5,540	2,970	53,010
1954	2,940	2,950	2,550	2,350	2,270	2,720	4,740	4,250	2,660	4,260	4,430	2,960	39,080
1955	2,670	2,020	2,110	1,870	1,810	2,440	4,610	6,630	7,010	2,590	4,220	2,070	40,050
1956	2,350	2,260	2,150	-	-	-	-	-	-	-	-	-	-

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	-	-	-	1,800	1,800	2,700	5,400	13,700	5,500	1,700	2,600	1,700	43,660
1957	2,000	2,300	2,100	1,900	2,100	2,500	6,000	7,600	29,800	17,600	10,500	5,300	89,700
1958	3,800	3,500	3,700	3,100	2,700	2,900	7,200	40,100	22,200	4,500	4,600	3,400	101,700
1959	3,400	2,900	2,900	2,400	2,400	2,500	4,500	8,500	9,000	2,400	4,100	2,800	47,800
1960	3,900	3,000	2,200	2,000	2,000	4,400	11,500	13,600	14,700	4,300	3,600	2,600	67,800
1961	3,100	2,600	2,100	1,900	1,900	2,500	4,200	18,200	9,100	2,400	4,800	4,400	57,200
1962	4,800	3,700	3,400	3,100	3,200	2,900	13,200	20,200	13,900	8,300	4,700	3,100	84,500
1963	3,500	3,000	2,400	2,100	2,700	3,700	6,600	18,200	1,700	2,100	4,400	4,000	54,400
1964	2,900	2,700	2,300	2,100	2,000	2,200	3,400	15,500	6,900	3,500	5,400	3,200	52,100
1965	3,100	2,700	2,800	2,700	2,600	2,700	9,300	18,400	18,600	13,000	8,800	5,600	90,300



Relationships of monthly mean discharge of Smith Fork at Crawford, Colo. (Y), to monthly mean discharge of Smith Fork near Crawford, Colo. (X). Discharge in hundreds of acre-feet.

1290. Smith Fork at Crawford, Colo.

Location.--Lat 38°43', long 107°35', in SE¼ sec.29, T.15 S., R.91 W., on right bank 100 ft upstream from former bridge site, 1½ miles northeast of Crawford, and 2 miles upstream from Iron Creek.

Drainage area.--63 sq mi, approximately.

Records available.--October 1954 to September 1960.

Estimates of streamflow.--October 1935 to September 1954, October 1960 to September 1965, based on relationships of monthly mean discharge with Smith Fork near Crawford, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Smith Fork at Crawford, Colo., and X is discharge of Smith Fork near Crawford, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.18	1.87	1.48	1.48	1.48	0.99	1.21	1.29	1.20	1.05	0.72	0.72
c	.54	2.48	1.30	1.30	1.30	-.02	.77	1.23	.90	.40	-.68	-.68

Average discharge.--30 years (1935-65), 27,327 acre-feet per year (37.7 cfs).

Extremes.--1954-60: Maximum discharge, about 1,200 cfs June 5 or 6, 1957; minimum daily, 1.9 cfs Dec. 5, 1955.

Remarks.--Natural flow affected by diversions above station for irrigation above and below station, one diversion to Cottonwood Creek drainage, one small diversion to Iron Creek drainage, and water imported from Curecanti Creek drainage. Estimates of annual flow are within about 10 percent of regression line.

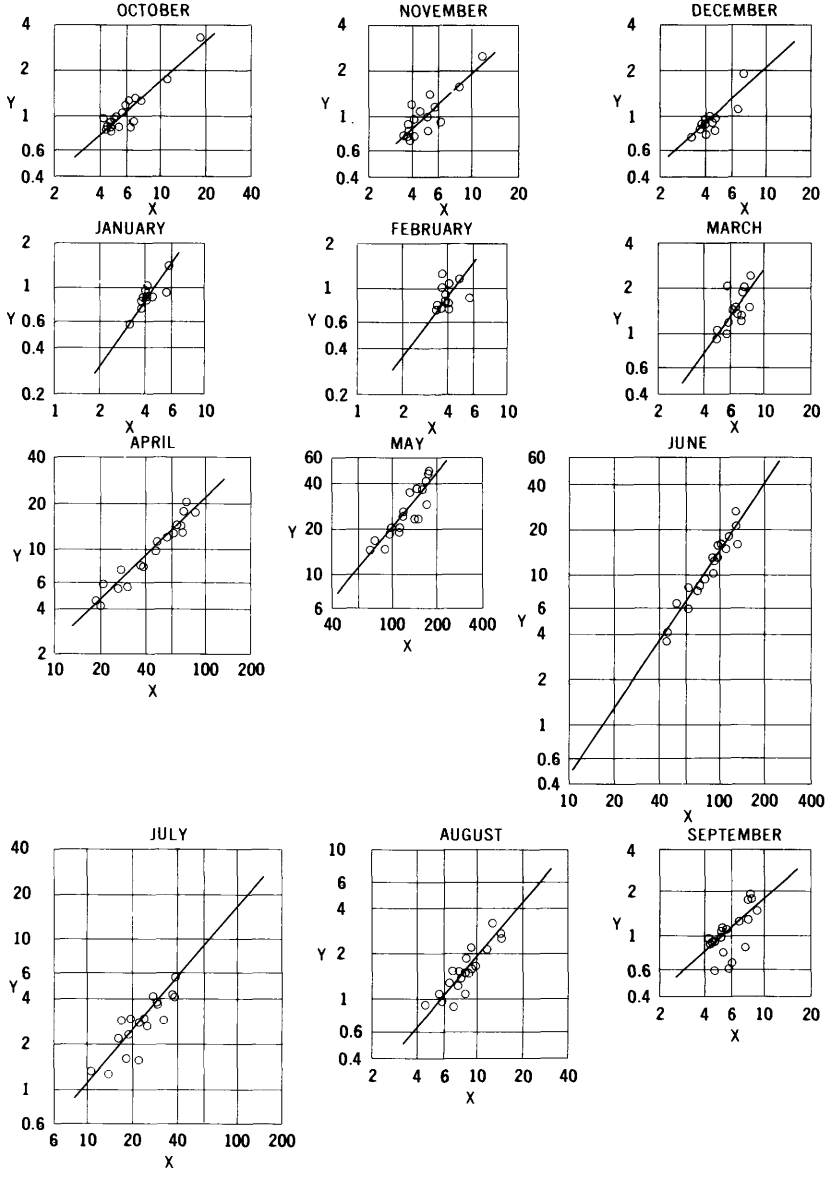
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1955	560	514	395	324	254	432	2,380	5,870	2,410	750	494	387	14,770
1956	289	156	176	166	150	685	5,280	7,230	2,190	621	462	285	17,690
1957	247	247	261	288	395	645	3,290	19,130	29,590	4,780	1,060	809	60,740
1958	826	838	670	522	695	1,100	7,050	22,900	5,670	889	573	603	42,340
1959	540	412	414	410	357	517	1,890	4,760	3,100	684	590	534	14,210
1960	926	458	337	284	266	883	6,620	6,900	3,100	731	541	383	21,430

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1936	430	310	230	270	280	660	8,500	12,000	2,900	1,300	1,000	840	28,720
1937	1,200	2,000	1,800	1,600	1,200	1,600	5,000	11,100	2,300	1,100	560	500	29,960
1938	680	440	430	390	330	840	7,800	15,600	7,000	1,100	720	840	36,170
1939	820	720	680	580	550	1,600	7,500	10,200	2,300	580	520	600	26,650
1940	570	270	390	350	310	1,200	7,200	16,100	2,500	620	460	510	30,080
1941	‡520	‡350	‡390	‡430	‡450	880	3,600	14,000	4,800	1,400	680	780	28,280
1942	2,500	2,500	1,300	980	880	940	11,000	18,200	10,100	1,300	590	420	50,710
1943	370	310	390	320	560	940	8,800	8,700	4,800	1,300	780	610	27,880
1944	700	520	450	410	360	540	1,100	16,100	10,000	‡1,600	‡580	‡400	32,760
1945	‡460	‡390	‡520	‡560	‡570	‡900	3,200	17,400	6,400	1,700	810	540	33,370
1946	840	760	500	410	350	820	7,400	5,900	3,000	840	630	440	21,890
1947	560	380	230	220	290	760	2,600	8,800	5,000	1,400	680	660	21,580
1948	1,600	1,300	620	560	480	760	7,500	20,600	3,300	960	580	440	38,700
1949	440	260	320	350	230	560	4,600	9,400	6,200	1,400	620	390	24,770
1950	390	350	310	330	410	480	6,400	7,400	4,200	1,100	500	400	22,270
1951	320	240	310	210	190	540	1,800	5,400	3,100	940	500	380	13,930
1952	340	180	260	240	200	420	9,000	15,300	9,000	1,300	680	510	37,430
1953	430	230	310	250	320	700	1,500	6,600	5,600	900	710	380	17,930
1954	270	280	260	240	250	360	2,000	2,800	980	430	400	540	8,810
1961	380	250	280	280	220	510	1,500	7,000	2,300	560	470	810	14,560
1962	1,100	680	460	440	680	680	13,800	10,700	4,300	1,400	600	400	35,240
1963	400	280	270	210	300	730	3,000	5,200	1,000	240	480	480	12,590
1964	380	310	350	280	230	400	1,500	11,500	3,400	720	530	430	20,030
1965	230	280	340	280	420	860	4,300	12,300	11,500	2,300	630	880	34,320

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of East Muddy Creek near Bardine, Colo. (Y), to monthly mean discharge of North Fork Gunnison River near Somerset, Colo., adjusted for change in contents of Paonia Reservoir (X). Discharge in thousands of acre-feet.

1305. East Muddy Creek near Bardine, Colo.

Location.--Lat 39°01', long 107°22', in sec.17, T.12 S., R.89 W., on left bank 5 ft from State Highway 133, a quarter of a mile downstream from Spring Creek, 1½ miles upstream from West Muddy Creek, and 6½ miles upstream from Bardine. Datum of gage is 6,654.78 ft above mean sea level, datum of 1929.

Drainage area.--136 sq mi, approximately.

Records available.--October 1934 to September 1953.

Estimates of streamflow.--October 1933 to September 1934, October 1953 to September 1965, based on relationships of monthly mean discharge with North Fork Gunnison River near Somerset, Colo., adjusted for storage in Paonia Reservoir since February 1962. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of East Muddy Creek near Bardine, Colo., and X is discharge of North Fork Gunnison River near Somerset, Colo., adjusted for change in contents of Paonia Reservoir, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.88	0.88	0.89	1.42	1.35	1.35	0.96	1.21	1.50	1.17	1.17	0.89
c	.29	.22	.24	2.19	1.92	1.99	.47	1.74	3.35	1.64	1.40	.30

Average discharge.--32 years (1933-65), 59,831 acre-feet per year (82.6 cfs).

Extremes.--1934-53: Maximum discharge, 2,190 cfs May 13, 1941, from rating curve extended above 800 cfs; minimum not determined.

Remarks.--Diversions for irrigation of about 2,000 acres of hay meadows above station. Estimates of annual flow are within about 20 percent of regression line.

Monthly and annual streamflow, in acre-feet

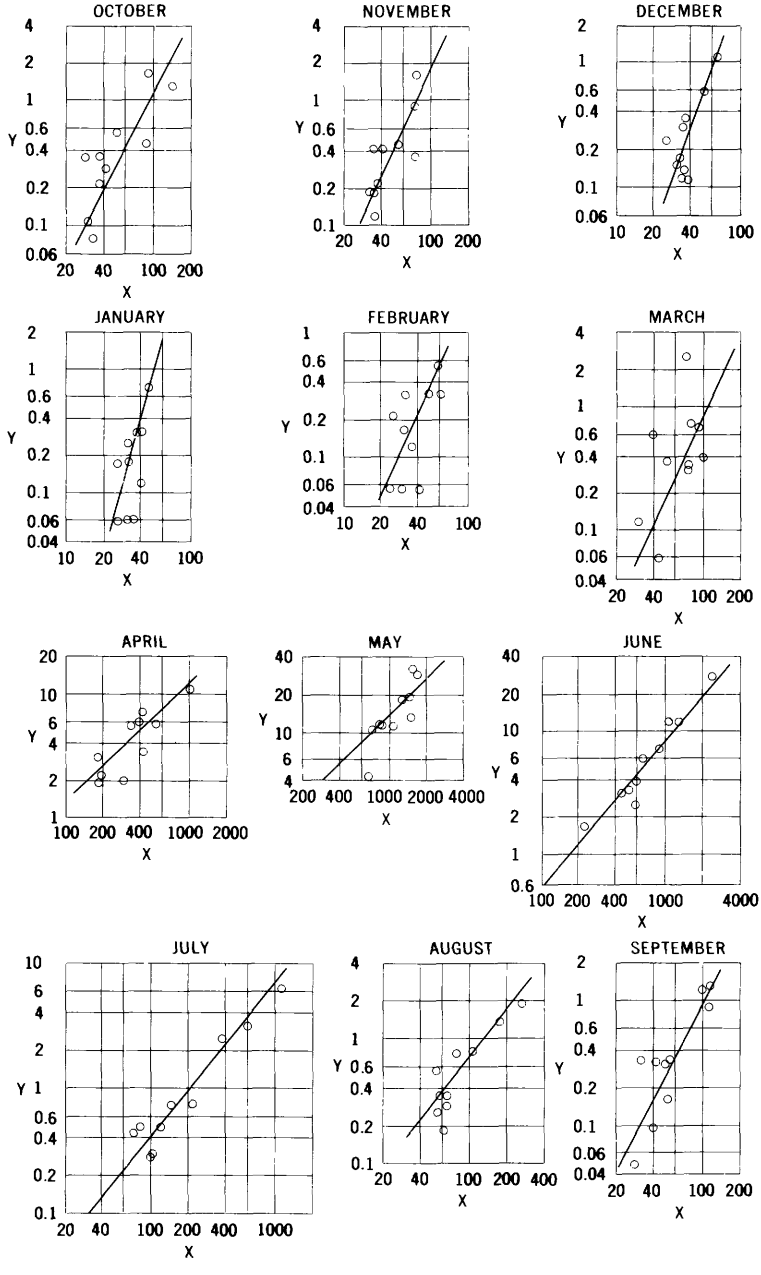
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	‡615	‡655	‡676	‡615	‡555	‡1,050	‡5,120	20,040	18,100	2,650	1,520	1,290	‡52,890
1936	845	841	‡676	‡799	‡748	‡1,640	14,190	23,570	6,030	2,220	1,100	613	‡53,270
1937	802	1,250	‡922	‡861	‡778	‡1,820	7,830	23,180	6,610	2,950	1,540	1,110	‡49,650
1938	1,330	1,210	‡984	‡861	‡841	‡3,230	17,480	42,480	21,950	4,150	1,380	1,830	‡97,730
1939	1,280	‡1,410	‡922	‡738	‡611	‡2,060	9,640	19,120	4,290	1,330	972	853	‡43,230
1940	799	833	756	‡615	‡633	1,490	7,550	20,020	3,620	958	933	794	‡39,000
1941	1,290	‡827	‡615	‡676	‡722	1,310	5,600	47,840	16,110	3,800	2,190	1,920	‡82,900
1942	3,340	2,530	1,910	1,410	1,170	1,480	17,320	36,820	15,400	2,910	1,580	1,000	86,870
1943	966	897	853	585	730	1,990	12,920	14,740	8,750	2,350	3,160	1,780	49,720
1944	1,190	1,450	922	861	748	1,050	4,460	48,480	27,330	5,760	1,490	920	94,660
1945	968	1,050	986	994	1,260	2,040	5,790	37,660	13,300	4,190	2,560	678	71,480
1946	926	976	972	1,050	1,060	1,880	11,950	14,880	8,450	1,290	883	586	44,900
1947	854	843	811	738	893	2,380	7,390	35,360	13,440	4,360	2,180	1,500	70,750
1948	1,780	1,630	1,140	958	877	1,200	14,330	41,680	9,550	2,970	1,890	1,000	79,000
1949	926	762	910	877	778	1,400	11,080	26,320	16,020	3,650	1,270	1,150	65,140
1950	1,050	1,110	891	863	1,010	1,010	12,610	24,200	10,500	2,840	1,300	1,130	58,510
1951	837	992	954	831	815	1,170	5,510	18,860	7,990	1,560	1,240	924	41,680
1952	839	722	904	897	805	908	20,370	42,860	16,390	2,920	2,760	1,330	91,700
1953	982	770	765	819	740	1,370	4,170	16,710	12,780	1,630	1,650	902	43,290

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	‡1,100	‡1,100	‡980	‡740	‡680	‡2,400	7,300	8,800	500	380	600	590	25,170
1954	720	960	720	620	740	910	6,500	8,500	1,300	990	920	1,200	24,080
1955	1,300	980	860	740	650	1,200	5,800	19,200	6,400	1,900	1,700	750	41,480
1956	630	800	860	840	740	2,200	9,100	22,000	5,300	1,200	940	590	45,200
1957	580	720	720	660	920	1,700	6,500	33,000	53,500	18,500	6,000	1,800	124,600
1958	1,600	1,600	1,400	1,000	1,500	1,800	8,500	39,100	12,200	1,700	1,200	990	72,590
1959	760	840	820	590	590	820	4,100	14,000	6,300	1,100	1,200	1,000	32,120
1960	1,500	1,200	800	610	600	1,800	11,600	17,600	6,600	1,300	1,100	810	45,520
1961	700	780	780	440	460	1,000	4,400	16,800	4,300	870	920	2,100	33,550
1962	2,300	1,500	1,100	730	1,600	2,500	22,500	34,800	16,000	5,100	1,400	850	90,380
1963	930	720	610	600	1,200	1,600	7,500	13,500	1,600	750	1,000	660	30,670
1964	700	780	800	450	430	480	4,300	28,200	8,000	2,800	2,000	1,000	49,940
1965	550	920	830	850	640	730	9,300	32,900	20,900	9,200	3,600	2,500	82,920

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of West Muddy Creek near Ragged Mountain, Colo. (Y), to monthly mean discharge of North Fork Gunnison River near Somerset, Colo. (X). Discharge in hundreds of acre-feet.

1306. West Muddy Creek near Ragged Mountain, Colo.

Location.--Lat 39°07'50", long 107°34'30", in NW¼ sec.5, T.11 S., R.91 W., on left bank 100 ft upstream from Gold Creek and 9½ miles northwest of Ragged Mountain. Altitude of gage is 8,658 ft (from topographic map).

Drainage area.--7.52 sq mi.

Records available.--October 1955 to September 1965.

Estimates of streamflow.--October 1933 to September 1955, based on relationships of monthly mean discharge with North Fork Gunnison River near Somerset, Colo., adjusted for storage in Paonia Reservoir since February 1962. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of West Muddy Creek near Ragged Mountain, Colo., and X is discharge of North Fork Gunnison River near Somerset, Colo., adjusted for change in contents of Paonia Reservoir, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.91	2.12	2.86	3.62	2.18	2.21	0.94	0.96	1.17	1.23	1.25	1.92
c	5.57	6.25	8.80	10.42	6.50	6.89	1.61	1.66	2.93	3.30	3.15	5.72

Average discharge.--32 years (1933-65), 3,408 acre-feet per year (4.71 cfs).

Extremes.--1955-65: Maximum discharge, about 260 cfs May 10, 1962 (from flood mark); no flow at times in 1956, 1959-60.

Remarks.--No diversion above station. Estimates of annual flow are within about 5 percent of regression line.

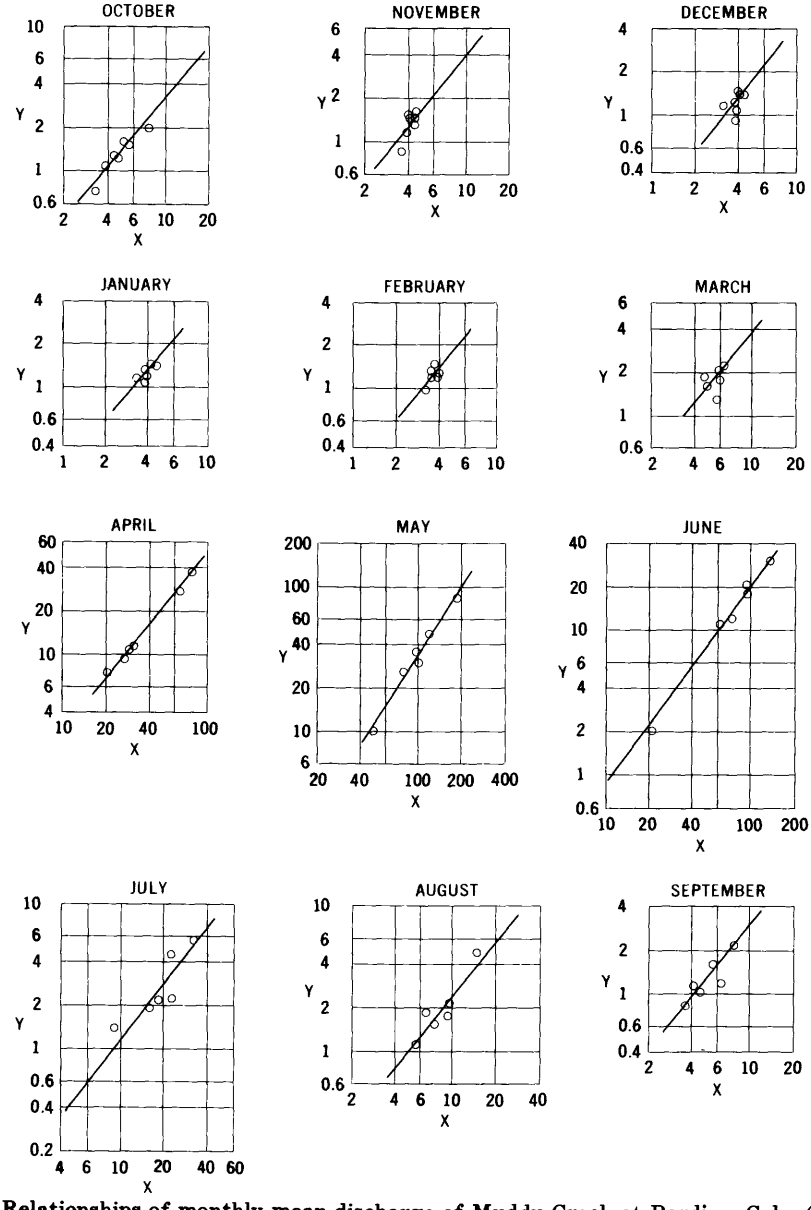
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	8.1	12	12	12	12	69	710	1,100	343	30	26	4.8	2,340
1957	11	19	15	6.1	5.6	31	198	1,350	2,820	634	191	85	5,370
1958	174	165	112	74	56	74	603	2,920	740	73	35	31	5,060
1959	29	22	14	6.1	5.6	6.1	306	1,090	259	29	29	16	1,810
1960	46	45	31	25	17	33	586	1,140	406	52	19	9.5	2,410
1961	22	18	18	18	22	37	218	1,180	324	49	55	128	2,090
1962	138	93	61	31	33	39	1,130	3,270	1,220	252	75	32	6,370
1963	57	37	25	18	33	250	571	457	170	44	35	33	1,730
1964	37	42	12	6.1	5.8	12	198	1,850	611	76	79	34	2,960
1965	35	41	37	31	33	61	343	1,960	1,200	323	142	119	4,320

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	‡50	‡50	‡40	‡30	‡20	‡70	430	700	60	10	20	8	1,490
1935	10	20	‡20	‡20	‡10	‡20	330	1,400	1,000	130	50	40	3,050
1936	30	20	10	20	10	40	900	1,900	480	80	60	30	3,580
1937	20	20	30	20	10	30	490	2,000	390	80	50	20	3,160
1938	60	50	50	50	20	80	920	2,300	1,200	150	50	60	4,990
1939	50	50	50	40	10	90	620	1,500	330	40	40	50	2,870
1940	30	20	20	10	10	50	520	1,500	320	40	30	30	2,580
1941	70	20	20	30	20	40	400	2,500	840	160	60	60	4,220
1942	390	240	160	160	40	30	1,100	2,200	940	120	60	20	5,460
1943	20	20	20	20	20	50	920	1,300	600	90	100	60	3,220
1944	40	40	40	40	20	20	250	2,400	1,200	220	60	20	4,350
1945	30	40	40	40	20	30	280	2,000	800	210	110	40	3,640
1946	50	60	50	40	20	40	720	1,000	480	60	40	20	2,580
1947	50	40	50	30	20	60	370	1,800	760	210	90	70	3,550
1948	140	110	130	130	50	40	820	2,300	660	100	60	20	4,560
1949	30	20	30	50	20	30	620	1,600	880	160	50	30	3,520
1950	40	30	30	40	20	20	800	1,600	760	110	40	30	3,520
1951	20	20	30	40	20	30	350	1,400	560	110	50	20	2,650
1952	30	20	40	60	20	20	980	2,500	1,200	180	110	60	5,220
1953	30	30	30	30	20	30	270	1,100	760	90	70	20	2,480
1954	20	30	20	20	20	20	400	680	120	40	40	40	1,450
1955	70	30	30	30	10	30	380	1,300	450	70	60	10	2,470

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Muddy Creek at Bardine, Colo. (Y), to monthly mean discharge of North Fork Gunnison River near Somerset, Colo. (X). Discharge in thousands of acre-feet.

1315. Muddy Creek at Bardine, Colo.

Location.--Lat 38°56'25", long 107°21'30", in NE¼ sec.8, T.13 S., R.89 W., on right bank 30 ft downstream from bridge on State Highway 135 at Bardine, a quarter of a mile upstream from confluence with Anthracite Creek, 1½ miles downstream from Deep Creek, and 5½ miles east of Somerset. Datum of gage is 6,266.07 ft above mean sea level, datum of 1929.

Drainage area.--246 sq mi.

Records available.--October 1949 to December 1955.

Estimates of streamflow.--October 1933 to September 1949, January 1956 to January 1962, based on relationships of monthly mean discharge with North Fork Gunnison River near Somerset, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Muddy Creek at Bardine, Colo., and X is discharge of North Fork Gunnison River near Somerset, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.19	1.23	1.26	1.18	1.20	1.20	1.23	1.57	1.35	1.29	1.23	1.20
c	1.24	1.33	1.41	1.11	1.17	1.22	1.44	3.31	2.43	2.09	1.55	1.34

Average discharge.--28 years (1933-61), 102,440 acre-feet per year (141 cfs).

Extremes.--1949-55: Maximum discharge, 3,400 cfs May 4, 1952; minimum daily, 8.4 cfs Sept. 1-3, 1954.

Remarks.--Natural flow of stream affected by small diversions to nearby drainage areas for irrigation, irrigation of about 2,500 acres above station, and storage in Overland Reservoir (capacity 2,660 acre-feet). Completely regulated by Paonia Reservoir after January 1962. Estimates of annual flow are within about 20 percent of regression line.

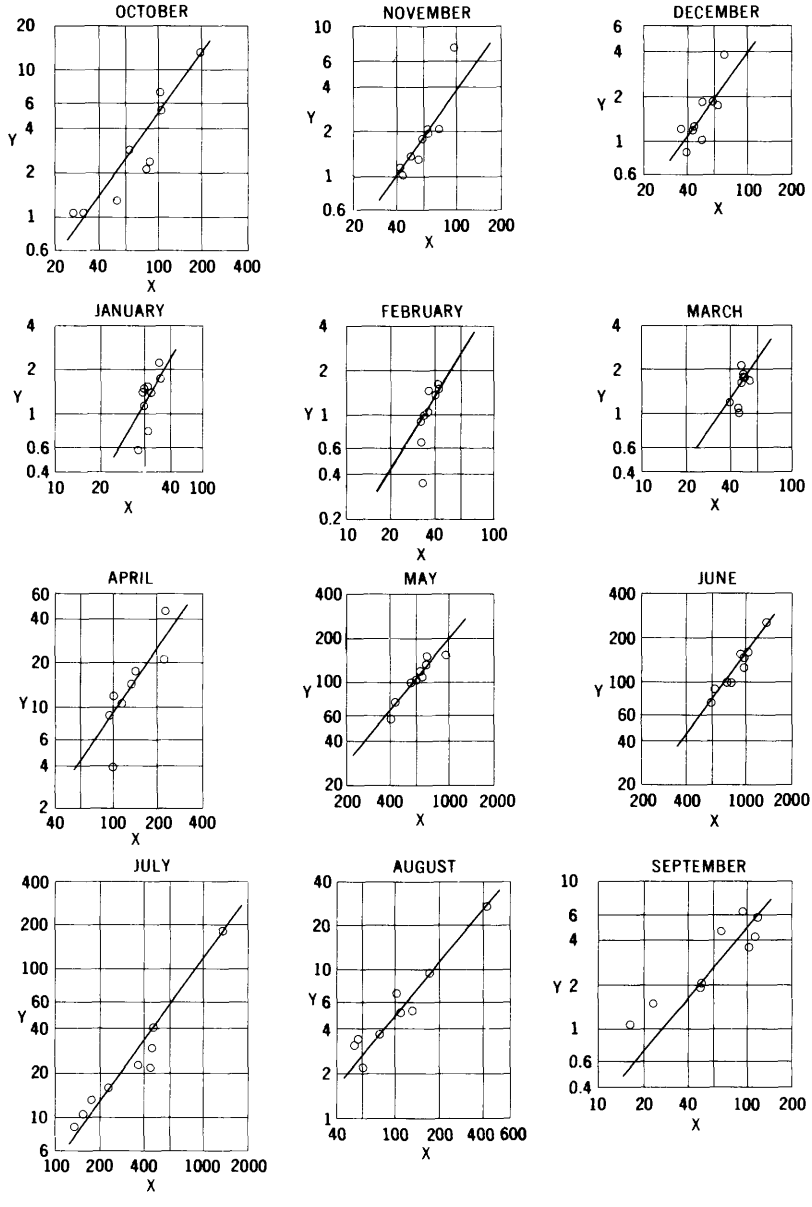
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	1,540	1,610	1,230	1,480	1,500	1,350	28,650	48,090	21,000	4,580	1,880	1,610	114,500
1951	1,310	1,580	1,400	1,210	1,240	1,800	9,350	30,590	12,260	2,240	1,560	1,030	65,570
1952	1,270	1,180	1,400	1,410	1,340	1,650	39,640	85,130	30,750	5,640	4,800	2,160	176,400
1953	1,620	1,450	1,430	1,360	1,230	2,240	7,600	26,640	18,290	2,180	2,180	1,150	67,370
1954	1,120	1,430	1,170	1,180	1,200	1,870	11,490	10,170	2,040	1,420	1,110	1,200	35,400
1955	2,000	1,330	1,120	1,100	994	2,120	11,190	36,230	11,580	1,910	1,750	849	72,170
1956	746	900	922	-	-	-	-	-	-	-	-	-	-

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	‡1,800	‡1,800	‡1,500	‡1,300	‡1,100	‡3,500	13,000	11,700	1,000	390	700	640	38,430
1935	800	1,000	‡1,100	‡1,000	‡920	‡1,800	9,700	34,500	26,800	3,800	1,700	1,800	84,920
1936	1,500	1,300	840	1,100	1,100	2,400	34,000	61,000	11,000	2,200	1,800	1,500	118,740
1937	1,200	1,500	1,300	1,100	1,100	2,300	15,400	64,000	8,400	2,300	1,500	1,300	101,200
1938	2,100	1,900	1,600	1,500	1,500	3,700	35,800	76,000	30,800	4,400	1,700	2,300	163,100
1939	1,900	2,000	1,700	1,300	1,000	3,800	21,200	41,500	7,200	1,200	1,200	2,000	86,000
1940	1,300	1,200	1,000	920	1,100	2,900	16,500	40,800	7,000	1,000	860	1,300	75,880
1941	2,300	1,300	1,000	1,200	1,300	2,500	12,000	88,000	20,700	4,600	2,200	2,200	139,300
1942	6,800	4,700	2,900	2,200	1,800	2,300	44,500	73,500	24,000	3,600	2,200	1,300	170,200
1943	1,200	1,100	1,200	1,100	1,500	2,700	35,000	30,000	14,100	2,600	1,200	2,100	95,800
1944	1,700	1,700	1,400	1,300	1,300	1,600	6,400	82,000	31,400	6,600	1,900	1,100	138,400
1945	1,400	1,700	1,500	1,400	1,300	2,000	7,600	64,000	20,000	6,400	3,800	1,600	112,700
1946	2,000	2,100	1,600	1,500	1,500	2,600	26,000	21,100	11,200	1,800	1,500	1,100	74,900
1947	1,900	1,700	1,600	1,300	1,400	3,000	10,900	54,200	18,300	6,200	2,900	2,500	105,900
1948	3,700	3,100	2,500	2,000	2,100	2,500	30,800	82,000	15,600	2,800	1,900	1,000	150,000
1949	1,300	1,100	1,300	1,500	1,200	2,200	21,000	45,500	22,200	4,600	1,700	1,300	104,900
1956	-	-	-	1,400	1,200	3,400	17,300	38,500	8,600	1,200	1,100	630	75,900
1957	760	780	960	1,100	1,500	2,600	11,400	63,000	70,500	24,300	8,000	3,000	187,900
1958	2,900	2,800	2,500	1,700	2,500	2,800	16,000	81,500	18,200	1,900	1,400	1,300	135,300
1959	1,100	1,200	1,100	1,000	1,000	1,400	6,200	21,200	10,000	1,200	1,400	1,300	48,100
1960	2,800	1,800	1,100	1,100	1,000	2,700	24,100	28,800	10,400	1,400	1,300	960	77,460
1961	980	1,100	1,100	820	800	1,700	6,600	27,100	7,000	900	1,100	3,600	52,800
1962	5,000	2,700	1,700	1,200	-	-	-	-	-	-	-	-	-

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Anthracite Creek near Floresta, Colo. (Y), to monthly mean discharge of Crystal River near Redstone, Colo. (X). Discharge in hundreds of acre-feet.

1320. Anthracite Creek near Floresta, Colo.

Location.--Lat 38°51'45", long 107°09'40", in sec.6, T.14 S., R.87 W., on right bank 300 ft downstream from highway bridge, 1 mile downstream from Bracken Creek, 2 miles northwest of old Floresta, and 9 miles west of Crested Butte. Altitude of gage is 8,830 ft (from topographic map).

Drainage area.--17.5 sq mi.

Records available.--October 1938 to September 1943, October 1954 to September 1958. Monthly discharge only for some periods.

Estimates of streamflow.--May 1935 to September 1938, October 1943 to September 1954, October 1958 to September 1965, based on relationships of monthly mean discharge with Crystal River near Redstone, Colo. (Crystal River near Redstone, Colo. discontinued Sept. 30, 1963; records for October 1963 to September 1965 were estimated for use in this relationship on the basis of discharge of Crystal River above Avalanche Creek, near Redstone, Colo.). The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Anthracite Creek near Floresta, Colo., and X is discharge of Crystal River near Redstone, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.44	1.40	1.39	1.73	1.62	1.51	1.47	1.19	1.29	1.38	1.22	1.20
c	3.03	3.02	2.96	4.16	2.72	3.33	2.90	1.65	2.30	2.83	2.19	2.09

Average discharge.--30 years (1936-65), 31,230 acre-feet per year (43.1 cfs).

Extremes.--1938-43, 1954-58: Maximum discharge, 709 cfs June 28, 1957; minimum discharge not determined.

Remarks.--One small diversion above station to Coal Creek in East River basin. Estimates of annual flow are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

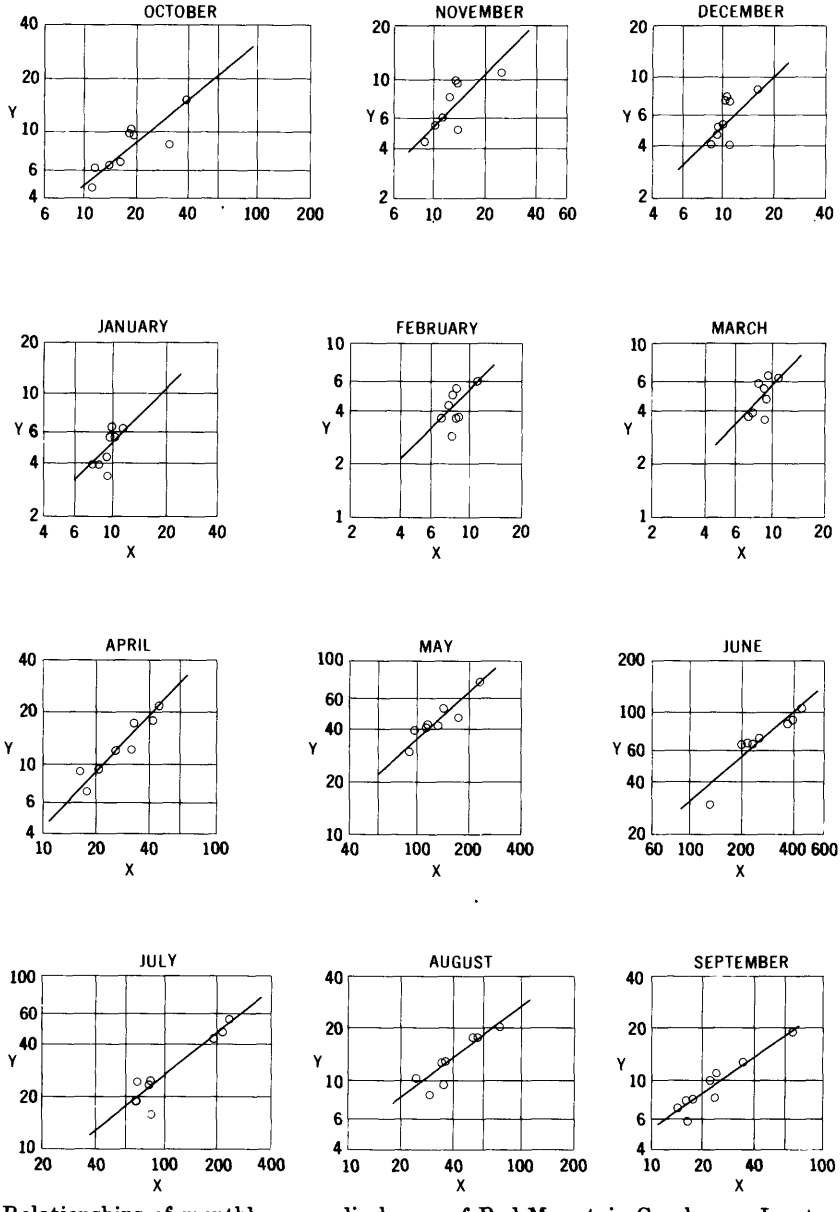
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	214	196	184	173	150	170	1,720	13,100	8,700	1,300	333	636	26,880
1940	282	137	83	58	35	103	1,400	10,910	7,350	848	218	358	21,780
1941	ǂ530	ǂ208	ǂ184	ǂ154	ǂ139	ǂ184	ǂ1,190	ǂ15,060	14,030	4,040	526	422	ǂ36,670
1942	1,340	ǂ734	ǂ369	ǂ215	ǂ167	ǂ215	ǂ2,060	10,400	15,880	2,920	515	191	ǂ35,000
1943	130	128	123	110	108	185	4,540	10,130	12,090	2,160	978	464	31,150
1955	710	178	100	77	67	123	1,070	7,420	9,990	2,250	698	153	22,840
1956	108	101	119	137	91	164	1,410	11,810	9,630	1,040	308	106	25,020
1957	108	112	121	145	103	112	395	5,620	24,670	18,410	2,690	569	53,060
1958	242	202	172	139	153	188	867	14,580	15,410	1,580	364	201	33,900

ǂ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	ǂ5,400	15,200	5,400	850	500	-
1936	350	180	150	130	120	190	2,600	17,800	13,200	2,100	810	390	38,020
1937	290	140	130	120	150	180	1,200	14,900	9,600	2,400	580	450	30,140
1938	310	160	150	140	110	190	2,100	12,000	20,400	6,800	970	670	44,000
1944	260	150	140	140	100	130	550	10,200	15,600	7,100	620	180	35,170
1945	340	180	110	110	110	160	560	11,100	11,300	6,500	840	270	31,580
1946	280	200	180	140	120	160	2,800	9,400	13,100	1,600	370	280	28,630
1947	240	190	140	130	110	200	1,100	10,200	10,700	7,600	1,000	530	32,140
1948	660	260	170	160	170	190	1,400	12,800	13,100	3,400	630	220	33,160
1949	380	150	130	120	130	180	1,500	6,400	15,400	5,800	490	240	30,920
1950	290	180	150	140	120	130	1,100	5,600	17,700	3,400	330	210	29,350
1951	170	150	140	130	110	140	760	8,400	14,500	5,200	660	200	30,560
1952	220	170	140	140	110	120	2,800	13,300	22,100	6,400	1,400	420	47,320
1953	170	150	200	180	140	220	580	3,600	15,200	2,300	530	170	23,440
1954	210	150	120	110	100	100	1,000	6,400	4,100	1,100	230	350	13,970
1959	150	140	130	100	90	110	060	5,300	13,800	1,400	420	180	22,480
1960	430	220	150	120	100	200	2,400	7,800	11,800	1,700	350	130	25,400
1961	170	140	110	100	90	140	470	9,300	9,400	790	290	700	21,700
1962	950	310	210	150	230	220	4,900	10,400	15,600	7,600	1,000	260	41,830
1963	260	170	120	110	110	150	910	11,000	5,200	780	340	220	19,370
1964	110	120	100	80	60	70	440	9,800	10,100	3,000	580	180	24,640
1965	140	140	120	130	110	120	1,300	8,800	17,000	16,000	1,300	820	45,980

ǂ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Red Mountain Creek near Ironton, Colo. (Y), to monthly mean discharge of Animas River at Howardsville, Colo. (X). Discharge in hundreds of acre-feet.

1445. Red Mountain Creek near Ironton, Colo.

Location.--Lat 37°57'45", long 107°39'40", in N½ sec.29, T.43 N., R.7 W., on right bank 100 ft from U. S. Highway 550, 2 miles northeast of Ironton, 2 miles upstream from mouth, and 4 miles south of Ouray. Datum of gage is 9,585.58 ft above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--17.8 sq mi.

Records available.--August 1947 to December 1955.

Estimates of streamflow.--October 1935 to August 1947, January 1956 to September 1965, based on relationships of monthly mean discharge with Animas River at Howardsville, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Red Mountain Creek near Ironton, Colo., and X is discharge of Animas River at Howardsville, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.82	0.98	0.98	0.98	0.98	1.06	1.06	0.89	0.85	0.80	0.75	0.70
c	-.23	.22	.22	.20	.21	.12	.53	.00	-.10	-.22	-.42	-.61

Average discharge.--30 years (1935-65), 24,128 acre-feet per year (33.3 cfs).

Extremes.--1947-55: Maximum discharge, 331 cfs June 18, 1949; minimum daily, 3.0 cfs Feb. 1, 1951.

Remarks.--Water is imported above station by Red Mountain ditch from Mineral Creek in San Juan River basin. No diversion above station. Estimates of annual flow are within about 10 percent of regression line.

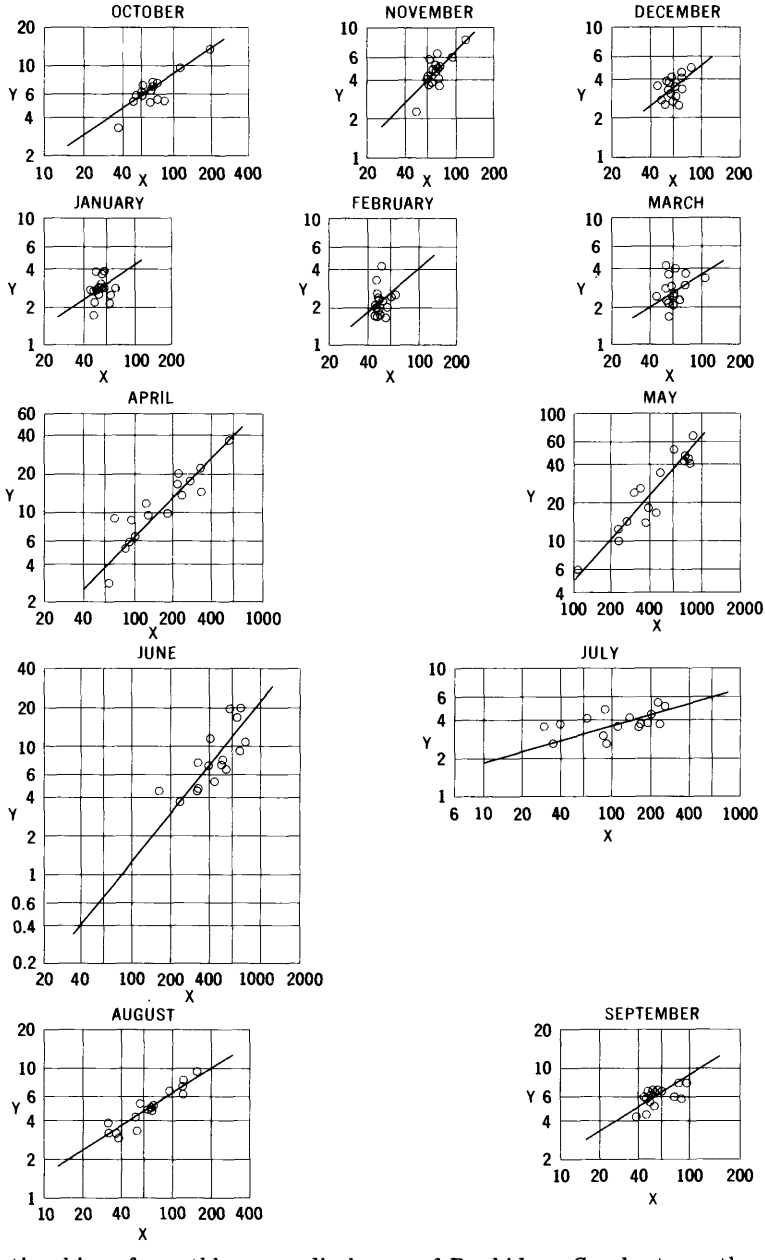
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1947	-	-	-	-	-	-	-	-	-	-	-	1,910	-
1948	1,540	1,040	827	652	603	639	1,210	7,520	8,510	4,240	1,740	1,110	29,630
1949	1,040	932	712	588	559	657	1,730	5,330	10,140	5,530	1,770	1,030	30,020
1950	942	944	719	593	385	488	2,170	3,970	6,480	2,310	1,020	768	20,790
1951	647	514	460	400	447	596	905	4,100	6,480	2,460	1,270	773	19,050
1952	623	520	506	440	374	394	1,190	4,720	10,690	4,730	2,020	1,300	27,510
1953	946	746	754	641	511	560	954	3,090	7,190	2,400	1,280	692	19,760
1954	615	586	518	395	380	383	1,780	4,200	3,040	1,560	827	809	15,090
1955	824	492	397	345	298	368	689	3,940	6,670	1,890	958	567	17,440
1956	479	434	404	-	-	-	-	-	-	-	-	-	-

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1936	‡860	‡840	‡700	‡730	‡650	‡800	‡2,600	9,100	5,400	2,100	2,100	1,100	26,980
1937	800	990	‡660	‡640	‡540	‡820	‡2,200	9,000	5,300	1,900	980	980	24,610
1938	850	840	‡660	‡670	‡540	‡760	1,800	4,900	10,400	4,700	1,600	1,600	29,320
1939	1,700	1,200	‡700	‡600	‡490	850	1,800	6,800	5,800	1,800	980	1,400	23,920
1940	760	640	520	510	450	540	2,000	7,300	5,100	1,200	760	1,100	20,080
1941	1,400	800	570	500	420	520	600	6,700	8,300	6,100	2,200	1,900	30,010
1942	3,100	1,800	800	820	640	710	1,400	4,900	9,400	4,700	1,700	1,000	30,970
1943	620	530	510	530	470	520	3,100	4,600	6,600	2,900	2,100	1,500	23,980
1944	930	1,100	670	560	500	660	610	5,600	9,200	5,000	1,600	830	27,260
1945	780	690	490	440	430	440	600	4,900	7,200	3,600	1,700	830	22,100
1946	960	950	680	540	450	600	2,800	3,600	7,500	2,400	1,100	860	22,440
1947	800	780	690	560	490	510	800	6,300	7,800	4,800	2,100	-	27,540
1956	-	-	-	500	440	620	1,500	6,200	6,300	1,600	850	600	19,930
1957	470	380	370	350	300	380	970	2,900	10,800	7,300	2,900	1,600	28,720
1958	960	1,100	850	680	460	560	930	8,200	8,500	2,500	1,400	1,200	27,340
1959	930	740	660	640	560	680	840	4,200	6,700	1,500	1,200	790	19,440
1960	1,300	1,200	730	700	570	640	2,300	4,600	8,400	2,800	1,000	780	25,020
1961	730	660	560	530	470	540	800	6,200	6,800	1,600	1,100	1,400	21,390
1962	1,600	1,100	720	630	590	630	3,200	5,300	7,500	3,900	1,400	1,000	27,570
1963	900	750	600	580	570	740	1,500	6,400	3,800	1,600	1,100	1,000	19,540
1964	660	520	430	410	340	370	490	5,600	5,400	1,800	1,100	800	17,920
1965	690	490	430	450	360	360	1,800	4,900	8,500	6,100	2,500	1,900	28,480

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Roubideau Creek at mouth, near Delta, Colo. (Y), to monthly mean discharge of Gunnison River near Grand Junction, Colo. (X). Discharge in thousands of acre-feet.

1505. Roubideau Creek at mouth, near Delta, Colo.

Location.--Lat 38°44', long 108°09', in sec.19, T.15 S., R.96 W., on left bank 90 ft upstream from railroad bridge, a quarter of a mile upstream from mouth, and 5 miles west of Delta. Datum of gage is 4,864.34 ft above mean sea level, datum of 1929.

Drainage area.--245 sq mi.

Records available.--October 1938 to September 1954.

Estimates of streamflow.--October 1930 to September 1938, October 1954 to September 1965, based on relationships of monthly mean discharge with Gunnison River near Grand Junction, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Roubideau Creek at mouth, near Delta, Colo., and X is discharge of Gunnison River near Grand Junction, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.67	1.00	0.75	0.67	0.85	0.64	1.02	1.13	1.25	0.29	0.63	0.63
c	-.59	1.18	.05	-.28	.64	-.36	1.28	1.96	3.15	-2.11	-.66	-.83

Average discharge.--35 years (1930-65), 84,757 acre-feet per year (117 cfs).

Extremes.--1938-54: Maximum discharge, 2,950 cfs Aug. 5, 1945, from rating curve extended above 1,300 cfs; minimum observed, 11 cfs Feb. 1, 1951 (discharge measurement).

Remarks.--Part of discharge is return flow from irrigated lands under lower end of Ironstone Canal from Uncompahgre River. Diversions for irrigation of a few hundred acres above station. Estimates of annual flow are within about 25 percent of regression line.

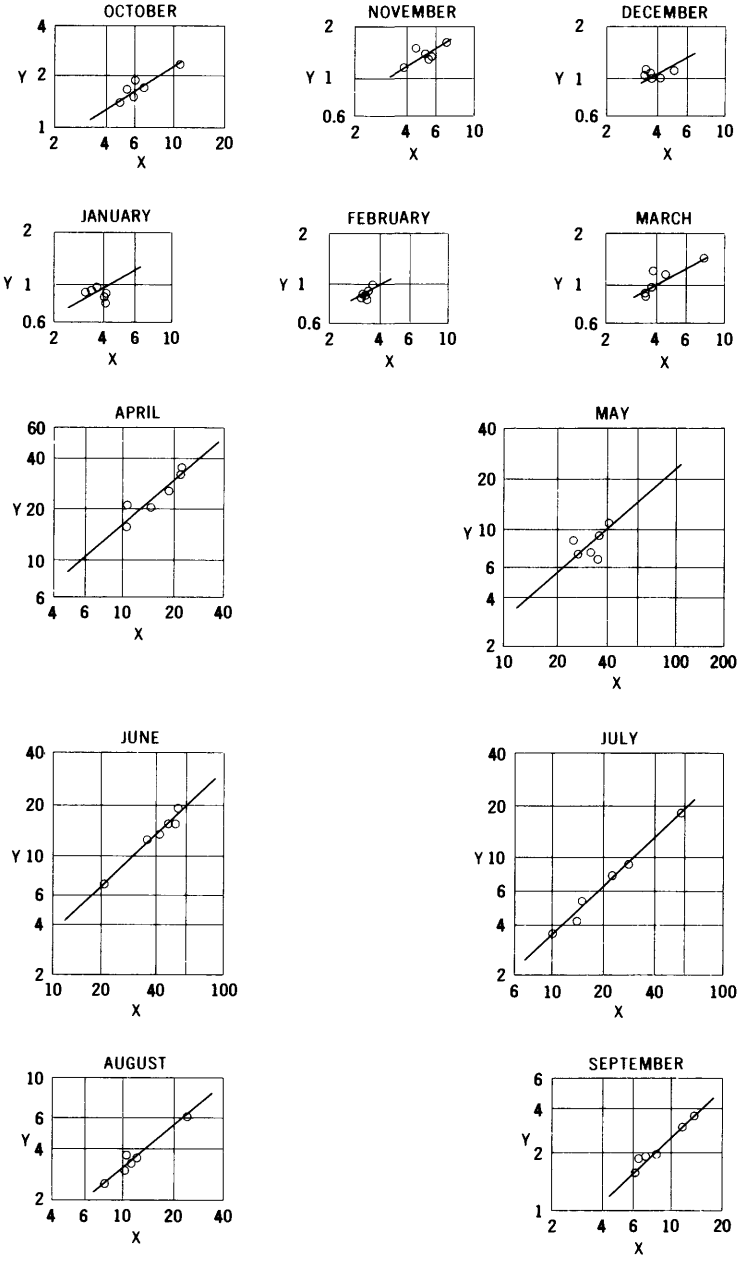
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	‡5,530	‡3,570	‡2,460	‡2,150	‡1,670	‡3,310	16,730	13,810	3,700	2,700	2,910	6,810	‡65,350
1940	5,880	3,940	2,710	1,760	1,750	2,630	9,500	25,700	4,470	3,610	3,700	6,450	72,100
1941	5,350	3,600	3,210	3,890	4,350	4,000	11,770	67,610	19,170	3,770	6,820	8,050	141,600
1942	13,730	8,220	4,730	2,780	2,430	3,690	36,690	41,740	9,170	3,660	4,720	7,020	138,600
1943	5,990	3,720	2,990	3,730	3,280	3,580	17,360	18,550	7,000	3,580	9,590	6,060	85,700
1944	7,280	4,900	3,480	2,590	1,910	2,750	6,470	47,620	19,120	5,530	4,310	6,030	112,000
1945	6,890	5,080	2,920	2,860	2,690	4,280	5,860	52,210	11,520	3,570	8,100	6,810	112,800
1946	7,270	6,260	4,100	2,860	2,600	2,920	3,960	12,120	4,840	4,190	5,290	6,990	69,400
1947	6,860	4,630	3,780	2,720	2,350	2,170	8,600	16,940	8,000	3,810	6,110	8,090	74,060
1948	9,490	6,030	4,130	3,880	2,520	3,040	22,580	41,020	6,690	4,250	5,040	5,790	114,500
1949	6,020	4,570	4,360	2,670	2,250	2,270	13,650	34,530	16,860	5,100	4,770	5,300	102,400
1950	7,100	4,020	3,750	3,020	2,010	2,100	20,380	23,960	7,430	4,830	3,340	4,690	86,630
1951	3,310	2,700	2,640	2,670	1,710	1,730	2,840	14,700	4,590	2,640	3,240	4,420	47,190
1952	5,270	4,150	3,530	2,830	2,200	2,280	14,640	43,970	10,670	4,440	7,020	6,300	107,400
1953	5,260	5,760	3,330	2,550	1,810	2,560	5,200	10,230	5,240	3,060	4,780	6,030	55,810
1954	6,170	4,750	2,510	2,190	2,100	2,490	8,970	6,040	2,760	3,790	3,170	7,140	52,080

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	7,800	4,700	3,800	3,300	2,600	2,400	4,000	6,400	1,700	2,700	2,500	3,800	45,700
1932	7,900	5,100	3,700	2,600	3,000	3,100	23,000	44,200	9,200	4,400	3,700	5,400	115,300
1933	6,000	4,500	3,100	2,300	1,900	2,800	4,900	20,700	10,700	3,500	3,800	5,600	69,800
1934	5,800	4,100	3,300	2,600	2,100	2,200	4,800	8,000	330	1,900	2,000	3,000	40,130
1935	2,600	2,000	3,000	2,500	1,800	2,200	3,800	14,600	11,400	4,100	4,300	6,300	58,600
1936	6,400	4,100	3,000	2,700	2,100	2,500	19,600	39,000	5,000	3,400	4,400	6,400	98,600
1937	5,600	4,200	3,100	2,500	2,000	2,800	10,800	38,800	4,200	3,500	3,200	4,700	85,400
1938	6,000	4,200	3,500	2,900	2,100	3,100	24,000	40,000	15,800	4,400	7,100	10,100	123,200
1955	6,500	3,400	3,000	2,600	1,900	2,600	7,000	14,400	3,400	3,000	4,300	4,900	57,000
1956	4,500	3,600	3,300	2,700	2,100	2,600	9,400	18,200	4,200	2,800	2,900	3,400	59,700
1957	4,300	3,700	2,900	2,800	2,500	2,500	8,800	33,400	27,400	6,400	10,600	9,800	115,100
1958	9,100	7,300	4,700	3,200	3,100	3,200	17,000	56,000	11,200	3,200	3,700	6,200	127,900
1959	5,600	4,700	3,600	3,000	2,300	2,400	3,600	8,600	4,100	2,700	4,200	5,400	50,200
1960	8,600	4,800	3,000	2,700	1,900	3,400	18,000	14,200	5,800	3,100	3,200	5,100	73,800
1961	5,500	3,900	3,000	2,400	1,900	2,500	4,400	14,800	3,200	2,700	3,800	9,400	57,500
1962	9,200	5,700	3,300	2,800	2,600	2,500	26,800	35,100	8,900	4,600	4,200	7,000	112,700
1963	6,900	4,500	3,200	2,600	3,100	3,200	6,600	10,000	1,200	2,800	4,200	6,100	54,400
1964	5,800	4,300	3,000	2,500	2,100	2,100	5,000	24,200	5,400	3,500	6,200	6,800	70,900
1965	5,700	4,300	3,400	2,900	2,100	2,400	15,200	35,800	14,000	5,750	8,600	12,800	112,950



Relationships of monthly mean discharge of San Miguel River near Telluride, Colo. (Y), to monthly mean discharge of San Miguel River near Placerville, Colo. (X). Discharge in thousands of acre-feet.

1712. San Miguel River near Telluride, Colo.

Location.--Lat 37°56'55", long 107°52'35", in NW¼ sec.33, T.43 N., R.9 W., on left bank 0.1 mile upstream from Remine Creek, 0.3 mile downstream from bridge on State Highway 145, 0.5 mile downstream from Prospect Creek, 1.6 miles upstream from South Fork, and 3.5 miles west of Telluride. Datum of gage is 8,622.81 ft above mean sea level (levels by Bureau of Reclamation).

Drainage area.--42.8 sq mi.

Records available.--October 1959 to September 1965.

Estimates of streamflow.--October 1930 to September 1934, April 1942 to September 1959, based on relationships of monthly mean discharge with San Miguel River near Placerville, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of San Miguel River near Telluride, Colo., and X is discharge of San Miguel River near Placerville, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.63	0.60	0.53	0.54	0.54	0.53	0.84	0.85	0.92	0.93	0.80	0.92
c	-.83	-.90	-1.11	-1.05	-1.06	-1.10	.14	-.09	.10	.17	-.28	.26

Average discharge.--27 years (1930-34, 1942-65), 46,310 acre-feet per year (64.0 cfs).

Extremes.--1959-65: Maximum discharge, 616 cfs July 12, 1965; minimum daily determined, 12 cfs Mar. 8, 1961, Mar. 9, 11, 1964.

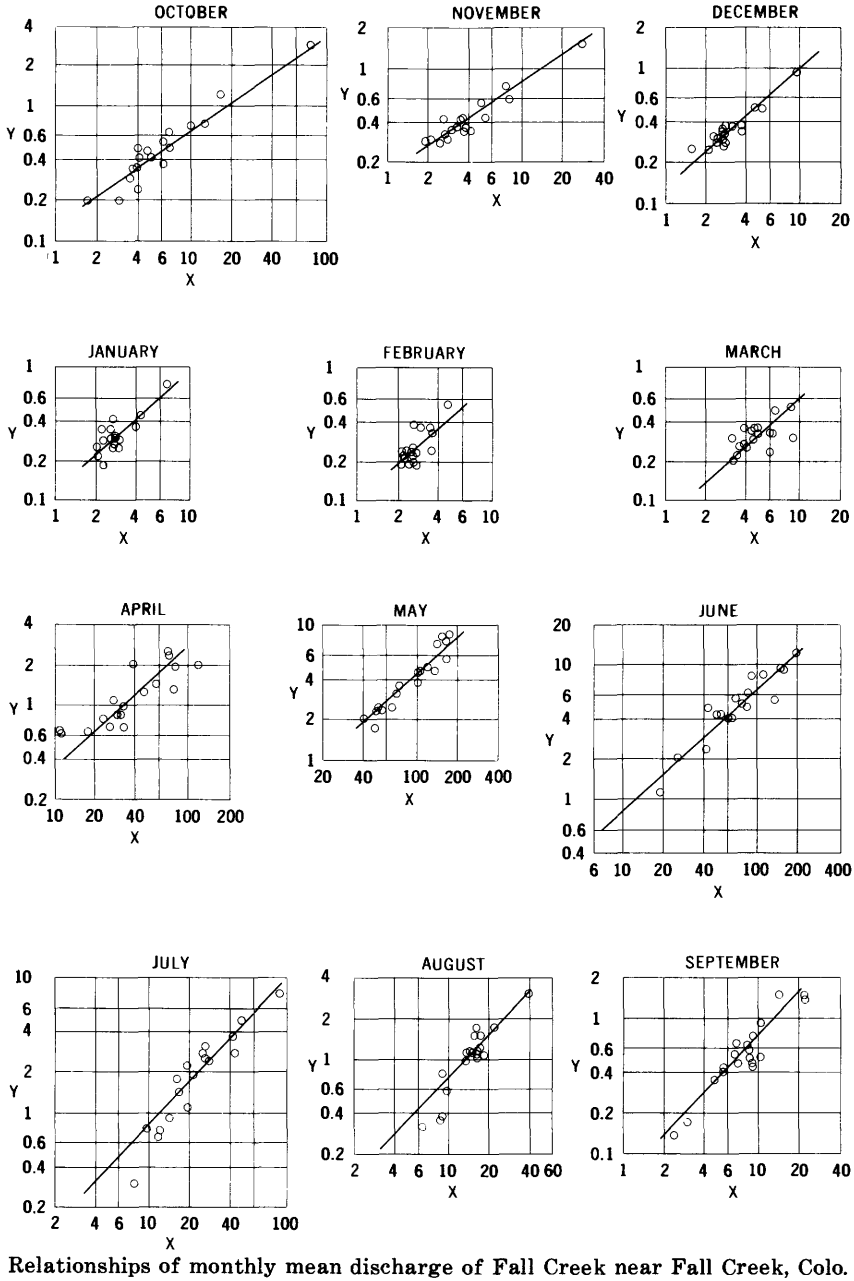
Remarks.--Several small diversions for irrigation of hay meadows above station. Estimates of annual flow are within about 15 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1960	1,890	1,490	1,110	958	869	1,160	3,480	7,090	19,030	7,680	2,530	1,700	48,990
1961	1,480	1,310	1,090	984	912	1,200	2,020	10,830	15,890	4,200	3,330	3,100	46,350
1962	2,330	1,610	1,100	922	994	984	3,210	7,370	13,440	9,140	2,920	2,100	46,120
1963	1,720	1,290	996	799	948	1,470	2,120	8,560	6,990	3,440	3,540	2,130	34,000
1964	1,420	1,370	1,050	922	805	906	1,570	9,360	12,670	5,470	3,500	2,070	41,110
1965	1,680	1,140	984	922	829	895	2,540	6,610	15,130	17,950	6,120	3,660	58,660

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	1,600	1,200	1,100	1,000	1,000	1,100	1,100	3,800	9,200	4,300	2,600	1,900	29,900
1932	1,900	1,200	1,000	960	980	1,100	3,000	10,700	17,000	10,700	4,500	2,000	55,040
1933	1,600	1,200	1,000	960	960	1,200	1,200	6,200	16,500	6,200	2,500	2,500	42,020
1934	1,900	1,200	1,100	1,000	1,000	1,100	1,800	6,600	4,100	2,500	2,400	1,500	26,200
1942	-	-	-	-	-	-	4,700	15,300	21,700	11,200	4,800	2,700	-
1943	1,600	1,400	1,300	1,300	1,200	1,300	2,100	7,600	13,300	6,800	5,400	2,700	46,000
1944	1,700	1,400	1,200	1,100	1,000	1,100	1,400	14,900	22,700	14,000	4,200	1,700	66,400
1945	1,700	1,400	1,200	1,100	1,000	1,100	1,400	10,200	15,300	9,200	5,200	2,000	50,800
1946	1,700	1,400	1,100	960	980	1,200	2,700	5,600	13,900	6,400	3,800	2,200	41,940
1947	1,700	1,300	1,100	980	900	1,100	1,700	9,000	15,200	11,200	5,600	4,500	54,280
1948	2,500	1,700	1,300	1,100	1,100	1,100	4,000	14,800	17,900	10,000	3,800	1,600	60,900
1949	1,600	1,300	1,100	980	1,000	1,000	2,100	8,400	21,500	13,800	3,800	1,700	58,280
1950	1,500	1,300	1,100	980	920	1,000	2,000	5,200	12,100	6,200	2,200	1,300	35,800
1951	1,300	1,000	980	920	880	940	890	4,200	10,000	5,000	2,400	1,300	29,810
1952	1,300	1,000	960	920	900	960	2,500	11,200	22,900	12,000	4,900	2,700	62,240
1953	1,600	1,200	1,100	1,100	940	1,100	1,600	5,600	16,100	6,000	3,300	1,500	41,140
1954	1,300	1,200	1,000	1,000	940	1,000	1,500	5,600	7,000	4,500	2,600	2,300	29,940
1955	2,100	1,200	980	940	860	1,000	1,700	6,400	12,200	4,800	3,100	1,500	36,780
1956	1,200	1,000	1,000	900	860	1,000	1,600	7,400	12,100	3,700	2,100	1,100	33,960
1957	1,100	1,000	940	920	860	900	1,600	8,000	24,800	21,700	6,800	3,500	72,120
1958	1,900	1,700	1,400	1,000	980	1,100	4,000	21,000	23,900	6,800	3,000	2,100	68,880
1959	1,700	1,300	1,100	1,000	1,000	1,000	1,300	4,800	11,600	3,300	3,100	1,500	32,700



Relationships of monthly mean discharge of Fall Creek near Fall Creek, Colo. (Y), to monthly mean discharge of Dolores River at Dolores, Colo. (X). Discharge in thousands of acre-feet.

1720. Fall Creek near Fall Creek, Colo.

Location.--Lat 37°58', long 108°01', in sec.24, T.43 N., R.11 W., on left bank 2.7 miles upstream from mouth and 2.8 miles south of town of Fall Creek. Datum of gage is 7,928.79 ft above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--33.5 sq mi.

Records available.--August 1941 to September 1959.

Estimates of streamflow.--October 1930 to July 1941, October 1959 to September 1965, based on relationships of monthly mean discharge with Dolores River at Dolores, Colo. The regression equation used is:

$$\text{Log } Y = b \text{ log } X - c$$

(where Y is discharge of Fall Creek near Fall Creek, Colo., and X is discharge of Dolores River at Dolores, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.69	0.69	0.88	0.88	0.88	0.91	0.91	0.90	0.90	1.06	1.06	1.06
c	-.08	-.14	.52	.56	.61	.87	1.09	.85	.70	1.31	1.37	1.35

Average discharge.--35 years (1930-65), 16,930 acre-feet per year (23.4 cfs).

Extremes.--1941-59: Maximum discharge, 1,390 cfs May 4, 1957, from rating curve extended above 240 cfs on basis of slope-area measurement of peak flow; minimum daily determined, 1.6 cfs Sept. 26-28, 1951.

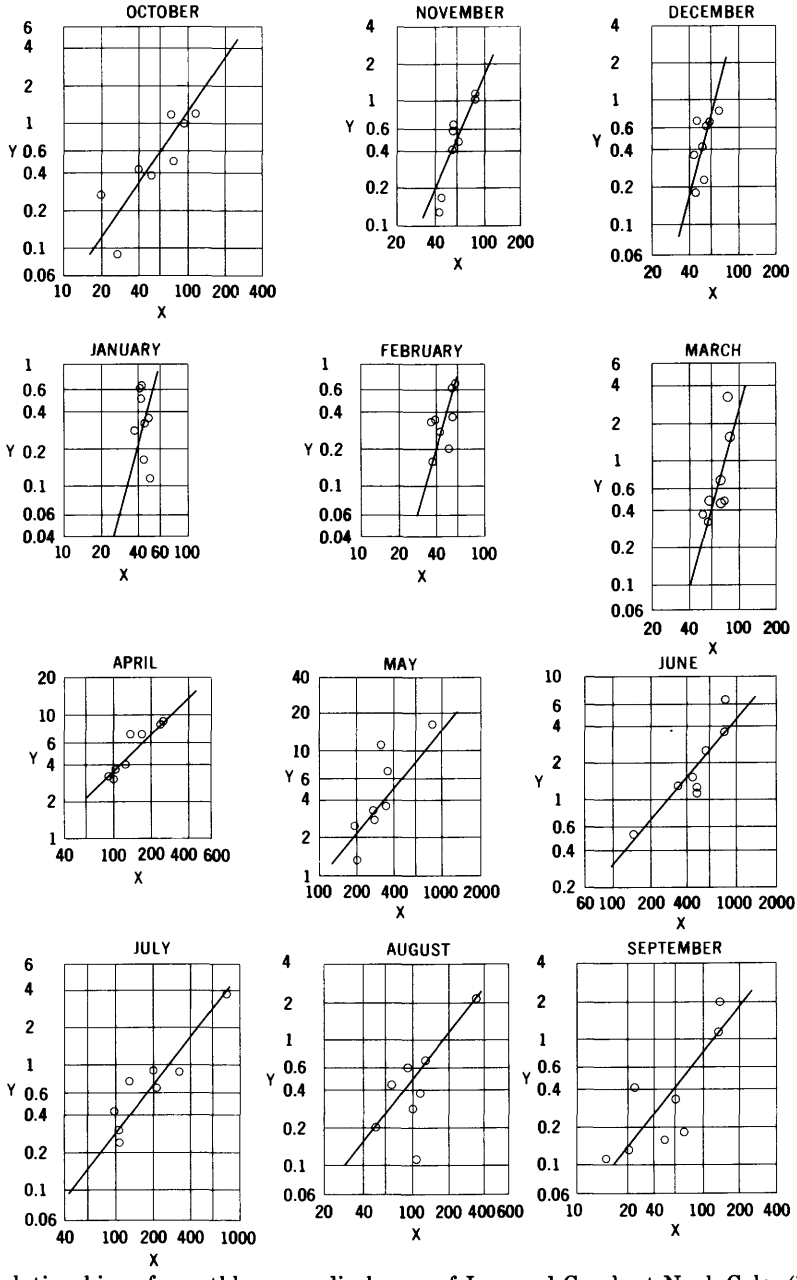
Remarks.--Slight regulation by Sylvan Lake Reservoir (capacity, 230 acre-feet). One diversion above station to Beaver and Saltado Creek basins for irrigation of about 2,000 acres. Diversions for irrigation of 200 acres above station. Estimates of annual flow are within about 15 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1941	-	-	-	-	-	-	-	-	-	-	1,790	1,370	-
1942	2,970	1,530	922	738	555	523	2,080	9,370	8,370	3,120	1,190	666	31,010
1943	492	417	369	338	389	492	1,970	4,690	5,780	2,280	1,550	740	19,510
1944	518	541	369	277	230	369	696	7,800	9,380	4,940	2,160	516	26,800
1945	430	347	363	400	372	375	689	4,520	4,910	2,810	1,590	450	17,260
1946	575	363	246	215	194	369	2,070	2,450	4,060	1,450	992	644	13,630
1947	679	426	338	246	194	246	1,100	4,970	5,040	2,610	1,740	1,470	19,060
1948	1,280	728	492	357	374	338	2,570	7,210	6,210	2,440	1,170	476	23,640
1949	368	302	320	283	261	356	1,290	4,530	5,450	2,780	1,090	456	17,490
1950	391	342	277	258	250	335	1,460	2,430	4,250	1,810	595	443	12,840
1951	359	425	338	184	194	260	651	1,700	2,390	774	323	138	7,740
1952	204	274	287	273	245	213	1,320	5,660	9,150	3,720	1,260	926	23,530
1953	501	327	290	283	243	305	794	2,320	4,040	1,130	1,150	402	11,780
1954	247	357	369	338	250	307	992	2,320	1,150	672	368	579	7,950
1955	760	416	300	285	227	271	646	3,140	4,220	926	1,110	542	12,840
1956	300	288	277	246	201	310	863	3,590	4,740	740	385	171	12,110
1957	204	283	246	258	239	282	859	3,280	11,910	7,800	3,080	1,480	29,920
1958	774	586	492	430	333	338	2,350	8,720	8,010	1,970	1,170	513	25,690
1959	427	349	307	246	222	235	636	2,070	2,010	313	809	352	7,980

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	430	350	290	270	260	290	470	2,200	2,300	760	350	360	8,330
1932	560	420	440	360	500	520	2,100	7,200	7,200	2,900	1,100	500	23,800
1933	400	310	330	330	190	260	470	2,800	5,600	1,700	450	620	13,460
1934	520	430	350	270	270	290	900	1,700	550	270	220	180	5,950
1935	240	250	240	200	180	290	1,000	3,100	8,200	3,000	1,200	830	18,730
1936	520	370	270	230	220	520	2,000	4,600	3,400	1,100	1,500	640	15,370
1937	410	500	410	360	220	340	2,200	7,000	4,200	1,900	560	380	18,480
1938	470	370	290	270	240	580	2,500	5,200	8,200	2,900	650	1,000	22,670
1939	630	510	400	300	250	600	1,300	3,200	2,000	440	280	620	10,530
1940	340	340	200	190	220	390	1,100	4,000	2,900	930	630	690	11,930
1941	810	500	360	310	320	520	960	8,400	9,000	5,600	-	-	29,940
1960	450	470	250	220	180	520	1,900	3,800	5,400	1,300	600	300	15,390
1961	410	370	290	230	180	270	910	4,100	3,600	1,000	920	1,000	13,280
1962	710	600	380	350	450	310	1,900	4,200	4,700	2,000	1,100	520	17,220
1963	470	400	350	250	310	660	1,100	2,900	1,300	920	760	560	9,980
1964	370	350	260	220	180	150	410	3,700	3,000	1,200	1,500	680	12,000
1965	320	330	330	310	250	220	1,500	4,700	7,300	5,800	2,300	1,400	24,760



Relationships of monthly mean discharge of Leopard Creek at Noel, Colo. (Y), to monthly mean discharge of Uncompahgre River at Colona, Colo. (X). Discharge in hundreds of acre-feet.

1721. Leopard Creek at Noel, Colo.

Location.--Lat 38°06'10", long 107°55'10", in SE¼SW¼ sec.36, T.45 N., R.10 W., on right bank 10 ft downstream from abandoned railroad, 0.6 miles west of Noel, and 2 miles upstream from Dead Horse Canyon. Altitude of gage is 8,700 ft (from topographic map).

Drainage area.--9.11 sq mi.

Records available.--October 1955 to September 1963.

Estimates of streamflow.--October 1930 to September 1955, October 1963 to September 1965, based on relationships of monthly mean discharge with Uncompahgre River at Colona, Colo. The regression equation used is:

$$\text{Log } Y = b \text{ log } X - c$$

(where Y is discharge of Leopard Creek at Noel, Colo., and X is discharge of Uncompahgre River at Colona, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.44	2.20	3.70	3.70	3.46	3.55	0.98	1.22	1.16	1.27	1.25	1.23
c	3.65	6.62	12.12	11.95	11.15	11.71	1.36	2.90	3.14	3.64	3.32	3.04

Average discharge.--35 years (1930-65), 1,828 acre-feet per year (2.52 cfs).

Extremes.--1955-63: Maximum discharge, 100 cfs Apr. 30, 1961; minimum daily, 0.1 cfs for many days in 1956-57, 1959.

Remarks.--One diversion above station to Dallas Creek drainage. Small diversions for irrigation of hay meadows above station. Estimates of annual flow are within about 25 percent of regression line.

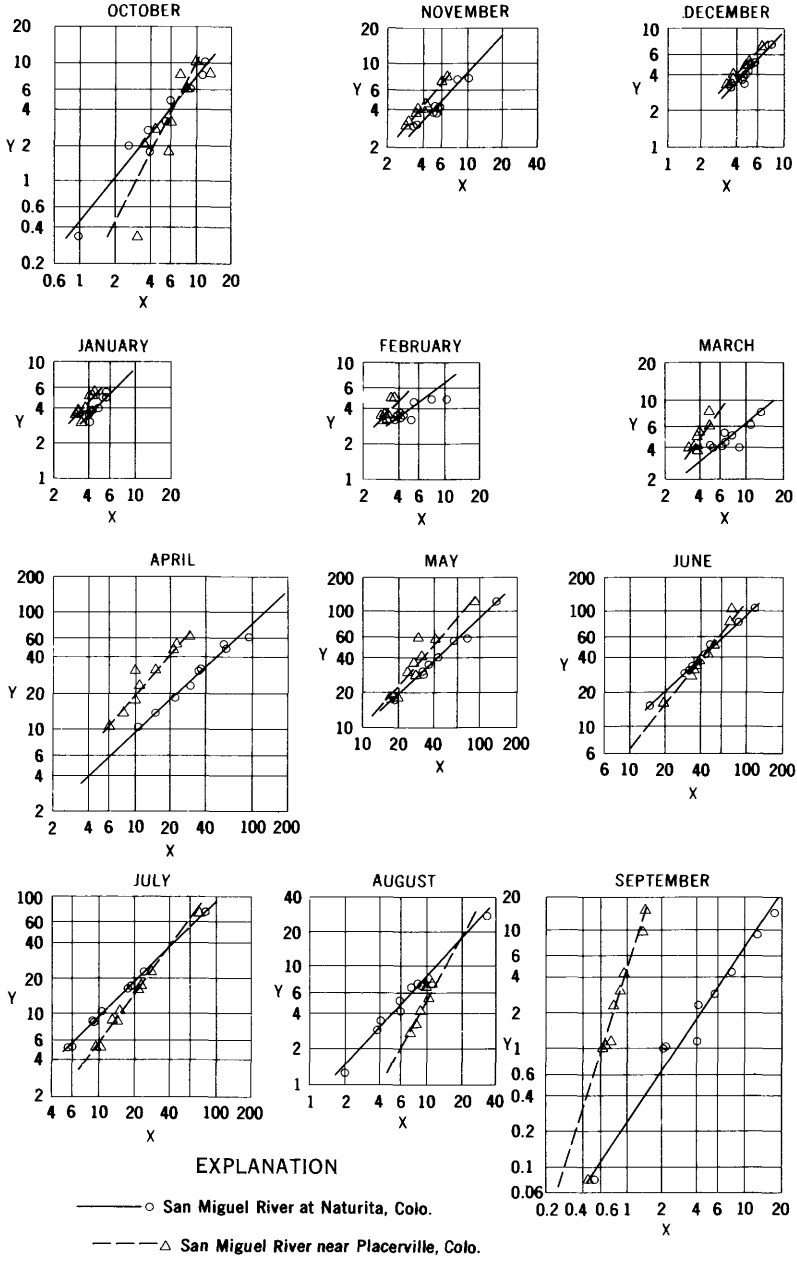
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	28	17	23	17	16	46	412	287	130	43	20	11	1,050
1957	9.3	13	18	12	20	37	364	1,170	659	373	219	201	3,100
1958	125	114	82	66	63	68	885	1,720	344	64	37	18	3,590
1959	40	47	62	36	28	32	314	262	115	30	11	13	990
1960	107	65	36	29	33	150	840	343	252	87	44	40	2,030
1961	44	41	42	34	35	45	725	730	155	73	70	115	2,110
1962	127	105	66	52	37	47	727	381	125	85	28	16	1,800
1963	51	57	68	65	48	327	322	137	54	24	60	33	1,250

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	90	‡40	‡6	‡4	‡8	‡70	340	190	110	30	30	40	958
1932	120	‡50	‡30	‡30	‡30	‡100	670	670	250	140	60	40	2,190
1933	40	‡20	‡6	‡7	‡6	‡30	330	370	230	50	30	80	1,200
1934	120	50	‡40	‡50	‡30	‡40	580	330	30	9	20	20	1,320
1935	30	20	‡6	‡4	‡6	‡20	230	170	250	120	80	70	1,010
1936	80	40	20	20	20	40	630	450	110	30	70	30	1,540
1937	50	30	30	30	20	70	680	640	110	50	40	60	1,810
1938	90	40	30	20	20	110	1,100	630	450	180	70	130	2,870
1939	140	90	60	50	20	400	700	450	140	30	30	50	2,160
1940	40	30	20	30	20	170	640	570	190	30	20	50	1,810
1941	150	50	40	40	30	100	380	970	310	230	120	100	2,520
1942	490	220	220	80	40	70	1,500	960	400	180	70	50	4,280
1943	70	40	50	60	50	50	570	260	170	70	150	80	1,620
1944	80	70	60	30	20	30	410	900	350	250	50	30	2,280
1945	60	40	20	40	30	30	380	660	210	120	150	30	1,770
1946	90	60	30	40	40	100	730	200	160	60	60	50	1,620
1947	80	60	40	50	10	50	390	440	240	150	120	130	1,760
1948	160	110	80	50	60	70	1,000	800	220	100	60	30	2,740
1949	60	50	50	60	50	120	860	460	330	190	40	30	2,300
1950	70	60	40	40	50	40	540	130	150	70	10	10	1,210
1951	20	20	20	40	20	20	170	150	110	40	30	10	650
1952	30	30	40	30	10	20	670	480	330	130	110	60	1,940
1953	50	30	40	60	30	40	330	220	230	60	50	10	1,150
1954	30	70	40	30	30	10	270	150	40	40	20	60	790
1955	100	30	20	30	10	30	330	220	140	30	60	10	1,010
1964	40	60	20	20	10	30	480	500	180	80	100	50	1,570
1965	60	40	50	50	20	30	640	370	220	250	130	120	1,980

‡ Based on estimates for 1950 compilation.



Relationships of monthly mean discharge of San Miguel River near Nucla, Colo. (Y), to monthly mean discharge of San Miguel River near Placerville, Colo., or San Miguel River at Naturita, Colo. (X). Discharge in thousands of acre-feet.

1740. San Miguel River near Nucla, Colo.

Location.--Lat 38°15', long 108°24', in NE¼ sec.10, T.46 N., R.14 W., on right bank 0.4 miles upstream from highway bridge, three-quarters of a mile upstream from Cottonwood Creek, and 8½ miles east of Nucla. Altitude of gage is 5,800 ft (from topographic map).

Drainage area.--660 sq mi, approximately.

Records available.--October 1953 to September 1962.

Estimates of streamflow.--October 1930 to September 1934, based on relationships of monthly mean discharge with San Miguel River near Placerville, Colo.; May 1940 to September 1953, October 1962 to September 1965, based on relationships of monthly mean discharge with San Miguel River at Naturita, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of San Miguel River near Nucla, Colo., and X is discharge of San Miguel River near Placerville, Colo., or San Miguel River at Naturita, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct 1930 to Sept 1934	b	1.97	1.20	1.08	1.08	1.08	1.39	1.16	1.16	1.25	1.36	1.79	2.92
	c	3.86	.73	.26	.23	.22	1.32	.35	.64	1.19	1.69	3.46	7.86
May 1940 to Sept 1965	b	1.24	1.06	1.09	1.00	0.78	0.84	0.93	0.94	0.92	0.97	1.07	1.45
	c	1.06	.56	.38	.06	-.72	-.46	-.25	-.24	-.35	-.10	.37	1.87

Average discharge.--29 years (1931-34, 1940-65), 197,900 acre-feet per year (273 cfs).

Extremes.--1953-62: Maximum discharge, 3,810 cfs Apr. 22, 1958; minimum daily 0.5 cfs Oct. 11-22, 1956.

Remarks.--Slight regulation by Lake Hope and Trout Lake of Western Colorado Power Co. (combined capacity 5,040 acre-feet). Natural flow of stream also affected by water exported from Beaver Creek to Naturita Creek drainage for irrigation of about 12,000 acres, diversions for irrigation of about 5,000 acres above station, and diversion by Colorado Cooperative Canal 4 miles upstream for irrigation below. Estimates of annual flow are within about 5 percent of regression line.

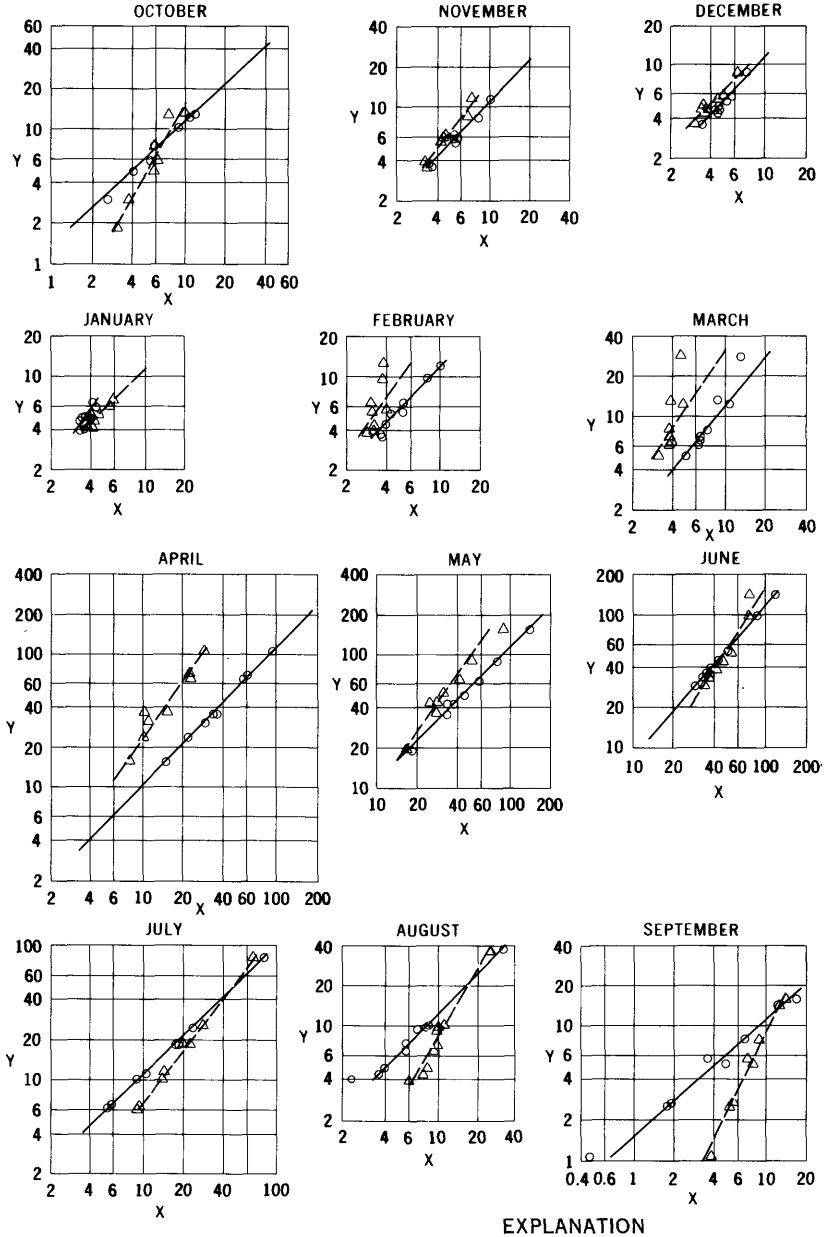
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1954	2,770	4,080	4,460	4,890	3,720	4,190	10,270	18,120	15,460	8,800	3,460	4,400	84,620
1955	8,090	4,460	3,430	3,970	3,520	4,010	23,240	30,960	33,820	10,250	7,210	1,010	132,000
1956	2,050	3,190	4,050	3,710	3,400	5,530	18,040	28,690	30,480	5,310	1,250	78	105,800
1957	337	3,080	3,190	3,080	3,230	4,080	31,740	59,140	102,900	71,500	26,400	14,150	322,800
1958	8,020	8,010	7,250	4,920	4,910	6,360	61,430	118,900	78,740	16,150	4,260	2,940	321,900
1959	3,220	4,460	4,950	5,560	4,620	4,190	13,660	17,430	29,020	5,210	6,660	1,040	100,000
1960	4,890	4,660	4,210	3,750	3,510	8,220	54,020	35,180	50,660	16,980	2,900	1,140	190,100
1961	1,760	3,870	3,710	3,570	3,220	4,490	32,200	55,840	41,280	8,570	7,010	9,360	174,900
1962	10,560	7,540	5,180	3,830	4,990	5,010	48,880	40,010	36,810	22,820	5,100	2,340	193,100

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	3,300	4,400	4,200	4,600	4,500	5,300	11,100	13,800	21,800	7,600	3,500	2,300	86,400
1932	5,700	4,100	3,900	4,200	4,300	5,300	45,200	54,000	49,200	28,500	11,300	2,600	218,300
1933	3,300	4,200	3,900	4,200	4,200	7,000	12,100	25,800	47,800	13,300	3,100	5,000	133,900
1934	5,800	4,100	4,200	4,600	4,500	6,400	22,000	28,200	7,400	3,500	2,800	1,000	94,500
1940	-	-	-	-	-	-	-	50,900	40,400	9,100	4,500	510	-
1941	9,300	5,500	5,000	5,000	4,400	6,700	50,500	137,000	89,500	57,000	22,500	18,500	410,900
1942	*37,400	17,600	10,000	8,100	5,200	7,800	133,000	128,000	82,300	34,100	11,000	4,000	478,500
1943	5,300	6,500	7,400	7,000	4,900	5,200	40,800	38,900	38,300	17,800	20,000	7,000	199,100
1944	4,000	5,000	4,800	4,200	4,100	4,800	21,400	118,000	80,000	37,200	9,600	1,900	295,000
1945	4,600	5,400	5,200	4,300	4,200	4,400	23,800	78,500	46,200	25,300	14,600	2,400	218,900
1946	5,400	5,300	4,400	4,000	3,800	5,800	30,300	25,300	37,800	13,600	9,100	4,600	149,400
1947	5,200	5,200	4,800	4,500	4,000	5,000	17,200	41,600	44,500	30,100	16,200	18,400	196,700
1948	11,500	7,800	6,700	6,100	6,500	6,300	70,500	80,500	55,000	24,400	9,800	2,000	287,100
1949	4,700	4,200	4,500	4,900	4,800	4,900	33,800	47,000	68,500	37,600	9,200	1,800	225,900
1950	4,200	4,500	4,600	5,700	4,500	5,000	26,000	21,600	33,300	14,400	3,000	1,000	127,800
1951	2,900	3,200	4,000	3,800	3,100	3,200	3,500	13,800	26,400	9,200	5,900	1,800	80,800
1952	2,300	3,100	3,400	4,100	3,600	3,700	52,300	66,200	71,500	31,700	12,900	5,400	260,200
1953	5,000	4,400	5,600	5,500	3,900	4,400	15,200	24,800	45,800	14,700	6,800	980	137,080
1963	5,900	4,800	4,800	4,500	5,100	10,600	14,400	22,100	14,800	5,700	5,900	3,600	102,200
1964	1,800	4,600	3,200	3,000	2,900	2,900	22,800	50,000	32,400	9,600	8,800	1,900	143,900
1965	4,000	3,500	4,300	4,500	3,600	3,700	52,000	57,200	54,400	48,800	19,900	12,700	268,600

* Estimated on basis of August regression.



Relationships of monthly mean discharge of San Miguel River at Uravan, Colo. (Y), to monthly mean discharge of San Miguel River near Placerville, Colo., or San Miguel River at Naturita, Colo. (X). Discharge in thousands of acre-feet.

1770. San Miguel River at Uravan, Colo.

Location.--Lat 38°21'25", long 108°42'40", in SW¼NE¼ sec.2, T.47 N., R.17 W., on right bank 20 ft downstream from bridge on State Highway 141, 300 ft downstream from Tabeguache Creek, and 1½ miles southeast of Uravan. Altitude of gage is 5,000 ft (from topographic map).

Drainage area.--1,550 sq mi, approximately.

Records available.--August 1954 to September 1962.

Estimates of streamflow.--October 1930 to September 1934, based on relationships of monthly mean discharge with San Miguel River near Placerville, Colo.; May 1940 to July 1954, October 1962 to September 1965, based on relationships of monthly mean discharge with San Miguel River at Naturita, Colo. The regression equation used is:

$$\text{Log } Y = b \text{ log } X - c$$

(where Y is discharge of San Miguel River at Uravan, Colo., and X is discharge of San Miguel River near Placerville, Colo., or San Miguel River at Naturita, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct 1930 to Sept 1934	b	1.74	1.36	1.02	1.46	1.46	1.46	1.45	1.44	1.54	1.30	1.62	2.04
	c	2.77	1.15	-.04	1.57	1.40	1.35	1.44	1.77	2.50	1.38	2.58	4.16
May 1940 to Sept 1965	b	0.93	1.00	1.06	1.03	1.03	1.21	1.04	1.01	1.12	0.96	0.96	0.89
	c	-.35	-.03	.19	.07	.05	.76	.14	-.01	.54	-.20	-.22	-.52

Average discharge.--29 years (1930-34, 1940-65), 256,500 acre-feet per year (354 cfs).

Extremes.--1954-62: Maximum discharge, 6,690 cfs Apr. 19, 1958; minimum daily, 14 cfs Sept. 16, 18-20, 1956.

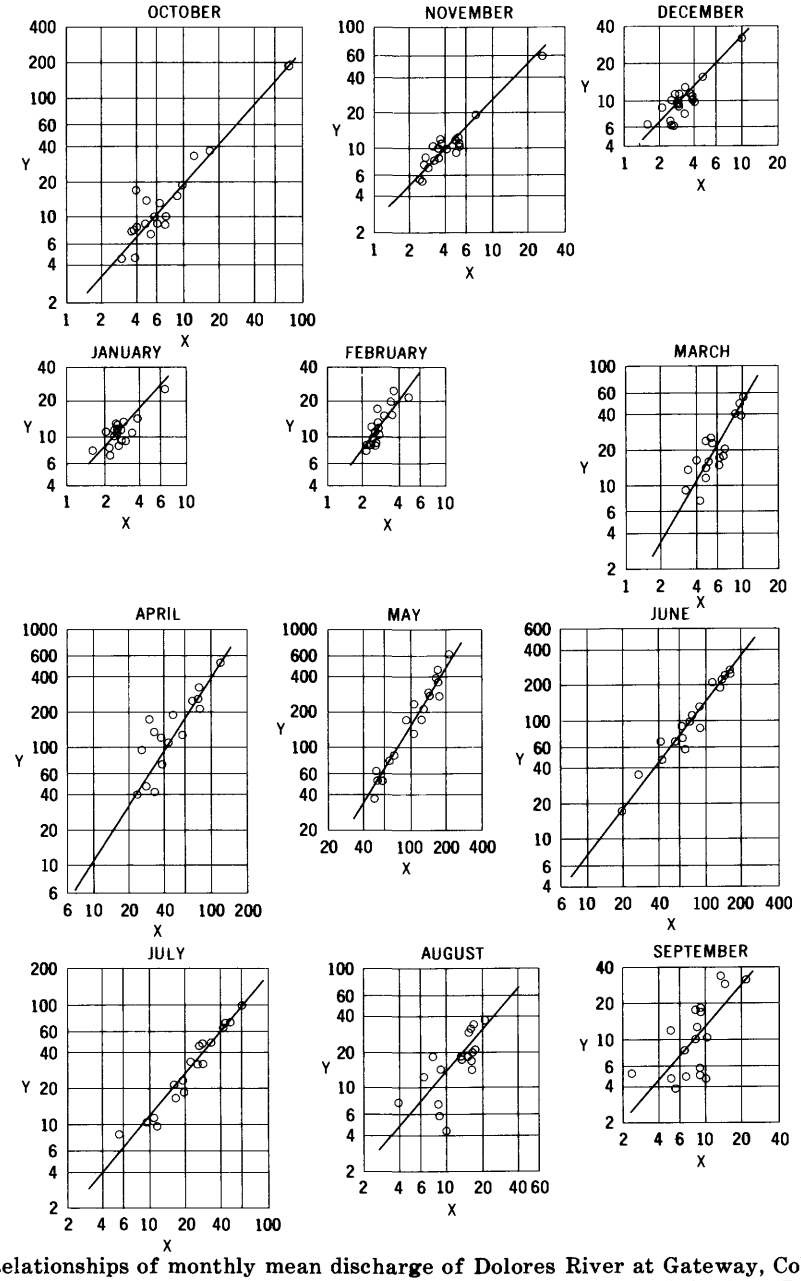
Remarks.--Natural flow of stream affected by storage reservoirs, diversions for irrigation of about 28,000 acres above station, and return flow from irrigated areas. Estimates of annual flow October 1930 to September 1934 are within about 10 percent of regression line. Estimates of annual flow after May 1940 are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1954	-	-	-	-	-	-	-	-	-	-	4,760	8,100	-
1955	10,500	5,440	4,610	4,940	5,220	13,020	30,890	43,120	36,790	11,320	9,710	2,600	178,200
1956	3,020	3,620	4,520	3,930	3,690	6,570	23,850	36,400	33,240	6,610	4,060	1,000	130,500
1957	1,880	3,820	3,560	4,940	6,350	5,020	36,460	90,880	140,500	80,330	36,380	16,040	426,200
1958	12,730	11,330	8,880	6,430	12,520	12,350	105,700	156,600	95,900	18,430	6,400	5,390	452,700
1959	5,800	6,040	5,440	5,850	5,510	6,220	15,770	19,730	29,380	6,330	9,100	2,710	117,900
1960	7,790	5,970	4,860	4,640	4,410	28,220	65,250	43,830	52,610	18,440	4,310	3,710	244,000
1961	4,920	6,270	4,600	4,000	3,790	7,010	35,870	64,310	44,950	10,130	9,890	14,960	210,700
1962	13,180	8,360	5,840	4,810	9,820	7,960	69,950	51,160	38,920	24,990	7,380	5,840	248,200

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	5,500	5,500	5,100	5,600	6,800	9,000	11,500	14,600	20,300	9,000	5,700	5,100	103,700
1932	8,900	5,100	4,700	5,000	6,400	9,000	64,000	78,000	56,500	31,200	16,600	5,600	291,000
1933	5,600	5,100	4,700	5,000	6,100	11,800	12,800	31,200	54,000	15,100	5,100	8,600	165,100
1934	9,100	5,100	5,100	5,600	6,800	10,800	26,700	34,600	5,400	4,300	4,700	2,800	121,000
1940	-	-	-	-	-	-	-	65,500	44,000	11,400	6,700	2,100	-
1941	13,200	7,000	5,900	6,300	6,700	12,300	68,500	190,000	116,000	70,300	28,300	19,600	544,100
1942	43,400	21,100	11,500	10,200	8,200	15,000	201,000	176,000	105,000	42,400	14,800	7,600	656,200
1943	8,700	8,300	8,600	8,800	7,600	8,600	53,400	49,200	41,200	22,400	25,400	10,700	252,900
1944	7,000	6,400	5,700	5,200	6,000	7,600	26,200	160,000	101,000	46,100	13,100	4,800	389,100
1945	7,700	6,900	6,100	5,400	6,100	6,600	29,500	104,000	51,300	31,400	19,000	5,500	279,500
1946	8,800	6,800	5,200	5,100	5,400	9,800	38,400	30,800	40,000	17,000	12,400	8,300	188,000
1947	8,600	6,700	5,600	5,700	5,800	8,100	20,500	53,000	49,000	37,300	21,200	19,400	240,900
1948	15,500	9,800	7,800	7,600	11,000	11,300	99,000	107,000	64,000	30,300	13,400	4,900	381,600
1949	7,900	5,500	5,300	6,100	7,400	7,800	43,400	60,200	84,000	46,800	12,700	4,600	291,700
1950	7,200	5,800	5,400	7,100	6,800	8,100	32,300	26,000	34,300	18,000	4,600	3,300	158,900
1951	5,600	4,200	4,700	4,800	4,200	4,200	3,400	16,200	26,200	11,500	8,900	4,600	98,500
1952	4,600	4,100	4,000	5,100	5,100	5,300	70,200	87,000	88,000	39,200	17,300	9,100	339,000
1953	8,200	5,800	6,600	7,000	5,500	6,800	17,800	30,300	51,600	18,300	9,600	3,200	170,700
1954	4,700	5,400	5,300	5,700	4,700	5,200	10,700	20,700	13,700	10,400	-	-	99,360
1963	9,400	6,200	5,600	5,700	7,900	23,800	16,700	27,300	12,900	7,300	8,400	7,100	138,300
1964	3,800	6,000	3,800	3,700	3,800	3,700	27,700	64,000	33,300	12,100	12,000	4,800	178,700
1965	7,000	4,700	5,000	5,700	5,100	5,100	70,500	74,500	62,500	60,000	25,400	5,400	341,000



Relationships of monthly mean discharge of Dolores River at Gateway, Colo. (Y), to monthly mean discharge of Dolores River at Dolores, Colo. (X). Discharge in thousands of acre-feet.

1795. Dolores River at Gateway, Colo.

Location.--Lat 38°40'55", long 108°58'50", in SW¼ sec.15, T.51 N., R.19 W., on right bank 500 ft downstream from bridge on State Highway 141, 0.3 mile northwest of Gateway, 0.3 mile downstream from West Creek, and 8 miles upstream from Colorado-Utah State line. Datum of gage is 4,547.76 ft above mean sea level, datum of 1929.

Drainage area.--4,350 sq mi, approximately.

Records available.--October 1936 to December 1954.

Estimates of streamflow.--October 1930 to September 1936, January 1955 to September 1965, based on relationships of monthly mean discharge with Dolores River at Dolores, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Dolores River at Gateway, Colo., and X is discharge of Dolores River at Dolores, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.12	1.03	1.04	1.11	1.34	1.74	1.55	1.64	1.30	1.19	1.15	1.17
c	.19	-.28	-.39	-.28	.49	2.23	2.15	3.00	1.33	.69	.46	.56

Average discharge.--35 years (1930-65), 586,310 acre-feet per year (810 cfs).

Extremes.--1936-54: Maximum discharge, 15,400 cfs May 14, 1941; minimum daily, 23 cfs Sept. 6, 1950.

Remarks.--Diversions for irrigation of about 35,000 acres above station and about 37,000 acres in Montezuma Valley in the San Juan River basin. Estimates of annual flow are within about 20 percent of regression line.

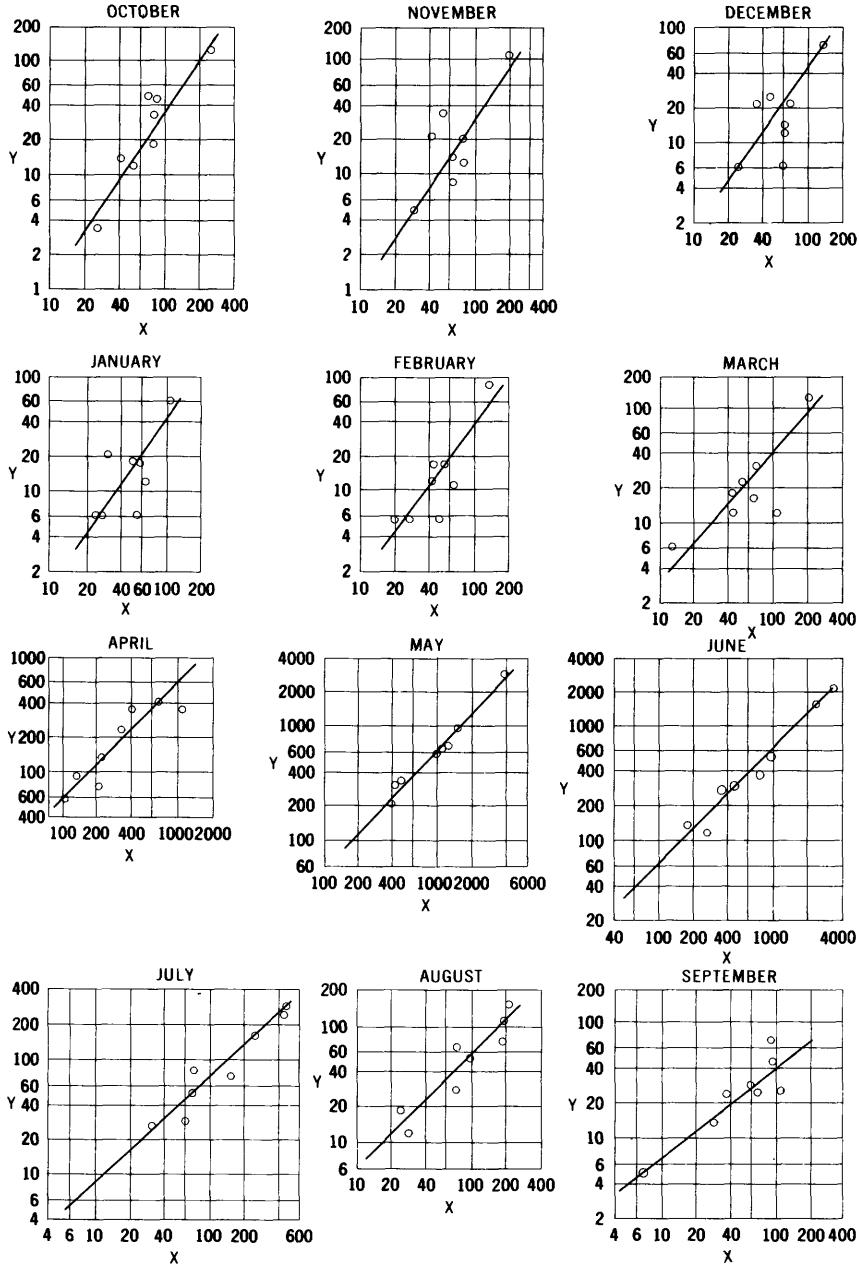
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1937	‡14,450	‡11,900	‡11,070	‡11,070	‡12,220	22,730	262,800	277,000	72,080	33,970	18,930	12,120	‡760,400
1938	10,590	8,090	10,310	10,160	11,260	39,800	292,400	215,800	192,900	48,310	14,780	34,330	888,700
1939	15,590	11,040	11,450	9,660	9,260	54,800	110,500	87,590	35,460	8,390	7,580	17,910	379,200
1940	7,800	6,870	6,370	7,890	12,380	17,380	121,300	171,700	66,680	11,690	7,220	17,020	454,300
1941	34,320	12,060	13,090	13,590	20,050	41,090	174,300	614,800	248,100	98,310	31,110	32,190	1,333,000
1942	197,100	61,070	33,800	25,830	22,090	49,840	516,400	387,100	213,200	45,920	16,730	8,320	1,577,000
1943	9,250	9,930	11,550	11,540	13,900	20,470	212,200	133,300	97,530	23,930	34,090	18,790	596,500
1944	10,700	9,190	10,030	9,440	12,150	16,760	96,910	463,200	266,700	72,930	14,470	4,780	987,300
1945	7,490	11,940	11,480	11,690	15,680	14,050	134,100	296,300	87,990	32,140	29,000	5,850	657,700
1946	14,540	10,400	8,810	11,170	10,010	16,030	72,190	53,470	58,670	16,400	17,810	10,120	299,600
1947	9,010	10,600	9,960	8,500	10,810	15,000	48,690	172,600	110,800	47,720	36,740	29,980	510,200
1948	37,520	19,090	15,750	14,530	25,580	25,580	250,400	270,900	132,600	32,550	18,420	4,900	847,800
1949	8,120	8,390	8,970	12,420	17,540	23,720	189,000	233,400	221,500	70,750	19,850	5,070	818,700
1950	9,280	9,900	9,590	11,790	15,960	18,120	128,300	77,680	66,990	21,550	4,410	4,770	378,300
1951	4,780	5,360	6,220	7,150	7,880	7,460	6,400	37,330	47,210	10,710	12,530	5,200	158,200
1952	4,750	5,460	6,270	12,640	8,970	13,920	323,300	364,500	255,800	64,430	20,700	10,800	1,092,000
1953	8,580	7,250	9,940	10,950	8,700	11,740	40,450	63,820	90,810	18,680	18,590	3,910	295,400
1954	17,590	11,140	7,910	8,290	8,870	9,510	41,470	52,590	17,710	9,650	5,880	12,790	203,200
1955	19,380	8,360	6,960	-	-	-	-	-	-	-	-	-	-

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	9,100	7,100	8,400	10,600	12,500	13,800	17,500	43,000	33,400	10,700	6,100	5,700	177,900
1932	13,700	9,600	13,600	15,300	35,000	41,400	258,000	397,000	177,000	47,100	22,000	8,200	1,037,900
1933	8,000	6,100	10,000	13,900	7,900	11,200	17,100	69,500	122,000	26,000	7,900	10,300	309,900
1934	12,200	9,700	10,300	10,600	13,200	13,800	55,500	27,400	4,200	3,300	3,700	2,600	166,500
1935	3,500	4,400	6,600	7,300	7,000	13,900	66,500	81,000	212,000	48,300	23,100	14,000	487,600
1936	12,000	7,900	7,400	8,800	10,200	42,000	226,000	172,000	60,000	16,100	30,200	10,600	603,200
1955	-	-	-	9,400	9,400	10,000	26,600	89,500	62,000	18,200	27,200	8,100	295,100
1956	6,000	5,100	9,500	12,700	11,900	50,200	65,500	98,000	51,500	14,700	12,000	3,200	338,300
1957	2,600	4,600	5,200	11,800	13,100	11,500	60,500	164,000	373,000	164,000	66,500	32,800	909,600
1958	25,100	20,000	18,200	19,100	19,000	24,700	231,000	400,000	136,000	27,800	20,200	10,400	951,500
1959	7,300	7,200	7,900	8,500	9,800	9,500	12,400	35,600	25,600	8,700	11,900	5,300	149,700
1960	9,500	11,200	7,000	8,300	7,100	42,800	97,000	120,000	117,000	19,200	11,000	4,700	554,800
1961	8,200	7,900	8,200	9,000	7,500	12,300	57,200	139,000	64,200	14,700	17,000	18,000	363,200
1962	20,400	16,200	11,600	15,000	29,000	15,500	210,000	145,000	96,000	32,000	20,300	8,500	619,500
1963	10,400	9,200	10,200	9,700	17,200	66,000	80,000	73,000	14,800	13,000	14,100	9,300	326,900
1964	7,000	7,200	7,200	8,300	7,000	2,800	13,900	117,000	49,900	17,400	28,600	11,300	277,600
1965	5,600	6,700	9,600	12,600	12,500	8,500	151,000	176,000	182,000	102,000	45,500	24,000	716,000



Relationships of monthly mean discharge of Indian Creek near Monticello, Utah (Y), to monthly mean discharge of Indian Creek above Cottonwood Creek, near Monticello, Utah (X). Discharge in acre-feet.

1860. Indian Creek near Monticello, Utah

Location.--Lat 37°50'40", long 109°31'05", in SW¼ sec.4, T.34 S., R.22 E. (unsurveyed), on left bank 1 mile northwest of Indian Creek guard station and 10 miles west of Monticello. Altitude of gage is 8,700 ft (from topographic map).

Drainage area.--4.70 sq mi.

Records available.--October 1949 to September 1957.

Estimates of streamflow.--October 1957 to September 1965, based on relationships of monthly mean discharge with Indian Creek above Cottonwood Creek, near Monticello, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Indian Creek near Monticello, Utah, and X is discharge of Indian Creek above Cottonwood Creek, near Monticello, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.49	1.46	1.44	1.44	1.35	1.16	1.02	1.06	1.02	0.91	0.99	0.80
c	1.44	1.47	1.22	1.22	1.11	.71	.28	.40	.24	-.03	.20	-1.02

Average discharge.--16 years (1949-65), 1,913 acre-feet per year (2.64 cfs).

Extremes.--1949-57: Maximum discharge, 122 cfs Aug. 6, 1955, from rating curve extended above 50 cfs on basis of logarithmic plotting; no flow for several days in September, October, and November 1956.

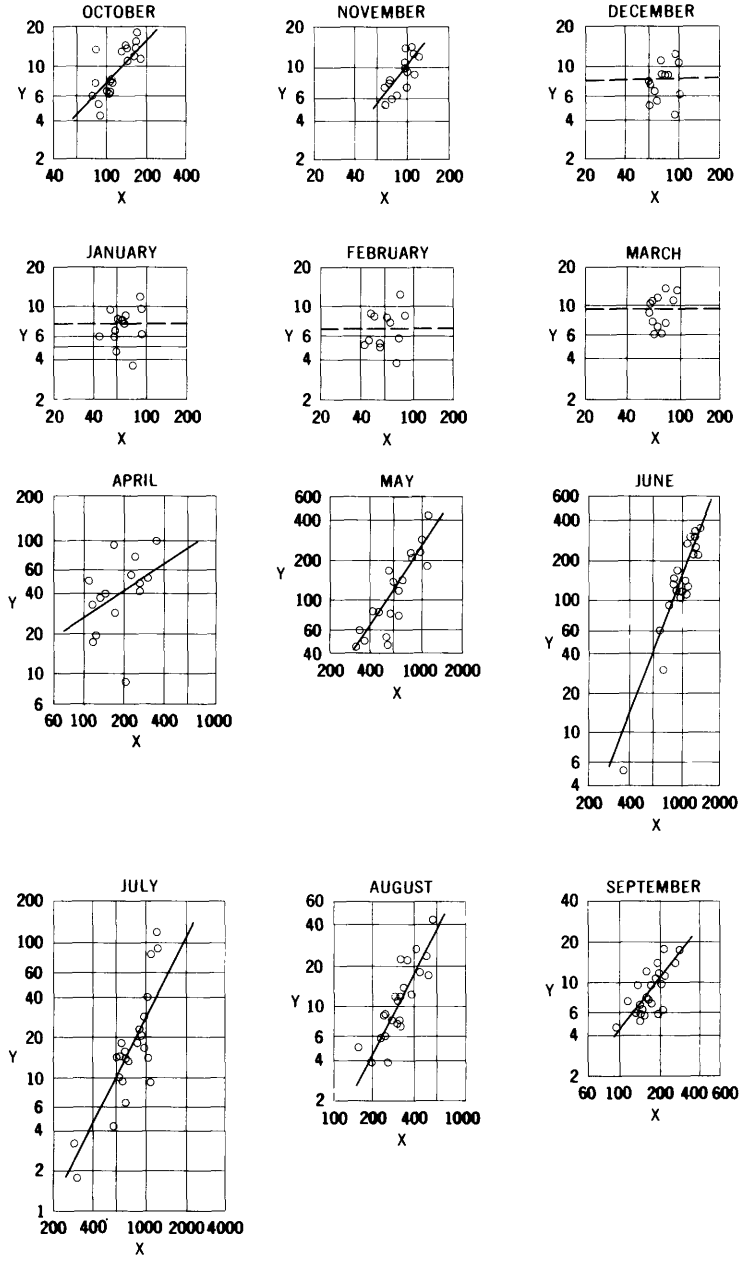
Remarks.--A tunnel diverts water about a mile above station (diversion began June 1952) to San Juan River basin for domestic use and irrigation in the vicinity of Blanding. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	123	104	71	61	83	123	410	638	557	158	67	46	2,440
1951	34	20	22	18	17	22	58	294	278	80	56	71	970
1952	50	34	25	18	17	31	354	2,770	1,580	243	74	25	5,220
1953	19	12	12	12	11	16	133	328	298	51	29	14	935
1954	12	8.5	6.1	6.1	5.6	12	234	663	117	29	12	26	1,130
1955	47	14	14	6.1	5.6	12	356	957	379	71	156	24	2,040
1956	14	21	22	21	12	18	91	212	134	26	19	5.0	595
1957	3.4	4.8	6.1	6.1	5.6	6.1	74	663	2,180	285	112	29	3,380

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1958	80	90	20	30	20	40	460	2,400	890	100	40	40	4,210
1959	20	30	10	10	7	10	70	90	30	6	7	4	294
1960	3	2	4	5	3	20	280	590	430	40	40	20	1,440
1961	50	20	30	10	6	20	200	580	300	40	60	60	1,380
1962	80	40	30	10	30	50	880	920	440	100	10	20	2,610
1963	30	20	20	20	20	50	140	360	80	6	70	70	886
1964	20	20	8	4	4	6	110	360	160	40	40	10	782
1965	7	9	10	10	10	20	110	570	1,000	310	130	100	2,290



Relationships of monthly mean discharge of Horse Creek near Daniel, Wyo. (Y), to monthly mean discharge of Green River at Warren Bridge near Daniel, Wyo. (X). Discharge in hundreds of acre-feet.

1900. Horse Creek near Daniel, Wyo.

Location.--Lat 42°55'40", long 110°12'00", in SE¼ sec.10, T.34 N., R.112 W., on left bank 8 miles northwest of Daniel. Datum of gage is 7,350.15 ft above mean sea level, datum of 1929.

Drainage area.--124 sq mi.

Records available.--October 1931 to September 1954.

Estimates of streamflow.--October 1954 to September 1965, based on relationships of monthly mean discharge with Green River at Warren Bridge, near Daniel, Wyo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Horse Creek near Daniel, Wyo., and X is discharge of Green River at Warren Bridge, near Daniel, Wyo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.06	1.26	-	-	-	-	0.67	1.50	2.60	1.96	1.88	1.26
c	1.35	1.98	-	-	-	-	-.72	3.08	8.87	6.34	5.40	2.40

Average discharge.--34 years (1931-65), 47,060 acre-feet per year (65.0 cfs).

Extremes.--1931-54: Maximum discharge, 1,670 cfs May 31, 1936, from rating curve extended above 800 cfs; minimum daily, 1 cfs July 22, 23, 1940.

Remarks.--Water rights totaling about 232 cfs (priorities 1889-1937) for irrigation of about 16,300 acres (part of which is above and part below station), adjudicated by Wyoming for diversion above station. Estimates of annual flow are within about 25 percent of regression line.

Monthly and annual streamflow, in acre-feet

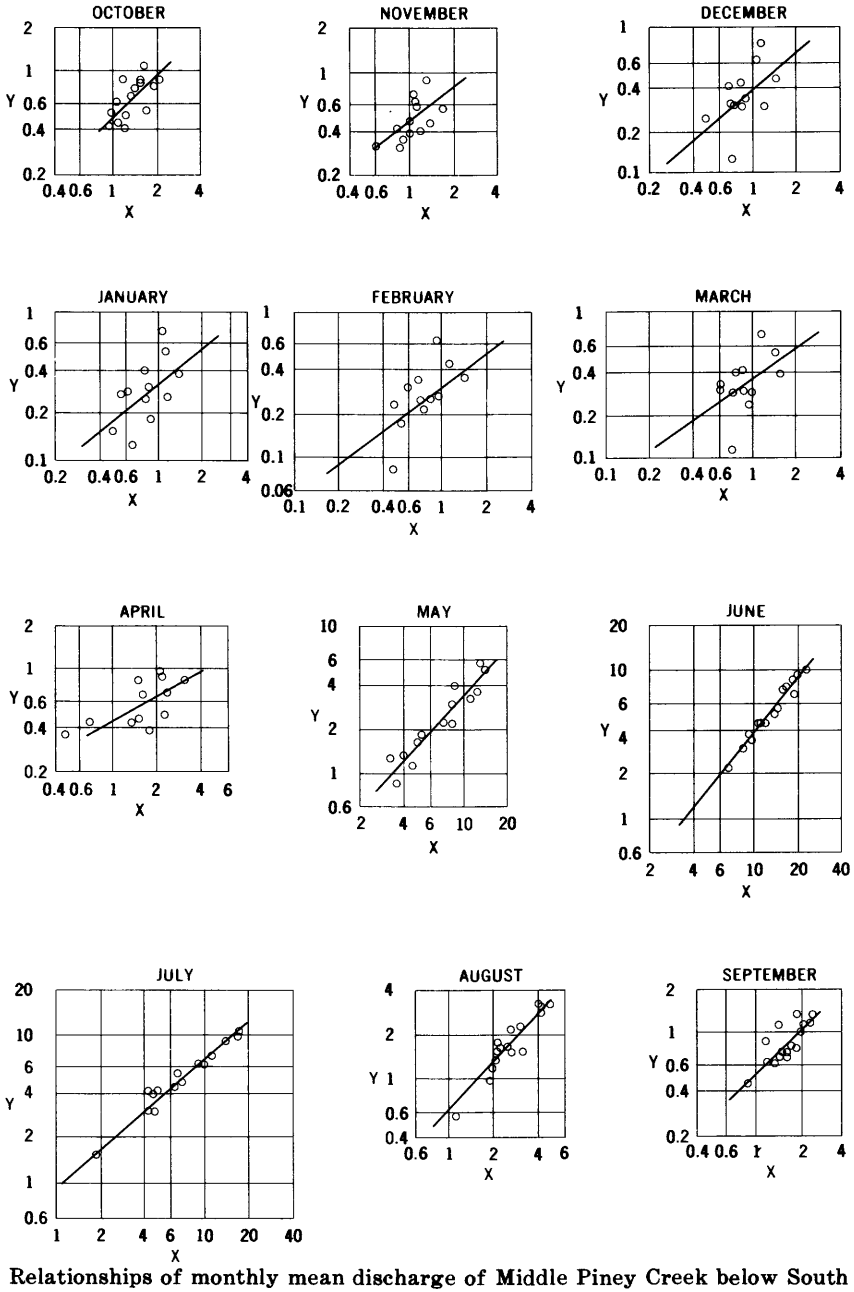
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	605	‡508	‡430	‡430	‡460	‡922	‡2,080	‡16,340	23,020	2,070	1,350	954	‡49,170
1933	1,350	‡1,200	‡922	‡922	‡833	‡1,230	‡2,320	4,550	24,140	1,440	612	774	‡40,290
1934	753	‡599	‡676	‡615	‡555	‡738	879	4,680	525	180	396	466	‡11,060
1935	529	‡456	‡492	‡492	‡500	‡615	‡3,520	8,440	26,050	1,580	879	718	‡44,270
1936	‡1,540	‡893	‡492	‡369	‡403	‡738	‡7,660	43,510	29,280	1,390	2,180	1,200	‡89,650
1937	1,140	‡972	‡922	‡738	‡833	‡1,050	‡3,740	18,750	9,260	1,450	855	598	‡40,310
1938	662	‡368	‡553	‡49[illegible]	‡500	‡615	‡6,290	14,000	21,980	2,300	787	962	‡49,810
1939	1,140	912	‡615	‡553	‡444	‡1,230	4,160	12,030	5,990	661	760	712	‡29,210
1940	770	819	645	600	517	1,140	1,940	5,290	3,010	328	498	571	16,130
1941	686	645	553	461	500	615	1,770	7,650	10,500	1,830	2,270	1,390	28,870
1942	1,810	1,460	1,130	958	877	879	4,820	8,100	14,130	1,440	746	686	37,040
1943	650	‡689	‡430	‡369	‡389	‡738	9,860	22,860	33,310	9,380	2,490	1,090	‡82,260
1944	1,130	742	615	615	575	615	4,070	8,310	11,550	926	722	595	30,460
1945	645	598	‡372	‡369	‡333	‡492	‡2,380	6,080	14,500	4,080	1,950	1,790	‡33,590
1946	1,440	1,020	861	861	833	1,350	7,760	14,830	14,500	1,020	390	573	45,440
1947	1,380	1,070	430	369	389	738	3,760	23,380	13,170	1,680	1,720	1,130	49,220
1948	1,200	976	865	803	503	693	3,780	17,550	12,800	435	577	614	40,780
1949	756	783	740	682	565	757	5,010	16,580	11,130	1,370	1,090	760	40,220
1950	1,300	1,310	871	760	772	1,030	5,560	17,160	34,300	12,070	2,660	1,390	79,180
1951	13,80	1,450	1,230	1,190	1,240	1,290	9,340	28,930	29,850	8,340	4,450	1,800	90,490
1952	1,580	1,250	1,050	984	863	1,110	5,250	21,370	17,090	999	1,250	940	53,740
1953	795	716	756	817	859	1,070	2,900	5,000	21,510	1,870	1,180	509	37,980
1954	435	546	608	597	529	813	3,320	18,540	12,090	2,770	1,180	736	42,160

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1955	620	760	e800	e750	e690	e930	3,100	9,200	11,000	950	890	610	30,300
1956	650	580	e800	e750	e690	e930	5,100	30,000	55,000	1,900	1,400	690	98,490
1957	780	900	e800	e750	e690	e930	2,700	14,000	28,000	3,800	2,500	1,200	57,050
1958	1,200	1,100	e800	e750	e690	e930	3,300	20,000	8,800	380	770	790	39,510
1959	680	800	e800	e750	e690	e930	3,100	6,900	35,000	1,200	1,200	730	52,780
1960	960	880	e800	e750	e690	e930	3,400	5,700	7,000	490	630	750	22,980
1961	940	940	e800	e750	e690	e930	2,600	8,200	9,700	360	440	1,300	27,650
1962	900	1,000	e800	e750	e690	e930	4,200	20,000	24,000	2,500	1,700	600	58,070
1963	900	970	e800	e750	e690	e930	2,600	11,000	16,000	1,300	880	2,100	38,920
1964	1,000	960	e800	e750	e690	e930	4,300	13,000	15,000	4,000	1,500	520	43,450
1965	630	700	e800	e750	e690	e930	3,200	12,500	40,000	4,900	3,300	1,100	69,500

e Flat estimate based on average discharge for month.



Relationships of monthly mean discharge of Middle Piney Creek below South Fork, near Big Piney, Wyo. (Y), to monthly mean discharge of North Piney Creek near Mason, Wyo. (X). Discharge in thousands of acre-feet.

2060. Middle Piney Creek below South Fork, near Big Piney, Wyo.

Location.--Lat 42°36'10", long 110°27'20", in sec.7, T.30 N., R.114 W., on left bank 1 mile downstream from South Fork and 18 miles northwest of Big Piney. Altitude of gage is 7,980 ft (from topographic map).

Drainage area.--34.3 sq mi.

Records available.--July 1939 to September 1954.

Estimates of streamflow.--October 1931 to July 1939, October 1954 to September 1965, based on relationships of monthly mean discharge with North Piney Creek near Mason, Wyo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Middle Piney Creek below South Fork near Big Piney, Wyo., and X is discharge of North Piney Creek near Mason, Wyo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.96	0.77	0.84	0.82	0.75	0.71	0.55	1.08	1.25	0.87	1.06	0.96
c	.19	-.36	-.06	-.06	-.24	-.43	-.99	.80	1.44	-.34	.39	.16

Average discharge.--34 years (1931-65), 19,060 acre-feet per year (26.3 cfs).

Extremes.--1939-54: Maximum discharge, 254 cfs June 29, 1943, from rating curve extended above 190 cfs; minimum not determined, occurred during period of ice effect.

Remarks.--Flow regulated by Middle Piney Lake (usable capacity, 4,200 acre-ft). Adjudicated diversions for irrigation of about 400 acres of hay meadows above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

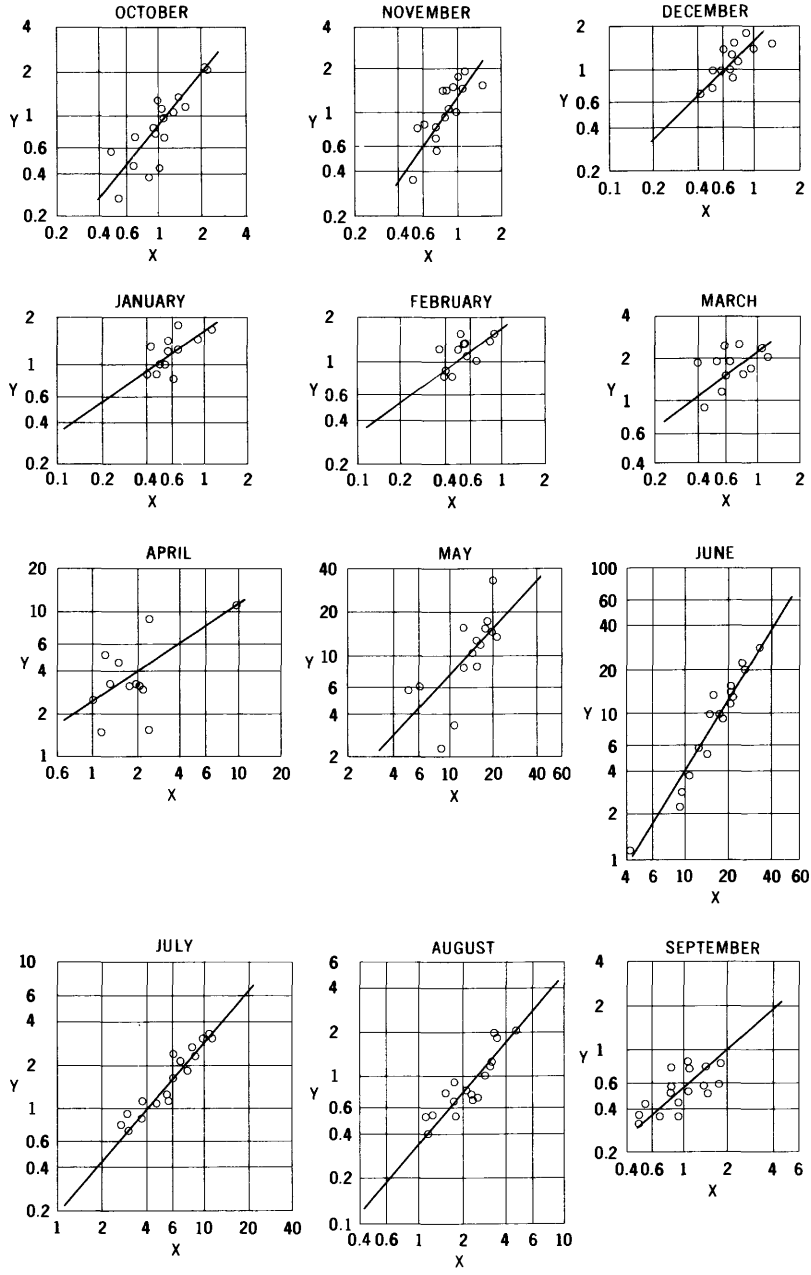
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	-	-	-	-	-	-	-	-	-	-	1,600	871	-
1940	627	468	307	123	173	307	437	1,140	2,210	1,560	578	453	8,380
1941	420	319	246	154	83	123	357	1,680	3,720	3,050	1,510	736	12,400
1942	676	382	92	135	183	289	863	1,280	3,430	3,040	1,170	634	12,170
1943	523	‡441	‡369	‡369	‡278	‡369	‡2,080	4,960	8,630	9,310	2,860	1,360	‡31,550
1944	1,100	873	799	738	633	738	952	1,860	4,330	4,410	1,750	1,120	19,300
1945	861	708	615	553	444	553	655	1,350	2,980	6,250	1,500	1,020	17,490
1946	851	‡714	‡553	‡492	‡555	‡738	‡2,080	3,990	7,470	5,410	2,180	791	‡25,820
1947	550	394	307	277	233	338	833	5,740	7,700	7,330	3,080	1,130	27,910
1948	861	448	295	264	213	246	381	2,180	5,560	4,120	978	614	16,160
1949	447	350	338	307	250	307	477	2,260	4,470	4,040	1,330	695	15,270
1950	764	637	405	284	304	402	891	2,910	9,490	10,560	3,160	1,320	31,130
1951	807	565	461	381	355	400	842	5,130	10,140	9,770	3,160	1,170	33,180
1952	871	587	430	400	345	418	684	3,580	6,980	4,300	1,660	811	21,070
1953	512	410	296	259	255	296	426	862	5,090	6,340	2,260	738	17,740
1954	417	304	131	186	262	293	454	3,260	4,400	4,810	1,530	668	16,720

‡ Estimated for 1950 Compilation.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	540	‡400	‡290	‡220	‡200	‡290	‡400	2,100	6,900	6,500	2,100	870	20,810
1933	650	‡400	‡290	‡220	‡200	‡290	‡410	880	5,300	3,200	1,000	520	13,360
1934	400	‡360	‡250	‡200	‡170	‡260	‡560	2,000	930	1,000	500	360	6,990
1935	410	350	‡250	‡200	‡170	‡260	580	1,300	5,700	4,200	1,500	740	15,660
1936	540	‡430	‡290	‡220	‡190	‡260	‡430	4,400	9,300	4,200	2,000	880	23,140
1937	660	‡530	‡350	‡260	‡200	‡290	‡410	‡1,800	3,500	3,600	1,600	710	13,910
1938	580	‡440	‡290	‡220	‡180	‡290	‡650	2,200	7,000	4,400	2,000	960	19,210
1939	860	‡430	‡290	‡220	‡180	‡350	‡740	3,700	4,100	3,700	-	-	17,040
1955	650	440	300	230	180	240	380	1,300	3,800	3,600	1,300	740	13,160
1956	540	330	230	180	180	290	720	5,200	11,200	4,600	1,700	800	25,970
1957	620	480	350	270	270	380	510	2,300	8,900	8,600	2,100	950	25,730
1958	700	480	350	270	240	350	480	3,400	6,500	3,000	1,300	710	17,780
1959	480	480	350	260	240	350	500	1,200	6,600	4,200	2,000	940	17,580
1960	800	530	370	310	260	460	770	1,400	4,000	2,800	1,100	570	13,370
1961	640	480	230	200	200	350	530	1,400	3,100	2,000	1,200	750	11,080
1962	660	510	280	210	230	320	610	2,600	6,500	5,500	1,800	930	20,150
1963	720	550	420	270	300	370	500	1,700	5,300	4,300	1,700	1,300	17,430
1964	790	590	280	220	290	390	480	2,000	5,900	7,200	2,000	800	20,940
1965	670	510	340	330	330	480	740	2,300	9,300	9,400	2,800	1,300	28,500

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of Smith Fork at Mountainview, Wyo. (Y), to sum of monthly mean discharges of East Fork and West Fork of Smith Fork near Robertson, Wyo. (X). Discharge in thousands of acre-feet.

2215. Smith Fork at Mountainview, Wyo.

Location.--Lat 41°16', long 110°20', in sec.23, T.15 N., R.115 W., on right bank just downstream from highway bridge in southwestern edge of Mountainview. Altitude of gage is 6,830 ft (by barometer).

Drainage area.--192 sq mi.

Records available.--May 1941 to December 1957.

Estimates of streamflow.--July 1939 to April 1941, January 1958 to September 1965, based on relationships of monthly mean discharge with the sum of East Fork of Smith Fork near Robertson, Wyo., and West Fork of Smith Fork near Robertson, Wyo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Smith Fork at Mountainview, Wyo., and X is the sum of discharges of East Fork of Smith Fork near Robertson, Wyo., and West Fork of Smith Fork near Robertson, Wyo., all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.23	1.43	0.96	0.69	0.71	0.73	0.67	1.07	1.68	1.17	1.17	0.87
c	.75	1.18	-.31	-1.15	-1.09	-1.13	-1.37	.43	3.11	1.22	.98	-.15

Average discharge.--26 years (1939-65), 37,860 acre-feet per year (52.3 cfs).

Extremes.--1941-57: Maximum discharge, 1,100 cfs June 13, 1953; minimum daily, 2.5 cfs Aug. 30, 1948.

Remarks.--Diversions above station for irrigation of about 17,800 acres, part of which is above and part below station. One small reservoir (capacity, about 300 acre-ft) for irrigation above station. Estimates of annual flow are within about 25 percent of regression line.

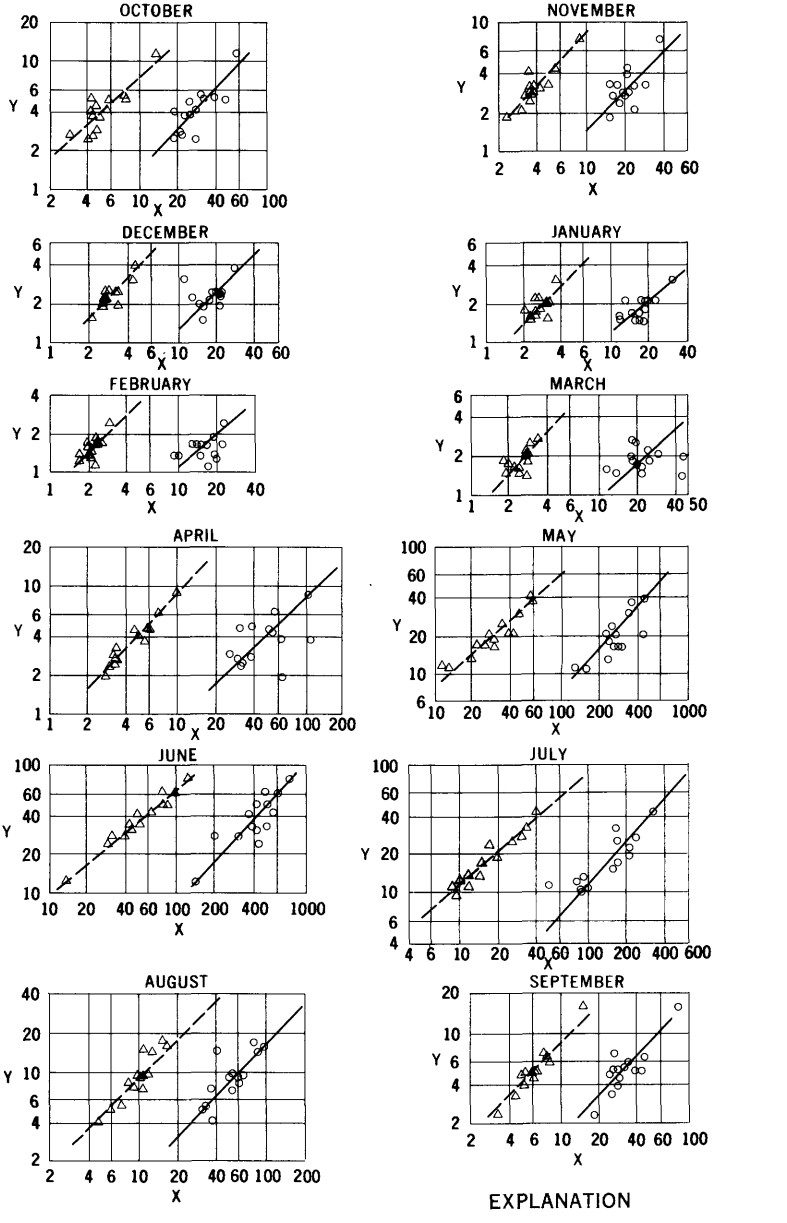
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1941	-	-	-	-	-	-	-	13,360	12,070	2,420	1,160	587	-
1942	2,120	1,970	1,530	1,170	1,170	1,390	5,160	16,420	10,570	1,260	536	359	43,660
1943	381	579	964	1,010	829	1,370	5,550	10,290	5,880	1,100	710	437	29,100
1944	742	1,080	720	678	680	1,010	3,740	17,020	14,310	3,000	815	783	44,580
1945	944	926	627	764	899	1,400	2,630	8,310	9,290	3,120	2,050	579	31,540
1946	1,020	1,490	1,410	1,480	1,390	1,970	11,060	8,310	2,320	1,140	530	428	32,550
1947	1,120	1,750	1,770	799	1,000	2,240	3,180	16,860	13,720	2,660	1,210	781	47,090
1948	1,310	1,510	1,530	1,850	1,270	1,880	5,030	15,050	3,760	775	540	311	34,820
1949	271	830	988	986	871	1,840	2,960	11,760	13,470	1,850	696	502	37,020
1950	1,150	1,010	990	1,350	1,210	1,820	4,540	15,210	15,430	1,610	643	826	45,790
1951	813	1,050	1,280	994	1,090	1,540	3,100	12,590	9,960	2,120	1,920	511	36,970
1952	2,140	1,560	1,490	1,730	1,520	1,610	9,140	32,880	20,460	2,300	1,880	831	77,540
1953	711	687	889	1,270	1,330	2,350	3,180	5,690	22,390	1,150	756	353	40,760
1954	456	787	994	1,240	1,520	1,490	1,530	2,230	1,140	715	408	528	13,040
1955	441	548	683	843	783	1,160	1,500	3,280	2,860	924	928	561	14,510
1956	714	780	1,370	1,440	1,200	2,490	3,040	14,240	5,340	860	780	352	32,610
1957	577	348	731	851	793	902	2,410	6,110	29,750	3,000	984	754	47,210
1958	1,290	1,420	1,110	-	-	-	-	-	-	-	-	-	-

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	-	-	-	-	-	-	-	-	-	570	320	710	-
1940	970	420	‡550	‡750	‡720	‡1,200	3,800	12,300	1,000	220	130	640	22,700
1941	1,600	1,400	1,200	1,000	810	1,300	2,300	-	-	-	-	-	39,210
1958	-	-	-	1,400	1,400	2,000	3,300	13,300	6,600	800	530	660	33,810
1959	500	540	810	870	800	1,100	1,800	7,200	12,800	1,300	740	710	29,170
1960	1,500	1,000	420	590	730	2,000	5,100	8,900	5,800	690	260	460	27,450
1961	700	860	1,000	1,100	1,000	2,100	4,500	7,200	2,500	370	460	1,500	23,290
1962	2,700	2,000	1,300	1,300	1,600	2,300	7,600	10,800	10,600	2,200	760	460	43,620
1963	630	440	320	350	350	730	2,600	8,000	5,500	1,400	790	1,000	22,110
1964	1,000	910	950	1,200	1,000	1,400	1,900	14,600	13,300	2,400	960	570	40,190
1965	660	920	1,300	1,500	1,300	1,600	3,100	10,000	60,500	6,800	4,300	2,100	94,080

‡ Based on estimates made for 1950 Compilation.



Relationships of monthly mean discharge of West Fork Beaver Creek near Lonetree, Wyo. (Y), to monthly mean discharge of Blacks Fork near Millburne, Wyo., or Middle Fork Beaver Creek near Lonetree, Wyo. (X). Discharge in hundreds of acre-feet.

2275. West Fork Beaver Creek near Lonetree, Wyo.

Location.--Lat 40°56'50", long 110°13'00", in SW¼ sec.35, T.3 N., R.15 E., Salt Lake meridian, on right bank at forest boundary, an eighth of a mile upstream from Fellow Creek, 3½ miles south of Utah-Wyoming State line, and 7½ miles southwest of Lonetree. Altitude of gage is 8,700 ft (from topographic map).

Drainage area.--23 sq mi, approximately.

Records available.--October 1948 to September 1962.

Estimates of streamflow.--July 1939 to September 1948, based on relationships of monthly mean discharge with Blacks Fork near Millburne, Wyo.; October 1962 to September 1965, based on relationships with Middle Fork Beaver Creek near Lonetree, Wyo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of West Fork Beaver Creek near Lonetree, Wyo., and X is discharge of Blacks Fork near Millburne, Wyo., or Middle Fork Beaver Creek near Lonetree, Wyo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
July 1939 to Sept. 1948	b	1.03	1.03	0.98	0.84	0.87	0.90	0.97	1.10	1.10	1.14	1.04	1.02
	c	.93	.93	.83	.44	.57	.72	.97	1.53	1.47	1.50	.93	.89
Oct. 1962 to Sept. 1965	b	0.89	1.04	1.02	1.00	1.00	1.07	1.07	0.89	0.84	0.86	0.97	0.99
	c	-.19	.20	.15	.14	.14	.28	.27	-.22	-.16	-.48	-.04	.05

Average discharge.--26 years (1939-65), 12,380 acre-feet per year (17.1 cfs).

Extremes.--1948-62: Maximum discharge, 417 cfs June 13, 1953, from rating curve extended above 250 cfs on basis of logarithmic plotting; minimum observed, 2.0 cfs Mar. 1, 1954 (discharge measurement).

Remarks.--No diversion above station. Estimates of annual flow are within about 5 percent of regression line.

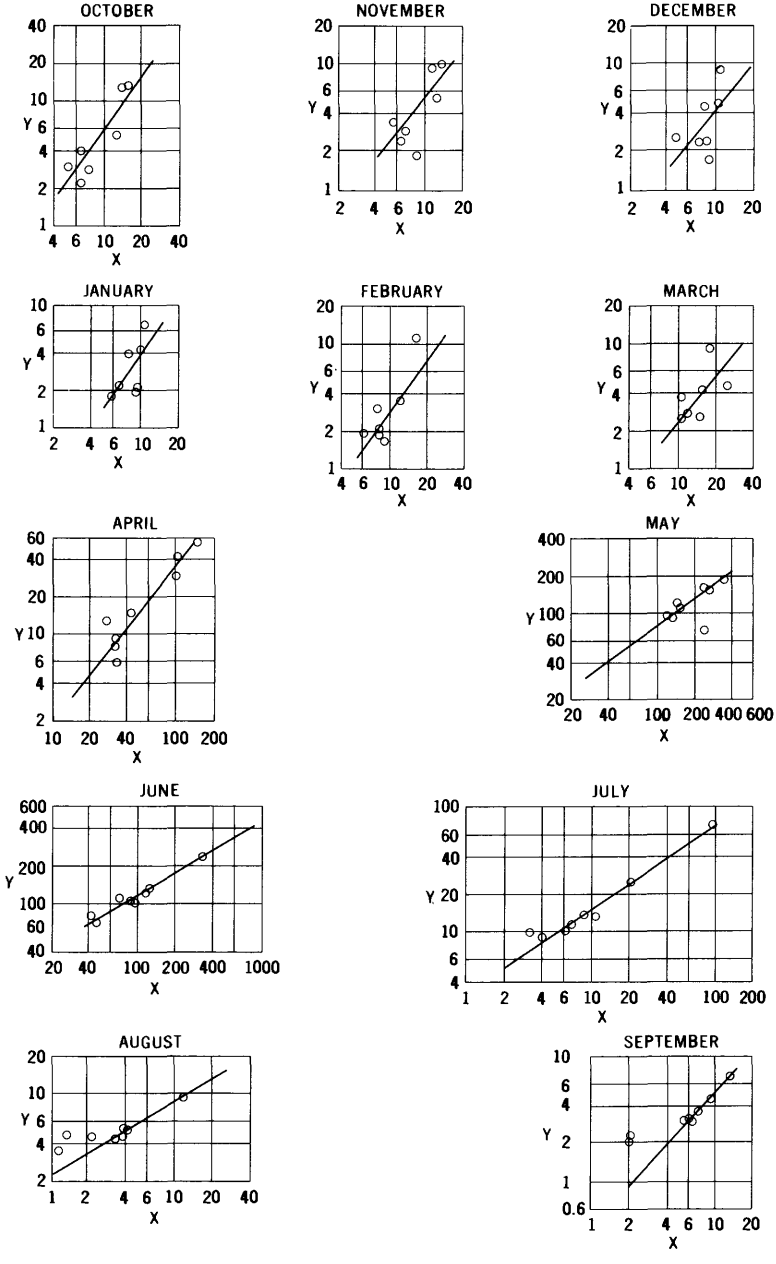
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1949	373	323	222	160	139	160	442	2,090	5,190	2,490	893	399	12,880
1950	559	439	305	215	167	200	456	1,900	3,460	1,900	781	511	10,890
1951	247	206	201	169	139	154	241	1,670	3,480	2,330	1,330	506	10,670
1952	499	323	246	188	167	263	614	3,680	6,200	3,010	1,550	655	17,400
1953	509	400	246	215	167	246	447	1,110	6,240	1,770	921	337	12,610
1954	277	316	241	154	111	149	423	1,690	1,210	1,210	529	507	6,820
1955	297	234	192	154	139	166	231	1,690	2,740	992	739	451	8,020
1956	374	292	227	215	184	206	374	2,060	2,400	1,070	420	236	8,060
1957	265	184	154	154	128	144	198	1,100	8,030	4,350	1,690	584	16,980
1958	429	285	246	215	167	184	270	3,780	3,270	1,030	757	665	11,300
1959	399	269	219	175	139	170	281	1,390	4,440	1,570	909	546	10,510
1960	534	320	194	174	144	205	377	2,430	4,300	1,290	488	484	10,940
1961	459	280	246	215	167	184	299	2,110	2,750	1,160	1,440	1,630	10,940
1962	1,140	764	389	307	232	221	879	3,080	5,110	2,790	964	524	16,400

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	-	-	-	-	-	-	-	-	-	‡900	570	560	-
1940	430	250	170	150	130	160	370	3,200	1,500	420	330	660	7,770
1941	800	370	260	210	130	160	280	3,400	4,700	2,500	1,300	680	14,790
1942	600	460	‡350	‡230	‡170	‡190	‡250	2,300	4,600	2,000	660	440	12,250
1943	360	‡320	‡270	‡210	‡160	‡280	‡1,200	2,600	3,100	2,000	1,000	420	11,900
1944	370	‡310	‡240	‡170	‡180	‡210	‡300	‡2,500	4,800	2,800	800	380	12,860
1945	440	‡270	‡160	‡150	‡140	‡170	‡200	1,800	3,700	3,500	1,900	710	13,140
1946	440	400	290	220	170	210	1,400	2,200	2,800	1,100	620	300	10,150
1947	320	280	230	110	110	170	260	3,700	3,900	3,000	1,400	770	14,250
1948	680	470	300	230	180	180	350	3,800	2,800	630	600	370	10,590
1963	430	310	190	150	130	140	190	2,100	2,100	1,400	700	580	8,420
1964	420	340	230	150	140	140	190	3,300	5,800	3,300	1,100	500	15,610
1965	360	330	310	270	200	190	350	1,300	9,400	8,100	3,500	1,500	25,810

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of North Fork Little Snake River near Slater, Colo. (Y), to monthly mean discharge of Slater Fork near Slater, Colo. (X). Discharge in hundreds of acre-feet.

2519. North Fork Little Snake River near Slater, Colo.

Location.--Lat 41°00'55", long 107°01'20", in NE¼ sec.14, T.12 N., R.86 W., in Wyoming, on right bank at downstream side of road bridge, 1 mile upstream from west branch of North Fork, 3 miles upstream from mouth, and 19 miles east of Slater. Altitude of gage is 7,350 ft (from topographic map).

Drainage area.--29.3 sq mi.

Records available.--April 1956 to September 1963.

Estimates of streamflow.--August 1931 to March 1956, October 1963 to September 1965, based on relationships of monthly mean discharge with Slater Fork near Slater, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of North Fork Little Snake River near Slater, Colo., and X is discharge of Slater Fork near Slater, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.42	1.25	1.26	1.45	1.40	1.23	1.28	0.73	0.58	0.67	0.59	1.09
c	1.47	1.00	1.14	1.76	1.73	1.31	1.56	-.99	-1.74	-1.18	-1.16	.52

Average discharge.--34 years (1932-65), 34,883 acre-feet per year (48.2 cfs).

Extremes.--1956-63: Maximum discharge, 628 cfs June 7, 1957; minimum daily, 2.4 cfs Jan. 13, 14, 19, 1963.

Remarks.--No diversion above station. Estimates of annual flow are within about 10 percent of regression line.

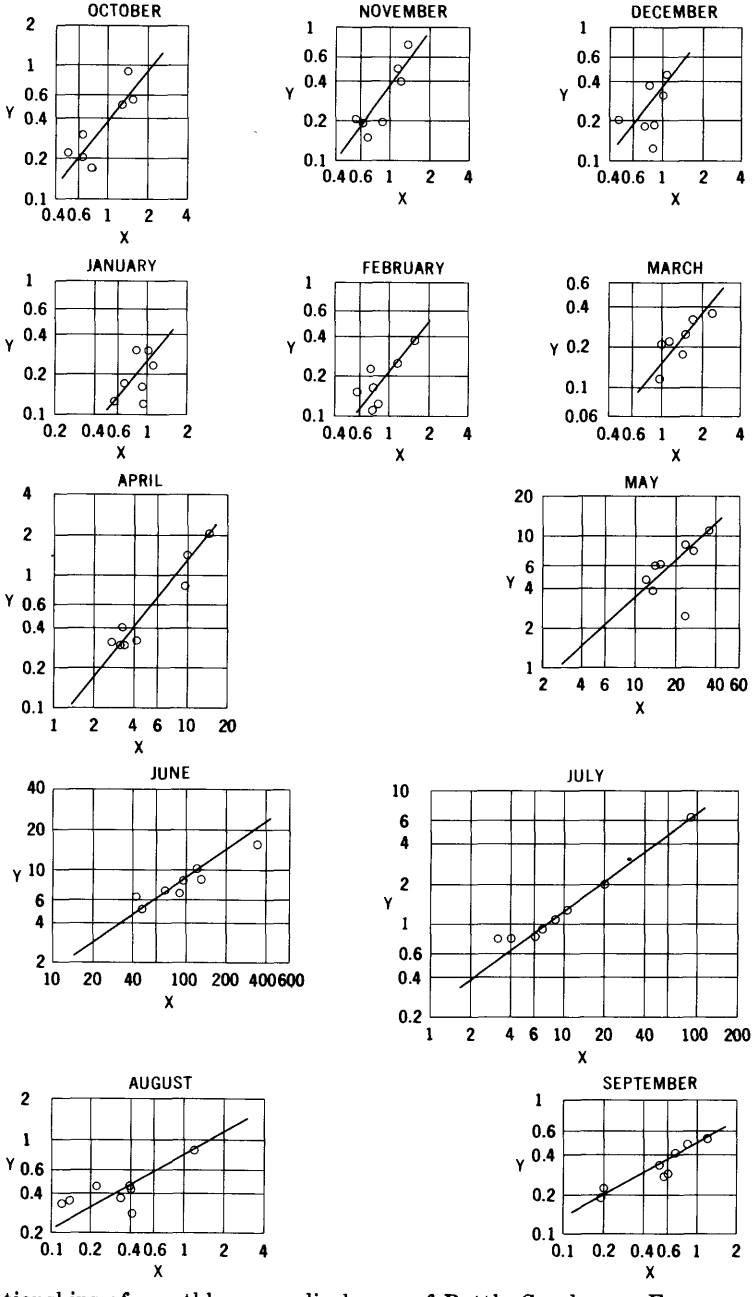
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	-	-	-	-	-	-	2,990	16,300	10,370	1,020	438	240	-
1957	226	190	172	197	211	277	918	7,390	23,620	6,990	932	462	41,580
1958	552	557	492	430	361	430	1,500	18,440	12,040	1,150	466	320	36,740
1959	281	297	246	215	194	246	798	9,360	11,300	1,340	454	355	25,090
1960	1,330	950	461	400	316	461	4,230	12,180	10,160	1,380	357	212	32,440
1961	306	250	240	221	200	373	1,280	9,770	7,940	988	507	702	22,780
1962	1,300	1,070	900	674	1,100	922	5,440	15,710	13,090	2,510	458	308	43,480
1963	418	349	254	182	176	256	593	11,130	6,960	907	528	301	22,050

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	-	-	-	-	-	-	-	-	-	-	340	180	-
1932	390	220	160	150	160	320	4,300	21,000	18,500	4,100	800	270	50,370
1933	350	340	270	210	160	220	330	10,300	14,000	690	370	120	27,360
1934	190	210	ǂ160	ǂ150	ǂ160	350	1,800	3,200	4,000	520	330	220	11,290
1935	520	410	ǂ270	ǂ210	ǂ160	ǂ310	1,000	14,000	18,500	2,200	480	160	38,220
1936	250	330	270	ǂ210	ǂ160	ǂ350	2,600	13,000	8,000	1,000	250	170	26,590
1937	480	630	ǂ390	ǂ260	ǂ160	ǂ300	1,200	16,000	15,300	3,700	700	240	39,360
1938	700	700	650	490	440	550	4,000	17,000	16,800	2,400	600	490	44,820
1939	700	620	540	540	400	690	2,400	11,000	8,000	710	410	400	26,410
1940	500	320	270	250	260	350	2,300	12,000	8,800	880	270	280	26,480
1941	690	560	340	270	250	440	1,100	15,800	12,900	1,600	800	420	35,170
1942	2,100	1,000	560	530	350	390	4,100	14,900	15,100	2,000	390	210	41,630
1943	480	570	450	300	300	390	3,400	9,100	14,900	1,700	520	180	32,290
1944	600	420	340	290	290	290	700	14,000	16,100	2,400	400	280	36,110
1945	540	450	330	340	250	340	780	18,200	21,000	6,200	1,400	500	50,330
1946	800	910	590	450	350	560	5,700	9,700	10,000	1,200	610	350	31,220
1947	910	810	600	450	380	780	1,800	18,000	16,000	3,600	790	400	44,520
1948	870	700	710	590	340	410	2,400	15,000	9,800	1,300	430	150	32,700
1949	690	630	490	450	290	380	3,200	19,000	19,000	3,300	560	330	48,320
1950	1,200	660	500	530	370	360	3,200	16,000	18,000	3,100	420	410	44,750
1951	580	540	420	350	280	440	1,300	11,400	11,000	1,700	760	210	28,980
1952	650	370	430	500	350	340	3,900	19,800	19,500	2,300	800	340	49,280
1953	450	440	410	400	310	410	800	10,300	15,500	1,700	720	120	31,560
1954	340	440	280	270	180	250	2,600	9,400	6,300	1,200	400	300	21,960
1955	720	600	430	370	240	240	1,600	12,000	11,500	1,300	510	170	29,680
1956	420	620	660	550	290	440	-	-	-	-	-	-	34,340
1964	320	450	260	270	200	200	800	14,000	13,000	2,500	540	230	32,770
1965	250	410	400	350	160	170	1,300	14,800	18,100	3,500	790	720	40,950

ǂ Based on estimates made for 1950 Compilation.



Relationships of monthly mean discharge of Battle Creek near Encampment, Wyo. (Y), to monthly mean discharge of Slater Fork near Slater, Colo. (X). Discharge in thousands of acre-feet.

2534. Battle Creek near Encampment, Wyo.

Location.--Lat 41°08'00", long 107°03'50", in NE¼ sec.4, T.13 N., R.86 W., on right bank at sheep bridge, 1 mile downstream from Haskins Creek, 8 miles upstream from Haggerty Creek, and 15 miles west of Encampment. Altitude of gage is 8,375 ft (from topographic map).

Drainage area.--12.8 sq mi.

Records available.--April 1956 to September 1963.

Estimates of streamflow.--August 1931 to March 1956, October 1963 to September 1965, based on relationships of monthly mean discharge with Slater Fork near Slater, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Battle Creek near Encampment, Wyo., and X is discharge of Slater Fork near Slater, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.27	1.36	1.26	1.26	1.26	1.26	1.27	0.93	0.69	0.73	0.56	0.56
c	1.22	1.52	1.23	1.33	1.48	1.64	1.97	.18	-.49	-.90	-1.21	-1.00

Average discharge.--34 years (1931-65), 22,450 acre-feet per year (31.0 cfs).

Extremes.--1956-63: Maximum discharge, 670 cfs May 29, 1958, from rating curve extended above 320 cfs; minimum daily, 1.7 cfs Nov. 15, 1958, but may have been less during periods of ice effect.

Remarks.--No diversion above station. Estimates of annual flow are within about 15 percent of regression line.

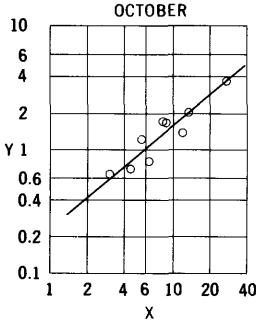
Monthly and annual streamflow, in acre-feet

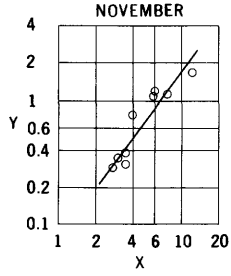
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1956	-	-	-	-	-	-	821	8,740	6,920	824	373	223	-
1957	202	190	184	166	167	215	298	2,580	15,840	6,230	849	488	27,410
1958	510	385	307	307	250	246	327	11,280	10,060	932	368	282	25,250
1959	174	152	129	123	111	111	402	3,980	7,040	1,260	452	415	14,350
1960	578	486	369	307	230	358	1,420	6,010	8,410	1,090	337	193	19,790
1961	221	196	184	172	150	206	310	4,760	6,340	807	286	538	14,170
1962	902	750	449	235	385	320	2,060	7,750	8,690	1,990	463	339	24,330
1963	307	204	206	135	123	177	308	6,060	5,000	778	441	291	14,030

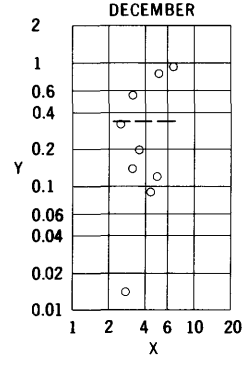
Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	-	-	-	-	-	-	-	-	-	-	320	280	-
1932	260	130	130	110	120	190	1,500	12,000	15,200	3,500	730	340	34,210
1933	230	200	210	150	120	130	120	4,800	11,000	510	350	220	18,040
1934	140	120	‡130	‡110	‡120	210	630	1,100	2,400	370	320	300	5,950
1935	340	260	‡220	‡150	‡120	‡180	360	7,200	15,200	1,800	450	260	26,540
1936	170	200	220	‡150	‡120	‡210	920	6,500	5,600	770	240	260	15,360
1937	310	410	‡320	‡180	‡120	‡180	440	8,600	12,200	3,200	640	310	26,910
1938	440	450	520	310	290	330	1,400	9,500	13,500	1,900	560	450	29,650
1939	440	410	440	350	270	420	860	5,200	5,700	530	390	410	15,420
1940	320	200	220	180	180	210	820	5,900	6,300	660	260	340	15,590
1941	430	360	280	190	180	260	400	8,200	9,700	1,300	720	420	22,440
1942	1,200	710	450	340	230	230	1,400	7,600	12,100	1,600	360	300	26,520
1943	310	360	360	210	200	230	1,200	4,100	11,700	1,300	480	270	20,720
1944	390	260	280	200	200	180	250	7,000	13,200	2,000	380	340	24,680
1945	350	290	260	230	180	200	280	10,100	17,700	5,600	1,200	460	36,850
1946	500	610	470	290	230	340	2,000	4,400	7,300	930	560	390	18,020
1947	560	530	490	290	250	470	640	9,800	12,800	3,100	720	420	30,070
1948	530	460	570	360	230	250	860	7,800	7,100	1,000	410	250	19,820
1949	430	400	390	290	200	230	1,100	10,700	15,600	2,800	520	370	33,030
1950	700	430	400	330	250	210	1,100	8,600	14,800	2,600	400	420	30,240
1951	370	350	340	240	190	260	480	5,500	8,300	1,300	700	290	18,320
1952	420	230	350	320	230	210	1,300	11,100	16,200	1,900	720	390	33,360
1953	300	270	330	260	210	240	280	4,800	12,400	1,300	660	220	21,270
1954	230	280	230	190	150	150	920	4,300	4,200	950	380	350	12,310
1955	460	380	350	250	170	150	600	5,800	8,700	990	480	260	18,590
1956	270	390	540	350	200	270	-	-	-	-	-	-	19,920
1964	210	280	210	190	140	120	290	7,100	10,100	2,000	500	310	21,450
1965	180	250	320	230	110	100	470	7,700	14,900	3,000	720	550	28,530

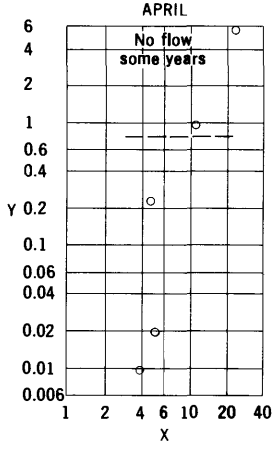
‡ Based on estimates made for 1950 Compilation.

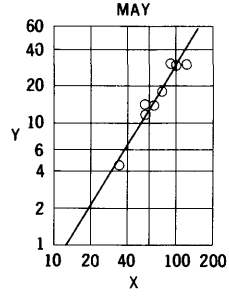


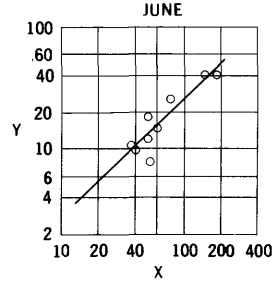


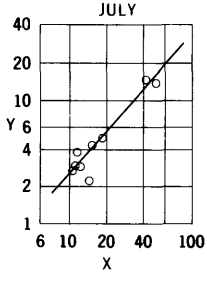


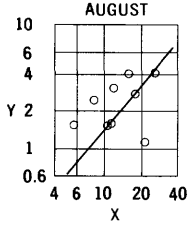
January to March-No flow most years

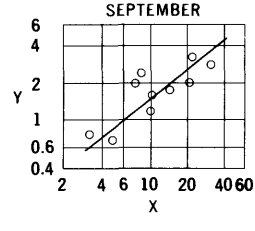












Relationships of monthly mean discharge of East Fork of Dry Fork, near Dry Fork, Utah (Y), to sum of monthly mean discharges of Dry Fork above sinks, near Dry Fork, Utah, and Mosby Canal (X). Discharge in hundreds of acre-feet.

2690. East Fork of Dry Fork, near Dry Fork, Utah

Location.--Lat 40°39'00", long 104°45'40", in sec.14, T.2 S., R.19 E. (unsurveyed), on right bank 3½ miles upstream from mouth and 8 miles northwest of town of Dry Fork. Altitude of gage is 8,150 ft (by barometer).

Drainage area.--12 sq mi, approximately.

Records available.--April 1946 to September 1963.

Estimates of streamflow.--May 1939 to September 1942, October 1963 to September 1965, based on relationships of monthly mean discharge with Dry Fork above sinks, near Dry Fork, Utah, adjusted for diversion through Mosby Canal. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of East Fork of Dry Fork, near Dry Fork, Utah, and X is the sum of discharges of Dry Fork above sinks, near Dry Fork, Utah and Mosby Canal near Lapoint, Utah, all in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.83	1.34	-	-	-	-	-	1.63	0.97	1.13	1.18	0.78
c	.29	1.79	-	-	-	-	-	3.06	.47	1.00	1.38	.17

Average discharge.--22 years (1939-42, 1946-65), 6,225 acre-feet per year (8.60 cfs).

Extremes.--1946-63: Maximum discharge, 240 cfs June 18, 1949, from rating curve extended above 100 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--No diversion above station. Estimates of annual flow are within about 15 percent of regression line.

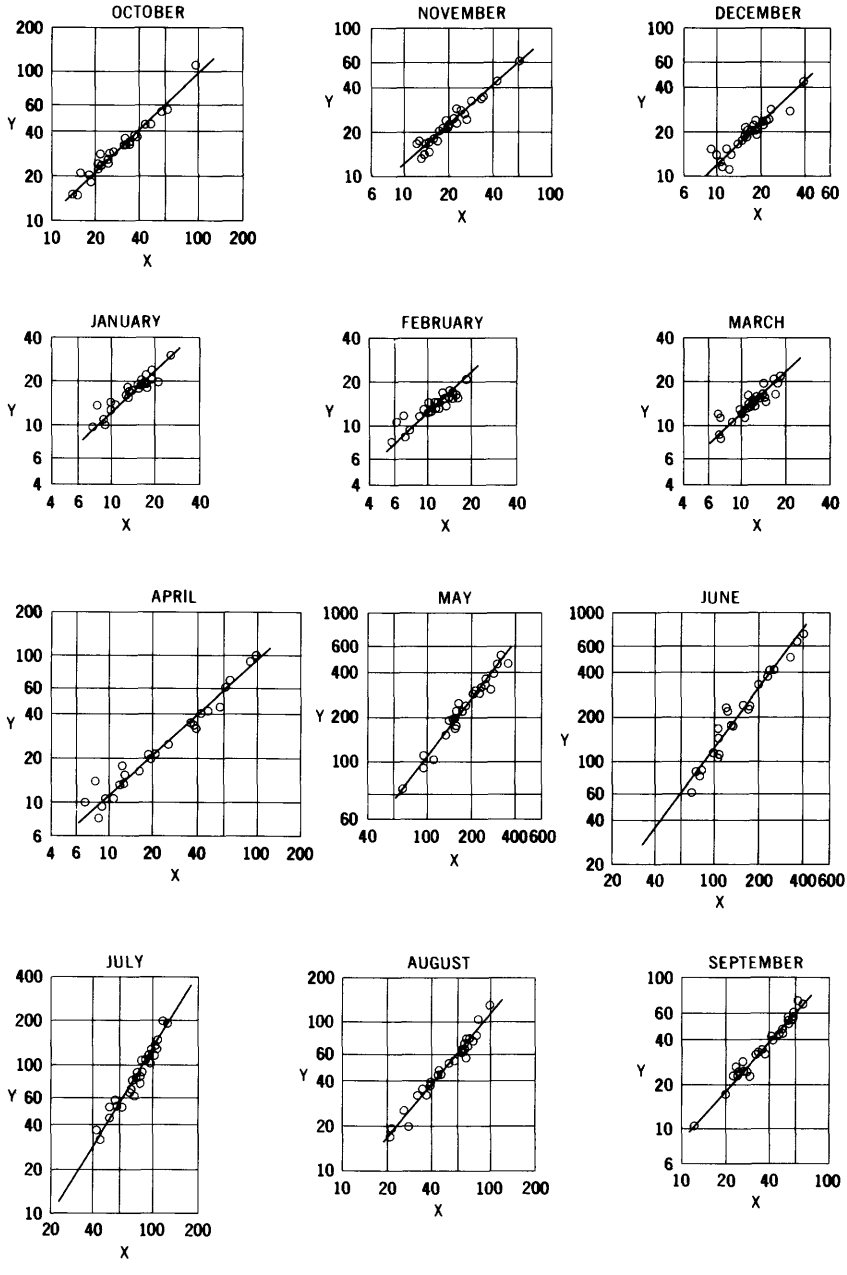
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	-	-	-	-	-	-	-	783	483	197	254	391	-
1947	230	176	150	123	111	140	282	5,140	3,570	1,250	412	261	11,840
1948	103	52	39	37	29	31	35	2,310	1,570	281	84	91	4,640
1949	89	44	25	18	11	15	69	1,800	3,630	834	202	131	6,870
1950	141	129	47	37	28	31	186	2,340	4,320	1,170	185	70	8,680
1951	38	5.4	0	0	0	0	0	1,280	2,190	609	283	203	4,610
1952	136	13	0	0	0	0	14	2,840	3,810	979	554	197	8,540
1953	31	9.9	0	0	0	0	0	161	2,260	374	205	116	3,160
1954	111	52	0	0	0	0	3.2	2,120	810	624	249	156	4,130
1955	167	109	8.9	0	0	0	1.0	1,390	1,070	285	310	236	3,580
1956	122	37.9	20.0	0	0	0	23.4	3,000	1,850	379	156	74.4	5,660
1957	64	35	1.4	0	0	0	0	111	4,090	1,350	407	320	6,380
1958	202	122	81	24	0	0	2.0	2,980	2,580	493	155	115	6,750
1959	70	29	32	0	0	0	0	447	799	431	279	173	2,260
1960	138	114	12	0	0	0	97	1,420	1,210	271	66	67	3,400
1961	80	31	14	2.0	0	0	0	1,160	1,480	223	113	275	3,380
1962	359	169	92	41	28	30	581	3,040	4,060	1,470	405	195	10,470
1963	170	77	55	7.0	0	0	0	1,810	984	293	160	198	3,750

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	-	-	-	-	-	-	-	2,300	670	300	120	440	-
1940	300	170	e34	e17	e12	e15	e76	1,700	410	180	80	240	3,234
1941	420	370	e34	e17	e12	e15	e76	5,600	3,700	1,100	380	250	11,974
1942	400	340	e34	e17	e12	e15	e76	1,800	3,700	1,000	210	140	7,744
1964	190	90	e34	e17	e12	e15	e76	2,400	2,300	860	240	110	6,344
1965	80	40	e34	e17	e12	e15	e76	500	5,000	2,800	640	330	9,544

e Flat estimate based on average discharge for month.



Relationships of monthly mean discharge of Ashley Creek at Sign of the Maine, near Vernal, Utah (Y), to monthly mean discharge of Ashley Creek near Vernal, Utah (X). Discharge in hundreds of acre-feet.

2710. Ashley Creek at Sign of the Maine, near Vernal, Utah

Location.--Lat 40°31'00", long 109°35'40", in NE¼ sec.31, T.3 S., R.21 E., on left bank three-quarters of a mile downstream from Dry Fork and 4¾ miles northwest of Vernal. Altitude of gage is 5,750 ft (from topographic map).

Drainage area.--241 sq mi.

Records available.--March 1900 to December 1904 (published as "near Vernal"), June 1939 to September 1965.

Estimates of streamflow.--October 1930 to June 1939, based on relationships of monthly mean discharge with Ashley Creek near Vernal, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Ashley Creek at Sign of the Maine, near Vernal, Utah, and X is discharge of Ashley Creek near Vernal, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.97	0.87	0.95	0.95	0.95	0.95	0.92	1.30	1.34	1.64	1.20	1.11
c	-.12	-.48	-.22	-.22	-.25	-.25	-.30	1.18	1.26	2.43	.74	.40

Average discharge.--35 years (1930-65), 82,585 acre-feet per year (115 cfs).

Extremes.--1900-04, 1939-65: Maximum discharge, 4,110 cfs June 11, 1965; minimum recorded, 10 cfs Feb. 24, 1961, Jan. 19, Mar. 5, 1963.

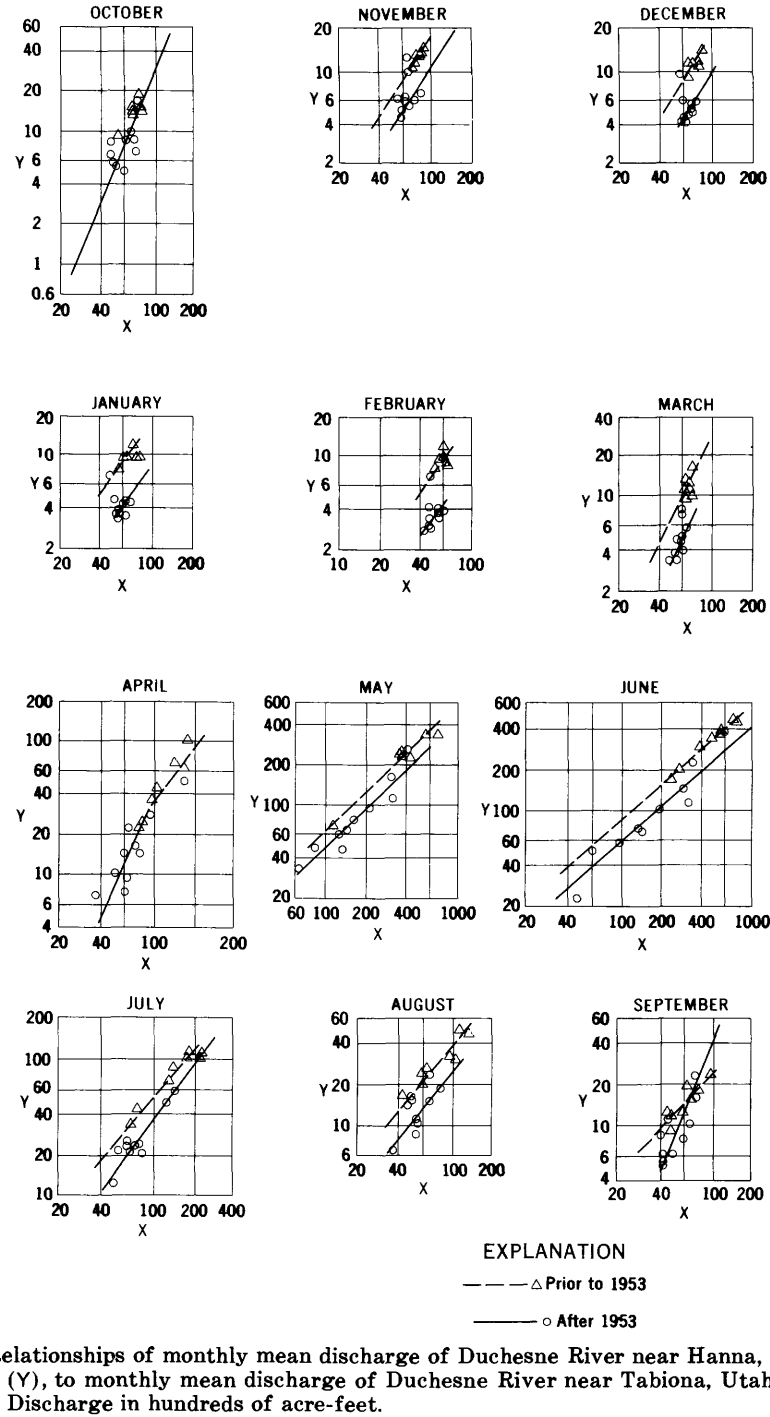
Remarks.--Flow increased since July 1940 by water released from Oaks Park Reservoir (capacity, 6,250 acre-feet) on Big Brush Creek and diverted to Ashley Creek basin for irrigation. Diversions above station for irrigation and municipal supply. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1939	-	-	-	-	-	-	-	-	-	3,190	1,990	5,830	-
1940	5,420	3,440	2,370	1,810	1,400	1,460	4,280	21,150	6,120	3,720	1,710	2,370	55,250
1941	4,470	3,300	2,420	2,030	1,590	1,640	1,650	45,170	40,340	11,930	6,690	7,050	128,300
1942	11,290	6,920	4,370	2,910	2,090	2,180	6,060	29,870	41,060	10,520	5,880	4,610	127,800
1943	3,250	2,370	2,130	1,810	1,470	1,630	9,280	24,740	16,730	8,650	5,610	3,220	80,890
1944	2,360	2,020	1,780	1,520	1,250	1,410	1,790	35,700	65,400	18,600	8,270	4,210	142,300
1945	2,840	2,160	1,840	1,690	1,480	1,580	1,550	19,200	24,090	10,900	7,240	5,250	79,820
1946	3,770	2,480	2,020	1,680	1,420	1,430	6,830	10,630	7,900	4,440	3,220	3,240	49,060
1947	3,210	3,240	2,850	2,360	1,740	2,090	3,430	52,120	34,930	14,800	7,760	5,510	134,000
1948	4,330	2,610	2,260	1,870	1,550	1,570	2,000	32,510	17,860	6,940	5,270	2,330	81,100
1949	2,020	1,690	1,550	1,420	1,180	1,330	2,490	30,500	41,070	10,840	6,980	3,480	104,600
1950	3,590	2,780	2,200	1,980	1,730	1,960	4,480	36,010	37,710	13,690	7,800	4,330	118,300
1951	3,230	2,230	2,030	1,790	1,380	1,520	1,340	21,710	22,350	7,470	6,450	4,340	75,840
1952	3,630	2,250	1,900	1,790	1,530	1,550	4,100	46,570	38,240	11,460	13,050	6,130	132,200
1953	4,420	2,920	2,300	2,190	1,780	1,950	2,140	8,820	22,600	8,370	5,300	2,330	65,120
1954	1,820	2,000	2,020	1,830	1,350	1,360	3,230	25,250	8,720	6,810	3,730	2,480	58,600
1955	2,560	2,120	1,770	1,600	1,260	1,360	1,550	17,460	11,140	5,160	3,980	2,470	52,430
1956	2,400	1,740	1,780	1,620	1,350	1,370	2,170	31,630	14,400	6,260	3,260	1,720	69,700
1957	1,470	1,460	1,380	1,390	1,300	1,210	1,060	8,440	51,010	13,250	7,560	5,420	92,950
1958	3,340	2,860	2,370	1,950	1,600	1,590	2,110	37,910	22,990	8,260	4,530	2,710	92,220
1959	2,070	1,730	1,640	1,270	1,200	1,170	1,080	10,150	10,660	5,760	3,670	2,410	42,810
1960	2,230	1,800	1,270	1,060	928	1,080	3,600	14,810	11,630	5,310	1,910	1,060	46,690
1961	1,490	1,340	1,120	988	855	829	946	16,290	17,680	6,610	4,550	5,630	58,330
1962	6,540	4,460	2,780	1,950	1,650	1,950	10,370	38,940	40,110	12,780	6,800	4,170	132,500
1963	2,900	1,410	1,150	966	795	871	776	19,850	8,700	5,160	2,570	2,910	48,060
1964	2,790	1,690	1,420	1,340	1,190	1,140	1,000	28,400	23,540	8,880	4,910	3,290	79,590
1965	2,430	1,700	1,510	1,350	1,090	1,210	1,420	18,400	73,500	19,540	10,510	7,260	139,900

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	5,600	3,600	3,200	2,800	2,300	2,400	2,800	9,500	5,600	1,700	2,000	1,700	43,200
1932	2,100	2,100	2,100	2,000	2,000	2,000	2,200	33,500	28,300	10,000	5,600	4,300	96,200
1933	3,800	2,600	2,000	1,800	1,600	1,600	1,500	9,600	22,800	3,800	3,300	2,000	56,400
1934	1,900	1,700	1,500	1,500	1,400	1,500	3,900	7,600	3,100	1,300	2,700	2,300	20,400
1935	2,200	2,200	2,000	1,800	1,700	1,900	1,900	13,000	48,000	6,700	3,800	2,200	87,400
1936	2,000	1,900	1,600	1,400	1,300	1,300	2,300	12,400	7,400	3,300	4,600	4,000	43,500
1937	3,400	2,700	1,900	1,600	1,200	1,400	2,400	46,200	23,200	10,600	5,800	3,800	104,200
1938	3,100	2,300	1,900	1,600	1,500	1,600	2,600	26,300	42,000	11,000	5,600	4,800	104,300
1939	6,800	4,800	3,700	2,800	2,300	2,500	7,500	22,000	8,100	-	-	-	71,510



Relationships of monthly mean discharge of Duchesne River near Hanna, Utah (Y), to monthly mean discharge of Duchesne River near Tabiona, Utah (X). Discharge in hundreds of acre-feet.

2740. Duchesne River near Hanna, Utah

Location.--Lat 40°32'00", long 110°52'00", in NE¼ sec.35, T.2 N., R.9 W., Uinta meridian, on right bank 100 ft downstream from Hades Creek and 11 miles northwest of Hanna. Altitude of gage is 7,380 ft (from river-profile map).

Drainage area.--78 sq mi, approximately.

Records available.--August 1921 to September 1923, June 1929 to September 1930 (fragmentary), March 1946 to September 1963. Prior to 1946, published as North Fork Duchesne River near Hanna.

Estimates of streamflow.--October 1930 to February 1946, October 1963 to September 1965, based on relationships of monthly mean discharge with Duchesne River near Tabiona, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Duchesne River near Hanna, Utah, and X is discharge of Duchesne River near Tabiona, Utah, both in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct. 1930 to Sept. 1953	b	2.36	1.48	1.56	1.36	1.39	2.01	2.22	0.96	0.85	1.16	1.20	1.03
	c	6.01	2.67	2.95	2.17	2.28	4.60	5.33	.04	-.53	.93	1.21	.75
Oct. 1953 to Sept. 1965	b	2.36	1.48	1.56	1.36	1.39	2.01	2.22	0.96	0.85	1.29	1.20	2.44
	c	6.01	2.91	3.26	2.49	2.61	4.90	5.33	.16	-.37	1.60	1.42	6.10

Average discharge.--23 years (1931-53), 67,190 acre-feet per year (92.6 cfs).

Extremes.--1921-23, 1929-30, 1946-63: Maximum discharge, about 17,500 cfs June 16, 1963, caused by failure of Little Deer Creek Dam 8 miles upstream, minimum recorded, 4.6 cfs Nov. 14, 1956, Mar. 1, 1961.

Remarks.--Diversions for irrigation of about 60 acres above station. Water is also diverted above station through Duchesne tunnel (capacity, about 600 cfs) to Provo River for use in The Great Basin; diversion began Oct. 20, 1953. Estimates of annual flow are within about 10 percent of regression line.

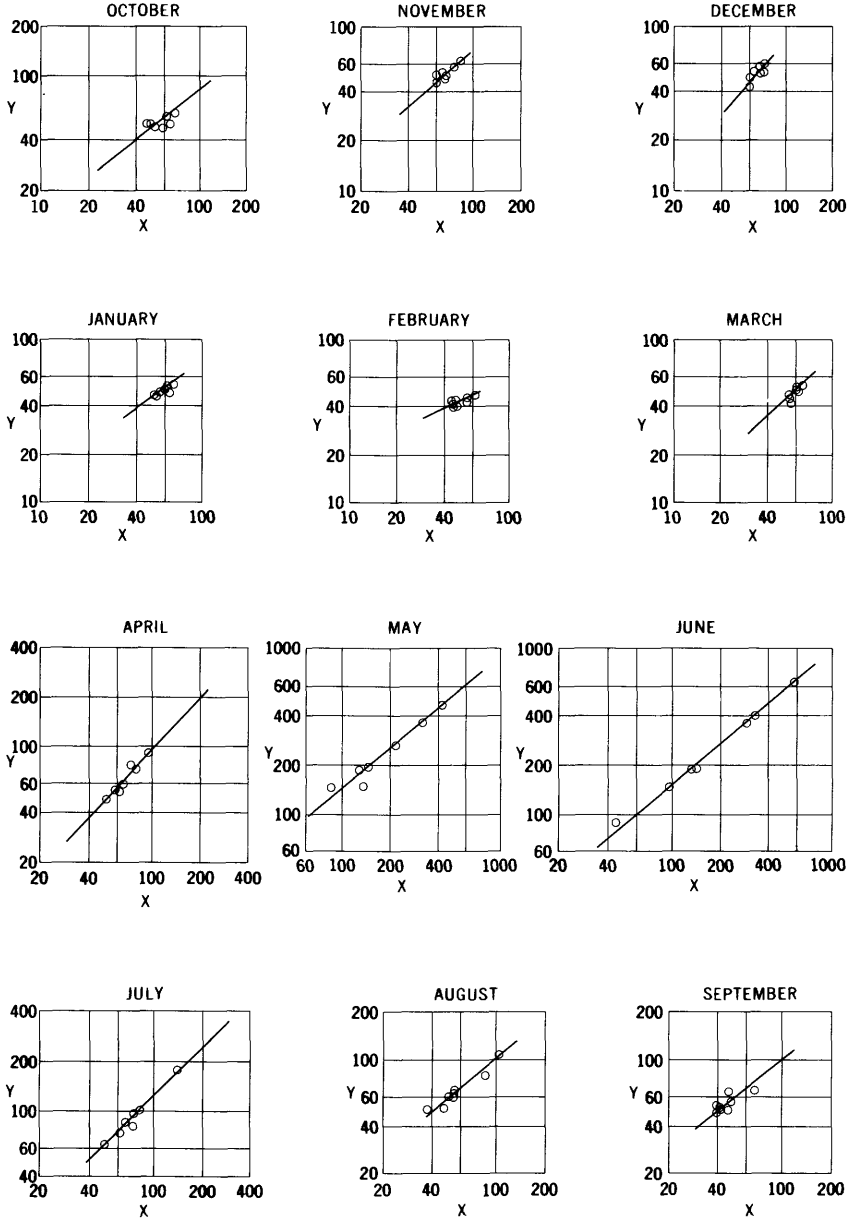
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	-	-	-	-	-	-	9,930	23,850	20,520	4,310	1,980	1,220	-
1947	1,460	1,240	1,110	984	944	1,650	3,680	32,490	28,440	8,930	3,360	1,670	85,960
1948	1,310	1,220	1,080	984	920	1,050	2,200	24,710	16,970	3,300	1,680	936	56,360
1949	932	982	922	827	774	1,300	5,830	22,550	38,050	9,850	2,430	1,250	85,700
1950	1,420	1,290	1,130	984	833	1,110	5,670	19,530	45,600	10,570	2,520	1,850	92,510
1951	1,370	1,460	1,410	1,250	1,170	1,290	4,450	24,150	36,240	11,110	4,890	1,920	90,710
1952	1,860	1,230	1,110	984	863	922	5,655	33,320	44,180	10,720	4,650	2,390	107,900
1953	1,450	1,070	1,050	984	833	994	2,430	7,080	34,410	7,010	3,280	1,270	61,860
1954	853	570	515	453	399	451	1,660	6,590	2,280	1,220	692	510	16,190
1955	499	476	416	382	305	338	738	9,580	7,010	2,120	1,130	656	23,650
1956	644	504	563	451	403	585	2,860	16,080	22,820	2,360	1,050	540	48,860
1957	542	429	409	372	333	486	1,020	4,670	58,270	5,890	1,900	1,050	55,370
1958	845	648	561	469	389	391	1,430	25,230	14,350	2,060	885	622	47,880
1959	564	585	474	370	293	383	1,410	4,850	7,400	2,370	1,580	863	21,140
1960	980	902	594	484	422	742	2,210	6,110	5,910	2,340	1,430	1,110	23,230
1961	811	562	440	369	278	337	722	3,320	5,040	2,170	1,670	1,640	17,360
1962	1,610	1,200	930	756	702	774	5,100	11,250	11,500	4,880	1,540	833	41,080
1963	694	572	479	394	347	493	968	7,710	10,140	2,540	2,360	2,380	29,080

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	3,400	1,000	800	820	700	760	800	9,800	7,000	2,100	1,300	860	29,340
1932	260	760	920	960	900	850	2,700	17,800	31,200	9,000	3,200	1,500	69,050
1933	760	870	900	1,100	740	730	1,000	7,200	27,100	4,100	1,200	940	46,640
1934	400	600	680	730	590	680	1,500	4,800	5,500	1,800	1,100	670	16,850
1935	90	350	520	460	350	310	890	8,300	27,800	3,600	1,400	1,000	45,070
1936	330	630	550	640	580	570	4,000	37,400	23,000	8,800	4,100	1,600	82,200
1937	800	850	880	880	730	900	2,900	34,300	21,000	8,700	1,600	1,400	74,940
1938	1,000	980	880	880	760	1,000	4,800	24,600	30,800	5,700	2,000	2,100	75,500
1939	1,900	1,200	1,100	880	730	1,800	4,700	20,300	10,600	2,800	1,400	1,100	48,510
1940	1,200	700	700	750	670	800	1,400	19,500	7,800	2,100	1,200	1,500	38,320
1941	2,100	940	760	760	660	920	1,600	25,800	27,800	6,000	2,000	1,400	70,740
1942	2,200	1,100	1,000	900	760	1,100	5,400	17,500	28,100	5,100	1,400	1,400	65,960
1943	1,100	900	860	840	840	1,400	8,800	27,000	31,000	9,700	3,400	1,200	87,040
1944	1,500	1,200	1,000	1,000	880	1,300	2,800	22,000	33,800	8,600	1,800	1,300	77,180
1945	1,300	1,000	900	880	740	940	1,500	18,800	26,600	7,800	3,700	1,500	65,660
1946	1,600	1,100	1,100	1,000	840	1,300	-	-	-	-	-	-	68,750
1964	680	660	500	430	370	410	1,400	11,700	16,000	4,400	1,700	920	39,170
1965	500	490	540	480	350	390	2,800	10,400	29,000	13,300	3,000	6,000	67,250

GPO 831-868



Relationships of monthly mean discharge of Duchesne River at Hanna, Utah (Y), to monthly mean discharge of Duchesne River near Tabiona, Utah (X). Discharge in hundreds of acre-feet.

2770. Duchesne River at Hanna, Utah

Location.--Lat 40°25', long 110°47', in SE¼ sec.4, T.1 S., R.8 W., Uinta meredian, at downstream side of left abutment of road bridge, 1 mile downstream from Sand Creek and 1 mile northwest of Hanna.

Drainage area.--230 sq mi, approximately.

Records available.--August 1953 to September 1960.

Estimates of streamflow.--October 1930 to July 1953, October 1960 to September 1965, based on relationships of monthly mean discharge with Duchesne River near Tabiona, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Duchesne River at Hanna, Utah, and X is discharge of Duchesne River near Tabiona, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.77	0.84	1.12	0.68	0.46	0.89	1.05	0.82	0.82	0.96	0.79	0.78
c	-.83	-.50	.47	-1.13	-1.93	-.33	-.23	-.88	-.86	-.24	-.85	-.84

Average discharge.--35 years (1931-65), 140,500 acre-feet per year (194 cfs).

Extremes.--1953-60: Maximum discharge, 2,260 cfs June 7, 1957; minimum daily, 52 cfs Mar. 12, 15, 1956.

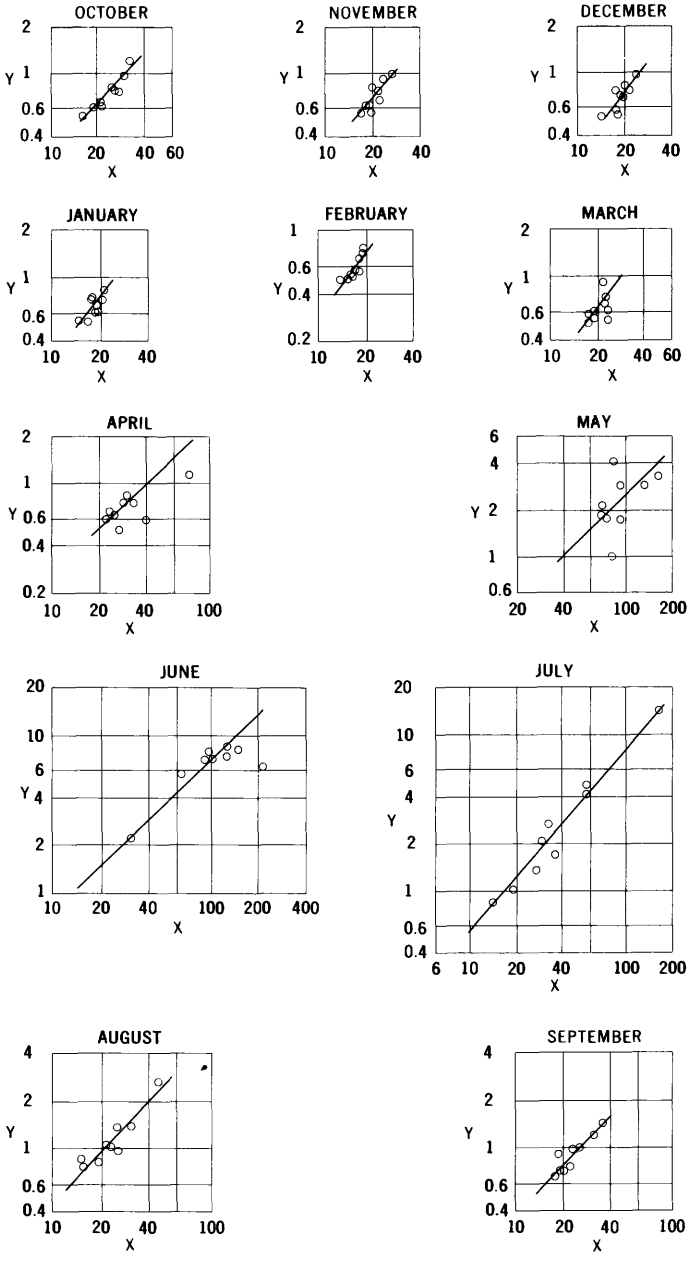
Remarks.--Several diversions above station for irrigation, including a transmountain diversion through Duchesne tunnel. Estimates of annual flow are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1953	-	-	-	-	-	-	-	-	-	-	10,520	6,090	-
1954	5,750	5,620	5,420	5,180	4,600	5,100	7,660	19,320	8,810	6,290	4,920	4,560	83,230
1955	4,860	4,660	4,830	4,720	3,980	4,340	5,360	25,740	18,980	8,570	5,930	4,820	96,800
1956	5,140	4,900	5,280	4,700	4,400	5,300	9,110	36,080	39,900	9,640	6,520	4,850	135,820
1957	4,900	5,030	5,220	4,570	4,030	4,470	4,820	14,970	63,710	17,690	7,720	6,280	143,400
1958	5,950	6,110	5,910	5,340	4,640	4,850	7,270	47,670	35,810	10,000	6,130	5,350	145,000
1959	5,060	5,210	5,250	4,730	4,250	4,670	5,580	14,360	18,780	7,920	5,820	4,820	86,450
1960	5,090	4,750	4,420	4,530	4,090	4,900	6,990	18,820	14,860	7,170	4,930	4,710	85,260

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	9,000	5,400	4,600	4,600	4,300	4,500	4,800	20,800	12,200	5,400	4,800	4,300	84,700
1932	3,800	4,600	5,000	5,100	4,600	4,700	8,300	34,400	51,800	18,400	6,800	6,600	154,100
1933	5,500	5,000	5,000	5,400	4,300	4,300	5,400	16,100	45,000	9,700	4,800	4,500	114,800
1934	4,400	4,000	4,100	4,400	4,000	4,200	6,400	11,500	6,400	4,500	4,400	3,600	61,900
1935	2,700	3,000	3,300	3,500	3,400	2,900	5,000	18,200	45,500	8,800	5,100	4,800	106,200
1936	4,200	4,100	3,500	4,200	4,000	3,900	10,800	66,000	38,000	18,200	10,600	6,700	174,200
1937	5,600	4,900	4,800	4,800	4,300	4,800	8,800	60,000	34,800	18,000	5,500	6,300	162,600
1938	6,000	5,300	4,900	4,900	4,400	5,000	12,300	45,200	50,500	12,900	6,500	8,400	166,300
1939	7,300	6,000	5,600	4,800	4,300	6,500	12,200	38,900	18,200	7,100	5,200	5,200	121,300
1940	6,400	4,400	4,200	4,500	4,200	4,500	6,200	37,300	13,600	5,700	4,500	6,300	101,800
1941	7,600	5,200	4,400	4,500	4,200	4,800	6,700	48,000	45,500	13,400	6,400	6,200	156,900
1942	7,800	5,600	5,400	4,900	4,400	5,200	13,900	34,200	46,800	11,700	5,100	6,200	151,200
1943	6,200	5,000	4,700	4,700	4,500	5,800	20,300	49,500	51,000	20,000	9,200	5,600	186,500
1944	6,800	6,000	5,600	5,200	4,600	5,600	8,600	41,800	55,000	18,000	6,000	5,800	169,000
1945	6,600	5,400	5,000	4,900	4,300	4,900	6,400	36,200	44,000	16,500	9,800	6,600	150,600
1946	7,000	5,700	5,800	5,300	4,500	5,500	18,800	42,000	34,000	8,600	6,300	5,400	148,900
1947	6,800	6,000	5,700	5,000	4,600	6,000	9,200	56,500	46,000	17,300	9,500	7,500	180,100
1948	6,200	6,000	5,700	5,100	4,600	5,000	7,300	42,000	30,500	8,000	5,700	5,000	131,100
1949	5,000	5,300	5,300	4,800	4,300	5,200	13,800	48,000	62,200	20,300	6,900	6,200	187,300
1950	6,900	6,100	5,600	5,100	4,600	5,300	14,200	42,000	74,000	25,500	7,100	7,700	204,100
1951	6,400	6,400	6,700	5,500	4,700	5,400	10,400	42,000	61,000	21,200	10,700	6,600	187,000
1952	6,800	5,800	5,800	5,200	4,700	5,200	17,500	71,800	78,500	25,800	12,200	9,400	248,700
1953	6,200	5,600	6,500	5,800	4,800	5,600	7,700	16,200	55,000	15,500	-	-	145,510
1961	4,600	4,400	4,800	4,500	4,000	4,100	3,400	9,900	10,000	6,600	5,000	7,200	68,500
1962	6,400	5,000	4,400	4,200	4,200	4,900	18,000	38,000	39,000	14,800	7,400	6,400	152,700
1963	6,400	4,900	5,400	4,700	4,500	4,900	6,000	21,800	26,100	7,700	7,500	7,500	107,200
1964	5,200	5,600	5,200	4,900	4,400	4,500	6,300	31,000	38,900	13,700	7,800	5,800	133,300
1965	4,800	4,900	5,500	5,200	4,400	4,500	8,500	28,000	68,200	31,000	11,500	10,500	187,000



Relationships of monthly mean discharge of White River below Trappers Lake, Colo. (Y), to monthly mean discharge of White River near Meeker, Colo. (X). Discharge in thousands of acre-feet.

3024. White River below Trappers Lake, Colo.

Location.--Lat 39°59'50", long 107°13'50", in sec.2, T.1 S., R.88 W., on right bank 200 ft below Trappers Lake, 1 mile upstream from Skinny Fish Creek, and 21 miles east of Buford. Altitude of gage is 9,600 ft (from topographic map).

Drainage area.--21.4 sq mi.

Records available.--October 1956 to September 1965.

Estimates of streamflow.--October 1930 to September 1956, based on relationships of monthly mean discharge with White River near Meeker, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of White River below Trappers Lake, Colo., and X is discharge of White River near Meeker, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.09	1.09	1.28	1.26	1.31	1.26	0.96	0.96	0.96	1.14	1.04	1.04
c	1.88	1.87	2.63	2.54	2.76	2.62	1.41	1.38	.95	1.80	1.49	1.59

Average discharge.--35 years (1930-65), 19,260 acre-feet per year (26.6 cfs).

Extremes.--1956-65: Maximum discharge, 481 cfs July 4, 1957, from rating curve extended above 250 cfs; minimum daily, 2.9 cfs Sept. 2, 1964, caused by temporary storage behind moss jam at lake outlet upstream.

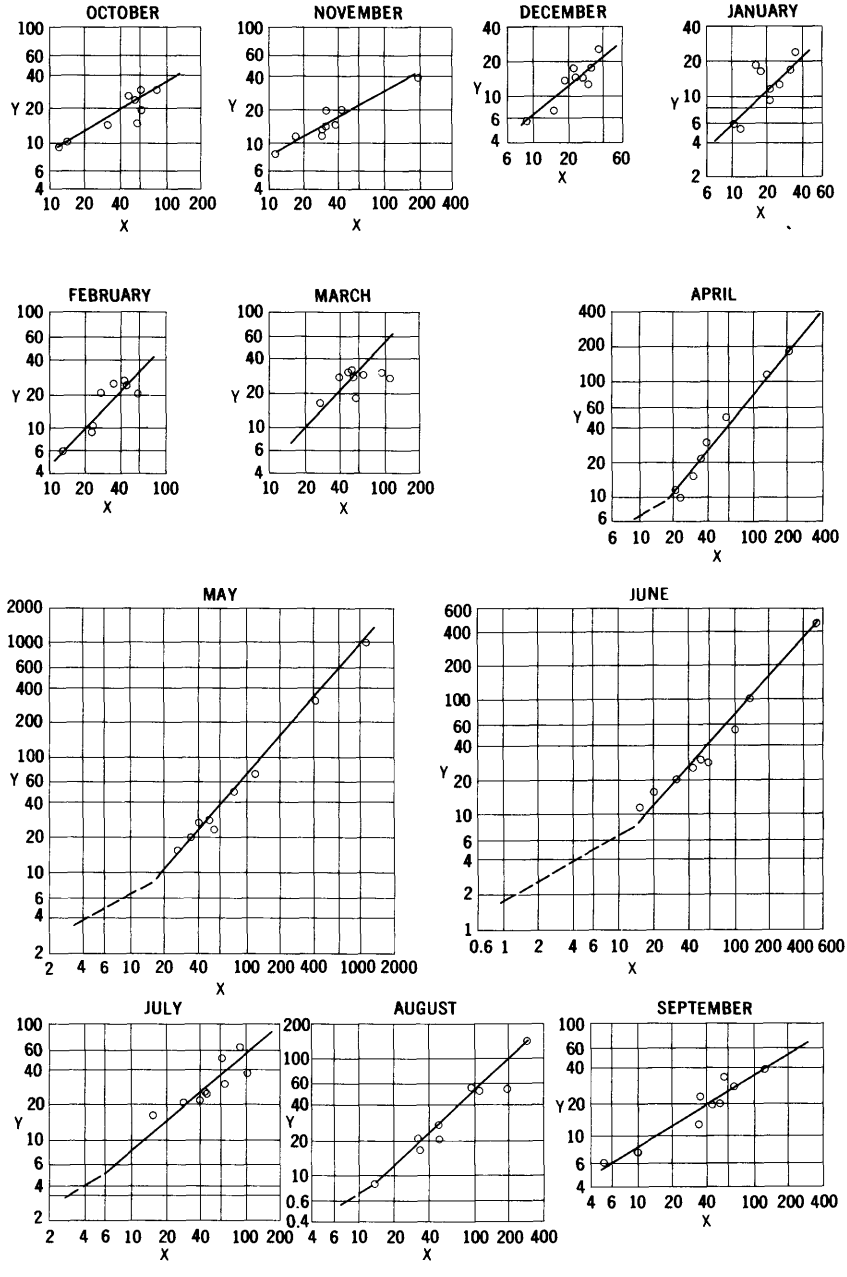
Remarks.--No diversions above station. Natural regulation by Trappers Lake. Estimates of annual flow are within about 15 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1957	609	625	584	615	528	612	641	1,010	6,500	14,800	2,670	1,360	30,550
1958	1,230	962	984	861	722	738	774	3,300	8,830	1,750	1,050	958	22,160
1959	837	778	799	738	555	615	869	2,160	8,310	2,160	1,360	695	19,880
1960	801	811	799	740	575	535	599	1,800	7,280	1,380	775	891	16,990
1961	624	556	576	543	503	557	601	1,880	5,970	1,050	857	978	14,700
1962	990	904	861	797	778	922	1,160	2,900	7,740	4,300	950	728	23,030
1963	792	674	732	615	666	680	772	4,120	2,320	849	817	685	13,720
1964	541	568	558	553	518	585	678	2,910	7,290	2,640	1,020	634	18,500
1965	655	608	739	670	532	521	527	1,760	8,470	4,900	1,370	1,130	21,880

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	930	900	920	780	680	720	850	2,000	4,400	1,200	990	820	15,190
1932	680	680	910	880	720	850	970	3,100	9,000	4,700	1,600	1,000	25,090
1933	840	800	850	810	680	760	840	2,000	10,400	3,100	1,200	900	23,180
1934	710	720	780	550	490	740	830	1,200	1,200	540	560	540	8,860
1935	530	530	580	550	410	490	550	1,400	8,900	2,500	820	660	17,920
1936	510	600	560	700	580	540	970	3,000	6,400	2,100	1,100	690	17,750
1937	600	560	590	590	500	510	480	2,300	4,300	2,200	720	660	14,010
1938	570	550	600	540	470	670	1,000	2,800	11,000	3,200	1,100	1,000	23,500
1939	730	640	740	710	470	640	880	2,500	4,900	1,400	910	830	15,350
1940	680	610	620	640	560	580	750	2,800	4,500	1,300	720	660	14,420
1941	730	620	650	620	520	600	630	3,400	7,300	2,400	1,100	820	19,390
1942	930	740	730	740	580	620	1,100	2,800	9,000	2,100	1,000	680	21,020
1943	640	680	680	570	490	520	950	1,600	6,500	2,200	1,400	690	16,920
1944	570	600	630	680	520	540	480	2,200	8,000	2,800	960	590	18,570
1945	630	600	590	610	560	600	530	2,600	8,000	4,900	1,600	800	22,020
1946	720	750	760	650	540	500	1,000	1,700	5,700	1,500	1,000	630	15,450
1947	770	630	660	640	560	760	790	3,900	8,900	4,900	1,700	900	25,110
1948	830	760	920	800	620	520	900	3,300	6,800	2,000	1,200	710	19,360
1949	720	710	760	680	560	650	890	2,600	11,400	4,100	1,300	870	25,240
1950	810	740	780	780	660	620	740	1,700	9,200	2,500	1,000	800	20,330
1951	720	660	760	680	530	580	610	2,400	8,200	3,500	1,300	760	20,700
1952	790	700	720	680	620	570	940	3,300	13,600	3,800	2,000	1,200	28,920
1953	910	820	1,100	940	660	700	700	1,900	9,800	2,300	1,200	650	21,680
1954	700	680	700	820	600	570	820	1,900	2,200	980	700	720	11,390
1955	700	620	670	630	500	530	620	2,300	5,500	1,200	800	520	14,590
1956	630	630	720	680	560	620	820	2,700	6,300	1,600	880	510	16,650



Relationships of monthly mean discharge of Price River near Wellington, Utah (Y), to monthly mean discharge of Price River at Woodside, Utah (X). Discharge in hundreds of acre-feet.

3140. Price River near Wellington, Utah

Location.--Lat 39°30'40", long 110°40'50", in NW¼ sec.22, T.15 S., R.11 E., on left bank 0.3 mile upstream from Miller Creek and 3.5 miles southeast of Wellington. Altitude of gage is 5,300 ft (by barometer).

Drainage area.--850 sq mi, approximately.

Records available.--October 1949 to September 1958.

Estimates of streamflow.--December 1945 to September 1949, October 1958 to September 1965, based on relationships of monthly mean discharge with Price River at Woodside, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Price River near Wellington, Utah, and X is discharge of Price River at Woodside, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	*Apr.	*May	*June	*July	*Aug.	Sept.
b	0.60	0.56	0.83	0.94	1.04	1.04	1.21	1.14	1.11	0.83	0.83	0.62
c	-1.13	-1.21	-.35	.05	.45	.44	.98	.74	.58	-.41	-.35	-1.08
X<	-	-	-	-	-	-	1,800	1,700	1,400	600	1,300	-

* Compound curve: when X is less than the value shown, use

$$\text{Log } Y = 0.56 \log X + 1.15$$

Average discharge.--19 years (1946-65), 42,580 acre-feet per year (58.8 cfs).

Extremes.--1949-58: Maximum discharge, 4,190 cfs Aug. 28, 1953, from rating curve extended above 1,800 cfs on basis of slope-area measurements; minimum, 2.4 cfs Nov. 19, 1956.

Remarks.--Many diversions for irrigation above and below station. Flow affected by storage in Scofield Reservoir (capacity, 65,780 acre-ft). Estimates of annual flow are within about 25 percent of regression line.

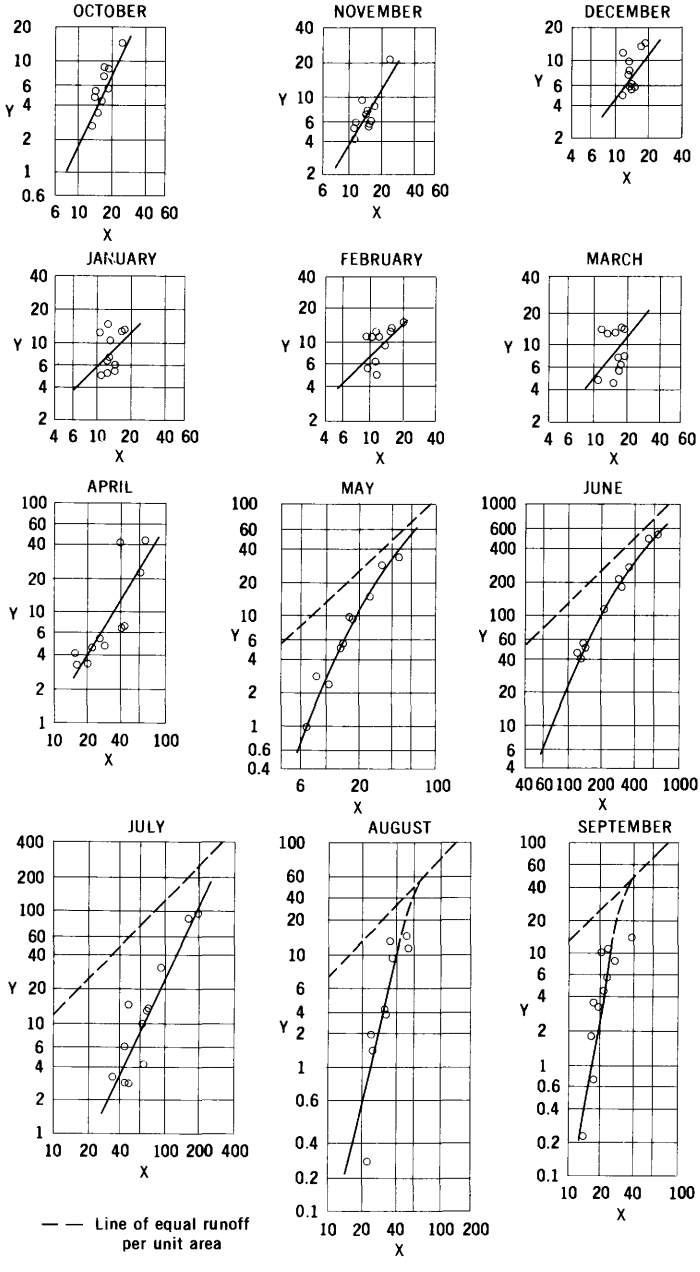
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	2,890	1,380	1,740	1,970	1,960	2,850	11,250	5,020	2,600	3,590	1,660	1,980	38,890
1951	1,440	1,430	1,270	1,150	1,280	3,180	1,510	2,340	2,870	2,680	5,330	1,350	25,830
1952	1,500	1,940	1,390	1,680	2,010	2,990	36,230	99,510	46,440	6,150	5,490	3,490	208,800
1953	2,600	1,970	2,560	2,480	2,430	2,710	2,960	2,820	3,070	4,890	5,040	2,340	35,850
1954	2,340	1,470	1,490	1,300	2,540	3,010	2,130	2,710	2,040	2,150	2,010	4,070	27,260
1955	2,920	1,160	756	573	613	2,650	4,850	1,980	1,580	1,600	2,630	779	22,090
1956	1,040	1,160	1,470	964	914	2,760	970	1,540	1,150	2,060	840	617	15,480
1957	932	801	615	615	1,060	1,640	1,120	7,120	5,490	2,920	13,440	2,050	37,800
1958	1,950	3,750	1,770	1,720	2,270	1,820	17,670	31,300	10,160	2,580	1,970	2,740	79,700

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	-	-	740	600	930	2,400	2,200	1,400	650	940	2,700	730	-
1947	2,000	1,300	1,300	660	1,400	2,400	3,000	4,100	2,100	1,500	6,400	1,400	27,560
1948	1,700	1,200	1,500	990	1,400	2,200	2,700	1,700	1,600	1,800	3,000	630	20,420
1949	1,300	1,000	1,100	980	1,300	5,400	10,400	9,000	11,000	6,700	2,500	2,500	53,180
1959	1,600	1,300	1,700	1,400	1,200	1,400	900	880	790	520	3,300	2,100	17,090
1960	1,300	1,100	1,000	920	840	3,300	1,200	760	630	320	700	1,500	13,570
1961	3,700	940	800	400	600	760	620	350	170	470	100	6,700	18,800
1962	920	980	860	550	3,800	4,400	25,900	8,800	1,800	5,300	540	4,600	58,450
1963	2,500	1,000	930	490	1,200	3,500	840	780	890	1,100	6,700	4,000	23,830
1964	1,000	920	650	420	490	940	1,900	3,600	1,800	1,400	4,800	1,300	19,220
1965	910	980	1,000	1,300	1,500	1,600	7,000	21,800	14,300	8,200	4,000	2,600	65,190

Note--Downward extension of regressions April to August in the direction indicated by each set of monthly data would give estimates at Wellington substantially below anything observed, and would suggest inflow per unit area below Wellington equal, or nearly equal, to that occurring above. This is not probable because of the difference in basin altitudes, hence a common regression is used below about 1,000 acre-feet.



Relationships of monthly mean discharge of Cottonwood Creek near Castle Dale, Utah (Y), to monthly mean discharge of Cottonwood Creek near Orangeville, Utah (X). Discharge in hundreds of acre-feet.

3250. Cottonwood Creek near Castle Dale, Utah

Location.--Lat 39°10', long 110°56', in sec.8, T.19 S., R.9 E., on right bank half a mile upstream from Rock Canyon and 6 miles east of Castle Dale. Altitude of gage is 5,400 ft (from river-profile map).

Drainage area.--261 sq mi.

Records available.--July 1947 to September 1958.

Estimates of streamflow.--May 1932 to June 1947, October 1958 to September 1965, based on relationships of monthly mean discharge with Cottonwood Creek near Orangeville, Utah. The regression equation used is:

$$\text{Log } Y = b \log (X - a) - c$$

(where Y is discharge of Cottonwood Creek near Castle Dale, Utah and X is discharge of Cottonwood Creek near Orangeville, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	*May	*June	July	Aug.	Sept.
a	0	0	0	0	0	0	0	6,000	6,000	0	0	0
b	2.09	1.70	1.33	1.00	1.00	1.23	1.70	1.21	1.21	2.12	4.13	5.98
c	4.01	2.52	1.34	.22	.13	.99	2.99	1.00	1.00	5.07	11.70	17.26

*Compound curve: Where X < 11,000 acre-feet, use

$$\text{Log } Y = 2.49 \log X - 6.58.$$

Average discharge.--33 years (1932-65), 33,776 acre-feet per year (46.7 cfs).

Extremes.--1947-58: Maximum discharge, 1,660 cfs about June 3, 1952, from rating curve extended above 820 cfs by logarithmic plotting; no flow for part of Aug. 31, 1954, and for several days during August and September 1956.

Remarks.--Many diversions above station for irrigation and several transmountain diversions from headwaters to the Great Basin for irrigation in San Pitch River basin. Estimates of annual flow are within about 10 percent of regression line.

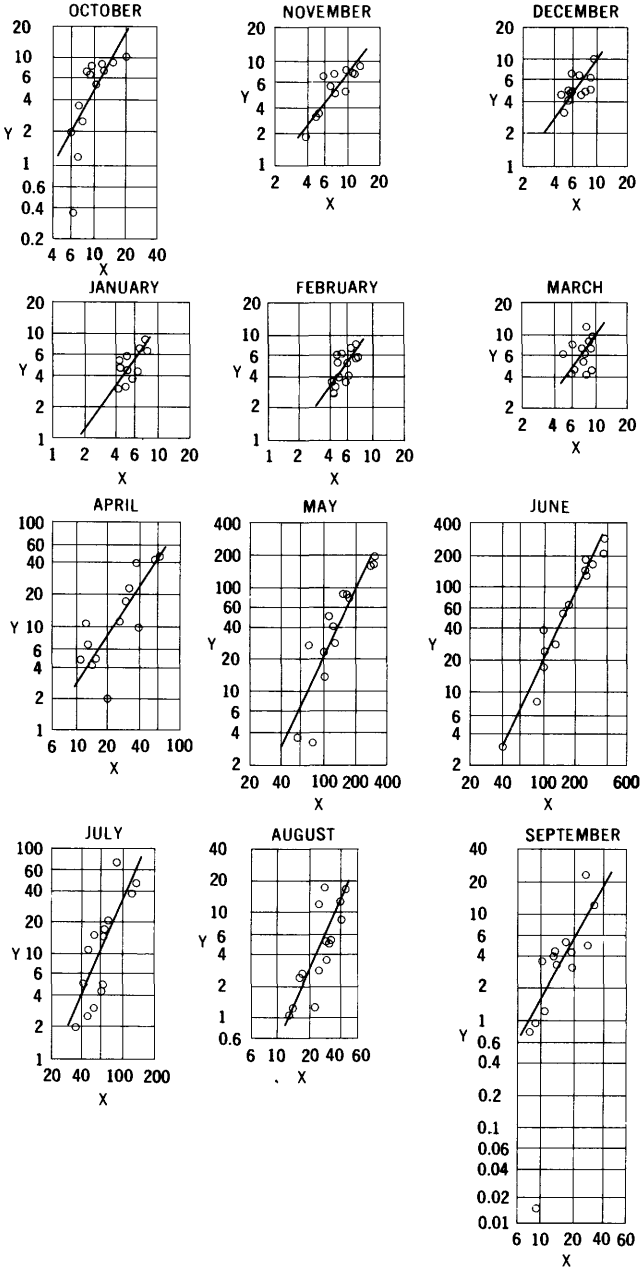
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1947	-	-	-	-	-	-	-	-	-	1,250	2,580	620	-
1948	578	588	799	676	1,160	1,220	486	9,600	5,480	602	276	182	21,650
1949	447	607	583	523	682	1,280	2,660	16,330	17,960	3,050	632	337	45,090
1950	727	740	559	736	1,130	750	734	5,660	5,020	1,410	379	359	18,200
1951	552	700	619	553	520	442	346	7,640	10,960	992	2,520	439	26,280
1952	870	920	968	1,020	1,280	1,400	4,570	34,370	52,430	8,590	2,350	1,410	110,200
1953	881	789	1,410	1,290	1,360	780	585	965	20,830	1,300	1,830	466	32,490
1954	830	544	594	633	980	631	777	5,350	589	320	137	1,070	12,460
1955	484	602	1,170	1,230	1,170	1,330	430	2,370	3,940	278	580	72	13,660
1956	343	502	756	1,470	1,240	567	516	9,480	4,500	281	27.6	22.4	19,700
1957	260	414	492	492	595	464	340	2,800	47,390	9,680	2,810	884	66,620
1958	1,460	2,110	1,300	1,230	1,530	1,360	4,390	28,680	26,100	419	319	1,110	70,010

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	-	-	-	-	-	-	-	9,000	10,800	860	310	70	-
1933	330	570	410	380	410	520	390	910	22,500	2,300	1,300	70	30,090
1934	140	370	530	570	600	620	2,300	910	70	30	20	0	6,180
1935	100	230	340	500	580	560	480	1,800	39,300	950	170	20	45,030
1936	210	500	380	540	640	580	2,400	29,500	11,000	1,200	1,200	320	48,470
1937	410	760	610	610	740	730	1,100	19,700	7,500	1,100	430	1,400	35,090
1938	470	500	620	720	810	850	2,100	13,800	12,800	440	280	300	33,690
1939	420	690	610	690	660	2,000	3,200	13,800	3,000	240	60	180	25,550
1940	440	450	470	570	710	700	790	22,300	4,200	210	20	380	31,240
1941	390	530	610	650	720	810	490	20,500	21,300	1,300	770	500	48,570
1942	1,600	1,500	1,100	1,000	1,000	1,400	4,300	14,700	20,900	1,100	280	140	49,020
1943	480	660	780	840	930	930	3,800	6,300	4,500	400	500	60	20,180
1944	440	570	630	610	780	750	530	15,600	30,700	2,800	370	160	53,940
1945	510	690	710	750	810	620	370	8,200	11,800	1,400	1,200	280	27,340
1946	570	900	750	800	820	1,100	4,300	9,500	3,300	330	120	30	22,520
1947	420	460	490	700	940	1,200	1,300	16,300	7,700	-	-	-	33,960
1959	570	600	640	710	790	700	440	680	1,800	200	50	20	7,200
1960	340	410	350	450	600	850	1,000	5,300	5,000	310	60	150	14,820
1961	510	590	640	650	660	750	530	2,700	1,300	170	400	420	9,320
1962	1,000	1,200	830	770	1,100	1,300	3,600	7,800	9,100	1,500	690	420	29,310
1963	760	750	520	410	780	680	300	2,100	2,700	330	470	820	10,620
1964	480	540	430	550	620	440	270	5,900	8,500	980	*420	80	19,210
1965	270	500	470	700	860	760	770	3,400	32,300	19,400	*2,000	*5,000	76,930

* Monthly regression not used. Estimated on basis of equal flow per unit area.



Relationships of monthly mean discharge of Ferron Creek near Castle Dale, Utah (Y), to monthly mean discharge of Ferron Creek (upper station) near Ferron, Utah (X). Discharge in hundreds of acre-feet.

3275. Ferron Creek near Castle Dale, Utah

Location.--Lat 39°06'20", long 111°01'25", in SE¼ sec.4, T.20 S., R.8 E., on left bank 6 miles east of Ferron and 7 miles south of Castle Dale. Altitude of gage is 5,550 ft (from topographic map).

Drainage area.--210 sq mi, approximately.

Records available.--June 1911 to September 1914, December 1947 to September 1958.

Estimates of streamflow.--October 1958 to September 1965, based on relationships of monthly mean discharge with Ferron Creek (upper station) near Ferron, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Ferron Creek near Castle Dale, Utah, and X is discharge of Ferron Creek (upper station) near Ferron, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.69	1.30	1.40	1.40	1.40	1.40	1.55	2.13	2.14	2.33	2.25	1.76
c	2.39	1.00	1.18	1.13	1.11	1.20	2.21	5.17	5.23	5.80	5.01	3.04

Average discharge.--17 years (1947-65), 19,840 acre-feet per year (27.4 cfs).

Extremes.--1947-58: Maximum discharge, 1,630 cfs Aug. 3, 1951, from rating curve extended above 650 cfs on basis of slope-area measurements; no flow for several days in September and October 1955.

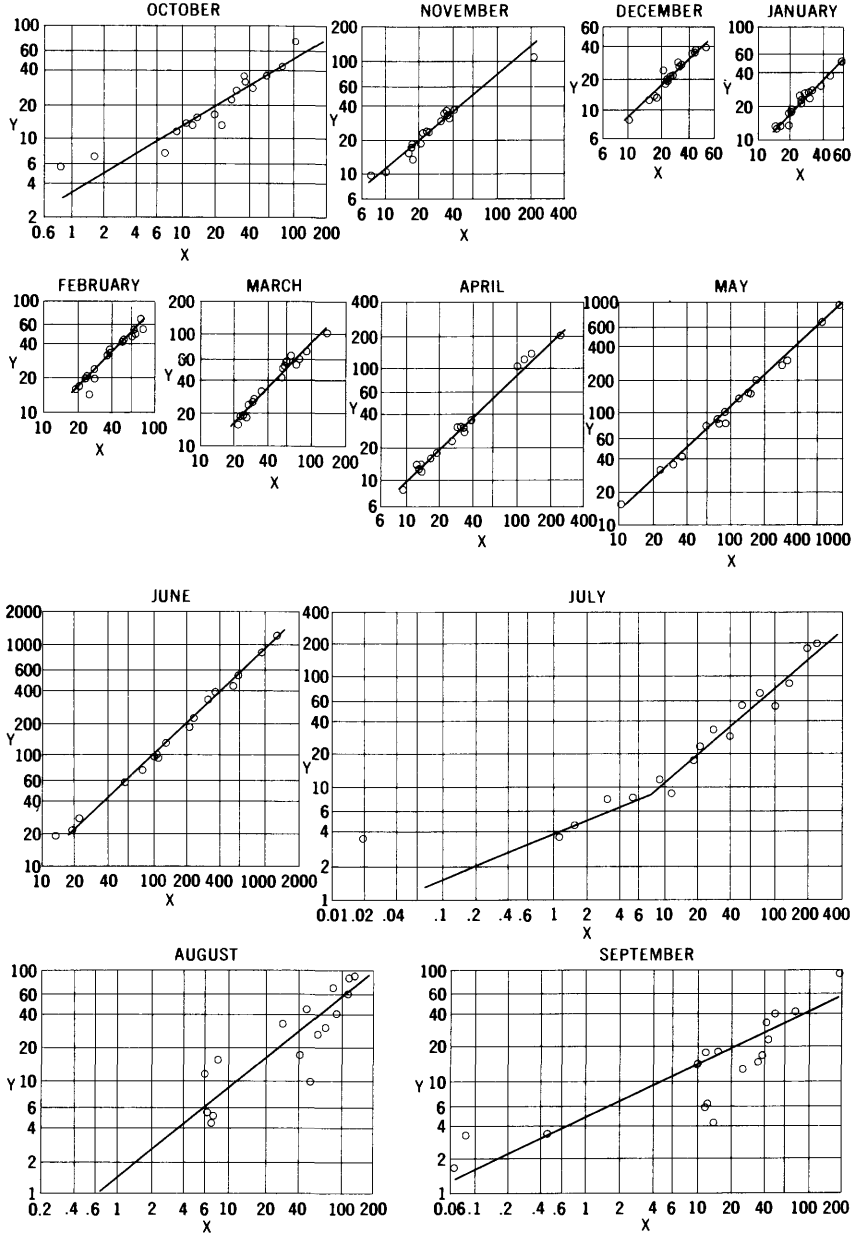
Remarks.--Flow slightly regulated by small reservoir in mountains (capacity unknown). Many diversions for irrigation above station. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1948	-	-	492	430	403	466	1,050	4,200	3,870	509	262	90	-
1949	247	444	399	307	362	1,190	4,340	7,840	13,110	1,450	862	324	30,880
1950	547	494	492	544	550	556	1,110	2,380	2,400	1,500	128	119	10,820
1951	342	509	462	369	359	408	202	5,260	5,550	442	1,760	424	16,090
1952	695	716	732	619	760	865	4,600	19,780	29,600	3,800	1,710	1,210	65,090
1953	900	817	676	676	635	735	487	371	6,790	1,730	1,180	307	15,300
1954	837	758	714	700	609	640	967	1,420	291	202	104	349	7,590
1955	196	311	486	430	395	646	473	330	802	15	496	1.6	4,580
1956	34	189	314	292	325	450	134	2,890	1,740	322	121	76	6,890
1957	118	296	461	461	653	425	433	2,800	21,170	4,850	1,310	488	33,460
1958	1,020	889	1,020	861	807	958	4,010	16,490	14,340	506	356	443	41,700

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1959	300	410	350	280	380	430	750	620	560	230	90	90	4,490
1960	130	230	160	140	210	870	1,200	2,400	2,300	590	80	150	8,460
1961	340	300	240	220	230	410	390	1,100	550	290	300	280	4,650
1962	510	670	580	540	660	980	5,800	7,500	11,700	1,900	840	300	31,980
1963	540	290	160	110	230	390	260	2,900	2,500	420	710	440	8,950
1964	250	370	260	280	310	390	260	2,300	3,600	590	540	180	9,330
1965	260	460	520	590	540	400	860	2,100	21,000	8,000	1,600	740	37,070



Relationships of monthly mean discharge of San Rafael River near Castle Dale, Utah (Y), to monthly mean discharge of San Rafael River near Green River, Utah (X). Discharge in hundreds of acre-feet.

3280. San Rafael River near Castle Dale, Utah

Location.--Lat 39°08'40", long 110°54'15", in NW¼ sec.27, T.19 S., R.9 E., on left bank 1 mile downstream from Ferron Creek and 8 miles southeast of Castle Dale. Altitude of gage is 5,320 ft (from river-profile map).

Drainage area.--927 sq mi.

Records available.--October 1947 to September 1964.

Estimates of streamflow.--October 1945 to September 1947, October 1964 to September 1965, based on relationships of monthly mean discharge with San Rafael River near Green River, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of San Rafael River near Castle Dale, Utah, and X is discharge of San Rafael River near Green River, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.59	0.83	0.94	1.02	1.02	1.05	0.94	0.94	0.95	0.86	0.80	0.48
c	-1.34	-.57	-.16	.13	.13	.26	-.20	-.32	-.21	-.49	-.54	-1.73

Average discharge.--20 years (1945-65), 85,680 acre-feet per year (118 cfs).

Extremes.--1947-64: Maximum discharge, 4,510 cfs June 3, 1952; minimum recorded, 1.3 cfs Sept. 4, 6, 1956.

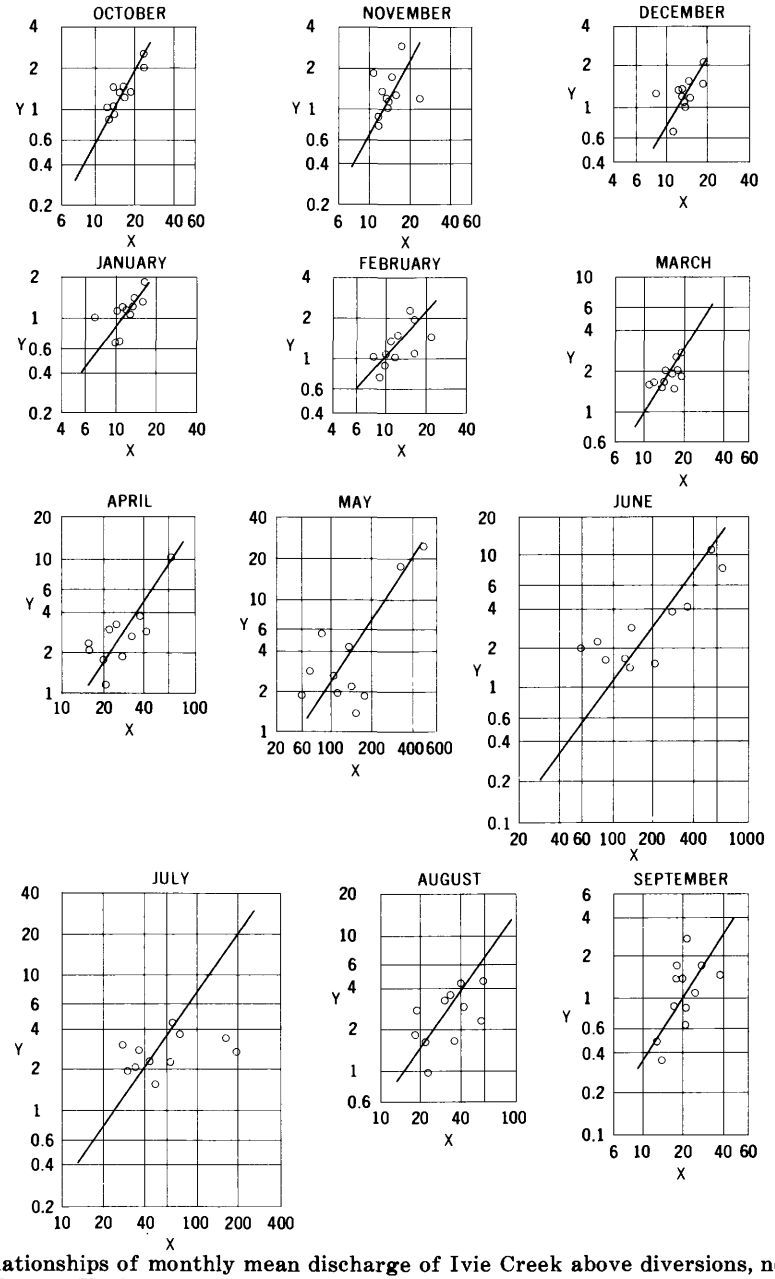
Remarks.--Diversions for irrigation above station, including transmountain diversions to Sevier Lake basin. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1948	1,640	3,490	3,610	2,770	5,640	5,420	3,570	19,720	13,230	1,800	1,020	327	62,240
1949	1,160	1,830	1,890	1,710	2,110	7,380	10,770	30,730	44,550	8,800	4,390	1,340	116,700
1950	2,280	2,950	2,180	2,140	4,860	4,230	3,060	10,480	10,670	5,470	1,210	1,410	50,940
1951	1,360	2,250	2,960	2,150	2,040	1,920	1,410	15,510	23,020	3,390	8,800	1,850	66,660
1952	3,770	3,010	2,540	2,490	4,590	10,330	20,980	98,400	125,900	18,660	6,200	4,200	301,100
1953	3,540	3,630	3,840	5,180	5,270	5,130	2,900	3,150	32,020	5,490	6,830	1,830	78,810
1954	3,260	3,620	2,710	3,050	4,710	3,220	3,140	8,590	1,860	884	541	1,780	37,360
1955	1,320	1,730	2,120	1,840	1,740	6,620	2,360	4,190	5,680	786	3,370	334	32,090
1956	711	1,030	2,010	2,730	2,510	2,410	1,320	13,840	7,520	1,150	438	171	35,840
1957	594	950	924	1,360	3,260	1,840	1,460	8,460	86,280	19,420	9,080	3,460	137,100
1958	7,350	11,270	3,940	3,810	7,080	5,910	14,490	69,280	55,290	2,350	1,740	2,470	185,000
1959	1,540	2,390	3,390	2,550	3,630	2,550	1,670	1,510	2,710	367	506	644	23,460
1960	752	1,370	1,340	1,350	1,650	6,370	3,160	9,020	9,800	456	119	615	36,010
1961	4,380	1,900	1,390	1,390	1,470	1,960	1,800	3,530	2,110	354	3,100	9,970	33,350
1962	2,640	3,350	2,490	2,450	5,620	5,010	12,610	27,480	37,800	7,080	1,600	1,510	109,600
1963	2,980	2,360	1,950	1,850	3,550	1,630	873	7,860	9,930	805	4,190	4,310	42,290
1964	1,360	1,540	1,470	1,240	2,100	2,750	1,220	15,530	18,610	2,980	2,680	438	51,920

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	2,500	2,700	1,900	1,600	3,500	5,100	9,600	22,600	8,300	1,200	4,200	920	64,120
1947	2,300	4,100	3,100	2,000	4,800	3,500	3,200	36,300	25,500	4,300	9,500	2,400	101,000
1965	410	1,300	2,700	3,100	2,800	2,700	5,100	20,500	72,000	26,300	8,000	3,100	148,000



Relationships of monthly mean discharge of Ivie Creek above diversions, near Emery, Utah (Y), to monthly mean discharge of Cottonwood Creek near Orangeville, Utah (X). Discharge in hundreds of acre-feet.

3315. Ivie Creek above diversions, near Emery, Utah

Location.--Lat 38°45'30", long 111°25'15", in NW¼NW¼ sec.1, T.24 S., R.4 E., on right bank 1¼ miles downstream from Clear Creek and 14 miles southwest of Emery. Altitude of gage is 7,100 ft (by barometer).

Drainage area.--50 sq mi, approximately.

Records available.--August 1950 to September 1961.

Estimates of streamflow.--May 1932 to August 1950, October 1961 to September 1965, based on relationships of monthly mean discharge with Cottonwood Creek near Orangeville, Utah. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Ivie Creek above diversions, near Emery, Utah, and X is discharge of Cottonwood Creek near Orangeville, Utah, both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.77	1.77	1.67	1.30	1.10	1.60	1.50	1.53	1.39	1.39	1.39	1.60
c	3.59	3.48	3.12	1.98	1.26	2.79	2.73	3.73	2.50	2.68	2.39	3.17

Average discharge.--33 years (1932-65), 3,199 acre-feet per year (4.42 cfs).

Extremes.--1950-61: Maximum discharge, about 700 cfs Aug. 16, 1955, from rating curve extended above 70 cfs by logarithmic plotting; no flow at times.

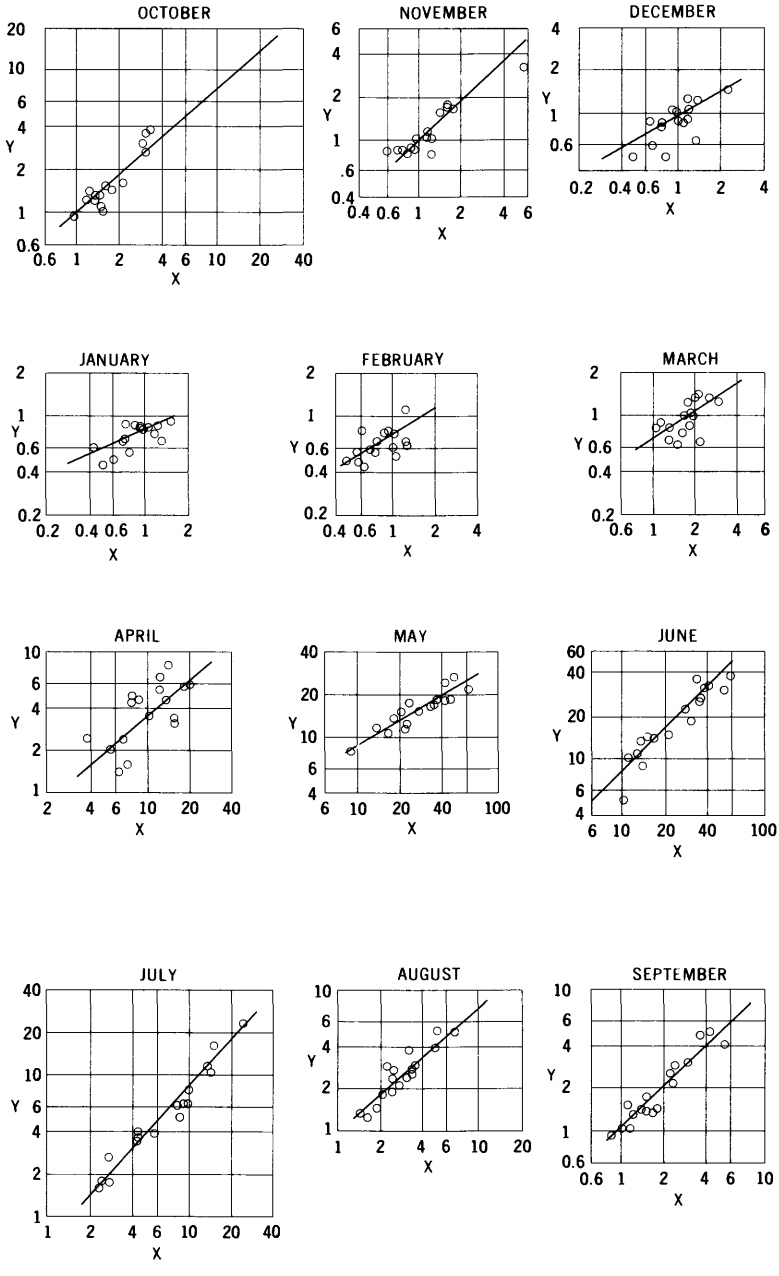
Remarks.--Flow partly regulated by Sheep Valley Reservoir (capacity, 482 acre-ft). Small diversion for irrigation of 200 acres of meadow above station. Estimates of annual flow are within about 25 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1950	-	-	-	-	-	-	-	-	-	-	-	174	-
1951	148	174	152	122	143	201	117	137	158	223	444	153	2,170
1952	146	104	99	107	109	204	1,000	2,440	809	338	468	188	6,010
1953	253	286	215	184	194	277	327	284	383	362	304	79	3,150
1954	132	128	113	144	222	257	280	220	200	205	167	102	2,170
1955	106	138	131	111	109	168	232	193	284	155	169	108	1,900
1956	91	89	109	111	105	147	185	189	163	232	97	43	1,560
1957	85	77	65	67	88	160	209	555	1,120	265	238	216	3,140
1958	203	120	145	129	145	185	371	1,750	415	442	362	133	4,400
1959	124	114	133	117	133	152	173	190	168	198	187	58	1,750
1960	103	183	124	98	104	198	265	444	144	275	282	213	2,430
1961	150	116	117	66	72	168	293	263	221	300	340	340	2,430

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1932	-	-	-	-	-	-	-	620	310	370	250	90	-
1933	90	110	70	40	60	110	150	130	590	710	400	90	2,550
1934	40	70	90	70	80	130	720	140	20	40	80	20	1,500
1935	30	40	50	60	80	120	180	210	1,000	400	200	70	2,440
1936	60	100	60	70	90	120	750	2,000	310	480	390	130	4,560
1937	110	150	110	80	110	170	370	1,300	230	430	280	190	3,530
1938	120	100	110	100	120	200	660	900	350	230	240	130	3,260
1939	110	130	110	100	100	620	980	900	130	150	140	110	3,570
1940	110	80	80	70	100	160	280	1,500	160	140	100	130	2,910
1941	100	100	110	90	100	190	190	1,300	540	500	330	150	3,700
1942	330	310	230	160	160	400	1,300	960	530	440	240	100	5,160
1943	120	130	150	120	140	230	1,100	460	160	220	290	80	3,200
1944	110	110	110	80	110	170	200	1,000	800	840	260	110	3,900
1945	130	130	130	110	120	130	150	580	330	500	390	120	2,820
1946	140	180	140	120	120	280	1,300	640	140	200	180	70	3,510
1947	110	90	80	100	140	320	450	1,100	230	470	390	160	3,640
1948	160	160	130	110	120	160	190	600	180	240	230	90	2,370
1949	130	170	160	110	130	210	820	940	520	670	320	110	4,290
1950	140	150	140	120	140	220	440	440	190	270	220	-	2,640
1962	230	240	160	110	170	360	1,100	540	270	530	320	140	4,170
1963	180	150	90	50	110	150	120	230	120	190	280	160	1,830
1964	120	100	70	70	90	80	110	440	250	400	270	90	2,090
1965	70	100	80	100	130	180	280	310	820	2,900	1,400	440	6,810



Relationships of monthly mean discharge of West Fork San Juan River above Borns Lake, near Pagosa Springs, Colo. (Y), to monthly mean discharge of East Fork San Juan River near Pagosa Springs, Colo. (X). Discharge in thousands of acre-feet.

3405. West Fork San Juan River above Borns Lake, near Pagosa Springs, Colo.

Location.--Lat 37°29'00", long 106°55'50", in sec.36, T.38 N., R.1 W., on right bank half a mile downstream from Beaver Creek, 1½ miles upstream from Borns Lake, and 16 miles northwest of Pagosa Springs. Altitude of gage is 8,400 ft (from topographic map).

Drainage area.--41.2 sq mi.

Records available.--April 1937 to September 1953.

Estimates of streamflow.--May 1935 to March 1937, October 1953 to September 1965, based on relationships of monthly mean discharge with East Fork San Juan River near Pagosa Springs, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of West Fork San Juan River above Borns Lake near Pagosa Springs, Colo., and X is discharge of East Fork San Juan River near Pagosa Springs, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.88	0.88	0.55	0.45	0.62	0.66	0.85	0.58	1.01	1.10	0.88	0.98
c	-.38	-.36	-1.33	-1.55	-1.00	-.86	-.14	-1.62	.14	.49	-.35	-.06

Average discharge.--30 years (1935-65), 57,480 acre-feet per year (79.4 cfs).

Extremes.--1937-53: Maximum discharge, 1,290 cfs June 18, 1949, from rating curve extended above 750 cfs; minimum daily, 6.0 cfs Jan. 30, 31, Feb. 1, 1951.
Maximum flood known occurred Oct. 5, 1911.

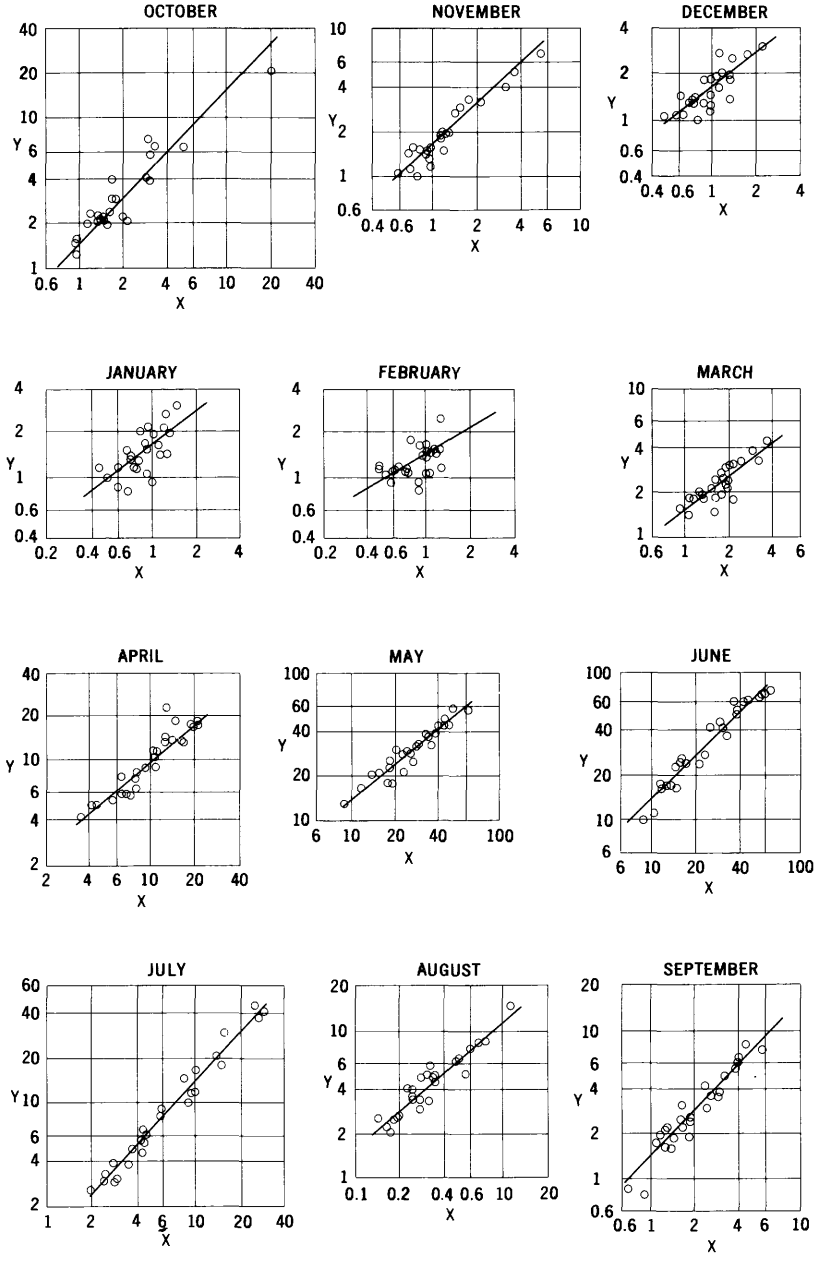
Remarks.--No regulation or diversion. Estimates of annual flow are within about 25 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1937	-	-	-	-	-	-	5,590	26,840	19,250	5,020	2,320	1,390	-
1938	1,540	873	492	553	543	676	5,880	16,720	34,970	7,840	2,900	5,120	78,110
1939	3,680	1,690	1,030	669	445	1,320	3,450	17,560	10,490	1,600	1,260	3,030	46,220
1940	1,380	867	492	461	489	1,440	4,630	11,380	5,160	1,770	1,480	2,570	32,120
1941	3,140	1,580	1,290	861	1,110	1,360	1,420	21,600	31,800	23,060	4,950	4,140	96,310
1942	10,330	3,160	1,480	922	666	861	3,330	16,980	26,030	6,330	1,910	1,350	73,350
1943	1,030	793	641	676	611	1,030	8,240	15,170	14,660	3,920	3,710	1,720	52,200
1944	1,120	1,120	1,080	827	678	829	1,590	18,170	33,290	11,470	2,090	1,010	73,270
1945	1,670	1,030	910	752	552	769	2,440	18,130	23,500	6,210	2,360	1,050	59,350
1946	1,350	811	593	499	479	681	4,990	7,920	11,270	2,640	2,740	2,140	36,110
1947	2,660	1,610	1,280	801	740	1,040	2,040	12,320	14,790	3,620	3,920	4,740	49,560
1948	3,920	1,740	1,100	825	601	633	3,040	24,660	27,150	5,960	2,570	1,330	73,530
1949	1,240	1,000	819	696	581	1,010	5,500	15,530	37,640	16,110	2,740	1,420	84,290
1950	1,490	1,030	900	837	785	1,290	6,750	13,620	13,670	3,490	1,340	1,440	46,640
1951	1,460	853	869	595	563	908	2,470	11,980	9,130	1,720	2,900	1,540	35,050
1952	962	863	857	867	791	821	4,570	18,560	39,750	10,030	5,160	2,930	86,160
1953	1,230	879	859	851	758	1,370	4,460	10,840	15,100	3,710	1,810	914	42,780

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	14,200	46,500	24,000	5,800	2,900	-
1936	1,900	1,100	940	770	670	1,200	5,900	17,100	10,100	2,700	4,800	3,800	50,980
1937	2,000	2,000	1,100	910	760	1,100	-	-	-	-	-	-	68,280
1954	1,000	1,200	890	700	740	750	3,500	12,300	6,800	2,600	2,400	1,600	34,480
1955	1,700	720	800	730	600	820	1,700	11,000	12,400	3,200	4,400	1,800	39,870
1956	1,000	800	930	770	750	1,600	2,800	15,600	16,500	2,100	1,600	690	45,140
1957	800	970	760	670	690	970	2,300	12,500	42,900	26,000	8,100	3,700	100,360
1958	2,600	2,800	1,300	880	790	1,000	3,700	18,400	19,500	3,300	2,400	2,800	59,470
1959	1,400	970	800	630	490	660	1,600	9,500	8,800	1,300	2,600	1,300	30,050
1960	4,400	3,100	1,100	840	810	1,700	6,300	14,800	23,000	4,500	1,700	1,400	63,650
1961	1,200	920	740	620	460	740	2,600	13,500	10,700	2,000	2,500	3,900	39,880
1962	3,000	1,900	1,100	900	970	1,000	6,000	15,900	19,800	5,400	1,700	1,500	59,170
1963	1,700	1,100	920	720	690	1,400	3,100	12,800	5,400	1,600	1,600	1,800	32,830
1964	1,300	910	770	660	510	570	1,500	13,200	8,900	3,300	5,000	2,100	38,720
1965	1,400	1,000	980	830	760	890	3,900	17,800	36,000	20,800	5,100	7,100	96,560



Relationships of monthly mean discharge of West Fork San Juan River near Pagosa Springs, Colo. (Y), to monthly mean discharge of East Fork San Juan River near Pagosa Springs, Colo. (X). Discharge in thousands of acre-feet.

3415. West Fork San Juan River near Pagosa Springs, Colo.

Location.--Lat 37°22'40", long 106°54'00", in SE¼ sec.1, T.36 N., R.1 W., on left bank 30 ft upstream from bridge on U. S. Highway 160, 0.9 mile upstream from mouth, and 10 miles northeast of Pagosa Springs. Datum of gage is 7,614.40 ft above mean sea level, datum of 1929.

Drainage area.--87.9 sq mi.

Records available.--April 1935 to September 1960.

Estimates of streamflow.--October 1960 to September 1965, based on relationships of monthly mean discharge with East Fork San Juan River near Pagosa Springs, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of West Fork San Juan River near Pagosa Springs, Colo., and X is discharge of East Fork San Juan River near Pagosa Springs, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.03	0.89	0.76	0.75	0.57	0.76	0.97	0.81	1.03	1.09	0.85	1.04
c	-.07	-.56	-.93	-.98	-1.47	-.90	-.52	-.89	-.04	.21	-.64	.95

Average discharge.--30 years (1935-65), 110,320 acre-feet per year (152 cfs).

Extremes.--1935-60: Maximum discharge, 2,330 cfs June 15, 1952; minimum daily, 5.8 cfs Sept. 21, 1956.
Maximum flood known occurred Oct. 5, 1911.

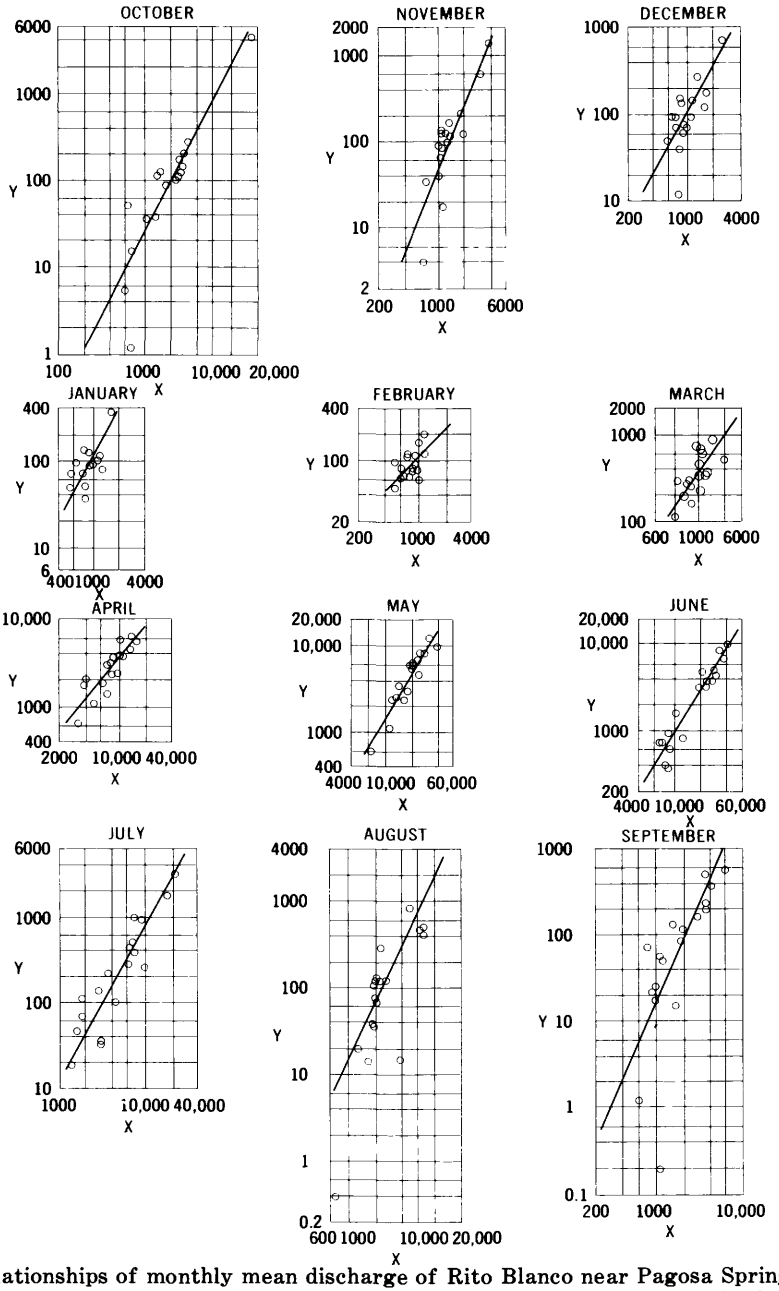
Remarks.--Diversions above station for irrigation of about 700 acres above and 100 acres below station. Treasure Pass ditch above station exports water to Rio Grande basin. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	20,750	74,480	37,190	8,210	3,910	-
1936	2,150	1,920	1,470	922	863	3,100	17,060	38,600	17,270	4,710	7,420	6,520	102,000
1937	5,060	5,250	1,940	1,360	1,460	2,240	17,100	57,110	38,890	3,950	3,970	2,260	142,200
1938	2,360	1,560	998	1,160	1,110	1,860	17,630	37,010	68,700	16,590	4,480	8,220	159,700
1939	5,590	2,560	1,960	1,520	1,210	3,890	10,770	28,500	16,170	2,950	2,190	5,040	82,230
1940	2,140	1,610	1,070	982	1,260	5,180	8,370	24,440	11,610	3,250	2,570	4,340	65,420
1941	7,020	2,710	2,600	2,140	1,630	2,540	5,820	55,940	73,770	44,090	8,040	7,640	215,800
1942	20,550	6,640	3,040	3,030	2,540	2,520	13,600	51,610	53,430	11,650	3,440	2,650	154,800
1943	1,900	1,530	1,400	1,450	1,220	2,360	18,640	29,010	24,860	7,870	5,880	2,570	98,540
1944	2,050	1,860	1,870	1,710	1,910	1,990	5,780	44,330	65,170	20,090	3,400	1,660	152,000
1945	2,090	2,040	1,610	1,430	1,160	1,560	5,880	39,360	42,650	11,200	3,370	1,780	114,100
1946	2,020	1,580	1,090	881	1,140	1,890	8,510	12,930	17,640	3,810	3,590	3,100	58,180
1947	3,810	3,330	2,750	2,180	1,770	2,910	5,310	27,320	26,450	6,060	6,390	6,790	95,070
1948	6,590	3,010	2,070	1,940	1,590	2,190	15,370	48,520	57,580	14,010	4,770	2,260	157,900
1949	1,970	1,380	1,280	1,230	1,140	2,500	13,280	31,280	65,870	29,530	4,800	2,410	156,800
1950	2,840	2,050	1,260	1,330	1,460	2,740	14,210	20,910	22,850	6,500	2,570	1,920	82,640
1951	2,280	1,090	1,450	1,150	954	1,930	4,110	20,520	16,380	2,880	4,050	2,050	59,320
1952	1,460	1,190	1,400	1,330	1,190	1,410	13,750	44,220	77,820	17,400	6,550	3,690	171,200
1953	2,180	1,470	1,990	2,050	1,760	3,390	6,520	17,440	28,940	5,240	2,650	813	74,340
1954	1,580	2,050	1,700	1,160	1,590	1,870	11,770	24,560	10,010	3,760	4,820	3,140	67,590
1955	3,850	1,480	1,720	1,300	1,190	2,090	4,970	20,900	25,440	4,510	5,150	1,940	74,140
1956	1,210	1,010	1,110	1,050	1,150	3,350	7,760	30,580	24,170	3,050	2,010	894	77,340
1957	1,040	1,200	1,050	811	988	1,830	7,640	17,350	68,100	40,420	14,290	5,650	160,400
1958	3,920	4,070	2,710	2,630	1,640	1,960	11,750	44,020	45,080	5,400	2,940	3,660	127,800
1959	2,070	1,670	1,360	1,180	1,090	1,600	4,300	16,800	17,960	3,530	4,940	2,200	58,300
1960	6,650	5,020	1,910	1,670	1,500	4,510	18,260	27,320	46,050	8,810	2,500	1,630	125,800

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1961	1,800	1,600	1,200	1,100	1,000	1,600	7,400	25,500	18,500	3,600	3,800	620	67,720
1962	5,000	3,300	2,100	2,100	2,000	2,400	17,800	32,500	34,500	9,500	2,700	220	114,120
1963	2,600	1,800	1,600	1,400	1,500	3,400	9,000	23,900	9,400	2,800	2,500	280	60,180
1964	1,800	1,500	1,200	1,200	1,100	1,200	4,300	25,000	15,800	5,600	7,600	330	66,630
1965	1,900	1,700	1,700	1,800	1,600	2,000	11,500	37,800	63,500	35,800	7,800	1,200	168,300



Relationships of monthly mean discharge of Rito Blanco near Pagosa Springs, Colo. (Y), to monthly mean discharge of Rio Blanco near Pagosa Springs, Colo. (X). Discharge in acre-feet.

3435. Rito Blanco near Pagosa Springs, Colo.

Location.--Lat 37°11'40", long 106°54'20", in SW¼ sec.12, T.34 N., R.1 W., on left bank 130 ft downstream from county highway bridge, 470 ft upstream from Sheep Cabin Creek, and 7¾ miles southeast of Pagosa Springs. Altitude of gage is 7,330 ft (from topographic map).

Drainage area.--23.3 sq mi.

Records available.--May 1935 to September 1952.

Estimates of streamflow.--October 1952 to September 1965, based on relationships of monthly mean discharge with Rio Blanco near Pagosa Springs, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Rito Blanco near Pagosa Springs, Colo., and X is discharge of Rio Blanco near Pagosa Springs, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.94	2.43	1.77	1.83	1.02	1.42	1.23	1.66	1.60	1.81	2.12	2.12
c	4.40	5.59	3.28	3.43	1.02	2.08	1.34	3.47	3.42	4.33	5.15	5.15

Average discharge.--30 years (1935-65), 12,328 acre-feet per year (17.0 cfs).

Extremes.--1935-52: Maximum discharge, 475 cfs May 13, 1941; no flow at times in many years.
Maximum flood known occurred Oct. 5, 1911.

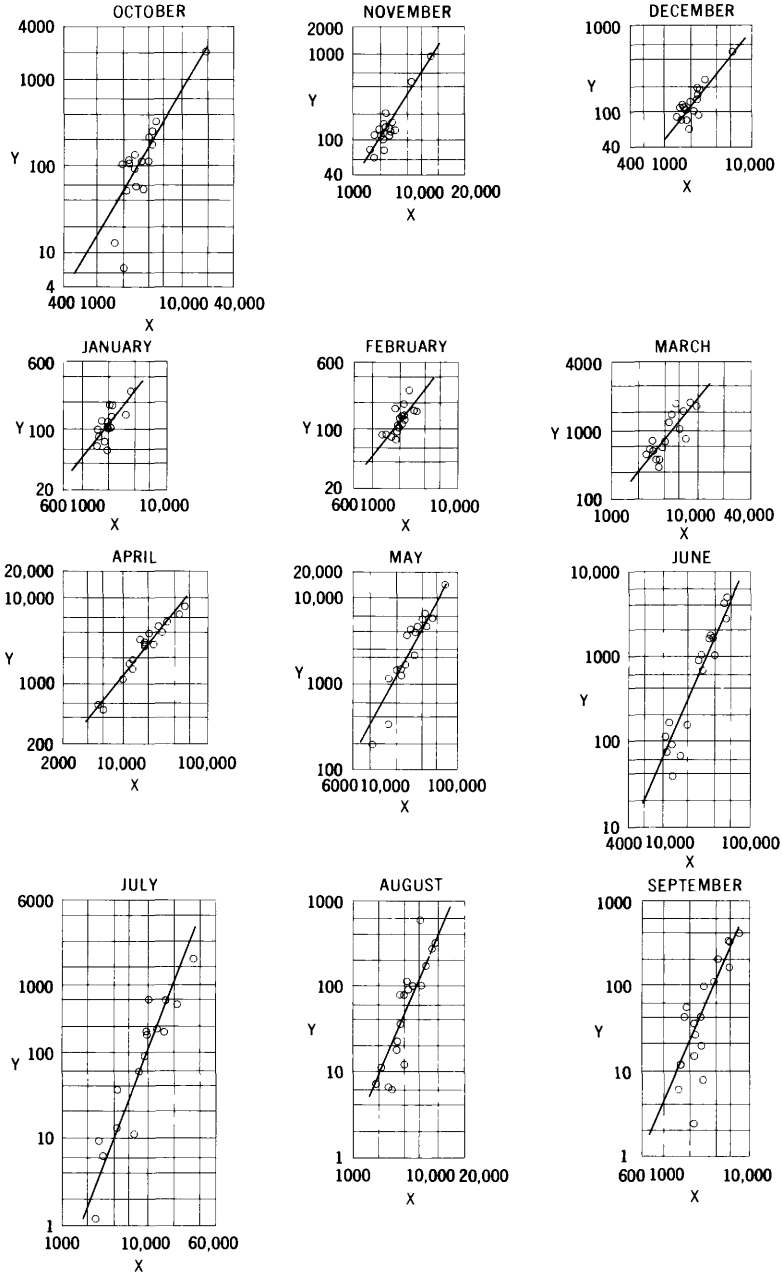
Remarks.--Diversions above station for irrigation of about 150 acres above station and about 600 acres in adjoining drainage basins. Estimates of annual flow are within about 15 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	5,520	9,690	1,770	516	198	-
1936	147	106	155	135	111	872	5,660	4,510	938	136	418	365	13,550
1937	203	612	270	116	94	748	6,420	9,520	3,270	435	122	55	21,860
1938	86	64	93	98	97	609	4,640	6,240	4,370	949	122	505	17,870
1939	275	131	97	91	65	697	2,370	2,350	722	46	20	161	7,020
1940	36	40	49	50	69	524	1,880	3,400	735	108	39	84	7,010
1941	101	121	122	81	121	349	2,040	12,030	8,460	3,130	863	570	27,990
1942	4,500	1,370	688	373	209	259	6,060	5,520	4,700	279	70	69	24,100
1943	53	120	61	37	61	344	3,840	2,340	1,590	218	147	50	8,860
1944	38	85	72	73	65	198	1,800	6,670	3,860	414	109	17	13,400
1945	113	98	98	105	78	163	3,070	8,020	3,690	380	125	22	15,960
1946	129	88	40	51	77	227	1,380	601	412	69	133	116	3,320
1947	125	208	184	92	167	442	1,070	3,050	836	32	484	228	6,920
1948	272	168	144	127	120	304	3,580	6,150	3,120	100	74	1.2	14,160
1949	15	18	71	70	81	304	3,180	6,160	5,000	916	299	131	16,240
1950	119	124	138	111	112	363	2,430	1,130	621	34	.4	25	5,210
1951	1.2	4.0	12	8.1	49	272	651	2,540	387	19	37	.2	3,980
1952	5.4	33	78	93	84	117	3,830	8,250	6,700	255	15	15	19,480

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1953	20	120	90	90	100	650	2,000	1,800	2,000	130	10	2	6,912
1954	30	120	80	60	120	240	3,200	2,200	370	60	150	50	6,680
1955	40	20	60	60	80	210	1,100	1,600	1,000	80	300	30	4,580
1956	10	20	80	80	100	960	2,000	3,400	1,400	20	20	1	8,091
1957	4	40	50	40	80	250	2,400	3,000	15,000	4,700	2,600	220	26,384
1958	230	820	380	250	120	230	3,400	10,400	3,100	110	80	210	19,330
1959	40	50	110	80	90	230	1,500	1,800	540	20	70	6	4,536
1960	570	490	80	100	90	1,300	5,700	3,400	2,500	120	30	10	14,390
1961	20	20	40	40	60	340	2,700	3,100	650	40	150	340	7,500
1962	130	210	160	150	170	330	4,700	4,300	1,800	150	20	30	12,150
1963	90	100	130	80	110	770	2,400	2,900	260	40	60	30	6,970
1964	20	40	50	50	60	120	1,500	3,300	530	90	1,000	40	6,800
1965	20	40	100	100	110	210	3,400	5,600	6,300	1,500	430	380	18,190



Relationships of monthly mean discharge of Little Navajo River at Chromo, Colo. (Y), to monthly mean discharge of Navajo River at Edith, Colo. (X). Discharge in acre-feet.

3455. Little Navajo River at Chromo, Colo.

Location.--Lat 37°02'10", long 106°50'40", in SE¼ sec.4, T.32 N., R.1 E., on left bank 400 ft upstream from bridge on U. S. Highway 84 at Chromo and a quarter of a mile upstream from mouth. Datum of gage is 7,293.52 ft above mean sea level, datum of 1929.

Drainage area.--21.9 sq mi.

Records available.--May 1935 to September 1952.

Estimates of streamflow.--October 1952 to September 1965, based on relationships of monthly mean discharge with Navajo River at Edith, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Little Navajo River at Chromo, Colo., and X is discharge of Navajo River at Edith, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.70	1.55	1.25	1.25	1.25	1.25	1.25	1.81	2.36	2.64	2.36	2.28
c	3.92	3.11	2.06	2.06	2.06	1.84	1.91	4.70	7.63	8.50	6.85	6.21

Average discharge.--35 years (1930-65), 8,168 acre-feet per year (11.3 cfs).

Extremes.--1935-52: Maximum discharge, 399 cfs May 14, 1941, from rating curve extended above 250 cfs; no flow at times in 1938-39, 1946-47, 1950-51.
Maximum flood known occurred Oct. 5, 1911.

Remarks.--Diversions above station for irrigation of about 600 acres above station and about 50 acres below. Estimates of annual flow are within about 20 percent of regression line.

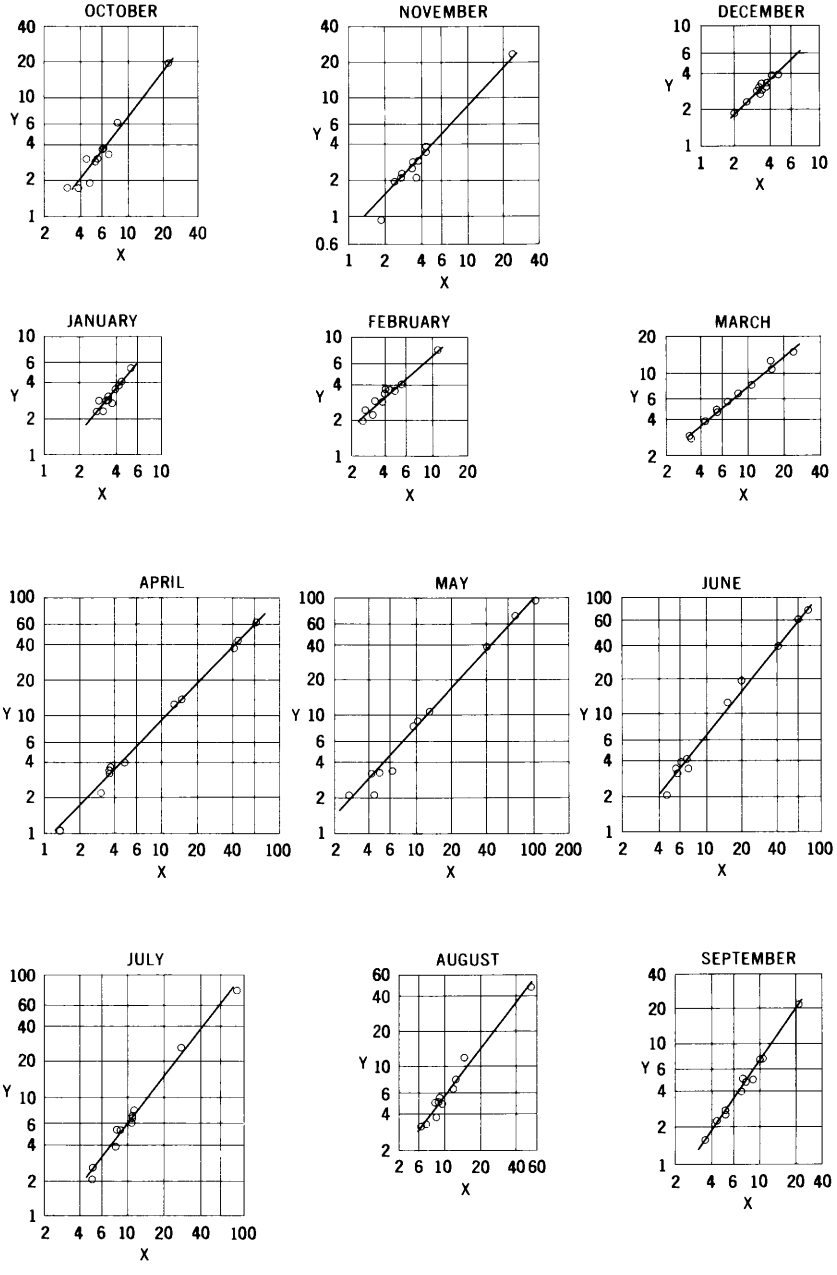
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1935	-	-	-	-	-	-	-	-	4,090	350	272	323	-
1936	256	119	132	125	144	1,200	5,250	2,140	116	13	173	160	9,850
1937	324	474	240	153	157	487	6,640	5,780	867	166	77	36	15,400
1938	106	118	106	120	134	1,010	4,180	4,550	1,630	405	76	316	12,750
1939	179	212	140	138	95	1,310	2,850	1,680	166	9.5	11	108	6,900
1940	107	118	87	87	76	631	1,520	1,290	72	6.1	6.1	7.7	4,010
1941	106	145	179	194	197	923	3,960	13,070	4,670	1,290	314	401	25,450
1942	2,080	916	492	277	278	1,230	8,110	5,520	1,540	176	113	95	20,850
1943	133	168	187	197	178	742	2,890	1,470	157	11	36	43	6,210
1944	114	137	118	103	89	368	1,750	3,890	1,020	189	12	15	7,800
1945	58	77	94	108	144	357	3,350	4,740	686	90	90	55	9,850
1946	93	157	110	130	111	232	1,130	194	0	0	18	42	2,220
1947	53	133	154	111	128	395	512	1,500	66	0	587	205	3,840
1948	210	131	106	109	115	277	3,220	3,660	994	60	22	11	8,920
1949	52	105	64	59	84	278	3,020	4,290	1,650	402	100	20	10,120
1950	109	152	115	105	164	458	1,890	340	89	37	7.1	2.4	3,470
1951	6.5	80	83	67	85	318	583	1,160	39	1.2	6.5	6.0	2,430
1952	13	63	81	74	104	453	4,670	6,460	2,700	174	97	47	14,940

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	-	-	-	-	-	-	-	-	-	-	-	-	*3,600
1932	-	-	-	-	-	-	-	-	-	-	-	-	*19,000
1933	-	-	-	-	-	-	-	-	-	-	-	-	*4,500
1934	-	-	-	-	-	-	-	-	-	-	-	-	*2,200
1935	-	-	-	-	-	-	-	-	-	-	-	-	*14,000
1953	60	80	130	130	130	470	1,100	640	310	20	10	4	3,080
1954	40	100	90	90	150	340	1,600	1,100	50	10	30	20	3,620
1955	50	70	80	100	90	220	640	720	180	10	50	10	2,220
1956	30	70	120	90	70	810	1,200	1,100	140	3	10	5	3,650
1957	30	60	80	100	110	550	1,900	2,300	3,900	2,600	840	160	12,630
1958	180	380	220	200	190	650	3,900	6,200	940	20	50	130	13,060
1959	90	130	170	170	160	310	630	490	60	30	40	10	2,290
1960	230	260	130	100	100	1,500	4,000	1,400	580	30	10	10	8,350
1961	60	90	100	90	90	420	1,600	1,600	170	10	50	140	4,420
1962	140	190	140	150	180	420	3,900	2,100	350	40	10	30	7,650
1963	110	160	140	120	190	860	1,500	990	30	3	30	50	4,180
1964	50	90	90	80	70	230	740	1,500	60	7	170	30	3,120
1965	50	110	110	110	100	310	3,100	2,900	1,500	700	110	240	9,340

* Annual figures only; estimated on basis of relationship with San Juan River at Rosa, N. Mex.



Relationships of monthly mean discharge of Los Pinos River at Ignacio, Colo. (Y), to monthly mean discharge of Los Pinos River at La Boca, Colo. (X). Discharge in thousands of acre-feet.

3540. Los Pinos River at Ignacio, Colo.
(Locally known as Pine River)

Location.--Lat 37°07'45", long 107°37'50", in S½ sec.5, T.33 N., R.7 W., on downstream wing-wall of left abutment of highway bridge, three-quarters of a mile upstream from Ignacio, 2 miles upstream from Rock Creek, and 6 miles south of Bayfield. Datum of gage is 6,468.85 ft above mean sea level, datum of 1929, supplementary adjustment of 1940.

Drainage area.--448 sq mi.

Records available.--April 1899 to May 1900, April to September 1901, April to June 1902, April to October 1903, September 1910 to September 1961.

Estimates of streamflow.--October 1961 to September 1965, based on relationships of monthly mean discharge with Los Pinos River at La Boca, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Los Pinos River at Ignacio, Colo., and X is discharge of Los Pinos River at La Boca, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.30	1.08	0.96	1.20	0.88	0.82	1.03	1.09	1.22	1.27	1.28	1.41
c	1.38	.38	-.10	.76	-.34	-.60	.15	.46	1.09	1.31	1.35	1.81

Average discharge.--30 years (1910-40), 271,060 acre-feet per year (374 cfs) prior to completion of Vallecito Dam; 25 years (1940-65), 147,480 acre-feet per year (204 cfs).

Extremes.--1924-61: Maximum discharge, 7,000 cfs June 29, 1927, from rating curve extended above 3,000 cfs by logarithmic plotting; minimum daily 1.3 cfs Sept. 8, 1933.
Maximum flood known occurred Oct. 5, 1911. A major flood occurred Sept. 5 or 6, 1909.

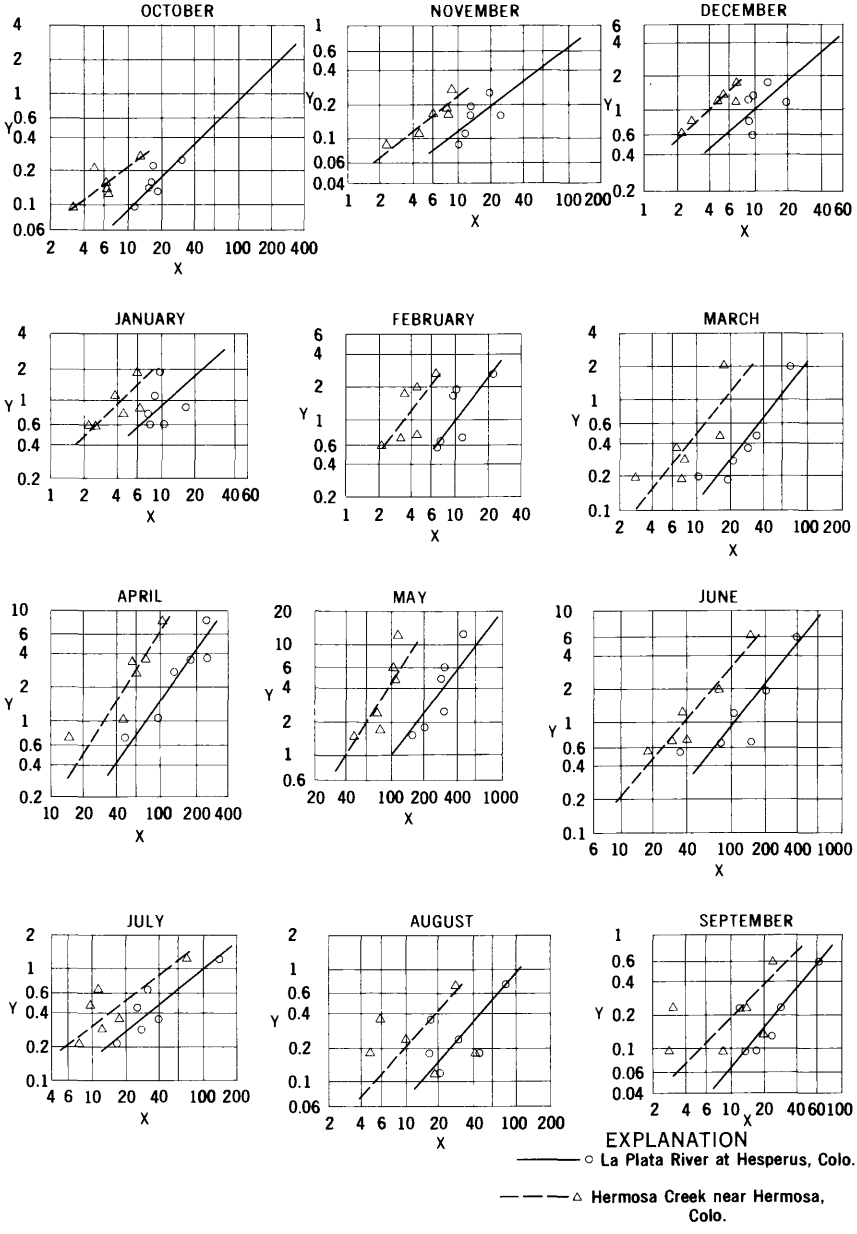
Remarks.--Flow regulated by Vallecito Reservoir since April 1941. Diversions for irrigation of about 25,000 acres above station. Estimates of annual flow are within about 5 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	3,730	4,350	6,130	4,140	3,570	4,690	13,200	34,050	27,400	8,140	1,660	5,350	117,000
1932	13,600	6,690	6,350	6,150	9,400	22,600	56,400	104,000	81,400	23,700	23,700	8,050	362,000
1933	3,510	2,000	4,020	4,850	4,010	5,900	8,910	20,500	50,600	6,550	587	6,860	118,000
1934	7,680	4,080	5,230	5,340	3,780	5,310	14,390	8,910	520	193	563	2,800	58,800
1935	598	738	3,000	3,560	4,400	9,230	34,220	52,530	123,500	25,040	8,500	6,370	271,700
1936	4,220	4,680	4,840	4,220	4,110	13,560	49,480	61,820	10,710	916	8,000	6,450	173,000
1937	1,760	5,680	5,120	4,190	4,110	12,410	66,180	101,700	27,740	4,050	1,200	1,080	235,200
1938	3,020	3,190	3,240	3,410	4,060	13,260	47,200	68,670	96,810	17,720	779	19,270	280,600
1939	15,960	9,020	5,520	5,160	4,000	12,290	25,090	38,710	9,650	310	403	9,480	135,600
1940	2,040	4,750	3,210	3,580	4,000	8,980	16,610	29,630	2,240	270	431	7,980	83,720
1941	17,670	7,540	7,120	6,360	6,130	19,110	34,280	125,600	107,700	80,970	10,390	7,900	430,800
1942	52,400	18,650	18,070	17,680	14,440	9,210	47,000	46,290	48,850	10,640	7,590	4,420	295,200
1943	2,160	5,790	3,690	3,840	3,950	10,460	35,590	31,360	11,910	6,360	6,480	4,940	126,500
1944	11,130	5,050	6,580	5,080	4,890	8,250	13,880	66,870	83,050	28,490	13,180	26,820	273,300
1945	11,210	1,990	3,200	2,720	3,960	6,520	13,560	13,780	20,630	7,520	2,930	2,890	90,910
1946	4,580	5,400	3,190	3,280	3,100	3,270	2,580	1,990	2,650	5,000	4,080	3,220	42,140
1947	3,150	2,700	3,730	4,030	3,870	4,200	2,660	22,290	19,480	7,010	12,820	9,600	95,540
1948	18,310	14,940	13,000	12,880	12,520	16,340	76,380	24,200	80,330	11,340	12,780	4,710	297,700
1949	3,050	4,150	4,350	4,670	9,160	31,220	42,090	50,870	65,850	43,730	13,720	9,550	282,400
1950	4,340	1,790	2,530	2,580	3,890	4,410	5,920	4,190	6,000	7,370	4,960	5,100	53,080
1951	1,730	2,160	3,050	2,330	1,990	2,930	1,040	2,080	2,060	2,590	3,170	1,540	26,670
1952	1,740	1,960	3,240	3,550	2,470	10,770	63,650	69,720	60,700	25,330	11,090	4,980	259,200
1953	2,980	2,190	3,910	4,170	3,360	4,950	3,640	3,210	3,310	5,180	5,050	2,750	44,700
1954	3,640	2,260	2,930	2,880	3,650	3,890	3,370	3,240	3,000	6,020	5,050	3,980	43,900
1955	6,060	2,850	2,990	3,090	2,920	4,820	3,330	8,000	3,850	6,970	7,920	5,020	57,800
1956	3,170	3,510	4,060	3,800	3,550	5,730	4,010	3,390	3,370	3,770	3,850	2,540	44,750
1957	1,890	2,590	2,310	2,900	4,010	6,600	12,100	37,050	74,000	76,470	47,350	21,480	288,800
1958	19,110	22,680	18,610	5,390	7,810	12,910	42,220	95,090	36,000	6,720	6,680	7,340	280,600
1959	3,860	3,870	3,480	2,940	2,860	2,930	2,210	2,130	4,050	2,090	3,320	2,260	36,000
1960	2,910	964	2,700	2,290	2,230	15,100	36,550	10,720	18,550	5,280	5,590	4,750	107,700
1961	3,310	2,870	3,150	2,890	3,510	7,810	13,490	8,690	12,050	7,440	5,070	7,240	77,520

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1962	6,900	6,200	5,700	2,600	3,700	10,500	48,000	17,800	4,600	5,200	4,500	6,000	121,700
1963	6,400	3,400	4,000	3,100	6,200	7,300	6,400	5,000	3,800	4,600	4,800	2,800	57,800
1964	3,400	2,000	2,000	1,900	2,000	3,600	4,600	3,400	3,500	4,300	5,600	3,400	39,700
1965	2,100	2,500	2,800	3,200	3,500	5,900	19,500	58,000	49,000	40,000	9,600	16,500	212,600



Relationships of monthly mean discharge of Falls Creek near Durango, Colo. (Y), to monthly mean discharge of La Plata River at Hesperus, Colo., or Hermosa Creek near Hermosa, Colo. (X). Discharge in hundreds of acre-feet.

3612. Falls Creek near Durango, Colo.

Location.--Lat 37°22'00", long 107°52'00", in SW¼ sec.21, T.36 N., R.9 W., on right bank 1.2 miles upstream from mouth and 6.5 miles north of Durango. Altitude of gage is 7,120 ft (from topographic map).

Drainage area.--7.18 sq mi.

Records available.--October 1959 to September 1965.

Estimates of streamflow.--October 1930 to September 1940, based on relationships of monthly mean discharge with La Plata River at Hesperus, Colo.; October 1940 to September 1959, based on relationships of monthly mean discharge with Hermosa Creek near Hermosa, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Falls Creek near Durango, Colo., and X is discharge of La Plata River at Hesperus, Colo. or Hermosa Creek near Hermosa, Colo., all in acre-feet per month).

Monthly values of constants in above equation

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct. 1930 to Sept. 1940	b	0.75	0.78	0.95	0.98	1.32	1.25	1.64	1.62	1.17	0.77	1.13	1.00
	c	.91	.97	1.43	1.60	3.67	2.06	3.71	3.83	2.19	.82	1.08	1.74
Oct. 1940 to Sept. 1959	b	0.97	0.77	0.87	0.89	1.28	1.28	1.40	1.32	1.25	0.80	1.15	1.21
	c	1.96	1.24	1.59	1.70	2.84	2.77	3.42	3.28	3.04	1.20	2.62	2.82

Average discharge.--35 years (1930-65), 1,265 acre-feet per year (1.75 cfs).

Extremes.--1959-65: Maximum discharge, 45 cfs May 19, 1965; minimum daily, 0.1 cfs for many days in most years.

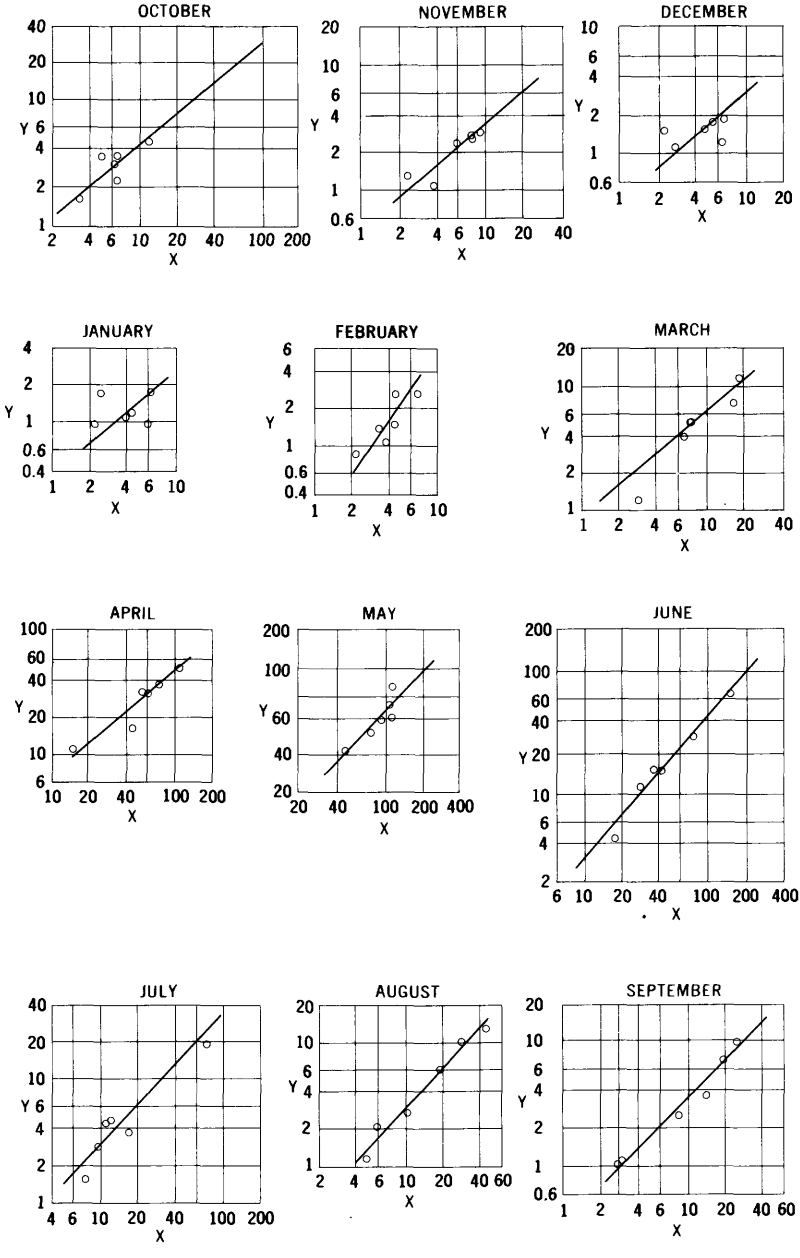
Remarks.--Small diversions above station for irrigation of meadows. Estimates of annual flow are within about 25 percent of regression line prior to September 1940, and are within about 15 percent thereafter.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1960	16	25	18	18	17	200	804	626	196	66	36	23	2,040
1961	22	19	13	7.7	6.5	28	274	491	123	46	24	23	1,080
1962	25	16	12	8.7	26	36	363	246	69	36	18	9.3	865
1963	13	16	14	11	19	47	106	151	55	22	12	13	479
1964	14	11	8.1	6.1	5.8	20	70	178	67	29	18	9.5	436
1965	9.5	8.7	6.1	6.1	6.9	19	354	1,250	603	124	75	60	2,520

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	10	10	10	6	6	10	30	170	70	40	20	20	402
1932	30	20	10	10	20	70	600	850	200	60	60	20	1,950
1933	20	10	10	7	8	30	50	210	190	60	10	20	625
1934	30	9	8	7	20	50	140	80	20	20	10	10	404
1935	10	8	8	10	20	40	280	390	560	80	30	20	1,456
1936	20	10	7	7	10	90	680	530	80	30	50	20	1,534
1937	20	20	10	10	10	20	580	980	130	70	20	7	1,880
1938	10	6	5	4	6	10	760	710	280	60	20	30	1,900
1939	20	10	9	10	8	40	150	180	50	20	7	20	524
1940	10	10	7	6	8	30	180	290	70	30	10	20	671
1941	20	20	10	10	20	60	190	1,800	910	180	40	90	3,330
1942	270	80	40	30	30	60	770	740	300	60	20	10	2,410
1943	10	10	10	10	10	40	490	370	120	40	40	20	1,170
1944	20	20	20	10	10	40	270	1,200	540	100	20	10	2,260
1945	20	20	10	10	10	20	130	510	200	50	20	9	1,010
1946	10	10	10	7	6	20	110	120	80	30	20	10	433
1947	10	10	10	9	9	40	120	400	150	50	50	40	898
1948	60	30	20	20	20	50	510	800	290	50	20	10	1,880
1949	10	20	10	10	10	40	510	830	550	110	30	10	2,140
1950	20	20	10	10	20	60	250	150	80	40	10	9	679
1951	10	10	10	8	7	20	30	140	70	30	10	6	351
1952	8	10	10	8	8	20	570	980	570	70	20	20	2,290
1953	10	10	10	10	9	20	120	160	120	40	10	6	525
1954	10	20	10	8	10	20	180	200	30	40	10	20	558
1955	20	10	10	10	8	20	100	330	120	30	30	10	698
1956	9	10	10	9	10	80	130	290	80	30	9	5	672
1957	7	7	4	5	6	20	190	380	830	150	110	50	1,760
1958	30	40	40	30	30	60	410	1,200	270	40	20	10	2,180
1959	10	10	10	10	7	10	30	100	40	20	10	6	263



Relationships of monthly mean discharge of Junction Creek near Durango, Colo. (Y), to monthly mean discharge of La Plata River at Hesperus, Colo. (X). Discharge in hundreds of acre-feet.

3614. Junction Creek near Durango, Colo.

Location.--Lat 37°20'05", long 107°54'30", in sec.36, T.36 N., R.10 W., on left bank 4½ miles upstream from mouth and 4½ miles northwest of Durango. Datum of gage is 7,045.65 ft above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--26.3 sq mi.

Records available.--October 1959 to September 1965.

Estimates of streamflow.--October 1930 to September 1959, based on relationships of monthly mean discharge with La Plata River at Hesperus, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Junction Creek near Durango, Colo., and X is discharge of La Plata River at Hesperus, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.84	0.84	0.84	0.84	1.46	0.84	0.84	1.06	1.15	1.07	1.07	1.01
c	-.13	-.01	.06	.10	1.59	-.28	-.32	.57	.96	.74	.74	.48

Average discharge.--35 years (1930-65), 13,729 acre-feet per year (19.0 cfs).

Extremes.--1959-65: Maximum discharge, about 300 cfs May 21, 1965; minimum daily, 0.9 cfs Sept. 3-5, 10-13, 18, 1962, Dec. 8, 1963.

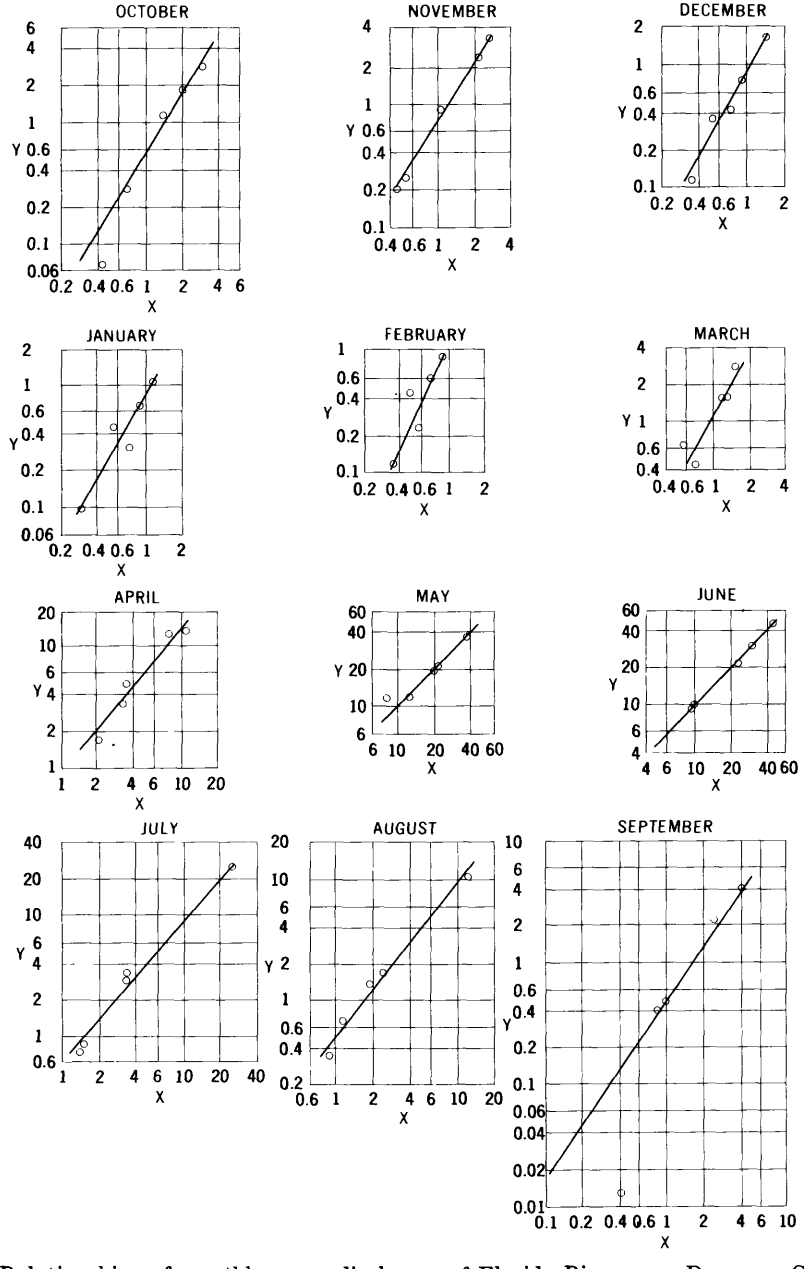
Remarks.--No regulation or diversion above station. Estimates of annual flow are within 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1960	308	289	123	98	105	1,190	5,080	5,110	3,000	441	210	108	16,060
1961	357	253	156	123	139	531	3,180	4,120	1,610	284	275	379	11,410
1962	471	269	186	178	249	409	3,700	3,120	1,560	371	116	101	10,730
1963	359	234	176	113	150	729	1,680	2,170	451	158	607	723	7,550
1964	228	109	111	97	86	126	1,110	3,910	1,170	458	1,320	258	8,980
1965	164	130	151	172	265	521	3,260	7,310	6,550	1,960	1,020	1,020	22,520

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	200	140	130	80	70	230	980	2,500	1,000	420	250	460	6,460
1932	540	210	140	160	240	770	4,500	7,100	2,800	810	860	440	18,530
1933	320	180	140	90	100	420	1,300	2,900	2,700	730	190	410	9,480
1934	530	120	110	100	260	650	2,200	1,400	280	190	180	200	6,220
1935	210	100	110	130	220	560	3,000	4,300	7,700	1,100	360	290	18,080
1936	320	130	100	90	130	950	4,800	5,300	1,100	310	770	440	14,440
1937	360	210	180	160	170	350	4,300	7,800	1,300	890	280	140	16,740
1938	250	80	70	60	70	260	5,100	6,300	3,900	820	270	600	17,780
1939	340	180	120	120	100	560	2,200	2,500	770	150	110	400	7,550
1940	210	130	90	90	90	490	2,500	3,500	1,000	250	150	410	8,910
1941	820	160	160	130	150	460	1,600	11,500	10,600	2,500	470	1,400	29,950
1942	2,800	900	330	230	350	710	3,600	5,600	3,300	640	240	180	18,880
1943	230	170	120	100	110	480	4,900	5,100	2,200	490	340	200	14,440
1944	250	230	150	140	210	370	1,900	8,400	6,100	920	260	130	19,060
1945	250	180	200	110	130	310	1,800	6,500	2,500	580	260	120	12,940
1946	240	150	110	90	120	430	2,200	1,600	1,200	220	270	260	6,890
1947	310	170	160	140	190	640	1,600	4,700	1,600	510	860	460	11,340
1948	750	300	210	220	230	360	3,500	7,300	2,500	560	310	120	16,360
1949	210	130	160	110	100	350	3,000	5,200	10,000	1,700	520	180	21,660
1950	330	270	150	110	150	370	3,300	2,400	1,400	330	120	140	9,070
1951	250	130	110	80	90	320	1,100	3,200	1,700	380	250	170	7,780
1952	200	150	120	120	160	330	4,300	10,000	8,200	950	330	190	25,050
1953	260	140	160	140	160	430	2,600	2,800	2,200	370	360	160	9,780
1954	180	240	190	140	190	420	2,100	2,700	580	660	310	370	8,080
1955	590	180	120	120	110	360	1,500	2,800	1,200	350	980	250	8,560
1956	150	110	120	110	150	1,300	2,100	3,300	1,200	250	170	70	9,030
1957	120	100	80	80	80	280	1,900	4,000	12,200	3,300	1,500	620	24,260
1958	360	340	260	190	260	460	3,500	10,000	3,800	350	360	410	20,290
1959	290	190	150	100	100	290	1,100	2,100	750	180	250	140	5,640



Relationships of monthly mean discharge of Florida River near Durango, Colo. (Y), to monthly mean discharge of Florida River near Hermosa, Colo. (X). Discharge in thousands of acre-feet.

3630. Florida River near Durango, Colo.

Location.--Lat 37°19'40", long 107°44'40", in sec.4, T.35 N., R.8 W., on left bank just downstream from Red Creek, 9 miles northeast of Durango. Datum of gage is 7,301.88 ft above mean sea level, datum of 1929. Prior to Mar. 26, 1928, staff gage or water-stage recorder at several sites within 4½ miles downstream at various datums. Mar. 26, 1928 to Sept. 30, 1934, water-stage recorder at site a quarter of a mile downstream at different datum.

Drainage area.--96 sq mi, approximately.

Records available.--May to July 1899, April to June 1901, April to October 1902, April to October 1903, September 1910 to October 1911, January to December 1912, June 1917 to September 1924, October 1926 to September 1960. Monthly discharge only for some periods.

Estimates of streamflow.--October 1960 to September 1963, based on relationships of monthly mean discharge with Florida River near Hermosa, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Florida River near Durango, Colo., and X is discharge of Florida River near Hermosa, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.62	1.59	1.72	1.78	2.15	1.77	1.23	1.01	1.02	1.15	1.28	1.45
c	2.11	1.89	2.30	2.38	3.40	2.26	.76	.04	.10	.65	1.14	1.66

Average discharge.--33 years (1931-63), 67,949 acre-feet per year (93.9 cfs).

Extremes.--1899, 1901-3, 1910-12, 1917-24, 1926-60: Maximum discharge not determined, occurred Oct. 5, 1911; maximum determined, 3,200 cfs June 28, 1927 from rating curve extended above 900 cfs; minimum daily, no flow Sept. 13-18, Sept. 22 to Oct. 16, 1956. Maximum flood known occurred Oct. 5, 1911.

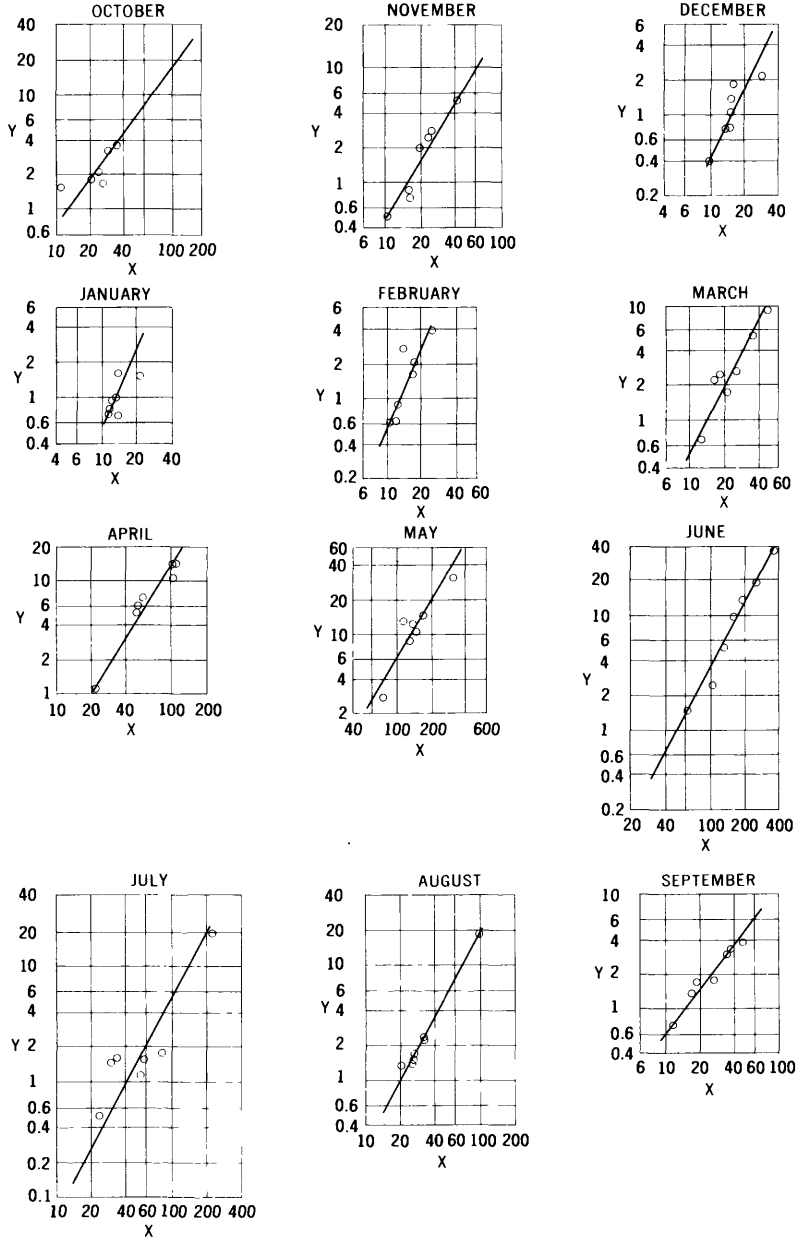
Remarks.--Diversions for irrigation of about 160 acres above station. Regulated by Lemon Reservoir (capacity 40,300 acre-feet) since November 1963. Estimates of annual flow are within about 7 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	1,160	670	492	307	278	553	2,210	10,620	14,860	4,060	2,620	3,430	41,080
1932	4,030	1,240	922	492	863	2,990	13,810	32,660	31,930	9,500	9,620	3,030	111,100
1933	1,630	893	615	338	389	676	1,820	8,960	25,100	6,810	1,940	2,440	51,610
1934	2,750	851	492	369	333	1,170	8,330	9,650	1,270	682	904	1,170	27,970
1935	1,300	645	553	430	389	1,580	8,540	15,290	45,260	12,760	8,370	4,480	99,600
1936	2,820	1,080	615	430	414	2,080	11,040	28,320	10,960	3,160	6,950	4,280	72,150
1937	2,070	1,840	922	615	444	1,500	15,950	31,550	16,430	5,190	2,110	1,820	80,440
1938	1,560	833	553	430	500	1,760	13,730	24,530	35,410	8,290	2,240	8,500	98,340
1939	4,350	1,780	909	653	321	1,700	5,750	17,050	5,670	902	1,000	5,440	45,520
1940	1,590	959	453	355	327	1,360	5,620	17,440	4,970	1,820	1,010	3,980	39,880
1941	5,480	1,570	1,050	553	889	2,140	6,490	39,850	45,380	25,760	5,440	7,870	142,500
1942	15,080	6,050	2,740	1,480	778	1,580	13,250	23,800	32,310	5,460	1,510	1,270	105,300
1943	851	838	536	510	528	1,320	11,540	21,590	14,810	3,300	4,320	1,580	61,720
1944	1,360	1,100	742	488	424	805	4,630	28,490	36,980	9,930	1,430	764	87,140
1945	1,520	1,300	615	369	305	672	5,310	25,280	23,420	5,820	2,540	699	67,850
1946	2,220	1,110	417	234	218	690	3,710	8,730	16,890	1,990	1,780	1,100	39,090
1947	2,280	1,430	932	449	548	966	2,730	20,620	19,230	4,550	8,460	4,620	66,820
1948	3,740	2,000	1,080	726	514	1,120	12,740	35,530	34,850	6,960	2,350	740	102,400
1949	1,450	763	450	556	353	1,150	9,160	25,330	47,410	14,370	2,270	808	104,100
1950	1,310	1,360	875	742	520	1,240	8,240	15,820	9,360	2,070	328	700	42,560
1951	1,150	387	290	246	228	544	1,120	10,400	11,810	1,270	1,790	825	30,060
1952	523	438	359	316	311	609	11,020	26,620	44,580	9,740	2,790	1,640	98,940
1953	973	618	393	337	327	773	3,460	11,370	14,560	2,660	1,580	237	37,290
1954	448	1,110	512	430	382	565	5,370	16,030	7,700	6,000	2,650	2,590	43,790
1955	3,500	739	462	328	268	438	2,200	12,370	14,210	2,060	4,790	1,020	42,380
1956	291	207	364	460	434	1,540	3,440	19,140	8,910	737	350	13	35,890
1957	70	347	115	96	111	618	4,870	11,470	44,370	25,610	10,940	4,100	102,600
1958	1,800	3,480	1,660	1,050	889	1,500	12,500	37,320	29,750	2,880	1,370	2,120	96,320
1959	1,150	877	430	307	222	430	1,690	11,910	9,590	862	1,670	465	29,600
1960	2,880	2,390	738	676	575	2,790	13,400	20,240	21,570	3,510	699	391	69,660

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1961	860	960	450	300	210	640	4,500	25,000	12,000	1,300	2,800	6,000	55,020
1962	4,200	1,600	760	450	500	810	14,000	22,000	18,000	3,100	600	4,500	70,520
1963	1,500	1,500	740	420	450	2,100	6,700	19,000	4,300	960	1,900	3,500	43,070



Relationships of monthly mean discharge of Florida River at Bondad, Colo. (Y), to monthly mean discharge of Animas River near Cedar Hill, New Mexico (X). Discharge in thousands of acre-feet.

3632. Florida River at Bondad, Colo.

Location.--Lat 37°03'20", long 107°52'10", in S½ sec.31, T.33 N., R.9 W., on left bank 0.6 miles upstream from mouth, 0.7 miles southeast of Bondad, and 15 miles south of Durango. Altitude of gage is 6,000 ft (from topographic map).

Drainage area.--221 sq mi.

Records available.--October 1956 to September 1963.

Estimates of streamflow.--October 1933 to September 1956, October 1963 to September 1965, based on relationships of monthly mean discharge with Animas River near Cedar Hill, N. Mex. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of Florida River at Bondad, Colo., and X is discharge of Animas River near Cedar Hill, N. Mex., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	1.40	1.70	2.00	2.31	2.31	1.91	1.63	1.70	1.84	1.84	1.85	1.29
c	2.77	4.10	5.37	6.51	6.51	4.93	4.01	4.72	5.66	5.46	4.99	2.37

Average discharge.--32 years (1933-65), 55,362 acre-feet per year (76.5 cfs).

Extremes.--1956-63: Maximum discharge determined, 1,430 cfs June 7, 1958, but may have been higher on July 26, 1957; minimum daily, 4.6 cfs July 24, 1959.

Remarks.--Diversions for irrigation of about 14,000 acres above station. Estimates of annual flow are within about 20 percent of regression line.

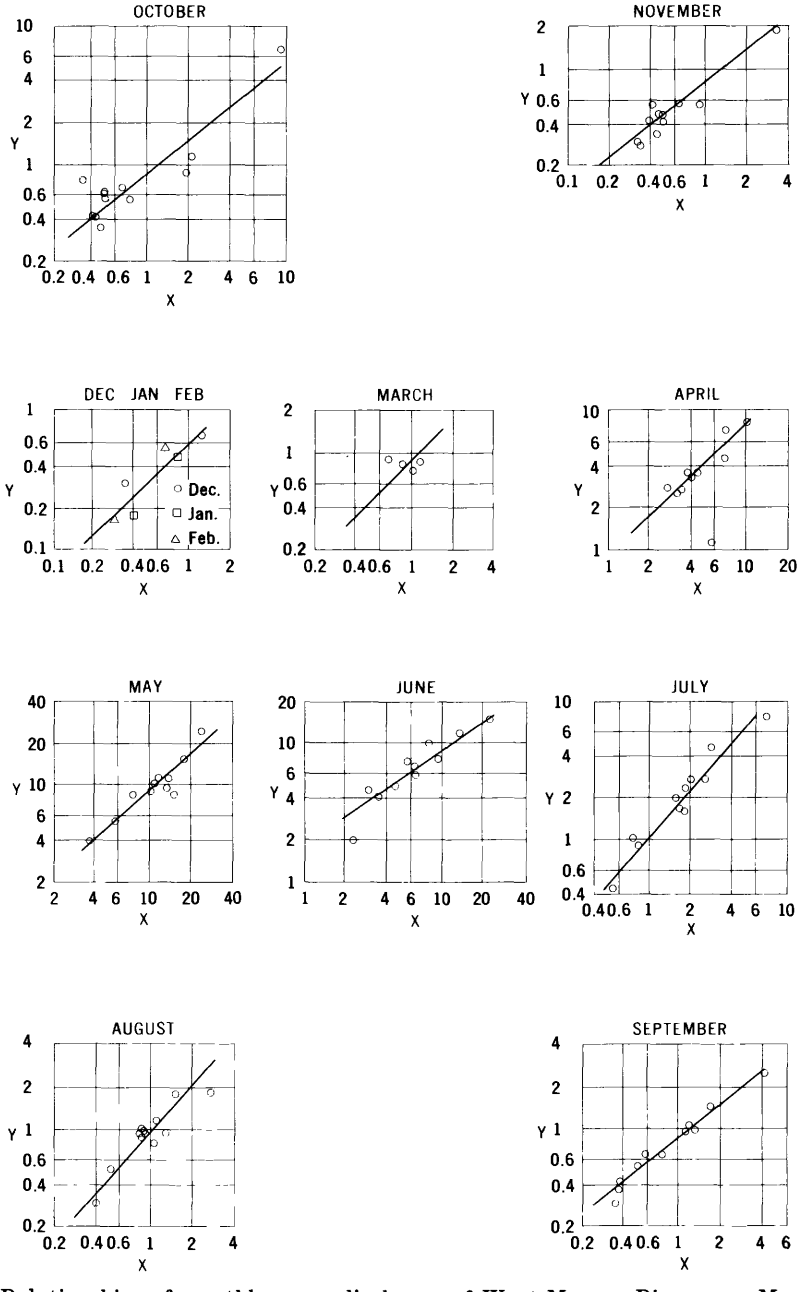
Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1957	1,540	505	398	750	2,690	2,250	5,240	12,880	37,230	19,650	18,990	3,890	106,100
1958	3,180	5,160	2,110	1,570	3,840	5,410	13,800	31,190	19,530	1,150	1,640	1,780	90,360
1959	1,730	855	754	772	625	687	1,110	2,750	2,430	513	1,350	723	14,300
1960	1,670	2,870	1,020	940	885	9,160	13,980	12,390	13,380	1,570	1,320	1,370	60,560
1961	1,750	758	768	718	633	2,500	7,010	14,850	5,230	1,630	2,300	3,280	41,430
1962	3,630	2,490	1,850	1,630	1,990	1,760	10,340	10,280	9,560	1,780	1,440	1,720	48,470
1963	2,070	2,070	1,320	1,010	1,660	2,650	6,070	8,700	1,470	1,460	2,190	3,080	33,750

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1934	‡2,400	‡1,000	870	1,000	680	1,300	4,400	4,500	320	140	500	1,400	‡18,510
1935	1,100	530	520	770	760	3,100	7,000	7,800	26,900	5,600	5,400	2,800	62,280
1936	2,500	1,200	650	650	830	5,600	15,000	19,000	3,800	820	5,700	2,700	58,450
1937	1,700	1,500	760	880	840	5,700	18,200	27,200	4,900	1,800	1,200	1,400	66,080
1938	1,800	950	770	950	980	5,200	17,000	15,200	23,300	6,600	2,200	5,000	79,950
1939	4,800	1,900	1,000	1,100	680	3,700	5,600	9,200	2,700	510	650	3,700	35,540
1940	1,600	1,000	610	1,100	860	2,000	4,700	9,800	2,000	360	590	2,500	27,120
1941	4,900	1,400	1,200	1,600	2,400	6,000	7,400	50,500	33,300	20,700	6,700	7,400	143,500
1942	28,100	11,600	4,800	3,900	2,400	3,700	16,500	15,300	17,200	4,600	2,500	1,800	112,400
1943	1,600	1,100	870	1,300	1,200	3,200	15,700	10,600	5,600	1,800	5,800	2,800	51,570
1944	2,200	1,700	1,100	1,000	940	1,800	4,100	26,200	25,500	8,400	2,300	1,100	76,340
1945	1,900	1,300	840	950	850	1,500	3,400	14,900	8,600	2,600	2,400	1,300	40,540
1946	2,000	1,200	650	900	880	1,100	4,000	3,000	6,600	1,100	2,000	1,400	24,830
1947	2,000	1,400	1,000	840	940	1,300	2,300	14,300	8,800	4,400	8,400	5,000	50,680
1948	6,400	2,600	1,400	1,500	1,400	1,900	13,500	27,200	17,000	4,200	3,000	1,200	81,300
1949	1,800	1,000	720	1,600	1,000	3,000	11,100	20,400	32,900	11,400	3,500	1,500	89,920
1950	2,000	1,300	860	1,700	1,400	1,800	7,500	5,300	4,600	1,300	710	1,500	29,970
1951	1,400	760	720	800	500	560	880	4,500	4,800	820	1,300	1,000	18,040
1952	1,000	660	810	2,100	1,400	2,900	16,500	27,900	33,900	7,200	3,900	2,200	100,470
1953	1,600	920	540	880	760	1,400	3,600	4,400	7,400	1,000	1,400	900	24,800
1954	1,200	1,200	730	580	570	730	4,600	7,000	2,100	2,100	1,700	2,000	24,510
1955	4,200	1,100	760	800	570	1,200	2,100	6,500	5,700	1,000	2,800	1,200	27,930
1956	880	680	800	1,000	880	2,900	3,600	10,100	4,400	460	560	560	26,820
1964	1,300	780	470	590	390	460	1,200	8,000	2,700	620	3,100	1,500	21,110
1965	1,200	890	950	1,200	920	1,700	9,200	14,000	19,500	17,900	10,500	6,000	83,960

‡ Based on estimates for 1950 Compilation.



Relationships of monthly mean discharge of West Mancos River near Mancos, Colo. (Y), to monthly mean discharge of La Plata River at Hesperus, Colo. (X). Discharge in thousands of acre-feet.

3685. West Mancos River near Mancos, Colo.

Location.--Lat 37°22'30", long 108°15'20", in sec.14, T.36 N., R.13 W., on right bank 1½ miles upstream from confluence with East Mancos River and 3½ miles northeast of Mancos. Altitude of gage is 7,450 ft (from nearby Bureau of Reclamation level line).

Drainage area.--42.1 sq mi.

Records available.--September 1910 to September 1911 (no winter records), October to December 1911 (gage heights only), May 1938 to September 1953. Monthly discharge only for some periods.

Estimates of streamflow.--October 1930 to April 1938, based on relationships of monthly mean discharge with LaPlata River at Hesperus, Colo. The regression equation used is:

$$\text{Log } Y = b \log X - c$$

(where Y is discharge of West Mancos River near Mancos, Colo., and X is discharge of LaPlata River at Hesperus, Colo., both in acre-feet per month).

Monthly values of constants in above equation

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
b	0.80	0.78	0.98	0.98	0.98	0.98	0.98	0.90	0.77	1.12	1.10	0.80
c	-.52	-.57	.14	.14	.14	-.02	-.02	-.39	-.88	.36	.33	-.52

Average discharge.--23 years (1930-53), 27,527 acre-feet per year (38.0 cfs).

Extremes.--1938-53: Maximum discharge, 1,080 cfs May 13, 1941, from rating curve extended above 260 cfs; minimum daily recorded, 0.1 cfs Apr. 11-13, 1951.

Remarks.--Diversion above station for irrigation of about 2,500 acres below since March 1949. Regulation for irrigation by Jackson Gulch Reservoir (capacity, 10,000 acre-feet) since March 1949. Estimates of annual flow are within about 10 percent of regression line.

Monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1938	-	-	-	-	-	-	-	9,560	7,690	2,660	924	1,470	-
1939	564	417	307	184	167	789	3,440	5,540	2,010	438	293	986	15,140
1940	428	279	‡243	‡215	‡230	‡677	3,670	8,460	4,630	882	508	1,080	‡21,300
1941	1,170	547	‡553	‡492	‡444	856	2,360	24,460	15,120	7,470	1,780	2,580	‡57,830
1942	6,980	1,910	700	492	555	819	7,460	11,350	10,100	2,660	927	543	44,500
1943	351	340	‡277	‡246	‡250	‡827	8,520	10,120	7,430	1,950	1,120	665	‡32,100
1944	637	571	‡430	‡430	‡431	‡508	2,680	15,550	11,990	4,490	1,010	427	‡39,150
1945	574	464	‡553	‡369	‡333	‡400	2,600	11,260	6,740	2,310	896	374	‡26,870
1946	622	417	‡307	‡307	‡333	‡615	3,680	3,940	4,190	988	976	670	‡17,050
1947	683	475	‡523	‡492	‡523	712	2,810	8,910	4,960	1,660	1,810	987	‡24,550
1948	884	543	‡400	‡430	‡345	‡448	4,610	8,590	5,960	1,570	792	294	‡24,870
1949	423	292	‡430	‡338	‡250	‡354	1,130	5,490	13,500	3,630	3,190	1,600	‡30,630
1950	643	546	‡369	‡277	‡413	‡31	676	3,970	4,800	2,670	2,030	1,180	‡17,600
1951	608	‡126	‡215	‡184	‡222	‡184	157	1,160	4,450	2,580	1,550	783	‡12,220
1952	570	229	246	277	316	430	2,290	9,450	13,970	3,240	2,500	1,730	35,250
1953	1,520	457	221	178	187	208	304	1,210	4,480	2,650	2,210	1,180	14,780

‡ Estimated for 1950 and 1960 compilations.

Estimated monthly and annual streamflow, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1931	420	370	230	160	140	280	1,300	5,500	3,500	1,400	800	1,100	15,200
1932	1,100	510	270	340	320	1,100	7,800	13,400	6,800	2,900	2,700	1,000	38,240
1933	650	460	270	180	190	550	1,800	6,200	6,700	2,600	580	1,000	21,180
1934	1,100	310	200	200	340	910	3,300	3,400	*930	620	550	560	12,420
1935	430	270	200	270	310	760	4,900	8,700	13,300	4,100	1,200	750	35,190
1936	640	330	170	180	220	1,400	8,400	10,400	3,700	1,000	2,400	1,100	29,940
1937	730	510	340	330	260	440	7,500	14,600	5,200	3,200	870	440	34,420
1938	500	210	120	110	140	310	9,000	-	-	-	-	-	32,690

* Used July relation.

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