BASIN CHARACTERISTICS, HISTORY OF STREAM GAGING, AND STATISTICAL SUMMARY OF SELECTED STREAMFLOW RECORDS FOR THE RAPID CREEK BASIN, WESTERN SOUTH DAKOTA

U.S. GEOLOGICAL SURVEY

Open-File Report 90-120

Prepared in cooperation with the

CITY OF RAPID CITY, SOUTH DAKOTA, and the

SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS

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By Daniel G. Driscoll and John S. Zogorski

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Rapid City, South Dakota
1990

DEPARTMENT OF THE INTERIOR

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CONVERSION FACTORS

For readers who may prefer to use metric (International System) units rather than inch-pound units, the conversion factors for the terms in this report are listed below:

Multiply	By	To obtain metric unit
acre	4,047	square meter
acre-foot (acre-ft)	1,233	cubic meter
cubic foot per second (ft^3/s)	0.028317	cubic meter per second
foot (ft)	0.3048	meter
inch	25.4	millimeter
mile (mi)	1.609	kilometer
million gallons per day (Mgal/d)	3.785	million liters per day
square mile (mi^2)	2.590	square kilometer

To convert degrees Celsius (°C) to degrees Fahrenheit (°F) use the following formula:

$$°F = 1.8 \times °C + 32.$$

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

BASIN CHARACTERISTICS, HISTORY OF STREAM GAGING, AND STATISTICAL SUMMARY OF SELECTED STREAMFLOW RECORDS FOR THE RAPID CREEK BASIN, WESTERN SOUTH DAKOTA

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ABSTRACT

This report presents a summary of basin characteristics affecting streamflow, a history of the U.S. Geological Survey's stream-gaging program, and a compilation of discharge records and statistical summaries for selected sites within the Rapid Creek basin. It is the first in a series which will investigate surface-water/ground-water relations along Rapid Creek. The summary of basin characteristics includes descriptions of the geology and hydrogeology, physiography and climate, land use and vegetation, reservoirs, and water uses within the basin. A recounting of the U.S. Geological Survey's stream-gaging program and a tabulation of historic stream-gaging stations within the basin are furnished. A compilation of monthly and annual mean discharge values for nine currently operated, long-term, continuous-record, streamflow-gaging stations on Rapid Creek is presented. The statistical summary for each site includes summary statistics on monthly and annual mean values, correlation matrix for monthly values, serial correlation for 1-year lag for monthly values, percentile rankings for monthly and annual mean values, low and high value tables, duration curves, and peak-discharge tables. Records of monthend contents for two reservoirs within the basin also are presented.

INTRODUCTION

Background

Rapid Creek originates in the central Black Hills of western South Dakota and is one of the largest streams in the Black Hills. Rapid Creek is an important source of water for a number of users, providing most of the municipal water supply for Rapid City and Ellsworth Air Force Base, irrigation water for the Rapid Valley Water Conservation District, and water for numerous recreational users.

Purpose and Scope

This report is the first prepared as part of the Rapid Creek Merit Fund Study, which is being conducted in cooperation with the City of Rapid City and the South Dakota Department of Game, Fish and Parks. The purpose of this study is to investigate various aspects of surface-water/ground-water relations along Rapid Creek. One specific objective of the study is to develop a hydrologic budget for Rapid Creek. This report is intended to partially fulfill this objective by summarizing selected historic streamflow records for Rapid Creek.

The purposes of this report are to: (1) Describe the hydrologic characteristics of the Rapid Creek basin; (2) describe the U.S. Geological Survey's stream-gaging program in the basin for the period 1903-88; and (3) characterize the streamflow of Rapid Creek using various statistical parameters. Monthly and annual discharge records and summary statistics, flow-duration data, and peak-flow data for nine long-term, main-stem Rapid Creek gaging stations (fig. 1) are presented to aid in describing the spatial variation in streamflow. Monthly records of contents for two reservoirs located within the basin are also included. This compilation will provide essential background information for future reports generated as part of the Rapid Creek Merit Fund Study.

BASIN CHARACTERISTICS

This section describes the basin characteristics which affect streamflow within the basin. Descriptions of geology and hydrogeology, physiography and climate, land use and vegetation, reservoirs, and water uses are included.

Geology and Hydrogeology

The Black Hills of South Dakota and Wyoming were formed by a large domal uplift during the Laramide orogeny (Late Cretaceous-early Tertiary). Erosion of the overlying sedimentary formations has exposed the Precambrian core of the central Black Hills (Rahn and Gries, 1973). The headwaters of the Rapid Creek basin are predominantly within the permeable, Paleozoic Madison Limestone and Englewood and Deadwood Formations (fig. 2). Numerous headwater springs originate from the Madison and provide a steady source of base flow in Rapid Creek and its tributaries. The central and largest part of the basin consists of Precambrian metamorphic rocks of lower permeability. Springs in this area are less common and exhibit more immediate response to variations in precipitation.

Rapid Creek has eroded through a series of Paleozoic sandstone and limestone formations on the eastern edge of the Black Hills during the geomorphologic development of the basin. The karstic nature of the Madison Limestone in this area plays an important role in the hydrology of the basin. Based upon streamflow records, a mean annual net loss of 4 to 6 ft^3/s occurs, primarily to the Madison (Peter, 1985; Driscoll, 1987), as Rapid Creek crosses these outcrops. This loss occurs just upstream from the streamflow gage on Rapid Creek above Canyon Lake (station 06412500) (fig. 1). Similar losses are typical of Black Hills streams when they cross the Madison, and provide an important source of recharge to the aquifer. Several springs, believed to originate from the Madison, rise up through the overlying Minnelusa Sandstone, and discharge in western Rapid City where the contact with the Mesozoic Spearfish Formation is encountered (Rahn and Gries, 1973). These springs include Jackson Springs, Cleghorn Springs, and City Springs, which collectively discharge approximately 10 to 25 ft^3/s to Rapid Creek downstream from streamflow gaging station 06412500 (Peter, 1985; Driscoll, 1987). Both the Madison Limestone and Minnelusa Sandstone are regionally important artesian aquifers.

Rapid Creek next cuts through a progression of Mesozoic shales, sandstones, and limestones. Of these, only the Inyan Kara Group has particular importance as a regional aquifer, and none of these formations significantly affect the discharge of Rapid Creek (Peter, 1985). The Pierre Shale is the predominant formation in the eastern part of the basin, although occasional outcrops of the White River Group occur.

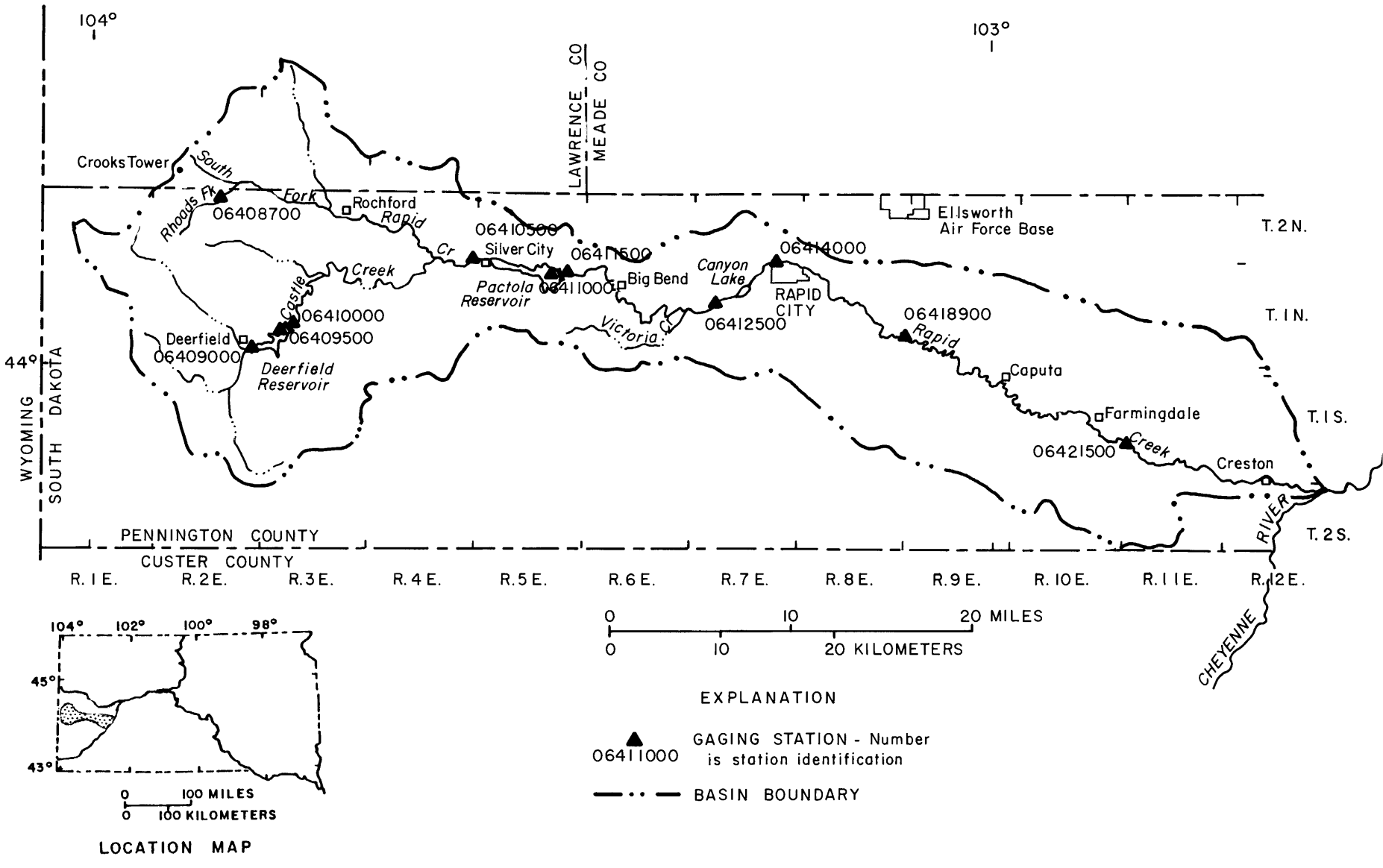

Figure 1.--Location of gaging stations within the Rapid Creek basin for which summaries are provided.

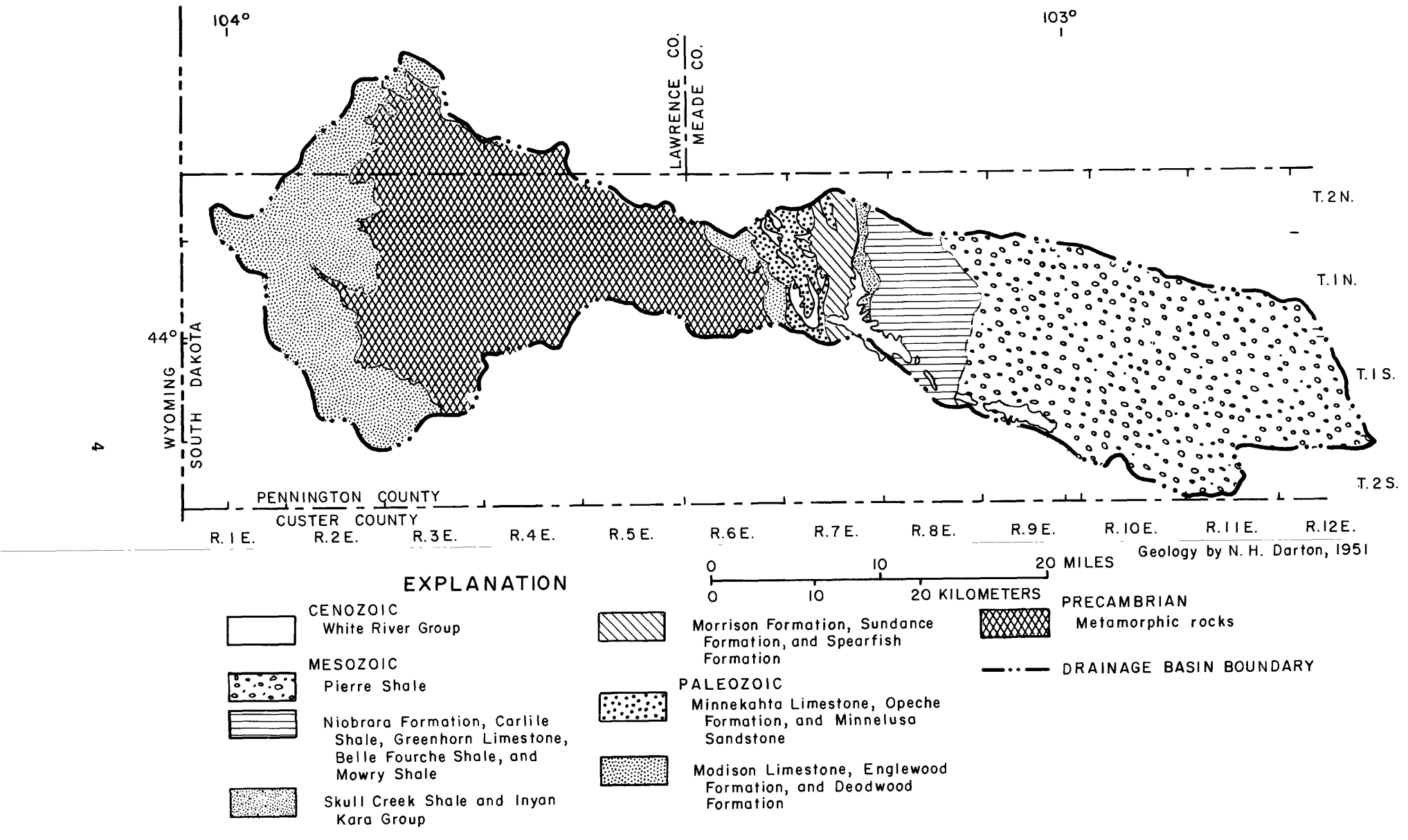

Figure 2.--Generalized geology of outcrops of bedrock formations within the Rapid Creek basin.

Physiography and Climate

Rapid Creek, which drains an area of about 700 mi^2, is a major tributary to the Cheyenne River in western South Dakota. The climate of the basin is affected by the elevation, which ranges from approximately 2,400 ft above sea level at the confluence with the Cheyenne River to 7,100 ft above sea level at Crooks Tower in the northwestern corner of the basin (fig. 1). Mean annual air temperatures tend to decrease with increasing elevation, and range from 47.8 °F at Wasta, approximately 20 mi northeast of Creston (U.S. Department of Commerce, 1988) to approximately 36.3 °F near Deerfield Reservoir (James R. Miller, Institute of Atmospheric Sciences, South Dakota School of Mines and Technology, personal commun., 1989). Precipitation tends to increase with elevation, and ranges from an annual average of less than 16 inches at Wasta to approximately 22 inches in the higher elevations of the basin. Temperatures tend to decrease and precipitation tends to increase from south to north within the Black Hills (Orr, 1959).

Land Use and Vegetation

Land use within the Rapid Creek basin, and the Black Hills in general, has become increasingly diversified as multiple uses of natural resources have developed. Ponderosa pine (Pinus ponderosa) is the dominant species, both within the upstream part of the Rapid Creek basin and the Black Hills. White spruce (Picea glauca), quaking aspen (Populus tremuloides), and paper birch (Betula papyrifera) are also commonly found, generally in cooler, wetter areas. A wide variety of other native shrubs and trees are also found, especially along stream bottoms (Orr, 1959).

Ponderosa pine is the most important species, both in terms of water use (evapotranspiration) and industry. The Black Hills area has long supported an active timber industry, with sawtimber, posts and poles, and pulpwood being the primary products. The majority of timber harvest occurs within the boundaries of the Black Hills National Forest, which is regulated by the U.S. Forest Service. Private land is also an important source of timber.

The mining industry has been present in the area since the earliest settlement of the Black Hills, which began soon after the discovery of gold near Deadwood in 1875. Gold mining is prevalent in the northern part of the Black Hills and pegmatite mining is more common in the southern part. Most of the mining activity occurs in the vicinity of igneous rocks, which are essentially absent from the Rapid Creek basin; thus less mining activity is found within this basin than in other parts of the Black Hills.

The activity of the mining and timber industries in the Black Hills fluctuates widely, depending on market conditions. Most recently, the market for sawtimber has increased, while demand for other forest products generally has decreased. The gold mining industry is currently growing due to elevated prices and the use of a cost-effective extraction technique (heap leach mining).

The Black Hills are important to the agricultural industry for two primary reasons. First, private and U.S. Forest Service lands within the Black Hills serve as summer pasture for cattle. Second, Black Hills streams are an important source of water for downstream irrigators. Water from Rapid Creek is supplied to 8,900 acres of irrigated land within the Rapid Valley Water Conservancy District, located southeast of Rapid City. Most farms in the District are a combination of irrigated and dryland acreages. They typically produce corn, alfalfa, small grains, and pasture, primarily as feed supplies for livestock (U.S. Water and Power Resources Service, 1981). In

general, the agricultural industry within the Rapid Creek basin historically has maintained a uniform level of activity.

The recreational industry in the Black Hills, which includes tourism, hunting, fishing, boating, hiking, camping, snowmobiling, skiing, and biking, has grown significantly in recent years. Public demand for water-based recreation continues to increase, and becomes more apparent in dry years.

Housing developments within the Black Hills also have expanded recently. This is especially true near population centers such as Rapid City. The greatest change occurred after a catastrophic flood in 1972, when numerous residents were displaced from the Rapid Creek flood plain. Many of these residents eventually settled in forested subdivisions within the Black Hills. A steadily increasing population in the Rapid City area has increased the domestic demand for water within the Rapid Creek basin.

The competition for resources within the Black Hills is constantly changing and increasing with time. The various land uses discussed have the potential to alter both the quantity and quality of surface and ground waters and their uses within the Black Hills. Thus, there is a great need for additional water-resources information to formulate sound, water-management decisions.

Reservoirs

The flow of Rapid Creek is regulated by two reservoirs constructed by the U.S. Bureau of Reclamation, with a combined storage capacity of 71,627 acre-ft. Construction of Deerfield Dam, an earthfill structure on Castle Creek (fig. 1), began July 7, 1942. Storage in Deerfield Reservoir began on December 3, 1945, and the dam was completed in 1947 (U.S. Water and Power Resources Service, 1981). Active capacity is 15,504 acre-ft and dead storage is 151 acre-ft. Surcharge capacity (capacity above the crest of the spillway) is 26,655 acre-ft (U.S. Bureau of Reclamation, 1985). The reservoir usually is maintained at or near capacity. Wintertime releases (October through February) are made through a 4-inch-diameter bypass pipe, with discharge controlled by the elevation of the reservoir. Releases during this part of the year average approximately 2 ft^3/s. Measured wintertime inflows to Deerfield Reservoir have always been greater than this, averaging 8.74 ft^3/s since 1948. Therefore, the reservoir must be lowered slightly in early fall to provide room for expected wintertime inflow. Because the discharge is virtually constant during the fall and winter, the U.S. Geological Survey has not gaged discharge from the reservoir during the months of October through February since 1984.

Pactola Reservoir was formed by the construction of an earthfill dam on Rapid Creek below its confluence with Castle Creek (fig. 1). Construction began November 25, 1952, and was completed on August 15, 1956 (U.S. Water and Power Resources Service, 1981). Active capacity is 54,955 acre-ft, and combined dead and inactive storage is 1,017 acre-ft. In addition to water-supply storage, Pactola Reservoir provides 43,057 acre-ft of exclusive flood-control storage and 41,892 acre-ft of surcharge capacity (U.S. Bureau of Reclamation, 1988). Typically, a minimal conservation release of 15 ft^3/s is maintained from Pactola Reservoir starting October 1, following the end of the irrigation season. The conservation release is increased to 20 ft^3/s from March 1 through September 30. When storage in Pactola Reservoir falls below 29,000 acre-ft, the conservation release is reduced to 7 ft^3/s for the period from October 1 through April 15, after which it is increased to 20 ft^3/s through September 30 (U.S. Bureau of Reclamation, 1952b, 1989b). These operating procedures are subject to revision, based on special circumstances which may arise.

Through contract, the U.S. Bureau of Reclamation provides the City of Rapid City with a maximum of 7,000 acre-ft of available storage in Deerfield Reservoir and an additional amount (as available) in Pactola Reservoir, for a total annual water-service potential of approximately 14,000 acre-ft. The determination of storage volumes is made May 1 of each year. If total storage is less than 14,000 acre-ft, all storable inflows are credited to the City, until a total of 14,000 acre-ft is available to the City. Thereafter, all remaining storable inflows are credited to the Rapid Valley Water Conservancy District, and all natural flows are available to various irrigators within the Rapid Valley area. The City of Rapid City is required to replace (purchase from storage) all water obtained from its three infiltration galleries and its water treatment plant only during the irrigation season (May 1 through September 30) (U.S. Bureau of Reclamation, 1943, 1952a, 1961).

Water Use

The City of Rapid City is the largest municipal user of water within the Rapid Creek basin. In 1988, the Rapid City Water Department supplied water to approximately 14,750 accounts, representing a population of approximately 57,000 residents. This includes delivery to approximately 6,600 users at Ellsworth Air Force Base. Additional users in Rapid Valley and various subdivisions adjoining Rapid City are served during periods of peak demand (Roger Kruger, Rapid City Water Department, personal commun., 1989). Annual production at the Rapid City Water Department has increased from 2,656 acre-ft in 1943 to 11,057 acre-ft in 1987. From 1970 to 1987, annual production ranged from approximately 9,000 to 11,000 acre-ft. The maximum annual production of 14,439 acre-ft was recorded during the drought year of 1988 (Rapid City Water Department, 1989). Daily demand currently ranges from approximately 10 Mgal/d during winter months to peaks of approximately 35 Mgal/d during summer months.

Rapid City obtains most of its water supply from three shallow, horizontal, infiltration galleries located in the Rapid Creek alluvial aquifer in the western part of the City. These three galleries have a combined production capacity of approximately 10 to 11 Mgal/d. This supply is supplemented by two deep Minnelusa wells with total production of approximately 1 Mgal/d. Peak demand is met by a water-treatment plant with a capacity of approximately 25 Mgal/d (Roger Kruger, Rapid City Water Department, personal commun., 1989) which draws water directly from Rapid Creek. The three infiltration galleries and the water-treatment plant are located along Rapid Creek between gaging stations 06412500 and 06414000 (fig. 1).

Irrigation withdrawals from Rapid Creek are extremely variable and depend primarily on weather conditions. Bennet Ditch, Leedy Ditch, and Storybook Ditch are located in western Rapid City, between gaging stations 06412500 and 06414000. These ditches provide minor amounts of water (generally less than 2 ft^3/s each) for lawn and garden watering by residents located along these ditches. A number of agricultural-irrigation ditches, which are owned and operated by individual ditch companies, divert water from Rapid Creek for users east of Rapid City. These have included, in downstream order, the Iowa, Lockhart, Hawthorne, Murphy, Cyclone, South Side, and Little Giant ditches, with diversion points located between gaging stations 06414000 and 06418900, and the Lone Tree, St. Germaine, and Hammerquist ditches, with diversion points located between gaging stations 06418900 and 06421500 (fig. 1). The Iowa and Hammerquist ditches are no longer in operation.

Water right priorities for these ditches are dependent upon the dates of establishment, with permitted quantities based on the irrigable acreage. Irrigation interests hold the annual rights to all water in storage in excess

of 7,000 acre-ft in Deerfield Reservoir and an additional amount in Pactola Reservoir (usually 7,000 acre-ft) determined by the Bureau of Reclamation at the beginning of the irrigation season on May 1. In addition, the natural flows of Rapid Creek during the irrigation season (May 1 through September 30) are appropriated for irrigation. Water released from storage must be purchased, while the natural flows of Rapid Creek are passed through Deerfield and Pactola Reservoir without charge. Irrigators also have the option of storing the natural flows and purchasing them from storage at a later date (U.S. Bureau of Reclamation, 1943, 1952a, 1961).

The total combined irrigation usage from the ditches is difficult to gage or calculate directly. The Bureau of Reclamation maintains records of water provided for irrigation by its sources, including natural flows in Rapid Creek measured above Pactola Reservoir, as well as water released from storage from Deerfield and Pactola Reservoirs. The natural flows are not necessarily indicative of irrigation usage, because the larger natural flows are typically recorded in wet years when combined storage in the two reservoirs is at or near capacity. Releases to the Rapid Valley Water Conservancy District from storage in these years are generally either zero or minimal. Therefore, releases from storage are probably a better indicator of irrigation use than natural flows.

Natural flows passed through Pactola Reservoir since 1958 during the irrigation season have ranged from a minimum of 4,256 acre-ft in 1986 to a maximum of 19,394 acre-ft in 1964. Combined releases from storage to the Conservancy District in both Pactola and Deerfield Reservoirs have ranged from zero (in 9 years) to 8,638 acre-ft in 1985. Total diversions by the Conservancy District, including natural flows and releases from storage, have ranged from 4,383 acre-ft in 1986 to 25,575 acre-ft in 1981 (U.S. Bureau of Reclamation, 1989a).

HISTORY OF STREAM GAGING BY THE U.S. GEOLOGICAL SURVEY

The U.S. Geological Survey began streamflow gaging in the Missouri River basin in 1889. The earliest streamflow-gaging efforts in the Black Hills area began soon after the passage of the Reclamation Act of 1902. This was done as part of an effort to collect streamflow data for the investigation and design of irrigation projects (U.S. Geological Survey, 1959).

A compilation of past and current Geological Survey stream-gaging stations within the Rapid Creek basin is shown in table 1. Streamflow gaging within the basin began with the Rapid Creek at Rapid City station (06414000), which was operated from 1903 through 1906. The next period for which Rapid Creek streamflow records were published was 1915 through 1917. These data were for Rapid Creek at Big Bend (station 06412000). The Geological Survey later maintained a gage at this site from 1932 through 1942. From October 1928 to November 1932, the Geological Survey published combined records from Rapid Creek and a Dakota Power and Light Company flume as Rapid Creek near Pactola (station 06411500). This gage was later reestablished 1.75 mi upstream under the same name and operated from July 1946 to November 1953. Construction of Pactola Dam forced the relocation of this gage 2 mi downstream in November 1953. Since then it has been operated under the same station number as "Rapid Creek below Pactola Dam." A gaging station also was operated at Creston, just upstream of the confluence with the Cheyenne River, from 1929 through 1932 (U.S. Geological Survey, 1959, 1964).

Table 1.--Continuous-record streamflow-gaging stations within the Rapid Creek basin, South Dakota

Station number	Station name	Period of record	Drainage area (square miles)
06408700	Rhoads Fork near Rochford	11/81 - 09/88	7.95
06408860	Rapid Creek near Rochford	08/88 - 09/88	101
06409000	Castle Creek above Deerfield Reservoir, near Hill City	06/48 - 09/88	79.2
06409500	Deerfield Reservoir near Hill City	05/47 - 09/88	95.0
06410000	Castle Creek below Deerfield Dam	07/46 - 09/88	96.0
06410500	Rapid Creek above Pactola Reservoir, at Silver City	10/53 - 09/88	292
06411000	Pactola Reservoir near Silver City	08/56 - 09/88	319
06411500	Rapid Creek near Pactola	10/28 - 09/32	319
06411500	Rapid Creek near Pactola	07/46 - 11/53	315
06411500	Rapid Creek below Pactola Dam	11/53 - 09/88	320
06412000	Rapid Creek at Big Bend	04/15 - 09/17	332
		04/32 - 12/42	332
06412200	Rapid Creek above Victoria Creek, near Rapid City	06/88 - 09/88	355
06412500	Rapid Creek above Canyon Lake, near Rapid City	07/46 - 09/88	371
06412600	Cleghorn Springs Main Channel at Fish Hatchery, at Rapid City	07/87 - 09/88	1/
06412700	Cleghorn Springs South Channel at Fish Hatchery, at Rapid City	07/87 - 09/88	1/
06412800	Cleghorn Springs North Channel at Fish Hatchery, at Rapid City	07/87 - 09/88	1/
06412900	Rapid Creek below Cleghorn Springs, at Rapid City	07/87 - 09/88	378
06413000	Bennett Ditch at Rapid City	08/46 - 09/51	1/
06413100	Canyon Lake at Rapid City	07/87 - 09/88 2/	381
06413200	Rapid Creek below Park Drive, at Rapid City	10/87 - 09/88 2/	384
06413300	Leedy Ditch at Headgate, below Canyon Lake Dam, at Rapid City	10/87 - 09/88 2/	1/
06413500	Leedy Ditch at Rapid City	08/46 - 09/51	1/
06413550	Leedy Ditch at Mouth, at Rapid City	10/87 - 09/88 2/	1/
06413570	Rapid Creek above Jackson Boulevard, at Rapid City	07/87 - 09/88	391
06413650	Lime Creek at Mouth, at Rapid City	04/81 - 07/82	10.1
		10/87 - 09/88	10.1
06413660	Storybook Ditch at Headgate, at Rapid City	03/88 - 09/88 2/	1/
06413670	Storybook Ditch at Mouth, at Rapid City	07/87 - 09/88 2/	1/
06413700	Rapid Creek above Water Treatment Plant, at Rapid City	05/80 - 07/82	404
		07/87 - 09/88	404
06413800	Deadwood Avenue Drain at Mouth, at Rapid City	04/81 - 07/82	2.18
		07/87 - 09/88	2.18
06414000	Rapid Creek at Rapid City	06/03 - 11/06	410
		07/42 - 09/88	410
06414500	Iowa Ditch at Rapid City	08/46 - 09/53	1/
06414700	Rapid Creek at East Main Street, at Rapid City	05/80 - 07/82	416
06415000	Lockhart Ditch at Rapid City	09/46 - 09/53	1/
06415500	Hawthorne Ditch at Rapid City	08/46 - 09/53	1/
		05/81 - 07/82	1/
06416000	Rapid Creek below Hawthorne Ditch, at Rapid City	08/46 - 10/53	418
		08/80 - 07/82	418
06416300	Meade Street Drain at Rapid City	05/80 - 09/80	3.15
06416500	Murphy Ditch near Rapid City	09/46 - 09/53	1/
06417000	Cyclone Ditch near Rapid City	09/46 - 09/53	1/
06417500	South Side Ditch near Rapid City	08/46 - 09/53	1/
06418000	Little Giant Ditch near Rapid City	08/46 - 09/53	1/
06418500	Rapid Creek below Little Giant Ditch, near Rapid City	08/46 - 09/51	447
06418900	Rapid Creek below Sewage Plant, near Rapid City	10/81 - 09/88	452
06419000	Lone Tree Ditch near Rapid City	09/46 - 09/53	1/
06419500	St. Germain Ditch at Caputa	08/46 - 09/53	1/
06420000	Rapid Creek at Caputa	08/46 - 09/53	509
06420500	Hammerquist Ditch near Farmingdale	08/46 - 09/53	1/
06421500	Rapid Creek near Farmingdale	07/46 - 09/88	602
06422000	Rapid Creek at Creston	05/29 - 06/32	710

1/ No drainage area listed (spring or ditch).
2/ Gaging station discontinued during calendar year 1989.

The next major period of streamflow gaging along Rapid Creek occurred from 1946 through 1953, the period between the construction of Deerfield and Pactola Reservoirs. This effort was directed towards gaging of irrigation flows in ditches and Rapid Creek in Rapid Valley southeast of Rapid City.

In 1955, a crest-stage, partial-record program was initiated in cooperation with the South Dakota Highway Commission to collect data to define peak-flow characteristics in small basins (Little and Matthews, 1985). Peak discharges were determined at 19 crest-stage, partial-record stations within the Rapid Creek basin as part of this effort (Becker, 1974). Three additional crest-stage, partial-record stations were established in the basin in 1969 as part of a continuation of this program (Becker, 1982).

The next major period of streamflow gaging of Rapid Creek and its tributaries was a result of the Rapid City Urban Runoff Study. This study was funded by the U.S. Environmental Protection Agency as part of the National Urban Runoff Program. Six continuous recording gages were operated in Rapid City from 1980 through 1982 as part of this project. Some of these gages were operated only during months of significant runoff (April through November) (Harms and others, 1983).

The latest period of streamflow-gaging activity on Rapid Creek and its tributaries has been due primarily to the Rapid Creek Merit Fund Study. Gaging stations were installed at 13 locations within Rapid City in 1987 as part of this study. Two additional gages were installed on Rapid Creek in 1988 in conjunction with a hydrologic data collection study in the central Black Hills.

STATISTICAL SUMMARY OF STREAMFLOW RECORDS

A tabular and graphical compilation of monthly and annual mean discharge, by year, for nine currently operated streamflow-gaging stations in the Rapid Creek basin is contained in the Presentation of Data section of this report. These nine stations were selected because they had adequate periods of record (minimum of 6 years) to produce meaningful statistics). A number of statistics of discharge records for these stations also are presented, including: (1) Summary statistics (mean, variance, standard deviation, skewness, coefficient of variation, percent of annual discharge for monthly means, and serial correlation for annual mean discharges); (2) correlation matrix for monthly mean discharge; (3) serial correlation for 1-year lag for monthly mean discharge; (4) percentile rankings for monthly and annual mean discharge; (5) lowest and highest mean discharge and ranking for various numbers of consecutive days for each year of record; (6) the duration of daily mean discharge; and (7) peak discharge and gage height for each year of record.

The station names and numbers in both downstream order and order of presentation are:

Rhoads Fork near Rochford (06408700);
Castle Creek above Deerfield Reservoir, near Hill City (06409000);
Castle Creek below Deerfield Dam (06410000);
Rapid Creek above Pactola Reservoir, at Silver City (06410500);
Rapid Creek below Pactola Dam (06411500);
Rapid Creek above Canyon Lake, near Rapid City (06412500);
Rapid Creek at Rapid City (06414000);
Rapid Creek below Sewage Plant, near Rapid City (06418900); and
Rapid Creek near Farmingdale (06421500).

Locations of these stations are shown in figure 1. Periods of record and drainage areas for these stations are listed in table 1.

Only two of these stations, Rhoads Fork near Rochford (06408700) and Castle Creek above Deerfield Reservoir, near Hill City (06409000), are in headwater basins which are unaffected by reservoir regulation, or by substantial diversions. Discharge at all of the other stations is affected by Deerfield Reservoir, Pactola Reservoir, or both. Storage in Deerfield and Pactola Reservoirs began on December 3, 1945, and August 15, 1956, respectively. Records of monthend contents for these reservoirs are presented in tables 74 and 75. Records at some stations include periods prior to regulation, as well as periods during which discharge has been affected by operation of one or both reservoirs. No distinction is made between these periods in the statistical summaries. Many of the downstream stations also are affected by various municipal and irrigation diversions, as noted in the section entitled "Water Use." The reader is cautioned that statistical summaries will be affected by these factors.

All data in the Presentation of Data section were generated by the "National Water Data Storage and Retrieval System" (WATSTORE), a computerized storage and retrieval system used to store and disseminate water data (U.S. Geological Survey, 1975). Several different features of this system were used. Program W4422, "Daily Values Monthly and Annual Statistics," was used to generate the monthly and annual mean values (Statistical Options 2 and 7), statistics on monthly and annual mean values (Statistical Options 4 and 8), correlation matrix of monthly values (Statistical Option 5), serial correlation of monthly values (Statistical Option 6), and percentile rankings for monthly and annual mean values (Statistical Option 3). The low and high value tables, and the duration curves were generated by Program A969, "Daily Values Statistics." Program J980, "Peak Flow File Retrieval," was used to generate the peak-discharge tables.

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PRESENTATION OF DATA

Explanation for Peak Discharge and Gage-Height Data
(Tables 9, 17, 25, 33, 41, 49, 57, 65, and 73)

The following qualification codes are used in conjunction with discharge:

No code - Discharge is a maximum instantaneous value
1 - Discharge is a maximum daily average
2 - Discharge is an estimate
6 - Discharge affected by regulation or diversion

The following qualification codes are used in conjunction with gage height:

No code - Gage height is the maximum, unaffected value at the site during the year
1 - Gage height affected by backwater or ice effects, etc.
2 - Gage height not the maximum for the year

Rhoads Fork near Rochford, station 06408700

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Table 2.--Mean discharge, in cubic feet per second, for Rhoads Fork near Rochford, station 06408700

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1982	[1]	4.94	4.25	3.72	4.03	4.12	4.51	4.67	5.10	5.17	6.11	6.36	[2]
1983	5.87	5.46	5.96	5.57	5.04	4.77	5.02	6.17	5.86	6.52	6.67	6.33	5.78
1984	7.74	7.43	6.50	6.54	7.22	6.90	6.97	7.15	6.72	6.88	6.90	6.49	6.95
1985	6.13	6.67	6.59	6.33	6.36	7.27	6.88	6.50	6.57	6.35	5.69	5.86	6.43
1986	5.97	5.85	5.66	5.27	5.12	5.35	5.40	5.64	5.98	5.30	5.11	5.28	5.49
1987	5.28	5.13	4.98	4.95	4.88	4.88	4.88	4.85	5.00	5.24	5.38	5.58	5.09
1988	5.40	5.22	4.76	4.95	5.06	5.06	5.05	5.33	5.66	5.29	5.01	5.15	5.16

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 3.--Statistics on mean discharge, in cubic feet per second, for Rhoads Fork near Rochford, station 06408700 (November 1981 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	6.07	5.81	5.53	5.33	5.39	5.48	5.53	5.76	5.84	5.82	5.84	5.86	5.82
Variance	.78	.84	.80	.90	1.12	1.35	.98	.81	.43	.53	.56	.30	.55
Standard deviation	.88	.92	.89	.95	1.06	1.16	.99	.90	.66	.73	.75	.55	.74
Skewness	1.70	1.09	-.16	-.43	.86	.81	.94	.34	.05	.54	.41	-.17	.73
Coefficient of variation	.15	.16	.16	.18	.20	.21	.18	.16	.11	.13	.13	.09	.13
Percent of annual discharge	8.89	8.52	8.10	7.81	7.89	8.03	8.10	8.44	8.56	8.53	8.55	8.59	[1].473

[1]Serial correlation for annual mean discharges.

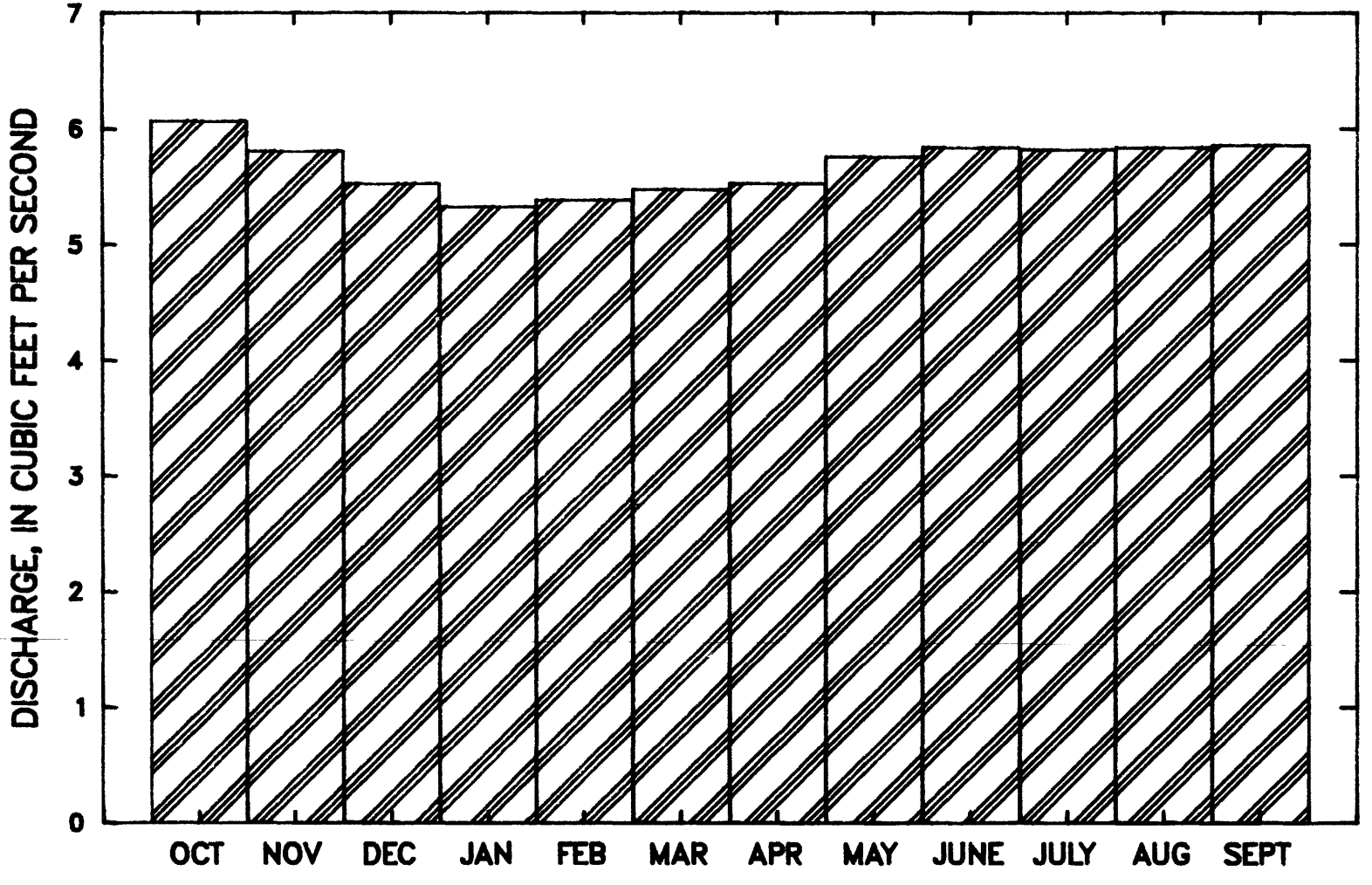

Figure 3.--Monthly mean discharge for Rhoads Fork near Rochford, station 06408700 (November 1981 through September 1988).

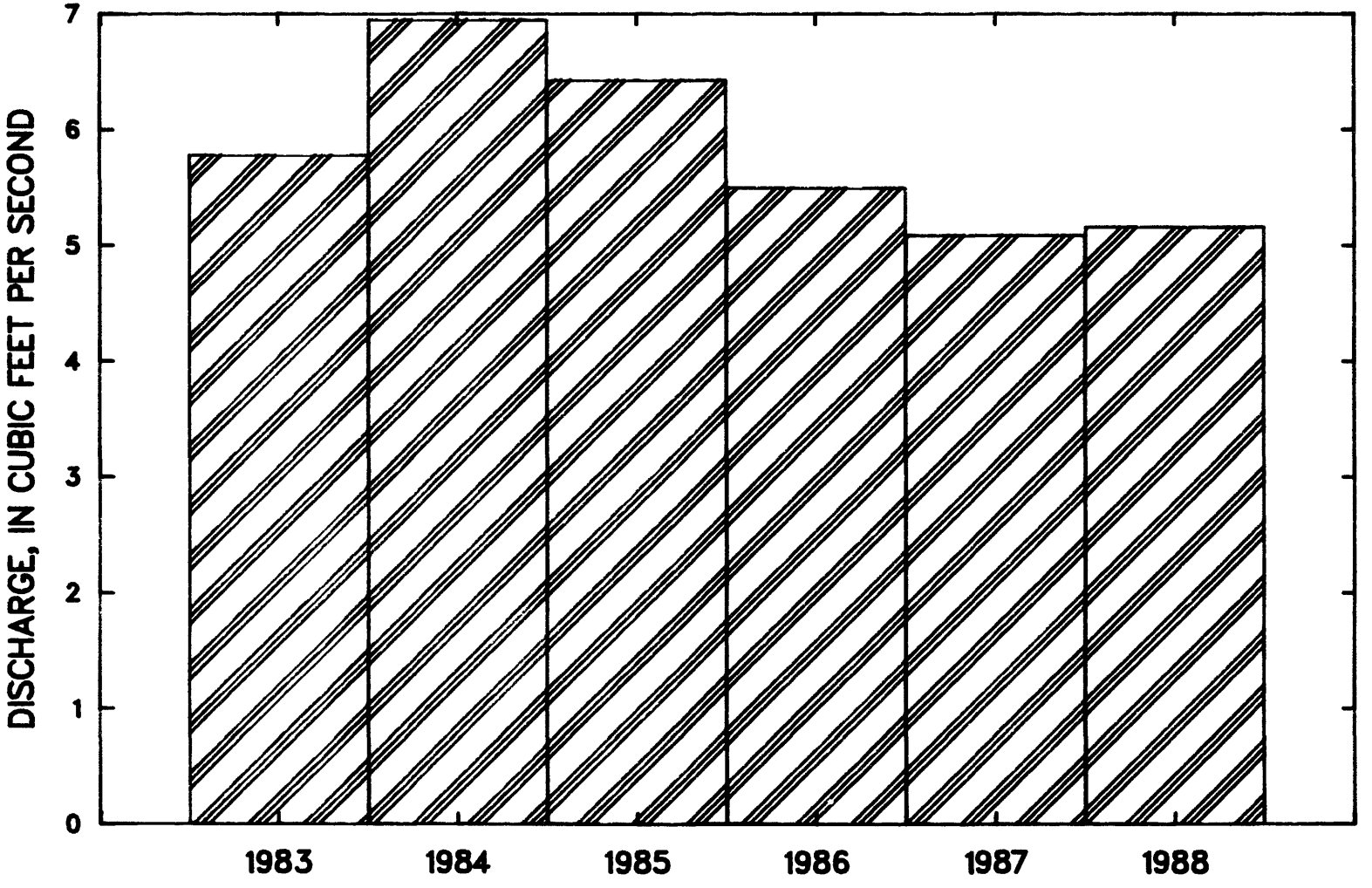

Figure 4.--Annual mean discharge for Rhoads Fork near Rochford, station 06408700 (water years 1983–88).

Table 4.--Correlation matrix for monthly mean discharge for Rhoads Fork near Rochford, station 06408700 (November 1981 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.932	0.755	0.853	0.910	0.703	0.808	0.896	0.822	0.777	0.724	0.706
Nov.	*	1.000	0.869	0.882	0.968	0.923	0.969	0.918	0.927	0.789	0.447	0.333
Dec.	*	*	1.000	0.961	0.864	0.857	0.872	0.935	0.904	0.861	0.418	0.271
Jan.	*	*	*	1.000	0.934	0.893	0.896	0.935	0.899	0.835	0.336	0.152
Feb.	*	*	*	*	1.000	0.937	0.963	0.918	0.901	0.799	0.390	0.242
Mar.	*	*	*	*	*	1.000	0.987	0.832	0.893	0.683	0.194	0.110
Apr.	*	*	*	*	*	*	1.000	0.882	0.922	0.750	0.323	0.233
May	*	*	*	*	*	*	*	1.000	0.954	0.933	0.565	0.391
June	*	*	*	*	*	*	*	*	1.000	0.804	0.362	0.217
July	*	*	*	*	*	*	*	*	*	1.000	0.776	0.632
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.956
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 5.--Serial correlation for 1-year lag for monthly mean discharge for Rhoads Fork near Rochford, station 06408700 (November 1981 through September 1988)

Month												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.095	0.327	0.357	0.316	0.291	0.363	0.366	0.370	0.335	0.404	0.630	0.712

Table 6.--Percentile rankings for mean discharge, in cubic feet per second, for Rhoads Fork near Rochford, station 06408700 (November 1981 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	5.37	5.13	4.76	4.95	4.88	4.77	4.88	4.85	5.10	5.24	5.11	5.28	5.14
50th	5.92	5.46	5.66	5.27	5.06	5.06	5.05	5.64	5.86	5.30	5.69	5.86	5.63
75th	6.53	6.67	6.50	6.33	6.36	6.90	6.88	6.50	6.57	6.52	6.67	6.36	6.56

Table 7.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rhoads Fork near Rochford, station 06408700

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days															
	1		3		7		14		30		60		90		120		183	
1983	4.40	1	4.40	1	4.40	1	4.40	1	4.50	1	4.60	1	4.80	1	4.90	1	5.30	3
1984	4.70	4	4.70	4	4.80	4	4.80	4	5.00	4	5.60	5	5.70	5	5.90	5	6.10	5
1985	5.80	6	5.90	6	5.90	6	6.00	6	6.10	6	6.30	6	6.40	6	6.40	6	6.40	6
1986	5.00	5	5.00	5	5.00	5	5.10	5	5.10	5	5.20	4	5.20	4	5.40	4	5.50	4
1987	4.50	2	4.50	2	4.60	2	4.60	2	4.80	3	4.90	3	4.90	2	4.90	2	5.00	1
1988	4.60	3	4.60	3	4.60	3	4.60	3	4.70	2	4.80	2	4.90	3	4.90	3	5.10	2

[1]Low-flow water year is April 1 to March 31.

Table 8.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rhoads Fork near Rochford, station 06408700

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days															
	1		3		7		15		30		60		90		120		183	
1983	7.10	4	7.00	4	6.90	4	6.80	3	6.70	3	6.60	3	6.50	3	6.40	3	6.10	3
1984	8.40	2	8.40	1	8.30	1	8.10	1	7.80	1	7.60	1	7.20	1	7.10	1	7.10	1
1985	8.50	1	8.30	2	7.70	2	7.40	2	7.30	2	7.10	2	6.90	2	6.80	2	6.70	2
1986	7.60	3	7.50	3	7.20	3	6.40	4	6.00	4	5.90	4	5.80	4	5.70	4	5.50	4
1987	5.70	6	5.70	6	5.70	6	5.60	6	5.60	6	5.50	6	5.40	5	5.30	5	5.20	5
1988	6.40	5	6.10	5	6.10	5	5.90	5	5.70	5	5.60	5	5.40	6	5.30	6	5.20	6

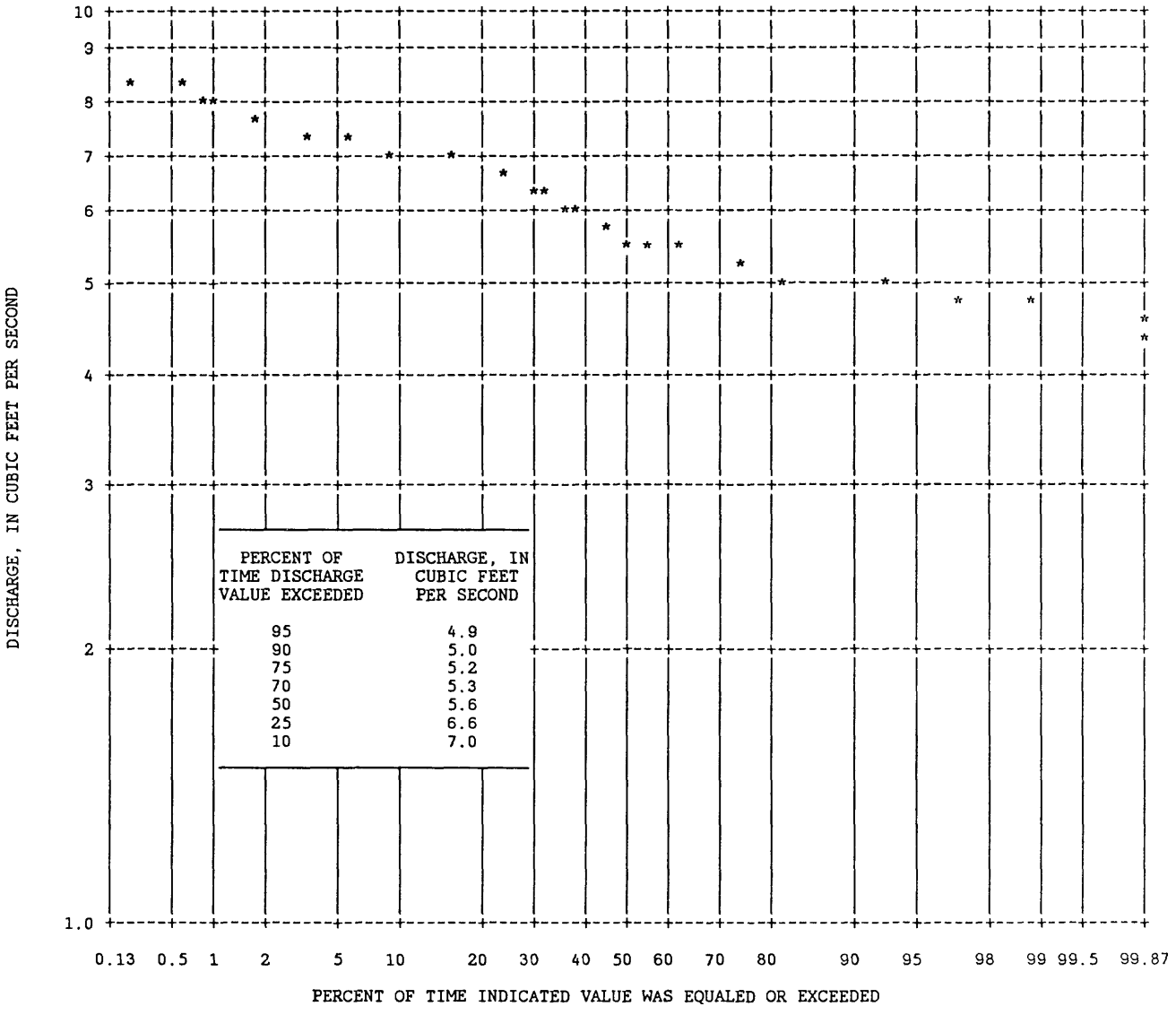

Figure 5.--Duration of daily discharge data for Rhoads Fork near Rochford, station 06408700 (water years 1983-88).

Table 9.--Peak-discharge and gage-height data for Rhoads Fork near Rochford, station 06408700

[Blanks indicate no information]

Station locator
Latitude: 440812
Longitude: 1035129

Drainage area: 7.95 square miles

Gage datum: 5,965.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1982	06/23/82	8.90		2.17	2
1983	08/22/83	7.80		2.09	2
1984	08/08/84	9.20		1.97	2
1985	03/16/85	9.70		2.00	
1986	06/26/86	8.30		2.10	
1987	03/15/87	7.00		2.00	
1988	06/29/88	7.60		1.83	2

[1]See page 14 for explanation of discharge and gage-height codes.

Castle Creek above Deerfield Reservoir, near Hill City, station 06409000

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follows

Table 10.--Mean discharge, in cubic feet per second, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1948	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	9.26	8.52	8.47	[2]
1949	9.15	10.70	10.60	7.71	8.04	8.14	13.10	11.90	13.10	8.46	6.45	7.79	9.59
1950	8.06	7.85	6.16	6.44	6.01	7.16	18.70	15.50	9.84	7.87	7.98	8.32	9.17
1951	8.43	8.76	7.95	6.08	6.44	7.11	12.80	11.40	10.70	9.07	7.90	8.41	8.75
1952	8.36	8.03	7.13	5.84	6.97	7.03	15.00	30.50	16.90	10.40	8.25	7.63	11.00
1953	8.19	7.47	7.81	6.81	6.61	8.39	11.40	16.40	11.50	7.47	8.59	7.10	8.99
1954	7.68	7.46	7.73	7.37	7.48	8.76	12.10	8.33	7.47	5.60	6.57	6.78	7.77
1955	7.01	7.93	7.60	6.31	6.48	5.82	18.80	12.10	10.80	7.74	7.72	7.10	8.77
1956	6.84	5.93	6.42	5.74	5.79	6.69	11.90	13.30	8.74	7.29	6.48	5.98	7.60
1957	6.55	6.70	7.06	6.81	6.54	6.39	9.30	11.50	10.30	7.79	7.13	6.70	7.73
1958	6.17	5.46	6.40	6.10	6.83	7.26	10.20	10.20	7.55	7.74	5.91	5.04	7.08
1959	5.90	6.35	5.47	4.94	5.49	6.15	10.80	11.20	7.68	7.17	5.25	5.74	6.84
1960	6.37	6.10	6.45	5.19	5.85	10.50	9.59	7.45	6.24	4.60	4.63	4.42	6.45
1961	3.93	5.04	5.32	4.47	5.22	5.81	6.83	6.56	4.69	4.05	5.33	4.36	5.13
1962	4.10	3.85	2.74	3.98	5.06	6.03	11.90	11.80	12.20	7.56	5.95	5.13	6.69
1963	5.99	5.61	5.32	4.39	5.27	8.74	15.40	14.30	27.00	12.40	8.42	9.93	10.20
1964	8.75	8.42	6.76	7.48	6.82	6.48	15.30	16.80	21.00	14.00	11.00	9.96	11.10
1965	10.50	8.42	8.68	8.48	8.11	7.98	17.10	31.90	34.80	25.40	20.50	17.20	16.60
1966	16.60	14.90	12.40	11.20	11.50	15.70	21.20	18.00	11.80	12.90	14.00	12.50	14.40
1967	13.50	13.20	10.30	10.10	10.30	14.90	16.90	19.00	19.50	14.70	11.60	13.50	14.00
1968	12.60	12.10	11.00	11.50	10.10	13.30	13.50	12.50	12.20	10.50	8.80	10.00	11.50
1969	9.34	9.41	9.28	9.63	9.18	9.94	14.50	16.10	11.80	14.60	10.80	8.57	11.10
1970	11.00	10.00	9.94	8.71	8.48	9.07	16.20	28.00	15.60	11.10	11.20	11.00	12.60
1971	11.00	10.10	10.30	9.48	10.10	10.50	23.70	19.50	14.40	11.60	11.20	11.60	12.80
1972	12.30	11.50	12.00	10.80	9.50	14.60	16.10	16.30	12.70	11.40	11.80	11.30	12.50
1973	11.60	9.29	8.09	9.54	9.21	9.90	16.20	18.40	16.00	12.40	11.20	11.80	12.00
1974	11.60	10.30	8.61	8.76	8.67	12.90	13.70	11.50	8.60	8.90	9.26	8.37	10.10
1975	9.03	10.20	10.80	8.49	8.12	7.89	19.80	19.90	13.70	9.80	8.44	9.02	11.30
1976	9.50	8.58	9.14	8.39	8.54	9.60	12.50	10.40	13.30	10.40	9.06	8.84	9.85
1977	8.37	8.49	8.32	7.84	10.10	11.90	17.60	15.80	11.00	9.54	9.51	9.25	10.60
1978	10.80	8.56	8.19	9.11	9.73	11.70	13.70	30.80	22.50	16.40	12.90	12.60	13.90
1979	13.30	11.60	9.68	10.10	12.10	14.20	16.70	14.80	13.00	13.60	12.50	11.10	12.70
1980	9.94	10.70	6.88	8.70	9.60	10.80	16.70	15.90	11.40	8.54	9.27	9.42	10.60
1981	9.26	9.76	8.82	9.47	8.07	9.06	10.50	10.50	8.16	8.07	8.12	7.58	8.96

Table 10.--Mean discharge, in cubic feet per second, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1982	8.12	7.21	6.85	6.37	6.66	8.04	12.20	14.70	14.60	10.90	11.50	10.10	9.78
1983	13.40	12.20	11.40	12.00	10.80	15.90	21.00	22.80	18.80	14.40	14.70	13.50	15.10
1984	13.50	12.00	10.10	10.90	11.50	13.20	17.00	29.30	22.00	33.90	15.70	13.30	16.90
1985	12.40	11.80	10.70	9.24	9.50	12.80	14.10	12.60	11.00	8.86	9.23	10.40	11.10
1986	11.90	10.80	11.00	11.30	11.00	15.00	17.30	18.30	15.60	12.10	11.00	11.70	13.10
1987	13.30	11.50	11.50	9.28	10.20	13.60	16.60	14.20	11.20	9.62	8.66	9.05	11.60
1988	10.70	11.00	10.90	8.97	9.56	11.20	15.30	15.10	11.20	10.30	9.35	8.52	11.00

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 11.--Statistics on mean discharge, in cubic feet per second, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000 (July 1948 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	9.63	9.13	8.54	8.10	8.29	10.00	14.80	16.10	13.50	10.90	9.57	9.25	10.7
Variance	8.17	6.03	4.77	4.57	3.93	9.58	12.70	40.80	34.00	27.00	9.73	7.71	7.49
Standard deviation	2.86	2.46	2.18	2.14	1.98	3.09	3.56	6.39	5.83	5.19	3.12	2.78	2.74
Skewness	.11	-.01	-.31	-.14	.05	.41	.17	1.14	1.62	2.70	1.17	.42	.25
Coefficient of variation	.30	.27	.26	.26	.24	.31	.24	.40	.43	.48	.33	.30	.26
Percent of annual discharge	7.53	7.14	6.68	6.33	6.48	7.82	11.60	12.60	10.60	8.55	7.48	7.23	[1].698

[1]Serial correlation for annual mean discharges.

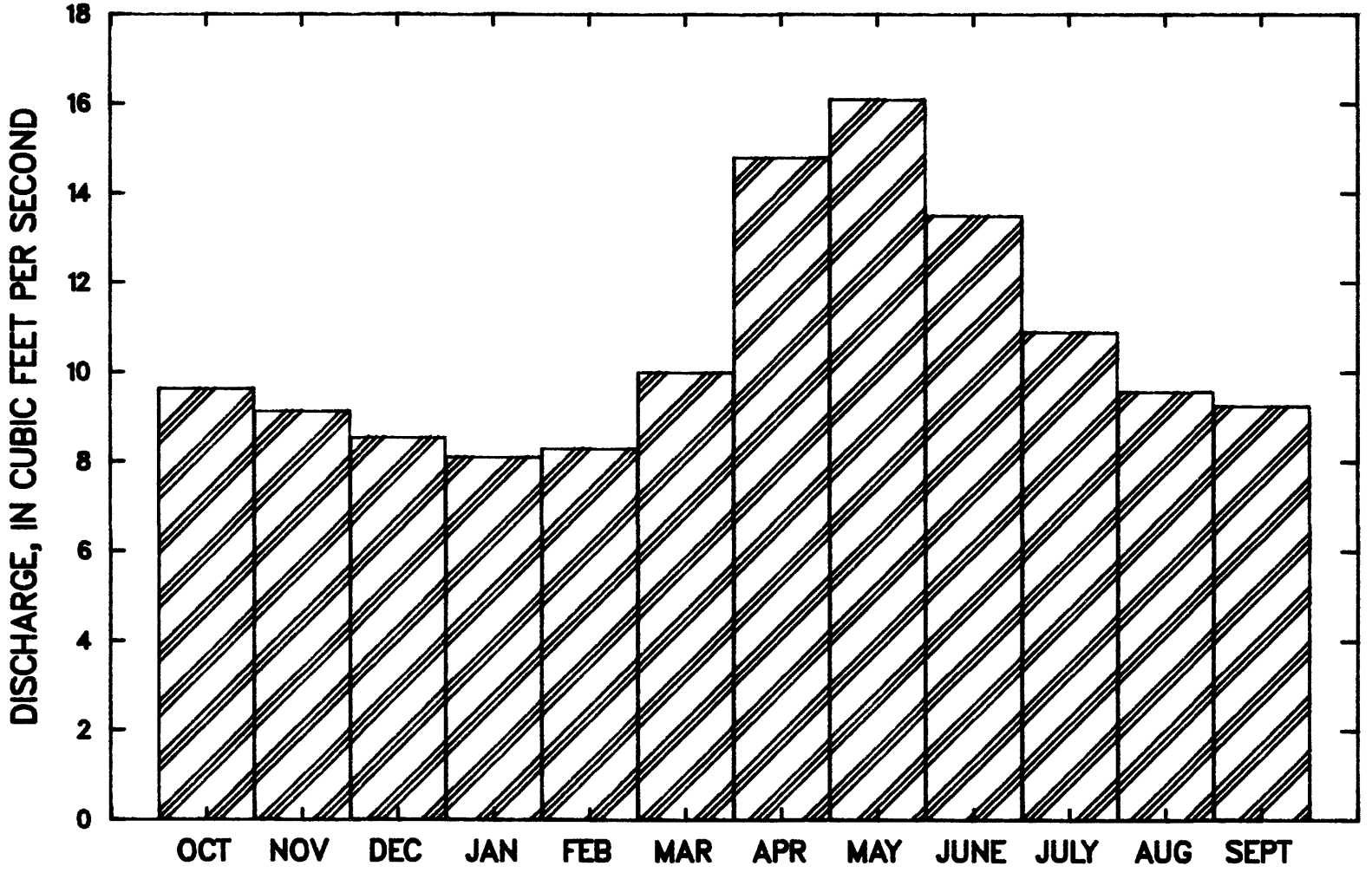

Figure 6.---Monthly mean discharge for Castle Creek above Deerfield Reservoir near Hill City, station 06409000 (July 1948 through September 1988).

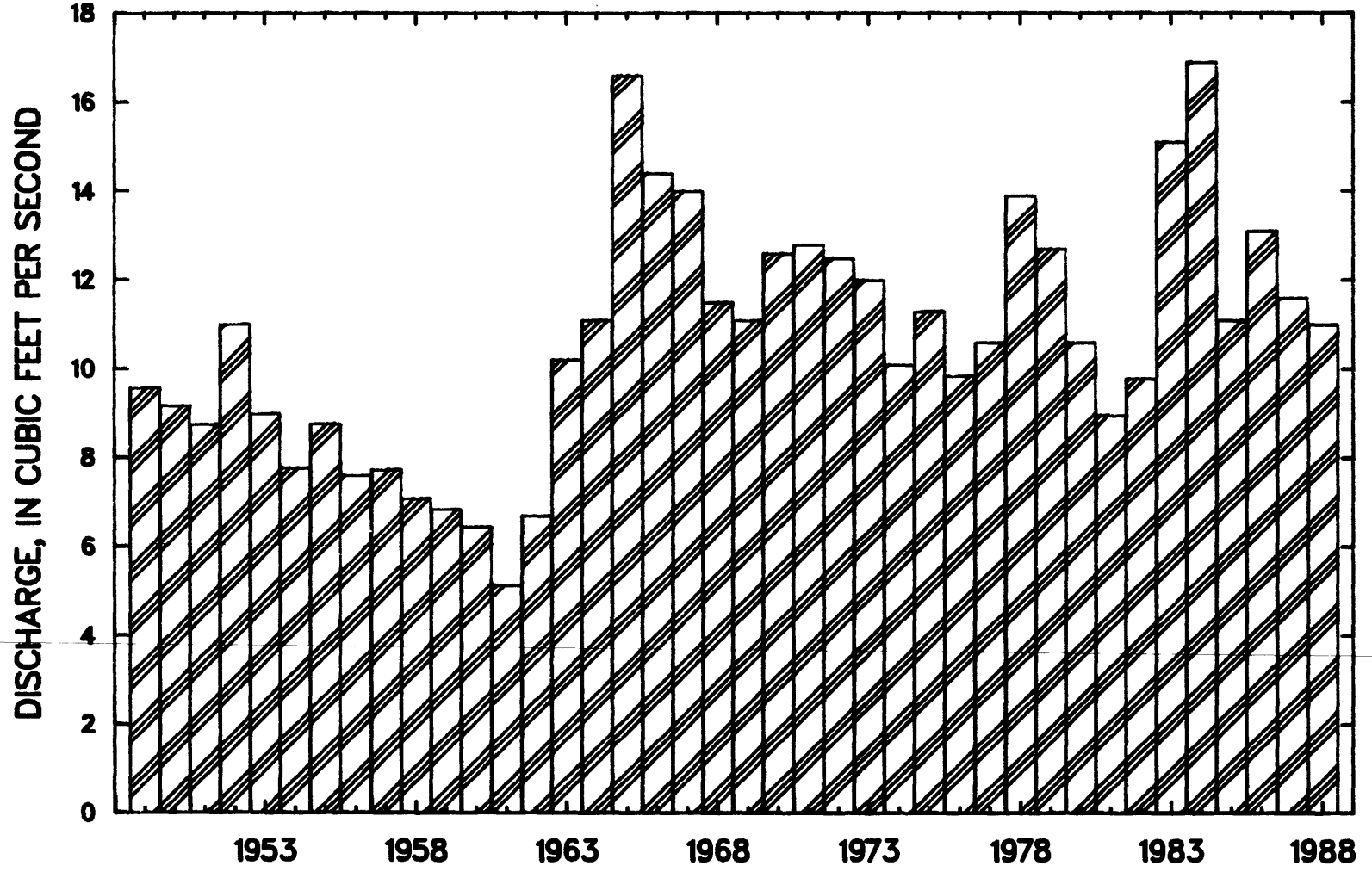

Figure 7.--Annual mean discharge for Castle Creek above Deerfield Reservoir near Hill City, station 06409000 (water years 1949–88).

Table 12.--Correlation matrix for monthly mean discharge for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000 (July 1948 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.947	0.864	0.915	0.905	0.862	0.620	0.437	0.295	0.510	0.687	0.764
Nov.	*	1.000	0.905	0.898	0.876	0.812	0.614	0.321	0.171	0.397	0.555	0.659
Dec.	*	*	1.000	0.878	0.825	0.756	0.547	0.296	0.142	0.336	0.507	0.594
Jan.	*	*	*	1.000	0.927	0.835	0.561	0.382	0.238	0.489	0.655	0.716
Feb.	*	*	*	*	1.000	0.876	0.598	0.397	0.226	0.505	0.634	0.693
Mar.	*	*	*	*	*	1.000	0.473	0.228	0.151	0.353	0.510	0.599
Apr.	*	*	*	*	*	*	1.000	0.523	0.415	0.415	0.591	0.672
May	*	*	*	*	*	*	*	1.000	0.750	0.729	0.748	0.719
June	*	*	*	*	*	*	*	*	1.000	0.767	0.757	0.777
July	*	*	*	*	*	*	*	*	*	1.000	0.839	0.771
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.939
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 13.--Serial correlation for 1-year lag for monthly mean discharge for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000 (July 1948 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.750	0.702	0.620	0.727	0.750	0.554	0.290	0.164	0.303	0.283	0.637	0.682

Table 14.--Percentile rankings for mean discharge, in cubic feet per second, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000 (July 1948 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	7.77	7.46	6.86	6.32	6.56	7.18	12.10	11.60	10.40	7.83	7.81	7.34	8.82
50th	9.30	9.02	8.46	8.48	8.30	9.33	15.20	15.00	12.00	9.80	9.06	9.02	10.80
75th	11.80	11.00	10.50	9.52	10.00	12.90	17.00	18.39	15.60	12.40	11.20	11.20	12.60

Table 15.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1950	5.00 18	5.00 11	5.00 8	5.40 10	5.80 10	6.00 8	6.20 8	6.40 8	7.00 10
1951	4.50 9	4.70 9	5.30 12	5.50 12	6.00 12	6.10 9	6.30 11	6.80 13	7.40 15
1952	4.00 5	4.00 4	4.40 4	5.10 7	5.80 11	6.20 12	6.50 12	6.70 11	7.20 12
1953	6.00 26	6.00 19	6.00 15	6.30 16	6.40 14	6.60 14	6.90 14	7.00 15	7.40 13
1954	4.50 10	5.70 15	6.00 16	6.50 17	7.00 17	7.20 16	7.40 16	7.40 16	7.40 14
1955	4.90 14	5.00 12	5.00 9	5.20 8	5.60 8	6.10 10	6.20 9	6.40 9	6.80 9
1956	4.00 6	4.00 5	4.40 5	4.70 4	5.20 6	5.30 5	5.80 6	5.80 6	6.20 6
1957	4.00 7	4.30 7	5.00 10	5.40 11	5.60 9	6.10 11	6.30 10	6.40 10	6.50 8
1958	4.80 13	5.00 13	5.00 11	5.20 9	5.40 7	5.80 7	6.00 7	6.00 7	6.30 7
1959	4.50 11	4.50 8	4.60 7	4.70 5	4.80 4	5.00 4	5.20 4	5.40 4	5.50 4
1960	4.00 8	4.20 6	4.50 6	4.80 6	4.90 5	5.40 6	5.70 5	5.80 5	5.80 5
1961	3.50 4	3.50 3	3.50 2	3.60 2	3.90 2	4.20 2	4.30 2	4.40 2	4.60 2
1962	2.00 1	2.00 1	2.20 1	2.20 1	2.60 1	3.30 1	3.40 1	3.60 1	4.00 1
1963	3.00 2	3.30 2	3.70 3	3.80 3	4.20 3	4.70 3	4.90 3	5.10 3	5.30 3
1964	5.50 19	5.80 17	6.10 17	6.20 15	6.40 15	6.60 15	6.90 15	6.90 14	7.50 16
1965	5.00 15	5.70 16	6.60 21	6.70 19	7.90 22	8.00 18	8.20 18	8.20 17	8.70 18
1966	7.50 35	7.80 34	8.50 35	9.30 38	10.00 39	11.00 38	11.00 39	12.00 39	14.00 39
1967	7.00 30	7.30 30	7.70 29	9.10 35	9.70 35	9.90 33	10.00 34	11.00 33	11.00 32
1968	8.00 36	8.50 38	8.90 39	9.10 36	9.90 36	11.00 39	11.00 35	11.00 34	12.00 35
1969	6.00 27	7.20 29	7.90 31	8.40 29	8.70 30	9.20 29	9.20 28	9.30 28	9.40 24
1970	5.80 22	6.90 26	7.60 26	7.90 27	8.30 25	8.50 26	8.60 23	9.00 25	9.40 25
1971	6.00 23	7.00 27	7.70 27	8.50 30	9.30 32	9.50 31	9.80 31	9.90 30	10.00 29
1972	7.00 31	7.70 33	8.60 37	8.70 32	9.30 33	10.00 37	11.00 36	11.00 35	11.00 33
1973	3.50 3	6.00 18	6.20 18	6.60 18	7.50 18	8.10 21	8.80 26	8.80 22	9.60 26
1974	7.40 33	7.60 31	7.70 28	7.70 25	8.10 23	8.40 23	8.60 24	9.10 26	9.90 27
1975	5.60 20	6.20 20	6.30 19	6.80 20	7.60 20	8.00 19	8.20 19	8.60 20	9.00 20
1976	5.00 16	6.70 25	7.10 25	7.30 23	8.30 26	8.40 24	8.50 22	8.50 19	8.80 19
1977	7.00 32	7.00 28	7.00 23	7.30 24	7.80 21	8.00 20	8.20 20	8.30 18	8.40 17
1978	6.20 28	6.40 23	6.60 20	7.10 21	7.50 19	8.30 22	8.50 21	8.80 23	9.20 22
1979	6.90 29	8.50 39	8.90 38	9.20 37	9.50 34	9.90 34	10.00 32	11.00 36	12.00 36
1980	4.80 12	4.90 10	5.50 13	6.10 14	6.80 16	7.70 17	8.10 17	8.70 21	9.40 23
1981	6.00 24	6.30 21	6.70 22	7.30 22	8.10 24	8.50 25	8.80 25	8.90 24	9.10 21
1982	5.00 17	5.30 14	5.70 14	5.80 13	6.20 13	6.50 13	6.60 13	6.80 12	7.10 11
1983	5.60 21	6.40 24	8.50 36	9.40 39	9.90 37	10.00 35	11.00 37	11.00 37	12.00 37

Table 15.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1984	8.00 37	8.00 35	8.10 32	8.80 34	10.00 38	10.00 36	11.00 38	11.00 38	12.00 38
1985	6.00 25	6.30 22	7.10 24	7.90 26	8.50 27	9.20 30	9.60 30	10.00 31	11.00 34
1986	7.50 34	7.70 32	7.80 30	8.10 28	8.60 28	9.00 28	9.40 29	9.80 29	10.00 30
1987	8.00 38	8.30 37	8.40 33	8.70 33	9.10 31	9.70 32	10.00 33	11.00 32	11.00 31
1988	8.00 39	8.20 36	8.40 34	8.50 31	8.60 29	8.80 27	9.10 27	9.30 27	9.90 28

[1]Low-flow water year is April 1 to March 31.

Table 16.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1949	28.00 19	20.00 27	16.00 32	15.00 30	14.00 31	13.00 29	13.00 25	12.00 28	10.00 30
1950	46.00 8	37.00 8	29.00 9	25.00 10	20.00 16	18.00 15	15.00 20	13.00 24	11.00 27
1951	22.00 28	18.00 33	14.00 36	14.00 33	13.00 32	12.00 33	12.00 30	11.00 33	10.00 31
1952	232.00 1	119.00 1	73.00 1	49.00 2	34.00 3	25.00 4	21.00 5	18.00 5	15.00 10
1953	20.00 33	19.00 30	18.00 28	17.00 26	17.00 21	15.00 23	13.00 26	12.00 29	11.00 28
1954	17.00 36	16.00 36	15.00 33	14.00 34	12.00 35	11.00 34	9.90 37	9.30 36	8.70 36
1955	40.00 10	34.00 11	27.00 11	24.00 11	20.00 17	15.00 24	14.00 21	12.00 30	11.00 29
1956	22.00 29	18.00 34	15.00 34	14.00 35	13.00 33	13.00 30	12.00 31	11.00 31	9.20 34
1957	20.00 34	16.00 35	14.00 35	12.00 36	11.00 39	11.00 35	10.00 35	9.80 34	8.80 35
1958	14.00 38	13.00 38	13.00 37	12.00 37	12.00 36	10.00 38	9.40 38	9.00 38	8.30 37
1959	16.00 37	14.00 37	13.00 38	12.00 38	12.00 37	11.00 36	9.90 36	9.30 37	8.10 38
1960	32.00 16	27.00 15	21.00 20	16.00 27	13.00 34	10.00 39	9.20 39	8.50 39	7.50 39
1961	9.40 40	8.00 40	7.80 40	7.40 40	7.10 40	6.70 40	6.40 40	6.10 40	5.70 40
1962	33.00 13	29.00 12	21.00 21	16.00 28	15.00 26	13.00 31	12.00 32	11.00 32	9.30 33
1963	52.00 7	44.00 5	38.00 6	32.00 6	28.00 6	21.00 8	19.00 8	18.00 6	15.00 11
1964	53.00 5	36.00 9	29.00 10	26.00 9	22.00 10	19.00 12	18.00 13	17.00 11	15.00 12
1965	89.00 3	69.00 3	51.00 3	43.00 3	38.00 1	35.00 1	31.00 1	28.00 1	24.00 1
1966	28.00 20	27.00 16	25.00 14	23.00 13	22.00 11	20.00 9	19.00 9	17.00 12	16.00 5
1967	33.00 14	29.00 13	26.00 12	23.00 14	20.00 12	20.00 10	19.00 10	18.00 7	16.00 6
1968	22.00 30	19.00 31	17.00 29	15.00 31	15.00 27	14.00 28	13.00 27	13.00 25	12.00 24
1969	32.00 15	25.00 17	23.00 16	19.00 19	17.00 22	15.00 25	14.00 22	14.00 20	13.00 17
1970	56.00 4	43.00 6	39.00 5	34.00 5	31.00 5	24.00 5	20.00 6	18.00 8	16.00 7
1971	40.00 11	36.00 10	34.00 7	31.00 7	26.00 7	22.00 6	19.00 7	17.00 9	15.00 8
1972	24.00 25	22.00 25	19.00 24	18.00 21	17.00 23	16.00 18	16.00 15	15.00 16	14.00 13
1973	26.00 23	24.00 21	23.00 17	21.00 16	20.00 13	18.00 13	17.00 14	16.00 13	14.00 14
1974	20.00 31	20.00 28	17.00 30	15.00 32	14.00 28	14.00 26	13.00 28	12.00 26	11.00 25
1975	43.00 9	40.00 7	34.00 8	28.00 8	25.00 8	20.00 11	18.00 11	16.00 14	13.00 18
1976	34.00 12	25.00 18	19.00 25	17.00 22	14.00 29	12.00 32	12.00 33	12.00 27	11.00 26
1977	23.00 27	23.00 24	21.00 22	20.00 17	19.00 18	17.00 16	15.00 16	14.00 17	13.00 19
1978	52.00 6	46.00 4	40.00 4	36.00 4	33.00 4	27.00 3	24.00 3	21.00 3	18.00 3
1979	24.00 26	24.00 22	22.00 18	19.00 20	17.00 19	16.00 19	15.00 17	15.00 15	14.00 15
1980	25.00 24	25.00 19	24.00 15	22.00 15	20.00 14	17.00 17	15.00 18	14.00 18	12.00 20

Table 16.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1981	13.00 39	12.00 39	11.00 39	11.00 39	11.00 38	11.00 37	10.00 34	9.80 35	9.50 32
1982	27.00 21	21.00 26	18.00 26	17.00 23	16.00 24	15.00 20	14.00 23	13.00 21	12.00 21
1983	29.00 18	27.00 14	25.00 13	24.00 12	24.00 9	22.00 7	21.00 4	20.00 4	18.00 4
1984	94.00 2	91.00 2	68.00 2	50.00 1	36.00 2	29.00 2	29.00 2	26.00 2	22.00 2
1985	20.00 32	18.00 32	16.00 31	16.00 29	14.00 30	14.00 27	13.00 29	13.00 22	12.00 22
1986	26.00 22	23.00 23	21.00 19	20.00 18	20.00 15	18.00 14	18.00 12	17.00 10	15.00 9
1987	19.00 35	19.00 29	18.00 27	17.00 24	17.00 20	15.00 21	15.00 19	14.00 19	13.00 16
1988	31.00 17	24.00 20	19.00 23	17.00 25	15.00 25	15.00 22	14.00 24	13.00 23	12.00 23

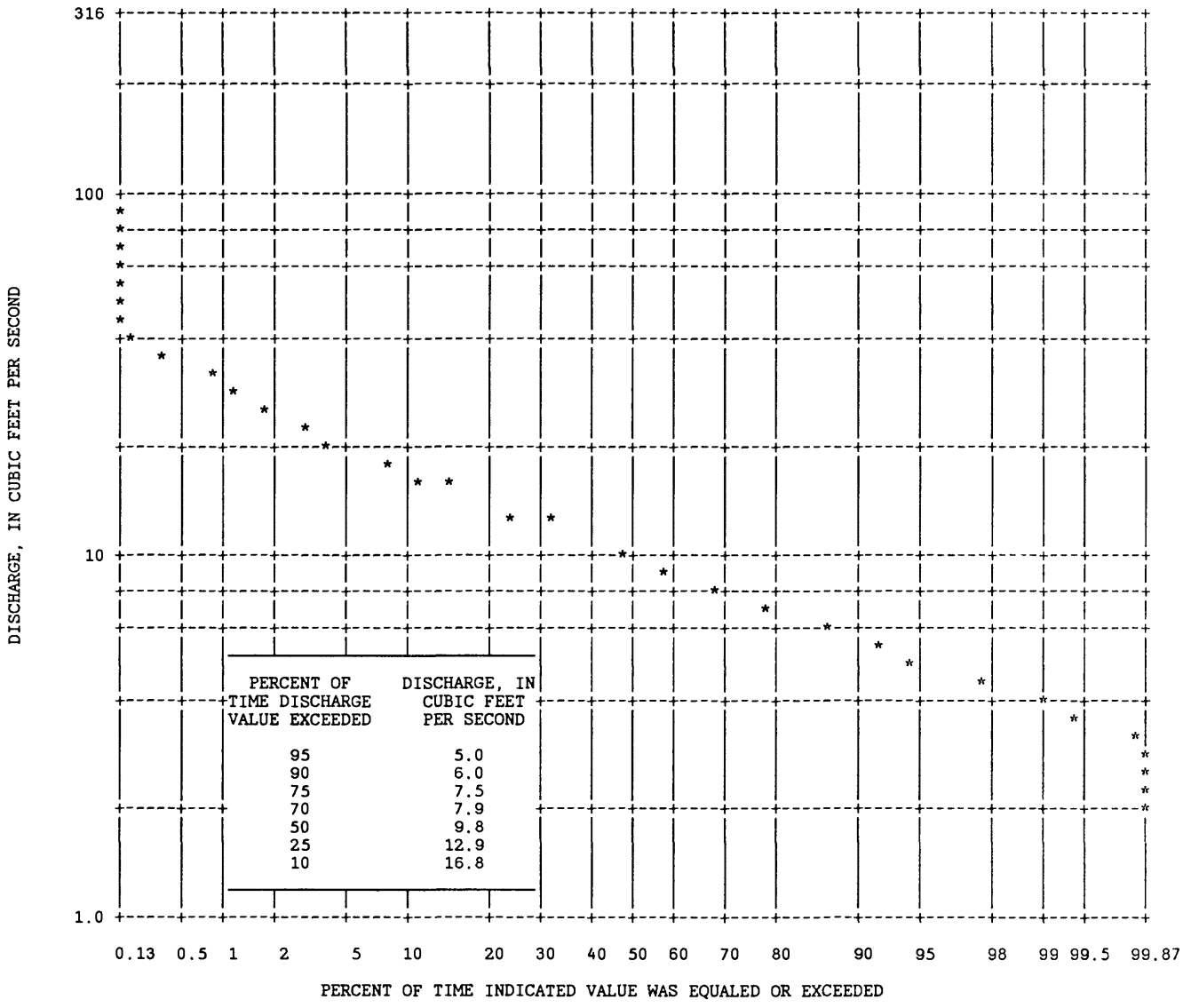

Figure 8.--Duration of daily discharge data for Castle Creek above Deerfield Reservoir, near Hill City, station 06409000 (water years 1949-88).

Table 17.--Peak-discharge and gage-height data for Castle Creek above Deerfield, near Hill City, station 06409000

[Blanks indicate no information]

Station locator
Latitude: 440049
Longitude: 1034948

Drainage area: 79.20 square miles
Gage datum: 5,910.00 feet
Base discharge: 100.00 cubic feet per second

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1949	06/02/49	48.00		2.56	2
1950	04/14/50	108.00		3.38	
	04/07/50	100.00		3.28	
1951	04/06/51	55.00		2.64	2
1952	05/22/52	1,120.00		5.81	
1953	08/15/53	37.00		2.42	2
1954	05/23/54	27.00		2.18	2
1955	04/16/55	58.00		2.87	2
1956	05/28/56	32.00		2.30	2
1957	08/27/57	40.00		2.49	2
1958	07/18/58	20.00		2.04	2
1959	04/16/59	20.00		2.13	2
1960	03/28/60	68.00		2.96	2
1961	06/13/61	25.00		2.24	2
1962	04/15/62	92.00		3.21	
1963	06/05/63	124.00		3.53	2
1964	06/09/64	114.00		3.52	2
1965	06/17/65	906.00		5.67	
	05/14/65	123.00		3.56	
1966	03/31/66	83.00		3.16	2
1967	03/29/67	74.00		3.05	2
1968	07/17/68	32.00		2.45	2
1969	07/17/69	82.00		3.20	2
1970	04/27/70	95.00		3.28	2
1971	04/17/71	70.00		3.08	2
1972	05/10/72	34.00		2.44	2
1973	05/05/73	40.00		2.56	2
1974	03/28/74	37.00			
1975	04/23/75	102.00			
1976	06/15/76	52.00		2.78	2
1977	04/17/77	27.00		2.29	2
1978	05/18/78	64.00		2.88	2
1979	04/17/79	30.00		2.25	2
1980	08/20/80	28.00		2.26	
1981	07/25/81	20.00		2.08	
1982	08/04/82	148.00		3.65	
1983	08/03/83	87.00		5.84	
1984	07/16/84	122.00		6.31	
1985	03/25/85	34.00		5.53	2
1986	04/15/86	34.00		3.01	2
1987	03/07/87	31.00		3.04	2
1988	04/07/88	57.00		3.34	2

[1]See page 14 for explanation of discharge and gage-height codes.

Castle Creek below Deerfield Dam, station 06410000

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follows

Table 18.--Mean discharge, in cubic feet per second, for Castle Creek below Deerfield Dam, station 06410000

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	0.63	0.33	[2]
1947	0.20	0.26	0.22	1.78	2.61	3.14	3.45	11.40	37.10	24.30	12.50	9.89	8.91
1948	3.81	2.58	2.72	3.05	3.06	8.29	23.40	15.50	8.37	12.00	9.42	8.00	8.36
1949	14.20	7.70	2.00	2.00	2.00	2.40	19.40	8.39	13.30	10.40	17.00	12.00	9.25
1950	10.20	4.74	1.90	1.90	1.98	2.07	16.40	21.20	13.90	28.90	9.42	12.50	10.50
1951	4.77	2.37	2.02	1.98	2.00	1.93	1.93	12.00	6.65	5.53	17.00	10.20	5.73
1952	3.28	2.50	2.50	2.50	2.46	4.62	16.50	33.00	15.80	20.20	21.80	20.00	12.10
1953	12.80	3.47	1.99	2.00	2.05	2.17	2.39	12.80	14.60	12.70	13.80	13.60	7.91
1954	8.07	2.21	2.16	2.21	2.22	5.22	11.10	19.10	17.40	38.50	28.90	17.50	13.00
1955	4.52	2.40	2.40	2.35	2.30	2.39	2.80	18.10	10.30	25.00	27.80	21.10	10.20
1956	3.53	2.24	2.06	2.43	3.03	3.05	2.79	6.40	25.30	30.60	24.60	10.00	9.71
1957	15.50	3.07	2.34	2.32	2.31	2.40	2.52	2.73	2.39	2.60	16.50	7.72	5.24
1958	1.85	2.00	2.06	2.04	2.12	2.17	2.21	13.90	21.30	14.00	23.00	25.10	9.33
1959	12.20	4.28	1.92	2.05	2.10	2.06	10.90	19.20	24.70	35.20	60.20	64.20	20.00
1960	2.85	0.02	1.25	1.62	1.72	1.56	1.59	1.59	3.08	6.25	4.92	4.87	2.62
1961	20.60	1.70	1.52	1.71	2.12	2.19	1.85	1.68	6.12	6.13	6.06	5.20	4.77
1962	2.39	2.00	2.09	1.93	1.77	1.79	1.79	7.49	2.39	2.13	3.78	4.37	2.84
1963	2.39	2.17	2.19	2.02	2.11	2.26	2.00	2.17	9.17	8.29	7.66	7.65	4.18
1964	2.37	2.38	2.18	2.34	2.32	2.17	13.20	21.20	26.50	18.40	22.20	23.90	11.60
1965	12.80	2.20	2.47	2.34	2.13	1.99	21.20	41.90	50.00	27.00	22.20	32.00	18.20
1966	40.00	2.58	2.46	2.81	4.48	15.30	24.20	23.90	15.40	12.60	15.30	47.80	17.30
1967	9.40	2.33	1.89	2.19	2.35	10.90	23.10	21.60	26.50	19.60	27.00	33.40	15.10
1968	4.93	2.71	2.55	1.93	1.75	12.00	15.90	14.30	15.00	11.00	10.40	26.60	9.92
1969	18.50	2.16	2.02	2.04	2.10	4.91	18.40	19.80	11.80	15.20	22.00	37.70	13.10
1970	2.21	1.89	1.92	2.06	2.21	2.35	18.30	36.10	17.40	11.50	25.70	28.40	12.50
1971	2.15	1.88	2.13	2.14	1.26	6.28	33.70	24.70	18.20	9.68	13.20	34.20	12.50
1972	33.60	2.03	1.98	2.36	2.25	14.10	15.70	13.30	14.00	6.75	15.90	33.90	13.00
1973	25.10	2.43	2.34	2.40	2.48	2.31	11.50	24.70	16.10	14.80	20.60	24.80	12.50
1974	16.50	2.36	2.30	2.32	2.50	2.48	13.90	17.00	12.30	8.22	12.60	10.10	8.59
1975	11.00	3.02	2.38	2.66	2.59	4.76	24.60	27.50	14.60	12.20	8.74	14.50	10.70
1976	10.70	2.55	2.41	2.32	2.67	9.45	16.70	14.80	15.00	12.40	8.91	15.70	9.47
1977	25.00	2.61	2.28	2.20	2.22	3.70	19.60	21.70	12.50	15.40	22.30	11.20	11.80
1978	2.70	2.23	2.17	3.48	8.78	12.30	19.00	46.80	32.70	18.60	19.00	23.50	16.00
1979	18.60	2.04	2.22	2.14	12.60	15.50	19.10	17.60	15.90	16.30	14.90	26.60	13.60
1980	26.30	2.57	2.56	2.50	2.53	4.00	18.20	19.70	14.60	8.95	9.25	21.40	11.10
1981	19.50	2.26	2.37	2.40	2.40	5.28	9.52	12.80	9.92	12.30	24.30	17.00	10.10

Table 18.--Mean discharge, in cubic feet per second, for Castle Creek below Deerfield Dam, station 06410000--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1982	6.40	2.03	2.20	2.33	2.72	4.72	44.10	45.40	47.20	81.10	72.70	58.00	30.90
1983	2.03	0.13	0.89	1.53	5.18	10.30	19.50	32.30	6.57	4.97	4.31	4.05	7.67
1984	[1]	[1]	[1]	[1]	[1]	2.11	5.63	15.70	20.50	15.80	14.20	12.00	[2]
1985	[1]	[1]	[1]	[1]	[1]	22.90	15.60	12.00	12.10	13.60	25.10	16.70	[2]
1986	[1]	[1]	[1]	[1]	[1]	10.40	22.70	20.30	14.30	9.79	11.00	22.50	[2]
1987	[1]	[1]	[1]	[1]	[1]	7.98	21.60	17.60	10.70	8.85	19.70	15.80	[2]
1988	[1]	[1]	[1]	[1]	[1]	3.47	19.80	19.50	10.90	16.70	16.30	13.70	[2]

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 19.--Statistics on mean discharge, in cubic feet per second, for Castle Creek below Deerfield Dam, station 06410000 (August 1946 through September 1983 and March through September, 1984 through 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	11.20	2.44	2.08	2.23	2.85	5.75	14.50	18.80	16.50	16.30	18.20	20.00	11.1
Variance	95.60	1.58	.22	.14	4.29	24.20	91.20	116.00	108.00	174.00	170.00	192.00	27.0
Standard deviation	9.78	1.26	.47	.38	2.07	4.92	9.55	10.80	10.40	13.20	13.00	13.90	5.19
Skewness	1.16	1.90	-2.25	1.08	3.77	1.61	.52	.81	1.60	3.15	2.47	1.36	1.48
Coefficient of variation	.88	.52	.23	.17	.73	.86	.66	.57	.63	.81	.72	.69	.47
Percent of annual discharge	8.54	1.86	1.59	1.70	2.18	4.40	11.10	14.40	12.60	12.50	13.90	15.30	[1].090

[1]Serial correlation for annual mean discharges.

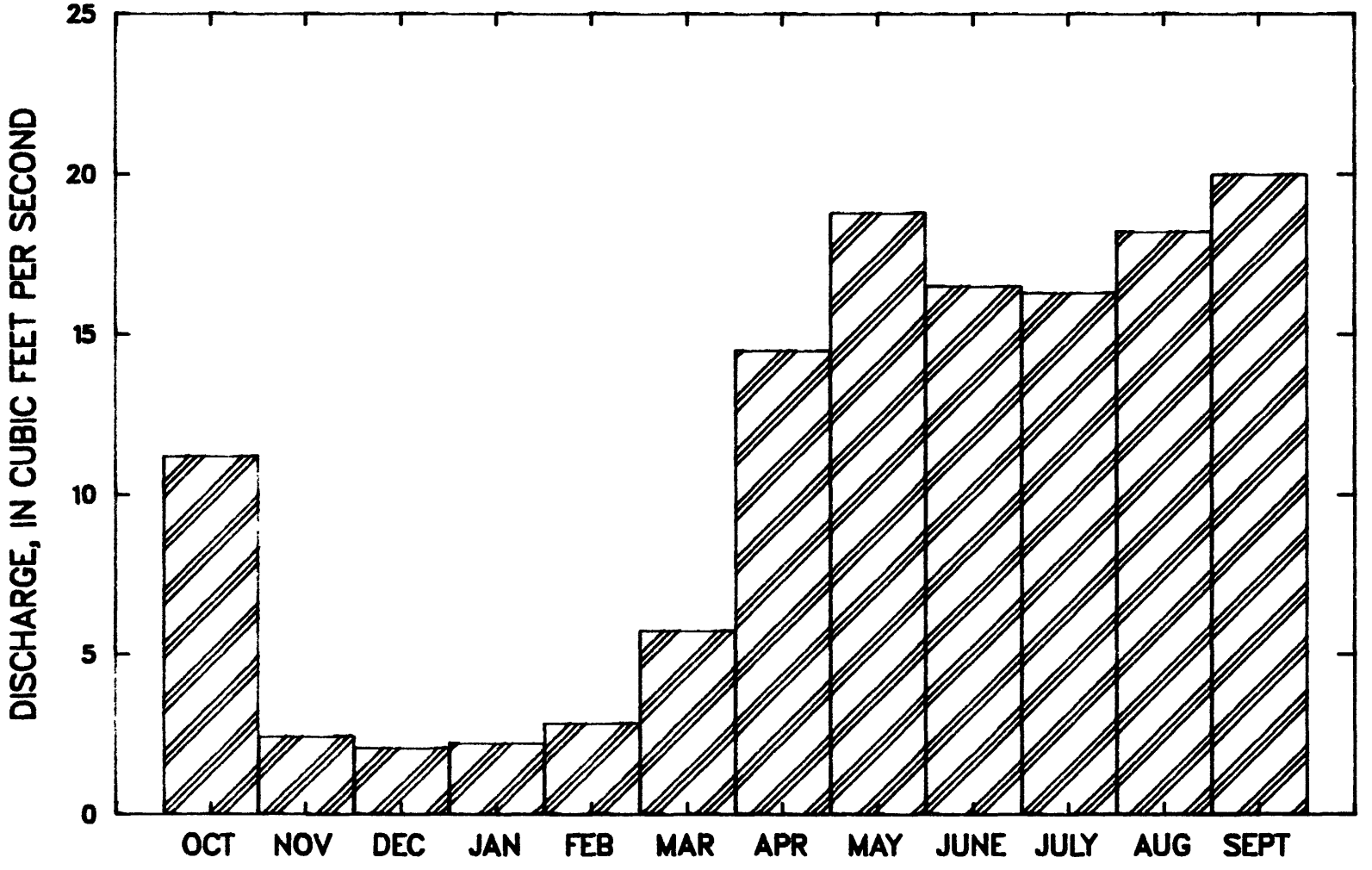

Figure 9.--Monthly mean discharge for Castle Creek below Deerfield, Dam station 06410000 (August 1946 through September 1983 and March through September, 1984 through 1988).

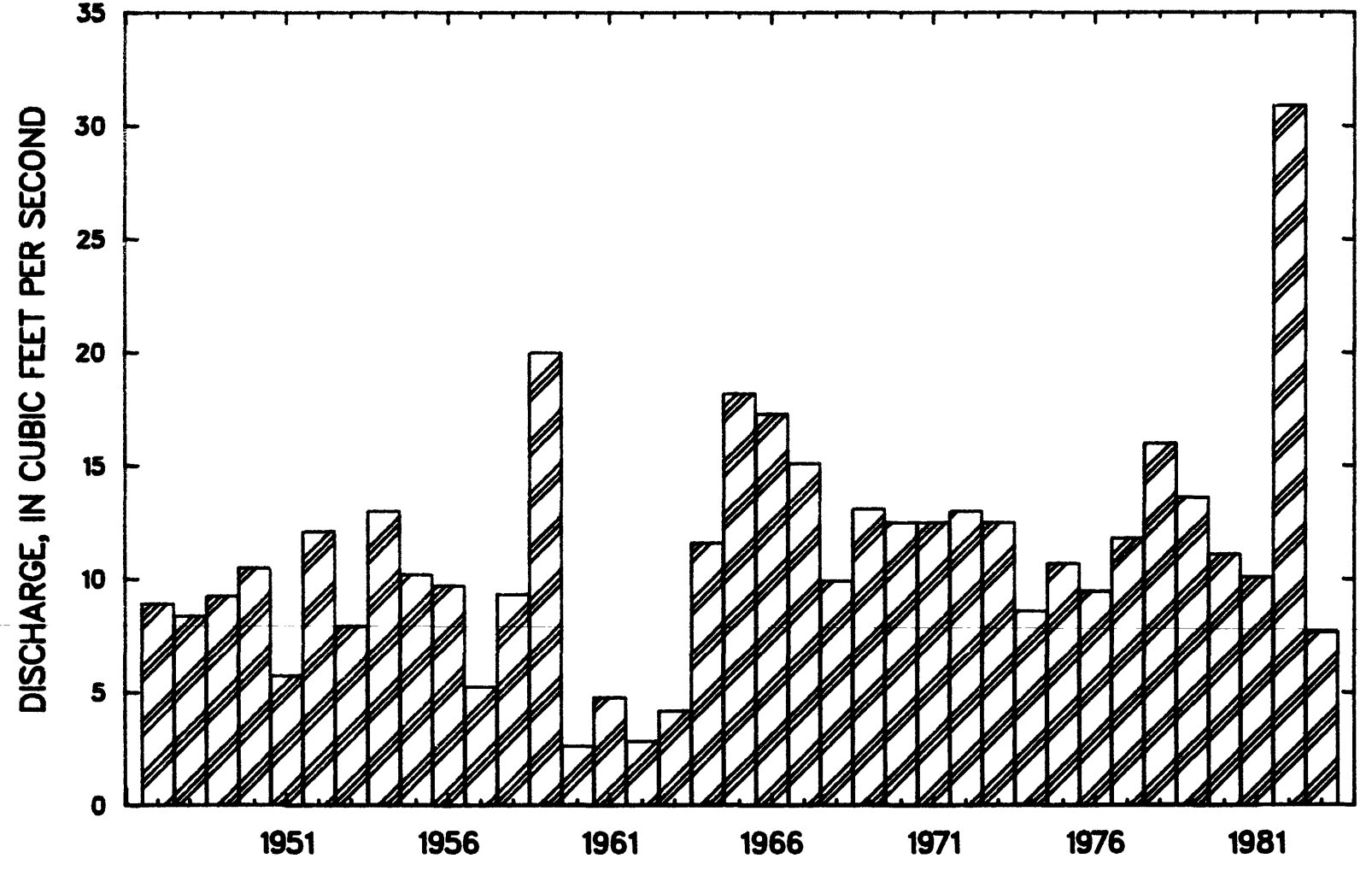

Figure 10.--Annual mean discharge for Castle Creek below Deerfield Dam, station 06410000 (water years 1947–83).

Table 20.--Correlation matrix for monthly mean discharge for Castle Creek below Deerfield Dam, station 06410000 (August 1946 through September 1983 and March through September, 1984 through 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.214	0.277	0.198	0.096	0.318	0.153	-0.065	-0.151	-0.156	-0.030	0.261
Nov.	*	1.000	0.401	0.145	-0.137	-0.148	0.124	-0.073	-0.045	0.060	0.159	0.121
Dec.	*	*	1.000	0.620	0.004	0.130	0.277	0.178	-0.056	0.030	0.130	0.226
Jan.	*	*	*	1.000	0.315	0.351	0.356	0.433	0.250	0.125	0.132	0.217
Feb.	*	*	*	*	1.000	0.613	0.183	0.276	0.115	0.019	-0.053	0.069
Mar.	*	*	*	*	*	1.000	0.398	0.140	-0.019	-0.099	-0.056	0.218
Apr.	*	*	*	*	*	*	1.000	0.686	0.378	0.384	0.321	0.523
May	*	*	*	*	*	*	*	1.000	0.611	0.471	0.405	0.504
June	*	*	*	*	*	*	*	*	1.000	0.705	0.558	0.542
July	*	*	*	*	*	*	*	*	*	1.000	0.817	0.545
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.741
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 21.--Serial correlation for 1-year lag for monthly mean discharge for Castle Creek below Deerfield Dam, station 06410000 (August 1946 through September 1983 and March through September, 1984 through 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.079	0.198	-0.061	0.051	0.402	0.210	0.372	0.234	-0.092	-0.119	-0.024	0.225

Table 22.--Percentile rankings for mean discharge, in cubic feet per second, for Castle Creek below Deerfield Dam, station 06410000 (August 1946 through September 1983 and March through September, 1984 through 1988)

Percentile	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	2.77	2.03	1.98	2.00	2.10	2.18	3.29	12.60	10.60	8.92	9.42	10.10	8.47
50th	9.40	2.33	2.17	2.20	2.30	3.58	16.10	17.80	14.60	12.70	16.30	16.69	10.50
75th	17.50	2.58	2.37	2.38	2.60	8.58	19.60	22.19	18.80	18.80	22.30	26.60	13.00

Table 23.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Castle Creek below Deerfield Dam, station 06410000

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1948	2.00 27	2.10 29	2.40 35	2.40 34	2.50 36	2.60 36	2.80 36	2.80 35	3.30 13
1949	.00 1	2.00 26	2.00 25	2.00 24	2.00 21	2.00 14	2.00 8	2.00 7	5.10 27
1950	1.90 21	1.90 20	1.90 16	1.90 16	1.90 11	1.90 8	1.90 6	2.00 8	3.90 17
1951	1.90 22	1.90 21	1.90 17	1.90 17	1.90 12	2.00 15	2.00 9	2.00 9	2.60 8
1952	1.90 23	1.90 22	1.90 18	1.90 18	1.90 13	2.50 33	2.50 33	2.50 32	2.90 11
1953	1.90 24	1.90 23	1.90 19	2.00 25	2.00 22	2.00 16	2.00 10	2.00 10	4.20 20
1954	2.00 25	2.00 24	2.00 26	2.00 26	2.10 26	2.20 24	2.20 21	2.20 17	3.80 16
1955	2.30 35	2.30 34	2.30 33	2.30 32	2.30 30	2.30 28	2.30 28	2.40 30	2.80 10
1956	1.80 15	1.80 14	1.90 20	1.90 19	2.00 23	2.10 17	2.20 22	2.30 25	2.70 9
1957	2.10 28	2.10 27	2.10 27	2.20 27	2.20 27	2.30 29	2.30 29	2.30 26	4.80 24
1958	1.80 16	1.80 15	1.80 11	1.80 9	1.80 7	1.90 9	2.00 11	2.00 11	2.00 3
1959	1.70 9	1.70 8	1.80 12	1.80 10	1.90 14	2.00 10	2.00 12	2.00 12	4.20 21
1960	.00 2	.00 1	.00 1	.00 1	.00 1	.13 1	.61 2	.88 1	1.50 1
1961	1.40 5	1.40 4	1.40 4	1.40 4	1.50 4	1.60 3	1.60 3	1.70 3	3.70 15
1962	1.60 6	1.60 5	1.70 5	1.70 5	1.70 5	1.70 5	1.80 4	1.90 5	2.00 2
1963	1.70 10	1.70 9	1.70 6	1.80 11	1.80 8	2.10 18	2.10 16	2.10 13	2.20 4
1964	1.90 17	1.90 16	1.90 21	1.90 20	1.90 15	2.10 19	2.20 23	2.20 18	2.30 6
1965	1.90 18	1.90 17	1.90 22	1.90 21	2.00 16	2.10 20	2.20 24	2.20 19	4.10 18
1966	2.10 29	2.30 35	2.30 34	2.40 35	2.40 33	2.50 34	2.60 35	2.70 34	12.00 36
1967	1.70 11	1.70 10	1.70 7	1.80 12	1.80 9	2.00 11	2.10 17	2.10 14	5.10 28
1968	1.70 12	1.70 11	1.70 8	1.70 6	1.70 6	1.80 6	2.10 18	2.20 20	4.40 22
1969	1.90 19	1.90 18	1.90 23	1.90 13	2.00 17	2.00 12	2.00 13	2.10 15	5.50 29
1970	1.70 13	1.80 12	1.80 13	1.80 7	1.90 10	1.90 7	1.90 7	2.00 6	2.20 5
1971	.67 4	.67 3	.67 3	.75 3	1.30 3	1.60 4	1.80 5	1.80 4	2.60 7
1972	1.80 14	1.80 13	1.90 14	1.90 14	2.00 18	2.00 13	2.10 14	2.20 16	9.50 35
1973	2.20 32	2.20 30	2.20 30	2.20 28	2.30 31	2.30 30	2.40 30	2.40 27	6.40 31
1974	2.00 26	2.00 25	2.00 24	2.00 22	2.10 24	2.20 25	2.30 25	2.30 21	4.90 25
1975	2.20 33	2.20 31	2.20 31	2.20 29	2.40 34	2.50 35	2.50 34	2.60 33	4.40 23
1976	2.20 34	2.20 32	2.30 32	2.30 33	2.30 32	2.40 31	2.40 31	2.40 28	5.10 26
1977	2.10 30	2.10 28	2.10 28	2.20 30	2.20 28	2.20 26	2.20 19	2.30 22	6.50 32
1978	1.60 7	1.60 6	1.70 9	2.00 23	2.10 25	2.10 21	2.30 26	2.30 23	4.20 19
1979	1.70 8	1.70 7	1.80 10	1.80 8	2.00 19	2.10 22	2.10 15	3.80 36	8.90 34
1980	2.40 36	2.50 36	2.50 36	2.50 36	2.50 35	2.50 32	2.50 32	2.50 31	6.80 33

Table 23.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Castle Creek below Deerfield Dam, station 06410000--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1981	2.20 31	2.20 33	2.20 29	2.20 31	2.30 29	2.30 27	2.30 27	2.40 29	5.90 30
1982	1.90 20	1.90 19	1.90 15	1.90 15	2.00 20	2.10 23	2.20 20	2.30 24	3.40 14
1983	.06 3	.10 2	.11 2	.12 2	.13 2	.43 2	.53 1	1.10 2	3.00 12

[1]Low-flow water year is April 1 to March 31.

Table 24.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Castle Creek below Deerfield Dam, station 06410000

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1947	145.00 2	140.00 1	104.00 2	76.00 3	50.00 5	32.00 8	26.00 9	23.00 8	16.00 22
1948	26.00 31	26.00 29	25.00 29	25.00 29	24.00 27	21.00 25	17.00 26	16.00 26	13.00 28
1949	40.00 20	40.00 20	40.00 17	31.00 25	19.00 29	15.00 30	14.00 31	14.00 30	13.00 29
1950	47.00 16	47.00 15	38.00 22	37.00 18	29.00 19	23.00 22	22.00 18	22.00 15	17.00 21
1951	22.00 34	22.00 34	21.00 34	17.00 34	17.00 33	14.00 32	11.00 32	11.00 32	8.90 32
1952	200.00 1	123.00 3	78.00 4	52.00 8	35.00 12	26.00 16	24.00 14	23.00 9	21.00 12
1953	30.00 28	25.00 32	22.00 33	20.00 32	17.00 34	15.00 31	15.00 29	15.00 29	12.00 30
1954	65.00 8	64.00 7	60.00 7	54.00 6	52.00 4	36.00 5	31.00 5	27.00 5	22.00 9
1955	57.00 13	51.00 12	44.00 13	36.00 19	32.00 17	27.00 15	25.00 10	21.00 16	18.00 15
1956	52.00 15	51.00 13	45.00 12	36.00 20	33.00 16	33.00 6	28.00 6	23.00 10	17.00 16
1957	24.00 33	24.00 33	24.00 30	23.00 30	18.00 30	12.00 33	9.10 33	7.40 34	5.80 34
1958	34.00 26	34.00 25	34.00 25	33.00 23	26.00 26	24.00 18	21.00 19	21.00 17	17.00 17
1959	125.00 3	124.00 2	120.00 1	98.00 1	64.00 2	62.00 2	54.00 2	47.00 2	36.00 2
1960	13.00 36	9.90 37	7.10 37	6.50 37	6.40 37	5.90 36	5.50 36	4.80 36	3.70 37
1961	60.00 11	59.00 9	59.00 8	38.00 16	21.00 28	11.00 34	8.20 35	6.50 35	5.00 35
1962	10.00 37	10.00 36	9.90 36	9.60 36	7.70 36	5.00 37	4.10 37	4.00 37	3.70 36
1963	14.00 35	14.00 35	14.00 35	13.00 35	12.00 35	9.80 35	9.00 34	8.30 33	6.20 33
1964	64.00 9	46.00 16	35.00 24	32.00 24	29.00 18	24.00 19	23.00 15	23.00 11	21.00 10
1965	90.00 4	73.00 6	66.00 5	59.00 4	53.00 3	48.00 3	40.00 3	36.00 3	32.00 3
1966	55.00 14	55.00 10	54.00 10	52.00 7	48.00 7	32.00 7	25.00 11	23.00 12	23.00 7
1967	59.00 12	48.00 14	38.00 23	35.00 21	34.00 15	30.00 10	27.00 7	27.00 6	25.00 5
1968	39.00 24	39.00 24	39.00 21	38.00 17	27.00 23	19.00 26	16.00 27	16.00 27	15.00 23
1969	40.00 21	40.00 21	40.00 18	40.00 11	38.00 9	30.00 11	25.00 12	22.00 13	21.00 11
1970	74.00 7	63.00 8	58.00 9	50.00 9	43.00 8	30.00 12	25.00 13	23.00 7	23.00 6
1971	61.00 10	54.00 11	49.00 11	44.00 10	37.00 10	31.00 9	26.00 8	22.00 14	22.00 8
1972	40.00 22	40.00 22	40.00 19	39.00 12	35.00 13	25.00 17	19.00 22	18.00 23	17.00 18
1973	40.00 23	40.00 23	40.00 20	39.00 13	28.00 20	23.00 20	20.00 20	19.00 20	19.00 13
1974	26.00 32	26.00 30	24.00 31	22.00 31	18.00 31	16.00 28	15.00 30	13.00 31	12.00 31
1975	46.00 17	44.00 17	43.00 14	38.00 14	34.00 14	27.00 13	23.00 16	20.00 18	17.00 19
1976	28.00 30	25.00 31	22.00 32	19.00 33	17.00 32	16.00 29	16.00 28	15.00 28	14.00 26
1977	42.00 18	42.00 18	42.00 15	35.00 22	26.00 24	22.00 23	18.00 23	19.00 19	17.00 20
1978	83.00 6	75.00 5	65.00 6	56.00 5	49.00 6	41.00 4	34.00 4	30.00 4	27.00 4
1979	37.00 25	31.00 26	29.00 26	28.00 26	27.00 21	21.00 24	19.00 21	18.00 21	18.00 14

Table 24.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Castle Creek below Deerfield Dam, station 06410000--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1980	30.00 29	29.00 28	28.00 28	28.00 27	27.00 22	19.00 27	18.00 24	16.00 24	15.00 24
1981	33.00 27	30.00 27	29.00 27	27.00 28	26.00 25	23.00 21	18.00 25	16.00 25	14.00 25
1982	86.00 5	85.00 4	84.00 3	83.00 2	82.00 1	77.00 1	75.00 1	68.00 1	58.00 1
1983	41.00 19	41.00 19	40.00 16	38.00 15	36.00 11	27.00 14	22.00 17	18.00 22	13.00 27

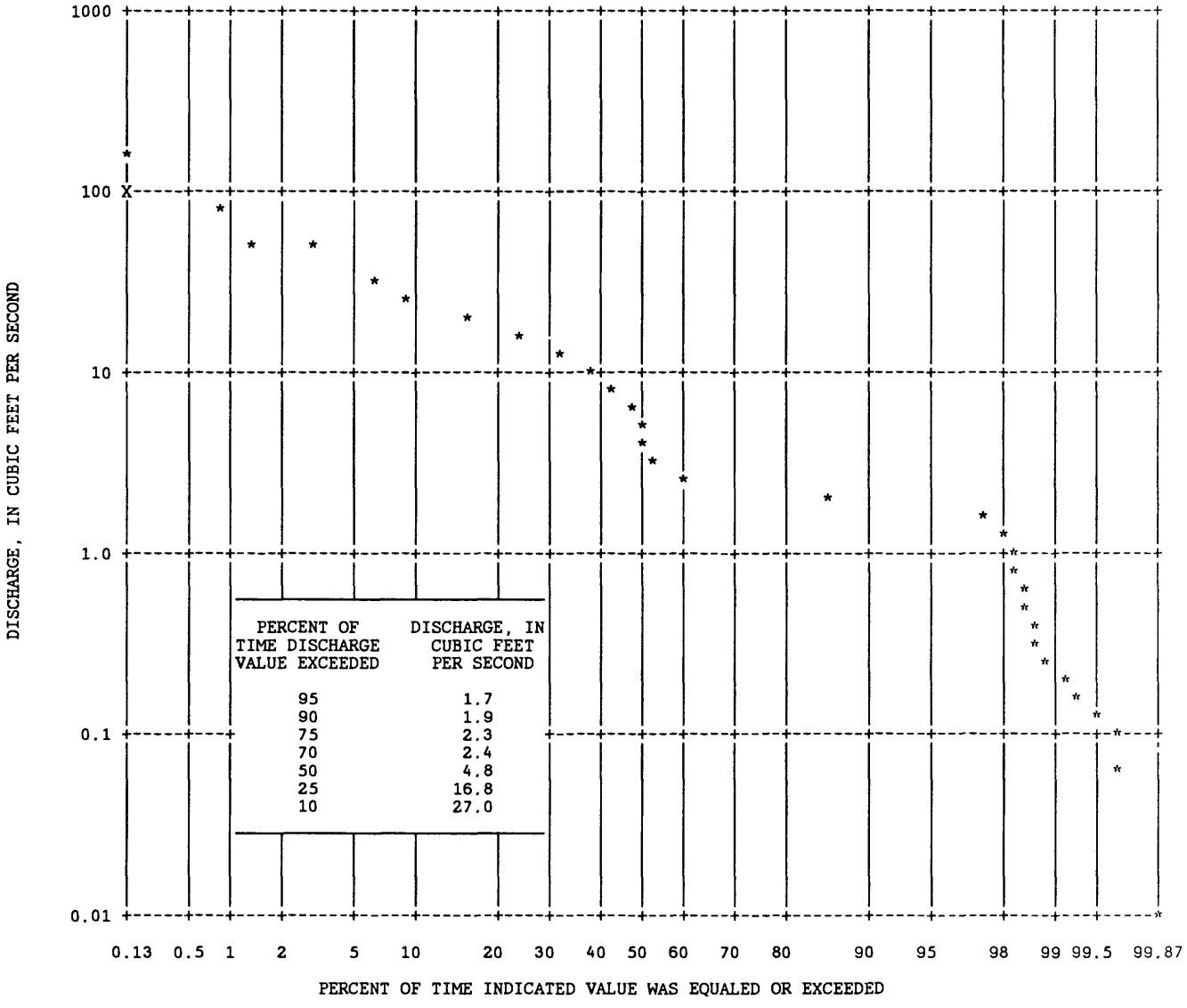

Figure 11.--Duration of daily discharge data for Castle Creek below Deerfield Dam, station 06410000 (water years 1947-83).

Table 25.--Peak-discharge and gage-height data for Castle Creek below Deerfield Dam, station 06410000

[Blanks indicate no information]

Station locator
Latitude: 440145
Longitude: 1034653

Drainage area: 96.00 square miles

Gage datum: 5,784.52 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1947	06/24/47	151.00	6		
1948	06/30/48	67.00	6		
1949	04/05/49	41.00	6		
1950	04/15/50	47.00	6		
1951	05/14/51	22.00	6		
1952	05/22/52	200.00	6		
1953	05/22/53	30.00	6		
1954	07/18/54	65.00	6		
1955	07/09/55	60.00	6		
1956	08/03/56	53.00	6		
1957	08/08/57	42.00	6		
1958	05/15/58	69.00	6		
1959	09/22/59	128.00	6		
1960	10/07/59	31.00	6		
1961	07/07/61	90.00	6		
1962	05/24/62	11.00	6		
1963	06/14/63	14.00	6		
1964	06/09/64	64.00	1, 6		
1965	05/15/65	90.00	1, 6		
1966	10/23/65	55.00	1, 6		
1967	06/16/67	59.00	1, 6		
1968	09/24/68	39.00	1, 6		
1969	09/16/69	40.00	1, 6		
1970	05/08/70	74.00	1, 6		
1971	04/20/71	61.00	1, 6		
1972	09/26/72	40.00	1, 6		
1973	10/01/72	40.00	1, 6		
1974	10/02/73	26.00	1, 6		
1975	04/25/75	46.00	1, 6		
1976	04/07/76	28.00	1, 6		
1977	10/15/76	42.00	1, 6		
1978	05/18/78	83.00	1, 6		
1979	02/09/79	66.00	6	4.36	
1980	09/08/80	43.00	6	3.91	
1981	07/31/81	60.00	6	4.34	
1982	08/04/82	94.00	6	4.83	2
1983	05/08/83	41.00	1, 6	3.67	
1984	06/16/84	44.00	1, 6	3.85	
1985	07/25/85	35.00	6	4.44	
1986	09/21/86	26.00	6	3.98	
1987	04/10/87	34.00	6	3.86	
1988	05/18/88	26.00	6	3.80	2

[1]See page 14 for explanation of discharge and gage-height codes.

Rapid Creek above Pactola Reservoir, at Silver City, station 06410500

page 55
follows

Table 26.--Mean discharge, in cubic feet per second, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1954	22.40	17.70	16.50	17.20	18.90	24.40	37.10	40.20	33.60	44.80	40.10	24.60	28.20
1955	15.20	13.70	13.30	12.20	12.80	18.10	60.40	57.60	50.60	55.50	43.80	33.70	32.30
1956	17.90	14.10	12.60	14.30	13.30	36.20	30.00	42.10	48.10	41.40	37.10	17.70	27.10
1957	26.30	19.00	14.30	11.40	13.60	19.20	31.40	62.10	73.10	34.50	38.70	22.30	30.60
1958	17.20	16.00	14.70	12.30	15.80	20.40	29.10	37.80	51.10	40.60	34.70	33.40	26.90
1959	24.90	17.80	13.20	13.40	16.60	23.00	45.70	47.40	45.00	50.50	63.70	68.60	35.90
1960	17.70	12.10	12.50	10.20	10.40	26.40	28.60	25.30	27.60	18.00	14.20	12.50	18.00
1961	30.50	12.40	12.50	11.20	13.50	17.30	16.50	14.50	14.70	15.20	11.50	10.50	15.10
1962	10.20	10.30	7.77	8.61	13.20	12.10	19.20	67.40	174.00	63.40	39.70	23.00	37.40
1963	20.40	15.70	13.50	9.94	11.20	29.30	67.60	105.00	266.00	82.50	39.10	35.30	58.00
1964	22.60	21.80	17.70	20.00	21.10	22.30	64.90	95.30	171.00	93.10	62.50	54.00	55.50
1965	39.60	25.00	24.30	25.00	26.10	22.60	61.60	274.00	291.00	156.00	80.10	71.40	91.70
1966	73.50	29.90	23.20	20.50	26.10	57.30	69.40	58.00	38.60	31.30	32.00	57.40	43.20
1967	29.60	21.00	17.20	19.50	18.80	42.10	53.80	70.80	188.00	111.00	59.90	61.90	57.80
1968	30.00	23.50	19.80	21.80	22.60	31.80	41.40	40.10	49.10	38.00	29.30	40.40	32.30
1969	33.20	16.30	16.20	18.50	18.30	25.70	59.90	67.10	40.70	47.50	39.40	54.40	36.50
1970	20.00	17.90	15.20	17.30	19.70	21.70	116.00	169.00	103.00	47.10	47.50	45.50	53.40
1971	19.10	16.60	14.10	16.20	22.30	30.40	172.00	151.00	119.00	44.50	33.80	53.50	57.70
1972	55.20	27.20	18.10	16.10	20.00	50.70	48.40	58.70	89.30	60.30	51.60	52.00	45.70
1973	45.50	20.80	18.20	18.90	18.30	24.50	75.80	110.00	67.00	41.70	42.00	43.50	44.00
1974	33.80	22.30	20.50	13.20	12.40	15.00	39.60	37.90	25.70	21.60	23.30	20.60	23.90
1975	21.20	15.90	13.60	9.81	8.91	14.50	89.40	119.00	76.60	44.10	24.50	25.60	38.70
1976	24.70	18.00	19.20	15.00	16.50	28.60	48.90	48.80	137.00	60.80	33.50	32.60	40.20
1977	39.10	18.70	15.80	14.30	23.00	28.10	113.00	96.00	41.10	32.40	40.00	26.20	40.70
1978	23.40	18.00	21.70	18.30	19.50	37.00	56.00	258.00	100.00	57.60	48.10	41.80	58.70
1979	38.50	22.70	19.90	15.00	34.40	44.80	53.20	46.10	47.10	53.40	46.80	46.90	39.10
1980	40.60	22.60	10.70	13.60	15.80	21.90	56.60	55.50	39.30	21.10	19.60	30.30	28.90
1981	34.30	13.50	12.30	10.30	9.61	13.60	21.90	41.40	24.50	28.10	38.80	30.90	23.40
1982	20.20	11.00	9.82	9.11	10.40	14.50	54.60	103.00	103.00	111.00	101.00	73.70	52.10
1983	35.90	34.20	20.30	21.50	25.90	38.80	84.50	162.00	87.50	42.70	36.20	25.00	51.30
1984	25.10	21.90	12.60	21.10	22.50	28.40	55.40	140.00	122.00	65.20	53.90	33.60	50.10
1985	34.20	23.70	18.80	18.70	20.70	35.50	51.40	33.20	25.50	22.90	33.70	27.40	28.80
1986	24.90	16.90	14.90	10.30	14.90	41.00	61.00	78.20	54.70	35.70	27.40	45.00	35.50
1987	57.40	36.60	20.70	18.60	22.40	46.30	73.10	62.70	35.30	22.80	31.00	23.70	37.60
1988	31.90	21.20	9.74	8.65	14.20	21.50	46.30	52.40	27.10	28.60	26.90	20.70	25.80

Table 27.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (October 1953 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	30.20	19.60	15.90	15.20	17.80	28.10	58.10	83.60	82.50	50.40	40.70	37.70	40.1
Variance	171.00	36.00	16.10	19.60	32.00	126.00	921.00	3,600.00	4,468.00	890.00	309.00	280.00	225.00
Standard deviation	13.10	6.00	4.01	4.43	5.66	11.20	30.30	60.00	66.80	29.80	17.60	16.70	15.0
Skewness	1.40	.99	.16	.21	.64	.77	1.80	1.80	1.69	1.80	1.41	.54	1.13
Coefficient of of variation	.43	.31	.25	.29	.32	.40	.52	.72	.81	.59	.43	.44	.37
Percent of annual discharge	6.29	4.08	3.31	3.17	3.71	5.86	12.10	17.40	17.20	10.50	8.49	7.86	[1].376

[1]Serial correlation for annual mean discharges.

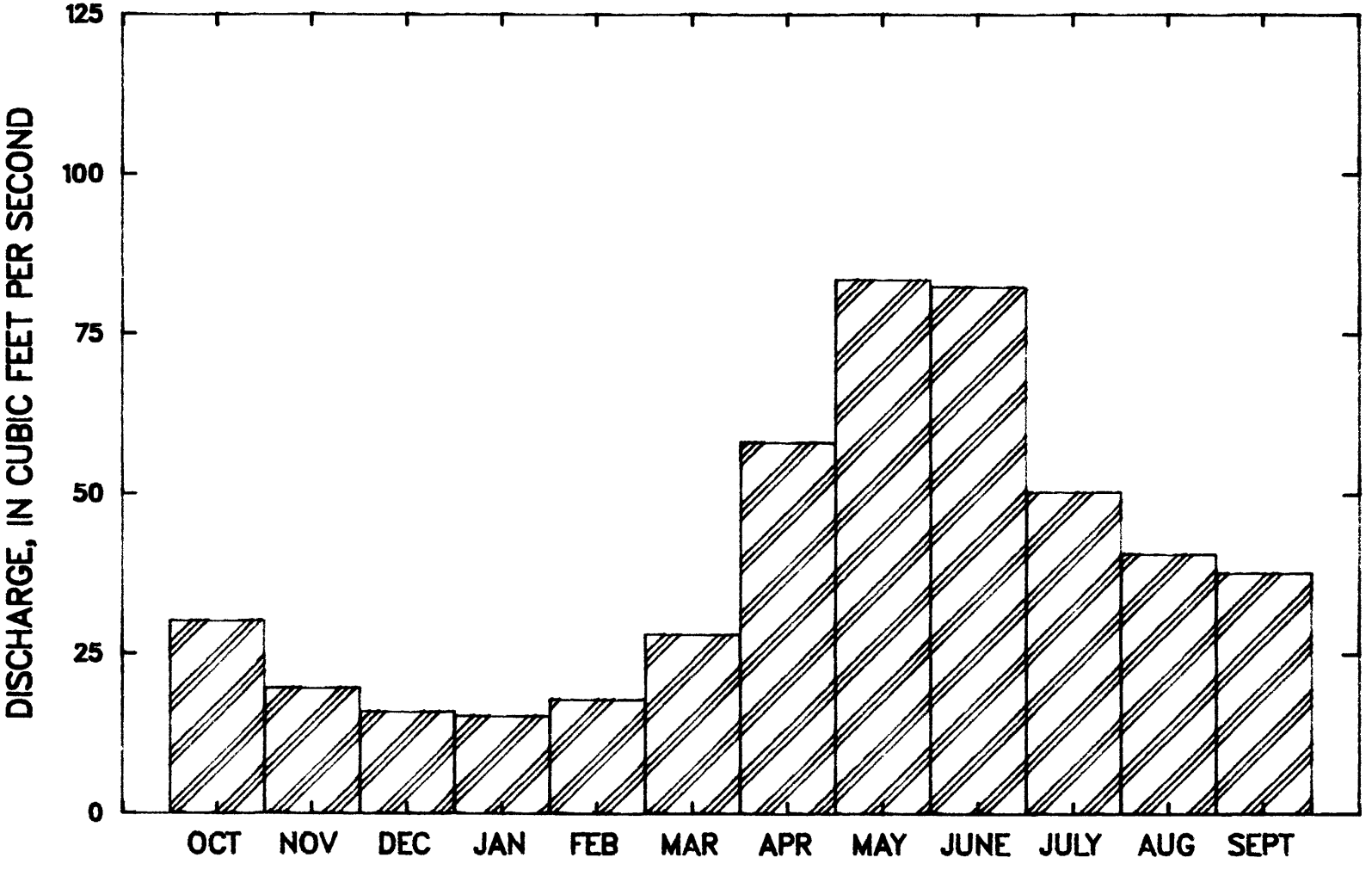

Figure 12.--Monthly mean discharge for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (October 1953 through September 1988).

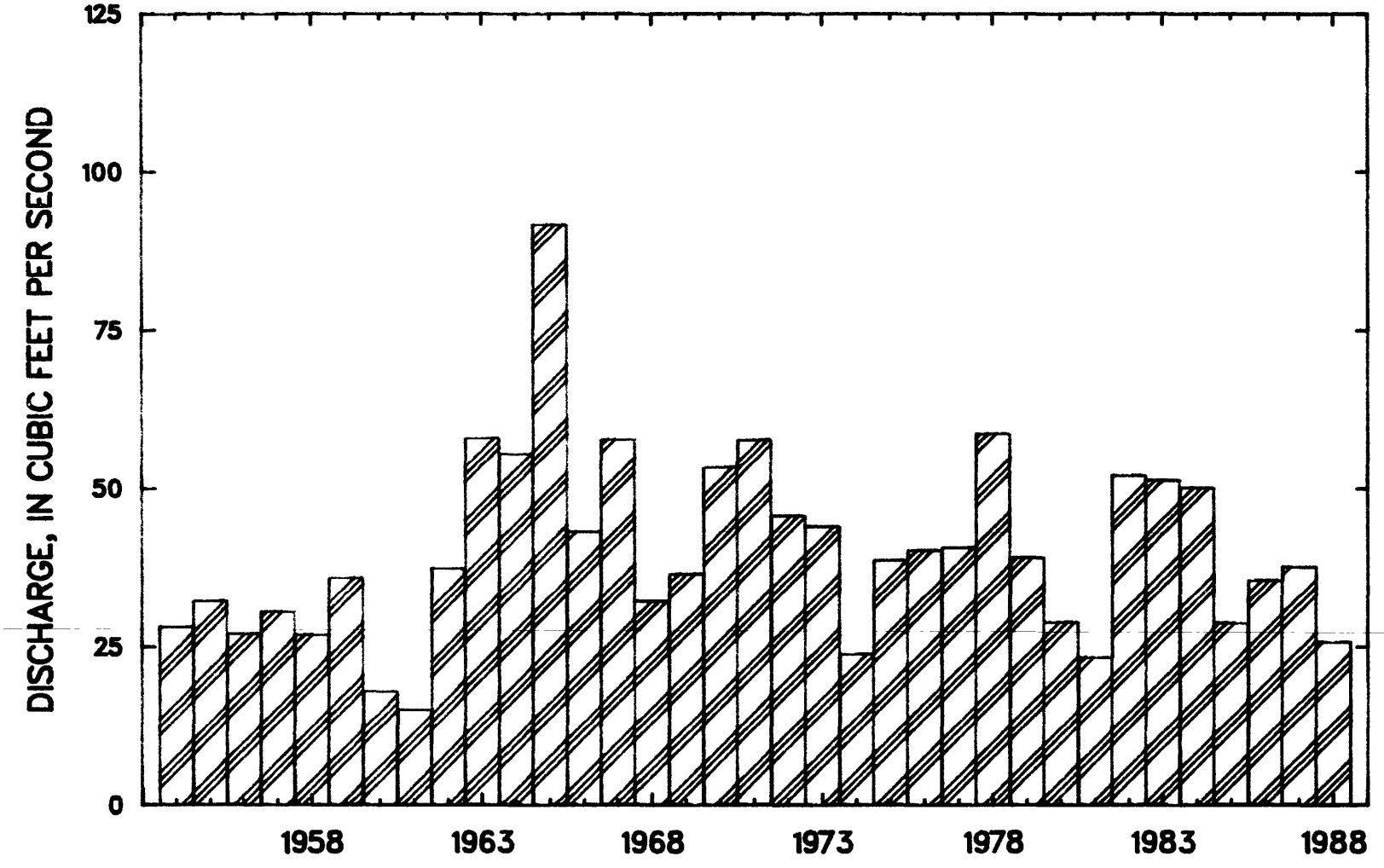

Figure 13.--Annual mean discharge for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (water years 1954–88).

Table 28.--Correlation matrix for monthly mean discharge for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (October 1953 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.755	0.574	0.434	0.498	0.608	0.094	-0.049	-0.211	-0.161	-0.079	0.172
Nov.	*	1.000	0.690	0.660	0.666	0.638	0.221	0.159	-0.020	-0.043	-0.028	0.103
Dec.	*	*	1.000	0.757	0.667	0.574	0.174	0.329	0.122	0.163	0.081	0.277
Jan.	*	*	*	1.000	0.756	0.475	0.276	0.442	0.240	0.305	0.256	0.380
Feb.	*	*	*	*	1.000	0.622	0.362	0.305	0.101	0.164	0.190	0.347
Mar.	*	*	*	*	*	1.000	0.186	0.023	-0.038	-0.045	-0.050	0.214
Apr.	*	*	*	*	*	*	1.000	0.499	0.182	0.071	0.080	0.298
May	*	*	*	*	*	*	*	1.000	0.593	0.550	0.448	0.393
June	*	*	*	*	*	*	*	*	1.000	0.847	0.519	0.429
July	*	*	*	*	*	*	*	*	*	1.000	0.829	0.681
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.767
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 29.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (October 1953 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.184	0.179	0.233	0.420	0.307	0.254	0.266	0.087	0.290	0.097	0.020	0.290

Table 30.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (October 1953 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	20.40	15.90	12.60	11.20	13.30	20.40	39.60	42.10	39.60	31.30	31.00	24.60	28.80
50th	26.30	18.00	15.20	15.00	18.30	25.70	54.60	62.10	51.10	44.10	38.80	33.60	37.60
75th	35.90	22.60	19.19	18.69	22.30	36.20	67.60	105.00	103.00	60.30	47.50	52.00	51.30

Table 31.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1955	9.00 20	9.30 18	11.00 21	12.00 20	12.00 15	12.00 9	13.00 12	13.00 9	14.00 3
1956	6.00 5	7.00 6	10.00 16	11.00 15	12.00 16	13.00 15	13.00 13	13.00 10	16.00 9
1957	10.00 21	10.00 20	10.00 17	11.00 16	11.00 12	12.00 10	13.00 14	14.00 11	17.00 11
1958	8.00 16	8.00 12	8.30 10	8.80 9	9.00 6	12.00 11	13.00 15	14.00 12	16.00 10
1959	10.00 22	10.00 21	10.00 18	11.00 17	13.00 17	13.00 16	14.00 16	15.00 14	18.00 12
1960	7.00 10	7.00 7	7.60 6	8.50 5	10.00 10	10.00 6	11.00 5	11.00 4	15.00 6
1961	6.00 6	7.30 8	8.10 8	9.10 11	11.00 11	12.00 12	12.00 9	12.00 7	15.00 7
1962	4.00 2	4.70 2	5.40 2	6.60 2	7.70 1	8.10 1	8.80 1	9.10 1	9.70 1
1963	7.00 11	8.30 14	8.70 12	9.40 12	9.80 8	10.00 7	11.00 6	12.00 8	14.00 4
1964	12.00 33	13.00 31	14.00 29	15.00 28	17.00 29	19.00 30	20.00 30	20.00 27	21.00 22
1965	10.00 23	12.00 24	16.00 34	17.00 33	21.00 34	23.00 34	24.00 34	24.00 32	27.00 29
1966	10.00 24	12.00 25	14.00 30	16.00 31	19.00 32	21.00 33	23.00 33	25.00 33	39.00 34
1967	10.00 25	12.00 26	12.00 22	13.00 21	16.00 23	18.00 26	18.00 25	19.00 24	24.00 26
1968	10.00 26	13.00 32	14.00 31	15.00 29	16.00 24	19.00 31	21.00 31	22.00 30	25.00 27
1969	11.00 29	12.00 27	13.00 26	14.00 24	16.00 25	16.00 23	17.00 21	17.00 19	22.00 23
1970	8.00 17	10.00 22	11.00 19	13.00 22	14.00 21	15.00 20	16.00 20	17.00 20	19.00 15
1971	7.00 12	8.70 15	11.00 20	12.00 18	13.00 18	13.00 17	15.00 17	16.00 17	19.00 16
1972	10.00 27	10.00 23	12.00 23	14.00 23	16.00 26	16.00 21	18.00 22	20.00 28	31.00 32
1973	10.00 28	14.00 33	15.00 32	15.00 25	17.00 27	18.00 27	18.00 23	19.00 25	25.00 28
1974	7.00 13	7.70 10	9.30 13	9.90 13	12.00 13	12.00 13	13.00 10	15.00 15	20.00 17
1975	6.00 7	6.30 4	7.10 5	7.90 3	8.20 3	9.10 3	9.30 2	11.00 5	14.00 5
1976	8.00 18	8.70 16	10.00 14	12.00 19	13.00 19	15.00 18	16.00 18	17.00 18	20.00 18
1977	9.00 19	9.30 17	10.00 15	11.00 14	14.00 20	15.00 19	16.00 19	18.00 21	23.00 24
1978	13.00 34	14.00 34	15.00 33	17.00 32	18.00 30	19.00 28	19.00 26	19.00 22	20.00 19
1979	12.00 30	13.00 28	14.00 27	15.00 26	15.00 22	17.00 24	19.00 27	22.00 29	29.00 30
1980	7.00 8	7.70 11	8.30 9	8.90 10	9.90 9	12.00 14	13.00 11	15.00 16	21.00 20
1981	7.00 9	7.30 9	7.80 7	8.70 7	9.60 7	9.90 5	11.00 7	11.00 6	16.00 8
1982	7.50 14	8.20 13	8.40 11	8.70 8	8.90 5	9.20 4	9.60 3	10.00 2	13.00 2
1983	8.00 15	9.90 19	13.00 24	18.00 34	19.00 33	20.00 32	22.00 32	25.00 34	29.00 31
1984	5.00 3	5.50 3	6.20 3	8.60 6	12.00 14	16.00 22	18.00 24	19.00 23	21.00 21
1985	12.00 31	13.00 29	13.00 25	15.00 27	17.00 28	18.00 25	19.00 28	20.00 26	24.00 25
1986	2.50 1	2.80 1	3.60 1	5.90 1	8.20 4	11.00 8	11.00 8	14.00 13	18.00 13
1987	12.00 32	13.00 30	14.00 28	16.00 30	18.00 31	19.00 29	20.00 29	24.00 31	33.00 33
1988	6.00 4	6.70 5	7.00 4	7.90 4	8.00 2	8.50 2	9.60 4	11.00 3	18.00 14

[1]Low-flow water year is April 1 to March 31.

Table 32.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1954	88.00 27	79.00 28	72.00 26	63.00 27	62.00 24	45.00 31	44.00 29	41.00 29	37.00 29
1955	228.00 11	139.00 18	102.00 19	74.00 23	69.00 22	62.00 23	57.00 22	57.00 18	50.00 20
1956	120.00 21	117.00 20	97.00 21	68.00 24	58.00 26	50.00 27	46.00 26	44.00 26	40.00 26
1957	159.00 18	142.00 17	130.00 16	107.00 17	90.00 17	69.00 19	58.00 21	52.00 23	44.00 24
1958	88.00 28	81.00 26	71.00 27	62.00 28	55.00 29	48.00 28	44.00 27	42.00 28	38.00 27
1959	142.00 19	136.00 19	130.00 17	103.00 18	69.00 23	66.00 21	61.00 20	57.00 19	53.00 17
1960	100.00 24	81.00 27	64.00 30	47.00 34	38.00 34	32.00 34	31.00 34	29.00 34	23.00 34
1961	70.00 31	69.00 29	69.00 28	48.00 33	31.00 35	22.00 35	19.00 35	17.00 35	16.00 35
1962	370.00 8	340.00 8	304.00 6	229.00 7	181.00 8	133.00 9	107.00 11	88.00 11	64.00 11
1963	683.00 3	607.00 2	487.00 2	363.00 2	269.00 2	188.00 2	157.00 2	132.00 2	101.00 2
1964	485.00 5	395.00 6	305.00 5	232.00 6	188.00 7	140.00 7	123.00 7	107.00 8	90.00 7
1965	1330.00 1	810.00 1	536.00 1	439.00 1	347.00 1	307.00 1	247.00 1	203.00 1	156.00 1
1966	110.00 23	94.00 23	83.00 23	82.00 21	75.00 20	69.00 20	63.00 19	57.00 20	49.00 21
1967	559.00 4	462.00 3	373.00 3	288.00 4	208.00 5	150.00 6	125.00 6	108.00 7	91.00 6
1968	81.00 29	69.00 30	59.00 33	53.00 31	49.00 31	46.00 29	44.00 28	43.00 27	40.00 25
1969	130.00 20	109.00 21	94.00 22	83.00 20	71.00 21	64.00 22	56.00 23	54.00 22	52.00 18
1970	777.00 2	456.00 4	260.00 9	224.00 8	196.00 6	157.00 5	132.00 5	110.00 5	88.00 8
1971	286.00 9	271.00 9	264.00 8	244.00 5	211.00 4	175.00 4	149.00 3	124.00 3	96.00 3
1972	183.00 14	151.00 16	117.00 18	113.00 16	97.00 16	79.00 16	70.00 16	65.00 16	60.00 15
1973	160.00 17	157.00 15	151.00 15	138.00 15	128.00 14	103.00 14	86.00 13	75.00 13	63.00 12
1974	51.00 35	48.00 35	46.00 35	44.00 35	43.00 33	39.00 32	35.00 32	32.00 33	29.00 33
1975	180.00 15	174.00 13	164.00 14	149.00 13	139.00 13	108.00 12	97.00 12	83.00 12	63.00 13
1976	483.00 6	399.00 5	295.00 7	207.00 9	141.00 12	101.00 15	82.00 15	74.00 14	60.00 14
1977	179.00 16	171.00 14	166.00 13	158.00 12	142.00 11	106.00 13	84.00 14	71.00 15	59.00 16
1978	396.00 7	380.00 7	326.00 4	321.00 3	263.00 3	185.00 3	144.00 4	120.00 4	95.00 4
1979	88.00 25	83.00 25	76.00 25	64.00 25	56.00 27	51.00 25	50.00 25	50.00 24	49.00 22
1980	70.00 32	69.00 31	66.00 29	64.00 26	61.00 25	57.00 24	51.00 24	44.00 25	37.00 28
1981	78.00 30	69.00 32	59.00 34	51.00 32	45.00 32	39.00 33	33.00 33	34.00 32	31.00 32
1982	255.00 10	226.00 10	185.00 12	148.00 14	124.00 15	117.00 11	114.00 8	109.00 6	91.00 5
1983	222.00 12	216.00 11	207.00 10	189.00 10	169.00 9	136.00 8	113.00 9	96.00 10	75.00 10
1984	194.00 13	190.00 12	187.00 11	166.00 11	144.00 10	132.00 10	111.00 10	99.00 9	78.00 9

Table 32.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1985	66.00 34	64.00 34	60.00 32	58.00 30	55.00 28	46.00 30	41.00 31	37.00 31	35.00 30
1986	115.00 22	107.00 22	100.00 20	90.00 19	86.00 18	73.00 17	65.00 17	59.00 17	50.00 19
1987	88.00 26	85.00 24	82.00 24	81.00 22	76.00 19	69.00 18	63.00 18	55.00 21	45.00 23
1988	68.00 33	66.00 33	63.00 31	61.00 29	53.00 30	50.00 26	43.00 30	39.00 30	35.00 31

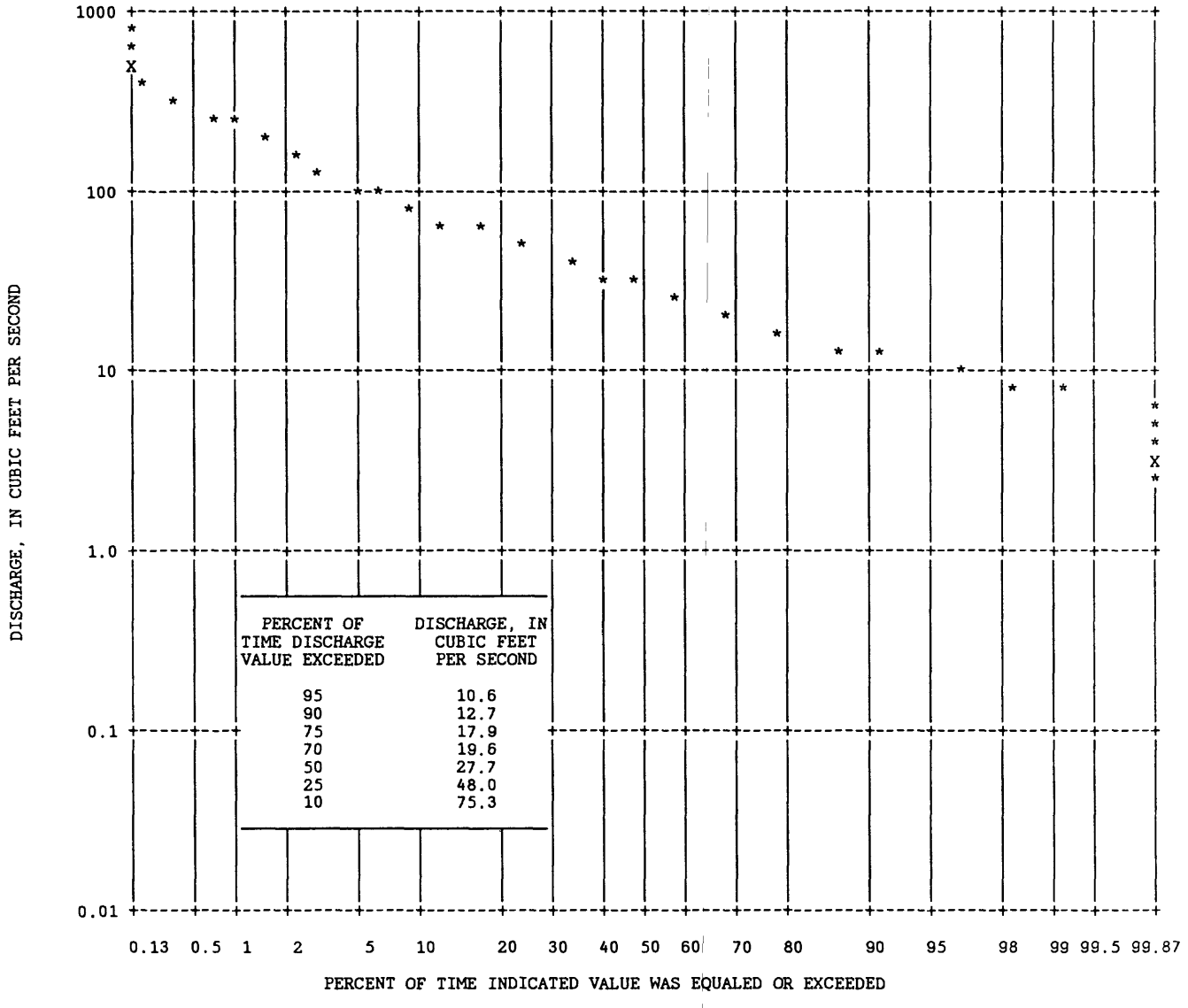

Figure 14.--Duration of daily discharge data for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500 (water years 1954-88).

Table 33.--Peak-discharge and gage-height data for Rapid Creek above Pactola Reservoir, at Silver City, station 06410500

[Blanks indicate no information]

Station locator
Latitude: 440505
Longitude: 1033448

Drainage area: 292.00 square miles

Gage datum: 4,620.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1954	05/23/54	106.00	6	5.64	
1955	07/28/55	1,520.00	6	8.90	
1956	03/24/56	175.00	6	6.85	2
1957	05/25/57	181.00	6	5.96	
1958	05/31/58	113.00	6	5.61	
1959	09/25/59	146.00	6	5.79	2
1960	03/23/60	117.00	6	6.14	2
1961	07/07/61	96.00	6	5.43	2
1962	06/15/62	390.00	6	6.62	
1963	06/16/63	715.00	6	7.37	
1964	06/09/64	635.00	6	7.16	
1965	05/15/65	2,060.00	6	10.44	
1966	03/16/66	150.00	6	5.64	2
1967	06/16/67	627.00	6	7.14	
1968	06/09/68	106.00	6	5.34	2
1969	07/20/69	213.00	6	5.79	
1970	04/19/70	995.00	6	7.98	
1971	04/25/71	305.00	6	6.01	
1972	07/06/72	252.00	6	5.85	2
1973	05/09/73	169.00	6	5.52	2
1974	04/30/74	54.00	6		
1975	04/26/75	219.00	6	5.63	2
1976	06/15/76	614.00	6	7.17	
1977	04/25/77	187.00	6	5.52	
1978	05/11/78	430.00	6	6.58	
1979	07/23/79	173.00	6	5.38	2
1980	05/11/80	75.00	6	4.80	2
1981	07/26/81	83.00	6	4.92	2
1982	05/20/82	332.00	6	6.35	
1983	05/09/83	262.00	6	6.00	
1984	08/03/84	198.00	6	5.69	2
1985	04/01/85	75.00	6	4.96	2
1986	05/09/86	123.00	6	5.31	2
1987	04/09/87	99.00	6	5.10	2
1988	05/20/88	69.00	6	4.92	2

[1]See page 14 for explanation of discharge and gage-height codes.

page 67 follows

Rapid Creek below Pactola Dam, station 06411500

page 69
follows

Table 34.--Mean discharge, in cubic feet per second, for Rapid Creek below Pactola Dam[1], station 06411500

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1929	[2]	[2]	[2]	[2]	[2]	[2]	[2]	282.00	407.00	160.00	88.80	77.80	[3]
1930	67.90	57.60	60.00	60.00	55.00	62.40	135.00	106.00	71.60	46.80	46.90	41.00	67.50
1931	59.10	38.10	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[3]
1946	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	33.60	35.90	[3]
1947	41.40	30.60	21.50	19.80	22.60	30.60	76.10	82.80	225.00	150.00	59.50	36.60	66.50
1948	31.60	27.80	26.40	20.70	22.10	33.50	64.30	46.90	58.10	68.90	48.60	31.80	40.10
1949	35.40	29.70	19.50	21.40	21.30	34.00	87.00	65.50	104.00	44.10	34.70	29.20	43.80
1950	32.90	25.00	16.40	17.40	17.20	22.70	92.60	109.00	53.00	54.60	32.10	32.00	42.20
1951	25.50	17.20	16.90	13.30	14.80	18.30	28.10	43.30	56.70	35.50	39.40	33.80	28.60
1952	21.80	15.80	14.40	13.80	15.60	22.10	71.70	298.00	112.00	57.60	45.50	36.00	60.60
1953	30.60	18.20	15.80	21.30	23.60	30.80	38.60	82.00	74.70	41.20	37.30	26.20	36.80
1954	22.50	17.90	17.60	19.20	20.70	26.80	38.40	42.50	33.60	43.00	41.90	24.80	29.20
1955	15.30	15.50	12.80	12.10	13.40	17.40	59.70	58.80	50.40	53.50	43.50	29.60	31.90
1956	17.80	14.40	12.80	13.60	12.50	35.10	31.80	45.30	50.30	43.10	31.40	16.40	27.10
1957	22.40	11.60	11.00	11.00	10.90	7.13	7.83	24.40	6.10	10.10	31.60	29.70	15.40
1958	10.80	6.53	7.90	7.39	7.43	7.71	8.33	29.20	34.90	32.40	31.60	33.00	18.20
1959	25.10	15.50	7.94	8.58	8.82	8.48	26.10	48.90	41.90	52.70	65.10	33.20	28.70
1960	12.20	6.90	7.16	7.16	7.31	7.71	21.80	47.80	36.40	68.20	57.20	40.80	26.80
1961	25.50	17.90	9.10	8.58	9.36	9.42	27.60	43.30	83.30	71.70	36.30	29.70	31.10
1962	12.30	9.80	7.48	8.00	7.07	7.74	13.80	29.40	4.87	5.15	31.20	18.00	13.00
1963	4.40	6.90	6.69	6.21	6.65	6.45	6.50	17.70	23.50	102.00	46.90	33.90	22.50
1964	23.20	15.60	15.60	16.30	15.00	18.70	64.90	101.00	191.00	119.00	72.40	39.90	57.80
1965	40.00	23.00	20.70	22.60	18.80	25.60	66.50	238.00	415.00	168.00	90.80	66.10	99.80
1966	78.50	36.80	27.40	23.50	25.30	62.50	68.00	74.80	57.80	53.70	29.50	27.00	47.20
1967	27.10	18.70	16.70	16.00	15.50	33.10	48.50	83.20	212.00	149.00	72.70	65.30	63.30
1968	32.00	20.20	20.00	20.10	19.50	29.90	26.70	45.10	46.10	53.80	50.30	28.60	32.80
1969	20.00	16.30	15.60	15.40	16.50	17.40	38.70	84.30	64.60	60.30	54.70	55.90	38.40
1970	16.20	17.90	15.50	15.00	15.00	15.10	37.40	150.00	116.00	76.80	63.00	61.90	50.20
1971	15.80	14.30	14.00	13.20	13.90	21.80	141.00	183.00	142.00	73.20	73.60	45.60	62.80
1972	15.10	18.10	18.00	18.40	18.80	64.20	39.50	47.30	79.20	127.00	88.80	58.00	49.50
1973	48.30	24.00	23.30	24.30	21.40	14.30	42.50	126.00	87.10	90.80	59.30	44.00	50.70
1974	19.90	18.10	15.20	15.50	16.00	15.20	15.40	56.90	49.20	89.80	62.90	33.40	34.20
1975	14.90	11.80	15.40	15.90	15.70	16.00	16.00	36.90	63.20	70.10	56.40	52.20	32.10
1976	15.70	16.00	15.80	15.30	16.50	20.00	20.70	37.30	130.00	67.60	55.20	45.40	37.90

Table 34.--Mean discharge, in cubic feet per second, for Rapid Creek below Pactola Dam[1], station 06411500--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1977	16.30	16.00	16.00	15.60	15.30	23.10	89.50	112.00	76.90	79.90	47.70	31.70	45.10
1978	12.70	14.80	14.00	14.80	13.80	14.60	14.80	223.00	161.00	62.40	47.50	37.00	52.80
1979	38.30	24.30	23.80	26.40	38.20	38.40	43.50	55.30	67.80	50.40	41.00	39.20	40.50
1980	25.20	28.90	27.10	24.60	18.20	18.60	34.20	68.80	48.60	83.10	66.00	30.10	39.60
1981	13.30	13.30	14.60	14.60	14.30	13.50	18.80	65.50	37.00	75.60	40.70	59.50	31.90
1982	12.90	9.07	12.90	12.60	13.30	12.40	13.00	28.40	26.70	127.00	107.00	75.60	37.80
1983	45.80	31.10	28.40	21.50	24.80	44.60	82.50	176.00	79.80	75.20	46.70	27.60	57.30
1984	14.20	15.00	18.50	21.30	18.00	19.90	54.70	142.00	114.00	79.30	84.10	43.50	52.20
1985	20.80	26.00	24.80	24.40	24.30	38.10	48.20	101.00	62.40	106.00	50.50	26.40	46.30
1986	14.70	15.40	14.30	14.50	15.00	14.40	20.80	20.30	40.90	37.40	49.90	29.90	24.00
1987	51.50	46.30	24.50	17.20	16.70	32.10	71.50	63.50	47.90	80.70	52.20	32.90	44.90
1988	15.90	13.80	14.00	14.50	14.90	14.50	27.50	60.30	88.60	105.00	75.30	60.10	42.10

[1]Operated at two different sites as Rapid Creek near Pactola from May 1929 through November 1930, and from July 1946 to November 1953.
[2]Indicates a no-value month.
[3]Incomplete water year.

Table 35.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek below Pactola Dam, station 06411500 (May 1929 through November 1930 and August 1946 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	26.40	20.20	17.60	17.30	17.50	23.90	46.00	88.20	91.70	75.00	53.80	39.70	41.9
Variance	53.00	106.00	76.00	71.00	69.00	212.00	1,008.00	4,655.00	7,406.00	1,394.00	345.00	212.00	268.00
Standard deviation	15.90	10.30	8.72	8.43	8.31	14.60	31.70	68.20	86.10	37.30	18.60	14.60	16.4
Skewness	1.50	1.62	2.80	3.10	2.50	1.32	1.17	1.65	2.57	.77	.89	1.01	1.00
Coefficient of variation	.60	.51	.49	.49	.48	.61	.69	.77	.94	.50	.35	.37	0.39
Percent of annual discharge	5.11	3.90	3.41	3.34	3.38	4.61	8.90	17.10	17.70	14.50	10.40	7.67	[1].376

[1]Serial correlation for annual mean discharges.

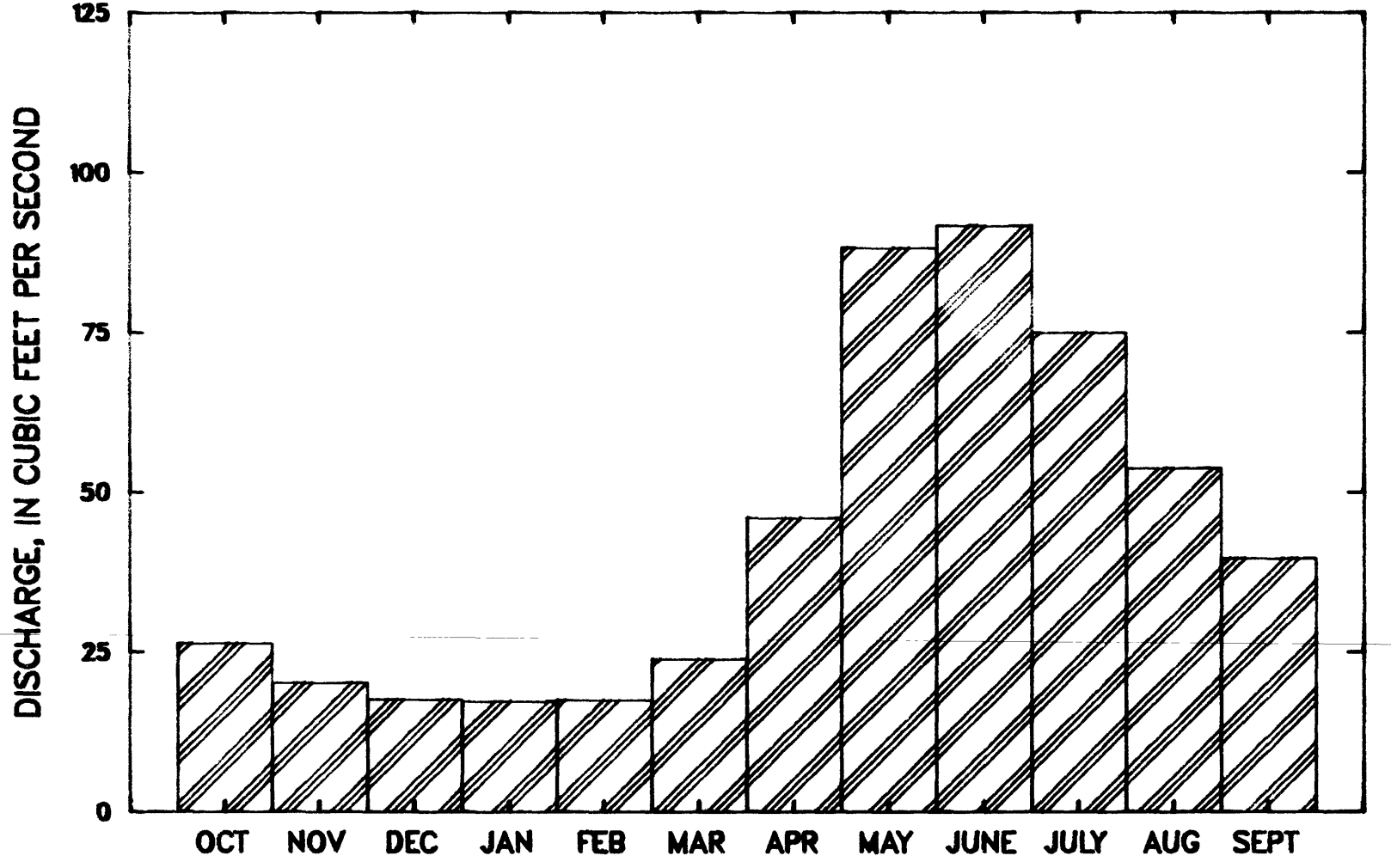

Figure 15.--Monthly mean discharge for Rapid Creek below Pactola Dam, station 06411500 (May 1929 through November 1930 and August 1946 through September 1988).

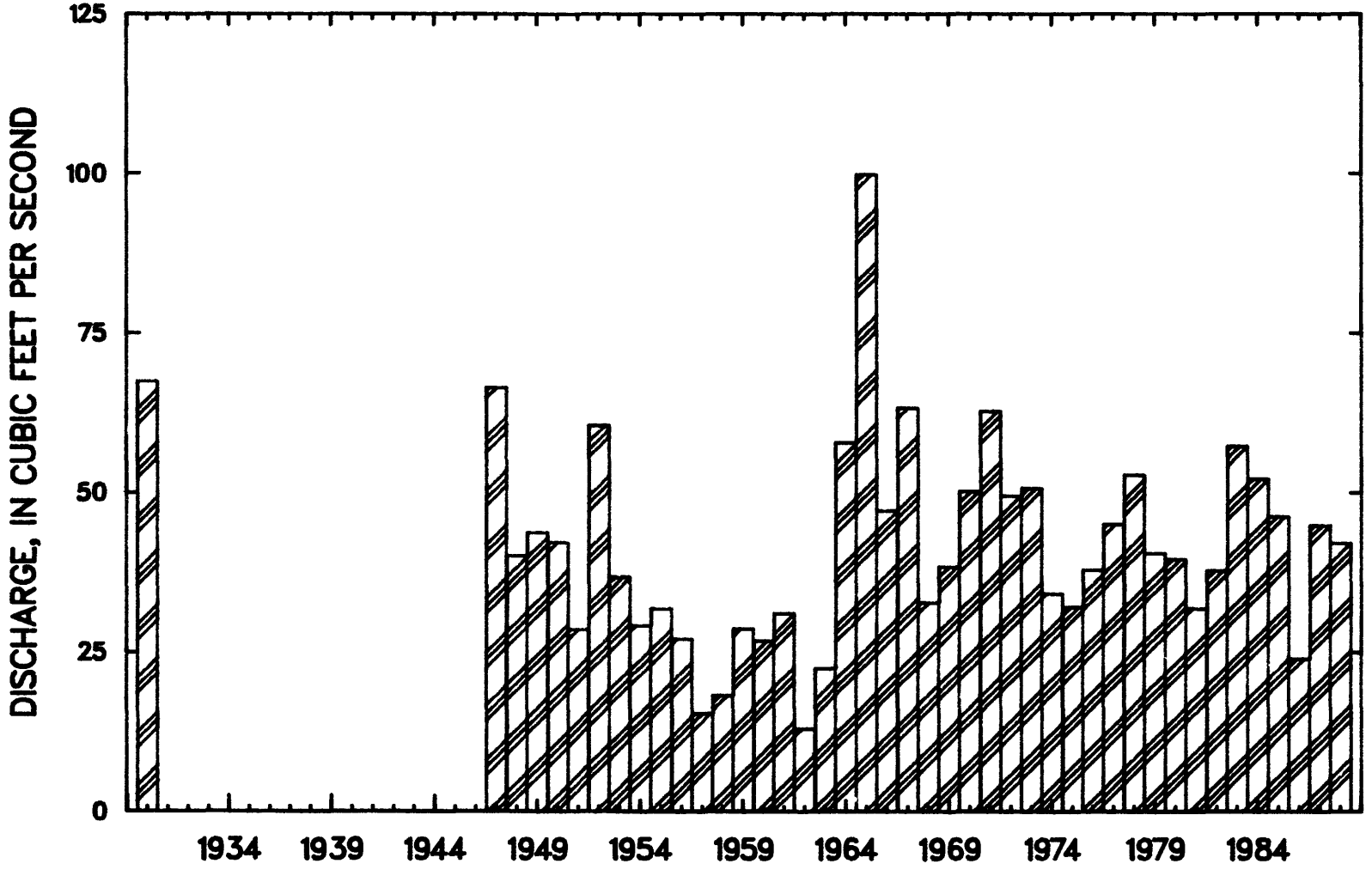

Figure 16.---Annual mean discharge for Rapid Creek below Pactola Dam, station 06411500 (water years 1930, 47–88).

Table 36.--Correlation matrix for monthly mean discharge for Rapid Creek below Pactola Dam, station 06411500 (May 1929 through November 1930 and August 1946 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.876	0.746	0.682	0.697	0.664	0.535	0.165	0.171	0.024	-0.187	-0.160
Nov.	*	1.000	0.891	0.810	0.783	0.708	0.634	0.163	0.125	0.067	-0.119	-0.160
Dec.	*	*	1.000	0.963	0.918	0.724	0.596	0.198	0.118	0.077	0.002	-0.016
Jan.	*	*	*	1.000	0.951	0.690	0.562	0.210	0.159	0.063	0.026	0.018
Feb.	*	*	*	*	1.000	0.738	0.548	0.166	0.112	0.015	-0.055	-0.012
Mar.	*	*	*	*	*	1.000	0.547	0.127	0.131	0.138	-0.027	-0.072
Apr.	*	*	*	*	*	*	1.000	0.492	0.332	0.129	0.031	-0.051
May	*	*	*	*	*	*	*	1.000	0.690	0.366	0.299	0.325
June	*	*	*	*	*	*	*	*	1.000	0.709	0.519	0.543
July	*	*	*	*	*	*	*	*	*	1.000	0.774	0.674
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.761
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 37.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek below Pactola Dam, station 06411500 (May 1929 through November 1930 and August 1946 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.245	0.304	0.431	0.550	0.365	0.135	0.129	0.104	0.115	0.139	0.085	0.139

Table 38.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek below Pactola Dam, station 06411500 (May 1929 through November 1930 and August 1946 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	15.20	14.50	14.00	13.30	13.80	14.40	20.80	43.70	46.50	51.00	40.00	29.70	31.10
50th	22.10	17.50	15.80	15.60	15.70	19.90	38.60	64.50	63.90	69.50	49.90	33.90	40.10
75th	32.70	24.80	20.69	21.30	20.69	32.10	66.50	108.00	110.00	90.50	64.00	45.50	50.70

Table 39.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek below Pactola Dam, station 06411500

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1948	13.00 29	15.00 35	17.00 35	19.00 40	19.00 36	21.00 38	22.00 38	24.00 38	26.00 36
1949	12.00 24	15.00 36	17.00 36	18.00 37	19.00 37	20.00 34	20.00 35	22.00 35	26.00 37
1950	10.00 19	10.00 17	11.00 15	14.00 23	16.00 32	16.00 26	17.00 27	18.00 28	22.00 29
1951	6.60 8	8.40 12	10.00 12	12.00 16	13.00 17	14.00 18	15.00 21	15.00 16	18.00 25
1952	6.90 9	8.90 13	13.00 23	13.00 17	14.00 18	14.00 19	14.00 17	15.00 17	17.00 22
1953	9.30 17	11.00 20	12.00 19	14.00 24	16.00 33	16.00 27	18.00 30	20.00 31	23.00 30
1954	13.00 25	13.00 25	15.00 29	17.00 34	17.00 34	18.00 31	18.00 31	19.00 29	20.00 27
1955	10.00 20	10.00 18	11.00 16	11.00 14	12.00 13	12.00 9	13.00 9	13.00 9	14.00 11
1956	8.00 13	9.70 16	10.00 13	10.00 11	11.00 10	12.00 10	13.00 10	13.00 10	15.00 12
1957	7.00 10	7.00 8	7.00 7	7.00 6	7.10 6	9.00 7	9.60 7	10.00 7	12.00 6
1958	5.00 4	5.00 3	5.00 2	5.50 2	6.00 2	6.90 2	7.20 3	7.30 3	8.00 2
1959	7.00 11	7.00 9	7.00 8	7.20 7	7.80 7	8.20 5	8.40 5	8.40 5	13.00 7
1960	6.00 7	6.00 7	6.10 3	6.60 4	6.90 4	7.00 3	7.00 2	7.10 2	8.10 3
1961	8.00 14	8.00 11	8.00 9	8.20 8	8.60 8	8.80 6	9.00 6	9.00 6	13.00 8
1962	5.00 5	5.70 5	6.60 5	7.00 5	7.10 5	7.40 4	7.50 4	7.50 4	8.80 4
1963	.00 1	.00 1	.00 1	1.80 1	4.00 1	4.20 1	5.90 1	6.00 1	6.20 1
1964	6.00 6	6.00 6	6.20 4	6.30 3	6.50 3	12.00 11	15.00 18	16.00 21	17.00 23
1965	14.00 30	15.00 37	17.00 37	18.00 35	19.00 38	20.00 35	21.00 36	21.00 32	25.00 34
1966	23.00 41	23.00 41	23.00 41	23.00 41	23.00 41	24.00 41	25.00 40	27.00 40	41.00 41
1967	14.00 31	14.00 30	14.00 24	14.00 25	15.00 23	15.00 20	16.00 22	16.00 22	19.00 26
1968	18.00 39	18.00 39	18.00 38	19.00 38	19.00 39	20.00 36	20.00 32	20.00 30	24.00 31
1969	8.40 15	12.00 21	15.00 30	15.00 32	15.00 24	15.00 21	16.00 23	16.00 23	17.00 24
1970	15.00 35	15.00 31	15.00 31	15.00 33	15.00 25	15.00 22	15.00 19	15.00 18	16.00 17
1971	13.00 26	13.00 26	13.00 20	13.00 18	13.00 14	13.00 12	14.00 11	14.00 11	15.00 13
1972	1.40 2	2.00 2	6.70 6	11.00 12	15.00 26	16.00 28	17.00 28	17.00 27	22.00 28
1973	5.00 3	5.20 4	14.00 25	14.00 26	14.00 19	18.00 32	20.00 33	21.00 33	26.00 35
1974	15.00 36	15.00 32	15.00 32	15.00 27	15.00 27	15.00 23	16.00 24	15.00 19	17.00 18
1975	8.80 16	9.10 14	10.00 14	11.00 13	11.00 11	13.00 13	14.00 12	14.00 12	15.00 14
1976	15.00 37	15.00 33	15.00 33	15.00 28	15.00 28	16.00 29	16.00 25	16.00 24	17.00 19
1977	14.00 32	14.00 27	14.00 26	15.00 29	15.00 29	15.00 24	16.00 26	16.00 25	17.00 20
1978	9.40 18	9.60 15	9.70 11	9.90 10	11.00 12	13.00 14	14.00 13	14.00 13	14.00 9
1979	14.00 33	14.00 28	15.00 34	15.00 30	15.00 30	23.00 39	25.00 41	28.00 41	31.00 39
1980	17.00 38	17.00 38	18.00 39	18.00 36	18.00 35	18.00 33	20.00 34	22.00 36	24.00 32
1981	11.00 21	11.00 19	12.00 17	13.00 19	13.00 15	13.00 15	14.00 14	14.00 14	14.00 10

Table 39.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek below Pactola Dam, station 06411500--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1982	7.80 12	7.90 10	8.10 10	8.20 9	9.10 9	10.00 8	11.00 8	11.00 8	12.00 5
1983	12.00 22	12.00 22	12.00 18	12.00 15	13.00 16	21.00 37	22.00 37	26.00 39	32.00 40
1984	13.00 27	14.00 29	14.00 27	14.00 20	14.00 20	15.00 25	15.00 20	17.00 26	17.00 21
1985	19.00 40	19.00 40	19.00 40	19.00 39	21.00 40	23.00 40	24.00 39	24.00 37	25.00 33
1986	13.00 28	13.00 23	13.00 21	14.00 21	14.00 21	14.00 16	14.00 15	15.00 20	15.00 15
1987	14.00 34	15.00 34	15.00 28	15.00 31	16.00 31	17.00 30	18.00 29	21.00 34	30.00 38
1988	12.00 23	13.00 24	13.00 22	14.00 22	14.00 22	14.00 17	14.00 16	14.00 15	15.00 16

[1]Low-flow water year is April 1 to March 31.

Table 40.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek below Pactola Dam, station 06411500

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1930	193.00 15	186.00 14	170.00 13	157.00 13	137.00 12	121.00 11	105.00 11	94.00 12	82.00 11
1947	907.00 2	831.00 2	645.00 2	464.00 3	308.00 4	194.00 4	155.00 4	136.00 4	106.00 3
1948	185.00 17	145.00 19	121.00 23	92.00 29	85.00 27	71.00 29	60.00 31	60.00 28	54.00 25
1949	212.00 13	187.00 13	163.00 16	140.00 15	106.00 20	88.00 20	86.00 18	76.00 20	61.00 19
1950	193.00 14	173.00 16	146.00 18	124.00 19	110.00 17	105.00 16	86.00 19	78.00 18	62.00 18
1951	93.00 34	83.00 36	69.00 38	64.00 38	57.00 39	51.00 37	46.00 38	45.00 38	40.00 36
1952	1,590.00 1	1,310.00 1	961.00 1	589.00 1	347.00 2	209.00 2	164.00 2	137.00 2	104.00 5
1953	130.00 27	116.00 27	101.00 29	93.00 28	83.00 28	79.00 24	68.00 25	61.00 27	51.00 27
1954	86.00 36	79.00 38	71.00 37	63.00 39	62.00 37	45.00 40	44.00 39	42.00 39	38.00 39
1955	225.00 11	114.00 28	92.00 33	74.00 34	69.00 34	63.00 33	58.00 33	56.00 31	49.00 30
1956	133.00 26	124.00 25	98.00 30	67.00 36	61.00 38	51.00 38	48.00 37	46.00 37	40.00 37
1957	54.00 43	54.00 43	45.00 43	39.00 43	35.00 43	31.00 42	24.00 42	20.00 42	18.00 42
1958	56.00 42	55.00 42	52.00 42	47.00 42	45.00 41	39.00 41	35.00 41	35.00 41	28.00 41
1959	84.00 38	83.00 37	79.00 36	72.00 35	66.00 35	60.00 34	56.00 34	53.00 33	45.00 34
1960	90.00 35	88.00 34	84.00 34	80.00 32	73.00 32	64.00 32	56.00 35	53.00 34	46.00 33
1961	108.00 31	106.00 31	103.00 28	96.00 27	86.00 25	80.00 22	67.00 26	59.00 29	49.00 31
1962	63.00 41	61.00 41	59.00 41	49.00 41	40.00 42	25.00 43	18.00 43	18.00 43	17.00 43
1963	160.00 20	153.00 18	151.00 17	123.00 20	103.00 21	76.00 26	63.00 29	53.00 35	39.00 38
1964	252.00 9	247.00 9	245.00 9	242.00 7	220.00 7	160.00 7	139.00 7	125.00 7	98.00 6
1965	515.00 3	513.00 3	511.00 3	505.00 2	421.00 1	353.00 1	280.00 1	231.00 1	174.00 1
1966	144.00 21	140.00 22	119.00 24	102.00 25	81.00 30	79.00 23	73.00 22	68.00 22	58.00 23
1967	406.00 4	398.00 4	397.00 4	385.00 4	272.00 5	182.00 6	150.00 6	131.00 5	105.00 4
1968	77.00 39	70.00 40	66.00 40	65.00 37	62.00 36	54.00 36	52.00 36	49.00 36	43.00 35
1969	142.00 23	142.00 20	139.00 19	108.00 23	86.00 26	75.00 27	71.00 23	66.00 24	60.00 20
1970	304.00 7	278.00 7	258.00 7	201.00 10	152.00 9	137.00 9	117.00 9	104.00 10	84.00 10
1971	338.00 6	317.00 6	282.00 6	262.00 6	230.00 6	193.00 5	157.00 3	136.00 3	111.00 2
1972	177.00 18	176.00 15	164.00 15	157.00 14	137.00 13	120.00 12	101.00 14	89.00 14	75.00 12
1973	168.00 19	168.00 17	167.00 14	158.00 12	132.00 14	109.00 14	104.00 13	95.00 11	75.00 13
1974	113.00 30	113.00 29	112.00 26	108.00 24	94.00 22	82.00 21	69.00 24	66.00 25	52.00 26
1975	85.00 37	85.00 35	84.00 35	77.00 33	72.00 33	68.00 30	66.00 27	64.00 26	49.00 32
1976	234.00 10	230.00 10	227.00 10	215.00 8	144.00 10	101.00 17	85.00 20	77.00 19	59.00 21
1977	188.00 16	188.00 12	182.00 12	139.00 16	128.00 16	105.00 15	97.00 15	91.00 13	73.00 14
1978	386.00 5	386.00 5	372.00 5	365.00 5	308.00 3	197.00 3	152.00 5	126.00 6	91.00 7

Table 40.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek below Pactola Dam, station 06411500--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1979	101.00 32	99.00 32	97.00 31	87.00 31	75.00 31	64.00 31	59.00 32	56.00 30	50.00 28
1980	118.00 29	111.00 30	107.00 27	96.00 26	94.00 23	78.00 25	73.00 21	69.00 21	55.00 24
1981	142.00 24	140.00 23	125.00 22	113.00 21	89.00 24	59.00 35	62.00 30	54.00 32	50.00 29
1982	139.00 25	137.00 24	136.00 20	135.00 17	130.00 15	118.00 13	105.00 12	86.00 15	63.00 17
1983	268.00 8	268.00 8	253.00 8	210.00 9	189.00 8	138.00 8	118.00 8	105.00 9	85.00 9
1984	222.00 12	221.00 11	219.00 11	192.00 11	144.00 11	129.00 10	113.00 10	107.00 8	87.00 8
1985	144.00 22	142.00 21	131.00 21	130.00 18	109.00 18	89.00 19	92.00 16	81.00 17	69.00 16
1986	76.00 40	73.00 39	68.00 39	54.00 40	51.00 40	45.00 39	43.00 40	40.00 40	33.00 40
1987	97.00 33	96.00 33	93.00 32	88.00 30	82.00 29	71.00 28	66.00 28	67.00 23	59.00 22
1988	123.00 28	122.00 26	118.00 25	112.00 22	109.00 19	99.00 18	91.00 17	86.00 16	70.00 15

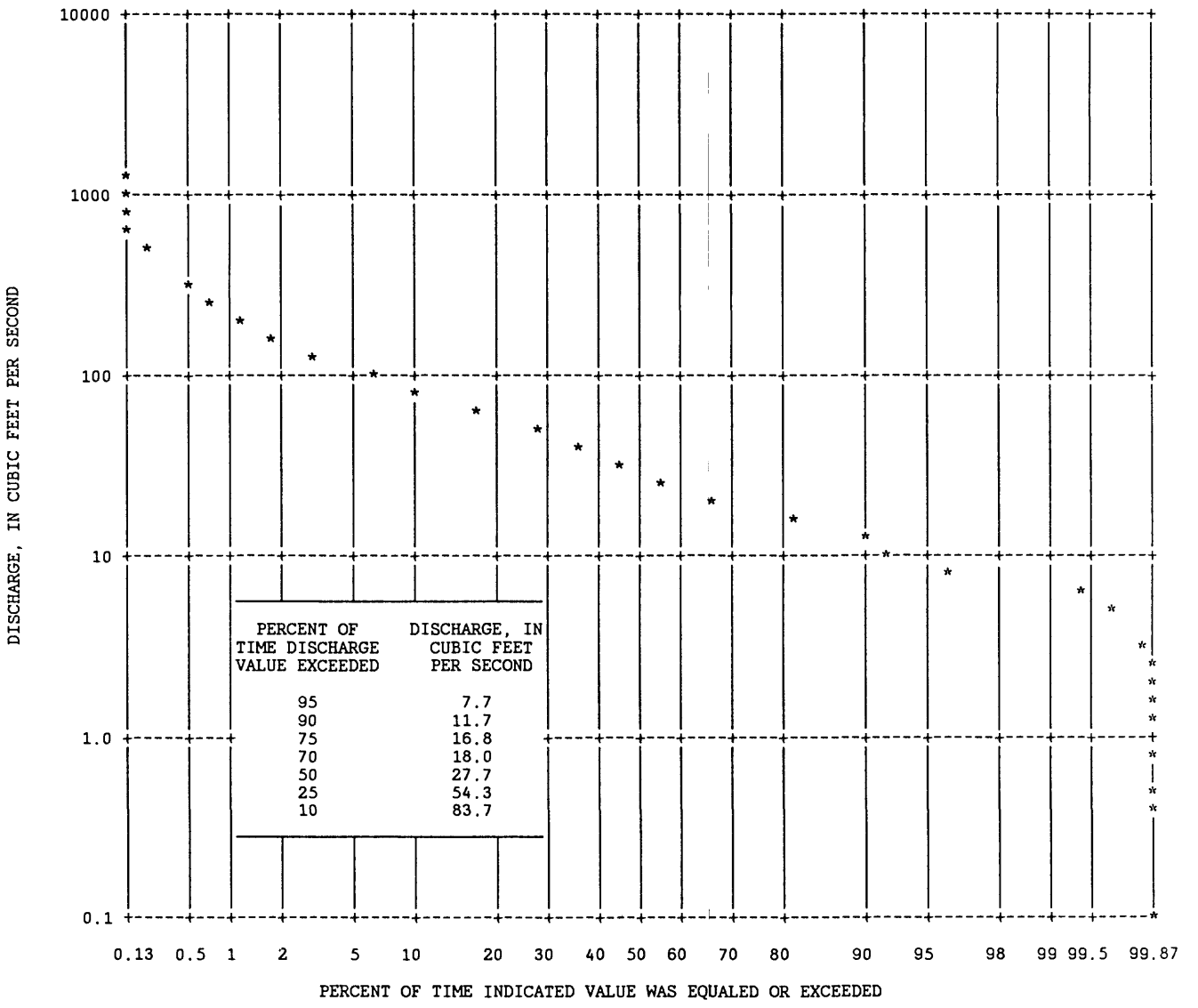

Figure 17.--Duration of daily discharge data for Rapid Creek below Pactola Dam, station 06411500 (water years 1930, 47-88).

Table 41.--Peak-discharge and gage-height data for Rapid Creek below Pactola Dam, station 06411500

[Blanks indicate no information]

Station locator
Latitude: 440436
Longitude: 1032854

Drainage area: 320.00 square miles

Gage datum: 4,406.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1929	06/03/29	794.00			
1930	04/09/30	194.00			
1931	04/08/31	155.00			
1932[2]	04/24/32	682.00	2		
1933[2]	05/24/33	1,540.00	2		
1934[2]	02/11/34	117.00	2		
1935[2]	06/01/35	437.00	2		
1936[2]	04/13/36	100.00	2		
1937[2]	07/12/37	84.00	2		
1938[2]	04/16/38	86.00	2		
1939[2]	04/24/39	62.00	2		
1940[2]	08/27/40	245.00	2		
1941[2]	06/11/41	540.00	2		
1942[2]	05/16/42	409.00	2		
1947	06/23/47	954.00	6		
1948	06/22/48	248.00	6		
1949	06/02/49	233.00	6		
1950	04/15/50	233.00	6		
1951	06/14/51	97.00	6		
1952	05/22/52	2,190.00	6		
1953	06/15/53	160.00	6		
1954	05/23/54	94.00	6		
1955	07/29/55	378.00	6	7.36	
1956	03/25/56	178.00	6		
1957	03/14/57	55.00	6		
1958	06/02/58	84.00	6		
1959	08/21/59	90.00	6		
1960	07/20/60	112.00	6	5.12	
1961	06/11/61	111.00	6		
1962	05/18/62	67.00	6		
1963	06/30/63	184.00	6	8.16	
1964	06/10/64	266.00	6	8.34	
1965	05/19/65	547.00	6	9.00	
1966	03/20/66	147.00	6	8.01	
1967	06/22/67	406.00	1, 6	8.63	
1968	10/04/67	311.00	6	8.44	
1969	05/20/69	306.00	6	8.41	
1970	05/12/70	304.00	1, 6	8.44	
1971	04/25/71	338.00	6	8.55	
1972	10/05/71	505.00	6	8.82	
1973	05/08/73	168.00	1, 6	8.14	
1974	07/04/74	113.00	1, 6		
1975	06/07/75	85.00	1, 6		
1976	06/29/76	234.00	1, 6		

Table 41.--Peak-discharge and gage-height data for Rapid Creek below Pactola Dam, station 06411500--Continued

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1977	05/05/77	188.00	1, 6		
1978	06/01/78	386.00	1, 6		
1979	06/16/79	101.00	1, 6		
1980	07/15/80	118.00	1, 6		
1981	05/02/81	142.00	1, 6		
1982	07/03/82	139.00	1, 6		
1983	05/13/83	268.00	1, 6	8.41	
1984	05/12/84	222.00	1, 6	8.28	
1985	05/10/85	144.00	6	8.07	2
1986	06/03/86	93.00	6	7.09	
1987	07/31/87	99.00	6	7.91	
1988	08/01/88	128.00	6	8.03	

[1]See page 14 for explanation of discharge and gage-height codes.
[2]Data for 1932 through 1942 obtained from station 06412000, Rapid Creek at Big Bend.

Rapid Creek above Canyon Lake, near Rapid City, station 06412500

page 85
follows

Table 42.--Mean discharge, in cubic feet per second, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	43.10	44.50	[2]
1947	54.80	37.90	24.50	26.20	26.70	37.80	92.10	90.70	251.00	191.00	66.70	41.10	78.50
1948	30.10	26.90	28.80	25.10	27.60	39.70	66.10	52.80	58.40	71.50	58.40	32.60	43.20
1949	35.90	29.60	18.40	17.30	18.80	31.70	81.20	64.80	105.00	44.00	29.10	24.50	41.70
1950	26.90	18.00	9.29	11.60	11.00	17.80	91.20	109.00	51.90	49.90	27.20	23.40	37.40
1951	19.30	12.30	14.10	12.30	13.00	18.10	24.50	36.80	51.60	33.90	34.00	29.90	25.00
1952	21.00	13.20	7.15	9.42	9.38	17.00	59.70	287.00	126.00	53.70	37.50	29.50	56.10
1953	25.80	14.00	13.00	17.70	17.80	26.70	33.50	83.40	73.30	38.40	34.30	19.20	33.20
1954	17.30	11.90	9.77	8.61	15.30	18.10	31.90	33.10	28.10	34.80	36.50	16.60	21.90
1955	8.72	7.10	4.35	3.42	5.39	8.42	50.50	53.70	46.20	46.50	40.30	25.90	25.10
1956	12.90	6.47	7.40	6.23	6.76	27.60	25.70	38.50	48.60	35.50	29.40	11.50	21.40
1957	16.50	5.33	4.10	2.81	2.57	1.89	1.36	42.30	27.00	23.10	32.70	28.20	15.80
1958	10.30	3.86	2.71	2.82	2.66	4.23	3.67	26.10	35.70	28.70	28.40	27.00	14.70
1959	19.50	11.70	4.23	1.55	2.96	6.84	22.70	42.10	33.70	47.50	51.50	25.20	22.60
1960	9.89	2.09	3.11	1.13	1.48	2.42	8.52	33.00	27.80	52.30	46.60	29.60	18.30
1961	20.70	14.40	2.47	2.19	2.62	2.40	15.10	31.40	67.70	64.60	23.90	20.50	22.40
1962	7.45	3.68	0.64	0.81	1.73	2.47	4.94	36.00	78.70	48.50	33.20	20.00	19.90
1963	5.77	5.09	3.35	1.85	3.71	2.86	8.82	26.20	77.60	119.00	52.00	35.90	28.70
1964	27.50	14.80	8.84	6.94	12.00	15.40	56.50	95.30	181.00	112.00	70.00	35.90	53.00
1965	35.10	18.50	15.40	13.30	13.00	20.30	66.60	263.00	445.00	186.00	95.40	69.60	104.00
1966	89.70	36.30	24.20	19.10	20.00	62.40	70.50	76.10	61.70	50.60	27.00	23.30	46.90
1967	24.90	16.50	10.20	10.50	10.00	29.40	46.10	80.00	251.00	182.00	73.80	61.40	66.50
1968	29.30	17.20	12.60	15.60	12.00	26.70	27.30	43.30	48.00	50.20	41.60	22.40	29.00
1969	16.50	12.60	8.60	8.08	10.80	13.50	31.20	70.70	55.20	48.80	47.50	39.90	30.40
1970	12.50	11.10	8.60	8.50	12.70	10.70	32.80	140.00	131.00	80.20	62.70	56.80	47.50
1971	19.80	15.30	9.23	10.60	10.40	23.70	157.00	212.00	162.00	74.10	72.00	41.50	67.50
1972	14.10	16.50	12.10	10.90	16.30	56.50	38.00	49.50	330.00	149.00	90.50	57.00	69.80
1973	46.50	22.80	19.30	19.10	18.30	13.20	42.70	132.00	89.80	87.00	60.00	40.70	49.50
1974	14.90	14.00	9.29	7.54	10.40	9.09	10.10	52.90	42.90	84.50	52.80	23.00	27.80
1975	7.61	4.60	8.71	7.13	8.00	9.25	15.40	30.80	60.20	61.90	54.80	42.70	26.00
1976	10.20	7.79	9.90	11.70	11.50	13.20	13.50	33.10	165.00	71.20	49.60	41.90	36.50
1977	12.70	11.40	11.70	11.10	11.90	17.00	84.20	112.00	68.50	70.60	40.10	22.40	39.60
1978	7.16	7.05	6.51	7.06	10.30	17.60	14.10	266.00	177.00	63.70	44.80	34.60	55.00

Table 42.--Mean discharge, in cubic feet per second, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1979	32.40	18.60	15.60	15.50	27.80	32.90	37.70	51.30	83.10	55.10	41.70	34.50	37.20
1980	18.30	20.90	20.70	19.40	13.30	9.77	30.30	70.50	48.30	81.90	57.10	22.60	34.60
1981	6.43	5.33	4.66	5.67	6.39	5.55	10.00	60.90	32.10	75.10	33.10	43.70	24.20
1982	3.82	0.71	6.48	3.82	5.55	4.84	4.28	28.00	30.70	134.00	107.00	77.40	34.20
1983	42.60	19.60	15.10	20.40	21.10	36.50	78.70	186.00	96.40	75.80	42.70	24.60	55.20
1984	10.70	10.40	10.50	18.80	15.20	13.40	56.50	153.00	135.00	80.50	65.00	34.30	50.40
1985	15.10	23.20	23.90	26.70	20.90	37.40	42.80	87.70	48.40	93.30	42.00	21.40	40.50
1986	8.34	7.08	7.89	6.98	8.86	8.95	17.30	22.00	42.30	33.40	44.50	22.80	19.20
1987	49.20	44.20	21.60	13.50	14.50	24.90	61.90	55.10	44.70	65.80	45.10	24.80	38.90
1988	9.00	6.36	5.18	6.21	6.94	10.70	19.60	48.40	82.80	101.00	64.80	45.90	34.00

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 43.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek above Canyon Lake, station 06412500 (August 1946 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	21.60	14.40	11.10	10.80	11.80	18.80	40.20	83.50	97.60	75.00	49.50	33.70	39.1
Variance	273.00	95.00	47.30	49.60	47.60	203.00	1,022.00	4,683.00	7,640.00	1,733.00	355.00	205.00	351.00
Standard deviation	16.50	9.75	6.88	7.04	6.90	14.30	32.00	68.40	87.40	41.60	18.80	14.30	18.7
Skewness	2.10	1.22	.84	.58	.59	1.19	1.37	1.75	2.29	1.47	1.16	1.22	1.30
Coefficient of variation	.76	.68	.62	.65	.58	.76	.80	.82	.90	.56	.38	.42	.48
Percent of annual discharge	4.61	3.08	2.36	2.32	2.53	4.01	8.58	17.80	20.90	16.00	10.60	7.21	[1].439

[1]Serial correlation for annual mean discharges.

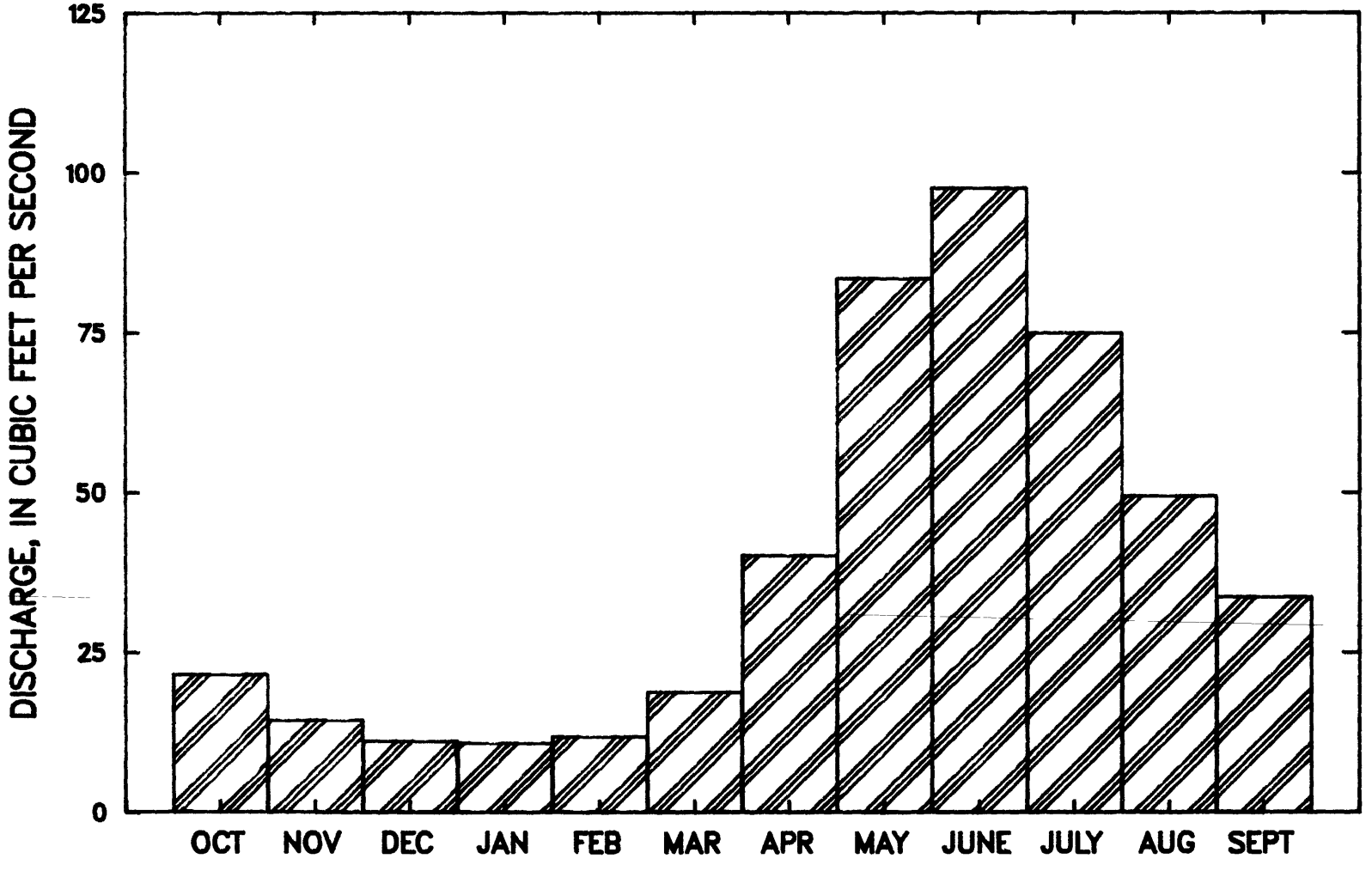

Figure 18.--Monthly mean discharge for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (August 1946 through September 1988).

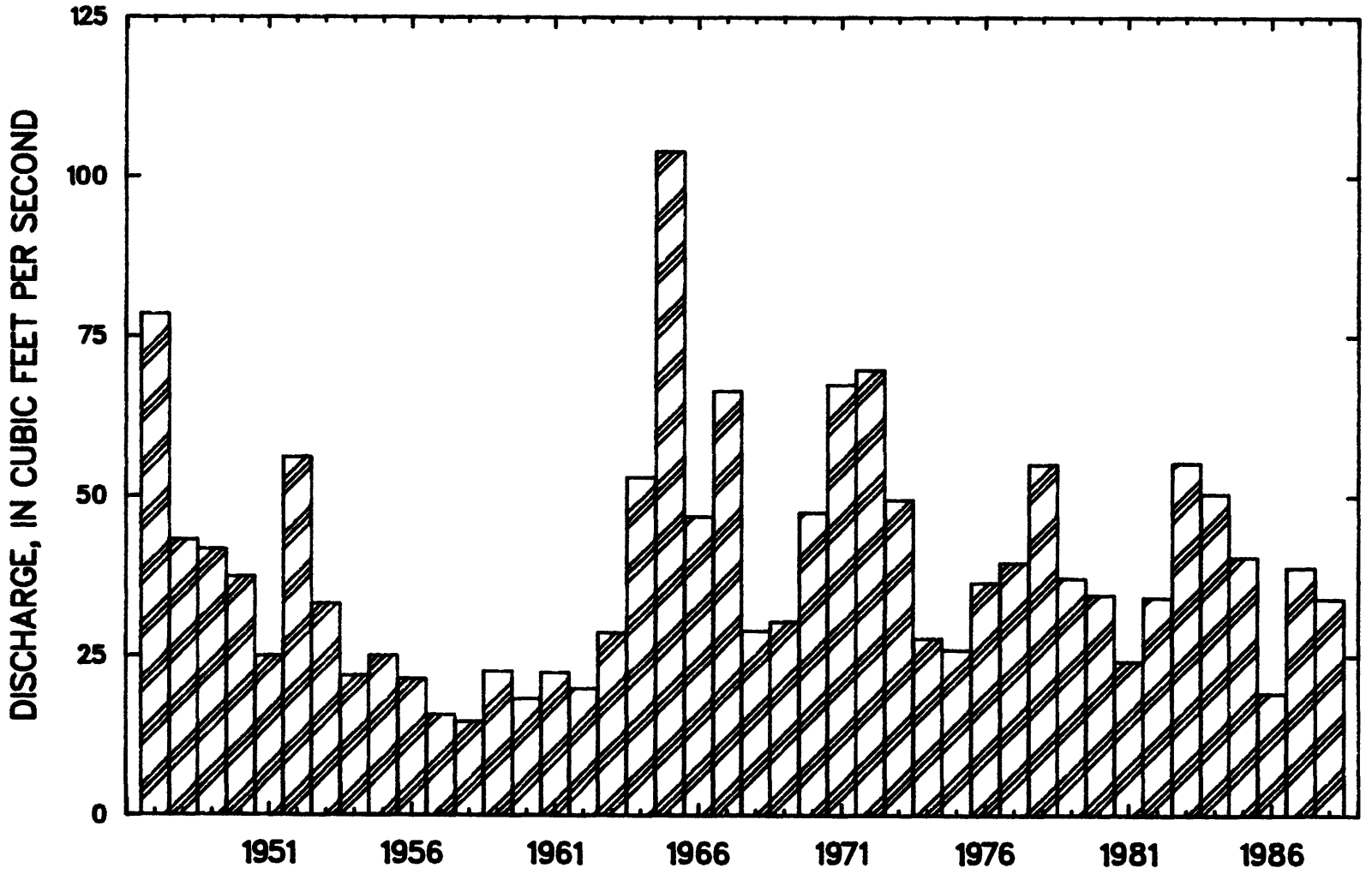

Figure 19.--Annual mean discharge for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (water years 1947–88).

Table 44.--Correlation matrix for monthly mean discharge for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (August 1946 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.848	0.698	0.595	0.610	0.665	0.508	0.171	0.170	0.135	-0.091	-0.111
Nov.	*	1.000	0.855	0.742	0.726	0.685	0.587	0.146	0.201	0.228	-0.015	-0.128
Dec.	*	*	1.000	0.923	0.878	0.723	0.492	0.124	0.167	0.239	0.109	-0.040
Jan.	*	*	*	1.000	0.905	0.698	0.532	0.254	0.208	0.237	0.079	-0.064
Feb.	*	*	*	*	1.000	0.762	0.511	0.207	0.247	0.222	0.103	-0.003
Mar.	*	*	*	*	*	1.000	0.519	0.156	0.352	0.236	0.073	-0.007
Apr.	*	*	*	*	*	*	1.000	0.513	0.338	0.208	0.133	0.003
May	*	*	*	*	*	*	*	1.000	0.521	0.233	0.214	0.218
June	*	*	*	*	*	*	*	*	1.000	0.750	0.609	0.598
July	*	*	*	*	*	*	*	*	*	1.000	0.785	0.720
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.824
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 45.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (August 1946 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.125	0.174	0.371	0.502	0.504	0.253	0.191	0.087	0.151	0.178	0.128	0.099

Table 46.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (August 1946 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	10.10	6.90	6.15	6.07	6.67	8.82	14.90	36.60	45.80	48.20	34.30	23.00	24.80
50th	16.89	12.90	9.29	9.96	11.30	16.19	32.30	54.40	64.70	65.20	44.80	29.60	35.50
75th	27.90	18.50	15.20	16.00	15.50	26.90	60.20	98.70	127.00	85.10	60.00	41.50	49.70

Table 47.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1948	10.00 40	13.00 41	19.00 41	21.00 41	23.00 41	25.00 41	27.00 41	27.00 41	28.00 40
1949	10.00 41	10.00 39	13.00 39	15.00 39	16.00 39	17.00 38	18.00 38	20.00 38	25.00 38
1950	4.00 25	5.70 27	6.30 26	7.30 24	8.90 24	10.00 26	11.00 27	12.00 27	16.00 28
1951	1.50 16	3.80 21	5.70 22	8.70 29	11.00 30	12.00 30	13.00 28	13.00 28	15.00 27
1952	1.30 14	2.00 15	4.10 18	5.00 18	6.50 18	8.00 18	8.40 16	9.20 17	13.00 22
1953	3.40 22	4.80 24	6.70 29	9.80 34	12.00 34	12.00 31	15.00 34	15.00 32	19.00 31
1954	0.50 11	2.70 18	5.00 21	5.60 21	8.10 23	9.10 22	10.00 25	11.00 25	13.00 23
1955	1.50 15	1.80 12	2.20 13	3.00 14	3.10 10	3.80 9	4.30 9	4.90 9	6.30 8
1956	2.00 17	2.00 13	2.00 11	2.00 10	2.60 9	5.60 12	6.20 13	6.10 12	9.40 15
1957	0.50 12	0.50 8	0.64 7	1.30 7	1.90 7	2.20 5	2.40 4	2.80 4	5.60 6
1958	0.10 4	0.30 6	0.49 6	0.79 5	1.40 4	2.40 7	2.60 5	2.90 5	4.50 5
1959	0.00 1	0.00 1	0.30 3	0.94 6	1.50 5	2.20 6	2.80 7	3.70 8	8.00 13
1960	0.20 8	0.30 7	0.41 5	0.60 3	1.10 3	1.30 3	1.50 2	1.90 2	3.40 2
1961	0.00 2	0.10 2	0.74 8	1.40 8	2.00 8	2.20 4	2.40 3	2.40 3	7.60 10
1962	0.10 5	0.13 5	0.30 4	0.33 1	0.45 1	0.65 1	0.97 1	1.19 1	2.90 1
1963	0.10 6	0.10 3	0.14 1	0.68 4	1.70 6	2.50 8	2.70 6	2.90 6	3.80 3
1964	0.40 9	0.73 9	0.80 9	1.60 9	6.60 19	7.40 16	9.10 21	10.00 21	14.00 24
1965	8.00 39	8.30 36	8.90 35	9.50 32	11.00 31	13.00 33	14.00 32	14.00 30	19.00 32
1966	5.00 26	13.00 40	15.00 40	18.00 40	19.00 40	19.00 39	20.00 39	24.00 40	41.00 41
1967	5.00 27	5.20 25	6.00 24	7.50 25	9.00 25	9.40 23	10.00 22	11.00 22	15.00 25
1968	5.00 28	6.00 28	6.60 27	7.50 26	9.40 27	12.00 32	13.00 29	14.00 31	19.00 33
1969	6.00 32	6.20 29	6.70 28	7.10 23	7.80 22	7.90 17	9.00 19	9.90 20	12.00 19
1970	5.00 29	5.50 26	5.80 23	6.40 22	7.50 20	8.20 20	9.10 20	9.70 18	11.00 16
1971	7.00 33	7.30 33	7.80 31	7.90 27	9.10 26	9.80 24	10.00 23	11.00 23	15.00 26
1972	0.45 10	0.95 10	6.20 25	9.30 30	11.00 32	11.00 27	13.00 30	13.00 29	18.00 30
1973	7.00 34	7.00 31	7.40 30	8.60 28	13.00 35	16.00 37	17.00 37	17.00 34	23.00 34
1974	2.40 19	2.50 16	2.70 14	2.80 13	5.60 16	8.10 19	8.60 17	9.00 16	11.00 17
1975	0.10 7	2.90 19	3.80 17	4.10 17	4.50 15	5.70 13	6.60 14	6.60 14	7.60 11
1976	3.50 23	4.10 22	4.60 20	5.40 20	7.60 21	8.30 21	8.80 18	9.70 19	11.00 18
1977	5.60 30	7.10 32	8.00 32	10.00 35	11.00 33	11.00 28	11.00 26	11.00 24	13.00 20
1978	2.50 20	3.10 20	3.30 16	3.50 15	3.90 13	6.10 14	6.00 12	6.50 13	9.30 14
1979	7.30 35	9.50 38	10.00 37	11.00 37	13.00 36	15.00 35	16.00 35	19.00 37	24.00 36
1980	7.50 36	8.20 34	8.50 33	9.60 33	9.70 28	11.00 29	14.00 31	16.00 33	17.00 29
1981	1.00 13	1.40 11	2.00 10	2.40 11	3.60 11	4.60 10	4.80 10	5.30 10	5.70 7

Table 47.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1982	0.04 3	0.11 4	0.15 2	0.36 2	0.60 2	1.19 2	3.10 8	3.30 7	4.30 4
1983	2.60 21	2.70 17	2.90 15	3.50 16	4.30 14	16.00 36	17.00 36	18.00 35	25.00 37
1984	7.60 37	8.30 35	8.90 36	9.40 31	9.90 29	10.00 25	10.00 24	12.00 26	13.00 21
1985	8.00 38	9.30 37	11.00 38	11.00 38	15.00 38	19.00 40	21.00 40	22.00 39	23.00 35
1986	4.00 24	4.20 23	4.50 19	5.30 19	6.10 17	6.70 15	6.90 15	7.20 15	8.00 12
1987	5.80 31	6.60 30	8.70 34	10.00 36	13.00 37	14.00 34	15.00 33	19.00 36	27.00 39
1988	2.00 18	2.00 14	2.10 12	2.50 12	3.60 12	5.00 11	5.50 11	5.70 11	7.40 9

[1]Low-flow water year is April 1 to March 31.

Table 48.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1947	920.00 3	870.00 3	714.00 3	544.00 2	370.00 2	230.00 3	179.00 3	157.00 3	124.00 2
1948	156.00 20	142.00 20	122.00 21	94.00 28	87.00 26	75.00 23	65.00 25	63.00 23	59.00 17
1949	224.00 14	202.00 14	169.00 16	142.00 17	106.00 19	88.00 19	84.00 19	75.00 18	59.00 18
1950	178.00 18	162.00 18	133.00 19	125.00 19	110.00 17	103.00 16	85.00 16	76.00 17	59.00 19
1951	75.00 38	69.00 39	60.00 41	58.00 39	52.00 39	46.00 38	41.00 38	40.00 37	35.00 36
1952	2,200.00 2	1,460.00 2	948.00 1	591.00 1	353.00 4	212.00 7	161.00 7	134.00 7	99.00 7
1953	129.00 25	116.00 28	102.00 28	95.00 27	85.00 27	79.00 21	67.00 23	59.00 24	49.00 26
1954	76.00 36	72.00 36	66.00 37	57.00 40	56.00 36	39.00 40	38.00 40	35.00 40	31.00 39
1955	185.00 16	117.00 27	93.00 30	66.00 33	63.00 32	57.00 32	51.00 33	51.00 30	44.00 30
1956	123.00 28	107.00 31	84.00 32	64.00 34	58.00 34	48.00 37	43.00 37	40.00 38	35.00 37
1957	154.00 22	110.00 30	72.00 34	59.00 38	45.00 40	35.00 42	31.00 42	32.00 41	26.00 41
1958	58.00 42	55.00 42	50.00 42	46.00 42	45.00 41	38.00 41	33.00 41	32.00 42	25.00 42
1959	71.00 40	69.00 40	66.00 38	60.00 37	53.00 38	51.00 34	46.00 35	45.00 35	37.00 33
1960	71.00 41	70.00 38	66.00 39	64.00 35	58.00 35	51.00 35	44.00 36	41.00 36	33.00 38
1961	94.00 33	94.00 33	89.00 31	87.00 30	77.00 29	69.00 27	55.00 32	48.00 33	37.00 34
1962	325.00 9	268.00 10	196.00 13	137.00 18	97.00 20	67.00 28	56.00 31	51.00 31	37.00 35
1963	181.00 17	173.00 16	172.00 15	147.00 14	121.00 16	100.00 17	84.00 17	73.00 19	53.00 22
1964	261.00 11	247.00 11	239.00 10	228.00 9	208.00 8	149.00 8	131.00 8	117.00 8	92.00 8
1965	562.00 4	553.00 4	543.00 4	516.00 4	450.00 1	383.00 1	305.00 1	250.00 1	187.00 1
1966	134.00 23	133.00 21	124.00 20	118.00 20	91.00 22	80.00 20	75.00 21	70.00 20	58.00 21
1967	435.00 5	434.00 5	429.00 5	414.00 5	320.00 6	218.00 6	174.00 5	149.00 5	116.00 5
1968	76.00 37	67.00 41	60.00 40	60.00 36	54.00 37	50.00 36	49.00 34	46.00 34	40.00 32
1969	121.00 29	119.00 26	117.00 24	90.00 29	72.00 30	64.00 29	59.00 28	56.00 29	49.00 27
1970	240.00 12	236.00 13	226.00 12	175.00 12	142.00 12	137.00 11	121.00 11	107.00 11	84.00 11
1971	382.00 7	364.00 7	324.00 7	298.00 7	260.00 7	222.00 5	178.00 4	152.00 4	121.00 3
1972	2,600.00 1	1,710.00 1	902.00 2	529.00 3	349.00 5	250.00 2	191.00 2	158.00 2	119.00 4
1973	173.00 19	172.00 17	167.00 17	159.00 13	136.00 14	114.00 14	106.00 13	97.00 12	76.00 12
1974	113.00 32	101.00 32	101.00 29	97.00 25	88.00 24	75.00 24	62.00 26	59.00 25	45.00 28
1975	73.00 39	72.00 37	71.00 35	67.00 32	62.00 33	62.00 30	60.00 27	57.00 28	44.00 29
1976	376.00 8	284.00 8	276.00 8	262.00 8	182.00 10	120.00 13	97.00 14	85.00 15	62.00 15
1977	192.00 15	191.00 15	185.00 14	143.00 16	129.00 15	105.00 15	93.00 15	86.00 14	66.00 13

Table 48.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek above Canyon Lake, near Rapid City, station 06412500--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1978	433.00 6	430.00 6	427.00 6	412.00 6	354.00 3	227.00 4	172.00 6	140.00 6	100.00 6
1979	132.00 24	125.00 24	121.00 22	106.00 23	87.00 25	72.00 26	65.00 24	59.00 26	51.00 25
1980	114.00 31	111.00 29	104.00 27	95.00 26	91.00 23	73.00 25	72.00 22	68.00 22	52.00 23
1981	126.00 26	126.00 22	114.00 26	104.00 24	83.00 28	55.00 33	57.00 29	50.00 32	43.00 31
1982	155.00 21	149.00 19	147.00 18	146.00 15	138.00 13	122.00 12	109.00 12	89.00 13	64.00 14
1983	276.00 10	275.00 9	264.00 9	220.00 10	195.00 9	147.00 9	126.00 9	110.00 10	87.00 10
1984	240.00 13	237.00 12	228.00 11	202.00 11	155.00 11	145.00 10	126.00 10	111.00 9	88.00 9
1985	126.00 27	125.00 23	118.00 23	115.00 21	95.00 21	76.00 22	78.00 20	69.00 21	59.00 20
1986	83.00 34	76.00 35	69.00 36	52.00 41	45.00 42	40.00 39	40.00 39	36.00 39	30.00 40
1987	82.00 35	81.00 34	77.00 33	73.00 31	67.00 31	59.00 31	57.00 30	58.00 27	51.00 24
1988	121.00 30	120.00 25	116.00 25	107.00 22	106.00 18	96.00 18	84.00 18	77.00 16	61.00 16

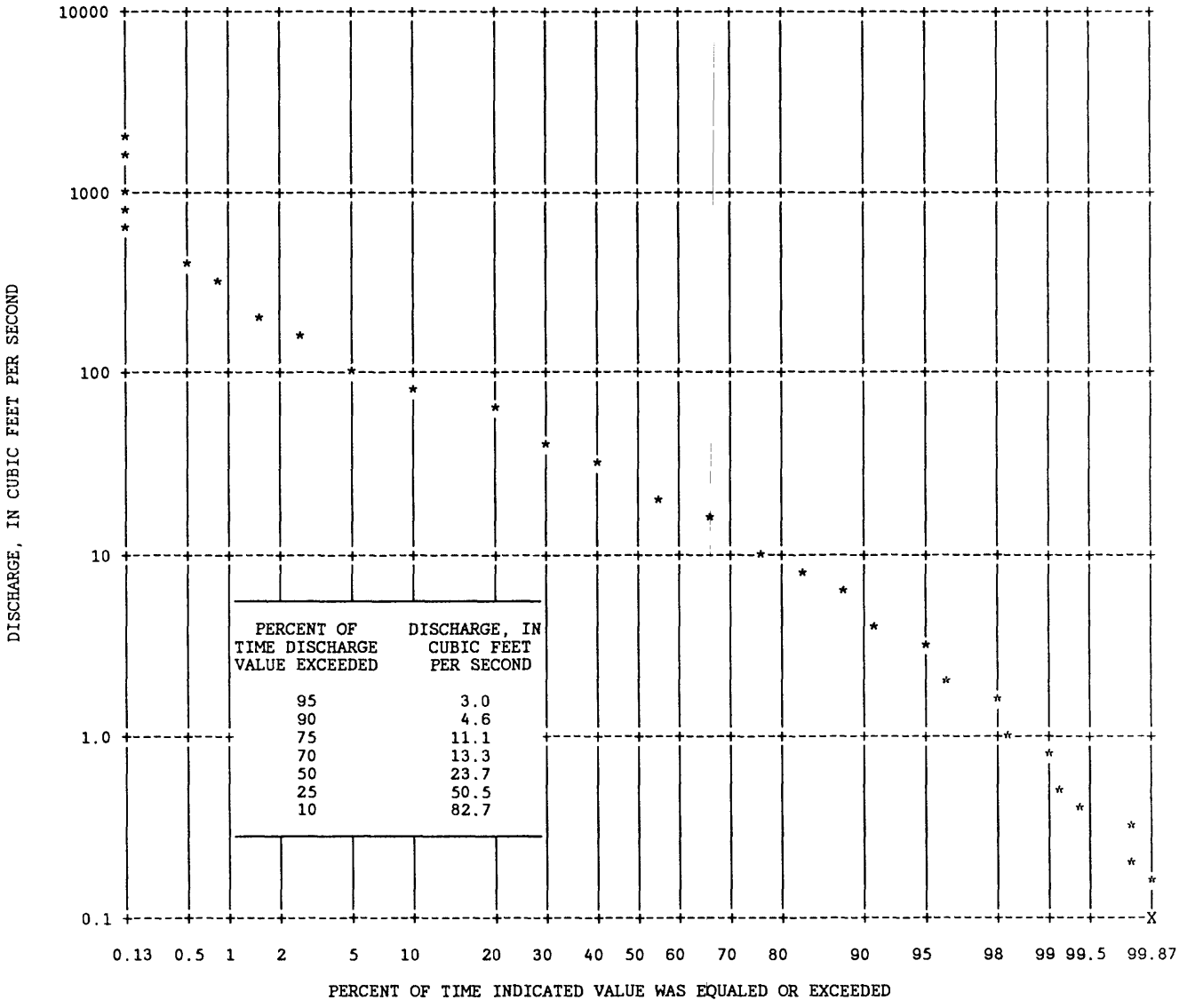

Figure 20.--Duration of daily discharge data for Rapid Creek above Canyon Lake, near Rapid City, station 06412500 (water years 1947-88).

Table 49.--Peak-discharge and gage-height data for Rapid Creek above Canyon Lake, near Rapid City, station 06412500

[Blanks indicate no information]

Station locator
Latitude: 440304
Longitude: 1031847

Drainage area: 371.00 square miles

Gage datum: 3,405.39 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1947	06/23/47	950.00	6	7.82	
1948	06/22/48	245.00	6	5.43	
1949	08/15/49	290.00	6	5.63	2
1950	04/15/50	209.00	6	5.33	2
1951	06/15/51	77.00	6	4.62	2
1952	05/23/52	2,600.00	6	10.08	2
1953	06/16/53	152.00	6	4.65	2
1954	08/12/54	140.00	6	4.53	2
1955	07/29/55	326.00	6	5.44	2
1956	05/29/56	130.00	6	4.49	2
1957	07/14/57	433.00	6	5.84	
1958	05/30/58	81.00	6		
1959	06/30/59	82.00	6		
1960	07/16/60	82.00	6		
1961	07/01/61	100.00	6	4.75	2
1962	07/13/62	1,310.00	6	8.02	
1963	06/06/63	191.00	6	5.91	
1964	06/11/64	268.00	6	6.09	2
1965	05/19/65	614.00	6	6.99	
1966	03/22/66	140.00	6	5.62	2
1967	06/15/67	439.00	6	6.61	
1968	10/04/67	198.00	6	5.87	
1969	05/20/69	139.00	6	5.37	
1970	06/14/70	245.00	6	5.42	2
1971	04/26/71	385.00	6	5.39	
1972	06/09/72	31,200.00	6	17.77	
1973	05/09/73	173.00	1, 6		
1974	08/22/74	516.00	6	5.95	
1975	06/07/75	92.00	6	4.07	
1976	06/15/76	636.00	6	6.00	
1977	05/08/77	194.00	6	4.12	
1978	05/21/78	433.00	6	5.24	
1979	06/17/79	150.00	6	3.85	
1980	07/16/80	119.00	6	3.74	
1981	07/13/81	132.00	6	3.87	
1982	07/22/82	264.00	6	4.57	
1983	05/11/83	283.00	6	4.66	
1984	06/15/84	249.00	6	4.44	
1985	07/15/85	134.00	6	3.94	2
1986	06/04/86	89.00	6	3.68	2
1987	05/29/87	99.00	6	3.85	2
1988	08/03/88	126.00	6	3.93	2

[1]See page 14 for explanation of discharge and gage-height codes.

page 99 follows

Rapid Creek at Rapid City, station 06414000

page 101
follows

Table 50.--Mean discharge, in cubic feet per second, for Rapid Creek at Rapid City, station 06414000

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1942	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	78.50	50.70	42.50	[2]
1943	47.20	47.00	37.10	38.70	47.50	90.90	202.00	102.00	274.00	114.00	45.50	40.90	90.30
1944	42.00	47.50	36.70	35.50	43.00	46.00	95.40	98.80	132.00	77.80	40.90	38.00	61.00
1945	46.00	47.00	34.10	33.80	37.30	57.50	65.70	60.60	115.00	74.50	69.40	43.80	57.10
1946	43.10	40.20	33.60	37.30	32.60	43.50	54.40	225.00	296.00	177.00	65.00	69.00	93.30
1947	74.70	57.90	52.80	52.70	55.60	60.50	108.00	115.00	288.00	209.00	81.10	59.30	101.00
1948	52.60	54.80	53.20	44.80	47.90	62.30	85.50	72.50	83.60	95.40	78.40	52.60	65.30
1949	57.10	53.20	40.20	37.60	44.80	62.40	110.00	92.00	123.00	66.60	53.20	48.70	65.70
1950	50.70	47.80	36.30	35.10	35.50	40.90	110.00	136.00	68.90	68.00	46.70	47.90	60.40
1951	36.50	34.50	32.50	30.90	34.40	39.80	42.20	56.00	75.60	53.20	52.70	57.40	45.50
1952	48.00	37.00	33.10	33.60	34.90	40.50	77.10	303.00	139.00	67.30	49.70	40.90	75.60
1953	41.70	31.60	30.30	35.60	35.10	47.90	59.90	107.00	101.00	53.90	50.80	33.10	52.40
1954	35.40	32.20	29.60	25.90	36.30	42.00	52.30	49.20	48.80	43.90	49.70	27.80	39.40
1955	26.10	29.20	25.10	22.50	26.90	30.90	63.60	62.50	63.50	59.40	55.20	36.00	41.80
1956	32.80	25.50	26.50	29.90	24.00	41.00	41.00	51.20	53.10	43.50	41.20	22.30	36.10
1957	27.10	28.40	20.50	17.70	18.10	15.10	13.80	73.40	50.90	43.20	42.80	41.00	32.80
1958	25.70	21.50	23.30	24.60	19.90	21.90	20.00	38.10	53.70	46.30	33.30	33.50	30.20
1959	29.30	27.10	21.80	18.60	18.00	16.40	31.30	54.50	39.00	52.50	52.80	34.20	33.10
1960	25.90	13.60	15.70	15.40	16.20	19.30	21.70	43.60	41.20	54.60	49.70	33.70	29.30
1961	27.40	28.80	18.70	17.80	17.60	16.30	26.70	40.80	67.20	62.80	18.90	24.60	30.70
1962	16.40	17.10	11.70	10.50	13.50	16.30	13.00	52.40	120.00	86.80	34.40	27.80	35.10
1963	24.60	22.80	17.30	16.30	19.00	21.20	27.60	40.10	106.00	121.00	55.10	54.80	43.90
1964	39.00	30.80	29.60	29.80	27.60	31.10	65.60	107.00	190.00	115.00	73.80	46.00	65.50
1965	49.60	33.80	32.50	32.50	32.70	37.70	78.90	321.00	487.00	198.00	95.60	82.80	124.00
1966	98.40	58.50	45.80	36.00	40.00	75.70	90.40	83.50	65.00	62.70	42.40	36.30	61.40
1967	41.90	35.20	27.20	26.60	25.10	43.20	64.90	94.50	293.00	185.00	77.80	74.30	82.50
1968	46.90	39.10	36.20	34.40	36.30	45.50	43.70	54.00	69.40	52.80	52.00	35.30	45.50
1969	29.00	32.40	20.40	26.00	29.20	31.50	42.40	85.40	65.70	62.10	45.30	52.20	43.50
1970	26.80	26.80	23.70	20.80	27.60	27.70	47.10	157.00	154.00	80.20	68.20	66.70	60.70
1971	32.00	32.20	24.80	23.10	31.40	32.90	182.00	230.00	175.00	83.20	73.30	58.60	81.60
1972	34.40	38.50	32.90	30.50	31.20	72.90	55.10	63.00	449.00	169.00	101.00	72.30	95.50
1973	65.70	41.90	37.40	38.10	36.40	31.70	66.80	158.00	98.70	98.10	62.20	61.90	66.60
1974	35.50	35.50	33.30	28.20	28.70	27.70	28.70	59.90	47.30	90.90	64.70	36.40	43.30
1975	24.60	22.30	23.30	21.50	21.50	24.80	33.50	46.90	86.50	71.10	60.30	51.20	40.70

Table 50.--Mean discharge, in cubic feet per second, for Rapid Creek at Rapid City, station 06414000--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1976	25.20	26.30	27.10	26.40	26.60	29.40	30.50	52.60	191.00	98.10	67.90	55.40	54.60
1977	29.90	30.10	34.10	20.90	29.10	43.60	120.00	119.00	78.60	79.70	54.20	37.20	56.40
1978	30.30	27.80	33.00	15.90	15.90	31.70	31.30	253.00	196.00	77.60	59.30	44.50	68.40
1979	49.80	40.10	36.40	34.50	48.90	48.50	56.90	65.70	83.50	65.10	61.70	40.10	52.60
1980	34.70	38.20	36.30	37.70	28.90	29.10	49.30	79.60	52.30	71.40	66.50	34.70	46.70
1981	23.00	25.50	24.80	24.00	25.70	22.80	17.60	90.80	36.00	84.50	39.50	56.60	39.40
1982	22.10	20.80	23.50	22.60	23.50	23.80	23.10	54.20	52.90	153.00	126.00	95.50	53.70
1983	67.00	36.10	38.40	37.80	36.00	52.00	97.90	199.00	106.00	80.80	54.60	37.20	70.50
1984	30.10	35.10	34.90	40.20	32.90	32.80	74.50	166.00	153.00	93.40	90.60	60.30	70.40
1985	38.80	35.40	39.90	44.80	44.90	57.60	61.00	98.30	57.70	90.50	54.30	34.40	55.00
1986	27.60	26.10	26.20	27.80	30.30	30.20	40.70	42.70	53.30	45.80	51.20	48.30	37.50
1987	72.30	65.90	43.60	34.50	30.50	41.40	79.40	76.70	51.70	66.70	62.70	44.80	56.00
1988	26.00	28.20	24.80	26.20	26.70	27.50	30.80	61.50	67.20	85.90	59.40	42.20	42.30

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 51.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek at Rapid City, station 06414000 (July 1942 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	38.90	34.70	30.70	29.30	30.80	38.50	61.60	102.00	124.00	87.40	59.20	47.10	57.3
Variance	275.00	128.00	78.20	78.90	93.50	282.00	1,582.00	4,851.00	10,460.00	1,725.00	354.00	236.00	438.00
Standard deviation	16.60	11.30	8.84	8.88	9.67	16.80	39.80	69.60	102.00	41.50	18.80	15.40	20.9
Skewness	1.45	.78	.37	.17	.41	1.01	1.61	1.71	2.04	1.58	1.16	1.00	1.04
Coefficient of variation	.43	.33	.29	.30	.31	.44	.65	.68	.83	.48	.32	.33	.37
Percent of annual discharge	5.68	5.07	4.49	4.29	4.50	5.63	9.00	14.90	18.10	12.80	8.65	6.89	[1].485

[1]Serial correlation for annual mean discharges.

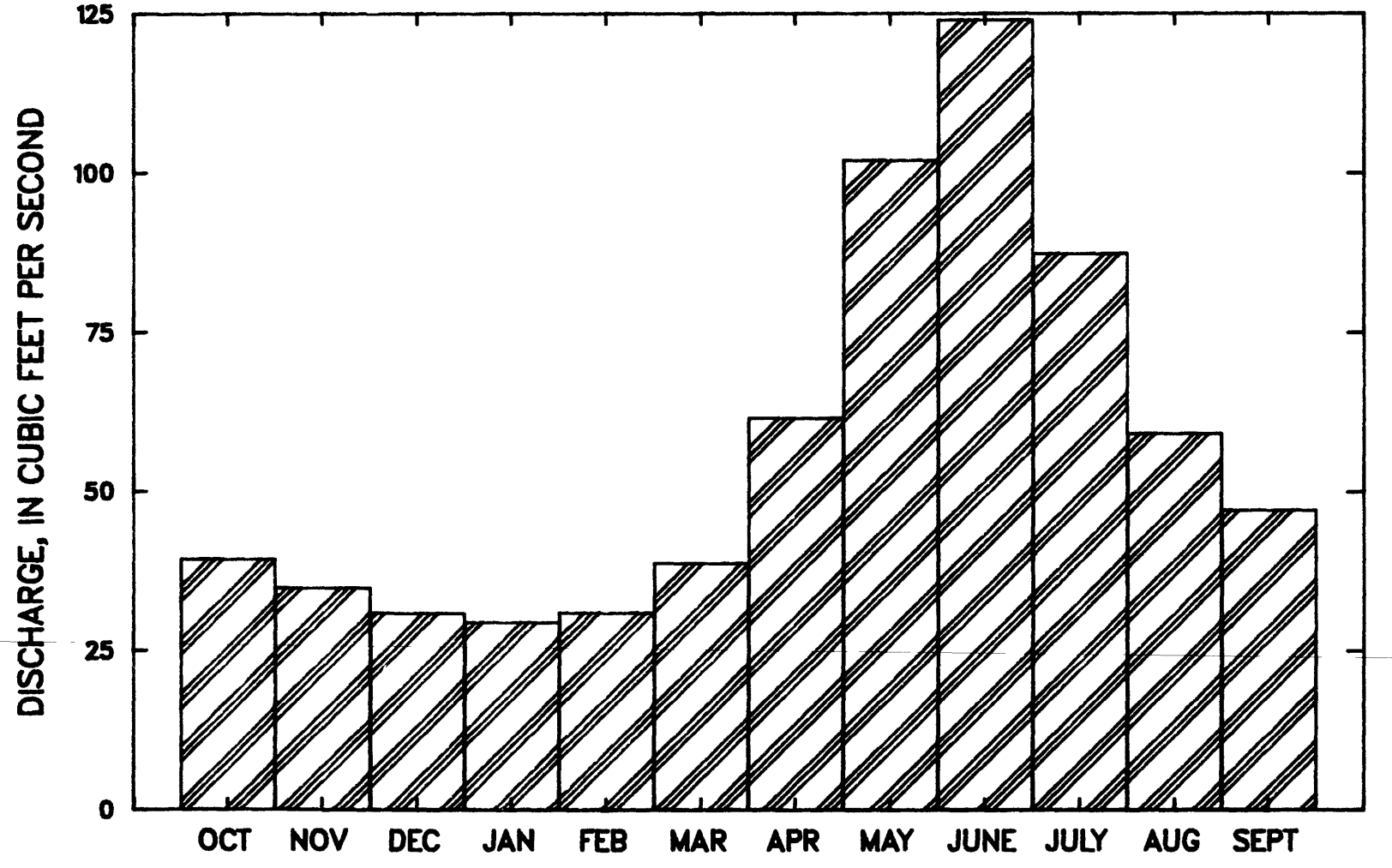

Figure 21.--Monthly mean discharge for Rapid Creek at Rapid City, station 06414000 (July 1942 through September 1988).

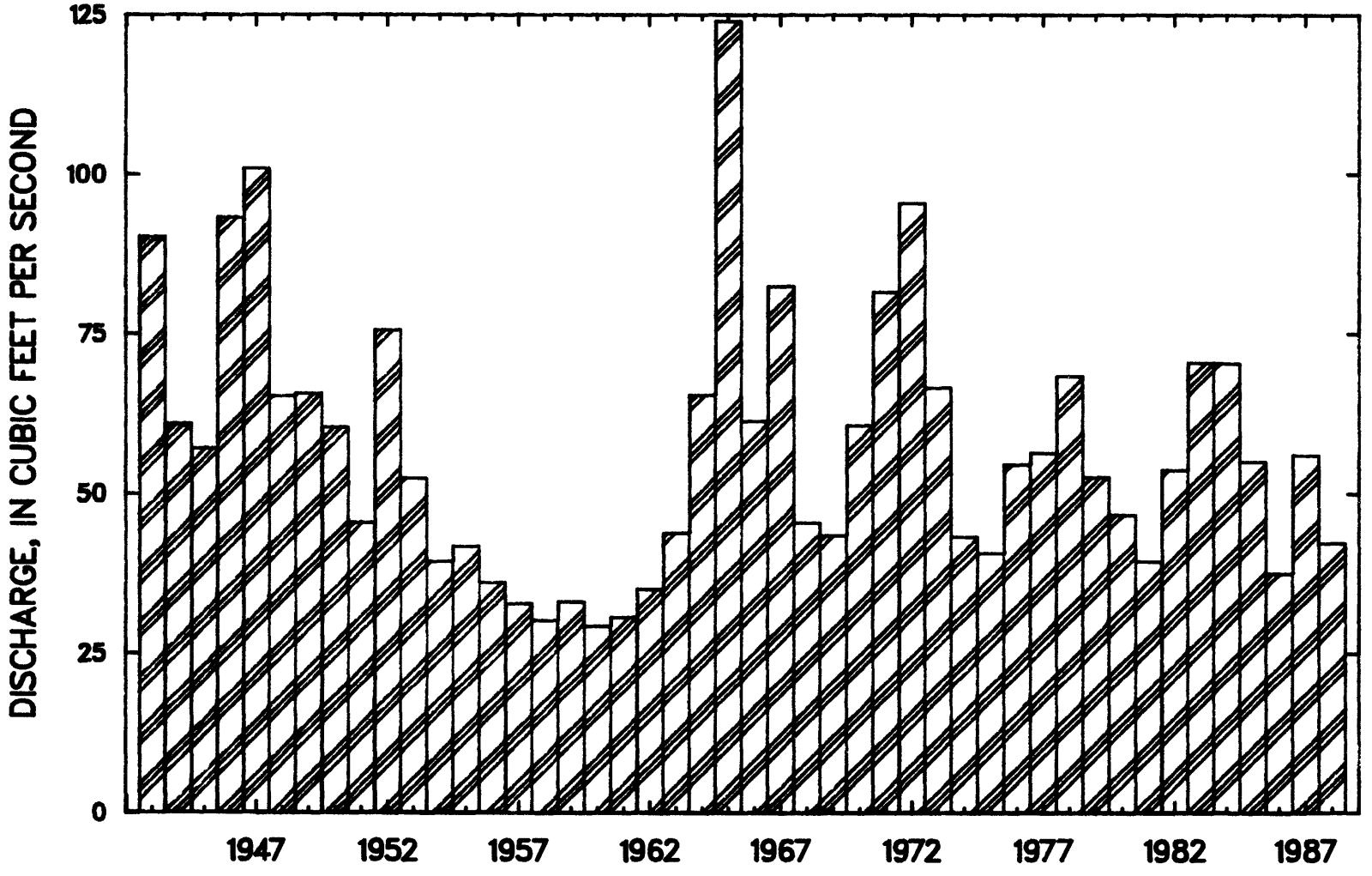

Figure 22.--Annual mean discharge for Rapid Creek at Rapid City, station 06414000 (water years 1943–88).

Table 52.--Correlation matrix for monthly mean discharge for Rapid Creek at Rapid City, station 06414000 (July 1942 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.847	0.801	0.701	0.675	0.661	0.496	0.253	0.153	0.166	0.051	0.011
Nov.	*	1.000	0.873	0.767	0.767	0.719	0.580	0.147	0.172	0.170	0.105	0.047
Dec.	*	*	1.000	0.876	0.836	0.745	0.536	0.240	0.185	0.223	0.246	0.070
Jan.	*	*	*	1.000	0.882	0.705	0.498	0.212	0.217	0.274	0.242	0.108
Feb.	*	*	*	*	1.000	0.797	0.634	0.162	0.195	0.200	0.168	0.075
Mar.	*	*	*	*	*	1.000	0.669	0.115	0.380	0.247	0.145	0.036
Apr.	*	*	*	*	*	*	1.000	0.397	0.323	0.188	0.104	0.069
May	*	*	*	*	*	*	*	1.000	0.511	0.337	0.238	0.334
June	*	*	*	*	*	*	*	*	1.000	0.802	0.503	0.569
July	*	*	*	*	*	*	*	*	*	1.000	0.670	0.726
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.786
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 53.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek at Rapid City, station 06414000 (July 1942 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.198	0.415	0.529	0.591	0.520	0.374	0.255	0.049	0.167	0.268	0.109	0.154

Table 54.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek at Rapid City, station 06414000 (July 1942 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	27.00	27.00	24.50	22.60	24.80	27.60	31.20	54.10	53.60	62.10	49.70	36.00	41.50
50th	35.00	33.10	32.50	29.80	30.40	35.30	54.70	78.10	83.50	77.80	54.60	43.80	54.80
75th	47.40	40.10	36.30	35.70	36.30	46.50	79.00	116.00	153.00	95.40	67.90	56.60	67.00

Table 55.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek at Rapid City, station 06414000

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1944	28.00 42	28.00 39	29.00 37	30.00 34	32.00 36	35.00 38	38.00 41	40.00 40	41.00 35
1945	28.00 43	29.00 40	31.00 41	31.00 38	32.00 37	33.00 33	35.00 36	37.00 37	39.00 33
1946	27.00 39	27.00 36	28.00 34	30.00 35	32.00 38	34.00 34	34.00 32	35.00 32	38.00 31
1947	42.00 45	43.00 45	46.00 45	48.00 45	51.00 45	52.00 45	53.00 45	54.00 45	59.00 45
1948	40.00 44	41.00 44	42.00 44	43.00 44	43.00 44	46.00 44	48.00 44	50.00 44	51.00 43
1949	25.00 37	27.00 37	30.00 38	34.00 43	37.00 43	38.00 42	40.00 42	43.00 42	48.00 42
1950	28.00 40	28.00 38	30.00 39	31.00 39	33.00 39	35.00 39	36.00 37	37.00 38	41.00 36
1951	21.00 27	25.00 33	28.00 35	30.00 36	31.00 34	32.00 31	32.00 28	33.00 28	35.00 27
1952	28.00 41	29.00 41	31.00 42	31.00 40	32.00 35	33.00 32	34.00 33	34.00 31	38.00 32
1953	24.00 33	24.00 31	25.00 28	28.00 30	30.00 30	30.00 26	32.00 29	33.00 29	36.00 28
1954	18.00 20	19.00 22	20.00 19	20.00 17	25.00 23	27.00 22	29.00 23	30.00 24	32.00 22
1955	18.00 21	20.00 23	21.00 20	21.00 18	22.00 16	24.00 15	25.00 13	26.00 16	26.00 11
1956	22.00 28	22.00 26	23.00 25	23.00 21	24.00 19	25.00 16	27.00 20	26.00 17	29.00 19
1957	9.00 7	9.00 7	11.00 6	12.00 5	15.00 6	17.00 5	17.00 5	18.00 5	21.00 4
1958	8.00 3	8.70 5	11.00 7	13.00 6	14.00 5	20.00 9	22.00 10	22.00 9	23.00 9
1959	8.00 4	8.70 6	12.00 8	13.00 7	16.00 7	17.00 6	18.00 6	19.00 6	22.00 6
1960	9.00 8	9.30 8	9.60 4	11.00 4	13.00 4	14.00 2	15.00 2	15.00 2	18.00 2
1961	11.00 12	12.00 9	12.00 9	14.00 8	16.00 8	17.00 7	17.00 3	18.00 3	21.00 5
1962	8.00 5	8.00 2	8.60 3	9.50 2	9.70 1	11.00 1	12.00 1	13.00 1	14.00 1
1963	2.00 1	3.40 1	7.00 1	10.00 3	12.00 2	16.00 3	17.00 4	18.00 4	20.00 3
1964	9.40 10	13.00 11	14.00 10	18.00 13	28.00 26	28.00 23	29.00 24	29.00 22	31.00 20
1965	10.00 11	13.00 12	27.00 33	29.00 31	30.00 31	31.00 27	32.00 30	32.00 25	37.00 29
1966	23.00 32	23.00 27	26.00 31	30.00 37	35.00 42	38.00 43	40.00 43	44.00 43	59.00 44
1967	20.00 24	21.00 24	22.00 22	24.00 25	25.00 20	26.00 19	26.00 19	27.00 20	32.00 23
1968	25.00 34	30.00 42	30.00 40	33.00 41	33.00 40	34.00 35	35.00 34	36.00 33	40.00 34
1969	15.00 17	16.00 18	17.00 16	18.00 14	20.00 13	23.00 13	25.00 14	26.00 18	28.00 17
1970	15.00 18	15.00 14	16.00 13	18.00 15	19.00 10	22.00 11	23.00 11	24.00 12	26.00 12
1971	13.00 15	15.00 15	20.00 17	21.00 19	21.00 14	23.00 12	25.00 15	26.00 13	29.00 18
1972	18.00 22	19.00 19	24.00 26	26.00 26	29.00 27	31.00 28	31.00 25	33.00 26	37.00 30
1973	22.00 29	23.00 28	25.00 29	26.00 27	31.00 32	34.00 36	35.00 35	36.00 34	42.00 37
1974	20.00 25	21.00 25	22.00 23	23.00 22	27.00 24	28.00 24	28.00 21	29.00 23	32.00 24
1975	9.20 9	15.00 16	16.00 14	17.00 12	19.00 11	20.00 8	21.00 8	22.00 7	23.00 7
1976	18.00 23	19.00 20	20.00 18	23.00 23	25.00 21	26.00 20	26.00 16	26.00 14	27.00 15
1977	12.00 13	13.00 13	15.00 12	16.00 10	19.00 12	25.00 17	28.00 22	28.00 21	31.00 21

Table 55.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek at Rapid City, station 06414000--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1978	8.60 6	8.60 4	8.60 2	9.10 1	12.00 3	16.00 4	20.00 7	23.00 10	26.00 13
1979	23.00 30	23.00 29	24.00 27	26.00 28	31.00 33	35.00 37	36.00 38	40.00 41	42.00 38
1980	23.00 31	24.00 32	26.00 30	27.00 29	28.00 25	29.00 25	32.00 26	33.00 27	34.00 25
1981	12.00 14	12.00 10	14.00 11	17.00 11	23.00 17	24.00 14	24.00 12	24.00 11	24.00 10
1982	6.70 2	8.50 3	11.00 5	14.00 9	18.00 9	21.00 10	22.00 9	22.00 8	23.00 8
1983	16.00 19	19.00 21	21.00 21	22.00 20	23.00 18	36.00 40	37.00 39	36.00 35	44.00 40
1984	25.00 35	26.00 34	27.00 32	29.00 32	29.00 28	31.00 29	32.00 27	34.00 30	34.00 26
1985	27.00 38	32.00 43	33.00 43	34.00 42	35.00 41	36.00 41	38.00 40	39.00 39	43.00 39
1986	21.00 26	23.00 30	23.00 24	24.00 24	25.00 22	26.00 21	26.00 17	27.00 19	28.00 16
1987	25.00 36	26.00 35	29.00 36	29.00 33	30.00 29	32.00 30	33.00 31	37.00 36	47.00 41
1988	15.00 16	16.00 17	17.00 15	20.00 16	22.00 15	25.00 18	26.00 18	26.00 15	27.00 14

[1]Low-flow water year is April 1 to March 31.

Table 56.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek at Rapid City, station 06414000

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1943	567.00 6	480.00 7	445.00 7	356.00 8	278.00 9	198.00 9	195.00 6	182.00 4	138.00 5
1944	228.00 19	204.00 18	186.00 19	165.00 17	132.00 20	115.00 19	109.00 17	102.00 17	82.00 18
1945	162.00 30	158.00 26	152.00 24	135.00 23	117.00 23	96.00 25	89.00 24	81.00 24	74.00 22
1946	573.00 5	537.00 5	473.00 6	371.00 7	297.00 7	263.00 3	235.00 3	193.00 3	148.00 3
1947	1,090.00 3	985.00 3	777.00 3	576.00 3	393.00 3	252.00 4	206.00 4	181.00 5	145.00 4
1948	194.00 26	172.00 25	156.00 23	124.00 26	115.00 24	100.00 24	88.00 25	85.00 22	80.00 20
1949	246.00 17	223.00 17	191.00 16	164.00 18	129.00 22	113.00 21	109.00 18	100.00 18	84.00 16
1950	206.00 23	189.00 21	164.00 22	154.00 21	137.00 19	126.00 17	106.00 20	96.00 20	80.00 21
1951	100.00 43	97.00 40	88.00 40	82.00 38	76.00 37	69.00 35	62.00 37	61.00 37	56.00 35
1952	2,070.00 2	1,520.00 2	957.00 2	602.00 2	365.00 4	226.00 8	176.00 9	149.00 8	114.00 8
1953	217.00 20	180.00 22	147.00 25	128.00 25	107.00 25	105.00 23	91.00 22	82.00 23	70.00 24
1954	92.00 44	88.00 43	82.00 42	70.00 41	66.00 41	52.00 45	52.00 41	50.00 43	48.00 39
1955	162.00 31	118.00 35	100.00 37	76.00 39	72.00 38	68.00 36	64.00 36	64.00 35	57.00 33
1956	124.00 38	115.00 37	95.00 38	70.00 42	64.00 42	54.00 42	52.00 42	50.00 44	45.00 41
1957	229.00 18	174.00 24	120.00 30	101.00 33	77.00 36	64.00 39	57.00 40	53.00 39	44.00 42
1958	109.00 41	74.00 45	67.00 46	64.00 45	62.00 43	54.00 43	47.00 46	44.00 46	37.00 46
1959	87.00 45	82.00 44	75.00 44	67.00 43	57.00 45	55.00 41	50.00 44	50.00 40	44.00 43
1960	78.00 46	71.00 46	67.00 45	64.00 46	60.00 44	53.00 44	49.00 45	48.00 45	41.00 44
1961	106.00 42	101.00 39	95.00 39	85.00 37	72.00 39	68.00 37	58.00 39	50.00 41	40.00 45
1962	430.00 10	329.00 11	239.00 15	190.00 15	150.00 17	110.00 22	89.00 23	76.00 27	56.00 34
1963	180.00 27	177.00 23	176.00 21	148.00 22	130.00 21	115.00 20	95.00 21	86.00 21	67.00 26
1964	250.00 16	246.00 15	241.00 14	237.00 11	215.00 11	157.00 13	140.00 11	123.00 11	100.00 11
1965	628.00 4	605.00 4	595.00 4	575.00 4	506.00 1	433.00 1	342.00 1	279.00 1	210.00 1
1966	142.00 35	139.00 31	128.00 29	119.00 27	101.00 27	95.00 26	87.00 26	80.00 25	70.00 25
1967	487.00 8	483.00 6	473.00 5	452.00 5	356.00 5	241.00 6	193.00 7	164.00 7	132.00 7
1968	110.00 40	93.00 42	79.00 43	72.00 40	70.00 40	63.00 40	60.00 38	57.00 38	53.00 38
1969	147.00 34	146.00 29	143.00 27	109.00 30	87.00 33	76.00 33	72.00 32	65.00 34	59.00 30
1970	332.00 13	318.00 12	299.00 11	217.00 13	162.00 15	159.00 12	135.00 13	118.00 13	96.00 13
1971	440.00 9	426.00 8	373.00 9	340.00 9	288.00 8	244.00 5	197.00 5	169.00 6	134.00 6
1972	5,600.00 1	2,500.00 1	1,320.00 1	745.00 1	478.00 2	322.00 2	241.00 2	199.00 2	152.00 2
1973	195.00 25	194.00 20	190.00 17	187.00 16	164.00 14	137.00 16	121.00 16	112.00 14	91.00 14
1974	163.00 29	128.00 33	116.00 31	111.00 29	95.00 28	81.00 29	69.00 35	67.00 33	55.00 36
1975	215.00 21	142.00 30	115.00 32	103.00 31	90.00 31	81.00 30	76.00 29	71.00 28	58.00 31

Table 56.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek at Rapid City, station 06414000--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1976	488.00 7	390.00 10	343.00 10	301.00 10	220.00 10	151.00 14	125.00 15	107.00 16	82.00 19
1977	200.00 24	200.00 19	189.00 18	160.00 20	149.00 18	121.00 18	108.00 19	100.00 19	83.00 17
1978	408.00 11	399.00 9	388.00 8	382.00 6	334.00 6	228.00 7	178.00 8	148.00 9	111.00 9
1979	211.00 22	135.00 32	109.00 33	102.00 32	88.00 32	79.00 31	75.00 30	71.00 29	64.00 28
1980	125.00 37	118.00 36	108.00 35	96.00 34	85.00 34	72.00 34	71.00 33	71.00 30	59.00 29
1981	176.00 28	154.00 27	145.00 26	114.00 28	92.00 29	64.00 38	72.00 31	63.00 36	54.00 37
1982	370.00 12	230.00 16	183.00 20	162.00 19	157.00 16	141.00 15	126.00 14	108.00 15	84.00 15
1983	261.00 15	257.00 14	249.00 12	224.00 12	207.00 12	160.00 11	136.00 12	122.00 12	99.00 12
1984	273.00 14	269.00 13	246.00 13	216.00 14	168.00 13	161.00 10	141.00 10	129.00 10	106.00 10
1985	151.00 33	149.00 28	137.00 28	130.00 24	103.00 26	82.00 27	85.00 27	77.00 26	71.00 23
1986	154.00 32	94.00 41	84.00 41	66.00 44	55.00 46	51.00 46	51.00 43	50.00 42	47.00 40
1987	116.00 39	112.00 38	109.00 34	93.00 36	80.00 35	79.00 32	71.00 34	70.00 31	65.00 27
1988	134.00 36	120.00 34	103.00 36	95.00 35	91.00 30	81.00 28	76.00 28	69.00 32	58.00 32

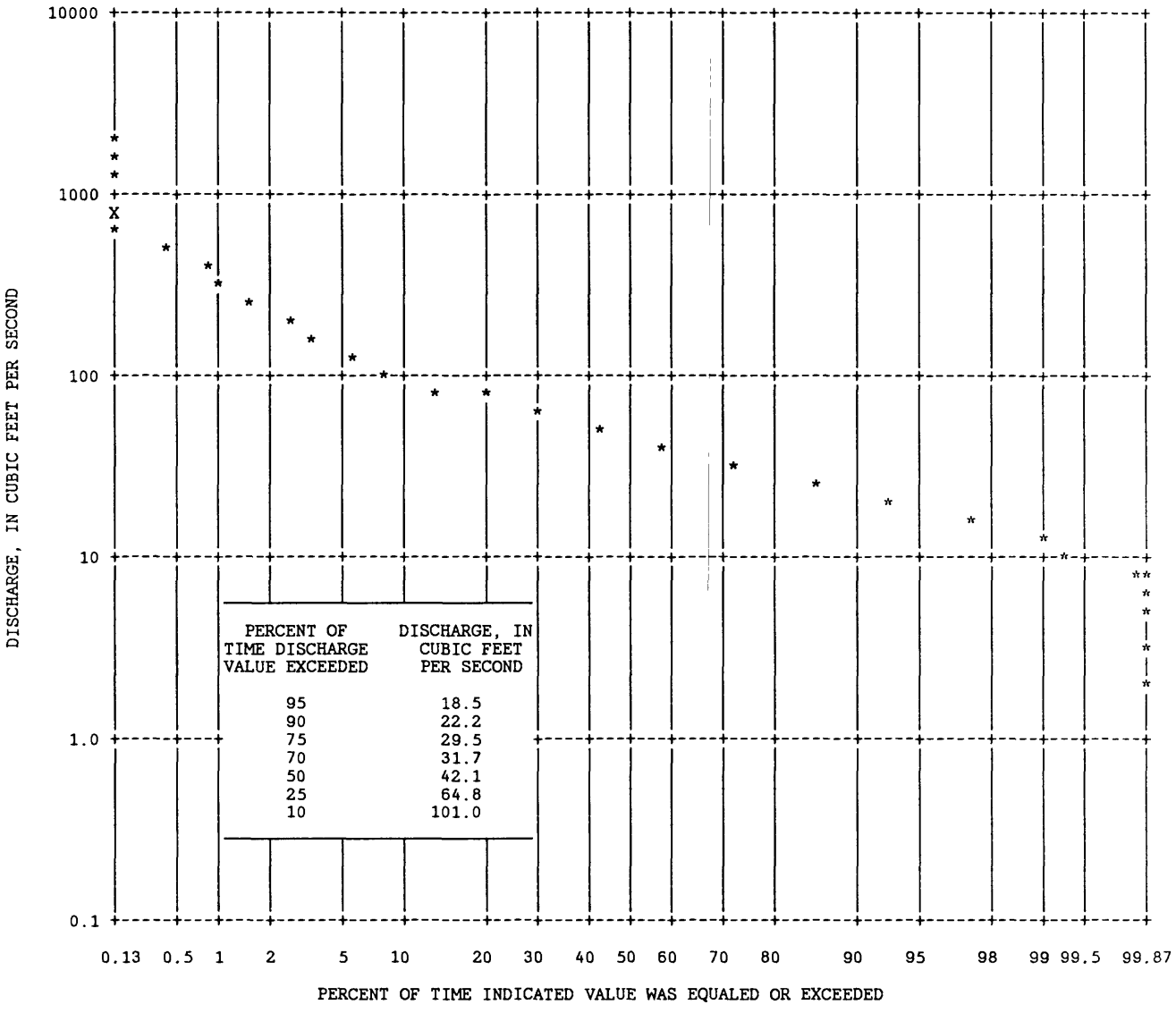

Figure 23.--Duration of daily discharge data for Rapid Creek at Rapid City, station 06414000 (water years 1943-88).

Table 57.--Peak-discharge and gage-height data for Rapid Creek at Rapid City, station 06414000

[Blanks indicate no information]

Station locator
Latitude: 440509
Longitude: 1031431

Drainage area: 410.00 square miles

Gage datum: 3,230.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1905	07/26/05	2,500.00			
1906	08/02/06	980.00			
1943	06/13/43	936.00			
1944	06/12/44	270.00			
1945	08/01/45	381.00			
1946	07/18/46	1,000.00	6		
1947	06/24/47	1,170.00	6		
1948	08/13/48	472.00	6		
1949	08/15/49	563.00	6		
1950	04/16/50	246.00	6		
1951	10/09/50	143.00	6		
1952	05/23/52	2,540.00	6		
1953	06/19/53	824.00	6		
1954	06/10/54	172.00	6		
1955	08/10/55	878.00	6		
1956	10/15/55	182.00	6		
1957	07/14/57	784.00	6		
1958	07/19/58	362.00	6		
1959	12/11/58	141.00	6		
1960	06/20/60	290.00	6		
1961	06/14/61	115.00	6		
1962	07/13/62	3,300.00	6		
1963	06/05/63	418.00	6		
1964	06/13/64	426.00	6		
1965	06/11/65	706.00	6		
1966	07/26/66	586.00	6		
1967	06/15/67	616.00	6		
1968	06/09/68	259.00	6		
1969	07/23/69	195.00	6		
1970	06/12/70	350.00	6		
1971	04/26/71	498.00	6		
1972	06/09/72	50,000.00	6		
1973	07/08/73	282.00	6	7.33	
1974	08/22/74	1,040.00	6	10.55	
1975	06/07/75	1,500.00	6	7.08	
1976	06/14/76	1,400.00	6	6.88	
1977	04/18/77	209.00	6	4.57	2
1978	05/29/78	602.00	6	5.58	
1979	08/07/79	451.00	6	5.28	
1980	06/15/80	265.00	6	4.81	
1981	07/25/81	409.00	6	5.23	
1982	07/25/82	2,000.00	6	8.65	
1983	08/22/83	411.00	6	5.56	
1984	06/15/84	414.00	6	5.48	

Table 57.--Peak-discharge and gage-height data for Rapid Creek at Rapid City, station 06414000--Continued

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1985	08/19/85	300.00	6	5.13	
1986	08/12/86	919.00	6	6.46	
1987	06/10/87	388.00	6	5.37	
1988	06/22/88	201.00	6	4.78	2

[1]See page 14 for explanation of discharge and gage-height codes.

Rapid Creek below Sewage Plant, near Rapid City, station 06418900

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Table 58.--Mean discharge, in cubic feet per second, for Rapid Creek below Sewage Plant, near Rapid City, station 06418900

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1982	20.60	23.70	35.50	31.40	36.10	39.70	37.10	74.00	63.80	163.00	153.00	96.50	64.80
1983	96.40	64.80	60.70	52.20	52.90	75.30	120.00	237.00	89.50	57.70	39.40	25.80	81.30
1984	33.50	42.10	41.20	55.50	48.90	49.40	103.00	177.00	180.00	87.90	62.30	28.80	75.80
1985	33.70	53.10	50.40	54.10	54.50	75.50	71.40	53.80	32.70	54.30	38.00	26.30	49.80
1986	31.70	36.40	38.60	43.50	54.00	48.50	74.70	62.50	59.10	41.80	33.40	58.90	48.40
1987	98.90	91.30	60.40	50.90	46.10	71.80	98.30	68.30	46.10	43.70	41.10	25.10	61.90
1988	21.80	37.40	36.40	43.80	42.50	44.40	31.10	41.40	40.90	46.20	38.70	25.70	37.50

Table 59.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (October 1981 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	48.10	49.80	46.20	47.30	47.90	57.80	76.50	102.00	73.20	70.60	58.00	41.00	59.9
Variance	1,174.00	505.00	121.00	71.50	46.40	247.00	1,121.00	5,531.00	2,579.00	1,891.00	1,847.00	747.00	245.00
Standard deviation	34.30	22.50	11.00	8.46	6.81	15.70	33.50	74.40	50.80	43.50	43.00	27.30	15.7
Skewness	1.13	1.07	.59	-1.21	-.83	.24	-.26	1.37	1.98	2.04	2.41	1.83	.00
Coefficient of variation	.71	.45	.24	.18	.14	.27	.44	.73	.69	.62	.74	.67	.26
Percent of annual discharge	6.69	6.94	6.43	6.59	6.66	8.04	10.70	14.20	10.20	9.83	8.07	5.71	[1].310

[1]Serial correlation for annual mean discharges.

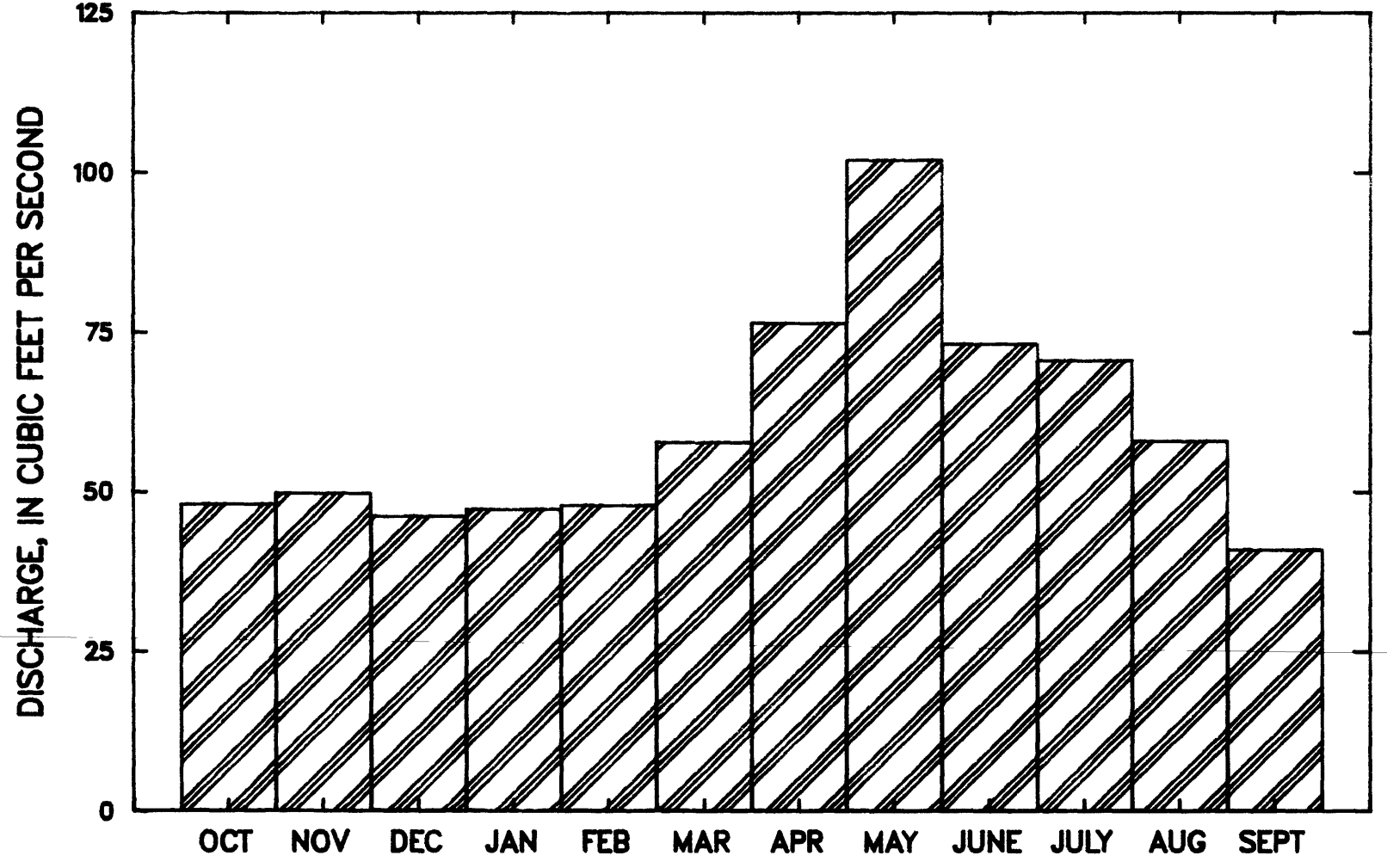

Figure 24.--Monthly mean discharge for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (October 1981 through September 1988).

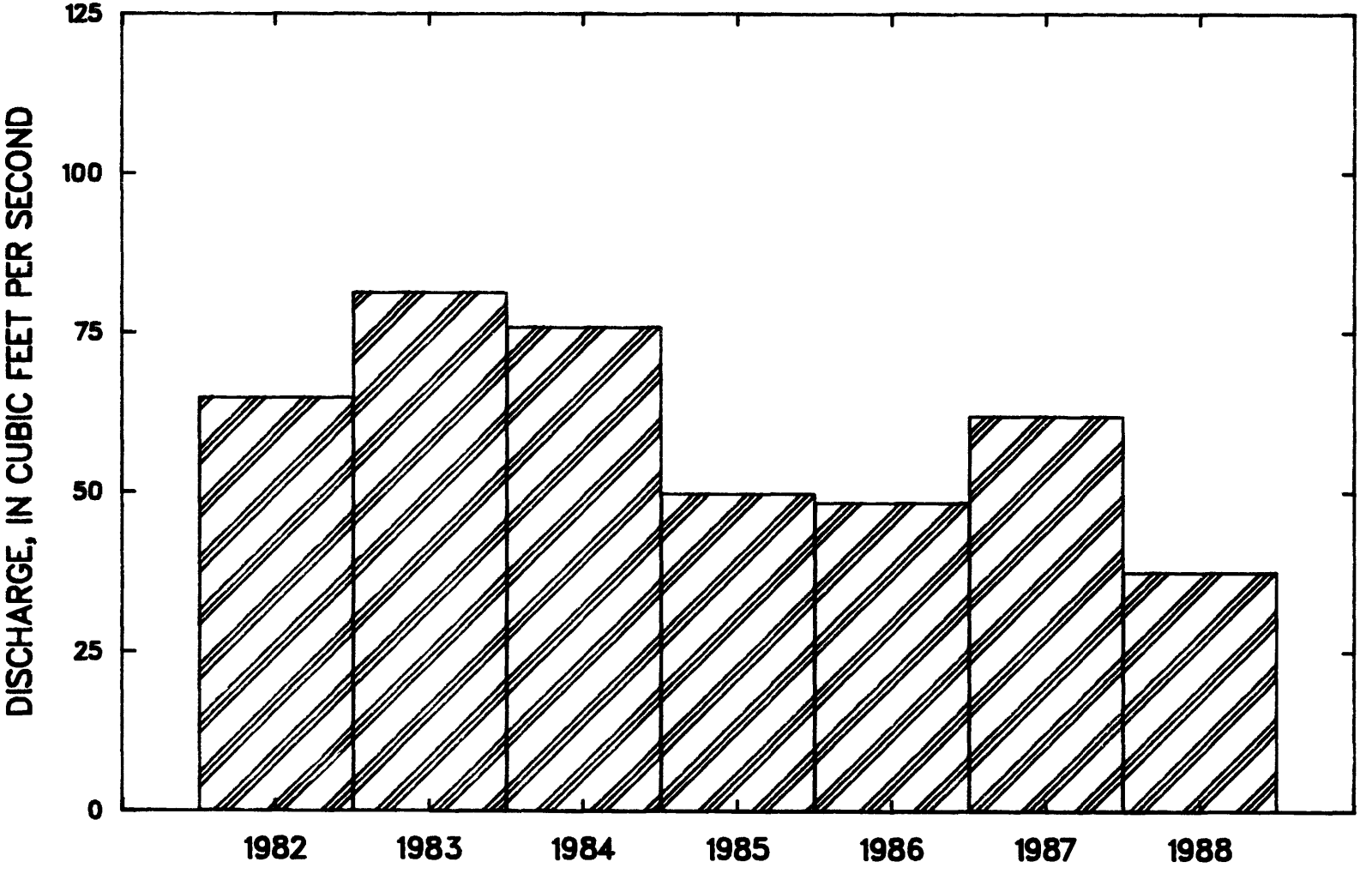

Figure 25.--Annual mean discharge for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (water years 1982–88).

Table 60.--Correlation matrix for monthly mean discharge for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (October 1981 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.900	0.935	0.455	0.288	0.752	0.759	0.483	-0.022	-0.383	-0.367	-0.457
Nov.	*	1.000	0.919	0.605	0.333	0.817	0.656	0.189	-0.146	-0.547	-0.517	-0.635
Dec.	*	*	1.000	0.615	0.450	0.933	0.759	0.427	-0.099	-0.437	-0.445	-0.571
Jan.	*	*	*	1.000	0.733	0.698	0.742	0.431	0.350	-0.633	-0.736	-0.886
Feb.	*	*	*	*	1.000	0.622	0.635	0.296	0.081	-0.694	-0.773	-0.553
Mar.	*	*	*	*	*	1.000	0.667	0.299	-0.204	-0.514	-0.540	-0.626
Apr.	*	*	*	*	*	*	1.000	0.756	0.489	-0.353	-0.441	-0.507
May	*	*	*	*	*	*	*	1.000	0.700	0.067	-0.062	-0.250
June	*	*	*	*	*	*	*	*	1.000	0.254	0.114	-0.098
July	*	*	*	*	*	*	*	*	*	1.000	0.984	0.787
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.841
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 61.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (October 1981 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
-0.624	-0.674	-0.907	-0.188	-0.102	-0.962	-0.442	0.252	-0.066	0.147	-0.170	-0.330

Table 62.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (October 1981 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	21.80	36.40	36.40	43.50	42.50	44.40	37.10	53.80	40.90	43.70	38.00	25.70	48.40
50th	33.50	42.10	41.20	50.90	48.90	49.40	74.70	68.30	59.10	54.30	39.40	26.30	61.90
75th	96.40	64.80	60.40	54.10	54.00	75.30	103.00	177.00	89.50	87.90	62.30	58.90	75.80

Table 63.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek below Sewage Plant, near Rapid City, station 06418900

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days															
	1		3		7		14		30		60		90		120		183	
1983	4.00	1	27.00	6	31.00	6	33.00	6	36.00	6	52.00	6	54.00	6	57.00	6	66.00	6
1984	17.00	4	18.00	4	19.00	3	22.00	3	25.00	2	28.00	3	33.00	3	35.00	3	39.00	3
1985	20.00	6	21.00	5	22.00	5	27.00	5	29.00	4	31.00	4	37.00	4	41.00	4	45.00	4
1986	16.00	2	17.00	1	18.00	1	19.00	1	25.00	3	27.00	2	30.00	2	32.00	2	35.00	2
1987	17.00	3	18.00	2	21.00	4	24.00	4	33.00	5	37.00	5	41.00	5	46.00	5	55.00	5
1988	18.00	5	18.00	3	19.00	2	19.00	2	21.00	1	23.00	1	26.00	1	29.00	1	33.00	1

[1]Low-flow water year is April 1 to March 31.

Table 64.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek below Sewage Plant, near Rapid City, station 06418900

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days															
	1		3		7		15		30		60		90		120		183	
1982	636.00	1	342.00	2	238.00	3	214.00	3	181.00	3	160.00	3	139.00	3	121.00	3	98.00	3
1983	386.00	3	340.00	3	309.00	2	280.00	1	248.00	1	181.00	2	152.00	2	133.00	2	106.00	2
1984	462.00	2	401.00	1	316.00	1	254.00	2	191.00	2	182.00	1	158.00	1	140.00	1	110.00	1
1985	119.00	7	105.00	7	102.00	6	94.00	5	87.00	5	76.00	5	68.00	5	65.00	5	60.00	5
1986	229.00	4	162.00	4	109.00	5	89.00	6	83.00	6	72.00	6	67.00	6	65.00	6	57.00	6
1987	167.00	6	131.00	6	122.00	4	113.00	4	101.00	4	96.00	4	84.00	4	76.00	4	71.00	4
1988	178.00	5	144.00	5	90.00	7	64.00	7	58.00	7	51.00	7	46.00	7	44.00	7	43.00	7

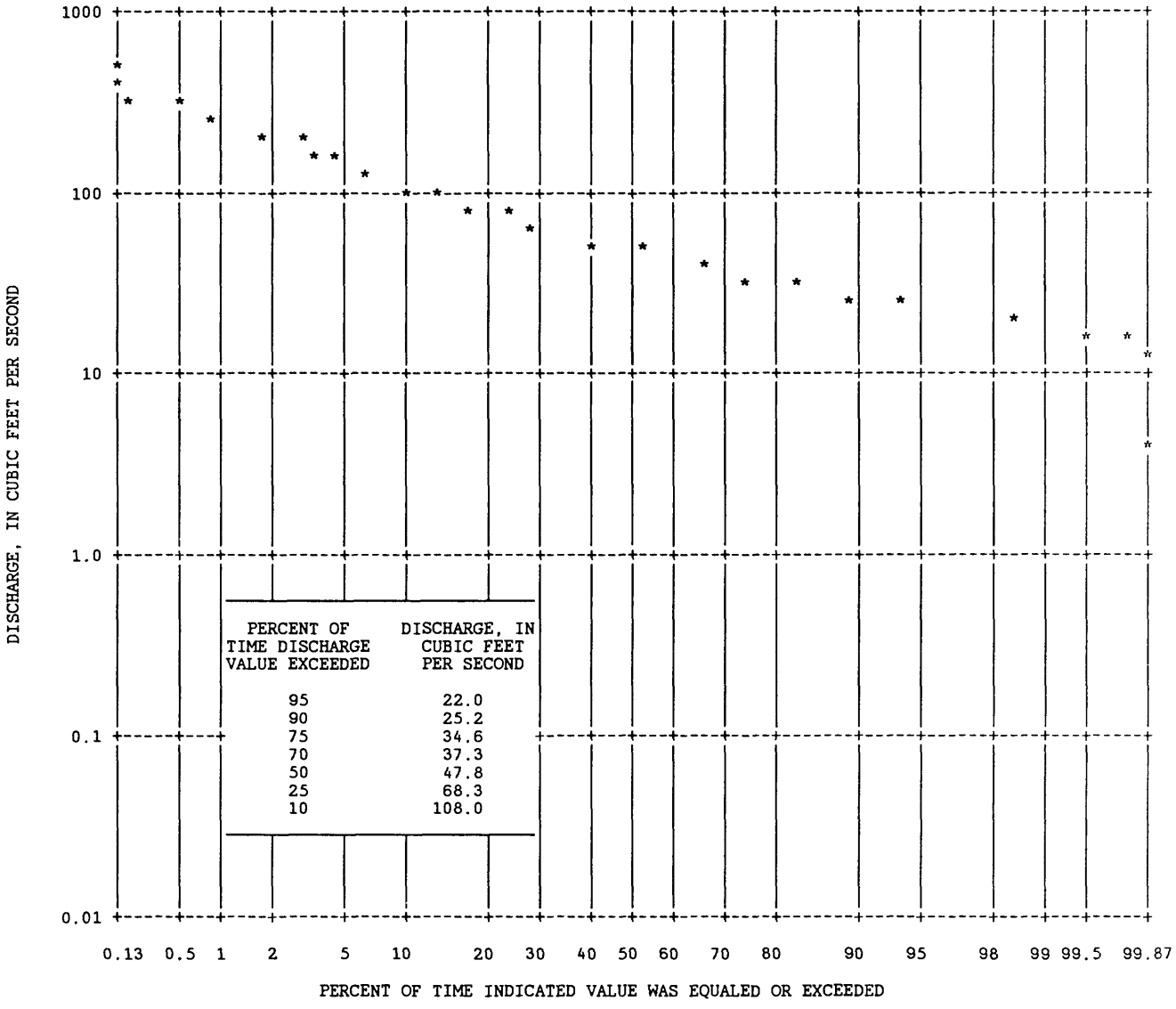

Figure 26.--Duration of daily discharge data for Rapid Creek below Sewage Plant, near Rapid City, station 06418900 (water years 1982-88).

Table 65.--Peak-discharge and gage-height data for Rapid Creek below Sewage Plant, near Rapid City, station 06418900

[Blanks indicate no information]

Station locator
Latitude: 440124
Longitude: 1030543
Drainage area: square miles
Gage datum: 3,000.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1982	07/25/82	1,680.00	6	9.12	
1983	08/22/83	1,260.00	6	7.92	
1984	06/15/84	788.00	6	6.18	
1985	08/19/85	631.00	6	5.82	
1986	08/13/86	879.00	6	6.86	
1987	06/10/87	504.00	6	5.32	
1988	05/02/88	569.00	6	5.44	

[1]See page 14 for explanation of discharge and gage-height codes.

Rapid Creek near Farmingdale, station 06421500

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Table 66.--Mean discharge, in cubic feet per second, for Rapid Creek near Farmingdale, station 06421500

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1946	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	37.50	68.10	[2]
1947	106.00	70.20	53.00	54.50	53.70	71.20	123.00	77.40	378.00	199.00	47.00	17.50	104.00
1948	41.80	49.70	55.50	43.00	55.40	69.20	74.20	47.70	92.80	75.20	46.20	10.80	55.10
1949	23.50	58.40	46.40	20.80	45.90	145.00	151.00	78.80	129.00	24.30	17.20	27.70	63.90
1950	45.60	48.30	39.90	35.80	40.10	57.40	158.00	144.00	11.30	11.00	20.30	25.60	53.10
1951	41.60	40.70	38.60	33.60	37.80	45.70	33.20	8.71	56.70	44.60	26.00	53.00	38.30
1952	53.50	42.10	36.20	37.40	44.60	48.60	82.70	235.00	139.00	44.30	2.22	2.87	64.10
1953	19.00	24.40	39.90	43.50	45.80	75.00	71.70	109.00	101.00	19.90	40.40	2.45	49.40
1954	6.92	35.20	37.50	32.10	44.40	52.40	58.20	9.87	24.90	1.84	9.95	0.00	25.90
1955	7.35	31.40	30.60	27.00	31.90	37.00	58.10	2.88	33.30	8.02	13.40	14.90	24.50
1956	24.80	33.50	35.00	37.40	36.80	60.10	43.30	19.00	9.32	18.40	23.70	2.48	28.70
1957	2.84	43.00	33.60	25.40	34.10	30.10	38.70	195.00	96.40	37.50	9.56	23.40	47.60
1958	27.00	32.10	35.50	32.70	28.10	33.90	41.80	11.90	56.50	56.50	6.43	2.11	30.40
1959	9.42	33.00	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	3.52	17.30	[2]
1960	19.40	23.50	22.30	22.10	23.50	49.70	25.70	6.64	7.76	4.17	3.49	5.70	17.80
1961	1.07	16.50	26.80	27.30	28.60	18.20	1.33	4.31	12.90	8.56	2.95	2.56	12.50
1962	5.51	21.20	15.40	11.70	19.80	29.70	9.19	134.00	128.00	205.00	27.50	8.19	51.70
1963	29.60	32.90	26.30	25.70	30.50	69.10	53.70	45.30	111.00	76.50	20.40	47.30	47.30
1964	38.10	35.10	30.10	34.90	37.10	44.50	74.90	65.60	173.00	83.40	15.60	26.40	54.80
1965	36.20	44.90	40.80	48.20	44.00	47.40	82.50	338.00	500.00	202.00	61.10	72.20	127.00
1966	97.60	57.30	49.80	41.80	43.40	125.00	122.00	73.20	13.10	26.00	40.30	42.10	61.10
1967	51.70	47.00	38.60	40.10	40.90	55.80	96.20	152.00	543.00	221.00	35.00	59.60	115.00
1968	57.50	53.90	53.70	55.20	54.60	60.60	61.40	23.10	121.00	36.10	43.90	33.80	54.40
1969	24.30	38.30	30.60	29.70	41.40	75.00	53.20	52.60	33.60	61.90	17.10	11.20	39.10
1970	25.70	46.60	38.50	34.50	40.70	49.40	150.00	202.00	129.00	14.10	15.40	69.90	67.80
1971	49.20	46.40	34.20	33.70	55.40	73.20	230.00	284.00	192.00	43.20	21.60	56.80	93.20
1972	42.00	59.80	48.40	35.30	47.20	90.40	66.70	77.50	387.00	171.00	98.00	47.50	97.40
1973	69.90	64.70	50.50	50.90	49.60	71.10	102.00	159.00	68.50	33.30	21.10	43.50	65.50
1974	34.60	49.40	31.10	34.80	44.60	43.80	36.60	26.80	24.20	29.30	29.50	31.40	34.60
1975	23.30	33.10	38.40	39.60	40.30	46.00	75.60	40.70	111.00	39.70	13.10	14.00	42.80
1976	23.50	30.40	39.10	39.60	44.50	40.50	48.00	67.40	220.00	64.50	30.30	26.10	56.00
1977	34.20	45.50	44.90	35.10	50.00	54.90	212.00	107.00	47.70	25.40	24.90	25.60	58.70
1978	45.10	40.90	34.90	21.80	33.20	114.00	55.10	285.00	186.00	58.00	35.50	19.90	77.80
1979	46.40	49.80	44.40	31.10	43.40	83.10	65.20	17.20	48.50	64.30	45.80	14.00	46.10

Table 66.--Mean discharge, in cubic feet per second, for Rapid Creek near Farmingdale, station 06421500--Continued

Water year	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
1980	23.30	49.90	38.80	44.60	44.80	53.20	50.60	23.20	61.70	23.60	31.30	26.90	39.20
1981	25.80	36.00	32.00	33.50	33.80	30.90	11.50	44.00	24.60	63.80	18.50	19.60	31.20
1982	23.90	31.80	32.60	34.80	34.00	44.50	37.70	112.00	95.10	131.00	151.00	99.00	69.30
1983	134.00	74.90	68.90	58.60	61.10	75.80	122.00	243.00	74.70	48.70	39.80	31.70	86.40
1984	42.20	49.30	42.10	72.50	80.80	55.70	112.00	190.00	183.00	65.70	34.10	32.50	79.80
1985	45.10	61.10	68.80	64.10	47.70	97.90	75.80	23.60	28.20	27.30	31.00	28.80	50.00
1986	35.80	42.00	42.40	49.70	128.00	117.00	129.00	73.00	73.50	43.90	23.40	69.40	68.40
1987	99.10	100.00	65.40	58.70	55.00	92.90	105.00	91.60	57.20	22.30	44.10	30.80	68.60
1988	23.90	32.60	31.00	17.70	15.00	134.00	26.80	30.70	14.10	17.30	23.20	17.50	32.10

[1]Indicates a no-value month.
[2]Incomplete water year.

Table 67.--Statistics on mean discharge, in cubic feet per second, for Rapid Creek near Farmingdale, station 06421500 (August 1946 through November 1958 and August 1959 through September 1988)

Statistic	Month												
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
Mean	38.50	44.20	40.10	37.80	44.20	65.10	78.70	95.90	117.00	59.80	30.30	29.80	56.8
Variance	795.00	245.00	132.00	165.00	316.00	877.00	2,592.00	7,808.00	16,110.00	3,453.00	670.00	530.00	659.00
Standard deviation	28.20	15.70	11.50	12.80	17.80	29.60	50.90	88.40	127.00	58.80	25.90	23.00	25.7
Skewness	1.59	1.19	.76	.59	2.71	1.04	1.11	1.12	2.06	1.70	2.86	.98	.76
Coefficient of variation	.73	.35	.29	.34	.40	.45	.65	.92	1.08	.98	.85	.77	.45
Percent of annual discharge	5.65	6.49	5.88	5.55	6.48	9.55	11.50	14.10	17.20	8.77	4.45	4.38	[1].324

[1]Serial correlation for annual mean discharges.

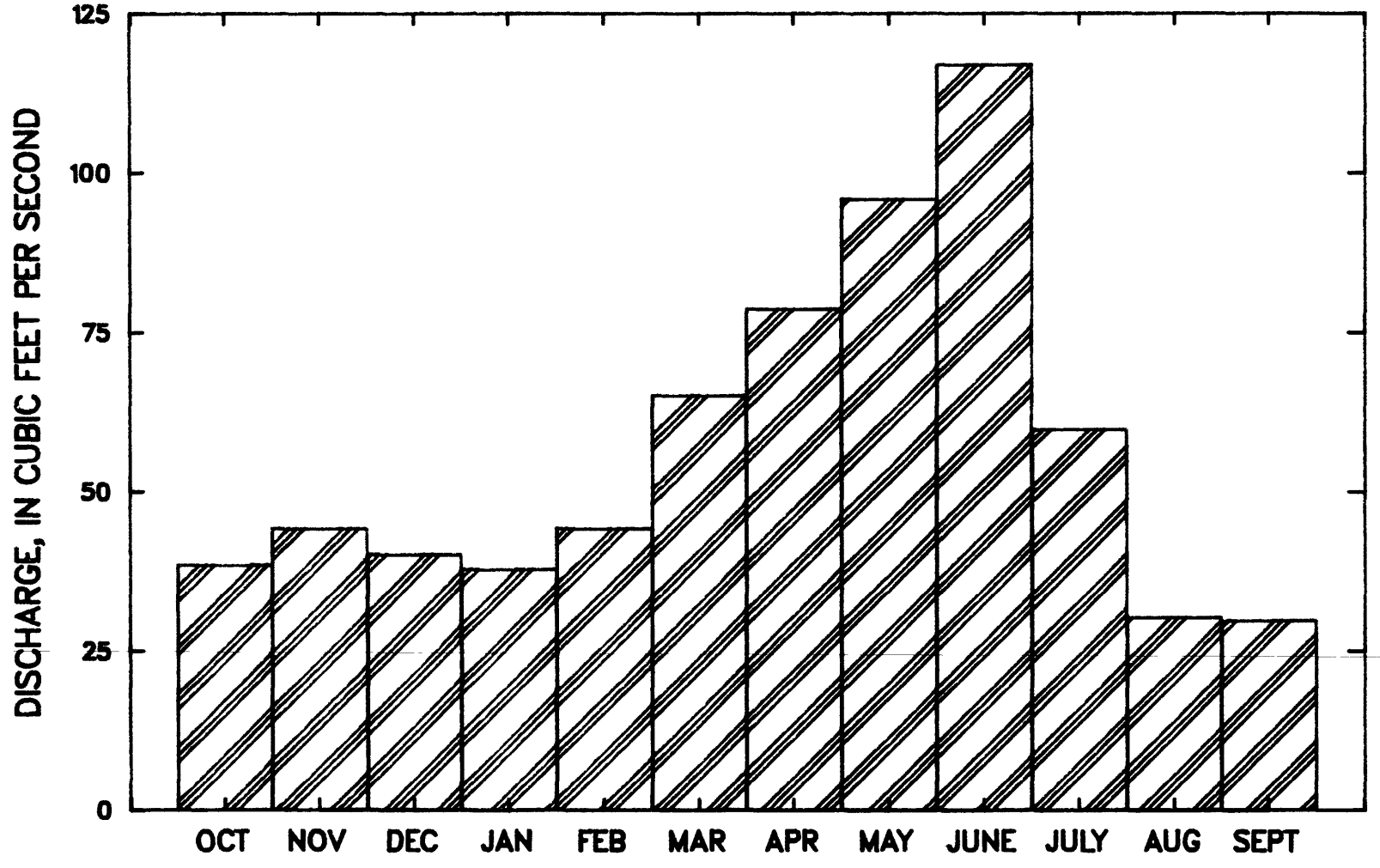

Figure 27.--Monthly mean discharge for Rapid Creek near Farmingdale, station 06421500 (August 1946 through November 1958 and August 1959 through September 1988).

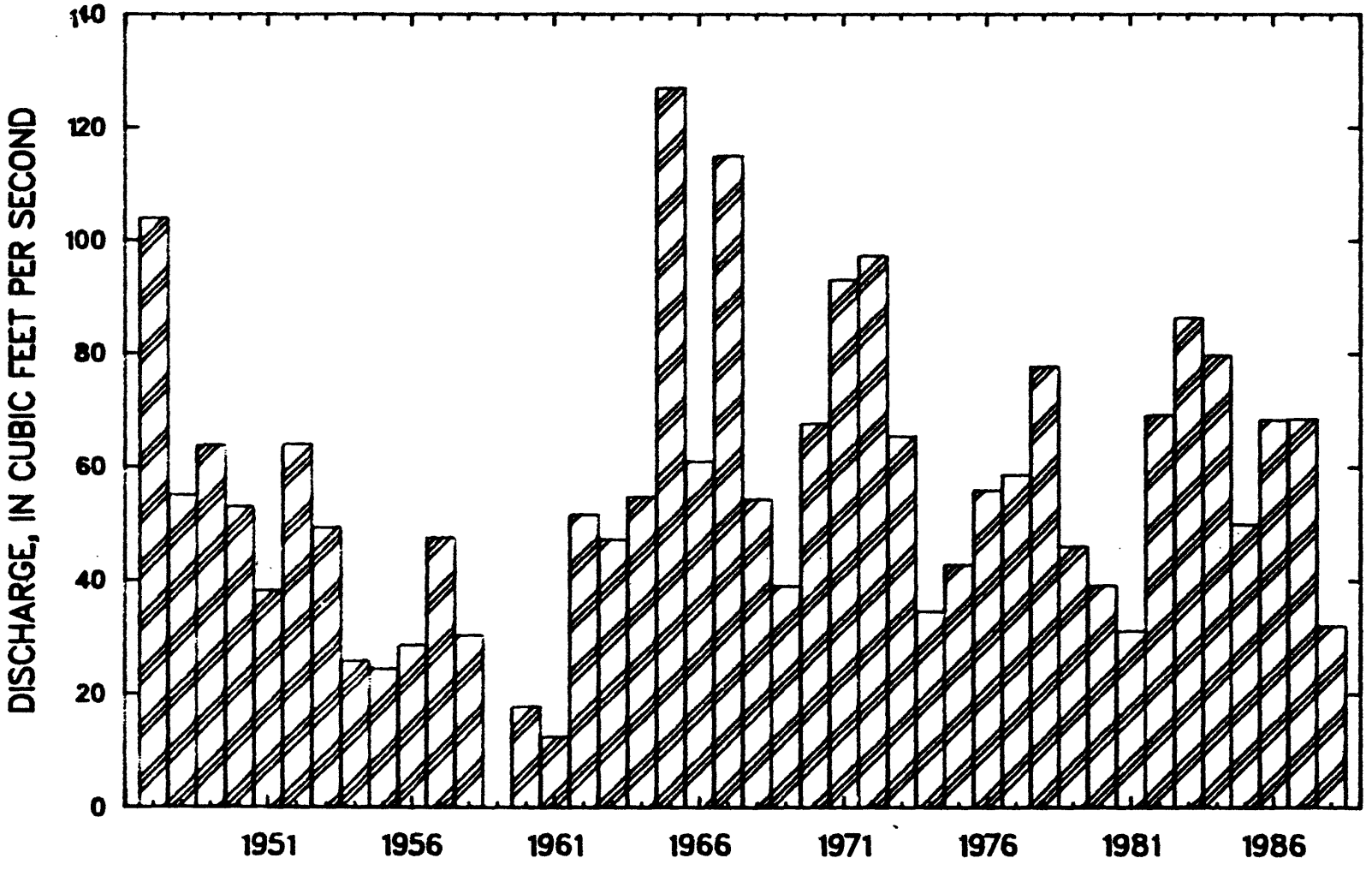

Figure 28.--Annual mean discharge for Rapid Creek near Farmingdale, station 06421500 (water years 1947–58, 60–88).

Table 68.--Correlation matrix for monthly mean discharge for Rapid Creek near Farmingdale, station 06421500 (August 1946 through November 1958 and August 1959 through September 1988)

	Month											
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Oct.	1.000	0.803	0.728	0.599	0.342	0.375	0.434	0.283	0.182	0.141	0.239	0.203
Nov.	*	1.000	0.837	0.614	0.400	0.438	0.479	0.216	0.160	0.047	0.245	0.246
Dec.	*	*	1.000	0.754	0.473	0.436	0.424	0.092	0.082	-0.062	0.256	0.141
Jan.	*	*	*	1.000	0.643	0.085	0.325	0.150	0.183	0.034	0.225	0.229
Feb.	*	*	*	*	1.000	0.305	0.491	0.165	0.108	-0.029	0.093	0.325
Mar.	*	*	*	*	*	1.000	0.349	0.045	-0.024	-0.130	0.137	0.128
Apr.	*	*	*	*	*	*	1.000	0.456	0.180	-0.077	-0.023	0.327
May	*	*	*	*	*	*	*	1.000	0.487	0.301	0.133	0.377
June	*	*	*	*	*	*	*	*	1.000	0.815	0.341	0.391
July	*	*	*	*	*	*	*	*	*	1.000	0.495	0.336
Aug.	*	*	*	*	*	*	*	*	*	*	1.000	0.566
Sept.	*	*	*	*	*	*	*	*	*	*	*	1.000

Table 69.--Serial correlation for 1-year lag for monthly mean discharge for Rapid Creek near Farmingdale, station 06421500 (August 1946 through November 1958 and August 1959 through September 1988)

Month											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
0.171	0.247	0.222	0.430	0.259	0.293	0.216	-0.026	-0.036	-0.003	0.069	0.229

Table 70.--Percentile rankings for mean discharge, in cubic feet per second, for Rapid Creek near Farmingdale, station 06421500 (August 1946 through November 1958 and August 1959 through September 1988)

	Month												
Percentile	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual
25th	23.40	33.00	32.30	30.40	34.00	45.10	42.50	23.40	30.70	22.90	15.60	14.00	38.70
50th	34.40	42.50	38.60	35.10	43.40	55.80	66.70	73.00	74.70	43.20	24.90	26.10	54.40
75th	45.80	49.80	45.60	44.00	48.60	75.40	109.00	148.00	134.00	65.10	39.80	43.50	68.50

Table 71.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek near Farmingdale, station 06421500

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1948	12.00 39	12.00 37	14.00 35	15.00 32	17.00 27	25.00 29	34.00 32	37.00 32	41.00 32
1949	2.80 24	3.00 20	3.80 17	7.60 20	10.00 19	14.00 13	26.00 21	32.00 24	32.00 18
1950	.00 1	.00 1	.39 10	1.50 9	6.20 11	17.00 18	22.00 16	27.00 18	33.00 20
1951	.30 13	.83 13	2.10 15	2.30 11	3.40 9	8.80 7	12.00 8	16.00 7	25.00 10
1952	2.90 25	3.70 22	4.60 21	5.90 16	8.60 13	19.00 21	32.00 28	32.00 25	37.00 29
1953	.00 2	.00 2	.00 1	.08 4	1.70 6	2.40 2	7.70 4	11.00 5	21.00 6
1954	.00 3	.00 3	.00 2	.91 8	1.40 5	4.30 6	9.70 6	16.00 8	23.00 7
1955	.00 4	.00 4	.00 3	.00 1	.00 1	1.80 1	3.60 3	4.10 3	8.80 3
1956	.00 5	.00 5	.00 4	.04 3	2.50 8	8.90 8	10.00 7	14.00 6	16.00 5
1957	.00 6	.00 6	.00 5	.20 6	.56 2	2.60 3	9.40 5	8.30 4	12.00 4
1958	2.40 23	2.70 19	4.20 19	6.00 17	9.10 15	14.00 14	17.00 11	22.00 12	26.00 12
1961	.00 7	.00 7	.00 6	.14 5	1.00 3	3.30 5	3.10 2	3.60 1	4.60 1
1962	.00 8	.00 8	.00 7	.00 2	1.19 4	2.60 4	2.70 1	3.90 2	5.40 2
1963	.00 9	.00 9	.00 8	.25 7	1.90 7	11.00 10	18.00 13	21.00 11	23.00 8
1964	.00 10	.00 10	1.60 13	7.20 18	19.00 28	31.00 34	32.00 29	34.00 28	34.00 23
1965	.60 14	1.10 14	1.30 12	2.10 10	9.90 16	17.00 19	23.00 17	28.00 20	33.00 21
1966	4.00 28	4.30 24	7.40 25	24.00 37	34.00 38	37.00 36	40.00 35	45.00 35	58.00 37
1967	1.30 16	1.70 15	4.00 18	8.30 21	10.00 17	14.00 15	21.00 15	27.00 19	35.00 24
1968	6.00 31	22.00 39	25.00 39	26.00 38	30.00 37	47.00 37	50.00 38	51.00 38	52.00 35
1969	5.80 30	7.50 30	13.00 32	14.00 30	20.00 32	25.00 30	31.00 25	30.00 21	33.00 22
1970	.00 11	.00 11	.00 9	2.50 12	4.30 10	9.70 9	17.00 12	24.00 14	28.00 15
1971	.00 12	.00 12	.90 11	3.40 14	12.00 20	14.00 16	31.00 26	36.00 29	38.00 30
1972	1.60 20	6.20 26	6.70 22	9.00 22	15.00 22	24.00 26	34.00 33	37.00 30	42.00 33
1973	3.20 27	17.00 38	24.00 38	35.00 39	43.00 39	47.00 38	49.00 37	50.00 36	54.00 36
1974	2.20 21	3.10 21	8.30 26	9.90 24	19.00 29	27.00 31	31.00 27	32.00 26	35.00 25
1975	3.00 26	5.30 25	7.20 24	9.40 23	17.00 23	22.00 22	26.00 22	27.00 15	27.00 13
1976	1.50 19	1.80 17	1.90 14	2.80 13	8.20 12	12.00 11	16.00 9	19.00 9	25.00 11
1977	6.20 34	8.20 32	9.50 29	11.00 25	21.00 33	25.00 27	29.00 24	32.00 27	36.00 27
1978	7.80 36	9.10 34	13.00 33	14.00 31	17.00 24	23.00 23	23.00 18	30.00 22	32.00 19
1979	10.00 38	11.00 35	13.00 34	17.00 33	20.00 30	25.00 28	33.00 30	37.00 31	37.00 28
1980	6.10 32	7.40 29	8.80 28	11.00 26	14.00 21	18.00 20	26.00 23	31.00 23	35.00 26
1981	7.20 35	8.10 31	8.30 27	11.00 27	17.00 25	24.00 24	25.00 19	27.00 16	29.00 16
1982	.80 15	1.70 16	2.20 16	4.00 15	10.00 18	17.00 17	20.00 14	23.00 13	27.00 14

Table 71.--Lowest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days, for Rapid Creek near Farmingdale, station 06421500--Continued

Water year[1]	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	14	30	60	90	120	183
1983	9.90 37	12.00 36	17.00 36	21.00 35	28.00 35	59.00 39	60.00 39	64.00 39	78.00 39
1984	1.40 17	6.50 27	18.00 37	24.00 36	29.00 36	35.00 35	37.00 34	38.00 33	41.00 31
1985	4.40 29	8.30 33	11.00 31	18.00 34	20.00 31	28.00 32	33.00 31	38.00 34	48.00 34
1986	2.30 22	3.90 23	6.90 23	14.00 28	17.00 26	24.00 25	25.00 20	27.00 17	29.00 17
1987	6.10 33	7.30 28	10.00 30	14.00 29	24.00 34	31.00 33	41.00 36	50.00 37	63.00 38
1988	1.50 18	2.00 18	4.30 20	7.40 19	8.90 14	14.00 12	16.00 10	21.00 10	23.00 9

[1]Low-flow water year is April 1 to March 31.

Table 72.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek near Farmingdale, station 06421500

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1947	1,970.00 2	1,470.00 2	1,130.00 1	790.00 1	494.00 3	290.00 4	222.00 5	195.00 4	151.00 3
1948	366.00 25	282.00 24	210.00 23	169.00 25	122.00 26	93.00 25	73.00 27	74.00 26	70.00 25
1949	440.00 21	370.00 17	306.00 17	230.00 18	203.00 16	154.00 15	143.00 12	128.00 13	96.00 12
1950	270.00 31	250.00 29	215.00 22	182.00 22	170.00 20	153.00 16	121.00 17	101.00 19	79.00 20
1951	126.00 38	105.00 37	88.00 38	75.00 38	66.00 35	51.00 36	45.00 37	45.00 35	40.00 36
1952	1,420.00 3	1,180.00 3	847.00 4	567.00 5	347.00 5	206.00 8	154.00 10	130.00 11	100.00 11
1953	597.00 11	359.00 18	239.00 21	169.00 23	115.00 27	107.00 22	95.00 23	90.00 22	75.00 22
1954	87.00 41	83.00 40	79.00 39	70.00 39	68.00 33	56.00 33	52.00 32	47.00 33	43.00 33
1955	131.00 37	105.00 38	90.00 37	79.00 37	63.00 36	49.00 37	43.00 39	39.00 39	36.00 38
1956	256.00 33	157.00 34	96.00 36	88.00 35	71.00 32	55.00 34	48.00 34	46.00 34	41.00 34
1957	1,310.00 4	913.00 5	630.00 5	394.00 6	238.00 11	156.00 14	113.00 20	94.00 20	73.00 23
1958	576.00 13	291.00 22	157.00 30	94.00 34	60.00 38	59.00 32	44.00 38	42.00 36	38.00 37
1960	257.00 32	206.00 32	127.00 34	79.00 36	53.00 39	39.00 40	34.00 40	31.00 40	28.00 40
1961	102.00 40	45.00 41	33.00 41	31.00 41	29.00 41	28.00 41	28.00 41	27.00 41	20.00 41
1962	1,130.00 6	847.00 6	536.00 7	327.00 10	235.00 12	210.00 7	168.00 7	128.00 12	91.00 14
1963	346.00 27	257.00 28	196.00 26	142.00 27	124.00 24	94.00 24	81.00 24	78.00 24	65.00 26
1964	281.00 30	260.00 26	250.00 19	242.00 17	216.00 14	130.00 21	118.00 19	102.00 16	81.00 18
1965	858.00 8	646.00 9	605.00 6	590.00 4	539.00 2	461.00 1	354.00 1	285.00 1	209.00 1
1966	300.00 29	281.00 25	247.00 20	199.00 19	166.00 21	143.00 19	112.00 21	93.00 21	79.00 21
1967	1,210.00 5	981.00 4	870.00 3	692.00 2	608.00 1	387.00 2	310.00 2	255.00 2	185.00 2
1968	337.00 28	299.00 21	194.00 27	153.00 26	131.00 23	80.00 29	69.00 28	66.00 28	64.00 27
1969	381.00 24	235.00 30	154.00 31	108.00 30	80.00 31	78.00 30	67.00 29	58.00 29	54.00 30
1970	502.00 17	485.00 11	380.00 13	289.00 13	265.00 8	201.00 9	162.00 9	134.00 8	101.00 10
1971	484.00 18	461.00 12	423.00 11	389.00 8	340.00 7	286.00 5	237.00 3	200.00 3	148.00 5
1972	2,860.00 1	1,790.00 1	949.00 2	626.00 3	429.00 4	295.00 3	224.00 4	187.00 5	149.00 4
1973	226.00 35	204.00 33	202.00 25	199.00 20	186.00 18	138.00 20	119.00 18	102.00 17	84.00 15
1974	118.00 39	90.00 39	74.00 40	54.00 40	51.00 40	48.00 38	46.00 35	40.00 37	41.00 35
1975	435.00 22	257.00 27	175.00 28	169.00 24	123.00 25	82.00 28	77.00 25	71.00 27	60.00 28
1976	924.00 7	667.00 8	482.00 9	384.00 9	248.00 10	165.00 12	123.00 16	101.00 18	81.00 19
1977	441.00 20	386.00 16	337.00 14	297.00 12	223.00 13	160.00 13	125.00 15	107.00 15	84.00 16
1978	430.00 23	414.00 14	404.00 12	390.00 7	345.00 6	241.00 6	183.00 6	163.00 6	124.00 6
1979	241.00 34	152.00 36	117.00 35	102.00 31	89.00 30	75.00 31	64.00 31	56.00 30	55.00 29
1980	533.00 15	324.00 20	175.00 29	100.00 32	62.00 37	52.00 35	50.00 33	49.00 32	47.00 31

Table 72.--Highest mean discharge, in cubic feet per second, and ranking for the following number of consecutive days in year ending September 30, for Rapid Creek near Farmingdale, station 06421500--Continued

Water year	Discharge, in cubic feet per second, and ranking for number of consecutive days								
	1	3	7	15	30	60	90	120	183
1981	363.00 26	220.00 31	141.00 32	95.00 33	66.00 34	46.00 39	46.00 36	39.00 38	35.00 39
1982	534.00 14	338.00 19	273.00 18	195.00 21	171.00 19	144.00 18	134.00 13	131.00 10	105.00 9
1983	760.00 10	456.00 13	318.00 15	283.00 14	253.00 9	184.00 11	150.00 11	132.00 9	107.00 8
1984	503.00 16	390.00 15	318.00 16	267.00 16	206.00 15	194.00 10	163.00 8	143.00 7	119.00 7
1985	180.00 36	153.00 35	138.00 33	126.00 29	113.00 28	91.00 26	77.00 26	74.00 25	70.00 24
1986	800.00 9	713.00 7	513.00 8	309.00 11	194.00 17	148.00 17	133.00 14	118.00 14	95.00 13
1987	461.00 19	288.00 23	203.00 24	141.00 28	110.00 29	100.00 23	98.00 22	89.00 23	81.00 17
1988	579.00 12	549.00 10	466.00 10	271.00 15	152.00 22	90.00 27	67.00 30	54.00 31	44.00 32

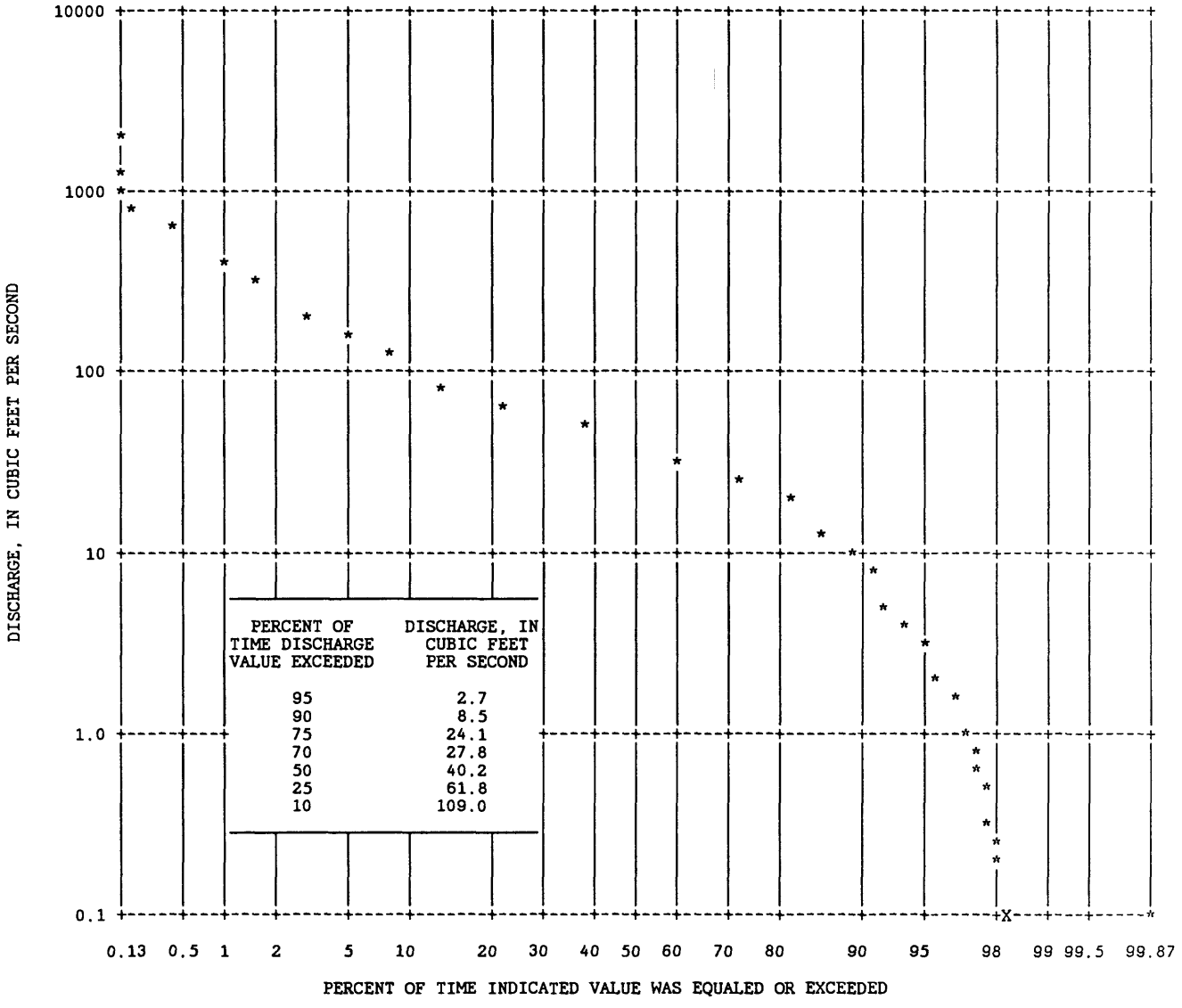

Figure 29.--Duration of daily discharge data for Rapid Creek near Farmingdale, station 06421500 (water years 1947-58 and 1960-88).

Table 73.--Peak-discharge and gage-height data for Rapid Creek near Farmingdale, station 06421500

[Blanks indicate no information]

Station locator
Latitude: 435631
Longitude: 1025112

Drainage area: 602.00 square miles

Gage datum: 2,700.00 feet

Water year	Date	Peak discharge (cubic feet per second)	Discharge codes[1]	Gage height (feet)	Gage height codes[1]
1947	06/21/47	2,640.00	6	8.40	
1948	06/17/48	885.00	6	5.80	
1949	03/21/49	500.00	6	6.97	1
1950	04/16/50	285.00	6	4.00	2
1951	06/23/51	161.00	6	3.62	2
1952	05/24/52	1,770.00	6	8.19	
1953	08/02/53	1,790.00	6	8.35	
1954	08/11/54	204.00	6	3.89	
1955	08/11/55	461.00	6	4.92	
1956	07/04/56	449.00	6	4.88	
1957	05/25/57	1,900.00	6	9.39	
1958	07/19/58	939.00	6	7.01	
1960	03/22/60	439.00	6	5.08	
1961	07/01/61	516.00	6	5.40	
1962	05/21/62	2,030.00	6	9.77	
1963	06/16/63	599.00	6	6.36	
1964	06/14/64	381.00	6	5.40	
1965	06/01/65	1,130.00	6	8.07	
1966	07/27/66	372.00	6	5.49	2
1967	06/15/67	1,830.00	6	10.33	
1968	06/09/68	406.00	6	6.73	
1969	03/18/69	501.00	6	7.28	2
1970	04/25/70	1,010.00	6	8.75	
1971	04/27/71	511.00	6	7.25	
1972	06/10/72	7,320.00	6	11.85	
1973	04/20/73	272.00	6	7.89	2
1974	04/12/74	151.00	6	6.93	2
1975	06/08/75	881.00	6	9.41	
1976	06/16/76	1,370.00	6	9.59	
1977	04/08/77	613.00	6	8.09	
1978	05/24/78	574.00	6	7.97	
1979	07/04/79	444.00	6	7.53	2
1980	06/16/80	937.00	6	8.73	
1981	07/02/81	468.00	6	5.85	
1982	05/20/82	1,050.00	6	9.17	
1983	10/10/82	1,030.00	6	9.17	
1984	06/16/84	620.00	6	8.07	2
1985	08/20/85	340.00	6	6.93	2
1986	02/28/86	1,130.00	6	9.30	2
1987	05/27/87	928.00	6	8.91	
1988	03/26/88	870.00	6	8.80	

[1]See page 14 for explanation of discharge and gage-height codes.

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Deerfield Reservoir near Hill City, station 06409500

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Table 74.--Monthend contents, in acre-feet, for Deerfield Reservoir near Hill City, station 06409500

Water year	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1947	[1]	[1]	[1]	[1]	[1]	[1]	[1]	12,460	12,720	12,450	12,340	12,190
1948	12,580	13,120	13,550	14,090	14,600	14,850	14,440	14,240	14,440	14,280	14,130	13,920
1949	13,380	13,380	13,710	14,190	14,550	14,990	14,720	15,100	15,130	14,870	14,050	13,620
1950	13,380	13,420	13,750	14,030	14,320	14,710	15,150	14,970	14,620	13,310	13,110	12,760
1951	12,840	13,060	13,350	13,580	13,770	14,100	14,680	14,580	14,750	14,830	14,060	13,780
1952	13,930	14,180	14,440	14,660	14,920	15,140	15,140	15,150	15,120	14,480	13,600	12,620
1953	12,230	12,420	12,730	13,090	13,450	13,950	14,710	15,140	15,140	14,800	14,370	13,760
1954	13,570	13,820	14,180	14,500	14,840	15,130	15,130	14,460	13,770	11,620	10,150	9,350
1955	9,420	9,670	9,960	10,230	10,540	10,890	12,130	11,830	11,870	10,750	9,490	8,600
1956	8,740	9,030	9,350	9,720	9,970	10,620	11,370	11,900	10,880	9,560	8,330	7,880
1957	7,150	7,380	7,720	8,020	8,260	8,670	9,260	10,000	10,580	10,870	10,220	10,080
1958	10,290	10,480	10,760	11,010	11,290	11,660	12,210	12,030	11,270	10,870	9,820	8,570
1959	8,070	8,150	8,420	8,590	8,880	9,280	9,620	9,270	8,260	6,510	3,330	90
1960	280	897	1,000	1,180	1,280	1,770	2,430	2,820	2,990	2,860	2,760	2,710
1961	1,790	1,940	2,180	2,360	2,540	2,820	3,120	3,390	3,270	3,210	3,120	3,020
1962	3,180	3,300	3,390	3,510	3,870	4,180	4,740	5,170	6,160	6,510	6,520	6,510
1963	6,730	6,840	7,000	7,160	7,350	8,090	9,210	10,310	12,460	12,970	12,890	13,000
1964	13,220	13,480	13,700	14,020	14,280	14,710	15,060	15,010	15,150	14,880	14,060	13,120
1965	12,770	13,140	13,670	14,150	14,570	15,010	15,020	15,070	14,950	15,080	14,890	14,080
1966	12,800	13,480	14,110	14,680	15,130	15,160	15,100	14,820	14,570	14,610	14,420	12,460
1967	12,540	13,040	13,600	14,140	14,620	15,150	15,070	15,090	15,120	14,810	13,940	12,740
1968	13,060	13,590	13,950	14,670	15,160	15,170	15,110	15,090	15,080	15,060	14,910	13,870
1969	13,130	13,490	13,850	14,310	14,720	15,170	15,100	15,000	15,070	15,110	14,210	12,160
1970	12,580	12,960	13,410	13,870	14,280	14,790	15,190	15,050	14,970	14,820	13,640	12,410
1971	12,870	13,300	13,800	14,320	14,840	15,180	15,210	15,210	15,180	15,160	14,990	13,550
1972	12,302	12,810	13,391	13,922	14,513	14,619	14,660	14,921	14,782	15,066	14,741	13,126
1973	12,240	12,652	13,164	13,632	14,057	14,656	15,207	14,946	14,991	14,749	13,966	12,977
1974	12,469	12,897	13,352	13,851	14,272	15,107	15,099	14,737	14,425	14,376	14,037	13,679
1975	13,430	13,718	14,105	14,550	14,864	15,165	15,020	14,729	14,827	14,530	14,316	13,714
1976	13,569	13,828	14,184	14,660	15,128	15,157	15,053	14,950	15,045	14,872	14,794	14,244
1977	13,241	13,457	13,843	14,312	14,704	15,145	15,124	14,921	14,835	14,356	13,542	13,468
1978	13,871	14,268	14,704	15,157	15,149	15,165	15,153	15,124	14,991	15,049	14,505	13,710
1979	13,237	13,729	14,457	14,987	15,062	15,016	15,128	15,049	15,016	14,917	14,721	13,566
1980	12,724	13,156	13,690	14,184	14,680	15,153	15,119	14,905	14,794	14,721	14,749	13,930

Table 74.--Monthend contents, in acre-feet, for Deerfield Reservoir near Hill City, station 06409500--Continued

Water year	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1981	13,213	13,577	14,065	14,453	14,790	15,028	15,016	14,962	14,889	14,815	13,686	13,030
1982	13,099	13,375	13,737	14,069	14,409	14,946	13,202	11,623	10,267	6,504	2,717	116
1983	1,011	1,801	2,328	2,949	3,458	3,906	3,989	3,950	4,879	5,410	6,316	6,751
1984	7,363	7,968	8,547	9,159	9,713	10,457	11,462	12,649	13,026	13,137	13,072	13,110
1985	13,352	13,914	14,522	15,165	15,584	14,938	14,987	15,032	14,828	14,558	13,542	13,219
1986	13,660	13,361	13,899	14,466	15,029	15,309	15,194	15,095	15,159	15,295	15,214	14,609
1987	13,756	13,232	13,704	14,218	14,739	15,242	15,336	15,357	15,246	15,209	14,101	13,664
1988	13,217	13,251	13,748	14,161	14,588	15,140	15,214	15,066	14,927	14,352	13,720	13,459

[1]Indicates a no-value month.

Pactola Reservoir near Silver City, station 06411000

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Table 75.--Monthend contents, in acre-feet, for Pactola Reservoir near Silver City, station 06411000

Water year	Month											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	498	416
1957	603	1,040	1,220	1,210	1,320	2,080	3,410	6,140	10,760	12,780	13,210	12,620
1958	12,960	13,550	13,960	14,260	14,740	15,510	17,030	17,640	18,720	19,160	19,190	18,880
1959	18,760	18,830	19,100	19,250	19,550	20,260	21,570	21,810	22,200	22,000	21,800	23,740
1960	23,960	24,180	24,400	24,630	24,920	26,230	26,840	25,740	24,960	21,740	18,800	16,980
1961	16,980	16,550	16,620	16,720	16,820	17,250	16,500	14,720	10,580	7,010	5,330	4,250
1962	4,080	4,040	3,990	3,990	4,410	4,820	5,210	7,720	18,640	23,040	24,100	24,520
1963	25,640	26,220	26,630	27,050	27,730	29,970	34,090	40,230	55,800	55,290	54,480	54,650
1964	54,280	54,500	54,520	54,720	54,950	55,120	55,430	55,260	55,520	54,730	53,810	54,450
1965	54,380	54,440	54,790	54,960	55,190	55,020	55,350	60,370	55,510	55,640	55,550	55,770
1966	54,360	54,100	53,970	53,860	54,100	54,140	54,770	54,020	52,620	51,040	51,060	52,930
1967	53,040	53,040	53,070	53,410	53,670	54,240	54,740	54,690	56,570	54,420	53,720	53,650
1968	53,370	53,420	53,360	53,460	53,560	53,940	54,690	54,340	54,510	53,410	52,010	52,590
1969	53,230	53,120	53,010	52,970	52,970	53,410	54,770	53,940	52,590	51,890	50,570	50,070
1970	50,130	50,120	50,020	50,060	50,160	50,460	52,650	54,660	54,400	52,270	51,300	50,200
1971	50,380	50,820	51,040	51,320	51,800	52,560	54,680	54,220	54,150	52,470	49,740	50,100
1972	52,716	53,066	53,041	53,066	53,276	52,341	53,057	54,259	58,700	54,781	52,624	52,143
1973	51,986	51,624	51,354	50,964	50,818	51,666	53,994	54,097	53,352	50,834	49,450	49,458
1974	50,383	50,399	50,503	50,664	50,883	51,633	53,175	51,920	50,311	45,767	43,064	42,122
1975	42,664	42,749	42,456	42,378	42,356	42,699	47,464	52,658	54,123	52,541	50,078	47,996
1976	48,398	48,266	48,383	48,430	48,734	49,363	51,370	52,424	54,302	54,020	52,366	51,184
1977	52,483	52,424	52,591	52,808	53,049	53,479	54,558	53,580	51,649	48,570	47,803	47,229
1978	47,726	47,903	48,027	48,211	48,820	50,487	53,319	57,615	54,601	54,413	54,199	54,157
1979	54,097	53,867	53,631	53,319	53,007	53,580	54,362	53,605	52,101	53,108	53,546	53,681
1980	54,533	53,791	53,184	52,633	52,624	53,268	54,738	53,681	53,209	48,921	45,968	45,797
1981	46,985	46,909	47,099	46,947	46,864	47,168	47,510	46,118	45,477	42,585	42,413	40,615
1982	41,039	41,214	41,011	40,927	40,997	41,648	45,017	50,615	56,088	55,031	54,919	55,126
1983	54,901	55,005	54,601	54,618	54,473	54,422	54,712	54,439	55,143	53,007	52,441	51,995
1984	52,974	53,411	53,251	53,352	53,783	54,524	54,610	55,083	55,792	55,610	54,242	53,690
1985	54,473	54,370	54,097	53,833	53,454	54,285	54,806	50,688	48,594	43,173	42,016	41,797
1986	42,271	42,928	43,151	43,339	43,830	45,506	48,469	52,549	53,857	53,892	52,349	53,445
1987	53,808	53,462	52,949	52,816	53,167	54,302	54,635	54,712	54,165	50,423	49,086	48,484
1988	49,165	49,569	49,371	49,110	49,149	49,751	50,704	50,367	46,408	40,850	37,515	35,124

[1]Indicates a no-value month.