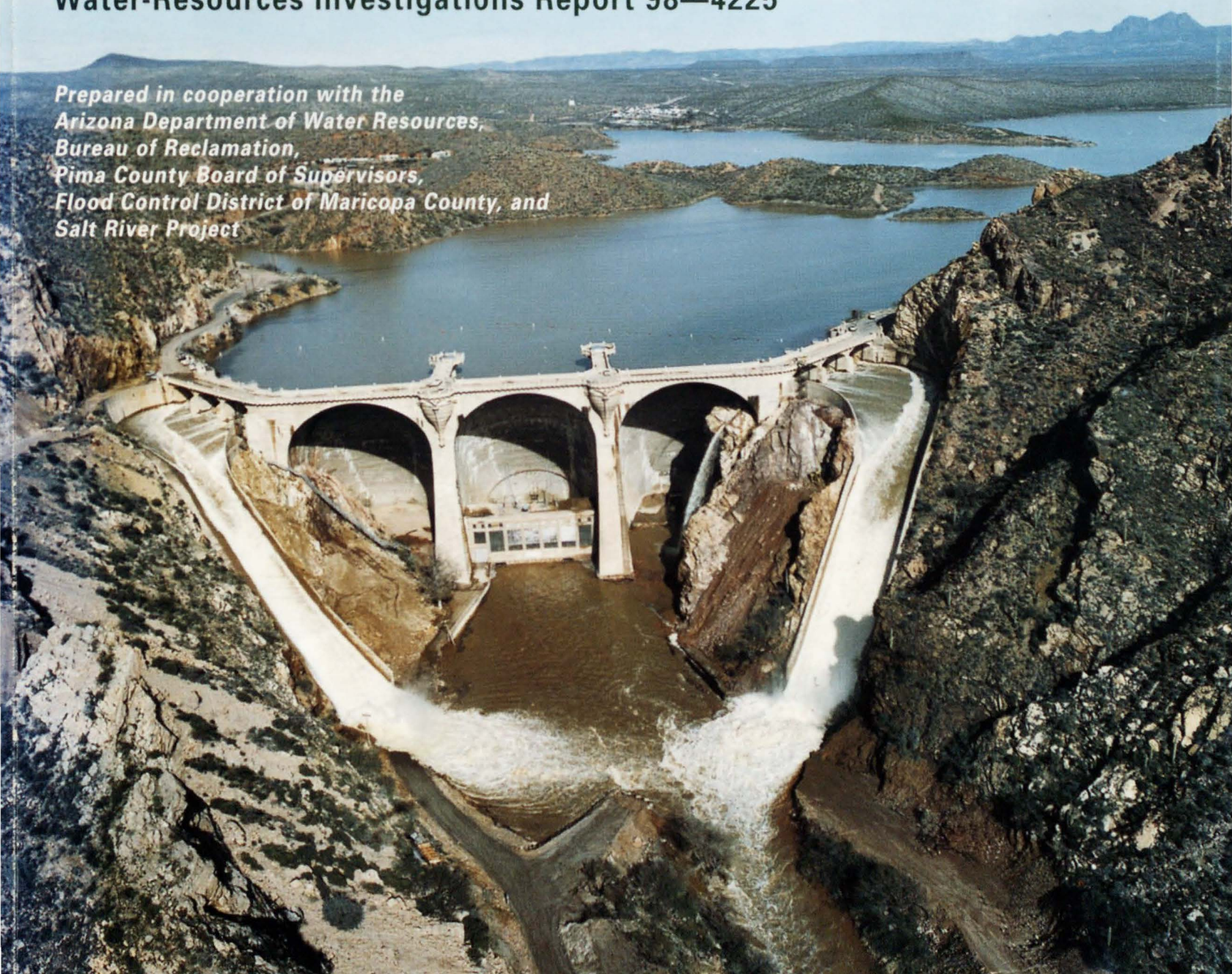
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Statistical Summaries of Streamflow Data and Characteristics of Drainage Basins for Selected Streamflow-Gaging Stations in Arizona Through Water Year 1996

Water-Resources Investigations Report 98—4225

Prepared in cooperation with the
Arizona Department of Water Resources,
Bureau of Reclamation,
Pima County Board of Supervisors,
Flood Control District of Maricopa County, and
Salt River Project



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By G.L. POPE, P.D. RIGAS, *and* C.F. SMITH

Water-Resources Investigations Report 98–4225

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Salt River Project

Tucson, Arizona
1998

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CONVERSION FACTORS

Multiply	By	To obtain
inch (in.)	25.4	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer
acre	0.4047	hectare
acre-foot (acre-ft)	0.001233	cubic hectometer
cubic foot per second (ft^3/s)	0.02832	cubic meter per second
gallon per minute (gal/min)	0.06308	liter per second

VERTICAL DATUM

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.

DISCHARGE CODES

C Urbanization has affected all or part of the record.
DF Discharge resulting from a dam failure.
ES Discharge is estimated.
HP Discharge associated with an isolated historic peak and is not part of the systematic record.
KR Discharge affected by diversion or regulation.
LT Discharge is less than reported value.
MD Average of the maximum daily discharge.
PF Discharge associated with a paleoflood peak and is not part of the systematic record.
UR Discharge is affected to an unknown degree by diversion and regulation.

GLOSSARY OF TERMS

Acre-foot (AC-FT, acre-ft)—The quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons or 1,233.49 cubic meters.

Annual high flow—The maximum mean daily discharge that occurred during the water year (used to calculate magnitude and probability statistics).

Annual low flow—The minimum mean daily discharge that occurred during the climatic year (used to calculate magnitude and probability statistics).

Annual peak discharge—The maximum instantaneous discharge during the water year.

Basin-boundary divide—The topographic divide separating one drainage basin from another.

GLOSSARY OF TERMS—CONTINUED

Basin characteristics—The physical characteristics that were selected for use in this report—main-channel slope, stream length, mean-basin elevation, forested area, and soil index.

Climatic year—Designated by the calendar year in which it begins and represents the 12-month period from April 1 through March 31.

Discharge—The volume of water (or more broadly, the volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Daily mean discharge—Arithmetic mean of the individual increments of discharge in a day.

Instantaneous discharge—Discharge at a particular instant of time.

Mean discharge (mean)—Arithmetic mean of individual daily mean discharges during a specific period.

Annual 7-day minimum—Lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1–March 31). The date shown in the summary statistics table is the initial date of the 7-day period (The value should not be confused with the 7–day 10–year low-flow statistic.)

Discharge rating table—List discharge for specific gage heights over the middle to upper range of stage. The stage/discharge relation was based on channel conditions through the date indicated.

Drainage area—Area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river upstream from the specified point.

Drainage basin—A part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Forested area (in percent)—A portion of the drainage area delineated on topographic maps as forested area and is computed as the ratio of forest coverage with respect to the total drainage area.

Gage datum—Elevation of the zero point of the reference gage from which gage height is determined as compared to sea level. This elevation is established by a system of levels from known bench marks or by approximation from topographic maps.

Gage height (G.H.)—The water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station—A particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Main-channel slope (feet per mile; ft/mi)—An index of slope of the main channel and is computed with respect to location of the gaging station and the basin-boundary divide. Streambed elevation is computed from points that are 10 and 85 percent of this distance along the main channel between those two points.

Mean—Arithmetic average of a list of values. The arithmetic average is computed by summing the values and dividing the sum by the total number of values.

Mean annual precipitation (inches; in.)—The average annual precipitation that occurs within the drainage basin.

Mean-basin elevation (feet; ft)—Average elevation above sea level of representative points within the basin. Mean-basin elevation is the arithmetic average of the elevation and is computed at 50 to 100 points within the basin at intersections of equally spaced grid lines that are superimposed on a map.

Median—The middle value from a list of values that are listed in order from the minimum to the maximum. If the list contains an even number of values, the median is the average of the two middle values.

Partial-record station—A particular site where limited streamflow data are systematically collected over a period of years for use in hydrologic analyses.

Period of record—The period for which records have been published for the station or for an equivalent station. An equivalent station is a station that was in operation at a time that the present station was not in existence and whose location is such that records of flow at the station can reasonably be considered equivalent to flow at the present station.

Rainfall intensities (inches; in.)—Represents total rainfall in a 24-hour period with recurrence intervals of 2 and 50 years.

GLOSSARY OF TERMS—CONTINUED

Runoff in inches (inch, in.)—The depth to which the drainage area would be covered if all the runoff for a given period of time were uniformly distributed over the drainage area.

Soil index (inch; in.)—A numerical index that is proportional to the long-term infiltration rate.

Standard deviation—A measure of the variability of the values within a list of values. If all the values generally are equal, the standard deviation will be close to zero.

Streamflow—Discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff," as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Stream length (mile; mi)—Distance from the gaging station along the main channel to the basin-boundary divide.

Surface water—Water on the Earth surface.

Water year—In surface-water reports of the U.S. Geological Survey, the water year (October 1 through September 30) is designated by the calendar year in which the water year ends and that includes 9 of the 12 months. The year ending September 30, 1996, therefore, is called the "1996 water year."

Statistical Summaries of Streamflow Data and Characteristics of Drainage Basins for Selected Streamflow-Gaging Stations in Arizona Through Water Year 1996

By G.L. Pope, P.D. Rigas, *and* C.F. Smith

Abstract

Statistical summaries of streamflow data are given for 142 unregulated or partly regulated continuous-record streamflow-gaging stations and 178 peak-flow partial-record stations in Arizona through water year 1996. Streamflow statistics were generated for stations with a minimum period of record of 10 years. Summaries for continuous-record stations include: (1) station description, (2) statistics of mean monthly and annual discharges, (3) magnitude and probability of annual peak discharge, (4) magnitude and probability of annual low and high flow, (5) mean daily flow duration, and (6) basin and climatic characteristics. Statistical summaries for peak-flow partial-record stations include: (1) station description, (2) magnitude and probability of annual peak discharge, and (3) basin and climatic characteristics.

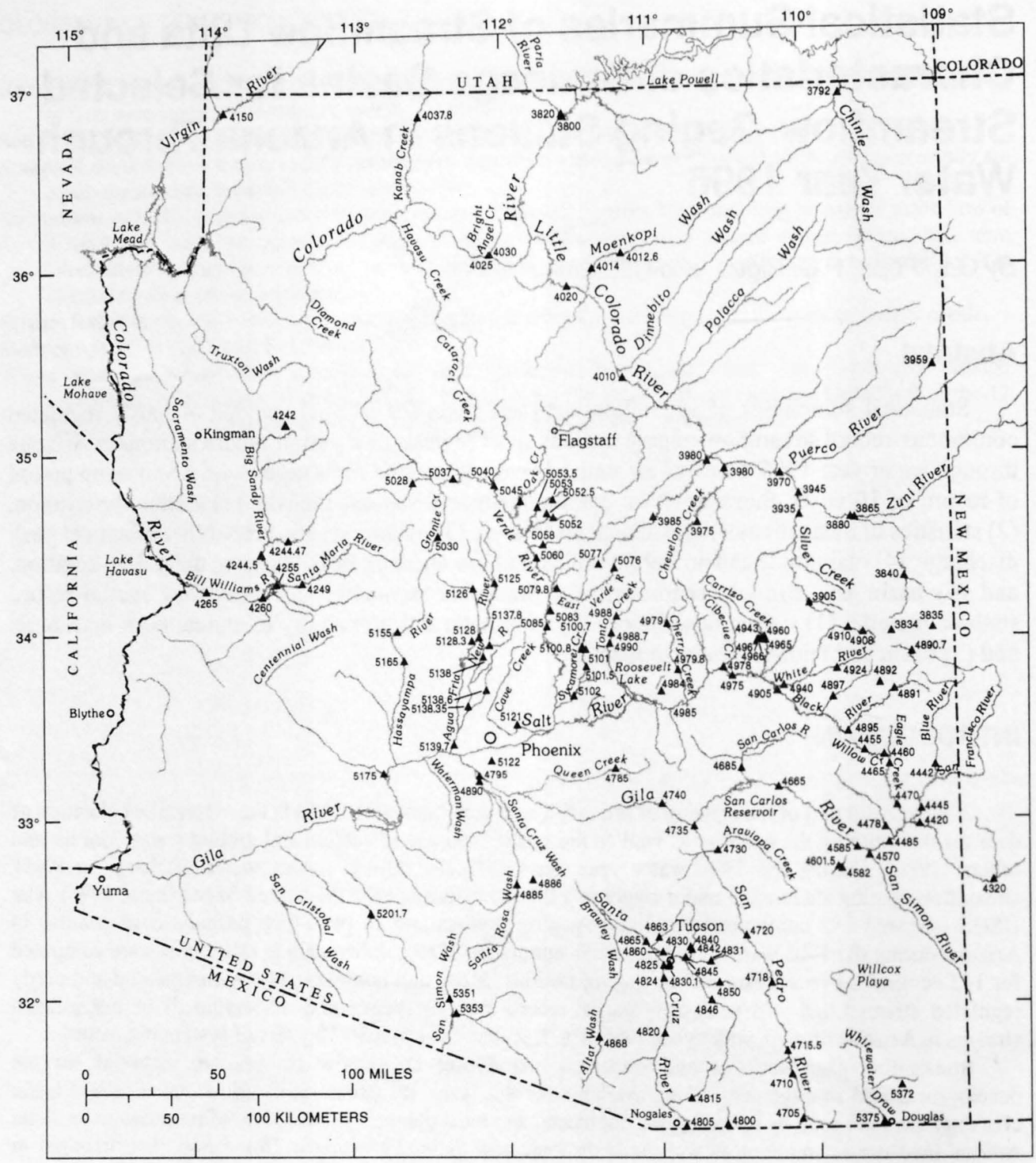
INTRODUCTION

A significant part of the mission of the U.S. Geological Survey (USGS) is the systematic collection of data for determining the quantity as well as the quality and use of surface and ground water (Cardin and others, 1986). During the 1996 water year, the USGS determined surface-water discharge at 9,477 streamflow-gaging stations on major rivers and tributaries throughout the United States (Lew, 1998). The USGS operated 192 continuous streamflow-gaging stations and 18 peak-flow partial-record stations in Arizona during the 1996 water year. Statistical summaries of streamflow data in this report were computed for 142 continuous-record streamflow-gaging stations (active and discontinued) on unregulated and partly regulated streams and 178 peak-flow partial-record stations (active and discontinued) or unregulated streams in Arizona through water year 1996 (fig. 1, 2) that have at least 10 years of systematic record.

Streamflow characteristics and statistical analysis of streamflow records are essential for the development and management of the available surface-water resources. Streamflow statistics and basin characteristics are used by hydrologists, engineers, and local planners for a variety of purposes to evaluate various land-use alternatives as well as hydrologic and hydraulic designs. This report was prepared in cooperation with the Arizona Department of Water Resources, Bureau of Reclamation, Pima County Board of Supervisors, Flood Control District of Maricopa County, and Salt River Project.

History of the Streamflow-Gaging Network in Arizona

The U.S. Geological Survey (USGS) was commissioned by an Act of Congress on March 3, 1879, to conduct the systematic and scientific "classification of the public lands, and examination of the geologic structure, mineral resources, and products of the national domain." Surface-water activities in the Arizona



EXPLANATION

5155▲ STREAMFLOW-GAGING STATION AND ABBREVIATED NUMBER—Complete station number is 09515500

Figure 1. Unregulated and partly regulated continuous-record streamflow-gaging stations in Arizona through water year 1996.

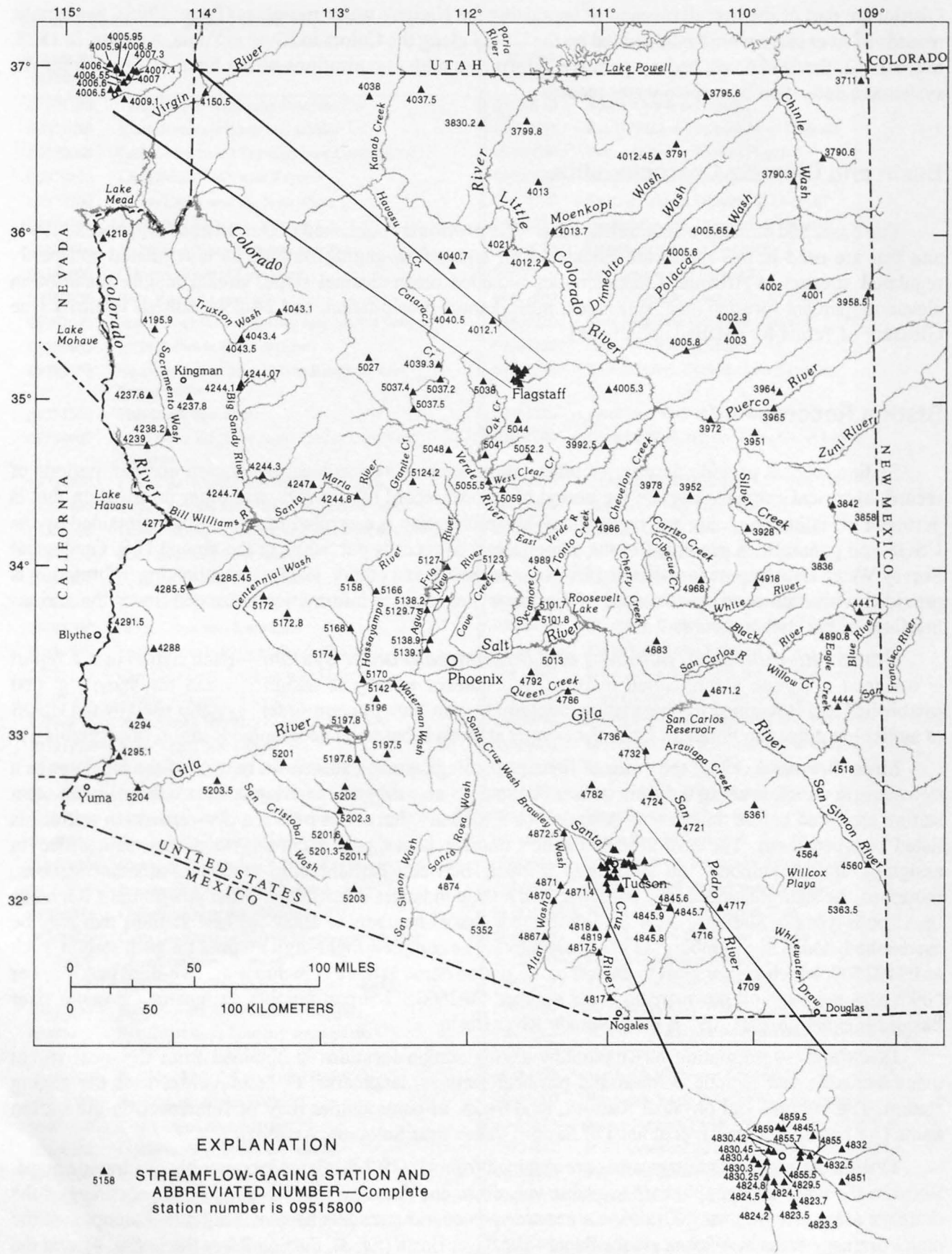


Figure 2. Unregulated and partly regulated peak-flow partial-record stations in Arizona through water year 1996.

District are part of the overall mission of appraising the Nation's water resources (Pope, 1996). Systematic records of river stage were first obtained by the USGS along the Colorado River at Yuma, Arizona, in 1878. Since 1912, the USGS has had cooperative agreements with organizations of the State of Arizona for the systematic collection of surface-water records.

Basin and Climatic Characteristics

The basin and climatic characteristics that were previously published in Garrett and Gellenbeck (1991) and that are used in this report are calculated for streamflow-gaging stations on unregulated and partly regulated streams in Arizona. Characteristics included mean-channel slope, stream length, mean-basin elevation, percent forested area, soil index, mean annual precipitation, and 24-hour rainfall intensity (see Glossary of Terms for detailed definitions).

Station Records

Station records provide descriptive information, such as station location, station number, periods of record, historical extremes outside the period of record, record of accuracy, and other information that is pertinent to station operation and regulation. This information is compiled from records maintained by the USGS and generally is presented in the same format as records published in the annual U.S. Geological Survey Water-Data Report for Arizona (for example, Smith and others, 1997). The following information is provided with each continuous record of discharge and clarifies information presented under the various headings of the station records.

Station identification numbers and downstream-order system.—Each station in this report is assigned a unique identification number. The number usually is assigned when the station is first established and is retained for that station indefinitely. The "downstream-order" systems used by the USGS to assign identification numbers for surface-water stations is based on geographic location (fig. 1; table 1).

Since October 1, 1950, the order of listing hydrologic-station records in reports of the USGS is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stem station are listed before that station. A station on a tributary that enters between two main-stem stations is listed between them. The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 09402500, which appears just to the left of the station name in table 1, includes the two-digit part number "09": plus the six-digit downstream-order number "402500." The part number designates the major river basin; for example, part "09" is the Colorado River Basin.

Location.—Information on streamflow-gaging station locations is obtained from the most recent maps available that include cultural and physical features, landmarks, or communities near the gaging station. The cultural and physical features, landmarks, or communities may be referenced in the station name (for example, Gila River at head of Safford Valley near Solomon, Arizona).

Drainage area.—Drainage areas are obtained from USGS 7.5-minute topographic quadrangle maps. Because the types of maps that are available vary from one drainage basin to another, the accuracy of the drainage areas also may vary. Drainage areas are updated as better data become available. Examples of the major drainage areas in Arizona are the Santa Cruz River Basin (fig. 3), the Salt River Basin (fig. 4), and the Colorado River Basin (fig. 5).

Table 1. Streamflow-gaging stations in Arizona, 1996

Station number	Station name	Station number	Station name
09371100	Teec Nos Pos Wash near Teec Nos Pos	09400650	Sinclair Wash at Flagstaff
09379030	Black Mountain Wash near Chinle	09400655	Rio De Flag at Interstate 40 at Flagstaff
09379060	Lukachukai Creek Tributary near Luckachukai	09400660	Bow and Arrow Wash at Flagstaff
09379100	Long House Wash near Kayenta	09400680	Switzer Canyon at Flagstaff
09379200	Chinle Creek near Mexican Water	09400700	Switzer Canyon Tributary at Flagstaff
09379560	El Capitan Wash near Kayenta	09400730	Lockett Fanning Diversion at Flagstaff
09379980	Jack Bench Wash Tributary near Page	09400740	Harenberg Wash at Flagstaff
09380000	Colorado River at Lees Ferry	09400910	Fay Canyon near Flagstaff
09382000	Paria River at Lees Ferry	09401000	Little Colorado River at Grand Falls
09383020	House Rock Wash Tributary near Marble Canyon	09401210	Slate Mountain Wash near Flagstaff
09383400	Little Colorado River at Greer	09401220	Cedar Wash near Cameron
09383500	Nutrioso Creek above Nelson Reservoir, near Springerville	09401245	Klethla Valley Tributary near Kayenta
09383600	Fish Creek near Eagar	09401260	Moenkopi Wash at Moenkopi
09384000	Little Colorado River above Lyman Lake, near St. Johns	09401300	Hamblin Wash Tributary near Cedar Ridge
09384200	Lyman Reservoir Tributary near St. Johns	09401370	Hamblin Wash Tributary No. 2 near Tuba City
09385800	Little Colorado River Tributary near St. Johns	09401400	Moenkopi Wash near Tuba City
09386500	Little Colorado River above Zuni River, near Hunt	09402000	Little Colorado River near Cameron
09388000	Little Colorado River near Hunt	09402100	Forest Boundary Wash near Cameron
09390500	Show Low Creek near Lakeside	09402500	Colorado River near Grand Canyon
09392800	Long Lake Tributary near Show Low	09403000	Bright Angel Creek near Grand Canyon
09393500	Silver Creek near Snowflake	09403750	Sagebrush Draw near Fredonia
09394500	Little Colorado River at Woodruff	09403780	Kanab Creek near Fredonia
09395100	Carr Lake Draw Tributary near Holbrook	09403800	Bitter Seeps Wash Tributary near Fredonia
09395200	Decker Wash near Snowflake	09403930	West Cataract Creek near Williams
09395850	Black Creek Tributary near Window Rock	09404050	Spring Valley Wash Tributary near Williams
09395900	Black Creek near Lupton	09404070	Little Red Horse Wash near Grand Canyon
09396400	Dead Wash Tributary near Holbrook	09404310	Yampai Canyon Tributary near Peach Springs
09396500	Puerco River near Adamana	09404340	Truxton Wash at Valentine
09397000	Little Colorado River at Holbrook	09404350	Valentine Wash at Valentine
09397200	Penzance Wash near Joseph City	09415000	Virgin River at Littlefield
09397500	Chevelon Creek below Wildcat Canyon, near Winslow	09415050	Big Bend Wash Tributary near Littlefield
09397800	Brookbank Canyon near Heber	09419590	Detrital Wash Tributary near Chloride
09398000	Chevelon Creek near Winslow	09421800	Ringbolt Wash near Hoover Dam
09398500	Clear Creek below Willow Creek, near Winslow	09423760	Little Meadow Creek near Oatman
09399000	Clear Creek near Winslow	09423780	Walnut Creek near Kingman
09399250	Jacks Canyon Tributary No. 2, near Winslow	09423820	Sacramento Wash near Yucca
09400100	Ganado Wash Tributary near Ganado	09423900	Sacramento Wash Tributary near Topock
09400200	Steamboat Wash Tributary near Ganado	09424200	Willow Creek (Cottonwood Wash No. 1) near Kingman
09400290	Teshbito Wash Tributary near Holbrook	09424407	McGarrys Wash near Kingman
09400300	Teshbito Wash near Holbrook	09424410	Big Sandy River Tributary near Kingman
09400530	Cow Canyon near Winslow	09424430	Kaiser Spring Canyon Tributary near Wikieup
09400560	Oraibi Wash Tributary near Oraibi	09424447	Burro Creek at Old U.S. 93 Bridge, near Bagdad
09400565	Polacca Wash Tributary near Chinle	09424450	Big Sandy River near Wikieup
09400580	Castle Butte Wash near Winslow	09424470	Kirkland Creek near Kirkland
09400590	Rio De Flag at Hidden Hollow Road, at Flagstaff	09424480	Ash Creek near Kirkland
09400595	Schultz Canyon at Flagstaff	09424700	Iron Spring Wash Tributary near Bagdad
09400600	Rio De Flag at Flagstaff	09424900	Santa Maria River near Bagdad

Table 1. Streamflow-gaging stations in Arizona, 1996—Continued

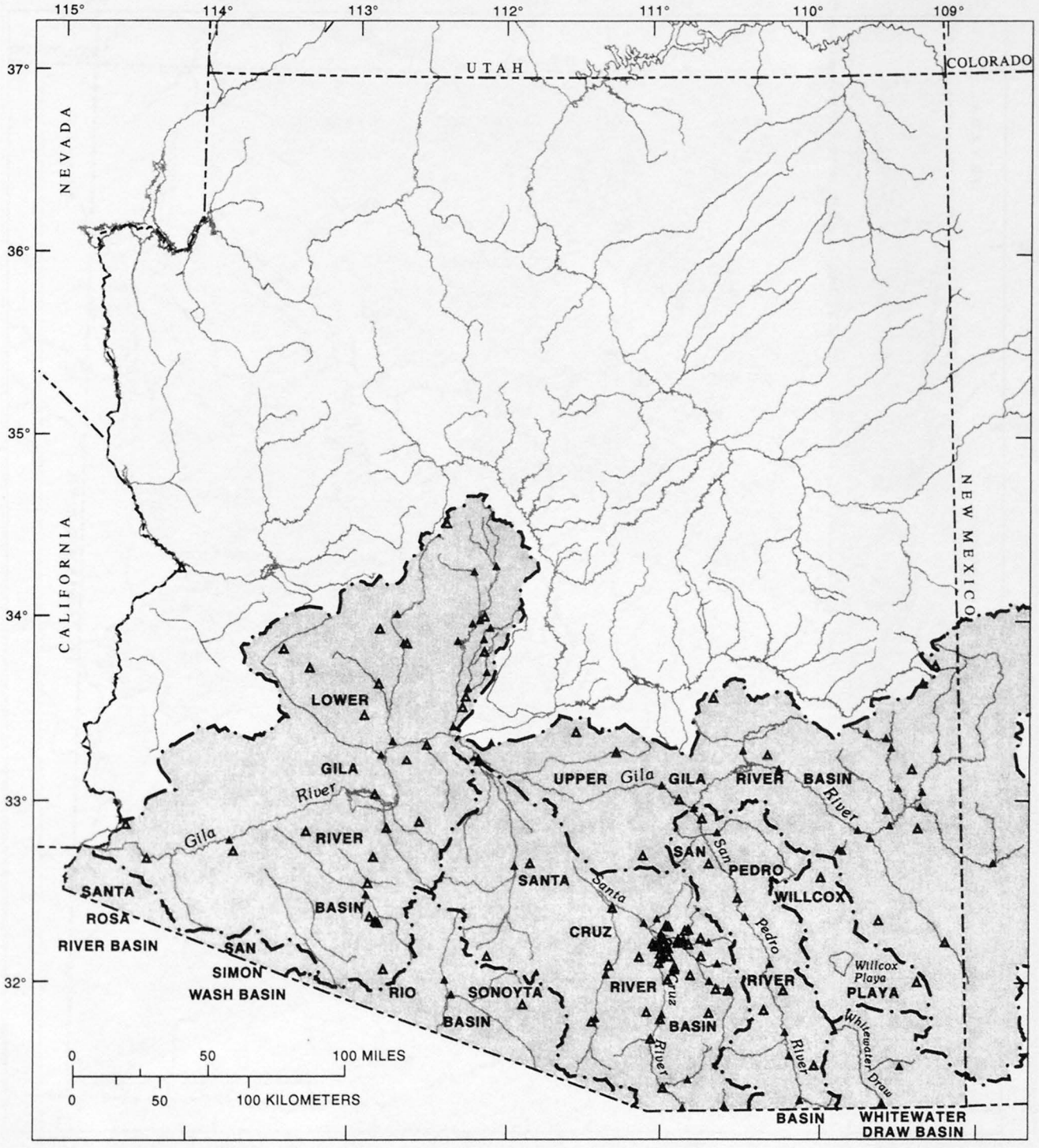
Station number	Station name
09425500	Santa Maria River near Alamo
09426000	Bill Williams River below Alamo Dam
09426500	Bill Williams River at Planet
09427700	Monkeys Head Wash near Parker
09428545	Cunningham Wash Tributary near Wenden
09428550	Bouse Wash Tributary near Bouse
09428800	Tyson Wash Tributary near Quartzsite
09429150	Creosote Wash near Ehrenberg
09429400	Indian Wash Tributary near Yuma
09429510	Mittry Lake Tributary near Yuma
09432000	Gila River below Blue Creek near Virden, New Mexico
09442000	Gila River near Clifton
09444100	Campbell Blue Creek near Alpine
09444200	Blue River near Clifton
09444400	Chase Creek near Clifton
09444500	San Francisco River at Clifton
09445500	Willow Creek near Point of Pines, near Morenci
09446000	Willow Creek near Double Circle Ranch, near Morenci
09446500	Eagle Creek near Double Circle Ranch, near Morenci
09447000	Eagle Creek above pumping plant, near Morenci
09447800	Bonita Creek near Morenci
09448500	Gila River at head of Safford Valley, near Solomon
09451800	Tollgate Wash Tributary near Clifton
09456000	San Simon River near San Simon
09456400	Gold Gulch near Bowie
09457000	San Simon River near Solomon
09458200	Deadman Creek near Safford
09458500	Gila River at Safford
09460150	Frye Creek near Thatcher
09466500	Gila River at Calva
09467120	Salt Creek near Peridot
09468300	Sevenmile Wash Tributary near Globe
09468500	San Carlos River near Peridot
09470500	San Pedro River at Palominas
09470900	San Pedro River Tributary near Bisbee
09471000	San Pedro River at Charleston
09471550	San Pedro River near Tombstone
09471600	Canary Wash near Benson
09471700	Fenner Wash near Benson
09471800	San Pedro River near Benson
09472000	San Pedro River near Redington
09472100	Peck Canyon Tributary near Redington
09472400	Mammoth Wash near Mammoth
09473000	Aravaipa Creek near Mammoth
09473200	Green Lantern Wash near Winkelman
09473500	San Pedro River at Winkelman
09473600	Tam O'Shanter Wash near Hayden
09474000	Gila River at Kelvin
09478200	Durham Wash near Florence
09478500	Queen Creek at Whitlow Damsite, near Superior
09478600	Queen Creek Tributary No. 3 at Whitlow Dam
09479200	Queen Creek Tributary at Apache Junction
09479500	Gila River near Laveen
09480000	Santa Cruz River near Lochiel
09480500	Santa Cruz River near Nogales
09481500	Sonoita Creek near Patagonia
09481700	Calabasas Canyon near Nogales
09481750	Sopori Wash at Amado
09481800	Demetrie Wash Tributary near Continental
09481900	Ocotillo Wash near Continental
09482000	Santa Cruz River at Continental
09482200	Flato Wash near Sahuarita
09482330	Pumping Wash near Vail
09482350	South Fork Airport Wash near Tucson
09482370	North Fork Airport Wash near Tucson
09482400	Airport Wash at Tucson
09482410	Rodeo Wash at Tucson
09482420	Julian Wash at Tucson
09482450	West Branch Santa Cruz River, at Tucson
09482480	Big Wash at Tucson
09482500	Santa Cruz River at Tucson
09482950	Railroad Wash at Tucson
09483000	Tucson Arroyo at Vine Avenue, at Tucson
09483010	High School Wash at Tucson
09483025	Silvercroft Wash at Tucson
09483030	Anklam Wash at Tucson
09483040	West Speedway Wash near Tucson
09483042	Cemetery Wash at Tucson
09483045	Flowing Wells Wash at Tucson
09483100	Tanque Verde Creek near Tucson
09483200	Agua Caliente Wash Tributary near Tucson
09483250	Rob Wash at Tucson
09484000	Sabino Creek near Tucson
09484200	Bear Creek near Tucson
09484500	Tanque Verde Creek at Tucson
09484510	Ventana Canyon Wash near Tucson
09484560	Cienega Creek near Pantano
09484570	Mescal Arroyo near Pantano
09484580	Barrel Canyon near Sonoita
09484590	Davidson Canyon Wash near Vail
09484600	Pantano Wash near Vail
09485000	Rincon Creek near Tucson
09485100	Saguaro Corners Wash near Tucson
09485500	Pantano Wash near Tucson
09485550	Arcadia Wash at Tucson
09485570	Alamo Wash at Tucson
09485900	Pima Wash near Tucson
09485950	Geronimo Wash near Tucson

Table 1. Streamflow-gaging stations in Arizona, 1996—Continued

Station number	Station name	Station number	Station name
09486000	Rillito Creek near Tucson	09503700	Verde River near Paulden
09486300	Canada del Oro near Tucson	09503720	Hell Canyon near Williams
09486500	Santa Cruz River at Cortaro	09503740	Hell Canyon Tributary near Ashfork
09486700	Chiltepines Wash near Sasabe	09503750	Limestone Canyon near Paulden
09486800	Altar Wash near Three Points	09503800	Volunteer Wash near Bellemont
09487000	Brawley Wash near Three Points	09504000	Verde River near Clarkdale
09487100	Little Brawley Wash near Three Points	09504100	Hull Canyon near Jerome
09487140	San Joaquin Wash near Tucson	09504400	Munds Canyon Tributary near Sedona
09487250	Los Robles Wash near Marana	09504500	Oak Creek near Cornville
09487400	Quijotoa Wash Tributary near Quijotoa	09504800	Oak Creek Tributary near Cornville
09488500	Santa Rosa Wash near Vaiva Vo, near Sells	09505200	Wet Beaver Creek near Rimrock
09488600	Silver Reef Wash near Casa Grande	09505220	Rocky Gulch near Rimrock
09489000	Santa Cruz River near Laveen	09505250	Red Tank Draw near Rimrock
09489070	North Fork of East Fork Black River near Alpine	09505300	Rattlesnake Canyon near Rimrock
09489080	Hannagan Creek near Hannagan Meadow	09505350	Dry Beaver Creek near Rimrock
09489100	Black River near Maverick	09505550	Verde River below Camp Verde
09489200	Pacheta Creek at Maverick	09505600	Dirty Neck Canyon near Clints Well
09489500	Black River below Pumping Plant, near Point of Pines	09505800	West Clear Creek near Camp Verde
09489700	Big Bonito Creek near Fort Apache	09505900	Cottonwood Wash near Camp Verde
09490500	Black River near Fort Apache	09506000	Verde River near Camp Verde
09490800	North Fork White River near Greer	09507600	East Verde River near Pine
09491000	North Fork White River near McNary	09507700	Webber Creek above West Fork Webber Creek, near Pine
09491800	North Fork White River Tributary near Whiteriver	09507980	East Verde River near Childs
09492400	East Fork White River near Fort Apache	09508300	Wet Bottom Creek near Childs
09494000	White River near Fort Apache	09508500	Verde River below Tangle Creek, above Horseshoe Dam
09494300	Carrizo Creek above Corduroy Creek, near Show Low	09510070	West Fork Sycamore Creek above McFarland Canyon, near Sunflower
09496000	Corduroy Creek near mouth, near Show Low	09510080	West Fork Sycamore Creek near Sunflower
09496500	Carrizo Creek near Show Low	09510100	East Fork Sycamore Creek near Sunflower
09496600	Cibecue No. 1, Tributary to Carrizo Creek, near Show Low	09510150	Sycamore Creek near Sunflower
09496700	Cibecue No. 2, Tributary to Carrizo Creek, near Show Low	09510170	Camp Creek near Sunflower
09496800	Carrizo Creek Tributary near Show Low	09510180	Rock Creek near Sunflower
09497500	Salt River near Chrysotile	09510200	Sycamore Creek near Fort McDowell
09497800	Cibecue Creek near Chrysotile	09512100	Indian Bend Wash at Scottsdale
09497900	Cherry Creek near Young	09512200	Salt River Tributary in South Mountain Park, at Phoenix
09497980	Cherry Creek near Globe	09512300	Cave Creek near Cave Creek
09498400	Pinal Creek at Inspiration Dam,near Globe	09512420	Lynx Creek Tributary near Prescott
09498500	Salt River near Roosevelt	09512500	Agua Fria River near Mayer
09498600	Christopher Creek Tributary near Kohl's Ranch	09512600	Turkey Creek near Cleator
09498800	Tonto Creek near Gisela	09512700	Agua Fria River Tributary No. 2 near Rock Springs
09498870	Rye Creek near Gisela	09512800	Agua Fria River near Rock Springs
09498900	Gold Creek near Payson	09512830	Boulder Creek near Rock Springs
09499000	Tonto Creek above Gun Creek, near Roosevelt	09512970	Cottonwood Creek near Waddell Dam
09501300	Tortilla Creek at Tortilla Flat	09513780	New River near Rock Springs
09502700	Crookton Wash near Seligman	09513800	New River at New River
09502800	Williamson Valley Wash near Paulden	09513820	Deadman Wash near New River
09503000	Granite Creek near Prescott	09513835	New River at Bell Road, near Peoria

Table 1. Streamflow-gaging stations in Arizona, 1996—Continued

Station number	Station name	Station number	Station name
09513860	Skunk Creek near Phoenix	09519780	Windmill Wash near Gila Bend
09513890	New River at Peoria	09520100	Military Wash near Sentinel
09513910	New River near Glendale	09520110	Hot Shot Arroyo near Ajo
09513970	Agua Fria River at Avondale	09520130	Darby Arroyo near Ajo
09514200	Waterman Wash near Buckeye	09520160	Gibson Arroyo at Ajo
09515500	Hassayampa River at Box Damsite, near Wickenburg	09520170	Rio Cornez near Ajo
09515800	Hartman Wash near Wickenburg	09520200	Black Gap Wash near Ajo
09516500	Hassayampa River near Morristown	09520230	Crater Range Wash near Ajo
09516600	Ox Wash near Morristown	09520300	Alamo Wash Tributary near Ajo
09516800	Jack Rabbit Wash near Tonopah	09520350	Mohawk Pass Wash at Mohawk
09517000	Hassayampa River near Arlington	09520400	Ligurta Wash at Ligurta
09517200	Centennial Wash Tributary near Wenden	09535100	San Simon Wash near Pisinimo
09517280	Tiger Wash near Aguila	09535200	Little Tucson Wash at Sells
09517400	Winters Wash near Tonopah	09535300	Vamori Wash at Kom Vo
09517500	Centennial Wash near Arlington	09536100	Pitchfork Canyon Tributary near Fort Grant
09519600	Rainbow Wash Tributary near Buckeye	09536350	Surprise Canyon near Dos Cabezas
09519750	Bender Wash near Gila Bend	09537200	Leslie Creek near McNeal
09519760	Sauceda Wash near Gila Bend	09537500	Whitewater Draw near Douglas



EXPLANATION

▲ CONTINUOUS-RECORD STREAMFLOW-GAGING STATION

△ PEAK-FLOW PARTIAL-RECORD STREAMFLOW-GAGING STATION

Figure 3. Basins and unregulated and partly regulated streamflow-gaging stations in southern Arizona through water year 1996.

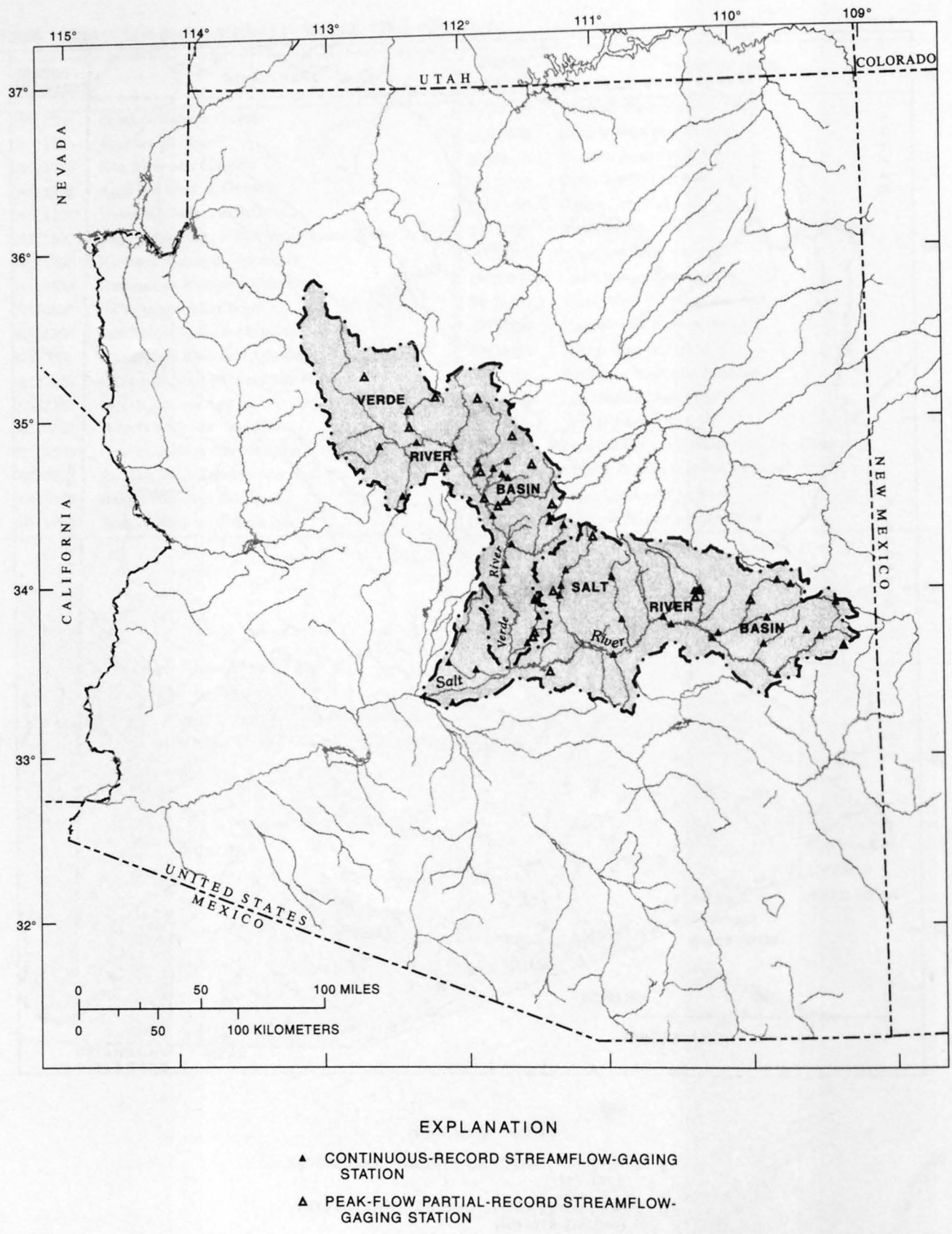
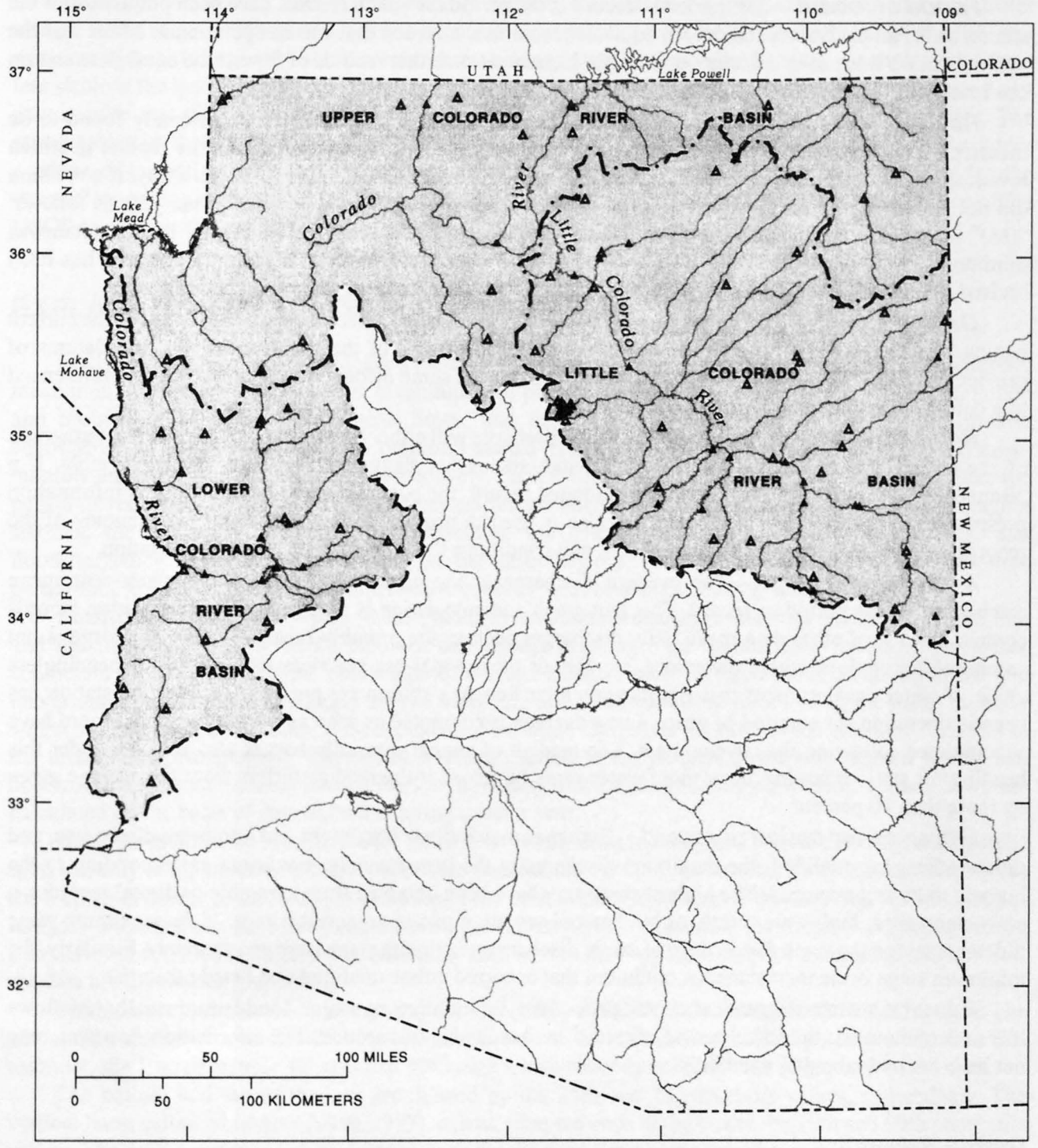


Figure 4. Basins and unregulated and partly regulated streamflow-gaging stations in central Arizona through water year 1996.



EXPLANATION

▲ CONTINUOUS-RECORD STREAMFLOW-GAGING STATION

△ PEAK-FLOW PARTIAL-RECORD STREAMFLOW-GAGING STATION

Figure 5. Basins and unregulated and partly regulated streamflow-gaging stations in northern Arizona through water year 1996.

Period of record.—The period of record is the period for which records have been published for the station or for an equivalent station. An equivalent station is a station that was in operation at a time that the present station was not in existence and whose location is such that records of flow at the equivalent station can reasonably be considered equivalent to flow at the present station.

Revised records.—Because of new information, published records are occasionally found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year as follows: "(M)" means that only instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised drainage area was first published is given.

Gaging station.—The type of gaging station that is used to collect the data, the datum of the current gaging station referenced to sea level, and a condensed history of the types, locations, and datums of previous gaging stations used at that location. The datum of some discontinued stations may be referenced to a datum other than that of sea level.

Remarks.—All periods of estimated daily discharge will either be identified by date in this paragraph of the station description for the water-discharge stations or flagged in the daily discharge table. If a "Remarks" paragraph is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph also is used to present information about the accuracy of the records, the special methods of computation, and conditions that affect natural flow at the station.

Average discharge.—The average discharge is the arithmetic mean of the water-year mean discharges for the period of record. This paragraph and calculation is only included if the station records contain periods of other than mean daily discharges such as the monthly mean. Average discharge is not computed for stations where diversions, storage, or other water-use practices would cause a meaningless value. If water developments that significantly alter flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of annual mean discharges also is given under this heading for stations having 10 or more water years of record if the median differs from the average given by more than 10 percent.

Extremes for period of record.—Extremes may include maximum and minimum discharges, and unless otherwise qualified, the maximum discharge is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, high-water mark, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge, maximum stage is given separately. Similarly, the minimum stage is the instantaneous minimum that occurred unless qualified and listed otherwise.

Extremes outside period of record.—Any information on major floods or unusually low flows that occurred outside the stated period of record are included in this section. The information, however, may not have been obtained by the USGS.

Rating Tables

The most recent discharge rating table is included with the data tables for each streamflow-gaging station. Some rating tables are not included because they were not available. The ratings can be used to relate discharges given in the various tables to their associated gage height at the streamflow-gaging station. These gage heights are referenced to the gage datum, which is an arbitrary datum selected to avoid negative gage heights. The gage datum and gage heights can be converted to elevation above mean sea level by adding the datum or elevation of the gaging station listed in the section titled "Gaging Stations" of the station description.

Discharge ratings are updated periodically for active streamflow-gaging stations after a significant change in the stage-discharge relation has occurred. Because of the nature of the controls, the stability and duration of these ratings vary significantly from station to station. Generally the stage-discharge relation is less stable at the lower stages than it is at the higher stages. Sensitivity and unstable conditions at lower flows may require that discharge ratings be revised more frequently to account for these control changes. The rating tables in this report have taken this component into account and have been limited to the upper portions of the rating table that are more stable. Over time, many of the discharge rating tables for the streamflow-gaging stations will be superseded, and users of these data should contact the local office of the USGS to confirm the validity of the ratings.

EXPLANATION OF STATISTICAL SUMMARIES

Statistical summaries and associated plots for the 320 streamflow-gaging stations include statistics for mean monthly and annual discharge; magnitude and probability of annual high and low flows; magnitude and probability of instantaneous peak flows; and daily mean-flow duration and basin and climatic characteristics. Graphs and box plots represent annual peak discharge, annual mean discharge, and mean monthly and mean annual discharges respectively. Each station description and table heading identifies the period of record for which the statistical summaries are based. For continuous-record streamflow-gaging stations, the statistical summaries of streamflow are calculated from the daily mean values, and flood-frequency calculations are based on the instantaneous peak flows. Summaries for peak-flow partial-record stations only include the flood-frequency and recurrence-interval statistics.

Monthly and annual flow.—Mean monthly and annual discharge statistics include the minimum and maximum discharges, mean monthly and annual discharge, the standard deviation of the mean, coefficient of variation, and the percentage of average annual runoff for each month. The minimum and maximum mean monthly discharges are the minimum and maximum flow values of all the mean monthly values for that particular month.The coefficient of variation represents the ratio of the standard deviation to the mean. The percentage of the annual discharge runoff is the percent of the total annual runoff that occurred during each month. Except for low-flow magnitude and probability statistics, annual flows are calculated on the basis of data obtained during a water year.

Boxplots graphically summarize the characteristics of mean monthly and annual discharges and can be used to easily compare data sets. Boxplots were constructed for continuous-record stations and display (1) the median or center of the data, (2) variation of the data, and (3) skewness of the data (fig. 6). The boxplot in figure 6 summarizes the March mean discharges for the period of record at the streamflow-gaging station Blue River near Clifton (table 1). The column of data next to the boxplot in figure 6 is included to show how the data are distributed graphically.

Boxplots are constructed by computing the 10th, 25th, 50th, 75th, and 90th percentiles of the data. The percentile value represents the discharge which exceeds no more than the specified percent of the data. For example, the 10th percentile value is that discharge which exceeds no more than 10 percent of the data.

The bottom and top of the box are defined by the 25th and 75 percentile values, respectively. The vertical lines, called whiskers (Tukey, 1977), extend from the ends of the box to the 10th and 90th percentile values. The 50th percentile value, referred to as the median, defines the line drawn within the box. In the example, the 10th, 25th, 50th, 75th, and 90th percentile values are 13.9, 35.9, 105.6, 314.3, and 429.3 cubic feet per second, respectively.

Flow magnitude and probability.—Computations for flow magnitudes and probability statistics are based on the log-Pearson Type III frequency distribution and provide the necessary data to plot standard flow-frequency curves. Magnitude and probability tables for annual low flow list the maximum and minimum average discharge for periods of 1, 3, 7, 14, 30, 60, 90, 120, and 183 consecutive days that correspond to selected recurrence intervals of 2, 5, 10, 20, 50, and 100 years associated with annual nonexceedence probabilities of 50, 20, 10, 5, 2, and 1 percent. Recurrence intervals represent the average

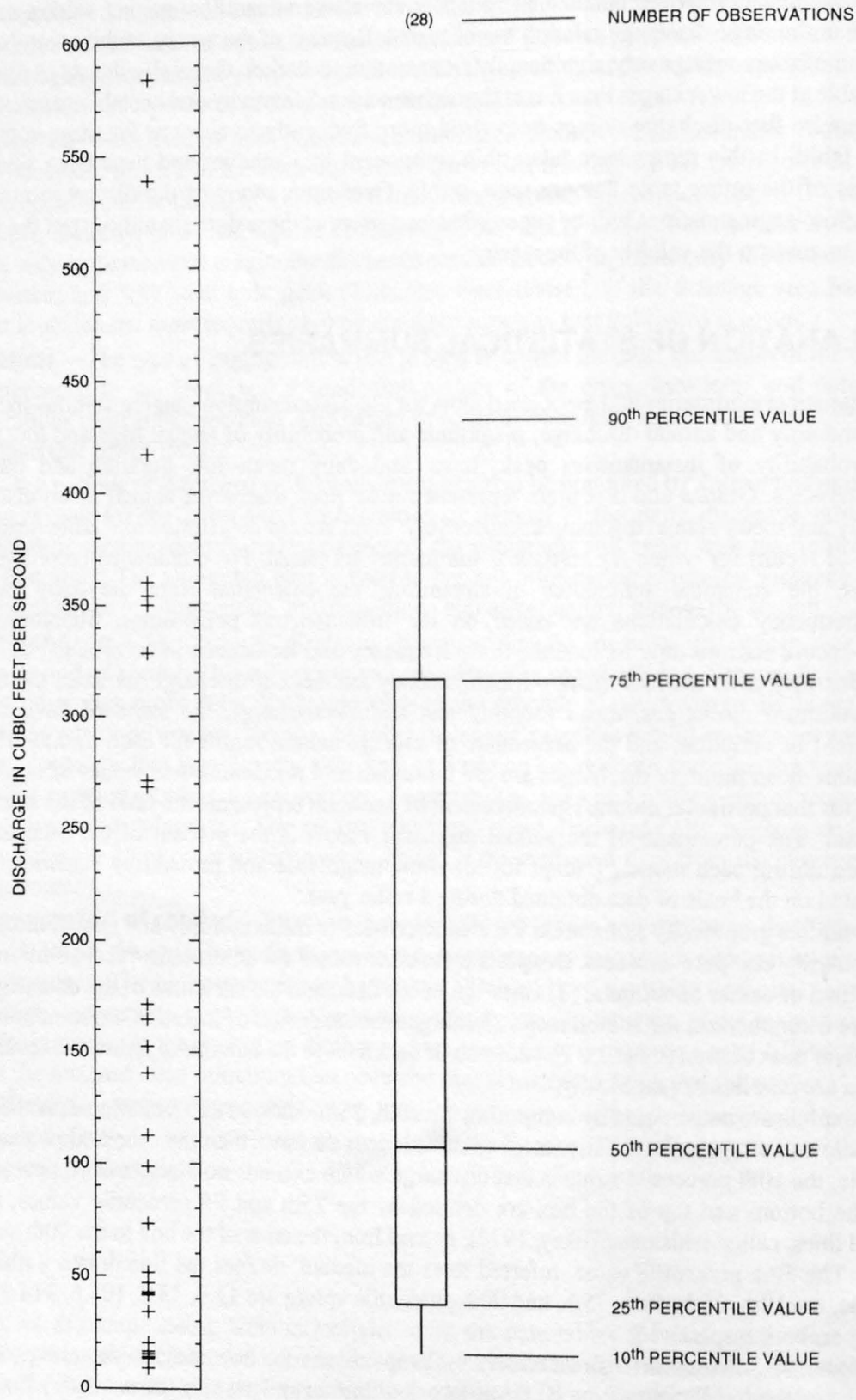


Figure 6. Explanation of boxplots. The values described by the boxplot in this explanation are the March mean discharges for the period of record at streamflow gaging station 09442000, Blue River near Clifton.

length of time between annual minimum mean flows that are less than the stated magnitude of flow. Nonexceedence probability, expressed as a percentage, is the probability that the annual maximum and minimum mean flow will be less in any given year than the stated magnitude. Annual low-flow probabilities are computed on discharge values obtained during the climatic year.

Magnitude and probability tables for annual high flow list the maximum average discharge for periods of 1, 3, 7, 15, 30, 60, and 90 consecutive days that correspond to selective recurrence intervals of 2, 5, 10, 25, 50, and 100 years associated with annual exceedance probabilities of 50, 20, 10, 4, 2, and 1 percent. Recurrence intervals represent the average length of time between annual maximum mean flows that are equal to or greater than the stated magnitude of flow. Exceedance probability, expressed as a percentage, is the probability that the annual maximum mean flow will be equal or greater in any given year than the stated magnitude. Annual high-flow probabilities are computed on discharge values obtained during the water year.

Flood frequency.—Flood-frequency relations and tabulations provide the necessary data to plot standard flood-frequency curves that are based on log-Pearson Type III frequency distribution, as recommended in the Water Resources Council Guidelines for determining floodflow frequency (Interagency Advisory Committee on Water Data, 1982). These data were calculated for streamflow-gaging stations on unregulated or partly regulated streams. Partly regulated streams are those in which flow is regulated or diverted to an unknown degree.

Flow duration.—Flow duration of daily mean discharge, expressed in percentage of time, are specified daily flows that were equaled or exceeded during the period of record. The tabulations show the discharges that were equaled or exceeded for a given percentage of time in 1, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 95, 98, 99, 99.5, and 99.9 percentiles. These data can be used to plot a standard flow-duration curve.

Discharge.— Annual peak discharge, mean monthly discharge and mean annual discharge are shown for all continuous-recording gaging stations. Annual peak discharges are included for peak-flow partial-record gaging stations.

Significant figures and rounding limits.—The number of significant figures used for reporting discharge in this report is based on the magnitude of the value and is not based on the accuracy of the data. Rounding criteria are used for reporting monthly and annual mean discharge, flow-duration, and probability values for individual streamflow-gaging stations (table 2).

Table 2. Significant figures and rounding limits used for reporting monthly and annual mean discharge and probable discharge

[<, less than; ≥, equal to or greater than]

Range in discharge, in cubic feet per second	Significant figures	Rounding limits	Range in discharge, in cubic feet per second	Significant figures	Rounding limits
Monthly and annual mean discharge			**Probable discharge**		
<0.010	1	Thousandths	<0.10	1	Hundredths
0.010-0.099	2	Thousandths	0.10-0.99	2	Hundredths
0.10-0.99	2	Hundredths	1.0-9.9	2	Tenths
1.00-9.99	3	Hundredths	10-99	2	Units
10.0-99.9	3	Tenths	≥100	3	Variable
100-999	3	Units			
≥1,000	4	Variable			

DATA USE LIMITATIONS

Statistical information presented in this report should be used for broad planning purposes and general basin investigations only. With the variability in the lengths of records for the streamflow-gaging stations and isolated factors that may affect streamflow other than regulation by reservoirs, site specific studies require a more detailed analysis of the streamflow data.

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STATISTICAL SUMMARIES

NOTE: Disclaimer for text: Over time many of the discharge rating tables for the streamflow-gaging stations will be superceded, and users of these data should contact the local office of the USGS to confirm the validity of the ratings. For more information please contact:

U.S. Geological Survey, WRD
520 North Park Avenue, Suite 221
Tucson, Arizona 85719-5035,
Phone: (520) 670-6671,
FAX number, (520) 670-5592.

09371100 TEEC NOS POS WASH NEAR TEEC NOS POS, AZ

LOCATION.--Lat 36°55'58", long 109°06'35, in NE$^1/_4$ sec.27, T.41 N., R.30 E., Apache County, Hydrologic Unit 14080201, at U.S. Highway 160 (renumbered), 1.5 mi northwest of Teec Nos Pos Trading Post.

DRAINAGE AREA.--16.0 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	00-00-67	750		1972	09-06-72	810	
1968	08-01-68	400		1973	10-19-72	770	
1969	07-18-69	580		1974	07-22-74	100	
1970	09-12-70	1,350		1975	09-00-75	450	
1971	08-00-71	500		1976	00-00-76	300	

Magnitude and probability of instantaneous peak flow based on period of record 1967-76

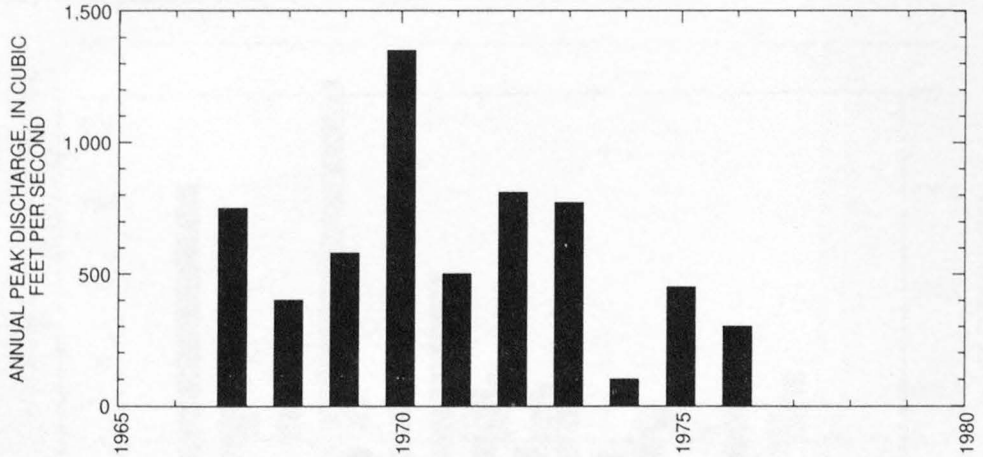
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
557	841	1,050	1,320	1,530	1,760

Weighted skew	(logs) =	0.03
Mean	(logs) =	2.75
Standard dev.	(logs) =	0.21

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
411	11.2	7,600	80.0	2.0	16.5	1.4	2.9



09379030 BLACK MOUNTAIN WASH NEAR CHINLE, AZ

LOCATION.--Lat 36°20'00", long 109°37'25", Apache County, Hydrologic Unit 14080204, at State Highway 63, 1 mi south of Many Farms, and 13 mi north of Chinle.

DRAINAGE AREA.--80.7 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-06-63	737		1971	08-00-71	2,180	
1964	08-13-64	1,500		1972	08-00-72	900	
1965	08-02-65	238		1973	10-19-72	1,040	
1966	07-31-66	610		1974	07-00-74	140	
1967	08-00-67	360		1975	08-20-75	110	
1968	08-01-68	1,560		1976	00-00-76	1,900	
1969	08-03-69	422		1977	08-17-77	3,100	
1970	08-20-70	1,020					

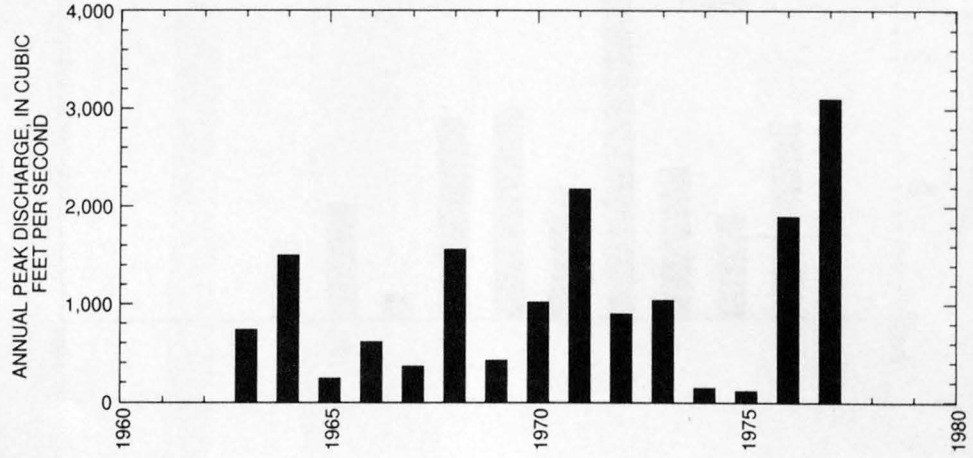
Magnitude and probability of instantaneous peak flow based on period of record 1963-77

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
844	1,650	2,320	3,280	4,090	4,970
Weighted skew	(logs) =	-0.18			
Mean	(logs) =	2.92			
Standard dev.	(logs) =	0.36			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
46.2	14.4	5,920	2.1	3.0	10.9	1.3	2.7



09379060 LUKACHUKAI CREEK TRIBUTARY NEAR LUKACHUKAI, AZ

LOCATION.--Lat 36°28'10", long 109°24'20", Apache County, Hydrologic Unit 14080204, at Navajo Highway 12, 6.8 mi southeast of Round Rock, and 10 mi northwest of Lukachukai.

DRAINAGE AREA.--1.37 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-31-63	15		1970	10-04-69	36	
1964	07-31-64	33		1971	08-00-71	3.0	ES
1965	01-06-65	227		1972	00-00-72	0	
1966	07-31-66	10	ES	1973	00-00-73	20	
1967	00-00-67	0		1974	02-21-74	10	
1968	08-00-68	30		1975	00-00-75	1.0	ES
1969	07-18-69	49		1976	00-00-76	43	

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

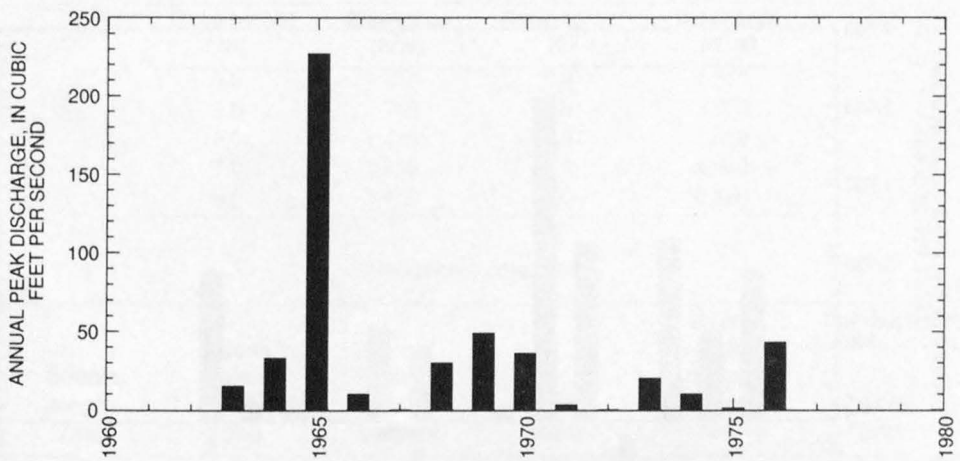
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
17.9	46.8	79.5	143	210	301

Weighted skew (logs) = 0.26
Mean (logs) = 1.27
Standard dev. (logs) = 0.48

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
72.2	2.4	5,820	0.0	3.0	9.8	1.2	2.6



09379100 LONG HOUSE WASH NEAR KAYENTA, AZ

LOCATION.--Lat 36°34'02", long 110°29'17", Navajo County, Hydrologic Unit 15020018, at U.S. Highway 160, 17 mi southwest of Kayenta.
DRAINAGE AREA.--1.38 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	960		1970	09-05-70	480	
1963	08-06-63	548		1971	08-00-71	590	
1964	07-31-64	1,150		1972	00-00-72	10	ES
1965	00-00-65	0		1973	10-19-72	150	
1966	08-31-66	1,120		1974	07-00-74	123	
1967	07-30-67	2,060		1975	09-08-75	960	
1968	08-00-68	96		1976	00-00-76	1.0	ES
1969	08-03-69	5.0	ES				

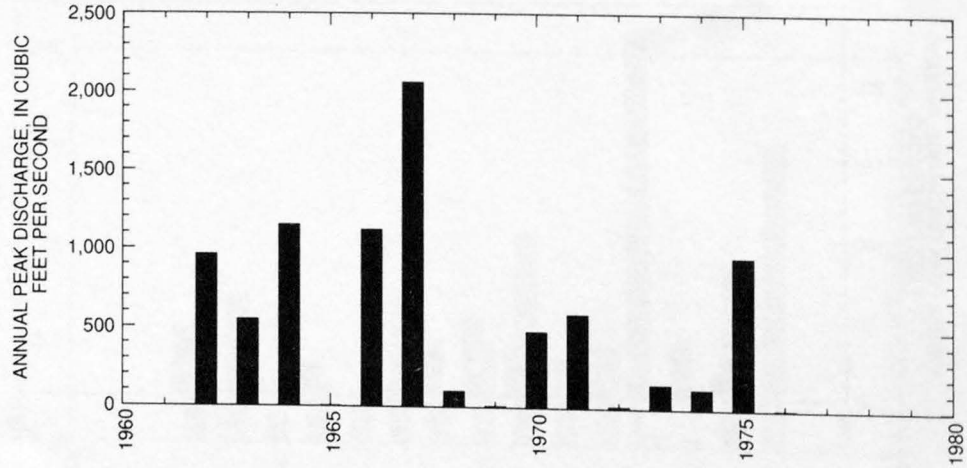
Magnitude and probability of instantaneous peak flow based on period of record 1962-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
304	1,000	1,760	3,100	4,380	5,880
Weighted skew	(logs) =	-0.40			
Mean	(logs) =	2.44			
Standard dev.	(logs) =	0.66			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
236	1.1	6,920	57.0	3.0	12.0	1.4	2.9



09379200 CHINLE CREEK NEAR MEXICAN WATER, AZ

LOCATION.--Lat 36°56'38", long 109°42'36", in sec.19, T.41 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 14080204, in Navajo Indian Reservation, on right bank 150 ft upstream from bridge on U.S. Highway 160, 3 mi upstream from Walker Creek, 4 mi southwest of Mexican Water, 5 mi downstream from confluence of Chinle Creek and Laguna Creek, and 6 mi upstream from Arizona-Utah State line.

DRAINAGE AREA.--3,650 mi^2.

PERIOD OF RECORD.--October 1964 to current year (monthly discharge only for 1979). Prior to October 1970 published as Chinle Wash near Mexican Water.

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 4,720 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. Some diversions upstream for irrigation, livestock tanks, and domestic use. Many Farms Reservoir, about 25 mi upstream, was built in 1939 with an original capacity of 25,000 acre-ft. The reservoir provides off-channel storage for irrigation of about 1,600 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s Aug. 24, 1982, gage height, 13.87 ft, from rating curve extended above 3,100 ft^3/s on basis of slope-area measurement at gage height 12.50 ft; no flow at times in each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	2,070	ES	1980	09-10-80	1,630	
1964	08-01-64	3,280	ES	1981	07-14-81	3,270	
1965	05-15-65	732		1982	08-24-82	12,000	
1966	12-24-65	650		1983	07-28-83	3,650	
1967	08-10-67	1,230		1984	07-24-84	7,500	
1968	08-08-68	1,040		1985	04-30-85	4,914	
1969	01-15-69	590		1986	09-09-86	1,720	
1970	09-07-70	[1]9,880		1987	11-19-86	5,800	
1971	08-23-71	1,050		1988	11-06-87	2,900	
1972	08-28-72	850		1989	08-19-89	2,940	
1973	10-20-72	984		1990	07-18-90	2,530	
1974	03-02-74	646		1991	12-28-90	3,590	
1975	07-13-75	3,680		1992	08-0-792	4,090	
1976	09-25-76	1,620		1993	02-20-93	6,870	
1977	08-19-77	7,120		1994	10-06-93	2,640	
1978	07-18-78	751		1995	09-07-95	2,720	
1979	11-12-78	1,390		1996	08-26-96	3,440	

[1]Highest since 1950.

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	330	9.0	4,550
5.0	780	10.0	5,850
6.0	1,440	11.0	7,310
7.0	2,330	12.0	8,920
8.0	3,410	13.0	10,860

Basin characteristics

Main-channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (mi)	Forested area (percent)	Soil index	Mean annual precipit–ation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
12.3	86.8	6,260	24.0	3.0	10.9	1.3	2.7

09379200 CHINLE CREEK NEAR MEXICAN WATER, AZ—Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1965-78, 1980-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	142	0.90	22	30	1.3	6.2
NOVEMBER	144	0.41	16	28	1.8	4.3
DECEMBER	41	1.1	9.4	9.9	1.1	2.6
JANUARY	151	1.6	20	32	1.6	5.4
FEBRUARY	169	2.3	31	47	1.5	8.4
MARCH	215	0.67	27	45	1.7	7.4
APRIL	402	0.53	60	95	1.6	16.5
MAY	294	0.26	51	81	1.6	14.1
JUNE	73	0.00	5.9	17	2.8	1.6
JULY	129	0.00	26	32	1.3	7.1
AUGUST	501	0.00	56	98	1.8	15.3
SEPTEMBER	342	0.00	41	70	1.7	11.2
ANNUAL	94	4.5	30	26	0.85	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-78, 1981-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.66	0.11	0.00	0.00	0.00	0.00
90	2.0	0.61	0.28	0.11	0.00	0.00
120	4.3	1.9	1.2	0.75	0.00	0.00
183	8.0	4.0	2.9	2.3	1.8	1.5

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,320	4,710	6,820	10,100	13,100	16,500

WEIGHTED SKEW (LOGS)= 0.01
MEAN (LOGS)= 3.37
STANDARD DEV. (LOGS)= 0.36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-78, 1980-96

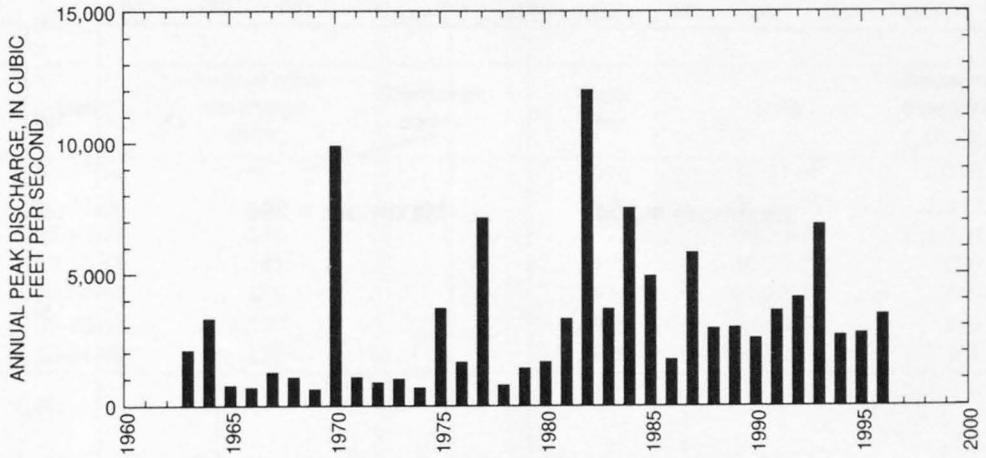
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	760	1,640	2,550	4,190	5,870	8,030
3	477	969	1,450	2,300	3,140	4,190
7	270	528	770	1,170	1,560	2,030
15	169	332	478	709	919	1,160
30	110	226	334	513	681	883
60	66	141	214	337	456	600
90	52	112	171	269	363	478

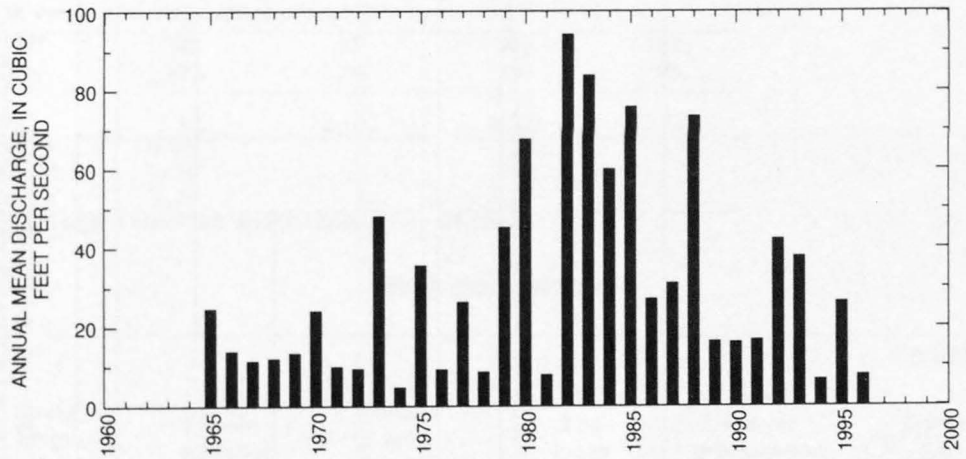
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-78, 1980-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
500	158	63	29	17	7.9	4.8	3.3	2.1	1.1	0.46	0.00	0.00	0.00	0.00	0.00	0.00

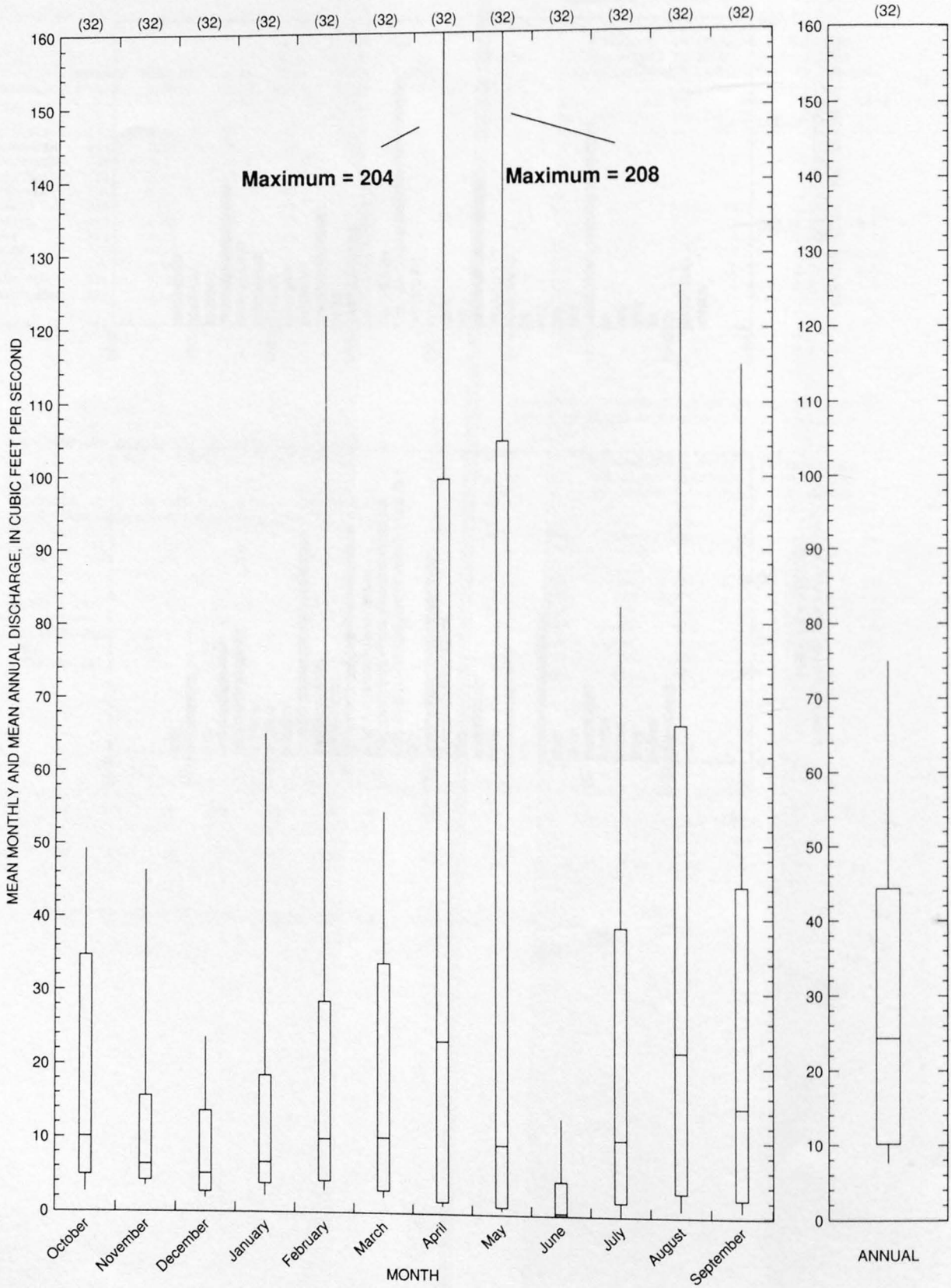
Reliability of values in column is uncertain, and potential errors are large.

09379200 CHINLE CREEK NEAR MEXICAN WATER, AZ—Continued





09379200 CHINLE CREEK NEAR MEXICAN WATER, AZ—Continued



09379560 EL CAPITAN WASH NEAR KAYENTA, AZ

LOCATION.--Lat 36°51'32", long 110°15'55", Navajo County, Hydrologic Unit 14080205, at U.S. Highway 163, 12 mi north of Kayenta.
DRAINAGE AREA.--5.88 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-30-63	663		1970	10-11-69	390	
1964	07-31-64	181		1971	08-26-71	2,340	
1965	08-02-65	278		1972	00-00-72	1,320	
1966	10-16-65	185		1973	10-19-72	750	
1967	09-00-67	638		1974	07-20-74	145	
1968	00-00-68	1,220		1975	07-07-75	530	
1969	10-04-68	335		1976	00-00-76	301	

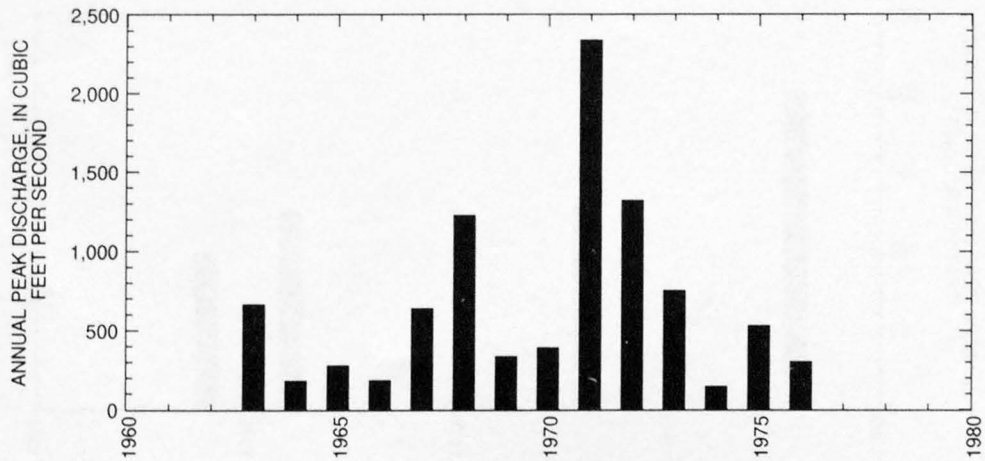
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
470	952	1,390	2,100	2,760	3,530
Weighted skew	(logs) =	0.14			
Mean	(logs) =	2.68			
Standard dev.	(logs) =	0.36			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
78.4	3.4	5,690	8.0	3.0	9.0	1.2	2.4



09379980 JACK BENCH WASH TRIBUTARY NEAR PAGE, AZ

LOCATION.--Lat 36°42'50", long 111°35'30", Coconino County, Hydrologic Unit 14070006, at U.S. Highway 89, 17 mi south of Page.
DRAINAGE AREA.--0.98 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	200		1970	00-00-70	0	
1963	00-00-63	2.0	LT	1971	00-00-71	2.0	LT
1964	08-29-64	1.0	ES	1972	06-22-72	10	LT
1965	00-00-65	0		1973	00-00-73	10	LT
1966	00-00-66	0		1974	11-00-73	125	
1967	07-16-67	128		1975	00-00-75	1.0	LT
1968	00-00-68	0		1976	00-00-76	99	
1969	00-00-69	0					

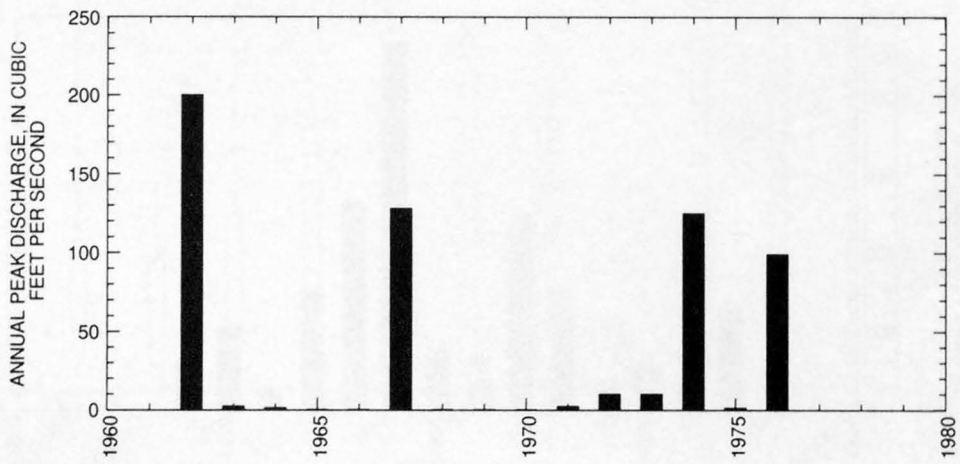
Magnitude and probability of instantaneous peak flow based on period of record 1962-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
2.6	37.1	141	560	1,330	2,850
Weighted skew	(logs) =	-0.21			
Mean	(logs) =	0.36			
Standard dev.	(logs) =	1.42			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
133	2.6	6,180	22.0	3.0	8.8	1.3	2.7



09380000 COLORADO RIVER AT LEES FERRY, AZ

LOCATION.--Lat 36°51'53", long 111°5'15", in $NE^1/_4SE^1/_4$ sec.13, T.40 N., R.7 E., Coconino County, Hydrologic Unit 14070006, in Navajo Indian Reservation, on left bank at head of Marble Gorge at Lees Ferry, just upstream from Paria River, 16 mi downstream from Glen Canyon Dam, 28 mi downstream from Utah-Arizona State line, and 61.5 mi upstream from Little Colorado River.

DRAINAGE AREA.--111,800 mi^2, approximately, including 3,959 mi^2 in Great Divide basin in southern Wyoming which is noncontributing.

PERIOD OF RECORD.--January 1895 to current year. Estimates of monthly and annual discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 859: 1921-23. WSP 1313: 1914-21.

GAGE.--Water-stage recorder. Datum of gage is 3,106.16 ft above sea level. Prior to Jan. 19, 1923, nonrecording gages or reference points within 400 ft of present gage, at different datums.

REMARKS.--No estimated daily discharge. Records good. Flow regulated since Mar. 13, 1963, by Lake Powell, 16 mi upstream. Many diversions above Lake Powell for irrigation, municipal, and industrial use. No diversions or inflow between Lake Powell and the gage.

AVERAGE DISCHARGE.--51 years (water years 1912-62), 17,850 ft3/s, 12,930,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--1895-1962: Maximum discharge, 220,000 ft3/s June 18, 1921, gage height, 26.5 ft, from floodmarks, from rating curve extended above 120,000 ft3/s on basis of discharge computed for station near Grand Canyon; minimum, 750 ft3/s Dec. 27, 1924.

1963-96: Maximum discharge, 97,300 ft^3/s June 29, 1983, gage height, 18.14 ft; minimum daily, 700 ft^3/s Jan. 23, 24, 1963, result of closing coffer dam at Glen Canyon Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1868, about 300,000 ft^3/s July 7, 1884, gage height, 31.5 ft, present site and datum, from floodmark at mouth of Paria River, from rating curve extended above 120,000 ft^3/s on basis of discharge computed for flood of June 18, 1921, for station near Grand Canyon.

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1884	07-07-84	300,000	ES,HP	1959	06-19-59	38,900	
1921	06-18-21	220,000		1960	06-08-60	46,700	
1922	05-31-22	116,000		1961	06-05-61	40,200	
1923	05-31-23	98,300		1962	05-16-62	85,000	
1924	06-17-24	76,200		1963	10-21-62	19,200	KR
1925	06-03-25	54,900		1964	04-28-64	20,200	KR
1926	05-29-26	86,500		1965	06-15-65	60,200	KR
1927	07-01-27	127,000		1966	05-03-66	21,100	KR
1928	06-03-28	115,000		1967	04-19-67	22,500	KR
1929	05-29-29	114,000		1968	07-19-68	26,800	KR
1930	06-03-30	73,300		1969	08-28-69	26,100	KR
1931	05-21-31	34,600		1970	08-26-70	27,300	KR
1932	05-26-32	102,000		1971	04-05-71	28,700	KR
1933	06-05-33	82,700		1972	07-12-72	30,600	KR
1934	05-16-34	25,300		1973	03-28-73	31,000	KR
1935	06-19-35	105,000		1974	01-02-74	27,700	KR
1936	05-23-36	76,300		1975	05-07-75	28,400	KR
1937	05-20-37	84,800		1976	05-19-76	27,100	KR
1938	06-08-38	101,000		1977	09-07-77	29,000	KR
1939	05-26-39	49,700		1978	01-23-78	28,400	KR
1940	05-18-40	47,200		1979	01-29-79	28,600	KR
1941	05-17-41	120,000		1980	06-24-80	44,800	KR
1942	05-30-42	92,800		1981	07-20-81	25,900	KR
1943	06-05-43	68,600		1982	05-25-82	29,700	KR
1944	05-19-44	94,400		1983	06-29-83	97,300	KR
1945	05-17-45	64,400		1984	08-12-84	58,200	KR
1946	06-14-46	50,400		1985	06-02-85	47,900	KR
1947	05-13-47	80,400		1986	05-13-86	53,200	KR
1948	05-25-48	92,400		1987	12-03-86	31,500	KR
1949	06-22-49	119,000		1988	07-28-88	27,100	KR
1950	06-06-50	60,600		1989	08-28-89	28,400	KR
1951	06-01-51	67,300		1990	07-31-90	29,500	KR
1952	06-12-52	123,000		1991	06-17-91	29,500	KR
1953	06-17-53	69,600		1992	08-14-92	18,700	KR
1954	05-26-54	34,300		1993	08-16-93	19,900	KR
1955	06-13-55	35,600		1994	08-17-94	22,200	KR
1956	06-06-56	69,600		1995	06-01-95	20,100	KR
1957	06-12-57	126,000		1996	03-29-96	45,900	KR
1958	06-01-58	105,600					

Discharge rating table developed October 1990

Gage-Height (ft)	Discharge (ft^3/s)	Gage-Height (ft)	Discharge (ft^3/s)
5.0	1,270	10.0	16,750
6.0	2,720	11.0	22,740
7.0	4,900	12.0	29,910
8.0	7,900	13.0	38,180
9.0	11,820	14.0	46,150

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1922-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	29,200	1,000	9,200	4,720	0.51	5.1
NOVEMBER	24,800	1,000	9,200	4,190	0.46	5.1
DECEMBER	25,000	1,020	8,660	4,660	0.54	4.8
JANUARY	26,300	1,150	8,800	5,290	0.60	4.9
FEBRUARY	26,700	4,010	9,040	4,370	0.48	5.0
MARCH	24,800	3,050	10,000	3,870	0.39	5.5
APRIL	47,800	1,020	16,800	8,820	0.52	9.3
MAY	82,600	1,010	30,900	21,300	0.69	17.0
JUNE	94,900	1,000	36,300	24,700	0.68	20.0
JULY	65,300	977	18,900	11,000	0.58	10.4
AUGUST	30,800	1,010	12,800	6,720	0.53	7.1
SEPTEMBER	34,200	1,010	10,800	6,540	0.61	5.9
ANNUAL	28,200	3,330	15,100	5,460	0.36	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1923-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
1	2,850	1,760	1,330	1,050	786	643
3	3,380	2,030	1,510	1,160	852	685
7	3,950	2,370	1,780	1,390	1,030	844
14	4,560	2,730	2,030	1,570	1,160	937
30	5,350	3,330	2,530	1,990	1,490	1,220
60	6,320	3,940	2,950	2,280	1,660	1,330
90	7,120	4,410	3,280	2,500	1,800	1,420
120	7,580	4,790	3,610	2,800	2,060	1,650
183	8,290	5,270	3,990	3,100	2,270	1,820

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

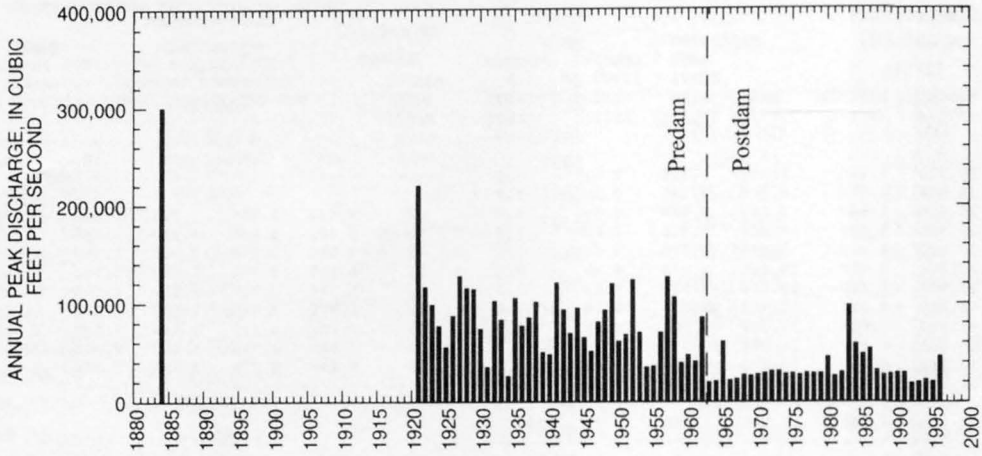
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1922-96

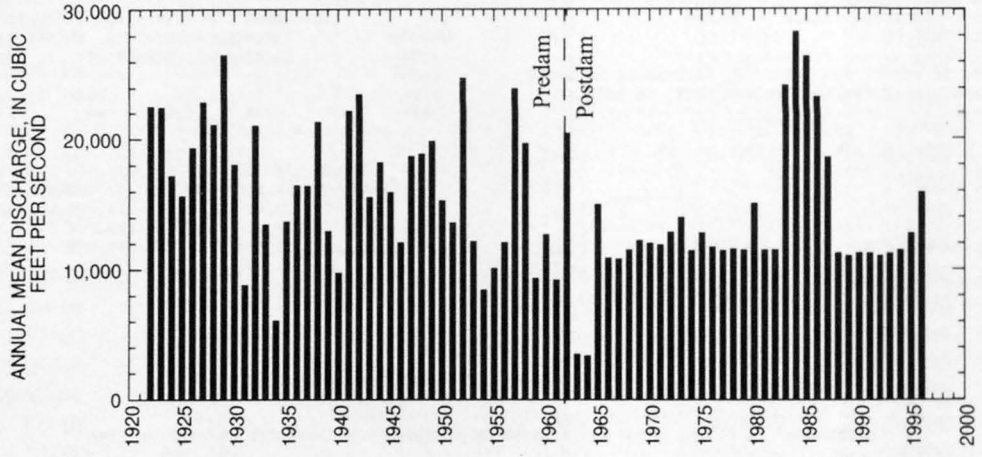
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	44,600	78,300	105,000	144,000	176,000	211,000
3	43,300	76,600	103,000	141,000	173,000	207,000
7	41,200	73,000	98,000	134,000	163,000	194,000
15	38,200	67,200	89,800	122,000	148,000	176,000
30	35,100	61,000	80,900	109,000	132,000	156,000
60	30,600	51,700	67,800	90,300	109,000	128,000
90	27,000	43,900	56,500	73,600	87,200	102,000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1922-96

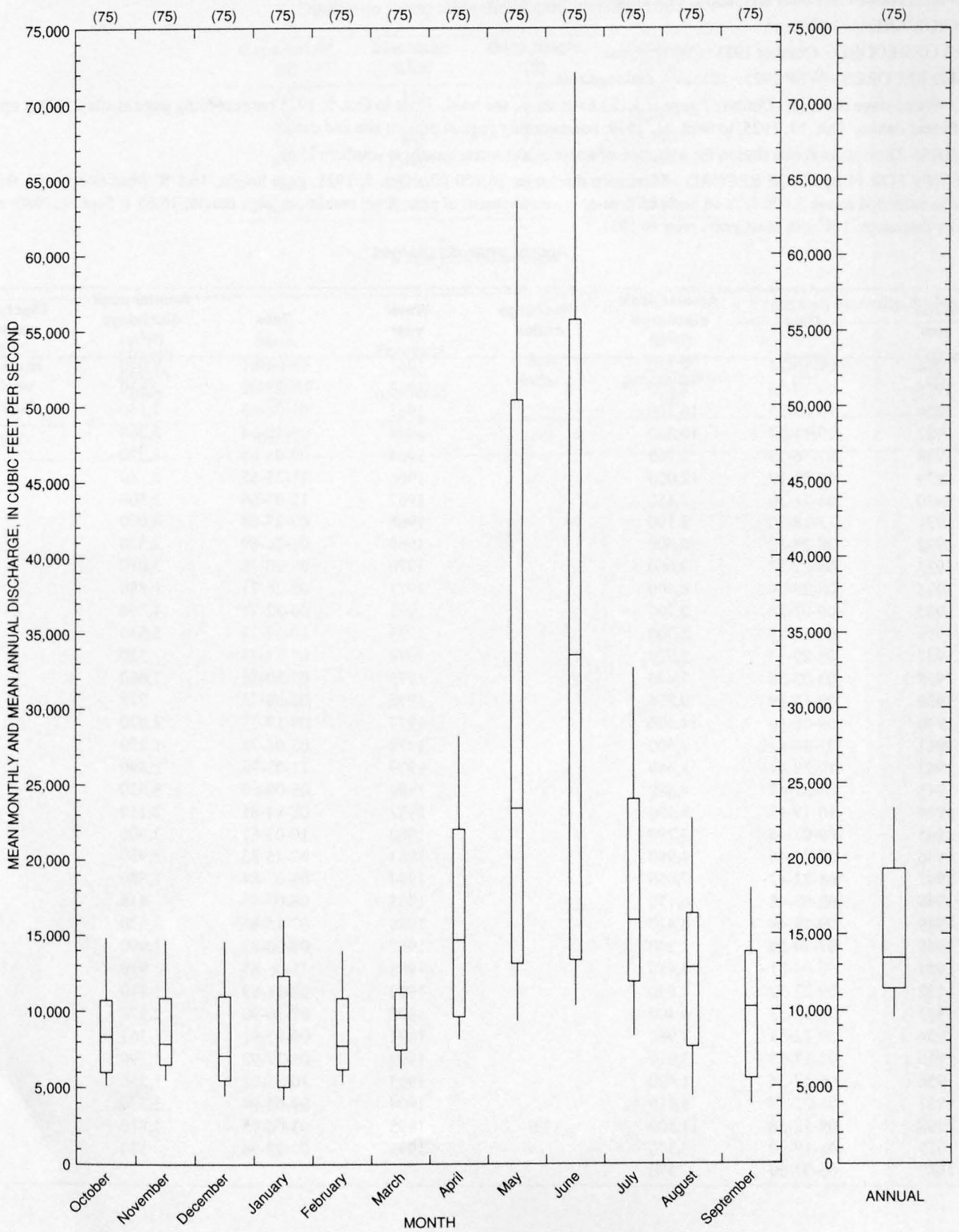
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
82,100	48,600	30,500	23,600	19,000	15,100	12,500	10,400	8,610	7,110	5,880	4,650	3,530	2,110	1,060	1,000	963

09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued





09380000 COLORADO RIVER AT LEES FERRY, AZ--Continued



09382000 PARIA RIVER AT LEES FERRY, AZ

LOCATION.--Lat 36°52'20", long 111°35'38", in NW$^1/_4$NE$^1/_4$ sec.13, T.40 N., R.7 E., Coconino County, Hydrologic Unit 14070007, on left bank 0.6 mi northwest of Lees Ferry, and 1.1 mi upstream from mouth.

DRAINAGE AREA.--1,410 mi^2.

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1925: 1958(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,123.68 ft above sea level. Prior to Oct. 5, 1925 nonrecording gage at site 2,000 ft upstream at different datum. Oct. 13, 1925, to Sept. 11, 1929, nonrecording gage at present site and datum.

REMARKS.--Diversions above station for irrigation of about 3,300 acres, mostly in southern Utah.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 ft3/s Oct. 5, 1925, gage height, 16.3 ft, from floodmark, from rating curve extended above 2,000 ft^3/s on basis of float-area measurement of peak flow; maximum gage height, 16.65 ft Sept. 9, 1980; minimum daily discharge, 1 ft^3/s in most years prior to 1931.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1924	09-10-24	4,330		1961	08-04-61	8,040	
1925	09-19-25	4,800		1962	09-21-62	2,830	
1926	10-05-25	16,100		1963	09-01-63	7,150	
1927	09-13-27	14,300		1964	08-12-64	2,360	
1928	07-16-28	2,960		1964	09-06-65	1,220	
1929	09-02-29	12,000		1966	11-23-65	2,140	
1930	08-11-30	7,150		1967	12-07-66	3,500	
1931	11-18-30	2,190		1968	07-27-68	4,090	
1932	08-28-32	10,500		1969	01-26-69	2,570	
1933	08-22-33	3,660		1970	08-20-70	3,010	
1934	08-29-34	8,400		1971	08-26-71	1,880	
1935	09-01-35	2,700		1972	06-22-72	4,750	
1936	07-11-36	8,700		1973	10-19-72	5,530	
1937	08-29-37	3,720		1974	07-23-74	520	
1938	03-03-38	7,440		1975	07-30-75	3,680	
1939	09-13-39	9,800		1976	02-09-76	718	
1940	09-06-40	14,000		1977	08-17-77	2,070	
1941	07-24-41	7,500		1978	03-05-78	1,270	
1942	10-28-41	1,680		1979	11-03-78	2,890	
1943	08-22-43	4,680		1980	09-09-80	8,520	
1944	10-19-43	8,400		1981	08-14-81	2,110	
1945	09-03-45	3,290		1982	10-03-81	2,400	
1946	07-25-46	4,980		1983	07-25-83	2,950	
1947	08-22-47	7,650		1984	08-07-84	1,880	
1948	08-05-48	6,150		1985	08-07-85	416	
1949	09-29-49	3,410		1986	07-15-86	3,520	
1950	07-19-50	1,340		1987	08-08-87	1,990	
1951	08-04-51	4,480		1988	11-06-87	910	
1952	09-22-52	1,830		1989	08-11-89	1,240	
1953	08-27-53	6,400		1990	07-16-90	2,370	
1954	09-12-54	3,980		1991	09-07-91	763	
1955	08-17-55	3,010		1992	05-27-92	1,790	
1956	08-17-56	1,420		1993	10-25-92	1,530	
1957	08-22-57	3,310		1994	09-03-94	3,330	
1958	09-12-58	11,500	ES	1995	03-06-95	1,810	
1959	08-19-59	5,370		1996	02-22-96	510	
1960	06-07-60	370					

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	143	11.0	3,490
6.0	390	12.0	4,280
7.0	848	13.0	5,110
8.0	1,410	14.0	5,990
9.0	2,050	15.0	6,910
10.0	2,750	16.0	7,860

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
43.0	78.0	6,150	73.0	3.0	12.0	1.4	3.0

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1924-95

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	288	6.0	30	41	1.4	8.6
NOVEMBER	123	10	24	18	0.76	6.8
DECEMBER	69	8.8	21	9.7	0.46	6.1
JANUARY	97	8.0	22	13	0.58	6.5
FEBRUARY	242	16	39	33	0.86	11.2
MARCH	216	8.9	40	39	0.96	11.5
APRIL	93	4.9	21	19	0.88	6.1
MAY	52	2.0	11	10	0.93	3.1
JUNE	58	2.0	7.3	9.2	1.3	2.1
JULY	172	2.3	25	28	1.1	7.2
AUGUST	237	4.5	56	49	0.89	16.0
SEPTEMBER	424	4.2	52	80	1.5	15.0
ANNUAL	65	11	29	12	0.41	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1925-95

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.4	1.8	1.5	1.3	1.0	0.91
3	2.8	2.1	1.7	1.5	1.2	1.1
7	3.0	2.3	2.0	1.7	1.4	1.3
14	3.1	2.5	2.3	2.0	1.8	1.7
30	3.5	2.8	2.5	2.4	2.2	2.1
60	4.4	3.4	3.1	2.9	2.7	2.6
90	6.4	4.4	3.8	3.3	2.9	2.7
120	11	7.1	5.6	4.6	3.6	3.1
183	18	13	10	8.5	6.8	5.9

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1924-95

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,420	6,330	8,810	12,600	16,000	19,800

WEIGHTED SKEW (LOGS)= 0.13
MEAN (LOGS)= 3.54
STANDARD DEV. (LOGS)= 0.31

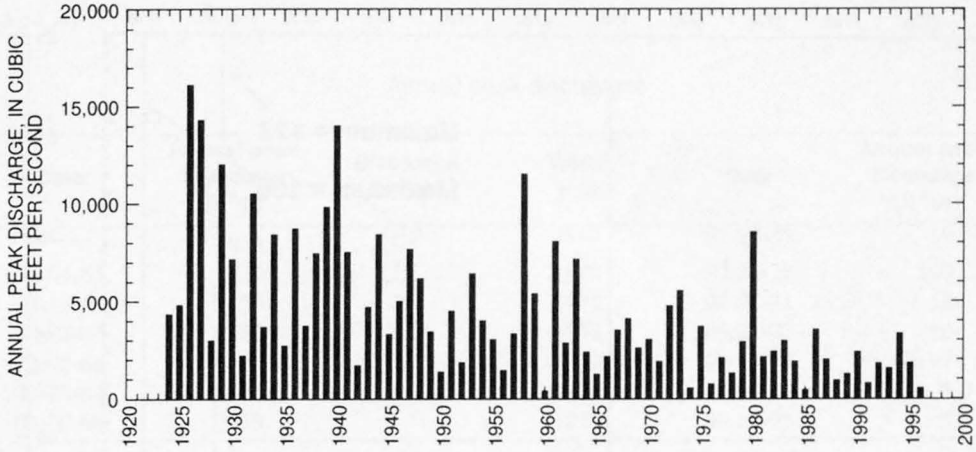
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1924-95

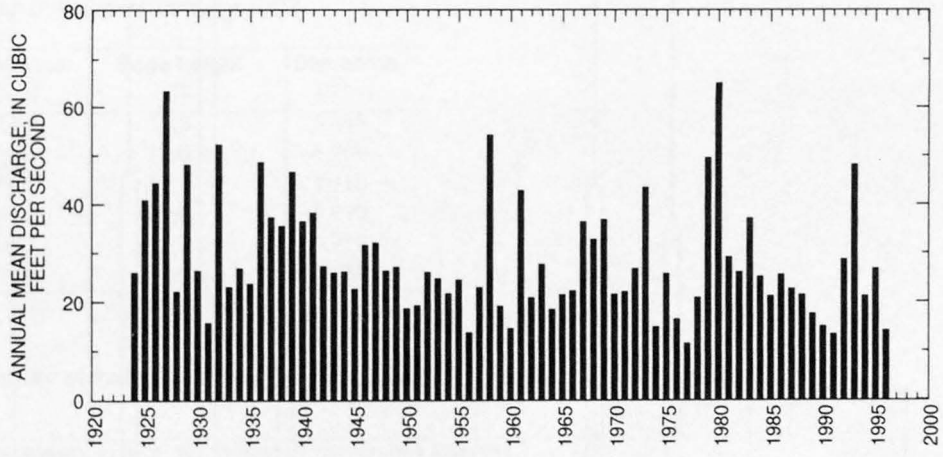
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	776	1,680	2,590	4,220	5,870	7,980
3	397	832	1,280	2,080	2,900	3,960
7	216	431	643	1,010	1,380	1,850
15	134	251	360	543	716	928
30	91	163	226	324	413	518
60	63	106	143	200	250	309
90	49	79	105	145	179	219

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1924-95

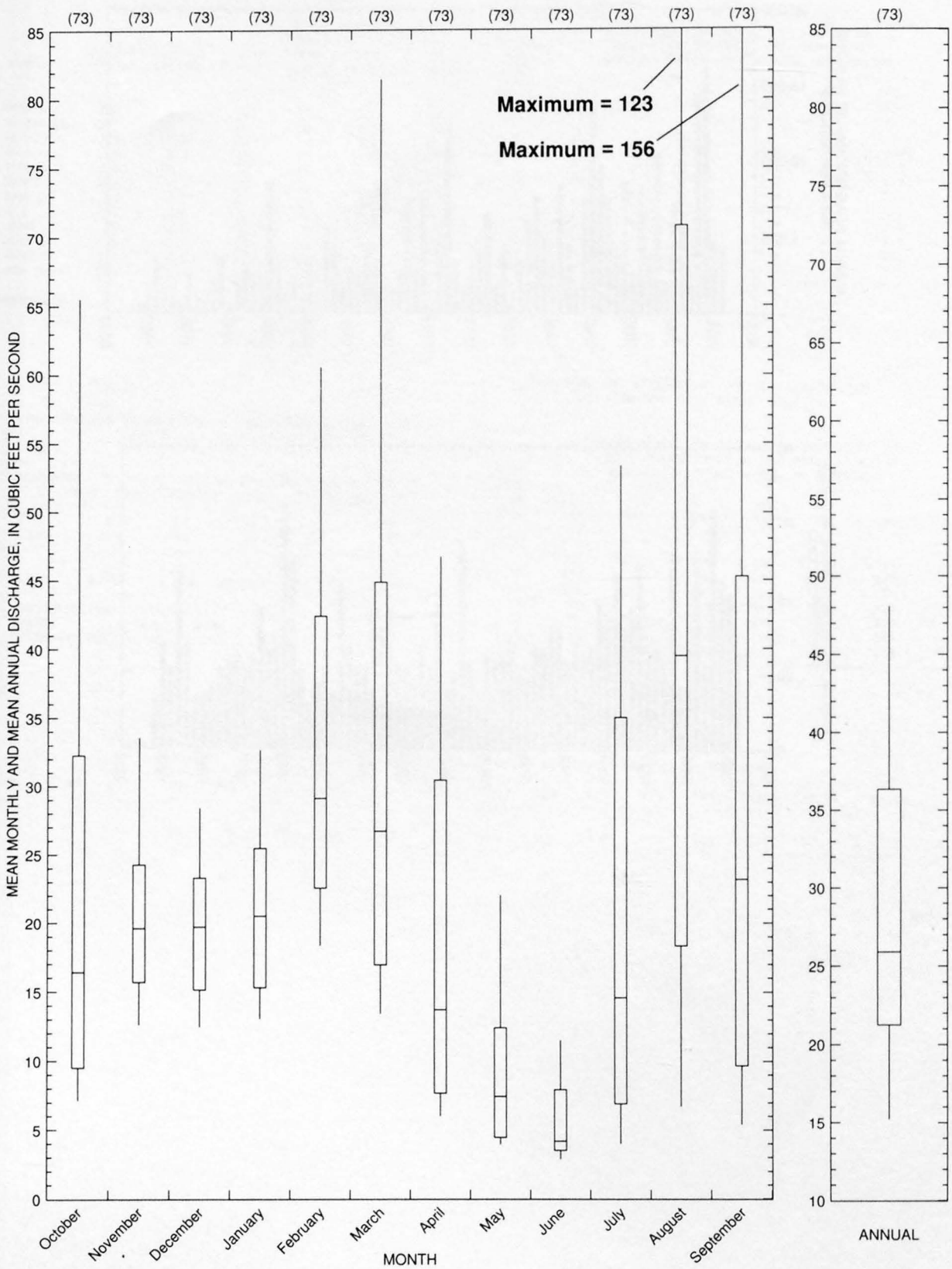
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
322	79	44	33	28	22	18	14	10	6.8	4.9	3.8	3.2	2.5	2.0	1.8	1.4

09382000 PARIA RIVER AT LEES FERRY, AZ--Continued





09382000 PARIA RIVER AT LEES FERRY, AZ--Continued



09383020 HOUSE ROCK WASH TRIBUTARY NEAR MARBLE CANYON, AZ

LOCATION.--Lat 36°42'05", long 111°55'45", in $SE^1/_4SE^1/_4$, sec11, T.38 N., R.4 E., Coconino County, Hydrologic Unit 15010001, at U.S. Highway 89 Alternate, 21 mi soutwest of Marble Canyon Post Office.

DRAINAGE AREA.--3.54 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
----	--------	[1]1,610	HP	1969	07-27-69	19	
1963	09-04-63	10	LT	1970	07-23-70	100	ES
1964	09-13-64	50	ES	1971	08-07-71	58	
1965	00-00-65	10	LT	1972	06-22-72	80	
1966	00-00-66	5.0	LT	1973	10-19-72	197	
1967	07-28-67	24		1974	11-04-73	5.0	LT
1968	00-00-68	39		1975	00-00-75	5.0	LT

[1]Highest since 1934, year of occurrence unknown.

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	143	11.0	3,490
6.0	390	12.0	4,280
7.0	848	13.0	5,110
8.0	1,410	14.0	5,990
9.0	2,050	15.0	6,910
10.0	2,750	16.0	7,860

Magnitude and probability of instantaneous peak flow based on period of record 1934, 1963-75

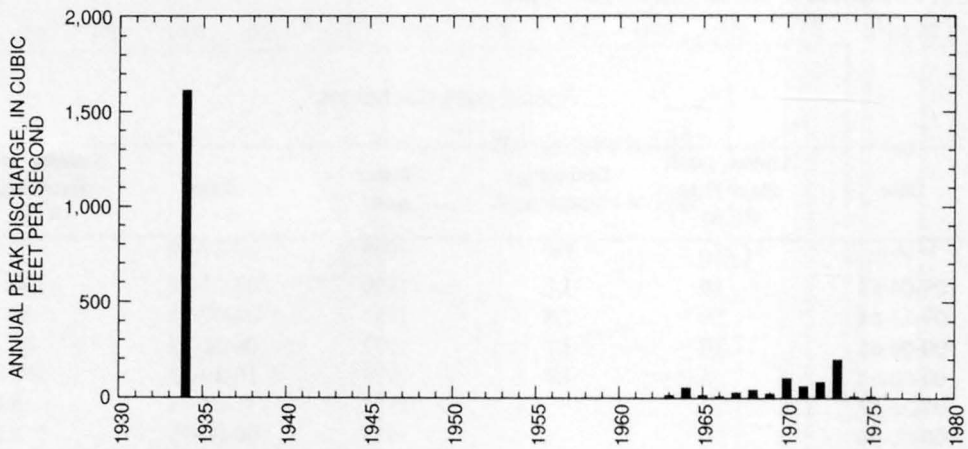
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
24.7	81.8	161	342	569	913
Weighted skew	(logs) =	0.37			
Mean	(logs) =	1.43			
Standard dev.	(logs) =	0.59			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
209	3.7	5,290	2.3	3.0	9.6	1.5	3.2

09383020 HOUSE ROCK WASH TRIBUTARY NEAR MARBLE CANYON, AZ



09383400 LITTLE COLORADO RIVER AT GREER, AZ

LOCATION.--Lat 34°01'00", long 109°27'24", in NE$^1/_4$SE$^1/_4$, sec.11, T.7 N., R.27 E., Apache County, Hydrologic Unit 15020001, in Apache-Sitgreaves National Forest, on upstream side of right abutment of culverts on State Highway 373, at Greer, 0.1 mi downstream from Filler ditch.

DRAINAGE AREA.--29.1 mi^2.

REMARKS.--Filler ditch diverts about 1,700 acre-ft/yr from river 0.1 mi above station.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	04-05-61	76		1973	10-20-72	615	
1962	04-15-62	277		1974	03-30-74	45	
1963	03-28-63	108		1975	04-26-75	231	
1964	04-12-64	135		1976	04-10-76	97	
1965	04-22-65	355		1977	04-09-77	174	
1966	04-03-66	326		1978	04-07-78	78	
1967	08-11-67	216		1979	04-26-79	247	
1968	04-15-68	316		1980	04-22-80	221	
1969	09-08-69	414		1981	04-10-81	100	
1970	09-06-70	112		1982	04-12-82	212	
1971	08-29-71	42		1984	10-02-83	444	HP
1972	10-24-71	108					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
180	10.4	9,400	69.0	2.9	31.2	2.8	5.1

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	35	0.64	5.9	7.3	1.2	3.2
NOVEMBER	11	0.99	4.4	2.7	0.61	2.4
DECEMBER	15	1.6	5.6	3.3	0.59	3.0
JANUARY	18	2.3	6.2	3.2	0.51	3.3
FEBRUARY	17	2.8	7.2	3.3	0.47	3.8
MARCH	26	3.5	9.7	5.0	0.51	5.2
APRIL	107	7.4	43	30	0.70	22.8
MAY	163	7.3	41	37	0.89	22.0
JUNE	96	6.4	26	24	0.91	13.9
JULY	28	5.9	13	6.7	0.51	7.0
AUGUST	54	5.7	14	9.9	0.69	7.7
SEPTEMBER	37	5.0	11	7.4	0.67	5.9
ANNUAL	38	6.0	16	8.3	0.53	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	2.0	0.99	0.57	0.32	0.15	0.08
3	2.2	1.1	0.61	0.34	0.15	0.08
7	2.3	1.1	0.63	0.34	0.15	0.08
14	2.5	1.2	0.66	0.36	0.16	0.08
30	2.5	1.4	0.96	0.69	0.46	0.35
60	3.0	1.8	1.3	1.0	0.77	0.63
90	3.6	2.3	1.8	1.5	1.2	0.98
120	4.4	3.1	2.6	2.2	1.8	1.5
183	5.4	4.2	3.6	3.2	2.8	2.6

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-82, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
175	316	425	575	695	822

WEIGHTED SKEW (LOGS)= -0.22
MEAN (LOGS)= 2.23
STANDARD DEV. (LOGS)= 0.31

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-82

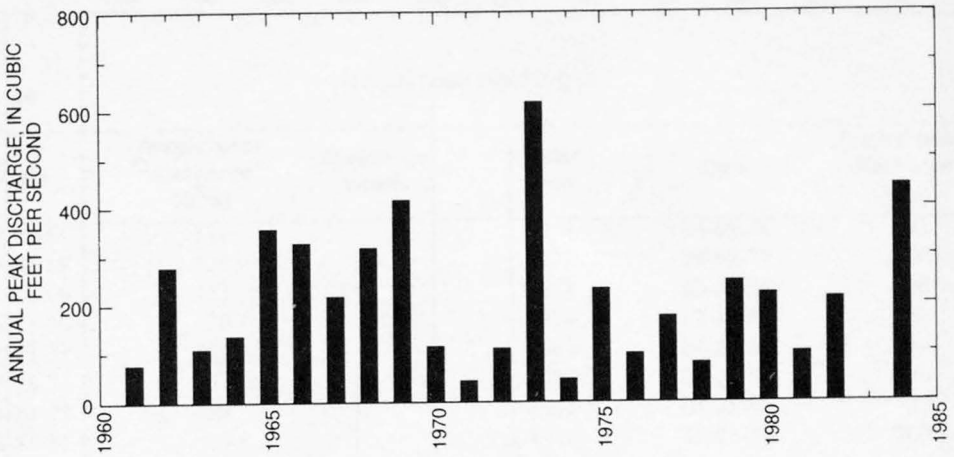
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	95	164	213	277	325	374
3	82	146	193	255	303	352
7	68	124	167	227	275	325
15	55	105	147	208	259	315
30	45	87	121	172	215	262
60	37	70	97	137	169	205
90	31	57	78	109	134	162

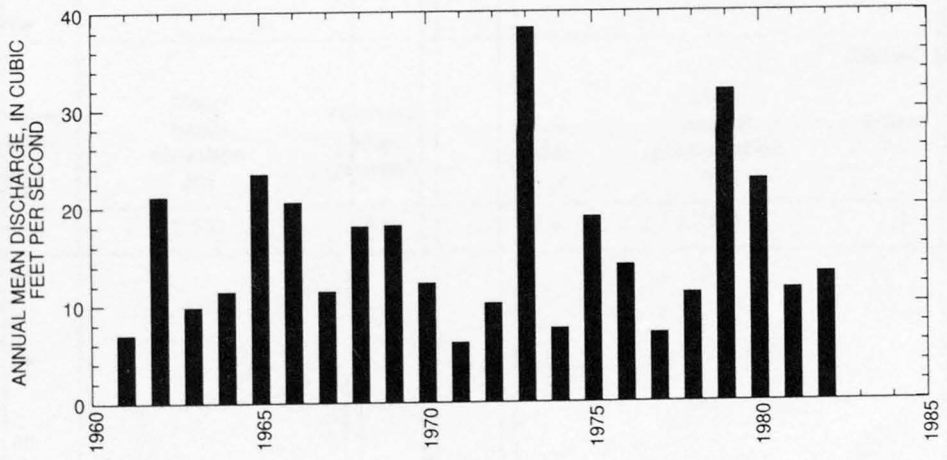
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
133	58	36	26	20	13	10	8.2	6.8	5.5	4.1	2.7	1.8	1.3	0.96	0.73	0.11

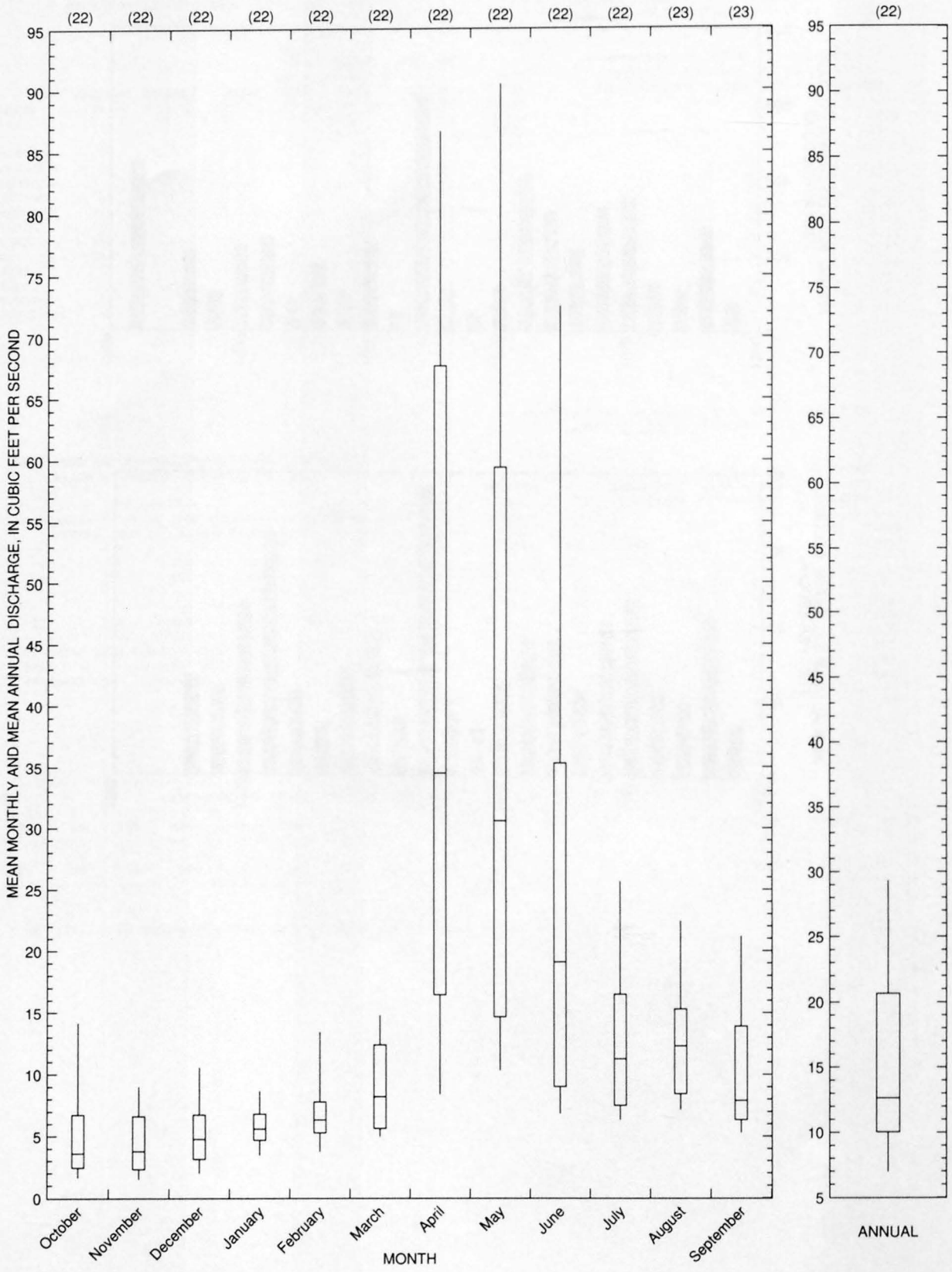
Reliability of values in column is uncertain, and potential errors are large.

09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued





09383400 LITTLE COLORADO RIVER AT GREER, AZ--Continued



09383500 NUTRIOSO CREEK ABOVE NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ

LOCATION.--Lat 34°01'49", long 109°11'09", in $NE^1/_4SW^1/_4$, sec.4, T.7 N., R.30 E., Apache County, Hydrologic Unit 15020001, in Apache-Sitgreaves National Forest, on right bank 2.4 mi upstream from dam on Nelson Reservoir and 9 mi southeast of Springerville.

DRAINAGE AREA.--83.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	09-05-67	126		1976	04-05-76	41	
1968	04-15-68	121		1977	09-03-77	90	
1969	09-08-69	133		1978	03-31-78	88	
1970	04-11-70	30		1979	12-18-78	462	
1971	09-01-71	291		1980	04-21-80	174	
1972	10-25-71	67		1981	04-10-81	29	
1973	04-28-73	439		1982	04-13-82	37	
1974	03-31-74	7.1		1984	10-02-83	700	HP
1975	04-25-75	142					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
78.0	12.6	8,550	75.0	3.0	20.0	1.7	3.4

09383500 NUTRIOSO CREEK ABOVE NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	16	0.00	2.4	4.3	1.8	3.3
NOVEMBER	6.4	0.20	1.7	2.1	1.2	2.4
DECEMBER	26	0.15	2.8	6.6	2.3	4.0
JANUARY	9.5	0.17	2.2	2.7	1.2	3.1
FEBRUARY	16	0.23	3.9	4.3	1.1	5.5
MARCH	32	0.39	9.1	9.0	0.99	12.8
APRIL	106	0.20	28	35	1.2	39.8
MAY	117	0.12	15	30	2.0	20.8
JUNE	12	0.01	2.0	3.7	1.8	2.9
JULY	7.1	0.00	0.93	1.8	1.9	1.3
AUGUST	5.0	0.00	1.2	1.3	1.1	1.6
SEPTEMBER	11	0.00	1.8	2.8	1.6	2.5
ANNUAL	25	0.56	5.9	7.1	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.02	0.00	0.00	0.00	0.00	0.00
30	0.09	0.00	0.00	0.00	0.00	0.00
60	0.17	0.00	0.00	0.00	0.00	0.00
90	0.19	0.04	0.01	0.00	0.00	0.00
120	0.24	0.08	0.05	0.03	0.01	0.01
183	0.48	0.22	0.15	0.11	0.07	0.05

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1967-82, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
117	263	403	636	854	1,110

WEIGHTED SKEW (LOGS)= 0.01
MEAN (LOGS)= 2.07
STANDARD DEV. (LOGS)= 0.42

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-82

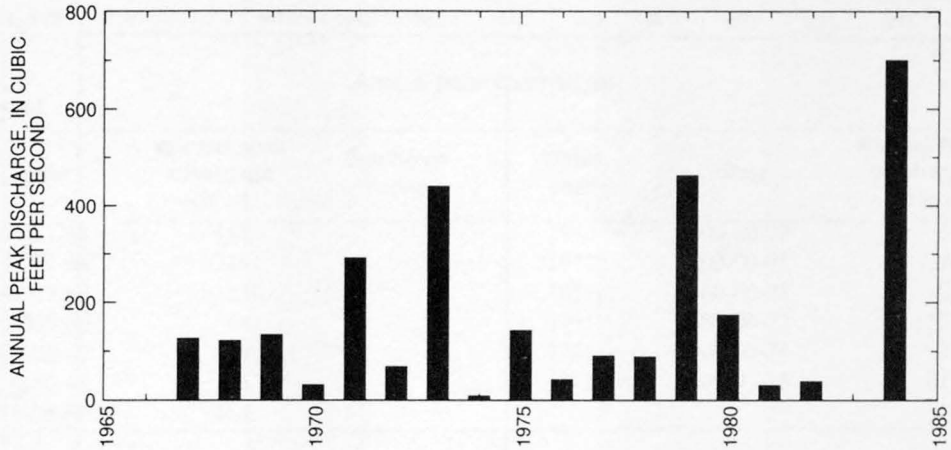
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	52	122	183	276	354	439
3	40	99	160	264	364	486
7	30	81	138	247	361	512
15	23	67	118	223	339	497
30	17	50	91	178	277	417
60	11	34	63	122	189	283
90	8.8	27	48	91	137	200

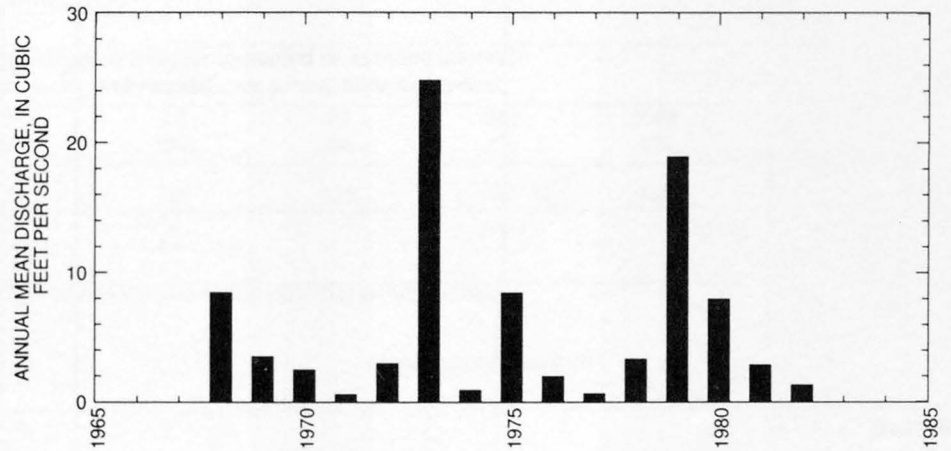
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
100	29	14	7.9	4.9	2.4	1.2	0.68	0.44	0.28	0.18	0.05	0.00	0.00	0.00	0.00	0.00

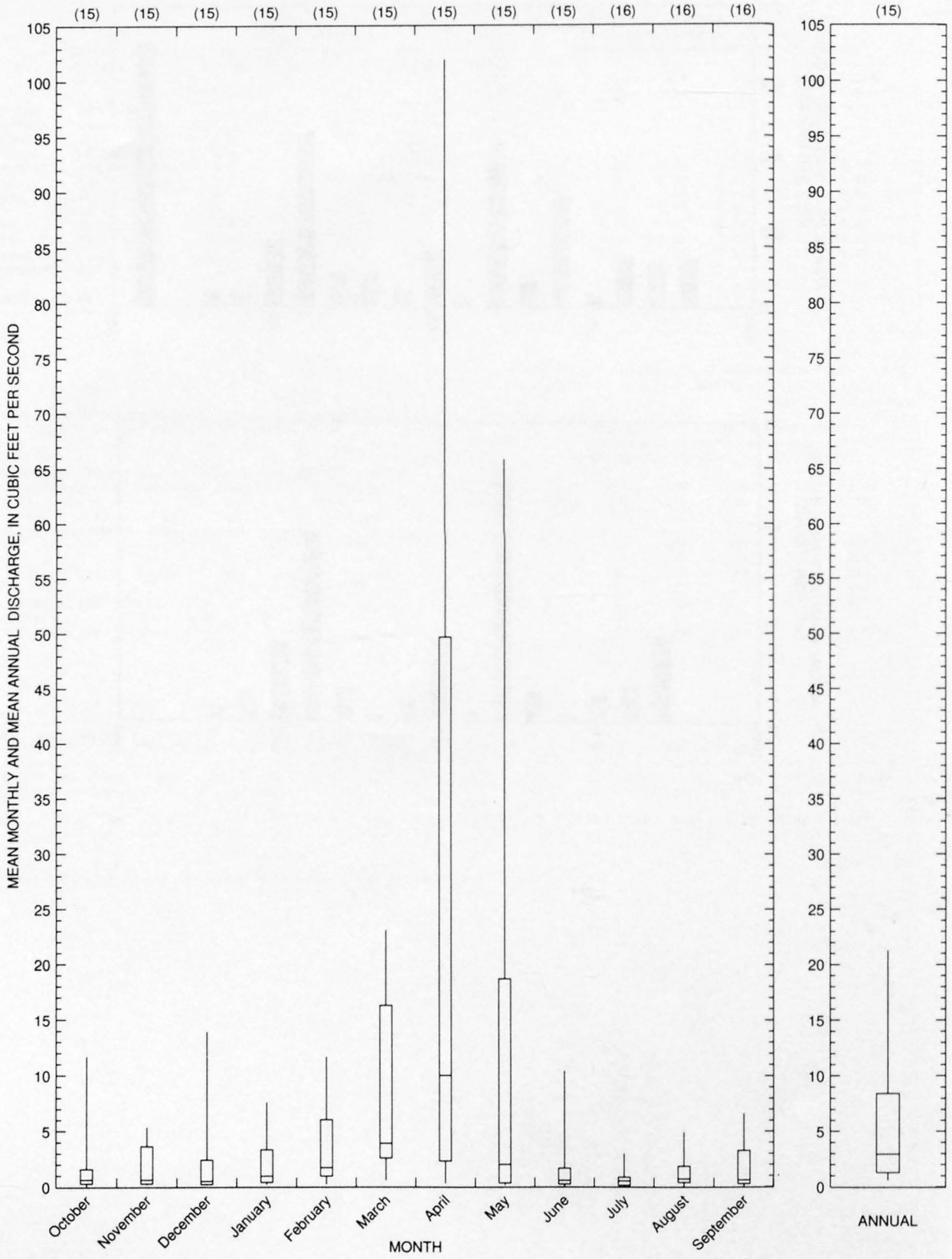
Reliability of values in column is uncertain, and potential errors are large.

09383500 NUTRIOSO CREEK ABOVE NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ--Continued





09383500 NUTRIOSO CREEK ABOVE NELSON RESERVOIR, NEAR SPRINGERVILLE, AZ--Continued



09383600 FISH CREEK NEAR EAGAR, AZ

LOCATION.--Lat 34°04'35", long 109°27'45", in $SW^1/_4NE^1/_4$, sec.23, T.8 N., R.27 E., Apache County, Hydrologic Unit 15020001, at State Highway 73, 10.5 mi west of Eagar.

DRAINAGE AREA.--16.9 mi^2, of which 2.5 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-21-63	168		1970	00-00-70	3.0	ES
1964	08-01-64	236		1971	00-00-71	3.0	LT
1965	07-25-65	81		1972	00-00-72	0	
1966	04-03-66	48		1973	04-00-73	153	
1967	09-05-67	139		1974	00-00-74	3.0	ES
1968	00-00-68	45		1975	09-07-75	81	
1969	09-08-69	215					

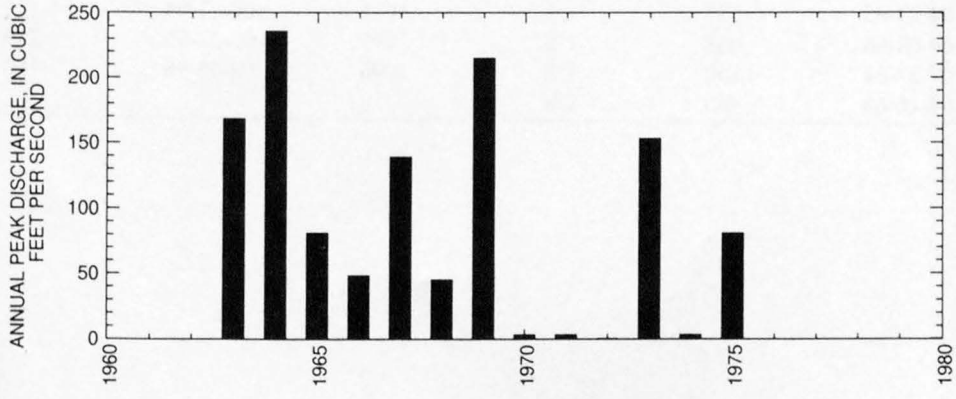
Magnitude and probability of instantaneous peak flow based on period of record 1963-75

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
74.5	159	227	325	403	485
Weighted skew	(logs) =	-0.42			
Mean	(logs) =	1.84			
Standard dev.	(logs) =	0.42			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
164	8.1	9,160	38.0	3.0	26.1	1.8	4.2



09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°18'52", long 109°21'42", in $SW^1/_4SE^1/_4$ sec.27, T.11 N., R.28 E., Apache County, Hydrologic Unit 15020001, on left bank 0.75 mi downstream from Coyote Creek, 6 mi upstream from Lyman Dam, and 15 mi south of St. Johns.

DRAINAGE AREA.--706 mi^2, of which 2.5 mi2 is noncontributing.

PERIOD OF RECORD.--April 1940 to current year. Prior to October 1975 published as "above Lyman Reservoir."

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 6,010 ft above sea level, from topographic map. Prior to Dec. 7, 1976 water-stage recorder at site 0.4 mi downstream at datum approximately 20 ft lower, used as supplemental gage Mar. 21, 1980, to Apr. 21 1987. See WSP 1313 for history of changes prior to 1950.

REMARKS.--Flow regulated by many small reservoirs - combined capacity, about 15,500 acre-ft. Diversions for irrigation of about 6,700 acres above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft^3/s July 25, 1940, gage height, 17.1 ft, datum then in use, from flood-marks, by slope-area measurement of peak flow and reservoir inflow studies; maximum gage height, 18.6 ft, Sept. 12, 1975, at previous site (from graph recorded to 18.4 ft); no flow at times.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	07-25-40	[1]16,000	HP	1969	07-26-69	764	UR
1941	07-23-41	2,520	UR	1970	04-09-70	120	UR
1942	08-10-42	379	UR	1971	09-09-71	229	UR
1943	08-22-43	2,360	UR	1972	08-29-72	225	UR
1944	08-15-44	3,400	UR	1973	04-29-73	1,180	UR
1945	08-11-45	740	UR	1974	08-04-74	3,240	UR
1946	08-04-46	6,000	UR	1975	09-12-75	1,600	UR
1947	08-22-47	1,620	UR	1976	04-09-76	170	UR
1948	04-17-48	732	UR	1977	08-21-77	389	UR
1949	08-02-49	1,000	UR	1978	08-01-78	389	UR
1950	07-18-50	181	UR	1979	04-00-79	1,500	UR
1951	08-02-51	3,200	UR	1980	04-23-80	840	UR
1952	08-28-52	1,570	UR	1981	08-01-81	618	UR
1953	08-10-53	229	UR	1982	08-29-82	260	UR
1954	08-05-54	1,390	UR	1983	08-03-83	1,340	UR
1955	08-23-55	2,990	UR	1984	10-02-83	2,330	UR
1956	08-18-56	206	UR	1985	03-13-85	695	UR
1957	08-27-57	2,850	UR	1986	08-26-86	292	UR
1958	04-23-58	1,120	UR	1987	04-20-87	1,090	UR
1959	08-08-59	1,340	UR	1988	09-01-88	414	UR
1960	03-30-60	323	UR	1989	07-28-89	165	UR
1961	08-11-61	619	UR	1990	07-11-90	1,020	UR
1962	04-16-62	736	UR	1991	04-11-91	299	UR
1963	08-26-63	733	UR	1992	04-24-92	665	UR
1964	07-31-64	1,160	UR	1993	08-29-93	555	UR
1965	04-23-65	527	UR	1994	09-03-94	1,120	UR
1966	04-04-66	658	UR	1995	03-22-95	289	UR
1967	07-27-67	4,850	UR	1996	09-05-96	160	UR
1968	04-16-68	460	UR				

[1]Highest since 1900.

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

Discharge rating table developed October 1993

Gage-Height (ft)	Discharge (ft^3/s)	Gage-Height (ft)	Discharge (ft^3/s)
2.0	11.3	5.0	520
3.0	83	6.0	873
4.0	251	7.0	1,330

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
89.5	41.7	7,760	39.0	2.9	20.0	1.6	3.3

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	213	0.07	10	28	2.8	3.6
NOVEMBER	38	0.32	8.3	8.3	0.99	3.0
DECEMBER	47	0.83	11	9.7	0.92	3.8
JANUARY	39	2.1	11	8.0	0.72	4.0
FEBRUARY	43	2.8	13	8.6	0.65	4.8
MARCH	182	1.9	32	36	1.1	11.4
APRIL	397	1.3	99	108	1.1	35.4
MAY	374	0.73	38	70	1.8	13.7
JUNE	95	0.01	10	17	1.7	3.6
JULY	40	0.00	9.9	9.5	0.95	3.6
AUGUST	143	0.78	23	27	1.2	8.3
SEPTEMBER	105	0.02	13	19	1.4	4.8
ANNUAL	72	2.9	23	18	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.56	0.00	0.00	0.00	0.00	0.00
3	0.64	0.02	0.00	0.00	0.00	0.00
7	0.83	0.04	0.00	0.00	0.00	0.00
14	1.1	0.13	0.00	0.00	0.00	0.00
30	1.6	0.32	0.06	0.00	0.00	0.00
60	2.4	0.86	0.44	0.23	0.11	0.06
90	3.2	1.4	0.84	0.54	0.32	0.22
120	4.6	2.2	1.4	0.98	0.61	0.44
183	6.4	3.3	2.3	1.7	1.2	0.90

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
750	1,790	2,880	4,850	6,850	9,400

WEIGHTED SKEW (LOGS)= 0.21
MEAN (LOGS)= 2.89
STANDARD DEV. (LOGS)= 0.44

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-96

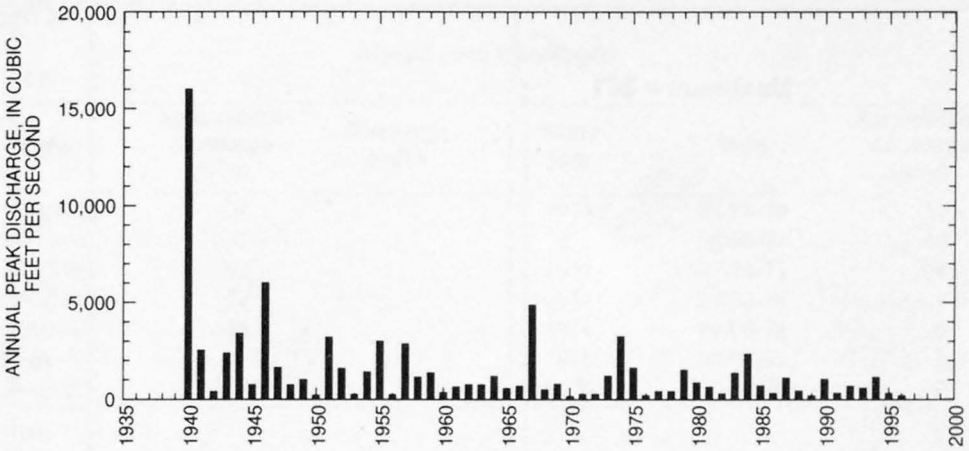
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	279	583	824	1,160	1,420	1,690
3	219	493	716	1,030	1,280	1,530
7	173	401	590	859	1,070	1,300
15	127	301	454	685	878	1,090
30	88	212	324	497	647	813
60	57	135	208	325	430	549
90	42	99	152	237	313	401

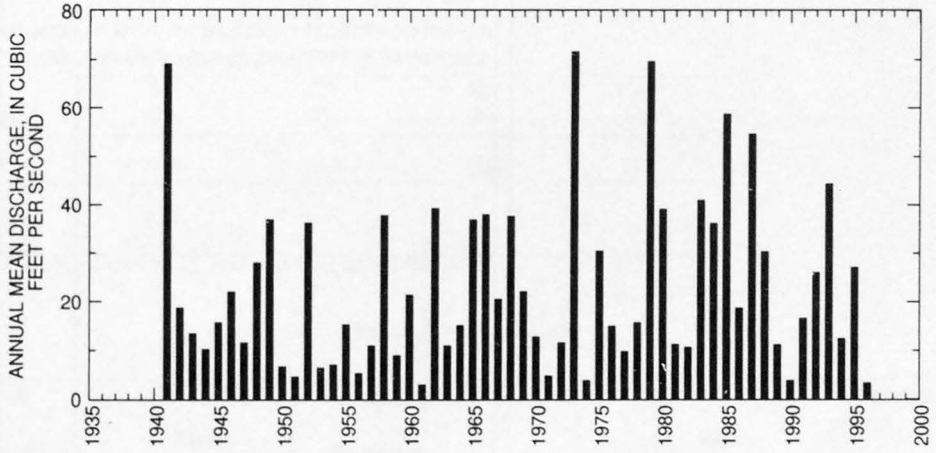
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
335	97	47	30	21	14	9.5	7.4	5.6	4.1	2.6	1.3	0.57	0.10	0.00	0.00	0.00

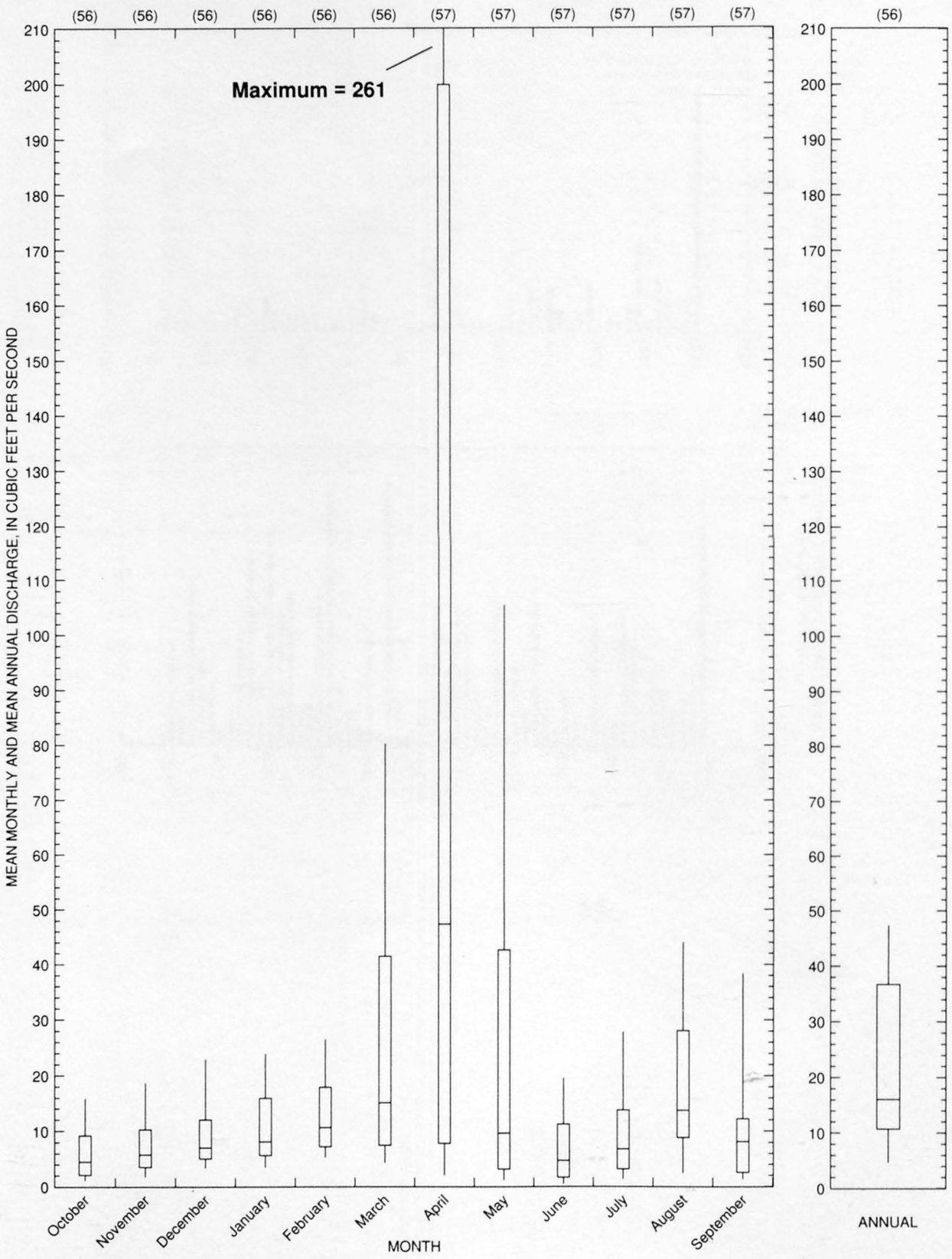
Reliability of values in column is uncertain, and potential errors are large.

09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued





09384000 LITTLE COLORADO RIVER ABOVE LYMAN LAKE, NEAR ST. JOHNS, AZ--Continued



09384200 LYMAN RESERVOIR TRIBUTARY NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°23'30", long 109°22'48", in $SE^1/_4NE^1/_4$, sec.9, T.11 N., R.28 E., Apache County, Hydrologic Unit 15020002, at Lyman Reservoir Road, 10 mi south of St. Johns.

DRAINAGE AREA.--0.24 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-26-63	101		1970	07-20-70	33	
1964	08-11-64	53		1971	08-00-71	60	
1965	08-02-65	42		1972	07-24-72	64	
1966	09-30-66	52		1973	07-00-73	5.0	
1967	00-00-67	48		1974	00-00-74	0	
1968	00-00-68	1.0	LT	1975	09-06-75	3.0	ES
1969	09-00-69	7.0		1976	00-00-76	60	

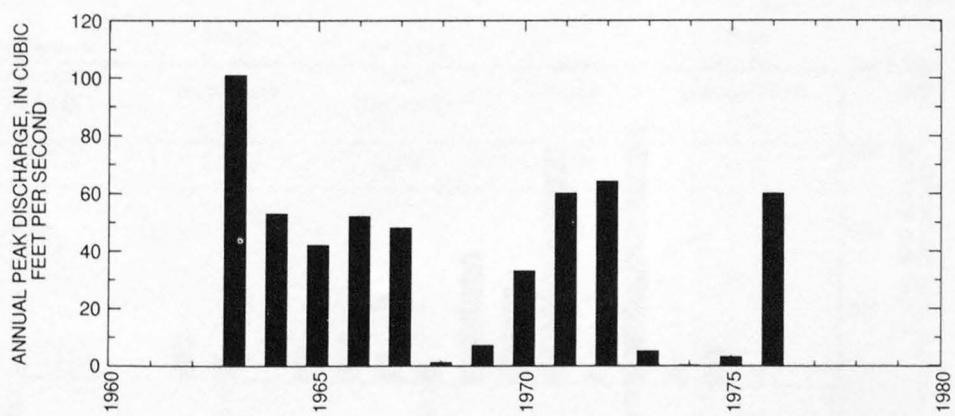
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
42.8	62	74.9	91.4	104	116
Weighted skew	(logs) =	-0.11			
Mean	(logs) =	1.63			
Standard dev.	(logs) =	0.20			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
267	1.0	6,100	58.0	3.0	11.6	1.6	3.3



09385800 LITTLE COLORADO RIVER TRIBUTARY NEAR ST. JOHNS, AZ

LOCATION.--Lat 34°27'04", long 109°15'23", in $NE^1/_4SE^1/_4$, sec.10, T.12 N., R.29 E., Apache County, Hydrologic Unit 15020002, at county road 7 mi southeast of St. Johns.

DRAINAGE AREA.--0.35 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	48		1970	10-21-69	24	
1964	08-27-64	18		1971	08-00-71	40	
1965	09-04-65	326		1972	12-26-71	61	
1966	08-30-66	16		1973	07-00-73	42	
1967	00-00-67	300		1974	00-00-74	0	
1968	08-00-68	118		1975	07-29-75	29	
1969	07-00-69	165		1976	08-00-76	57	

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

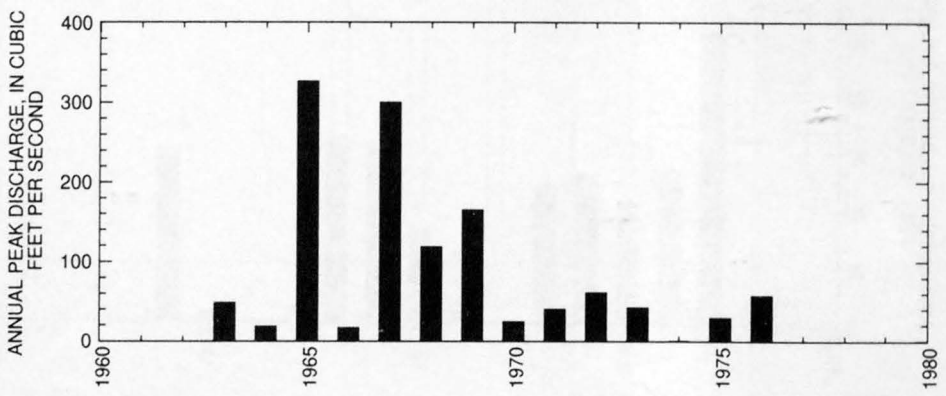
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
52	127	206	348	491	672

Weighted skew	(logs) =	0.13
Mean	(logs) =	1.73
Standard dev.	(logs) =	0.46

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
417	0.48	6,350	54.0	1.0	11.1	1.5	2.9



09386500 LITTLE COLORADO RIVER ABOVE ZUNI RIVER, NEAR HUNT, AZ

LOCATION.--Lat 34°38'30", long 109°40'35", in $SW^1/_4NW^1/_4$, sec.2, T.14 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 15020002, on right bank 500 ft upstream from Zuni River and 3.6 mi northwest of Hunt.

DRAINAGE AREA.--3,741 mi^2, of which 184 mi^2 is noncontributing.

REMARKS.--Diversions for irrigation of about 11,000 acres above station. Considerable regulation by many reservoirs (combined capacity about 50,000 acre-ft), the largest of which is Lyman Lake, 40 mi upstream.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	07-26-40	577	UR	1957	09-01-57	476	UR
1941	05-11-41	516	UR	1958	08-21-58	1,020	UR
1942	10-07-41	37	UR	1959	08-11-59	130	UR
1943	09-25-43	11	UR	1960	10-30-59	38	UR
1944	09-26-44	101	UR	1961	09-11-61	2.6	UR
1945	08-13-45	1,100	UR	1962	01-31-62	10	UR,LT
1946	08-04-46	745	UR	1963	09-04-63	34	UR
1947	08-04-47	301	UR	1964	08-09-64	233	UR
1948	09-17-48	75	UR	1965	09-08-65	194	UR
1949	08-10-49	478	UR	1966	09-14-66	56	UR
1950	07-07-50	140	UR	1967	08-01-67	176	UR
1951	08-28-51	70	UR	1968	08-07-68	179	UR
1952	07-27-52	67	UR	1969	07-23-69	747	UR
1953	07-27-53	62	UR	1970	08-16-70	52	UR
1954	07-26-54	136	UR	1971	09-03-71	1,310	UR,DF
1955	08-24-55	831	UR	1972	10-01-71	552	UR
1956	02-19-56	37	UR				

Discharge rating table developed October 1959

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	85	3.0	420
4.0	1,140		

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
40.2	87.9	7,160	25.0	2.9	14.6	1.5	3.1

09386500 LITTLE COLORADO RIVER ABOVE ZUNI RIVER, NEAR HUNT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-72

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	41	0.00	3.3	7.9	2.4	5.4
NOVEMBER	9.3	0.00	2.0	2.7	1.3	3.3
DECEMBER	16	0.00	3.2	3.8	1.2	5.2
JANUARY	15	0.00	3.8	4.1	1.1	6.1
FEBRUARY	14	0.00	3.8	4.2	1.1	6.1
MARCH	29	0.00	2.9	5.5	1.9	4.8
APRIL	10	0.00	1.2	2.5	2.1	2.0
MAY	148	0.00	5.0	26	5.2	8.2
JUNE	7.6	0.00	0.44	1.3	3.0	0.7
JULY	20	0.00	1.7	3.9	2.3	2.8
AUGUST	338	0.00	25	64	2.6	40.6
SEPTEMBER	71	0.00	9.2	17	1.9	14.9
ANNUAL	30	0.01	5.2	6.3	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-72

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.04	0.00	0.00	0.00	0.00	0.00
120	0.11	0.02	0.00	0.00	0.00	0.00
183	0.77	0.08	0.01	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-72

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
164	474	819	1,460	2,110	2,930

WEIGHTED SKEW (LOGS)= -0.07
MEAN (LOGS)= 2.21
STANDARD DEV. (LOGS)= 0.55

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-72

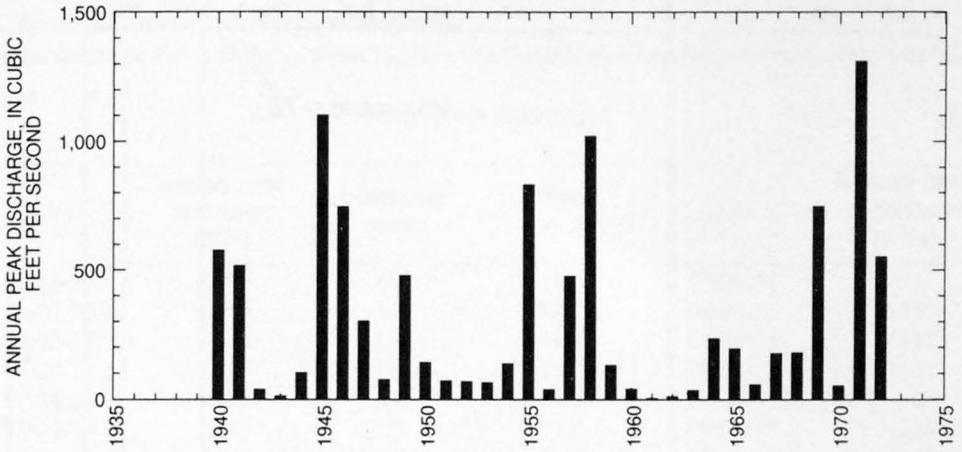
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	63	276	550	1,080	1,630	2,300
3	46	213	439	903	1,400	2,030
7	32	147	303	617	949	1,370
15	22	98	194	373	546	751
30	15	61	116	209	294	387
60	10	39	68	111	145	177
90	7.9	29	49	75	94	112

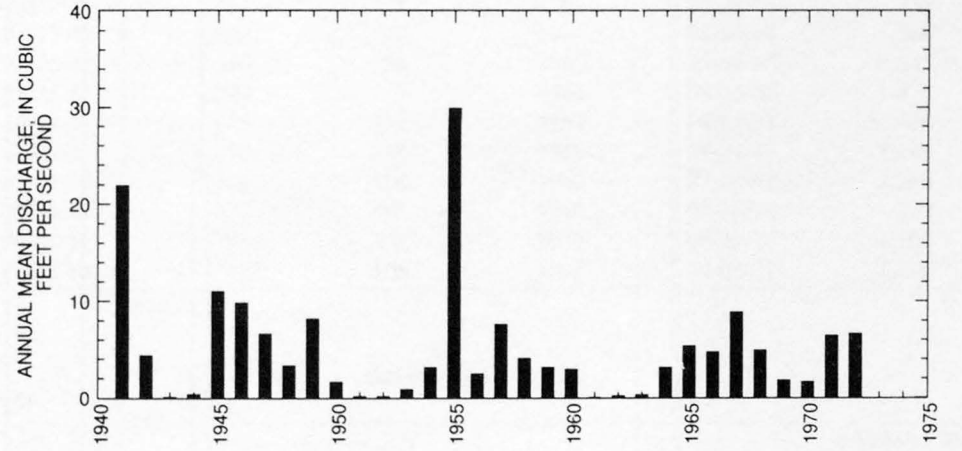
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-72

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
89	13	8.2	6.2	4.0	1.5	0.63	0.19	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

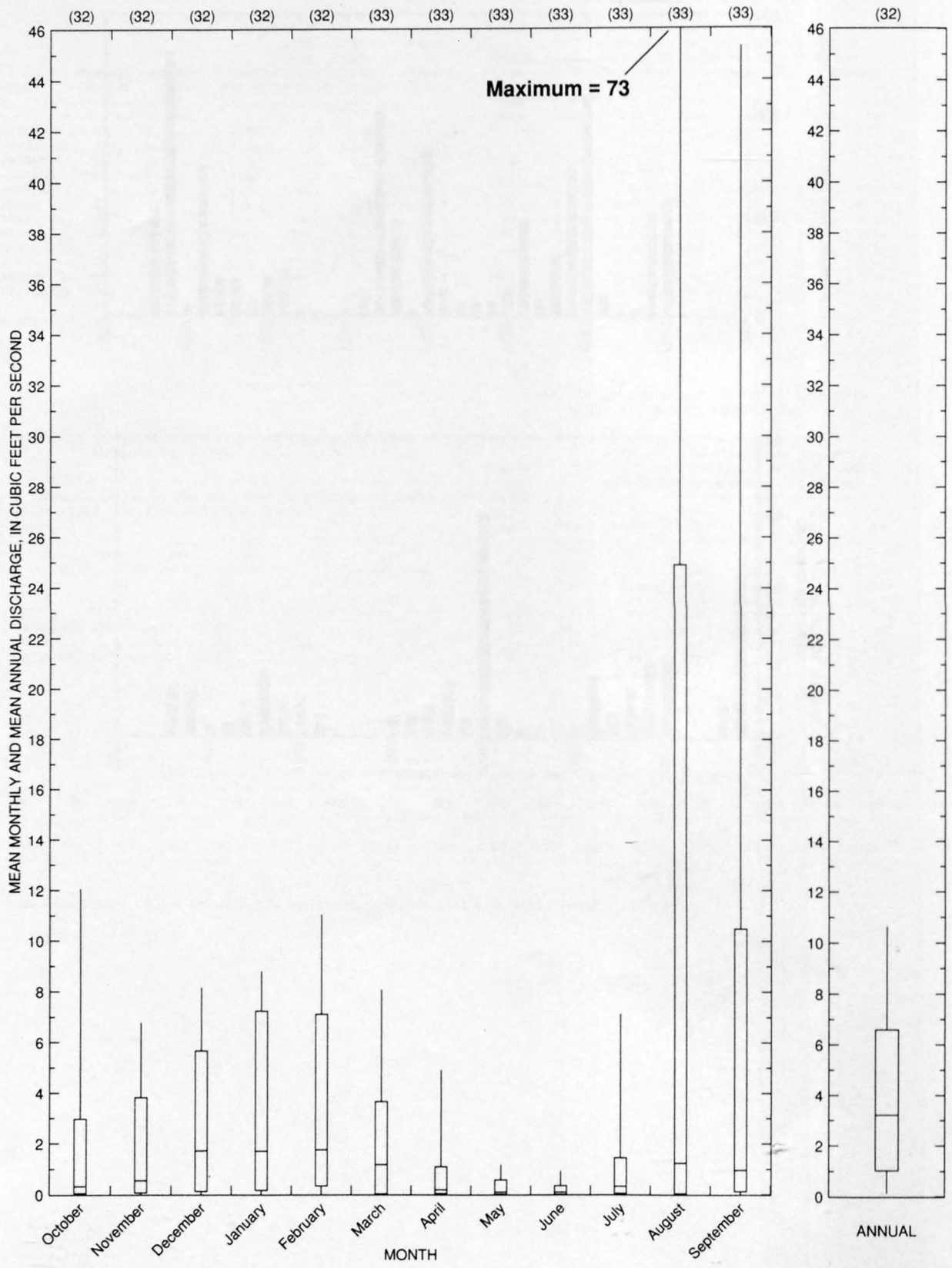
Reliability of values in column is uncertain, and potential errors are large.

09386500 LITTLE COLORADO RIVER ABOVE ZUNI RIVER, NEAR HUNT, AZ--Continued





09386500 LITTLE COLORADO RIVER ABOVE ZUNI RIVER, NEAR HUNT, AZ--Continued



09388000 LITTLE COLORADO RIVER NEAR HUNT, AZ

LOCATION.--Lat 34°38'50", long 109°42'10", in $NE^1/_4NW^1/_4$, sec.4, T.14 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 15020002, near left bank on upstream side of pier of bridge on U.S. Highway 180, 2 mi downstream from Zuni River and 5 mi northwest of Hunt.

DRAINAGE AREA.--6,383 mi^2, of which 210 mi^2 is noncontributing.

REMARKS.--Diversions for irrigation above station of about 14,000 acres. Considerable regulation by many reservoirs (combined capacity, about 59,000 acre-ft).

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1929	07-28-29	8,000	UR	1954	07-26-54	214	UR
1930	08-07-30	965	UR	1955	08-08-55	2,550	UR
1931	08-05-31	3,600	UR	1956	07-22-56	145	UR
1932	08-29-32	1,200	UR	1957	09-01-57	882	UR
1933	07-24-33	3,600	UR	1958	08-21-58	1,400	UR
1940	07-26-40	2,110	UR	1959	08-04-59	235	UR
1941	07-25-41	1,560	UR	1960	10-30-59	453	UR
1942	10-04-41	725	UR	1961	08-15-61	272	UR
1943	08-11-43	508	UR	1962	10-31-61	112	UR
1944	09-30-44	451	UR	1963	08-21-63	232	UR
1945	08-13-45	1,590	UR	1964	08-04-64	580	UR
1946	08-05-46	2,390	UR	1965	09-04-65	545	UR
1947	08-23-47	1,290	UR	1966	08-15-66	570	UR
1948	10-14-47	925	UR	1967	08-14-67	748	UR
1949	08-09-49	4,050	UR	1968	08-04-68	1,140	UR
1950	07-24-50	119	UR	1969	07-24-69	2,360	UR
1951	08-28-51	531	UR	1970	08-17-70	378	UR
1952	09-22-52	395	UR	1971	09-03-71	1,900	UR
1953	07-18-53	42	UR	1972	10-01-71	1,230	UR

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
37.6	90.4	7,060	27.0	2.9	13.4	1.4	2.8

09388000 LITTLE COLORADO RIVER NEAR HUNT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1930-33, 1941-72

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	105	0.00	11	24	2.1	6.6
NOVEMBER	10	0.00	3.1	3.3	1.0	1.8
DECEMBER	20	0.00	4.2	4.6	1.1	2.4
JANUARY	33	0.00	5.4	6.7	1.2	3.2
FEBRUARY	149	0.00	9.1	25	2.7	5.3
MARCH	223	0.00	14	47	3.3	8.3
APRIL	315	0.00	16	59	3.7	9.1
MAY	239	0.00	7.6	40	5.3	4.4
JUNE	9.1	0.00	0.93	1.8	1.9	0.5
JULY	68	0.00	11	17	1.6	6.4
AUGUST	524	0.00	63	105	1.7	36.4
SEPTEMBER	170	0.00	27	42	1.6	15.5
ANNUAL	79	0.44	14	18	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1931-33, 1941-72

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.10	0.00	0.00	0.00	0.00	0.00
90	0.19	0.00	0.00	0.00	0.00	0.00
120	0.70	0.09	0.01	0.00	0.00	0.00
183	2.4	0.47	0.15	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1929-33, 1940-72

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
801	1,930	3,040	4,890	6,630	8,700

WEIGHTED SKEW (LOGS)= -0.08
MEAN (LOGS)= 2.90
STANDARD DEV. (LOGS)= 0.46

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-33, 1941-72

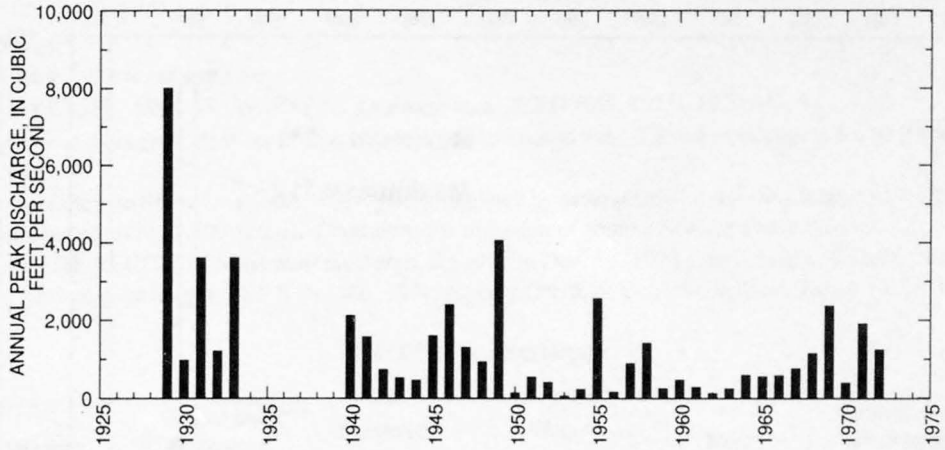
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	374	904	1,320	1,870	2,270	2,660
3	229	600	922	1,380	1,740	2,110
7	132	373	603	962	1,270	1,610
15	77	230	392	670	932	1,240
30	47	146	258	466	677	941
60	30	95	170	314	463	653
90	22	68	122	223	328	462

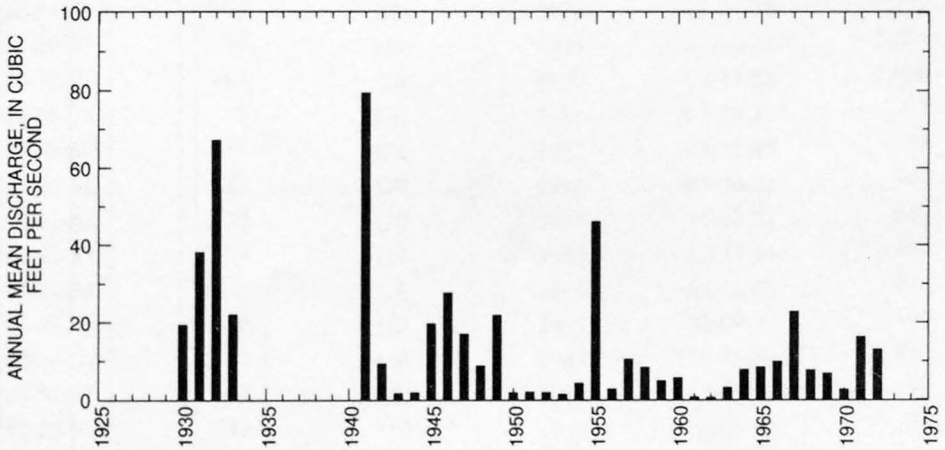
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-33, 1941-72

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
347	49	16	10	7.7	3.3	1.5	0.67	0.23	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

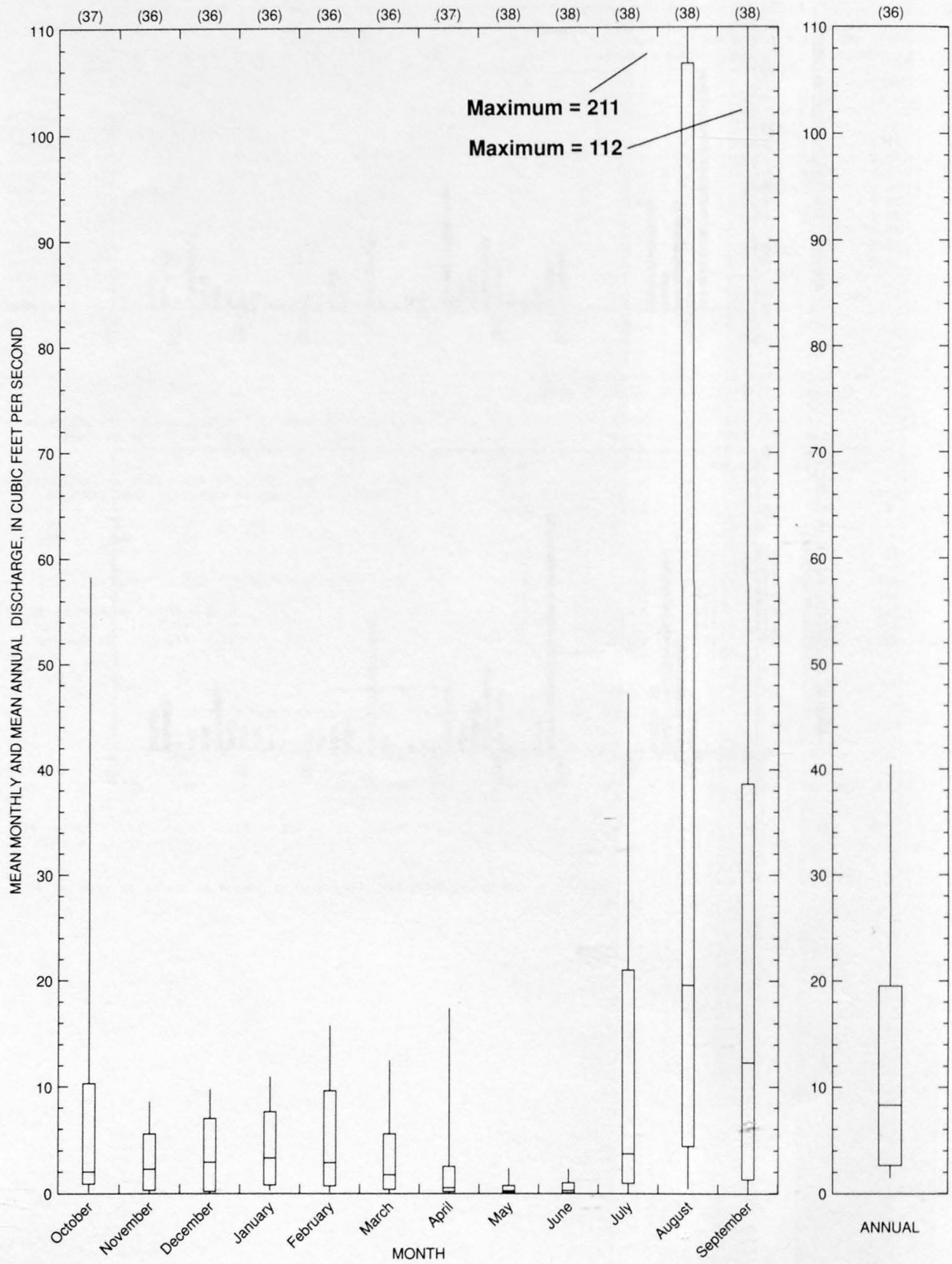
Reliability of values in column is uncertain, and potential errors are large.

09388000 LITTLE COLORADO RIVER NEAR HUNT, AZ--Continued





09388000 LITTLE COLORADO RIVER NEAR HUNT, AZ--Continued



09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ

LOCATION.--Lat 34°10'46", long 109°59'14", in $SW^1/_4NW^1/_4$ sec.14, T.9 N., R.22 E., Navajo County, Hydrologic Unit 15020005, on left bank 1 mi upstream from pumping plant on Show Low Lake, 1.9 mi northwest of Lakeside, 2.2 mi upstream from Jaques Dam, and 6 mi southeast of Show Low.

DRAINAGE AREA.--68.6 mi^2.

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 1513: 1954-56. WSP 1926: Drainage area. WRD Ariz. 1971: 1970(M).

GAGE.--Water-stage recorder and concrete-dam control with V-notch sharp-crested weir. Elevation of gage is 6,610 ft above sea level, from topographic map.

REMARKS.--Record shows inflow to Show Low Lake. Flow partly regulated by several small reservoirs, largest of which are Rainbow Lake and Scott Reservoir, combined capacity, 2,400 acre-ft. Diversions for irrigation of about 250 acres above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,550 ft^3/s Dec. 18, 1978 , gage height, 9.16 ft, from rating curve extended above 2,500 ft^3/s; maximum gage height, 9.53 ft Dec. 26, 1971; no flow Oct. 5, 6, Dec. 10-19, 1964, Jan. 4-15, 1970.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1954	03-23-54	2,040	UR	1976	04-20-76	632	UR
1955	08-27-55	273	UR	1977	04-08-77	35	UR
1956	07-31-56	103	UR	1978	03-01-78	2,750	UR
1957	02-09-57	56	UR	1979	12-18-78	5,550	UR
1958	03-22-58	867	UR	1980	02-15-80	1,860	UR
1959	08-28-59	45	UR	1981	03-30-81	31	UR
1960	03-08-60	487	UR	1982	03-13-82	575	UR
1961	04-01-61	27	UR	1983	03-30-83	442	UR
1962	02-13-62	930	UR	1984	10-02-83	683	UR
1963	02-22-63	64	UR	1985	12-27-84	5,430	UR
1964	04-10-64	30	UR	1986	02-16-86	345	UR
1965	01-07-65	2,430	UR	1987	03-09-87	500	UR
1966	12-30-65	3,880	UR	1988	08-31-88	890	UR
1967	08-02-67	42	UR	1989	02-27-89	92	UR
1968	02-25-68	345	UR	1990	09-01-90	17	UR
1969	03-19-69	395	UR	1991	03-06-91	582	UR
1970	04-21-70	30	UR	1992	05-28-92	1,510	UR
1971	08-10-71	219	UR	1993	01-08-93	4,370	UR
1972	12-26-71	5,450	UR	1994	03-20-94	196	UR
1973	05-05-73	1,400	UR	1995	11-12-94	1,490	UR
1974	03-21-74	60	UR	1996	01-17-96	11	UR
1975	03-09-75	405					

Discharge rating table developed October 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	14.1	6.0	1,910
3.0	89	7.0	2,940
4.0	409	8.0	4,070
5.0	1,040	9.5	6,000

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
77.2	21.0	7,320	85.0	3.0	23.7	2.2	4.6

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1954-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	57	0.73	6.2	11	1.8	3.4
NOVEMBER	54	0.29	5.9	11	1.8	3.3
DECEMBER	285	0.20	24	57	2.4	13.1
JANUARY	200	0.10	15	32	2.2	8.2
FEBRUARY	225	0.19	33	48	1.4	18.5
MARCH	189	0.87	46	47	1.0	25.6
APRIL	197	0.97	20	33	1.7	11.2
MAY	72	1.7	7.7	11	1.5	4.3
JUNE	13	1.8	6.2	2.5	0.40	3.4
JULY	11	1.1	5.9	2.4	0.42	3.2
AUGUST	20	1.4	5.6	3.8	0.68	3.1
SEPTEMBER	19	1.3	4.9	3.0	0.62	2.7
ANNUAL	57	1.6	15	14	0.90	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1955-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.43	0.11	0.05	0.01	0.00	0.00
3	0.46	0.13	0.05	0.01	0.00	0.00
7	0.57	0.17	0.08	0.02	0.00	0.00
14	0.84	0.24	0.11	0.05	0.02	0.01
30	1.2	0.43	0.24	0.15	0.08	0.05
60	1.6	0.64	0.38	0.24	0.14	0.09
90	2.0	0.94	0.62	0.44	0.29	0.21
120	2.4	1.3	0.87	0.63	0.44	0.34
183	3.3	1.9	1.5	1.2	0.88	0.73

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1954-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
362	1,550	3,210	6,830	11,000	16,800

WEIGHTED SKEW (LOGS)= -0.18
MEAN (LOGS)= 2.54
STANDARD DEV. (LOGS)= 0.77

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1954-96

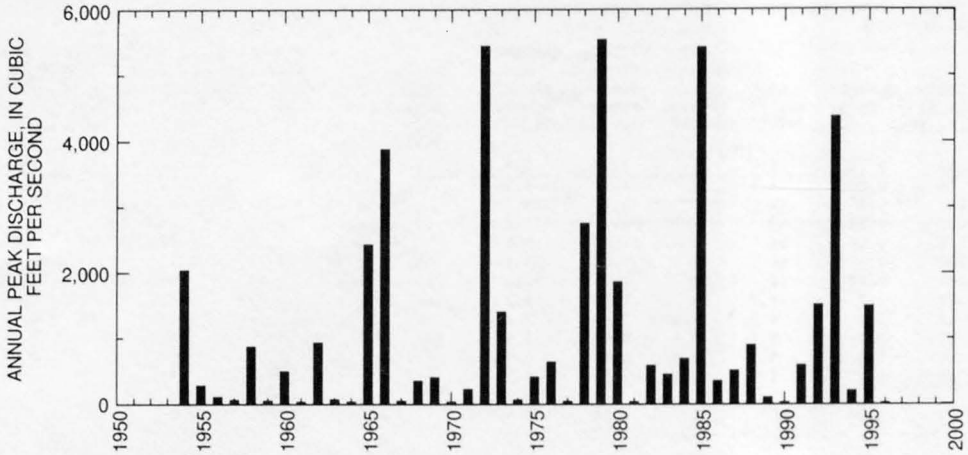
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	191	784	1,610	3,410	5,490	8,390
3	135	497	954	1,870	2,850	4,140
7	91	309	569	1,070	1,580	2,240
15	61	188	330	587	843	1,160
30	44	125	211	363	509	686
60	31	83	136	227	314	419
90	25	65	106	179	249	334

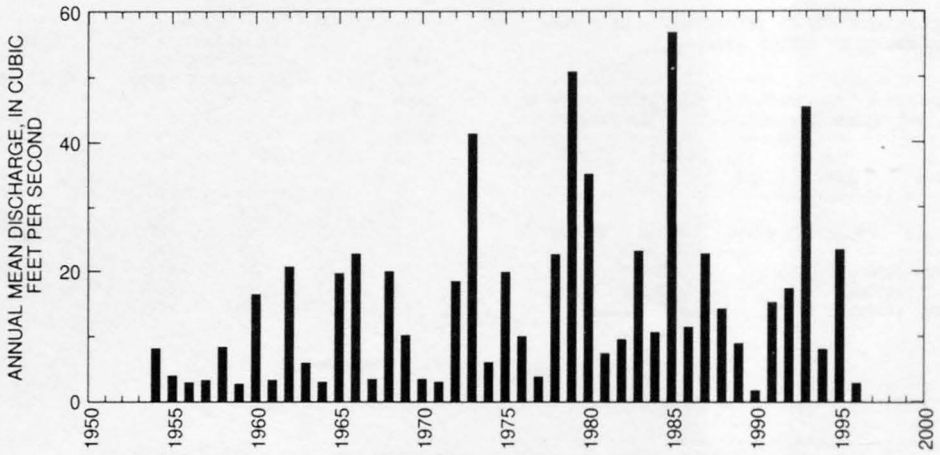
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
203	57	23	13	9.6	7.5	5.9	4.7	3.6	2.6	1.6	0.83	0.44	0.22	0.11	0.09	0.00

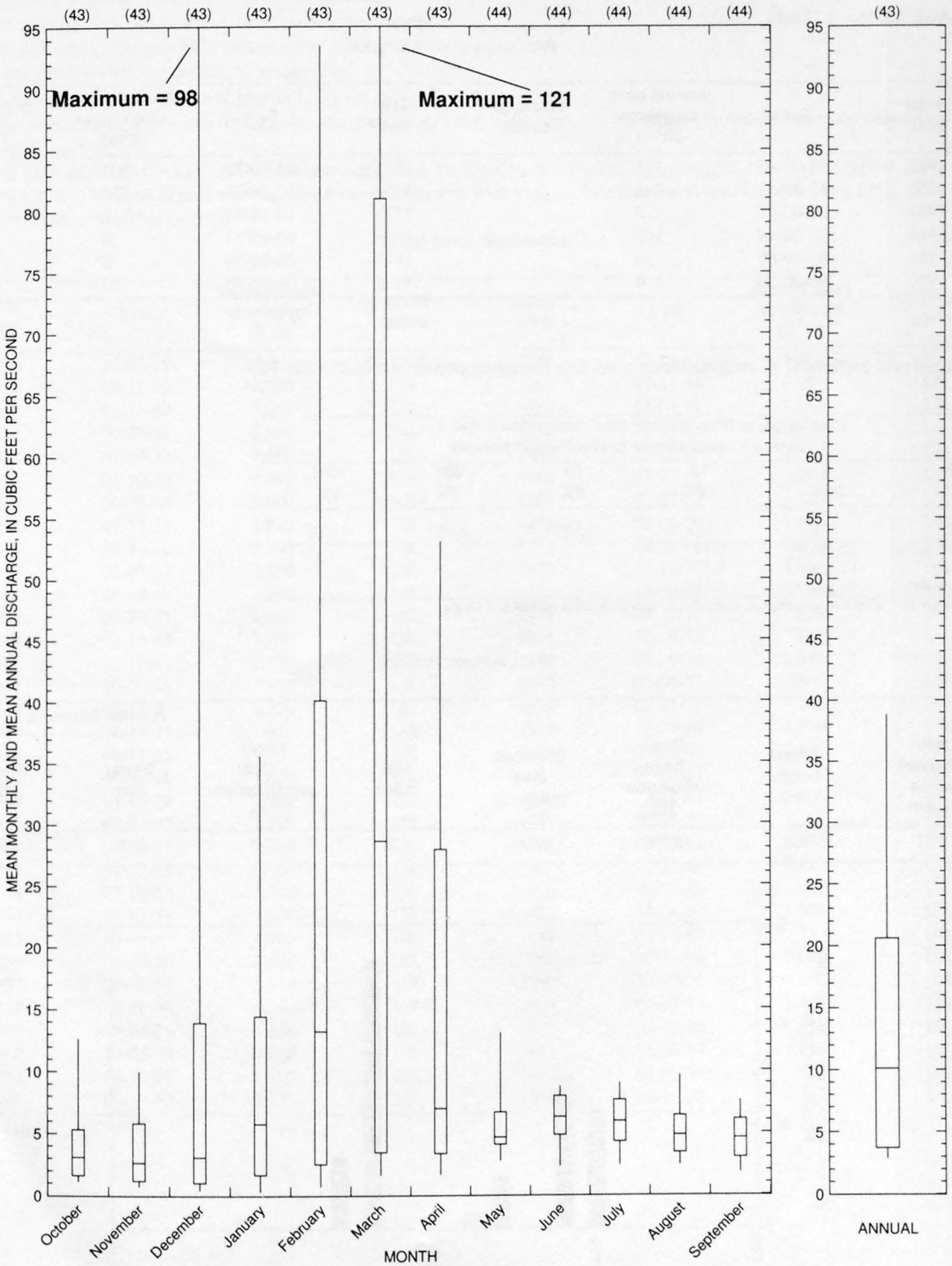
Reliability of values in column is uncertain, and potential errors are large.

09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued





09390500 SHOW LOW CREEK NEAR LAKESIDE, AZ--Continued



09392800 LONG LAKE TRIBUTARY NEAR SHOW LOW, AZ

LOCATION.--Lat 34°15'40", long 109°59'41", in NW$^1/_4$SE$^1/_4$, sec.15, T.10 N., R.22 E., Navajo County, Hydrologic Unit 15020005, at U.S. Highway 60, 1 mi east of Show Low.

DRAINAGE AREA.--5.22 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	01-07-65	231		1971	00-00-71	0	
1966	12-30-65	298		1972	12-26-71	530	
1967	00-00-67	0		1973	10-19-72	140	
1968	02-00-68	100		1974	00-00-74	0	
1969	03-19-69	30		1975	00-00-75	0	
1970	00-00-70	0		1976	00-00-76	20	LT

Magnitude and probability of instantaneous peak flow based on period of record 1965-76

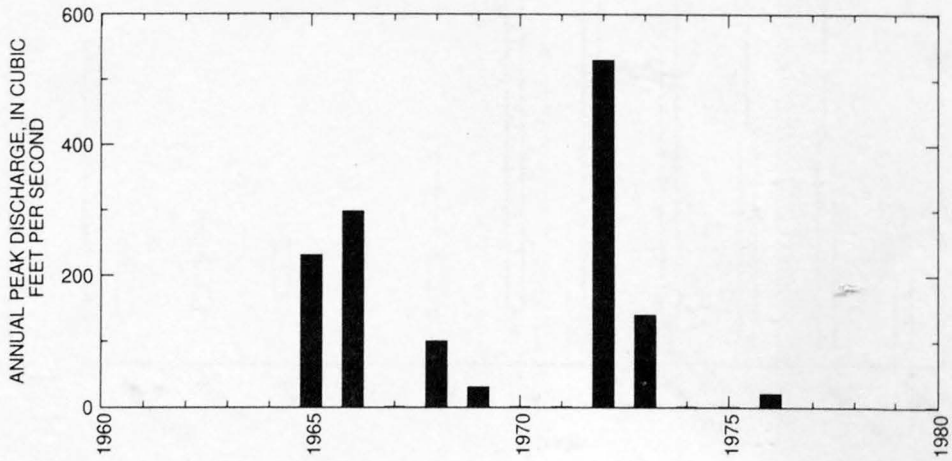
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
23.4	195	524	1,380	2,460	4,030

Weighted skew	(logs) =	-0.49
Mean	(logs) =	1.27
Standard dev.	(logs) =	1.19

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
133	4.0	6,700	66.0	3.0	13.5	1.8	3.9



09393500 SILVER CREEK NEAR SNOWFLAKE, AZ

LOCATION.--Lat 34°40'00", long 110°02'30", in $SW^1/_4NW^1/_4$ sec.29, T.15 N., R.22 E., Navajo County, Hydrologic Unit 15020005, on left bank 6 mi upstream from mouth and 11 mi north of Snowflake.

DRAINAGE AREA.--925 mi^2, of which 79 mi^2 is noncontributing.

PERIOD OF RECORD.--October 1950 to September 1995 (discontinued).

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,204.1 ft above sea level.

REMARKS.--Records fair. Diversions for irrigation above station of about 6,600 acres. Flow regulated by several reservoirs - combined capacity, about 22,100 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft^3/s Jan. 19, 1952, gage height, 18.0 ft, from rating curve extended above 4,400 ft^3/s on basis of peak discharge for former station near Woodruff; no flow for several days in water years 1971, 1974-78, 1980-82, 1984, 1986, 1990, 1991, and 1994.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1920	12-05-19	25,000	ES,UR,HP	1963	08-21-63	5,860	UR
1929	07-21-29	10,500	UR	1964	07-31-64	6,090	UR
1930	08-11-30	3,000	UR	1965	01-08-65	1,260	UR
1931	09-06-31	2,850	UR	1966	12-30-65	6,800	UR
1932	02-09-32	9,900	UR	1967	07-29-67	4,070	UR
1933	09-10-33	4,600	UR	1968	08-05-68	3,890	UR
1934	00-00-34	2,000	ES,UR	1969	07-24-69	3,150	UR
1935	09-27-35	2,820	UR	1970	09-06-70	1,690	UR
1936	07-25-36	4,300	UR	1971	09-30-71	4,470	UR
1937	02-07-37	4,300	UR	1972	12-26-71	4,780	UR
1938	08-08-38	3,100	UR	1973	10-20-72	3,260	UR
1939	08-29-39	1,460	UR	1974	09-22-74	558	UR
1940	07-26-40	[1]11,000	UR	1975	10-29-74	990	UR
1941	03-15-41	3,700	UR	1976	02-10-76	2,540	UR
1942	10-03-41	932	UR	1977	08-04-77	1,840	UR
1943	08-31-43	3,120	UR	1978	03-01-78	4,160	UR
1944	08-25-44	416	UR	1979	12-19-78	7,700	UR
1945	08-11-45	3,230	UR	1980	02-20-80	4460	UR
1946	09-19-46	1,680	UR	1981	07-15-81	907	UR
1949	01-13-49	2,900	UR	1982	08-12-82	5,090	UR
1950	07-07-50	1,160	UR	1983	09-29-83	1,510	UR
1951	08-28-51	3,780	UR	1984	08-23-84	3,160	UR
1952	01-19-52	10,100	UR	1985	12-27-84	5,840	UR
1953	07-16-53	1,060	UR	1986	08-28-86	409	UR
1954	09-02-54	7,670	UR	1987	08-06-87	1,820	UR
1955	08-06-55	4,980	UR	1988	02-03-88	737	UR
1956	06-29-56	3,620	UR	1989	07-23-89	1,020	UR
1957	08-05-57	1,910	UR	1990	07-07-90	635	UR
1958	09-08-58	4,340	UR	1991	03-02-91	1,100	UR
1959	07-05-59	630	UR	1992	08-06-92	1,800	UR
1960	12-25-59	2,120	UR	1993	02-20-93	5,800	UR
1961	08-17-61	1,300	UR	1994	09-03-94	628	UR
1962	02-13-62	1,030	UR	1995	02-15-95	1,220	UR

[1]Highest since 1923.

09393500 SILVER CREEK NEAR SNOWFLAKE, AZ--Continued

Discharge rating table developed January 1988

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	135	14.0	6,510
4.0	337	17.0	9,300
5.0	642	20.0	12,490
8.0	2,070	23.0	16,060
11.0	4,030	26.0	20,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
35.0	53.3	6,400	53.0	3.0	16.7	1.8	3.8

09393500 SILVER CREEK NEAR SNOWFLAKE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1951-95

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	89	0.64	12	18	1.6	5.1
NOVEMBER	109	0.82	7.9	18	2.3	3.5
DECEMBER	276	0.88	23	52	2.2	10.2
JANUARY	457	0.35	34	94	2.8	14.7
FEBRUARY	468	0.01	37	97	2.6	16.3
MARCH	195	0.00	32	50	1.5	14.1
APRIL	212	0.00	10	32	3.1	4.5
MAY	71	0.96	4.8	10	2.2	2.1
JUNE	27	0.30	3.9	5.2	1.3	1.7
JULY	67	0.86	15	16	1.1	6.4
AUGUST	119	2.8	30	28	0.96	12.9
SEPTEMBER	173	0.59	20	30	1.5	8.6
ANNUAL	86	2.8	19	19	0.99	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1952-95

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.05	0.00	0.00	0.00	0.00	0.00
3	0.09	0.00	0.00	0.00	0.00	0.00
7	0.17	0.00	0.00	0.00	0.00	0.00
14	0.31	0.06	0.01	0.00	0.00	0.00
30	0.62	0.30	0.18	0.07	0.00	0.00
60	1.2	0.79	0.62	0.50	0.00	0.00
90	1.9	1.0	0.70	0.47	0.28	0.19
120	2.7	1.6	1.2	0.88	0.60	0.46
183	4.8	2.6	1.9	1.5	1.1	0.96

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1920, 1929-46, 1949-95

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,590	5,330	7,720	11,400	14,600	18,200

WEIGHTED SKEW (LOGS)= -0.10
MEAN (LOGS)= 3.41
STANDARD DEV. (LOGS)= 0.38

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1951-95

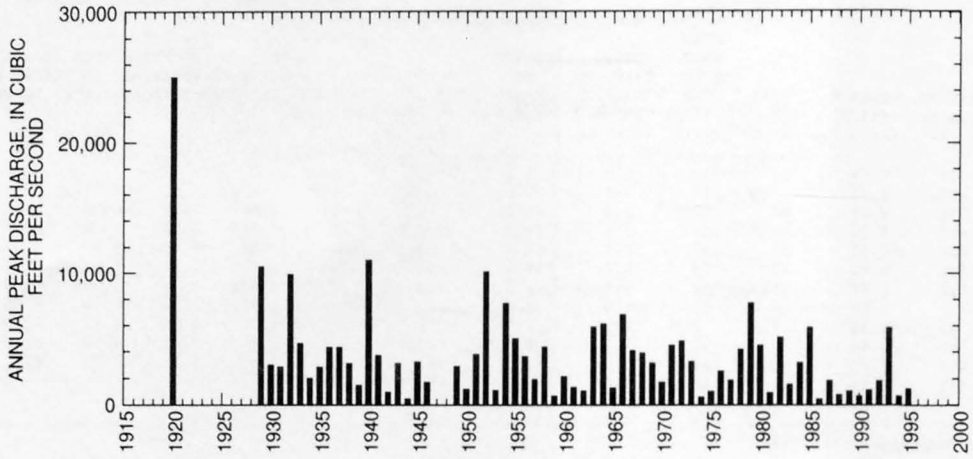
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	644	1,610	2,590	4,290	5,940	7,940
3	336	859	1,430	2,500	3,610	5,050
7	184	462	759	1,300	1,860	2,570
15	107	263	428	727	1,030	1,410
30	71	167	262	427	586	781
60	44	105	167	279	392	534
90	33	78	125	213	304	422

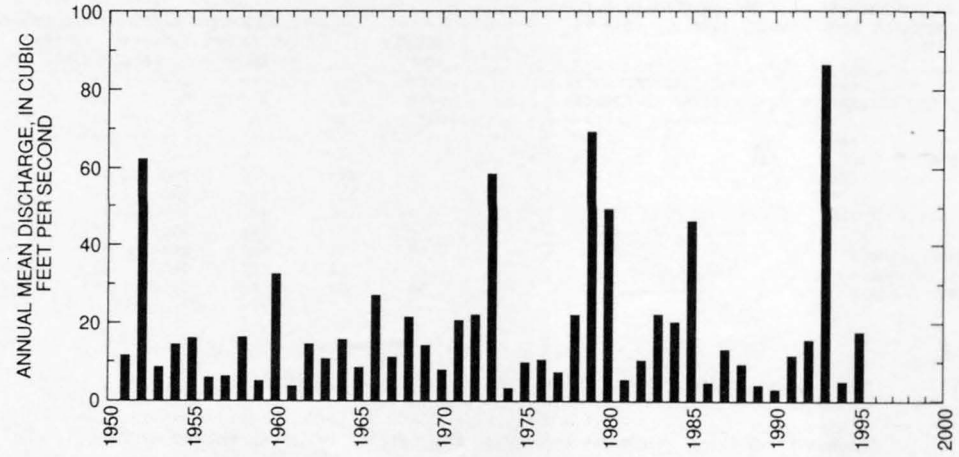
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-95

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
321	67	25	13	8.5	5.5	4.1	3.1	2.3	1.6	1.1	0.57	0.26	0.03	0.00	0.00	0.00

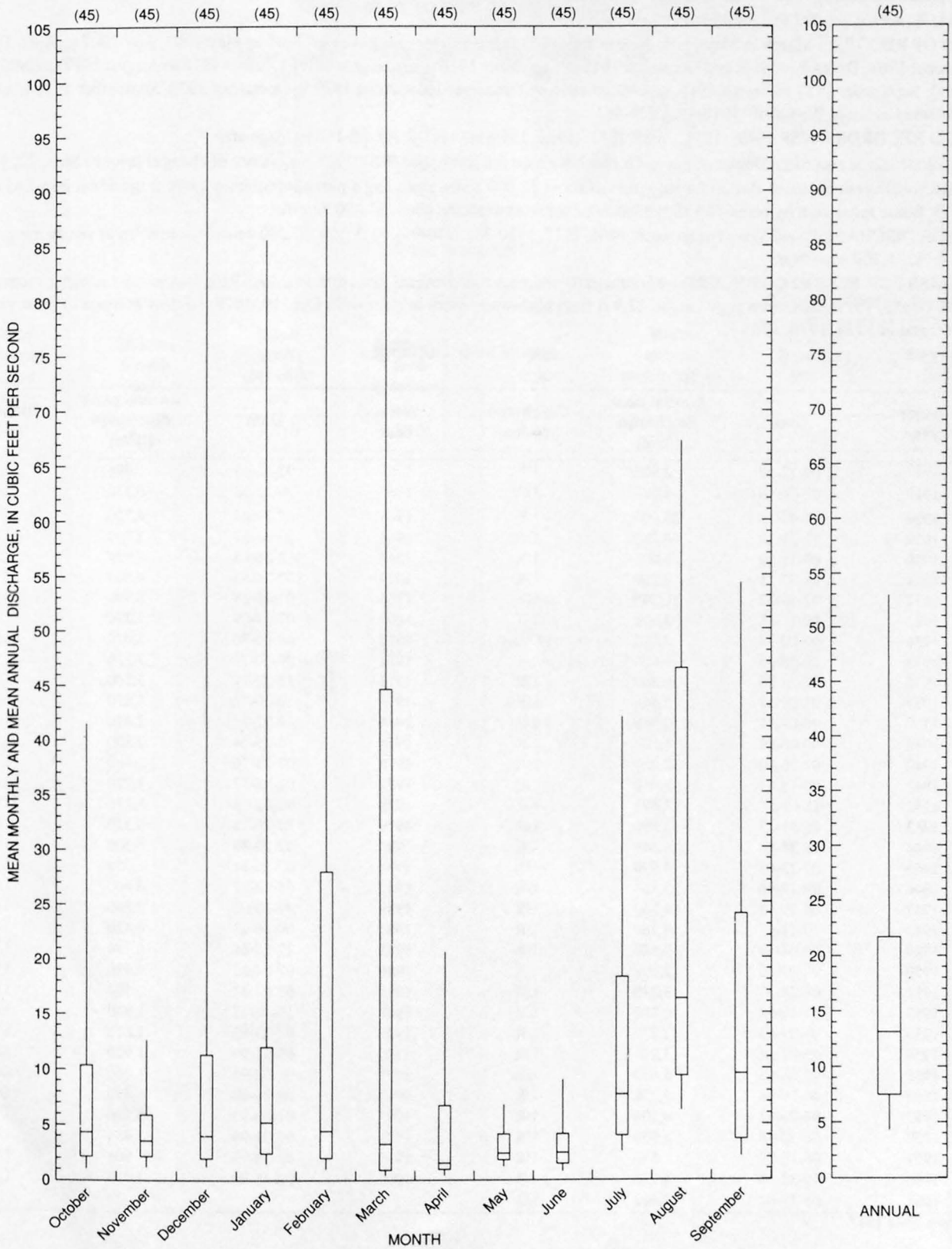
Reliability of values in column is uncertain, and potential errors are large.

09393500 SILVER CREEK NEAR SNOWFLAKE, AZ--Continued





09393500 SILVER CREEK NEAR SNOWFLAKE, AZ--Continued



09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ

LOCATION.--Lat 34°46'58", long 110°02'37", in NE$^1/_4$SW$^1/_4$ sec.17, T.16 N., R.22 E., Navajo County, Hydrologic Unit 15020002, on left ba at abandoned county road bridge in Woodruff, 3.7 mi downstream from Silver Creek.

DRAINAGE AREA.--8,072 mi^2, of which 297 mi^2 is noncontributing.

PERIOD OF RECORD.--March to May 1905; June to July 1905 (gage heights only); August 1905 to May 1907; July 1907 to April 1908, July October 1908, December 1908, and December 1915 to September 1916 (gage heights only); October 1916 to August 1917 (monthly discha only); September 1917 to March 1918, December 1918 to December 1919, April 1929 to December 1933, September 1935 to current ye Published as "near Woodruff" 1916-19, 1929-48.

REVISED RECORDS.--WSP 1049: 1917. WSP 1213: 1906, 1919(M). WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,130.3 ft above sea level. See WSP 1733 for history of changes prior to Sept. 22, 1949.

REMARKS.--Diversions above station for irrigation of about 22,000 acres, including a pump installation 1,000 ft upstream installed in spring 1973. Some regulation by reservoirs above station; combined capacity, about 81,400 acre-ft.

AVERAGE DISCHARGE.--67 years (water years 1906, 1917, 1930-33, 1936-96), 51.3 ft^3/s, 37,200 acre-ft/yr; median of yearly mean discharg 43 ft^3/s, 31,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, occurred Jan. 19, 1916; maximum discharge recorded, 25,0 ft^3/s Dec. 5, 1919; maximum gage height, 22.9 ft from high-water mark in gage well, Dec. 19, 1978; no flow at times in most years prior 1960 and in 1974, 1976, 1983.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1917	04-18-17	2,800	UR	1962	02-13-62	996	UR
1919	07-19-19	4,600	UR	1963	08-22-63	6,330	UR
1920	12-05-19	[1]25,000	UR	1964	07-31-64	4,750	UR
1929	07-21-29	10,700	UR	1965	09-04-65	3,390	UR
1930	08-11-30	8,000	UR	1966	12-30-65	5,320	UR
1931	08-07-31	7,750	UR	1967	07-24-67	4,540	UR
1032	02-10-32	10,200	UR	1968	07-25-68	3,990	UR
1933	09-11-33	8,300	UR	1969	07-24-69	3,270	UR
1934	00-00-34	2,500	ES, UR	1970	09-06-70	3,070	UR
1935	09-28-35	5,400	UR	1971	09-30-71	7,220	UR
1936	07-25-36	8,300	UR	1972	12-27-71	3,700	UR
1937	02-07-37	5,640	UR	1973	10-20-72	4,870	UR
1938	08-08-38	2,960	UR	1974	09-22-74	2,020	UR
1939	08-06-39	1,180	UR	1975	10-29-74	2,800	UR
1940	07-26-40	13,000	UR	1976	07-23-76	2,460	UR
1941	03-15-41	6,050	UR	1977	08-04-77	1,220	UR
1942	10-03-41	1,670	UR	1978	03-02-78	4,470	UR
1943	08-31-43	3,590	UR	1979	12-19-78	9,320	UR
1944	09-28-44	1,140	UR	1980	02-20-80	5,300	UR
1945	07-23-45	4,690	UR	1981	07-16-81	2,050	UR
1946	09-19-46	3,880	UR	1982	08-12-82	6,600	UR
1947	08-29-47	4,560	UR	1983	09-308-3	2,860	UR
1948	10-14-47	4,560	UR	1984	09-26-84	6,420	UR
1949	08-08-49	7,540	UR	1985	12-28-84	6,780	UR
1950	07-19-50	2,050	UR	1986	07-04-86	1,420	UR
1951	08-28-51	8,290	UR	1987	08-07-87	194	UR
1952	01-19-52	10,200	UR	1988	10-12-87	1,930	UR
1953	07-29-53	2,770	UR	1989	07-23-89	1,610	UR
1954	09-02-54	5,230	UR	1990	09-21-90	1,920	UR
1955	08-06-55	6,630	UR	1991	03-02-91	1,260	UR
1956	06-30-56	2,250	UR	1992	08-24-92	6,770	UR
1957	08-06-57	4,100	UR	1993	01-08-93	8,960	UR
1958	08-22-58	3,950	UR	1994	09-03-94	954	UR
1959	08-19-59	566	UR	1995	02-15-95	906	UR
1960	10-30-59	4,750	UR	1996	09-15-96	1,710	UR
1961	08-17-61	1,420	UR				

[1]Highest since 1917.

09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ--Continued

Discharge rating table developed January 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	103	14.0	3,680
7.0	341	16.0	5,010
8.0	660	18.0	6,460
10.0	1,480	20.0	8,030
12.0	2,500	23.0	10,600

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
25.2	122	6,810	28.0	2.9	13.4	1.5	3.0

09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1906, 1930-33, 1936-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	301	1.0	40	63	1.6	6.6
NOVEMBER	543	3.0	25	71	2.8	4.1
DECEMBER	349	2.3	28	54	1.9	4.7
JANUARY	599	3.0	43	97	2.3	7.0
FEBRUARY	827	2.5	61	134	2.2	9.9
MARCH	610	1.3	74	121	1.6	12.0
APRIL	414	0.00	42	87	2.1	6.8
MAY	488	0.00	23	69	3.1	3.7
JUNE	88	0.00	6.9	13	1.8	1.1
JULY	238	0.53	57	59	1.0	9.3
AUGUST	951	3.6	137	162	1.2	22.4
SEPTEMBER	611	0.71	77	101	1.3	12.5
ANNUAL	161	9.6	51	39	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1907, 1931-33, 1937-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.25	0.00	0.00	0.00	0.00	0.00
3	0.49	0.00	0.00	0.00	0.00	0.00
7	0.71	0.00	0.00	0.00	0.00	0.00
14	0.85	0.00	0.00	0.00	0.00	0.00
30	1.4	0.22	0.01	0.00	0.00	0.00
60	2.6	0.82	0.38	0.18	0.03	0.00
90	4.2	1.6	0.85	0.46	0.12	0.00
120	7.7	4.6	3.6	3.1	2.6	2.3
183	14	7.4	5.4	4.3	3.4	3.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1917, 1919-20, 1929-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,790	6,920	9,340	12,700	15,400	18,300

WEIGHTED SKEW (LOGS)= -0.22
MEAN (LOGS)= 3.57
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1906, 1930-33, 1936-96

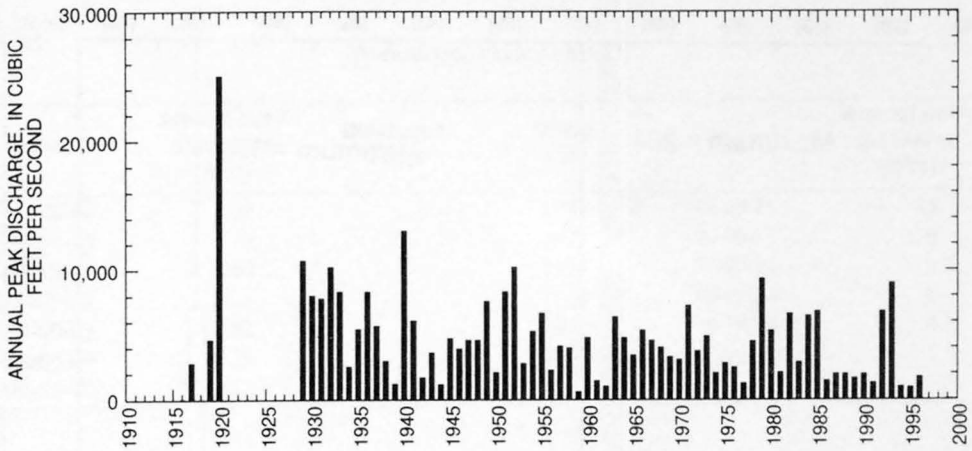
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	1,770	3,520	4,930	6,910	8,510	10,200
3	991	2,020	2,880	4,120	5,160	6,270
7	553	1,090	1,520	2,130	2,620	3,130
15	330	643	891	1,240	1,530	1,830
30	217	421	588	830	1,030	1,250
60	142	285	406	588	744	916
90	106	214	307	447	569	705

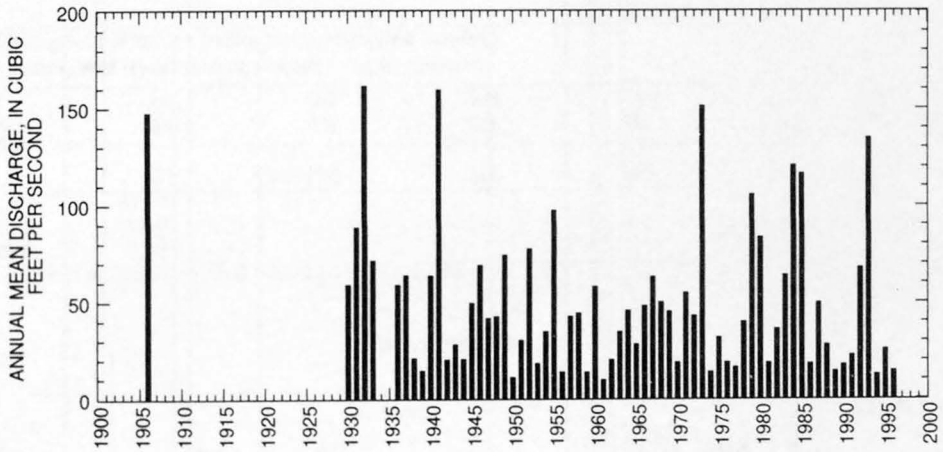
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1906, 1930-33, 1936-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
787	229	99	51	32	16	10	7.3	5.5	4.3	3.0	1.2	0.30	0.00	0.00	0.00	0.00

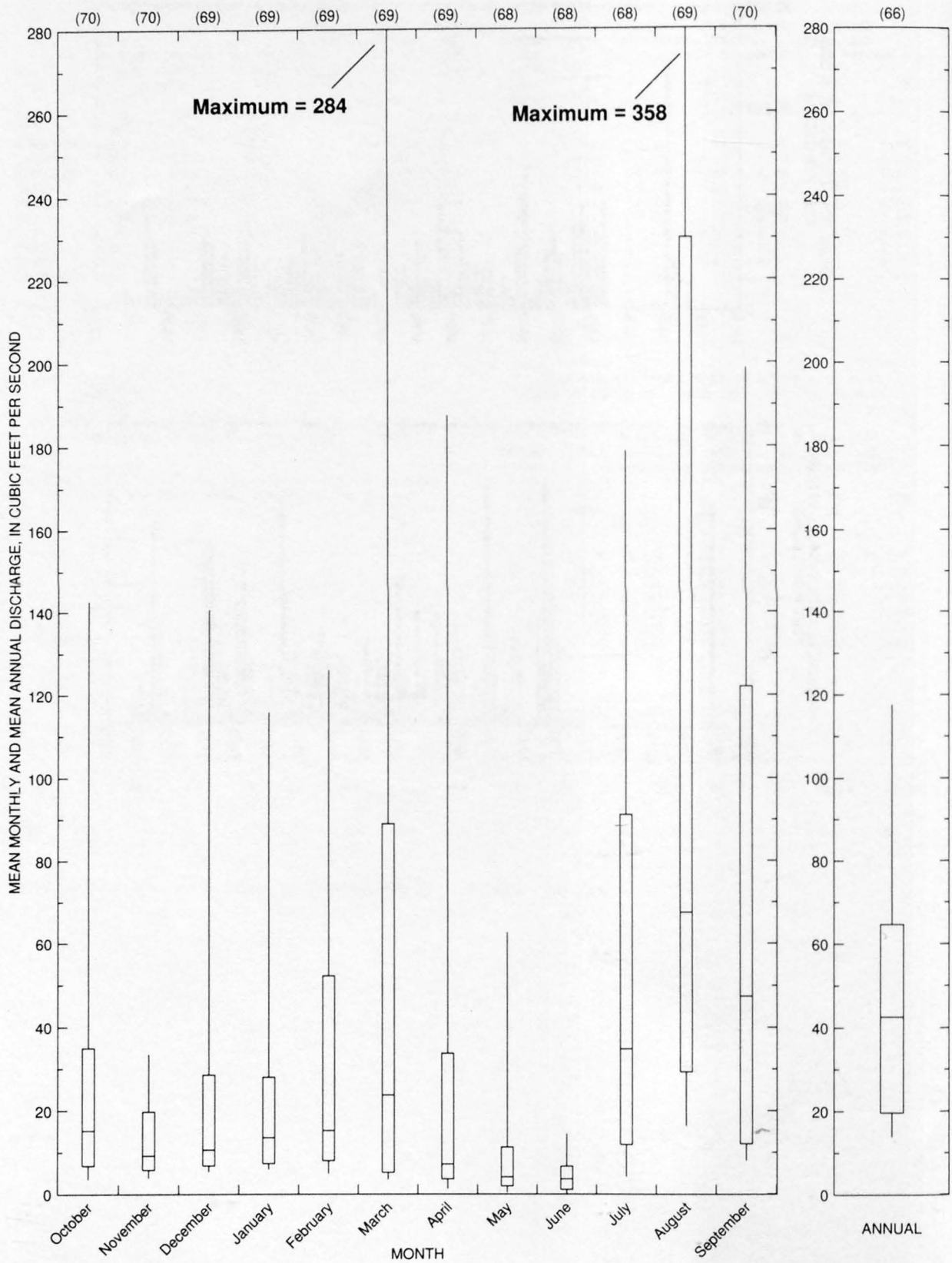
Reliability of values in column is uncertain, and potential errors are large.

09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ--Continued





09394500 LITTLE COLORADO RIVER AT WOODRUFF, AZ--Continued



09395100 CARR LAKE DRAW TRIBUTARY NEAR HOLBROOK, AZ

LOCATION.--Lat 34°50'05", long 109°56'00", in $SE^1/_4SE^1/_4$, sec.30, T.17 N., R.23 E., Navajo County, Hydrologic Unit 15020005, at (former) U.S. Highway 180, 14 mi southeast of Holbrook.

DRAINAGE AREA.--1.28 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	07-28-64	129		1971	09-29-71	45	
1965	00-00-65	0		1972	00-00-72	0	
1966	08-12-66	140		1973	00-00-73	5.0	
1967	00-00-67	35		1974	00-00-74	0	
1968	08-00-68	102		1975	10-29-74	4.0	
1969	09-05-69	39		1976	09-00-76	1.0	
1970	09-06-70	52					

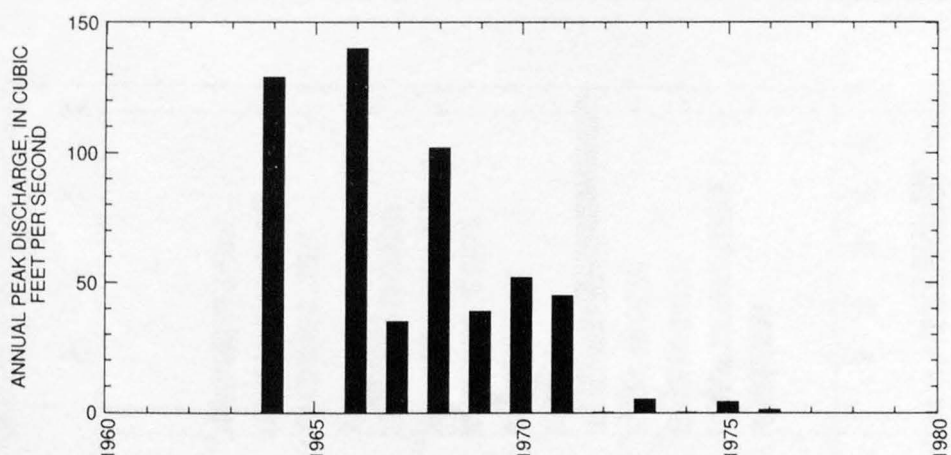
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
27	73.8	120	196	266	345
Weighted skew	(logs) =	-0.34			
Mean	(logs) =	1.40			
Standard dev.	(logs) =	0.55			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
103	2.4	5,420	0.0	3.0	7.8	1.3	2.9



09395200 DECKER WASH NEAR SNOWFLAKE, AZ

LOCATION.--Lat 34°27'40", long 110°24'15", in SW$^1/_4$, sec.2, T.12 N., R.18 E., Navajo County, Hydrologic Unit 15020008, at State Highway 277, 19 mi west of Snowflake.

DRAINAGE AREA.--16.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-31-63	0.5		1970	00-00-00	0.5	ES
1964	08-02-64	74		1971	08-04-71	349	
1965	01-07-65	135		1972	12-25-71	([1])	
1966	12-30-65	1,170		1973	10-19-72	([1])	
1967	08-00-67	152		1974	00-00-74	0	
1968	02-00-68	60		1975	09-00-75	1.5	ES
1969	08-00-69	2.0	LT	1976	02-09-76	([1])	

[1]Discharge unknown.

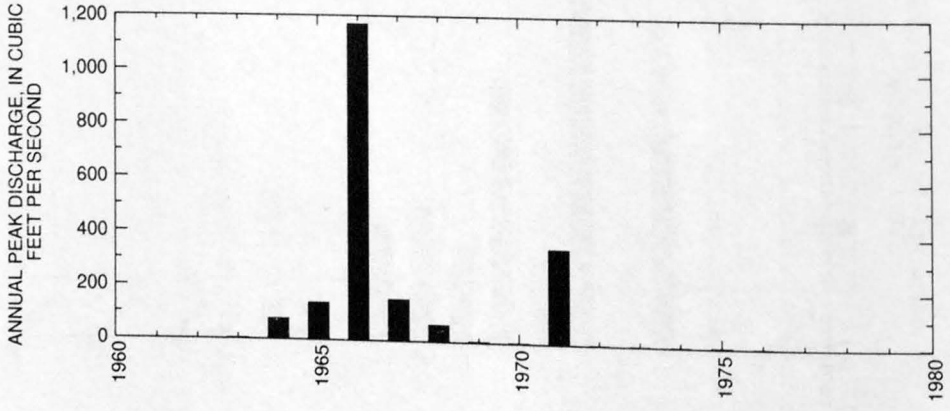
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
31.1	14.9	6,660	97.0	3.0	20.0	1.9	3.6



09395850 BLACK CREEK TRIBUTARY NEAR WINDOW ROCK, AZ

LOCATION.--Lat 35°39'15", long 109°05'20", in $SE^1/_4$, sec.13, T.26 N., R.30 E., Apache County, Hydrologic Unit 15020006, at Navajo Highway 21, 0.2 mi south of State Highway 264, and 2.75 mi southwest of Window Rock.

DRAINAGE AREA.--0.33 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-30-63	134		1970	08-07-70	102	
1964	08-13-64	145		1971	08-27-71	55	
1965	07-27-65	125		1972	09-00-72	124	
1966	08-01-66	12		1973	08-00-73	106	
1967	08-00-67	141		1974	08-05-74	109	
1968	08-06-68	171		1975	07-11-75	156	
1969	08-00-69	134		1976	00-00-76	81	

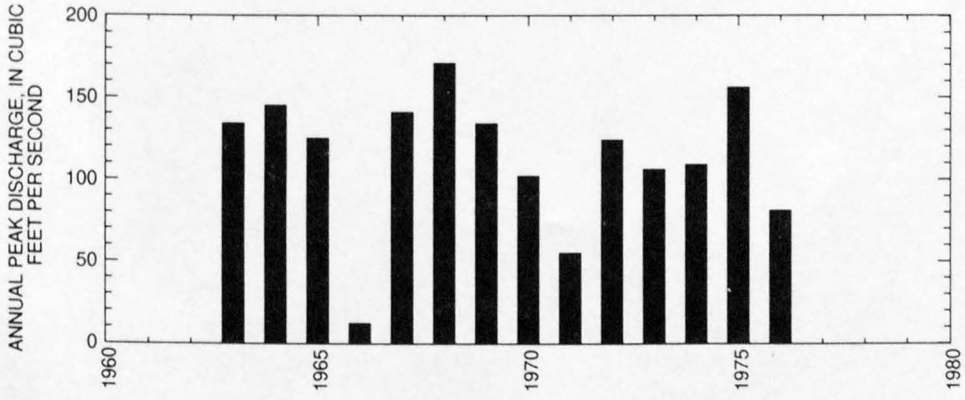
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
53.3	0.75	6,830	0.0	1.0	14.1	1.2	2.6



09395900 BLACK CREEK NEAR LUPTON, AZ

LOCATION.--Lat 35°27'09", long 109°07'30", in $E^1/_2NE^1/_4$ sec.26, T.24 N., R.30 E. (unsurveyed), Apache County, Hydrologic Unit 15020006, in Navajo Indian Reservation, on downstream end of center bridge pier on State Highway 166, 7 mi upstream from West Fork, and 8 mi northwest of Lupton, and 16 mi south of Window Rock.

DRAINAGE AREA.--500 mi^2, approximately.

PERIOD OF RECORD.--August 1964 to December 1972, May 1974 to September 1982 (discontinued). Monthly discharge only, October 1978 to September 1979.

GAGE.--Water-stage recorder. Altitude of gage is 6,550 ft, from topographic map. Prior to May 1974 at site 160 ft downstream at same datum.

REMARKS.--Records poor. Small diversions above station for irrigation and stock water. Red Lake, near headwaters 35 mi upstream, was built in 1954, with capacity of 9,700 acre-ft, but silting may have reduced this amount.

AVERAGE DISCHARGE.--16 years, 8.26 ft^3/s, 5,980 acre-ft/yr; median of yearly mean discharges, 7.2 ft^3/s, 5,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft^3/s Aug. 25, 1982, gage height, 9.58 ft, from rating curve extended above 410 ft^3/s on basis of slope-area measurement at gage height, 9.35 ft; no flow for many days each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-01-64	5,470		1974	08-05-74	1,600	
1965	07-29-65	3,370		1975	09-08-75	865	
1966	09-15-66	2,860		1976	07-27-76	830	
1967	07-16-67	1,630		1977	08-17-77	7,160	
1968	08-06-68	3,750		1978	03-01-78	72	
1969	07-19-69	4,280		1979	01-17-79	1,340	
1970	09-06-70	3,720		1980	02-20-80	1,740	
1971	09-29-71	3,090		1981	07-15-81	2,220	
1972	08-26-72	3,160		1982	08-25-82	7,680	
1973	10-07-72	2,420					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
11.2	47.6	7,500	50.0	2.0	15.8	1.4	2.6

09395900 BLACK CREEK NEAR LUPTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1965-72, 1975-78, 1980-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	12	0.00	2.5	4.4	1.7	2.6
NOVEMBER	4.8	0.00	0.86	1.2	1.4	0.9
DECEMBER	11	0.02	1.8	2.8	1.6	1.9
JANUARY	13	0.03	2.5	3.3	1.3	2.6
FEBRUARY	75	0.18	12	22	1.8	12.6
MARCH	27	0.00	8.3	9.2	1.1	8.6
APRIL	57	0.00	8.0	16	2.0	8.3
MAY	14	0.00	1.6	3.4	2.2	1.7
JUNE	9.4	0.00	0.71	2.4	3.4	0.7
JULY	81	0.03	15	21	1.4	15.8
AUGUST	124	0.23	29	34	1.2	29.9
SEPTEMBER	53	0.00	14	16	1.1	14.5
ANNUAL	19	0.71	8.0	5.7	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-72, 1976-78, 1981-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.08	0.02	0.01	0.00	0.00	0.00
120	0.35	0.10	0.05	0.03	0.01	0.01
183	1.3	0.50	0.29	0.18	0.11	0.07

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1964-82

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,550	4,440	5,880	7,880	9,480	11,200

WEIGHTED SKEW (LOGS)= -0.15
MEAN (LOGS)= 3.40
STANDARD DEV. (LOGS)= 0.29

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-72, 1975-78, 1980-82

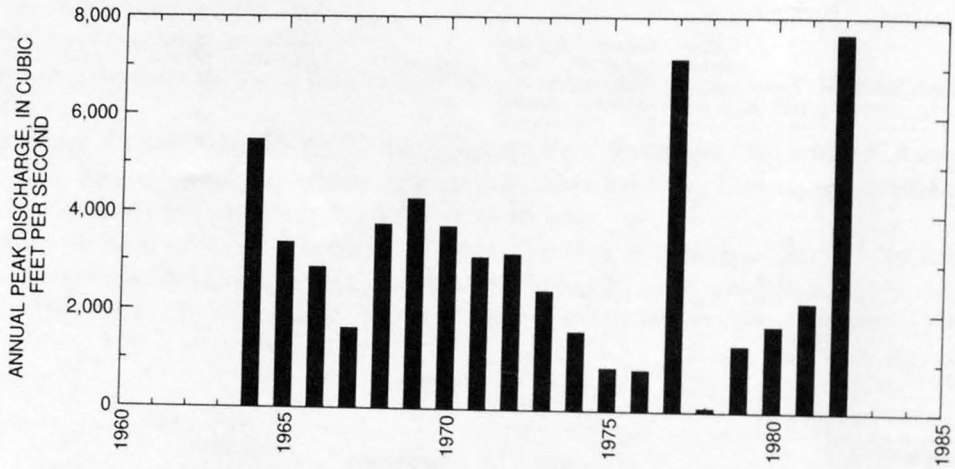
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	455	912	1,190	1,490	1,670	1,810
3	224	477	668	917	1,100	1,280
7	123	254	348	463	545	620
15	69	140	189	249	291	330
30	41	83	115	155	185	214
60	26	54	74	100	119	136
90	19	39	53	70	82	94

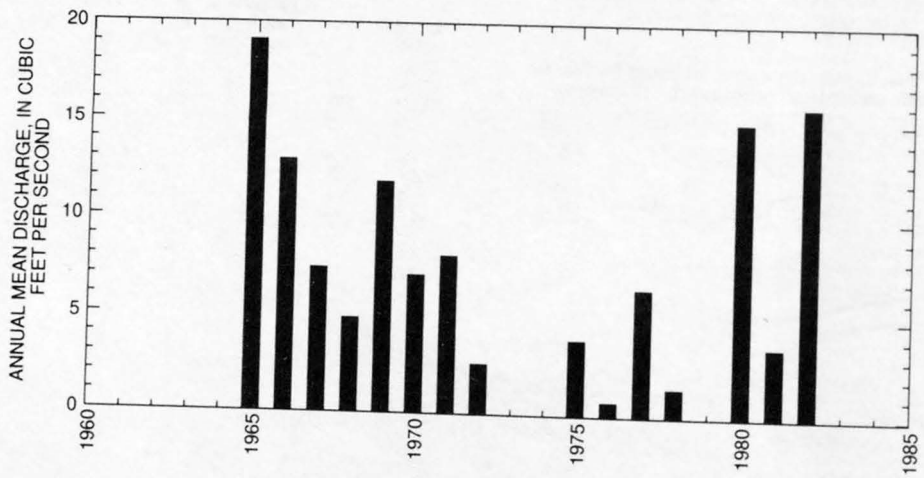
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-72, 1975-78, 1980-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
156	32	11	5.0	3.4	1.3	0.52	0.21	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

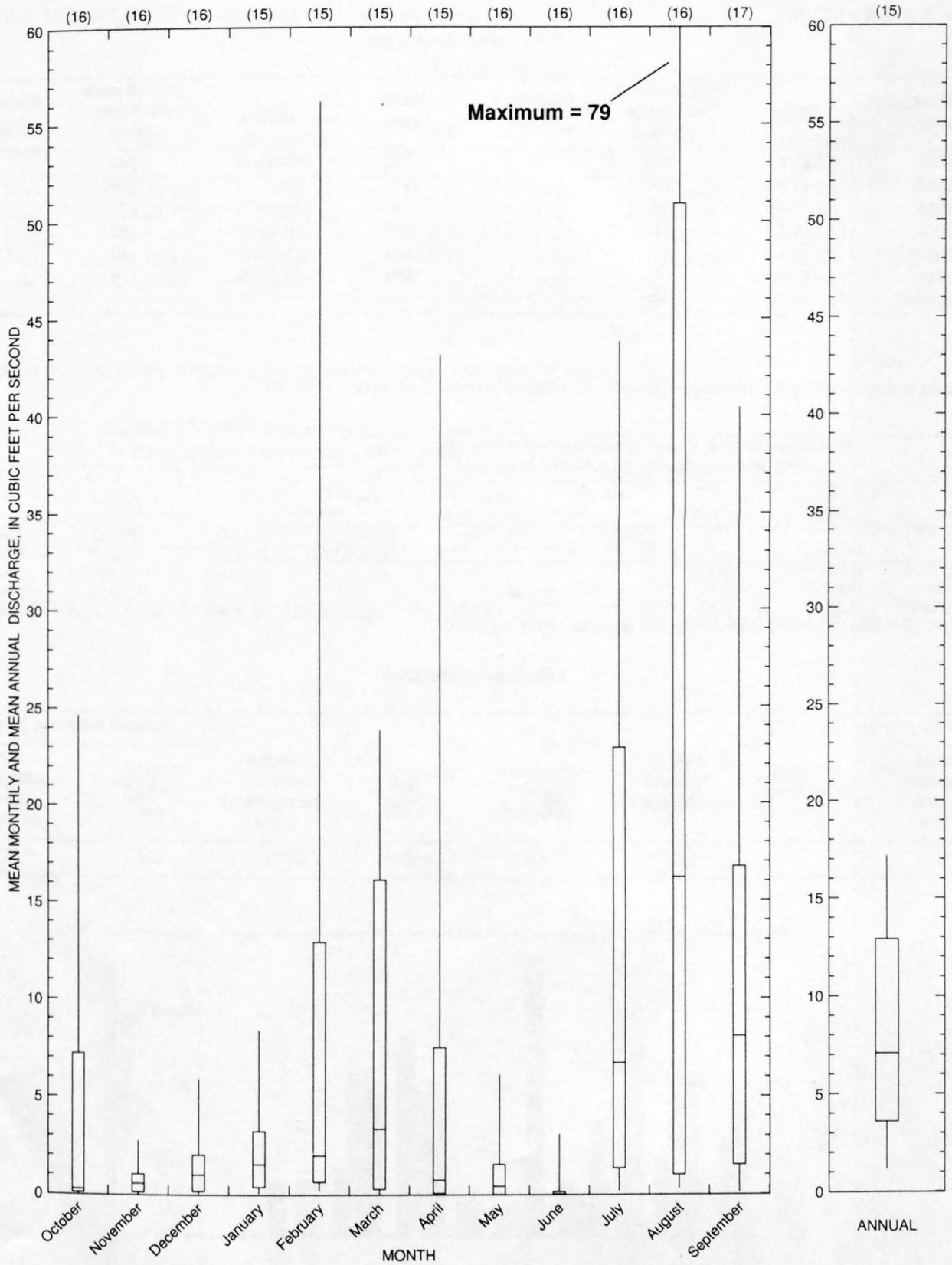
Reliability of values in column is uncertain, and potential errors are large.

09395900 BLACK CREEK NEAR LUPTON, AZ--Continued





09395900 BLACK CREEK NEAR LUPTON, AZ--Continued



09396400 DEAD WASH TRIBUTARY NEAR HOLBROOK, AZ

LOCATION.--Lat 35°04'20", long 109°44'56", in S$^1/_2$, sec.1, T.19 N., R.24 E., Apache County, Hydrologic Unit 15020007, at U.S.Highway 6 near east edge of Petrified Forest National Monument, and 26 mi northeast of Holbrook.

DRAINAGE AREA.--1.22 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-00-63	210		1970	09-05-70	340	
1964	08-12-64	130		1971	08-23-71	526	
1965	09-04-65	307		1972	09-09-72	377	
1966	12-21-65	142		1973	10-19-72	180	
1967	08-00-67	743		1974	07-00-74	30	ES
1968	03-00-68	73		1975	10-29-74	138	
1969	10-03-68	94					

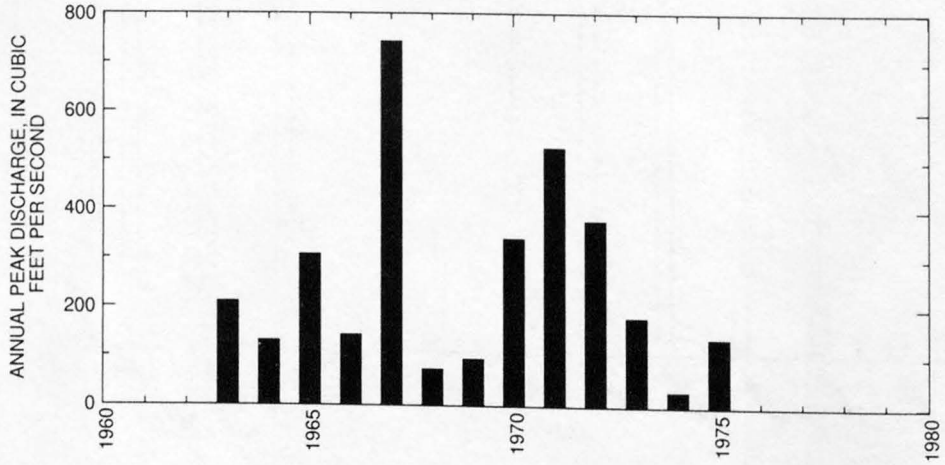
Magnitude and probability of instantaneous peak flow based on period of record 1963-75

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
198	374	522	745	938	1,150
Weighted skew	(logs) =	0.01			
Mean	(logs) =	2.30			
Standard dev.	(logs) =	0.33			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
60.0	1.8	5,740	0.0	3.0	7.9	1.3	2.6



09396500 PUERCO RIVER NEAR ADAMANA, AZ

LOCATION.--Lat 34°58'45", long 109°47'40", in NE$^1/_4$, sec.9, T.18 N., R.24 E., Apache County, Hydrologic Unit 15020007, at highway bridge in Petrified Forest National Monument, 0.25 mi downstream from Dead Wash and 1.5 mi east of Adamana.

DRAINAGE AREA.--2,654 mi^2, of which 50.5 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-23-40	7,500		1945	02-03-45	5,740	
1941	09-29-41	22,600		1946	08-12-46	30,000	
1942	10-04-41	19,400		1947	08-10-47	22,000	
1943	09-26-43	4,800		1948	10-14-47	17,100	
1944	09-26-44	4,700		1949	08-08-49	8,040	

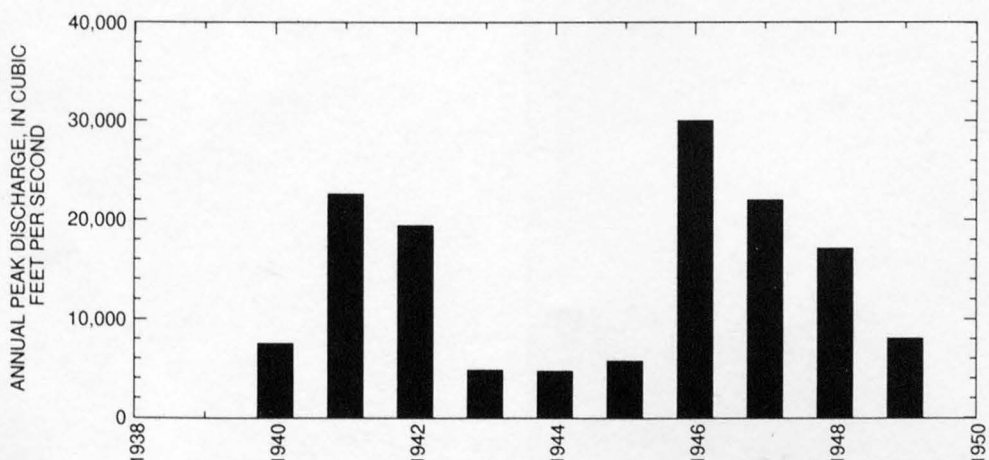
Magnitude and probability of instantaneous peak flow based on period of record 1940-49

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
11,500	20,900	28,400	39,200	48,200	57,900
Weighted skew	(logs) =	-0.08			
Mean	(logs) =	4.06			
Standard dev.	(logs) =	0.31			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
15.7	115	6,730	29.0	2.8	12.6	1.4	2.7



09397000 LITTLE COLORADO RIVER AT HOLBROOK, AZ

LOCATION.--Lat 34°53'52", long 110°09'45", in $SW^1/_4SW^1/_4$, sec.6, T.17 N., R.21 E., Navajo County, Hydrologic Unit 15020008, near right bank on downstream side of bridge on U.S. Highway 180 at Holbrook, 2.3 mi downstream from Puerco River.

DRAINAGE AREA.--11,462 mi^2, of which 347 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1906	11-27-05	20,200	HP	1961	08-16-61	4,160	
1923	09-19-23	[1]60,000	HP	1962	10-31-61	4,010	
1950	07-19-50	2,960		1963	08-31-63	9,370	
1951	08-28-51	8,700		1964	09-09-64	15,100	
1952	01-19-52	8,400		1965	07-25-65	14,800	
1953	07-29-53	6,030		1966	08-13-66	10,400	
1954	07-22-54	10,800		1967	08-12-67	14,100	
1955	08-17-55	10,500		1968	08-12-68	21,000	
1956	06-30-56	4,210		1969	10-04-68	24,200	
1957	08-05-57	21,800		1970	09-06-70	19,700	
1958	09-14-58	7,000		1971	08-21-71	13,200	
1959	08-06-59	6,300		1972	10-01-71	20,300	
1960	10-29-59	11,400		1973	10-20-72	15,000	

[1]Highest since 1870.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
21.9	134	6,730	27.0	2.8	13.0	1.4	2.9

09397000 LITTLE COLORADO RIVER AT HOLBROOK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1906, 1950-73

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	939	2.4	138	231	1.7	8.7
NOVEMBER	1,160	4.4	75	229	3.1	4.7
DECEMBER	529	3.9	51	110	2.1	3.2
JANUARY	565	3.2	105	178	1.7	6.6
FEBRUARY	312	2.8	58	81	1.4	3.6
MARCH	1,270	3.4	112	272	2.4	7.1
APRIL	1,020	2.3	64	206	3.2	4.1
MAY	600	1.3	32	119	3.7	2.0
JUNE	161	0.37	19	33	1.8	1.2
JULY	638	2.4	157	190	1.2	9.9
AUGUST	2,130	4.5	537	606	1.1	33.8
SEPTEMBER	1,000	2.3	240	285	1.2	15.1
ANNUAL	350	20	133	87	0.65	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1906-07, 1951-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.38	0.07	0.00	0.00	0.00	0.00
3	0.61	0.16	0.04	0.00	0.00	0.00
7	1.1	0.35	0.15	0.04	0.00	0.00
14	1.7	0.75	0.44	0.28	0.15	0.10
30	2.4	1.0	0.68	0.47	0.31	0.23
60	3.0	1.8	1.5	1.3	1.2	1.1
90	5.1	2.6	1.9	1.5	1.2	1.1
120	10	5.0	3.8	3.1	2.6	2.3
183	28	12	7.9	5.7	4.1	3.2

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1906, 1923, 1950-73

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11,000	17,000	21,400	27,400	32,100	37,200

WEIGHTED SKEW (LOGS)= 0.06
MEAN (LOGS)= 4.05
STANDARD DEV. (LOGS)= 0.22

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1906, 1950-73

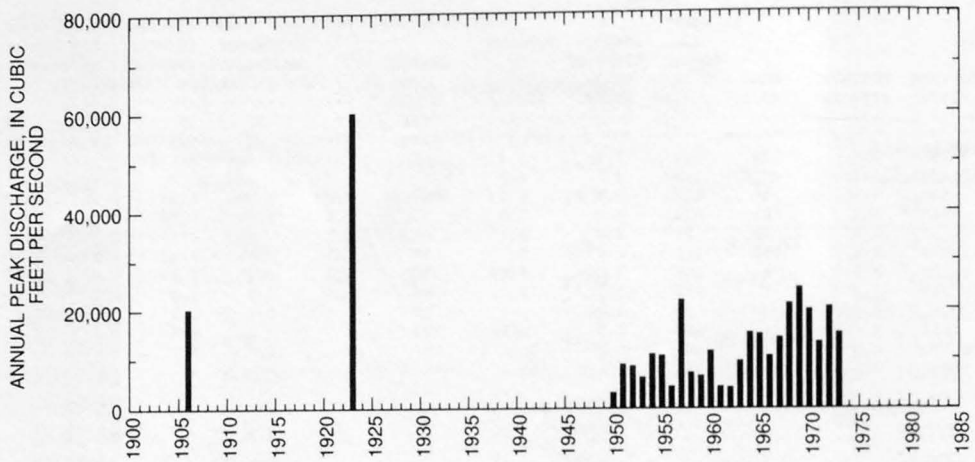
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	5,460	10,600	14,600	19,800	23,900	28,000
3	3,290	6,030	7,820	9,940	11,400	12,700
7	1,850	3,350	4,320	5,440	6,180	6,850
15	1,110	2,030	2,670	3,480	4,070	4,640
30	717	1,310	1,720	2,230	2,610	2,960
60	457	875	1,180	1,580	1,890	2,190
90	329	625	841	1,120	1,340	1,540

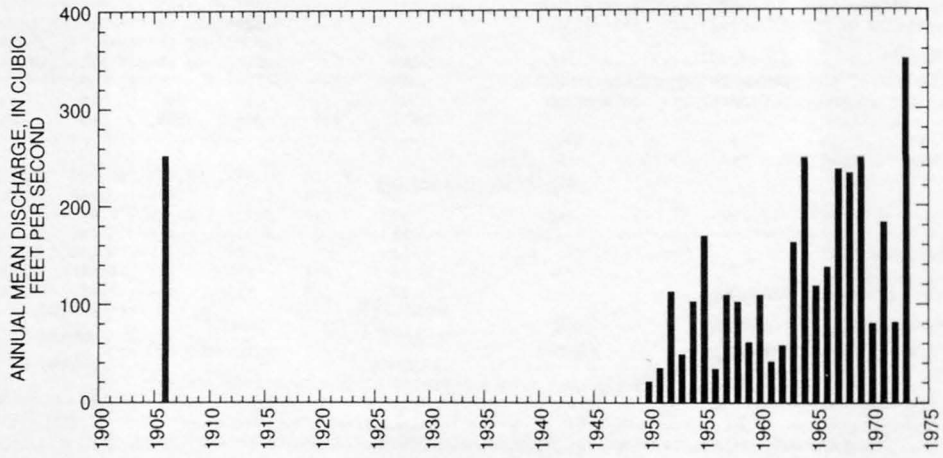
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1906, 1950-73

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,460	588	191	93	49	19	12	9.2	7.1	5.3	3.7	2.2	1.3	0.70	0.41	0.18	0.00

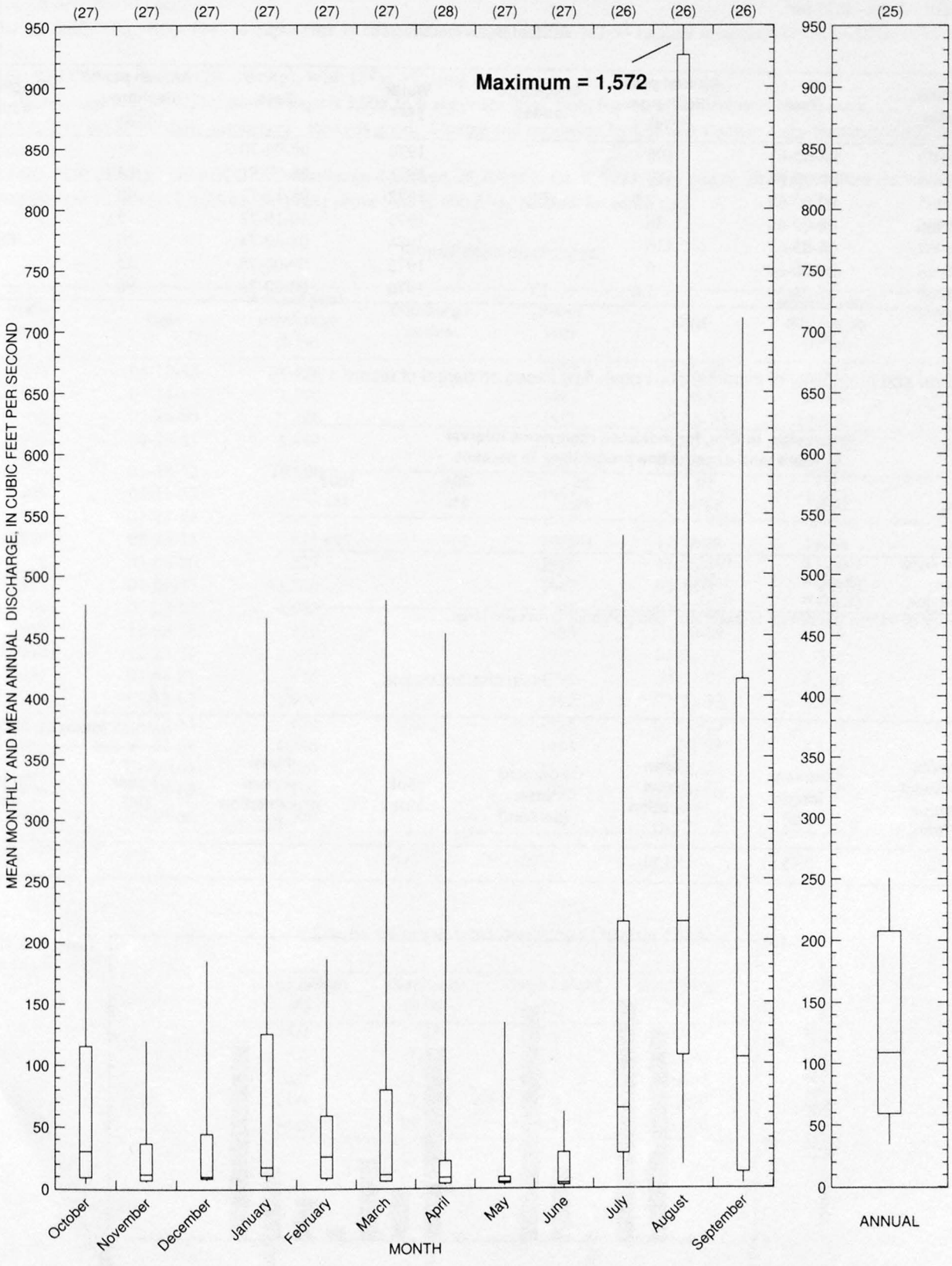
Reliability of values in column is uncertain, and potential errors are large.

09397000 LITTLE COLORADO RIVER AT HOLBROOK, AZ-Continued





09397000 LITTLE COLORADO RIVER AT HOLBROOK, AZ--Continued



09397200 PENZANCE WASH NEAR JOSEPH CITY, AZ

LOCATION.--Lat 34°55'08", long 110°15'13", in NE$^1/_4$, sec.31, T.18 N., R.20 E., Navajo County, Hydrologic Unit 15020008, at U.S. Highway 66, 5.6 mi southeast of Joseph City.

DRAINAGE AREA.--0.17 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-30-63	106		1970	09-06-70	95	
1964	09-09-64	120		1971	09-02-71	24	
1965	00-00-65	3.0	ES	1972	08-13-72	40	
1966	08-09-66	36		1973	10-19-72	5.0	
1967	08-05-67	116		1974	08-00-74	20	ES
1968	00-00-68	0		1975	09-00-75	35	
1969	07-24-69	1.0	LT	1976	00-00-76	96	

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

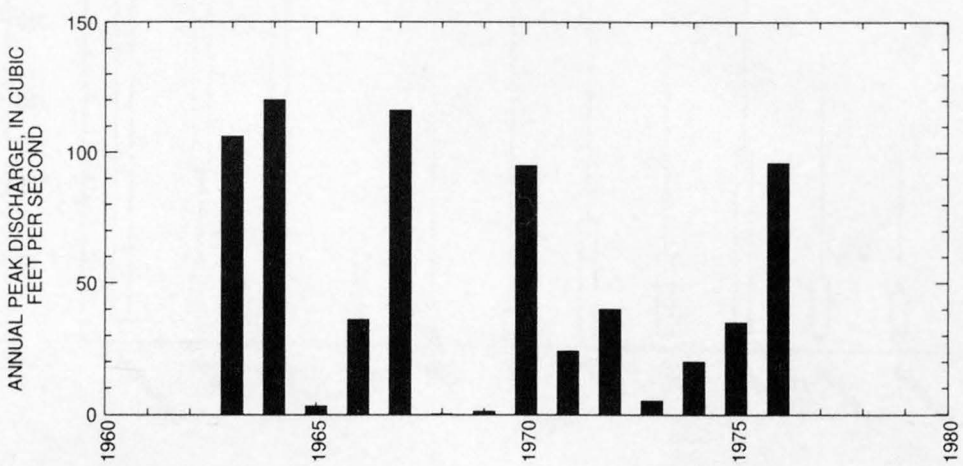
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
38	85.4	126	188	240	296

Weighted skew	(logs) =	-0.33
Mean	(logs) =	1.56
Standard dev.	(logs) =	0.44

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
237	0.45	5,150	0.0	3.0	7.8	1.2	2.6



09397500 CHEVELON CREEK BELOW WILDCAT CANYON NEAR WINSLOW, AZ

LOCATION.--Lat 34°38'11", long 110°42'49", in SW$^1/_4$ sec.36, T.15 N., R.15 E., Navajo County, Hydrologic Unit 15020010, Sitgreaves National Forest, on right bank 0.4 mi downstream from Wildcat Canyon and 25 mi south of Winslow.

DRAINAGE AREA.--271 mi^2.

PERIOD OF RECORD.--May 1947 to September 1970 (daily discharge), 1979, 1982-95 (annual maximum only), October 1995 to September 1996.

REVISED RECORDS.--WSP 1179: 1949(p), WSP 1283: 1951(m).

GAGE.--Water-stage recorder. Elevation of gage is 5,905.16 ft above sea level, from Bureau of Reclamation bench mark.

REMARKS.--No estimated daily discharges. Records good. Storage and regulation by Chevlon Canyon Lake (capacity 6,193 acre-ft) 17 mi upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft^3/s Jan. 8, 1993, gage height, 20.78 ft; no flow during most years.

EXTREMES FOR CURRENT YEAR.--No peaks above base of 400 ft^3/s. No flow for entire year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1948	04-12-48	931		1968	04-02-68	1,600	UR
1949	04-14-49	1,290		1969	01-26-69	6,340	UR
1950	02-28-50	726		1970	09-05-70	11,100	UR
1951	08-29-51	8,940		1979	12-18-78	[1]19,900	HP
1952	01-18-52	19,800		1982	03-12-82	6,440	
1953	03-11-53	653		1983	04-01-83	1,950	
1954	03-23-54	7,500		1984	12-27-83	2,360	
1955	08-23-55	631		1985	12-28-84	5,250	
1956	03-06-56	227		1986	11-26-85	3,490	
1957	01-09-57	11,300		1987	03-14-87	417	
1958	09-28-58	4,080		1988	02-27-88	1,170	
1959	10-06-58	479		1989	03-10-89	525	
1960	12-25-59	2,630		1990	04-06-90	249	
1961	04-04-61	476		1991	04-07-91	2,150	
1962	02-13-62	1,920		1992	08-23-92	5,200	
1963	08-27-63	950		1993	01-08-93	24,700	
1964	04-12-64	1,240		1994	11-23-93	3,530	
1965	01-07-65	9,100		1995	03-06-95	9,290	
1966	12-30-65	9,560		1996	00-00-00	0	
1967	12-07-66	9,920					

[1]Highest since 1929.

Discharge rating table developed October 1988

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	231	19.0	19,920
7.0	1,480	22.0	28,380
10.0	3,980	25.0	36,060
13.0	7,840	27.0	41,620
16.0	13,130	28.5	46,000

09397500 CHEVELON CREEK BELOW WILDCAT CANYON NEAR WINSLOW, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
54.4	39.2	7,030	99.0	3.0	24.0	2.5	4.6

09397500 CHEVELON CREEK BELOW WILDCAT CANYON NEAR WINSLOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1948-70, 1996

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	46	0.00	2.6	9.5	3.6	0.5
NOVEMBER	108	0.00	8.8	24	2.7	1.5
DECEMBER	320	0.00	44	87	2.0	7.8
JANUARY	523	0.00	92	170	1.8	16.1
FEBRUARY	308	0.00	61	80	1.3	10.7
MARCH	473	0.00	157	121	0.77	27.6
APRIL	658	0.00	159	182	1.1	27.9
MAY	47	0.00	11	16	1.5	1.9
JUNE	1.7	0.00	0.09	0.35	4.0	0.0
JULY	4.4	0.00	0.28	0.99	3.5	0.0
AUGUST	205	0.00	17	46	2.8	2.9
SEPTEMBER	210	0.00	18	50	2.8	3.2
ANNUAL	132	0.00	47	34	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-70

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.22	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1948-67, 1968-70, 1979, 1982-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,400	6,950	11,900	21,000	30,000	41,200

WEIGHTED SKEW (LOGS)= -0.13
MEAN (LOGS)= 3.37
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-70, 1996

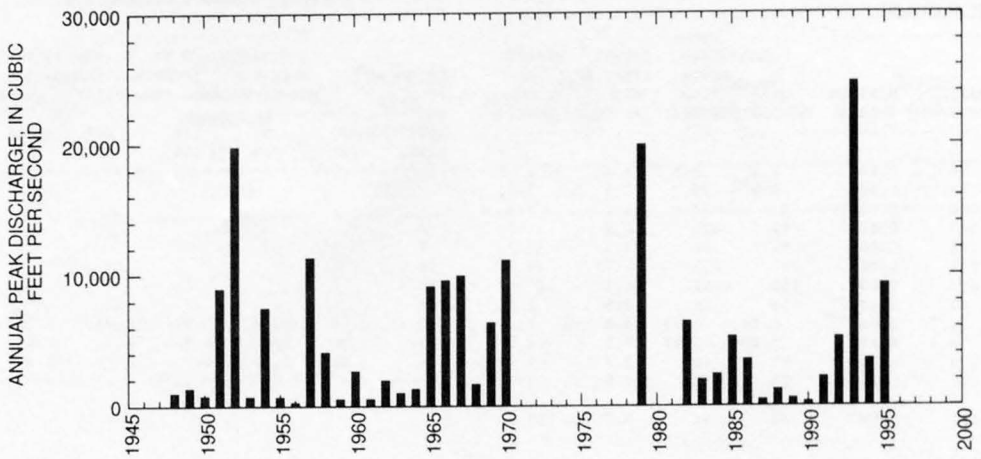
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,310	3,530	5,850	9,920	14,000	19,000
3	928	2,110	3,170	4,800	6,230	7,850
7	640	1,220	1,620	2,100	2,440	2,750
15	431	730	904	1,090	1,210	1,310
30	286	473	586	711	793	867
60	169	298	390	510	602	696
90	126	234	316	425	512	602

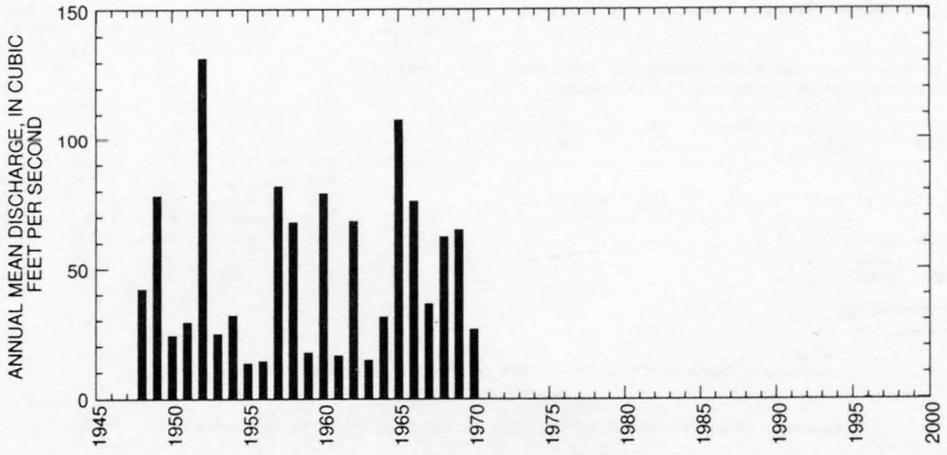
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-70, 1996

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
763	242	102	61	33	6.3	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

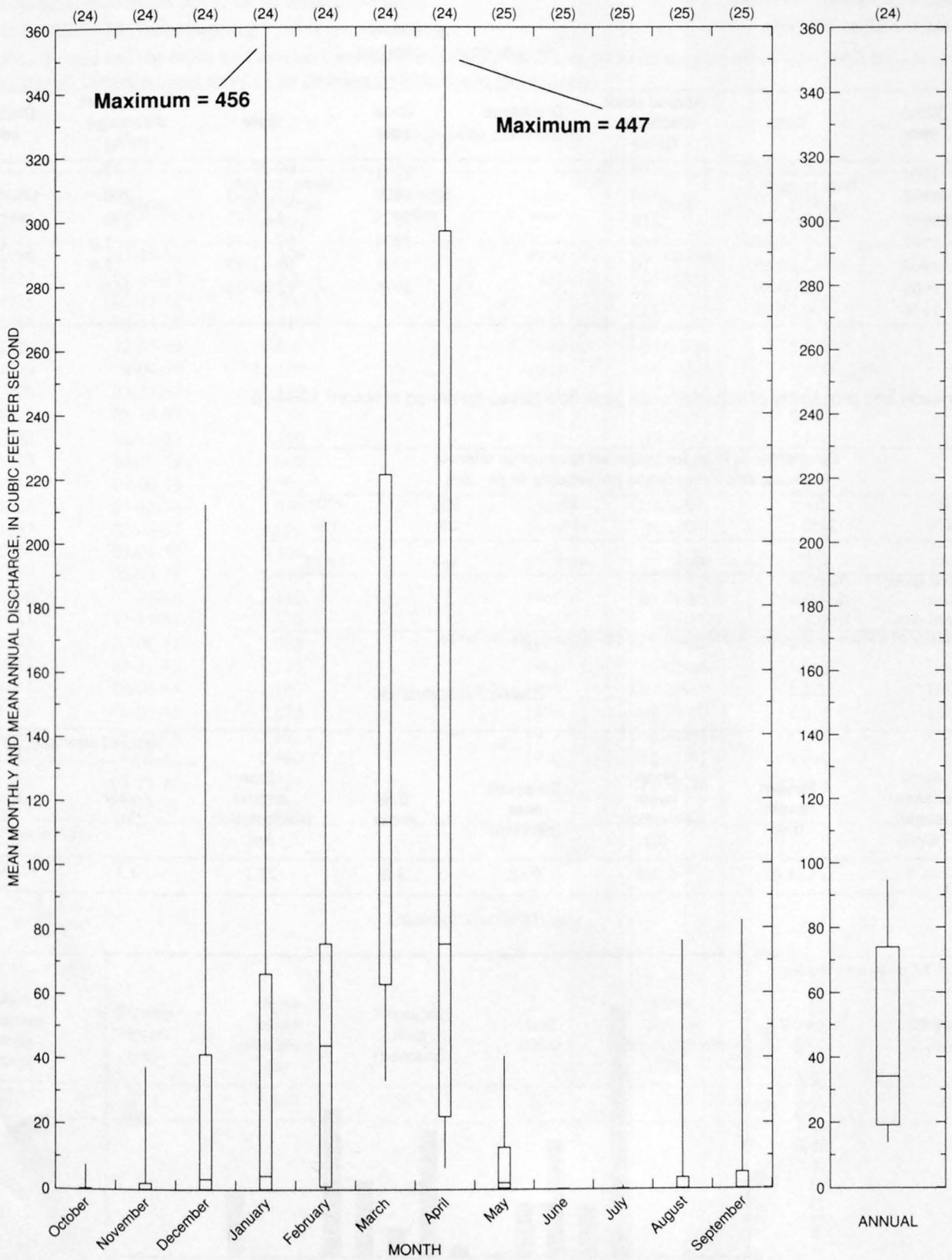
Reliability of values in column is uncertain, and potential errors are large.

09397500 CHEVELON CREEK BELOW WILDCAT CANYON NEAR WINSLOW, AZ--Continued





09397500 CHEVELON CREEK BELOW WILDCAT CANYON NEAR WINSLOW, AZ--Continued



09397800 BROOKBANK CANYON NEAR HEBER, AZ

LOCATION.--Lat 34°28'20", long 110°38'50", in SE$^1/_4$, sec.33, T.13 N., R.16 E., Navajo County, Hydrologic Unit 15020010, at Heber-Winslow Road, 4 mi northwest of Heber.

DRAINAGE AREA.--27.9 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-00-64	666		1971	09-29-71	78	
1965	01-07-65	139		1972	07-167-2	200	
1966	12-30-65	310		1973	10-19-72	390	
1967	12-07-66	140		1974	07-15-74	1.0	LT
1968	02-00-68	10		1975	08-11-75	2.0	ES
1969	03-00-69	32		1976	02-09-76	165	
1970	09-05-70	335					

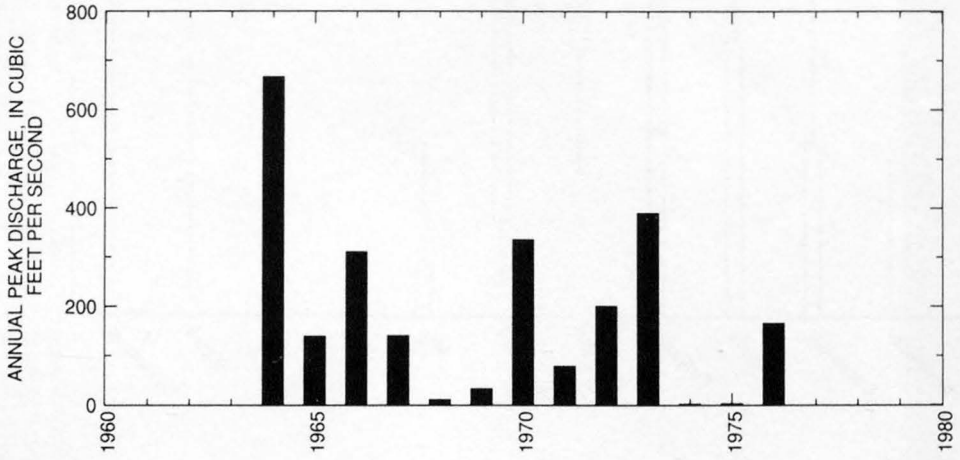
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
147	315	460	679	866	1,070
Weighted skew	(logs) =	-0.23			
Mean	(logs) =	2.15			
Standard dev.	(logs) =	0.41			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
65.5	11.6	6,950	99.0	3.0	22.1	2.3	5.0



09398000 CHEVELON CREEK NEAR WINSLOW, AZ

LOCATION.--Lat 34°55'35", long 110°31'51", in $SE^1/_4SW^1/_4$, sec.27, T.18 N., R.17 E., Navajo County, Hydrologic Unit 15020010, on right bank 3 mi upstream from mouth and 12 mi southeast of Winslow.

DRAINAGE AREA.--785 mi^2, of which 3.9 mi^2 is noncontributing.

REMARKS.--Storage and regulation by Chevelon Canyon Lake (capacity, 6,193 acre-ft) 57 mi upstream since June 1967. No known diversion above station. Chevelon Canal diverts 2 mi downstream from station for irrigation.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-19-16	9,500		1950	03-01-50	616	
1917	04-24-17	1,300		1951	08-30-51	7,200	
1918	03-13-18	6,200		1952	01-19-52	25,300	
1919	04-01-19	1,110		1953	03-12-53	650	
1920	12-05-19	9,000		1954	03-23-54	5,730	
1929	04-04-29	16,100		1955	06-135-5	1,800	
1930	03-27-30	519		1956	07-23-56	562	
1931	03-19-31	548		1957	01-09-57	8,680	
1932	02-10-32	3,100		1958	09-28-58	2,140	
1933	09-20-33	1,060		1959	08-14-59	1,320	
1934	00-00-34	2,700		1960	12-26-59	2,640	
1936	04-12-36	1,350		1961	07-30-61	500	
1937	02-08-37	1,820		1962	02-13-62	1,540	
1938	03-04-38	9,400		1963	08-21-63	1,620	
1939	08-03-39	2,410		1964	08-01-64	1,680	
1940	07-25-40	1,180		1965	01-08-65	13,100	
1941	03-15-41	1,630		1966	12-31-65	13,300	
1942	04-06-42	985		1967	12-07-66	8,890	
1943	03-11-43	1,330		1968	04-02-68	1,640	UR
1944	04-06-44	1,180		1969	01-2-669	5,120	UR
1945	08-04-45	2,620		1970	09-06-70	8,020	UR
1946	09-20-46	892		1971	08-24-71	4,150	UR
1947	08-04-47	2,460		1972	12-27-71	9,040	UR
1948	04-13-48	825		1979	12-18-78	[1]33,600	UR,HP
1949	04-14-49	1,150					

[1]Highest since 1923.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
27.7	77.1	6,440	70.0	3.0	18.4	2.1	4.2

09398000 CHEVELON CREEK NEAR WINSLOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1917-19, 1930-33, 1936-72

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	247	3.1	12	37	3.1	2.0
NOVEMBER	137	2.7	14	26	1.9	2.3
DECEMBER	347	2.8	37	76	2.1	6.1
JANUARY	663	2.6	58	135	2.3	9.6
FEBRUARY	338	2.7	64	89	1.4	10.6
MARCH	527	3.5	171	138	0.80	28.2
APRIL	733	3.9	181	188	1.0	29.9
MAY	211	2.2	23	39	1.7	3.7
JUNE	21	2.1	5.1	3.1	0.61	0.8
JULY	25	3.0	7.1	4.1	0.57	1.2
AUGUST	171	2.9	18	32	1.8	3.0
SEPTEMBER	182	2.5	15	31	2.0	2.5
ANNUAL	145	7.7	50	32	0.63	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1918-19, 1930-33, 1937-72

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	2.1	1.5	1.2	0.94	0.72	0.60
3	2.3	1.7	1.4	1.2	0.95	0.82
7	2.6	2.0	1.7	1.5	1.3	1.2
14	2.8	2.3	2.0	1.9	1.7	1.5
30	3.2	2.7	2.5	2.3	2.1	2.0
60	3.7	3.2	2.9	2.7	2.5	2.3
90	4.0	3.3	3.0	2.8	2.5	2.4
120	4.1	3.5	3.4	3.3	3.3	3.3
183	5.1	3.9	3.6	3.4	3.3	3.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916-20, 1929-34, 1936-67, 1968-72

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,360	5,860	9,670	16,800	24,200	33,800

WEIGHTED SKEW (LOGS)= 0.24
MEAN (LOGS)= 3.39
STANDARD DEV. (LOGS)= 0.46

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1917-19, 1930-33, 1936-72

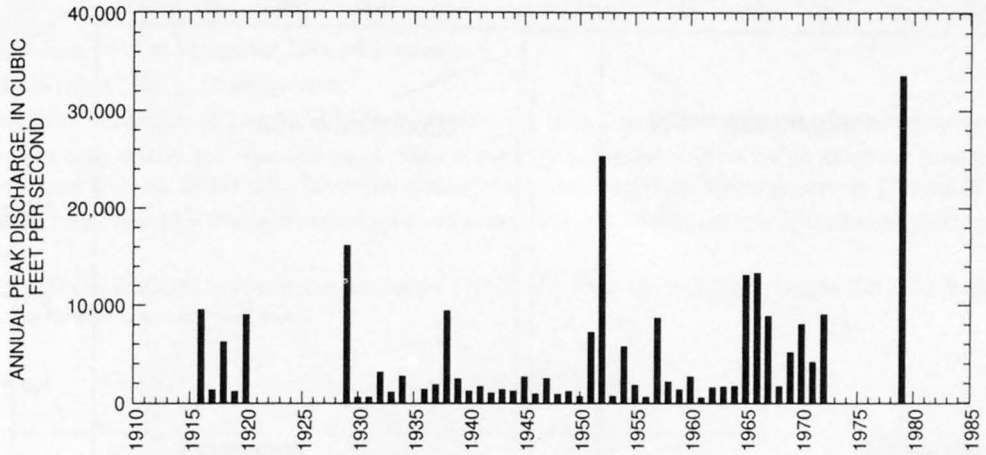
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	1,040	2,430	3,950	6,880	10,000	14,300
3	830	1,650	2,370	3,490	4,480	5,630
7	629	1,090	1,390	1,760	2,010	2,260
15	449	703	843	989	1,080	1,150
30	304	479	575	674	734	783
60	188	317	401	502	572	637
90	140	246	319	411	478	543

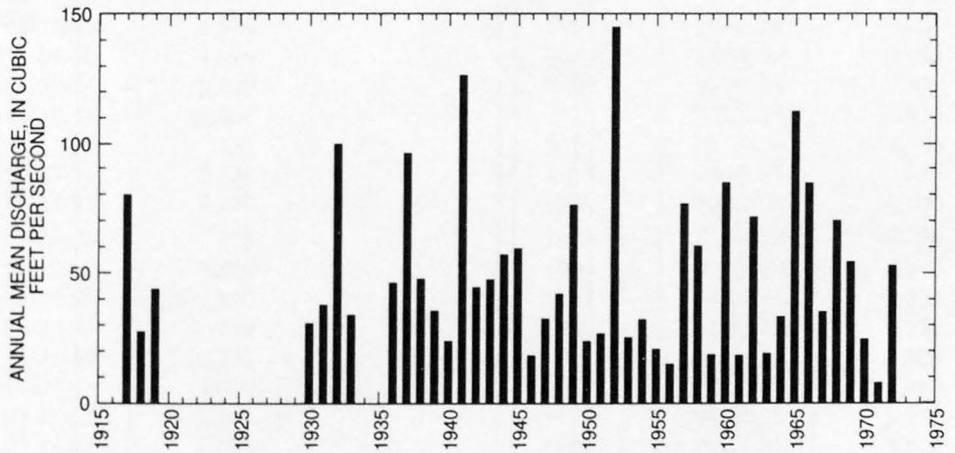
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1917-19, 1930-33, 1936-72

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
768	267	113	60	33	9.0	5.6	5.1	4.7	4.3	3.8	3.3	3.0	2.1	1.8	1.7	1.1

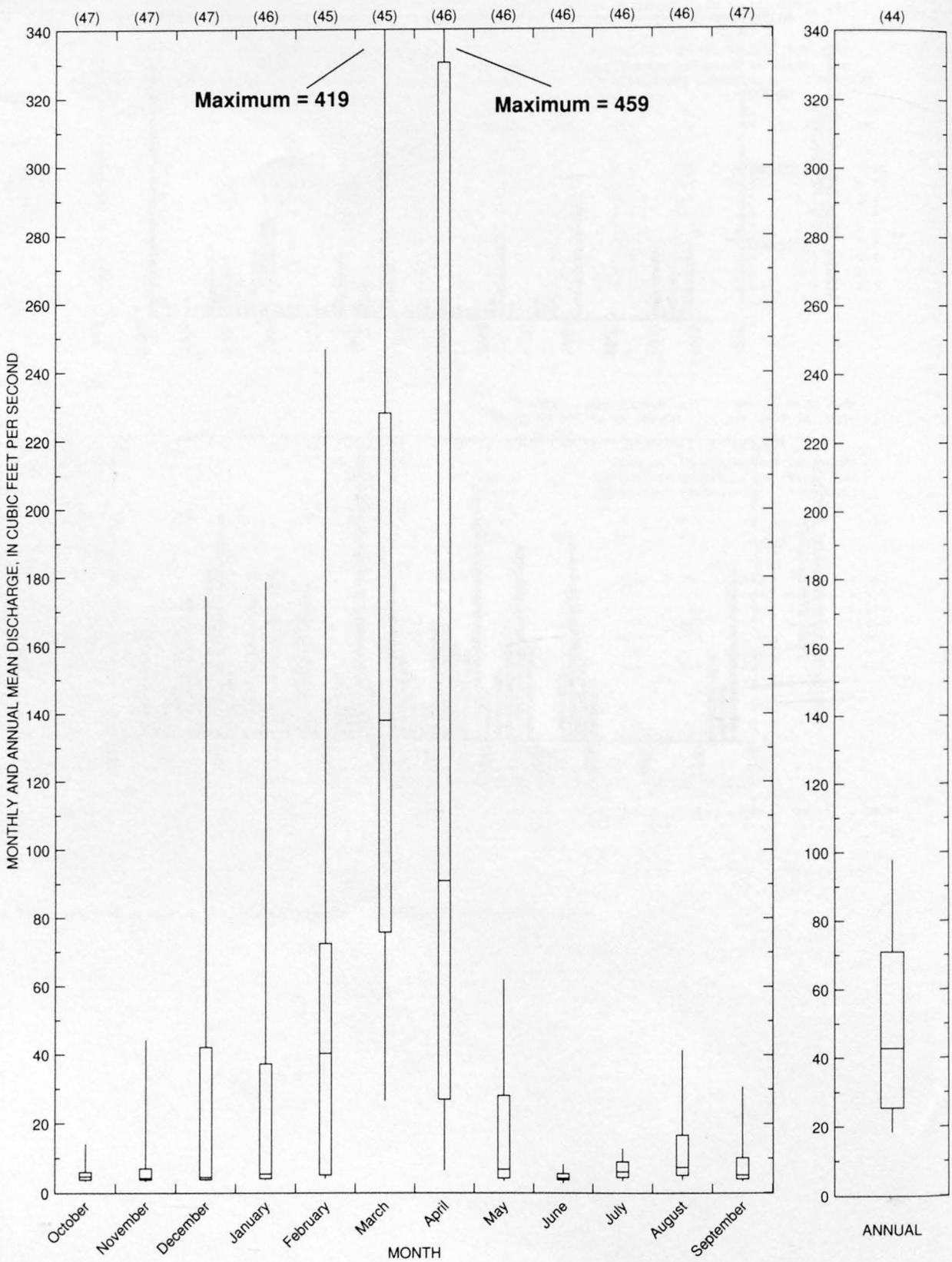
Reliability of values in column is uncertain, and potential errors are large.

09398000 CHEVELON CREEK NEAR WINSLOW, AZ--Continued





09398000 CHEVELON CREEK NEAR WINSLOW, AZ--Continued



09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ

LOCATION.--Lat 34°40'03", long 111°00'25", in $SW^1/_4SE^1/_4$ sec.19, T.15 N., R.13 E., Coconino County, Hydrologic Unit 15020008, in Apache-Sitgreaves National Forest, on right bank 2 mi downstream from Willow Creek and 30 mi southwest of Winslow.

DRAINAGE AREA.--317 mi^2.

PERIOD OF RECORD.--June 1947 to September 1991 (discontinued).

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,957 ft above sea level, from Topographic Division by photogrammetry.

REMARKS.--No estimated daily discharges. Records good. Flow is partially controlled by Blue Ridge Reservoir (usable capacity, 15,000 acre-ft) about 20 mi upstream. (See sta 09398300.) Diversion to East Verde River from Blue Ridge Reservoir. (See sta 09507580.)

AVERAGE DISCHARGE (unadjusted for diversion or storage).--44 years, 82.0 ft^3/s, 59,410 acre-ft/yr; median of yearly mean discharges, 56 ft^3/s, 40,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft^3/s Dec. 18, 1978, gage height, 22.32 ft, from rating curve extended above 6,000 ft^3/s; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1948	04-12-48	1,810		1971	08-27-71	1,180	UR
1949	04-15-49	1,990		1972	12-26-71	5,840	UR
1950	02-28-50	1,090		1973	10-20-72	8,190	UR
1951	08-29-51	8,090		1974	03-21-74	589	UR
1952	01-18-52	16,400		1975	04-26-75	920	UR
1953	03-11-53	497		1976	02-09-76	4,170	UR
1954	03-23-54	5,730		1977	04-09-77	353	UR
1955	06-14-55	1,220		1978	03-01-78	10,500	UR
1956	03-26-56	198		1979	12-18-78	[1]19,700	UR
1957	01-10-57	8,880		1980	02-20-80	8,140	UR
1958	03-22-58	2,920		1981	04-08-81	250	UR
1959	08-20-59	296		1982	03-12-82	5,230	UR
1960	12-25-59	2,770		1983	04-25-83	2,020	UR
1961	04-05-61	1,080		1984	12-27-83	2,130	UR
1962	02-13-62	2,240		1985	03-12-85	4,750	UR
1963	02-11-63	403		1986	11-26-85	2,570	UR
1964	04-16-64	1,210		1987	04-12-87	1,070	UR
1965	01-07-65	5,600	UR	1988	11-01-87	1,270	UR
1966	12-30-65	13,100	UR	1989	03-11-89	602	UR
1967	12-07-66	9,970	UR	1990	04-06-90	194	UR
1968	04-02-68	1,840	UR	1991	04-08-91	2,770	UR
1969	01-26-69	5,550	UR	1993	01-08-93	29,100	UR
1970	09-06-70	15,800	UR				

[1]Highest since 1939

Discharge rating table developed March 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	133	23.0	20,300
8.0	890	26.0	27,260
11.0	2,760	29.0	35,360
14.0	5,600	32.0	44,630
17.0	9,750	35.0	55,110
20.0	14,600	39.0	71,000

09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
26.0	41.0	7,100	100	3.0	25.8	2.6	4.7

09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1948-91

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	359	0.00	17	61	3.7	1.7
NOVEMBER	202	0.00	24	50	2.1	2.4
DECEMBER	720	0.00	71	148	2.1	7.2
JANUARY	576	0.00	60	129	2.1	6.1
FEBRUARY	721	0.00	89	138	1.6	9.0
MARCH	1,250	4.0	253	252	1.0	25.6
APRIL	1,330	0.00	370	372	1.0	37.5
MAY	1,050	0.00	76	176	2.3	7.7
JUNE	39	0.00	1.3	5.9	4.4	0.1
JULY	4.3	0.00	0.24	0.88	3.6	0.0
AUGUST	228	0.00	15	47	3.1	1.5
SEPTEMBER	218	0.00	11	40	3.7	1.1
ANNUAL	279	5.7	82	67	0.82	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-91

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.75	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1948-91

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,360	6,820	11,700	20,400	29,000	39,700

WEIGHTED SKEW (LOGS)= -0.15
MEAN (LOGS)= 3.36
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-91

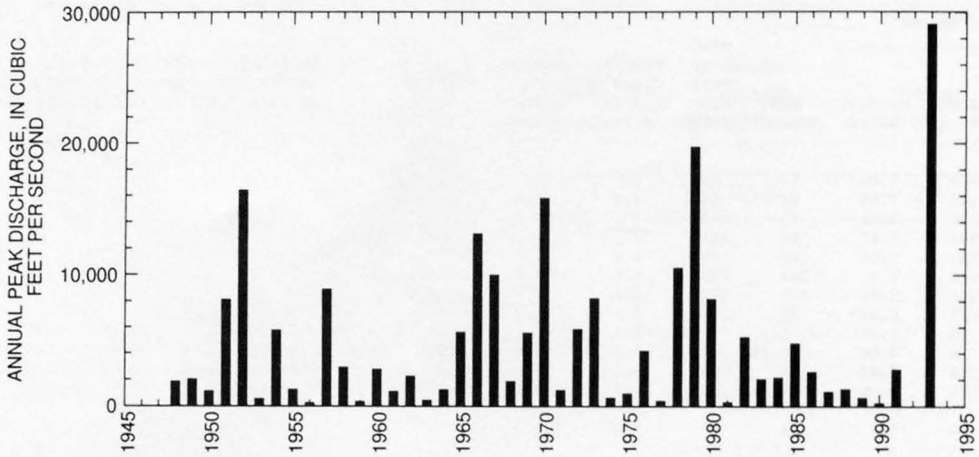
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	1,580	3,730	5,620	8,440	10,800	13,400
3	1 220	2,590	3,650	5,080	6,160	7,250
7	893	1,680	2,210	2,840	3,270	3,660
15	605	1,120	1,470	1,910	2,210	2,510
30	420	825	1,140	1,580	1,920	2,280
60	267	548	777	1,100	1,370	1,650
90	203	428	613	878	1,090	1,320

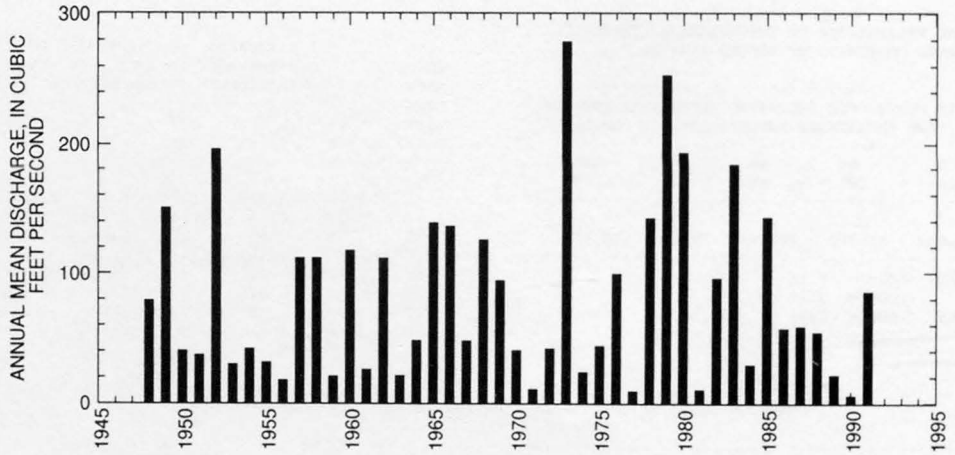
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-91

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,360	485	186	99	59	14	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

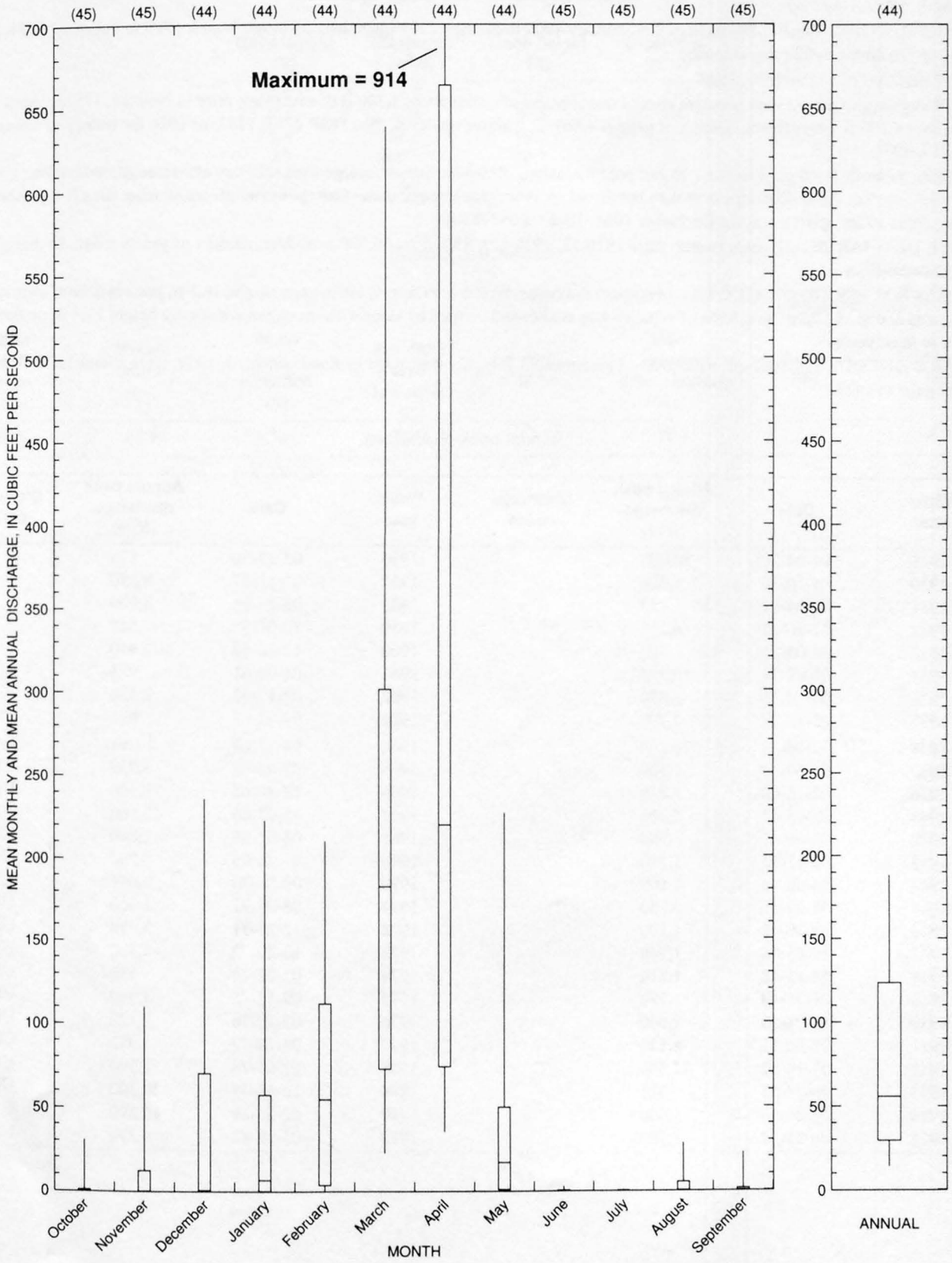
Reliability of values in column is uncertain, and potential errors are large.

09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ--Continued





09398500 CLEAR CREEK BELOW WILLOW CREEK, NEAR WINSLOW, AZ--Continued



09399000 CLEAR CREEK NEAR WINSLOW, AZ

LOCATION.--Lat 34°58'10", long 110°38'40", in $SE^1/_4SE^1/_4$ sec.9, T.18 N., R.16 E., Navajo County, Hydrologic Unit 15020008, on right bank 10 ft downstream from bridge on State Highway 99, 1.5 mi upstream from mouth, and 5 mi southeast of Winslow.

DRAINAGE AREA.--607 mi^2.

PERIOD OF RECORD.--June to December 1906, January 1907 to January 1909 (gage heights only), March 1929 to February 1934, September 1935 to December 1982 (discontinued).

REVISED RECORDS.--WSP 859: 1929.

GAGE.--Water-stage recorder with concrete control and submerged orifice about 3,300 ft downstream; prior to Nov. 20, 1982, control was diversion dam 1,200 ft downstream. Datum of gage is 4,861.32 ft above sea level. See WSP 1713, 1733, or 1926 for history of changes prior to July 10, 1931.

REMARKS.--Records good prior to Nov. 20 and poor thereafter. Records show discharge over spillway and through outlet tube. Prior to Nov. 20, 1982, records show discharge over dam but do not show leakage through dam. Storage in and diversion from Blue Ridge Reservoir near Pine, about 50 mi upstream, since December 1964. (See sta 09398300.)

AVERAGE DISCHARGE.--51 years (water years 1930-33, 1936-82), 83.5 ft^3/s, 60,500 acre-ft/yr; median of yearly mean discharges, 60 ft^3/s, 43,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s Apr. 4, 1929, gage height, 18.1 ft, present datum, from rating curve extended above 13,500 ft^3/s on basis of velocity-area studies and verified by slope-area measurement at gage height 13.4 ft; no flow for many days in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floodmarks 3 ft higher than stage of flood of Apr. 4, 1929, were found 1,850 ft downstream from gage in 1929.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1929	04-04-29	50,000		1956	03-27-56	173	
1930	04-10-30	1,080		1957	01-11-57	9,150	
1931	03-24-31	850		1958	03-23-58	2,920	
1932	02-10-32	6,100		1959	10-01-58	542	
1933	04-05-33	780		1960	12-26-59	2,440	
1934	00-00-34	6,300		1961	04-06-61	925	
1936	04-14-36	1,680		1962	02-13-62	2,330	
1937	03-17-37	2,790		1963	09-02-63	881	
1938	03-04-38	26,200		1964	04-17-64	1,060	
1939	04-04-39	1,500		1965	01-08-65	5,930	UR
1940	08-15-40	1,840		1966	12-30-65	18,500	UR
1941	03-15-41	3,300		1967	12-07-66	12,500	UR
1942	04-06-42	1,940		1968	04-02-68	1,840	UR
1943	03-11-43	1,500		1969	01-26-69	5,700	UR
1944	04-08-44	1,500		1970	09-06-70	9,650	UR
1945	04-22-45	2,230		1971	08-05-71	1,460	UR
1946	09-20-46	1,100		1972	12-27-71	5,480	UR
1947	11-25-46	1,740		1973	10-20-72	9,350	UR
1948	04-13-48	1,810		1974	03-22-74	538	UR
1949	04-16-49	1,970		1975	09-12-75	3,940	UR
1950	03-01-50	1,000		1976	02-10-76	2,120	UR
1951	08-30-51	8,530		1977	04-10-77	372	UR
1952	01-19-52	22,500		1978	03-01-78	12,900	UR
1953	08-27-53	695		1979	12-19-78	36,300	UR
1954	03-24-54	5,800		1980	02-20-80	10,800	UR
1955	08-25-55	1,080		1982	03-12-82	6,330	UR

09399000 CLEAR CREEK NEAR WINSLOW, AZ--Continued

Discharge rating table developed October 1983

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.8	2.0	10.0	519
9.2	12.5	10.3	933
9.4	51.7	10.5	1,200
9.7	208	10.7	1,500
8.8	2.0	10.0	519

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
24.1	85.9	6,500	66.0	3.0	18.7	2.1	4.0

09399000 CLEAR CREEK NEAR WINSLOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1930-33, 1936-78, 1980-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	348	0.00	13	52	4.2	1.3
NOVEMBER	174	0.00	15	34	2.3	1.6
DECEMBER	480	0.00	38	98	2.6	4.0
JANUARY	784	0.00	54	142	2.6	5.7
FEBRUARY	780	0.00	87	162	1.9	9.1
MARCH	1,250	0.00	256	277	1.1	26.8
APRIL	1,290	0.00	372	344	0.92	39.0
MAY	1,090	0.00	93	190	2.1	9.7
JUNE	25	0.00	1.5	4.0	2.7	0.2
JULY	18	0.00	1.7	3.3	2.0	0.2
AUGUST	207	0.00	11	37	3.3	1.2
SEPTEMBER	192	0.00	12	34	2.9	1.2
ANNUAL	271	6.5	79	65	0.82	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1930-33, 1937-78, 1980-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.04	0.00	0.00	0.00	0.00	0.00
120	0.36	0.00	0.00	0.00	0.00	0.00
183	0.84	0.05	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1929-34, 1936-64, 1965-82

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,790	7,750	13,700	26,000	39,800	59,200

WEIGHTED SKEW (LOGS)= 0.33
MEAN (LOGS)= 3.47
STANDARD DEV. (LOGS)= 0.51

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-33, 1936-78, 1980-82

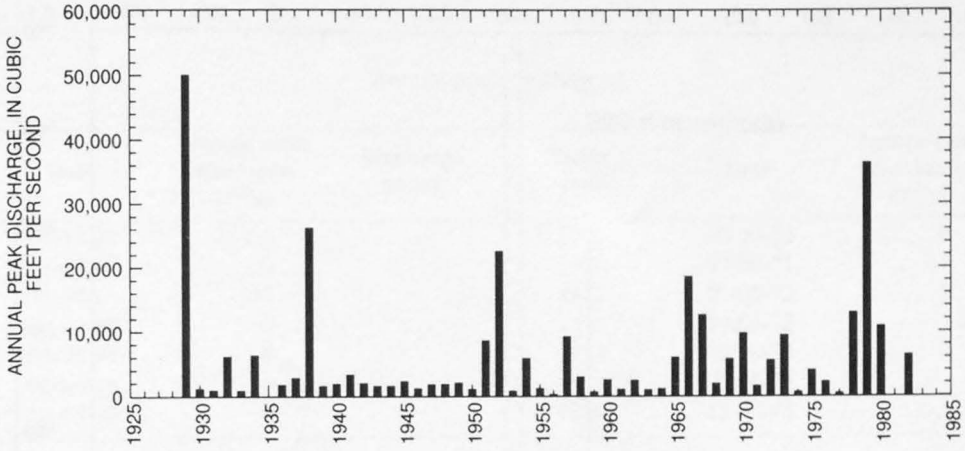
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,520	3,650	5,760	9,370	12,800	17,000
3	1,200	2,440	3,420	4,780	5,850	6,960
7	900	1,660	2,160	2,750	3,140	3,490
15	637	1,160	1,490	1,880	2,140	2,380
30	446	855	1,140	1,490	1,740	1,980
60	282	577	796	1,080	1,300	1,510
90	209	446	633	886	1,080	1,280

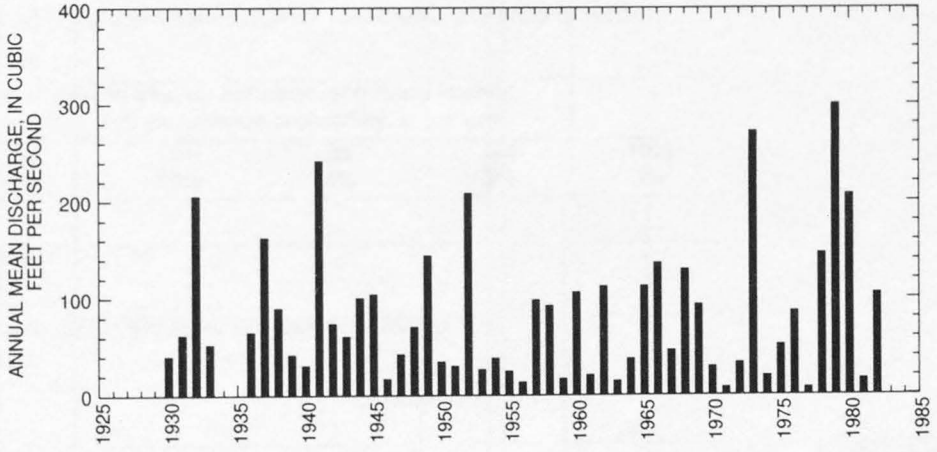
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-33, 1936-78, 1980-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,320	482	199	89	42	7.0	2.1	0.96	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

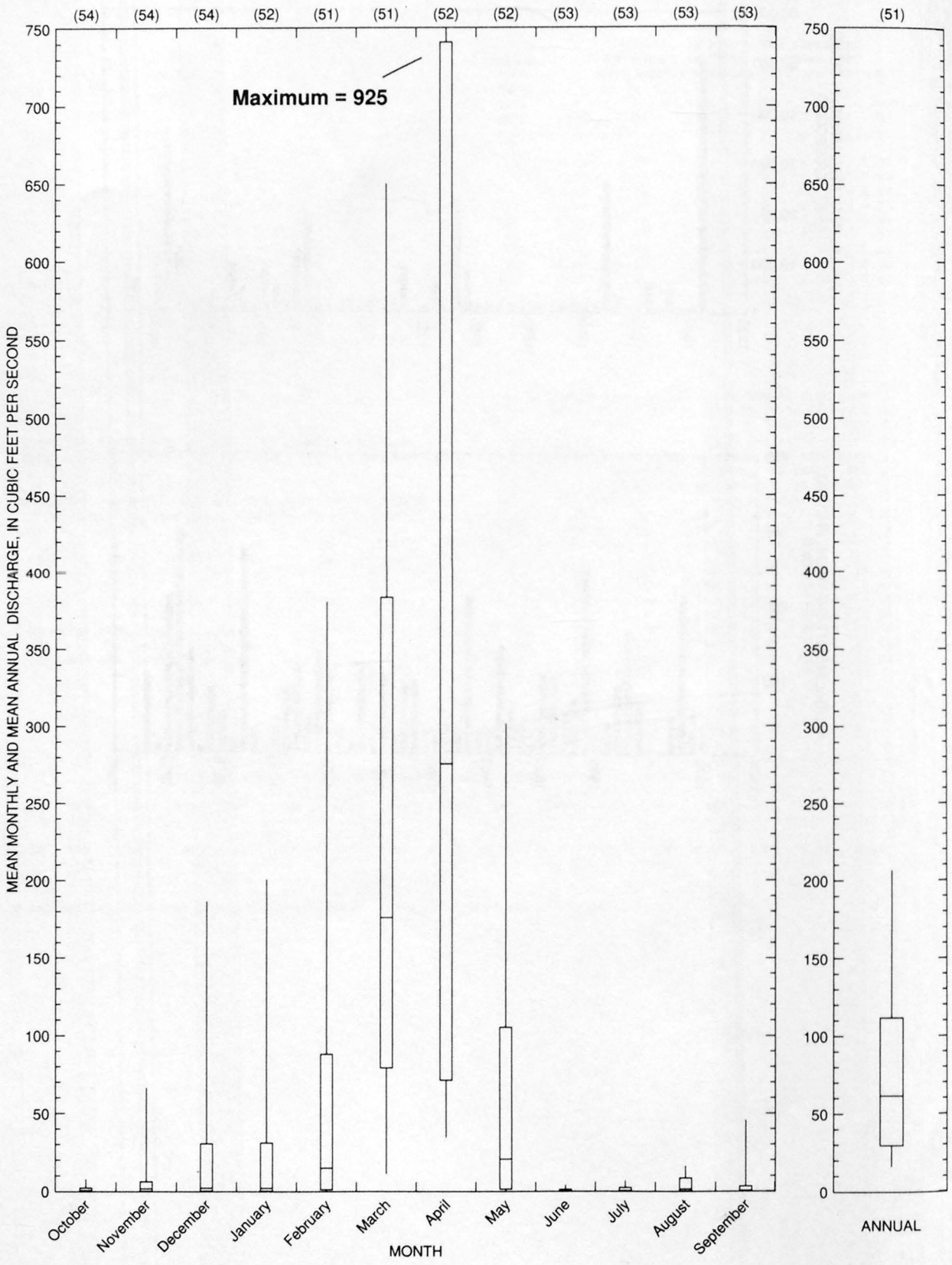
Reliability of values in column is uncertain, and potential errors are large.

09399000 CLEAR CREEK NEAR WINSLOW, AZ--Continued





09399000 CLEAR CREEK NEAR WINSLOW, AZ--Continued



09399250 JACKS CANYON TRIBUTARY NO. 2 NEAR WINSLOW, AZ

LOCATION.--Lat 34°45'56", long 111°00'44", in $NE^1/_4NW^1/_4$, sec.19, T.16 N., R.13 E., Coconino County, Hydrologic Unit 15020008, at State Highway 87, 27 mi soutwest of Winslow.

DRAINAGE AREA.--31.8 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-21-63	9,330		1970	00-00-70	0	
1964	00-00-64	0		1971	07-00-71	67	
1965	07-10-65	544		1972	00-00-72	0	
1966	00-00-66	0		1973	10-00-72	2.0	LT
1967	00-00-67	0		1974	00-00-74	0	
1968	00-00-68	0		1975	00-00-75	([1])	
1969	00-00-69	0		1979	12-18-78	[2]67	HP

[1]Discharge unknown.
[2]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record

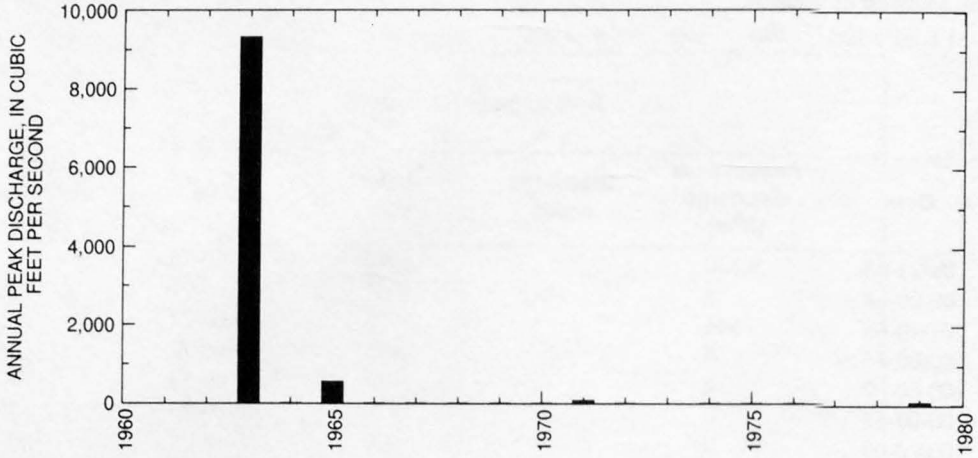
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
71.6	10.8	6,530	71.0	3.0	19.2	2.1	3.3

09399250 JACKS CANYON TRIBUTARY NO. 2 NEAR WINSLOW, AZ--Continued



09400100 GANADO WASH TRIBUTARY NEAR GANADO, AZ

LOCATION.--Lat 35°42'40", long 109°29'50", Apache County, Hydrologic Unit 150200011, at State Highway 264, 2.4 mi east of Ganado.
DRAINAGE AREA.--7.85 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-09-63	231		1970	09-06-70	1.0	ES
1964	08-26-64	620		1971	08-30-71	35	ES
1965	07-17-65	1,680		1972	06-00-72	2.0	
1966	00-00-66	150		1973	00-00-73	287	
1967	09-00-67	456		1974	07-16-74	548	
1968	00-00-68	280		1975	07-12-75	418	
1969	07-26-69	10	ES	1976	00-00-76	0	

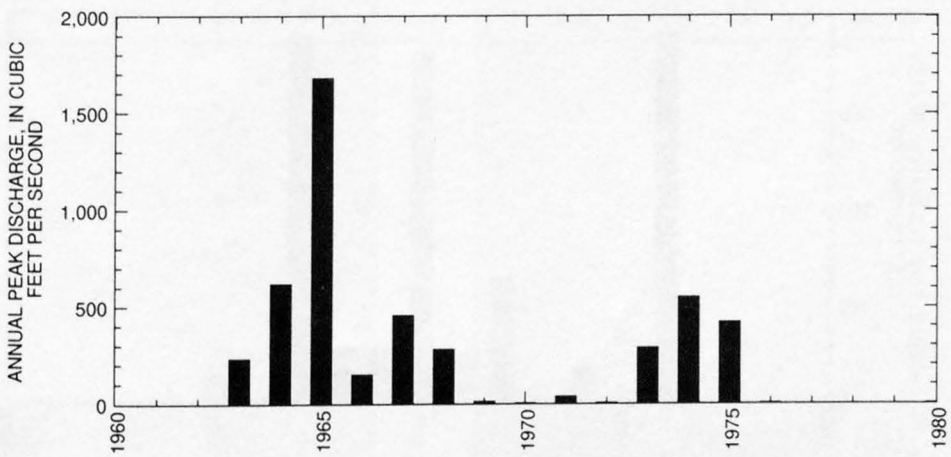
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
238	533	819	1,300	1,760	2,320
Weighted skew	(logs) =	0.10			
Mean	(logs) =	2.38			
Standard dev.	(logs) =	0.41			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
55.5	4.1	6,770	6.8	3.0	11.8	1.4	2.9



09400200 STEAMBOAT WASH TRIBUTARY NEAR GANADO, AZ

LOCATION.--Lat 35°45'50", long 109°48'00", Apache County, Hydrologic Unit 150200011, at State Highway 264, 15 mi west of Ganado.
DRAINAGE AREA.--0.32 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-00-63	1.0		1970	09-05-70	360	
1964	08-13-64	383		1971	10-02-70	55	
1965	09-00-65	1.0		1972	06-00-72	35	
1966	08-00-66	35		1973	10-19-72	380	
1967	09-06-67	5.0		1974	08-00-74	5.0	
1968	08-00-68	130		1975	09-07-75	28	
1969	07-19-69	49					

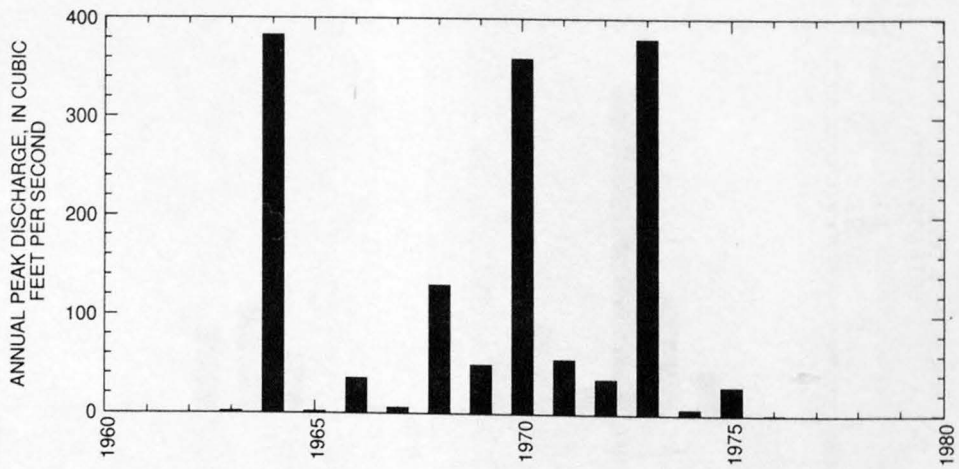
Magnitude and probability of instantaneous peak flow based on period of record 1963-75

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
46.6	167	322	648	1,020	1,520
Weighted skew	(logs) =	-0.04			
Mean	(logs) =	1.66			
Standard dev.	(logs) =	0.66			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
100	1.1	6,750	72.0	1.0	12.1	1.5	2.9



09400290 TESHBITO WASH TRIBUTARY NEAR HOLBROOK, AZ

LOCATION.--Lat 35°28'50", long 110°05'15", in SW$^1/_4$ sec.14, T.24 N., R.21 E., Navajo County, Hydrologic Unit 15020011, at State Highway 77, 7 mi north of Bita Hochee Trading Post, and 37 mi north of Holbrook.

DRAINAGE AREA.--20.0 mi^2, of which 10.7 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	00-00-60	([1])	HP	1970	09-05-70	890	
1963	00-00-63	700		1971	08-31-71	660	
1964	08-00-64	870		1972	09-00-72	30	ES
1965	07-00-65	787		1973	10-19-72	740	
1966	08-01-66	100		1974	08-00-74	370	
1967	08-30-67	600		1975	07-15-75	330	
1968	08-11-68	61		1976	00-00-76	160	
1969	09-12-69	640					

[1]Discharge unknown.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

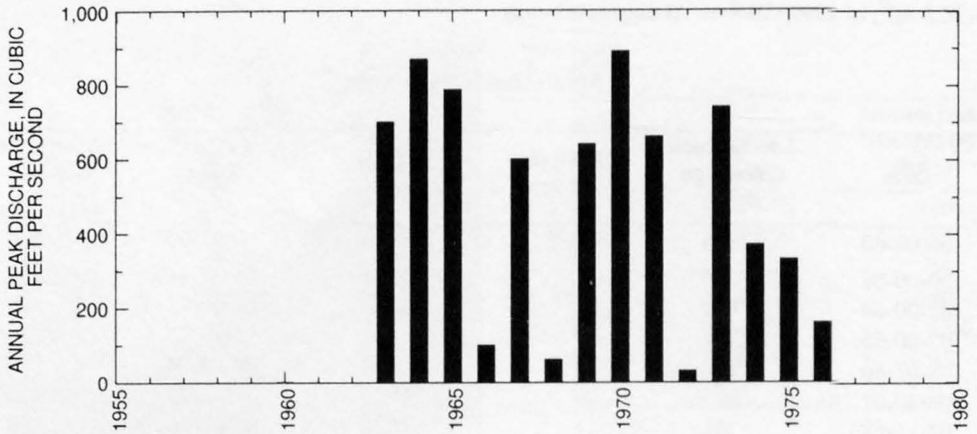
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
371	874	1,310	1,950	2,470	3,030
Weighted skew	(logs) =	-0.46			
Mean	(logs) =	2.53			
Standard dev.	(logs) =	0.48			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
93.7	6.4	6,420	43.0	3.0	8.2	1.3	2.9

09400290 TESHBITO WASH TRIBUTARY NEAR HOLBROOK, AZ--Continued



09400300 TESHBITO WASH NEAR HOLBROOK, AZ

LOCATION.--Lat 35°26'55", long 110°04'05", in NW$^1/_4$ sec.36, T.24 N., R.21 E., Navajo County, Hydrologic Unit 15020011, at State Highway 77, 4.0 mi north of Bita Hochee Trading Post, 35 mi north of Holbrook.

DRAINAGE AREA.--60.3 mi^2, of which 10.7 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-06-63	1,220		1970	09-05-70	950	
1964	08-13-64	514		1971	08-00-71	1,280	
1965	07-20-65	374		1972	00-00-72	68	
1966	08-01-66	1,080		1973	10-19-72	628	
1967	00-00-67	1,580		1974	08-00-74	256	
1968	08-11-68	540		1975	07-15-75	700	
1969	09-12-69	550		1976	00-00-76	100	

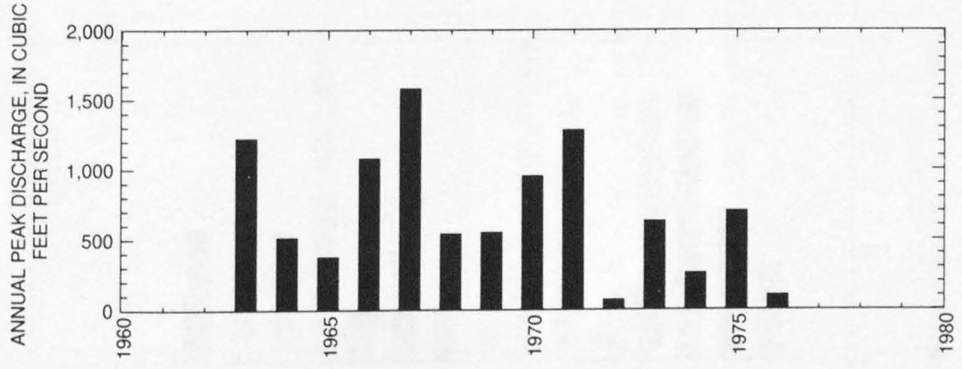
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
653	1,050	1,340	1,720	2,020	2,320
Weighted skew	(logs) =	-0.14			
Mean	(logs) =	2.81			
Standard dev.	(logs) =	0.25			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
57.7	10.4	6,280	16.0	3.0	9.2	1.3	2.9



09400530 COW CANYON NEAR WINSLOW, AZ

LOCATION.--Lat 35°06'00", long 110°59'15", in SW$^1/_4$ sec.29, T.20 N., R.13 E., Coconino County, Hydrologic Unit 15020008, at U.S. High 66, 17 mi west of Winslow.

DRAINAGE AREA.--7.53 mi^2, of which 3.96 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	90	ES	1970	00-00-70	55	
1963	08-30-63	140		1971	08-00-71	102	
1964	07-30-64	253		1972	07-16-72	20	
1965	00-00-65	0		1973	10-00-72	61	
1966	00-00-66	0.1	LT	1974	00-00-74	0	
1967	00-00-67	192		1975	09-18-75	8.0	
1968	00-00-68	82		1976	00-00-76	122	
1969	12-02-68	1.0	LT				

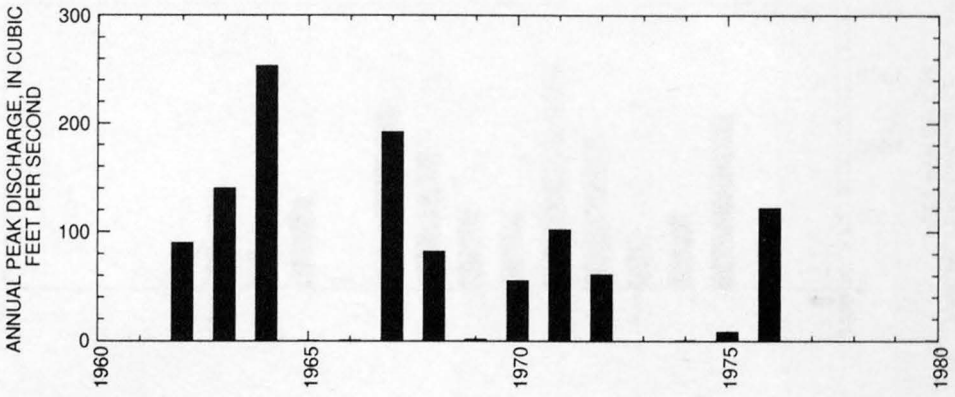
Magnitude and probability of instantaneous peak flow based on period of record 1962-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
64.8	129	181	257	319	387
Weighted skew	(logs) =	-0.23			
Mean	(logs) =	1.80			
Standard dev.	(logs) =	0.37			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
61.8	4.1	5,380	0.0	3.0	10.0	1.4	2.9



09400560 ORAIBI WASH TRIBUTARY NEAR ORAIBI, AZ

LOCATION.--Lat 35°52'20", long 110°33'20", in SW$^1/_4$ sec.31, T.29 N., R.17 E., Navajo County, Hydrologic Unit 15020012, at State Highway 264, 3.5 mi east of Oraibi.

DRAINAGE AREA.--1.78 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	96		1970	09-05-70	382	
1964	07-31-64	142		1971	00-00-71	305	
1965	09-19-65	383		1972	07-00-72	20	
1966	00-00-66	112		1973	10-19-72	310	
1967	00-00-67	65		1974	07-19-74	90	
1968	00-00-68	7.0		1975	09-07-75	100	
1969	07-19-69	135		1976	00-00-76	1.0	ES

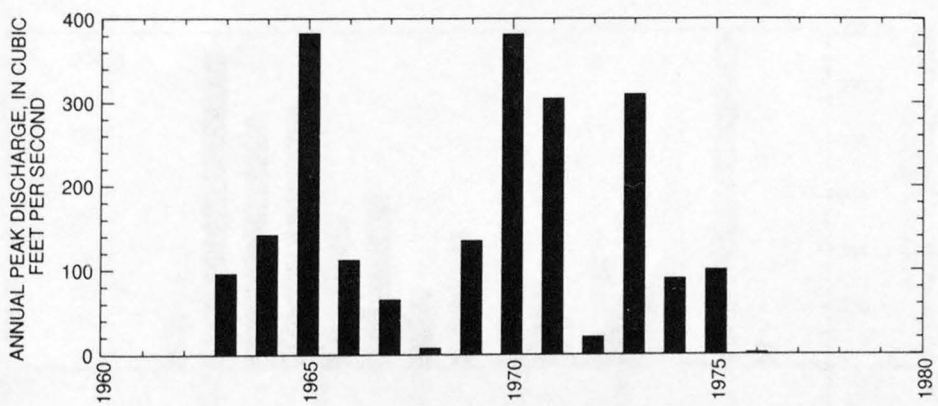
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
124	240	339	490	622	770
Weighted skew	(logs) =	-0.00			
Mean	(logs) =	2.09			
Standard dev.	(logs) =	0.34			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
105	2.0	6,020	38.0	3.0	10.2	1.3	2.8



09400565 POLACCA WASH TRIBUTARY NEAR CHINLE, AZ

LOCATION.--Lat 36°02'50", long 110°04'50", Navajo County, Hydrologic Unit 15020013, at Navajo Highway No. 4, 9 mi east of Pinon, and 3 mi southwest of Chinle.

DRAINAGE AREA.--6.45 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-20-64	7.0	ES	1971	08-26-71	610	
1965	09-19-65	247		1972	00-00-72	540	
1966	00-00-66	43		1973	10-19-72	940	
1967	09-00-67	295		1974	07-21-74	900	
1968	08-00-68	20	ES	1975	09-07-75	1,130	
1969	09-11-69	485		1976	00-00-76	180	
1970	00-00-70	275					

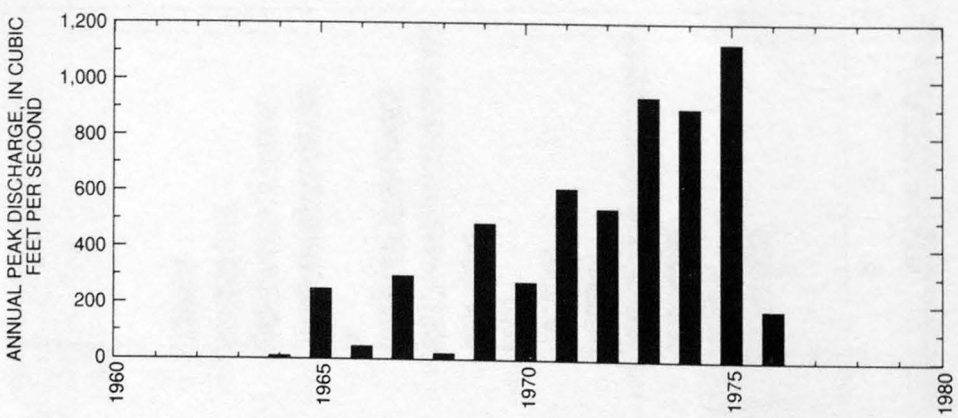
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
361	708	995	1,420	1,770	2,150
Weighted skew	(logs) =	-0.17			
Mean	(logs) =	2.55			
Standard dev.	(logs) =	0.36			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
160	5.7	6,890	78.0	1.0	12.3	1.5	2.9



09400580 CASTLE BUTTE WASH NEAR WINSLOW, AZ

LOCATION.--Lat 35°19'30", long 110°25'20", in SW$^1/_4$ sec.10, T.22 N., R.18 E., Navajo County, Hydrologic Unit 15020014, at State Highway 87, 26 mi northwest of Winslow.

DRAINAGE AREA.--5.57 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-09-64	101		1971	08-00-71	127	
1965	07-00-65	707		1972	09-18-72	280	
1966	00-00-66	5.0	ES	1973	10-19-72	215	
1967	00-00-67	0		1974	07-17-74	2.0	ES
1968	00-00-68	0		1975	07-15-75	860	
1969	10-04-68	1.0	LT	1976	00-00-76	58	
1970	09-05-70	117					

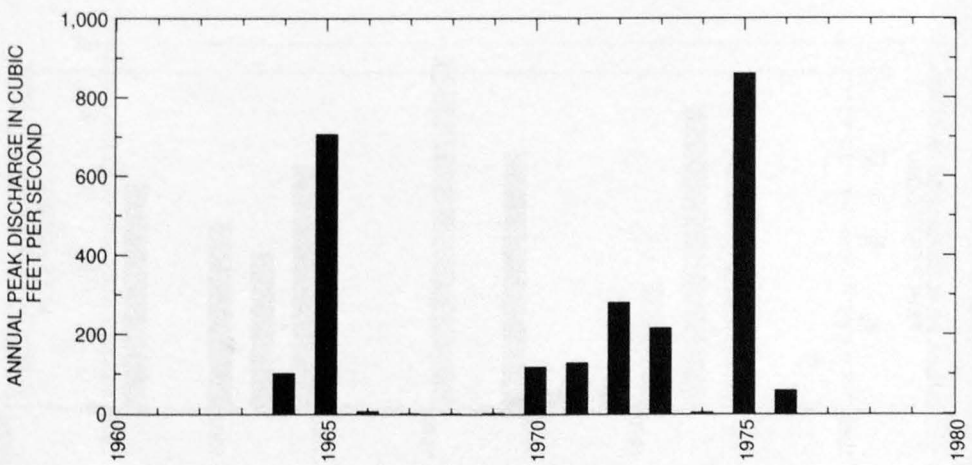
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
86	289	536	1,020	1,540	2,220
Weighted skew	(logs) =	-0.12			
Mean	(logs) =	1.92			
Standard dev.	(logs) =	0.64			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
83.8	3.2	5,820	0.0	1.0	8.6	1.3	2.7



09400590 RIO DE FLAG AT HIDDEN HOLLOW ROAD, AT FLAGSTAFF, AZ

LOCATION.--Lat 35°14'31", long 111°41'02", in $SW^1/_4SW^1/_4$ sec.32, T.22 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at Hidden Hollow Road, 1.4 mi northwest of the Museum of Northern Arizona, and 3.4 mi northwest of downtown Flagstaff.

DRAINAGE AREA.--31.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	08-03-70	2.0	ES	1977	00-00-77	1.0	LT
1971	08-00-71	0.1	LT	1978	04-00-78	144	
1972	12-26-71	11		1979	05-00-79	93	
1973	04-28-73	153		1980	02-20-80	110	
1974	00-00-74	0		1981	00-00-81	1.0	ES
1975	00-00-75	0		1982	03-12-82	133	
1976	00-00-76	1.0	LT				

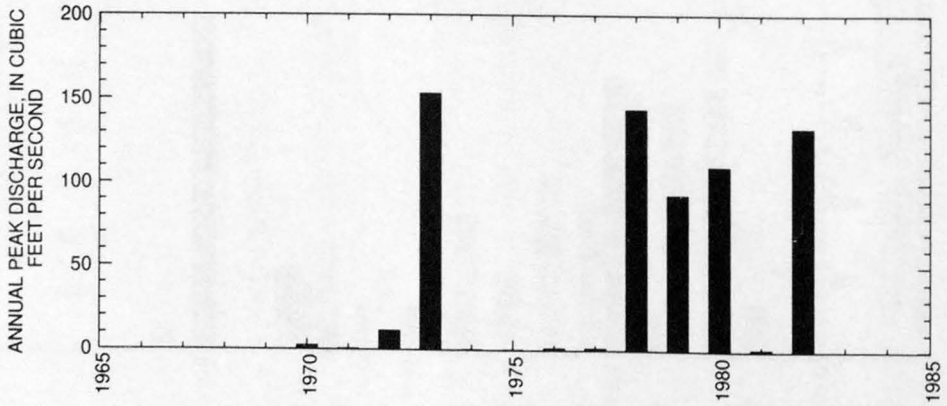
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probability, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
129	8.1	8,130	78.0	3.0	25.4	2.3	4.5



09400595 SCHULTZ CANYON AT FLAGSTAFF, AZ

LOCATION.--Lat 35°13'37", long 111°39'29", in $SE^1/_4SW^1/_4$ sec.4, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at U.S. Highway 180, 0.6 mi south of the Museum of Northern Arizona in Flagstaff.

DRAINAGE AREA.--6.09 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	00-00-70	0		1976	00-00-76	0	
1971	00-00-71	0		1977	00-00-77	3.0	LT
1972	00-00-72	0		1978	07-06-78	17	
1973	04-28-73	48		1979	03-00-79	41	
1974	00-00-74	0		1980	03-00-80	35	
1975	00-00-75	0					

Magnitude and probability of instantaneous peak flow based on period of record

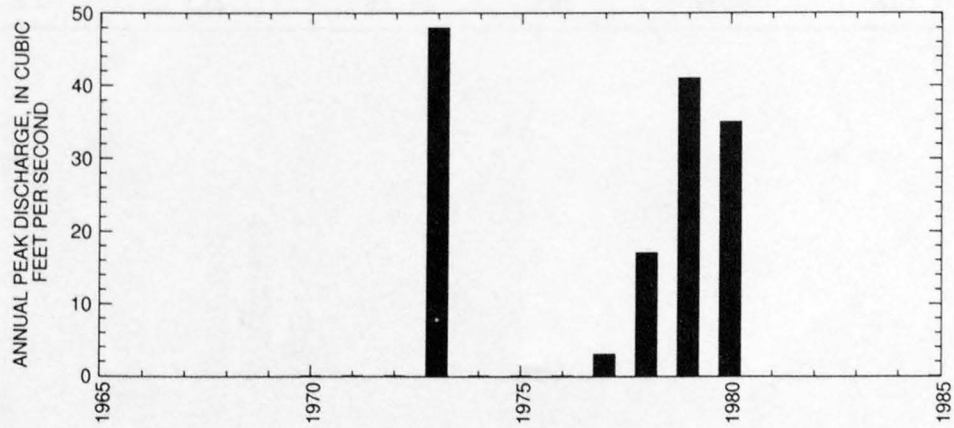
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---

Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
296	5.8	8,060	89.0	3.0	21.9	2.1	4.0



09400600 RIO DE FLAG AT FLAGSTAFF, AZ

LOCATION.--Lat 35°13'18", long 111°39'24", in $NW^1/_4NE^1/_4$ sec.9, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at west side of Crescent Drive in Flagstaff.

DRAINAGE AREA.--51.0 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1956	00-00-56	0	C	1974	04-03-74	3.0	LT,C
1957	00-00-57	0	C	1975	04-00-75	10	ES,C
1958	04-20-58	56	C	1976	02-09-76	35	C
1959	00-00-59	0	C	1977	05-15-77	8.5	KR,C
1960	03-24-60	11	C	1978	04-00-78	128	C
1970	08-03-70	10	ES,C	1979	05-00-79	90	C
1971	09-30-71	10	LT,C	1980	07-00-80	104	C
1972	00-00-72	0	C	1981	04-00-81	14	ES,C
1973	04-28-73	235	C	1982	03-12-82	240	C

Magnitude and probability of instantaneous peak flow based on period of record 1956-60, 1970-82

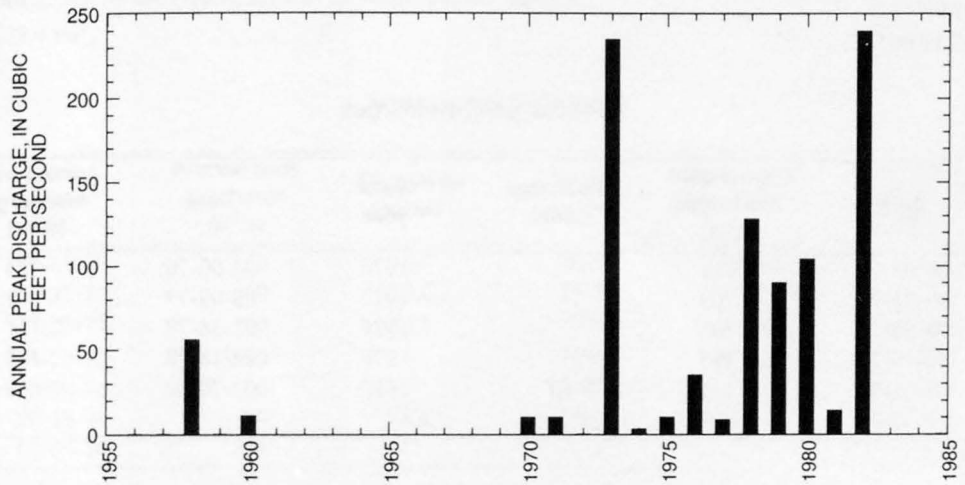
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
17.2	74.5	167	340	557	861
Weighted skew	(logs) =	-0.13			
Mean	(logs) =	1.22			
Standard dev.	(logs) =	0.77			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
106	10.8	8,050	76.0	3.0	25.3	2.2	4.3

09400600 RIO DE FLAG AT FLAGSTAFF, AZ--Continued



09400650 SINCLAIR WASH AT FLAGSTAFF, AZ

LOCATION.--Lat 35°09'50", long 111°40'48", in $NW^1/_4NW^1/_4$ sec.32, T.21 N., R.7 E., Coconino County, at Holmes Avenue in the community of Palmerville at Flagstaff.

DRAINAGE AREA.--8.11 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	09-05-70	[1]401		1976	04-00-76	44	
1971	07-21-71	62		1977	08-09-77	23	
1972	12-28-71	105		1978	02-28-78	37	
1973	10-19-72	135		1979	12-18-78	295	
1974	08-01-74	1.0	LT	1980	02-20-80	70	
1975	10-30-74	74					

[1]Highest since 1944.

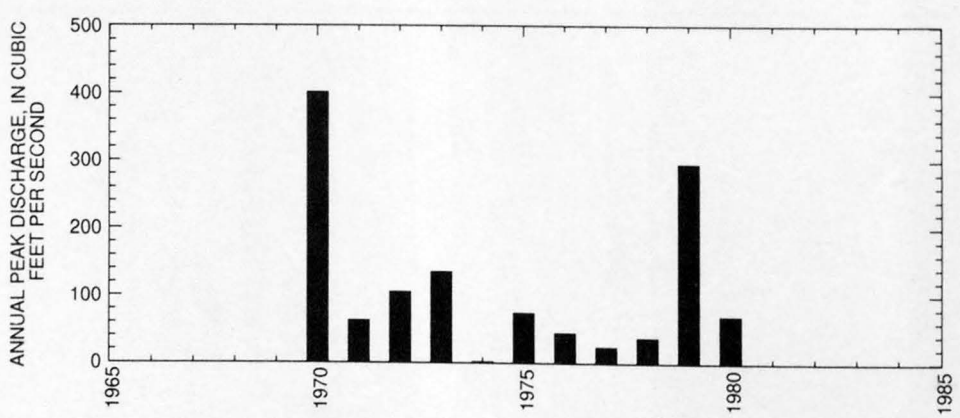
Magnitude and probability of instantaneous peak flow based on period of record 1970-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
74.2	168	260	416	566	748
Weighted skew	(logs) =	0.09			
Mean	(logs) =	1.88			
Standard dev.	(logs) =	0.42			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
69.9	4.8	7,200	88.0	3.0	22.5	2.2	4.0



09400655 RIO DE FLAG AT INTERSTATE 40 AT FLAGSTAFF, AZ

LOCATION.--Lat 35°11'04", long 111°37'56", in $SE^1/_4SE^1/_4$ sec.22, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, on left bank 80 ft upstream from bridge for eastbound lanes of Interstate 40, in Flagstaff.

DRAINAGE AREA.--82.4 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	09-05-70	350	ES,C	1977	00-00-77	3.0	LT,C
1971	07-21-71	50	ES,C	1978	02-28-78	153	C
1972	12-28-71	100	ES,C	1979	12-19-78	421	C
1973	04-25-73	[1]300	C	1980	02-20-80	165	C
1974	00-00-74	0		1981	04-00-81	150	ES,C
1975	10-30-74	70	ES,C	1982	03-12-82	370	C
1976	02-09-76	134	C				

[1]Highest since 1938.

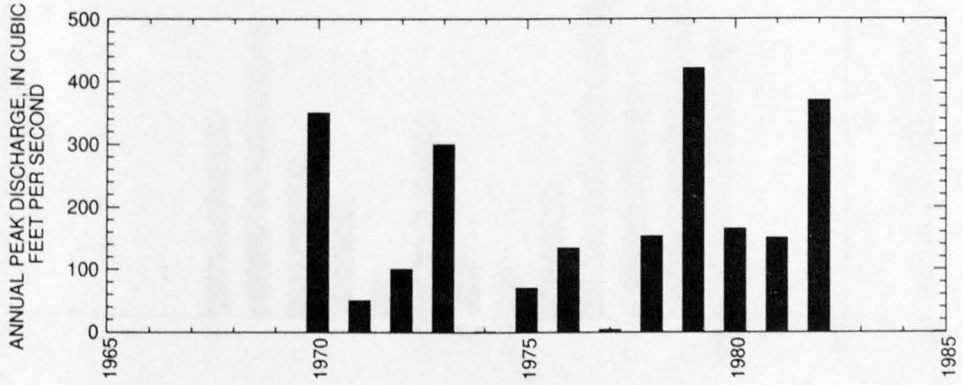
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
55.5	5.9	7,840	97.0	3.0	20.0	1.9	3.6



09400660 BOW AND ARROW WASH AT FLAGSTAFF, AZ

LOCATION.--Lat 35°09'58", long 111°39'10", in $NW^1/_4NE^1/_4$ sec.33, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at Zuni Road in Flagstaff.

DRAINAGE AREA.--2.06 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	00-00-69	45	C	1975	00-00-75	13	C
1970	09-05-70	42	C	1976	07-00-76	7.0	ES,C
1971	08-15-71	73	C	1977	08-09-77	24	C
1972	12-28-71	26	C	1978	10-06-77	20	C
1973	00-00-73	10	LT,C	1979	11-11-78	17	C
1974	08-02-74	12	C	1980	02-18-80	40	ES,C

Magnitude and probability of instantaneous peak flow based on period of record 1969-80

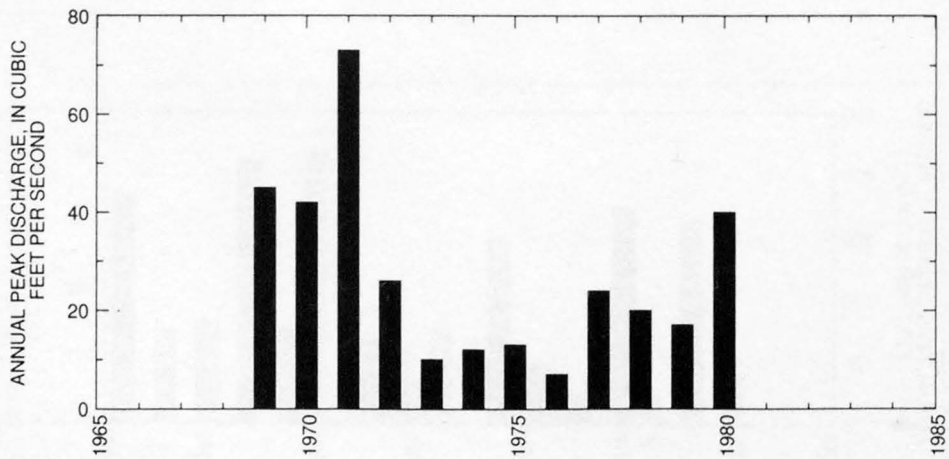
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
22.1	39.7	53.9	74.7	92	111

Weighted skew	(logs) =	-0.02
Mean	(logs) =	1.34
Standard dev.	(logs) =	0.31

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
46.5	2.9	6,990	75.0	3.0	19.4	2.0	4.0



09400680 SWITZER CANYON AT FLAGSTAFF, AZ

LOCATION.--Lat 35°12'44", long 111°38'21", in $SW^1/_4SE^1/_4$ sec.10, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at Turquoise and Oak Streets in Flagstaff.

DRAINAGE AREA.--1.87 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	09-12-69	112		1975	09-00-75	10	
1970	09-05-70	61		1976	02-09-76	51	
1971	08-03-71	12		1977	07-22-77	5.0	
1972	12-28-71	15		1978	02-28-78	90	
1973	04-13-73	79		1979	12-18-78	135	
1974	08-10-74	18		1980	02-19-80	107	

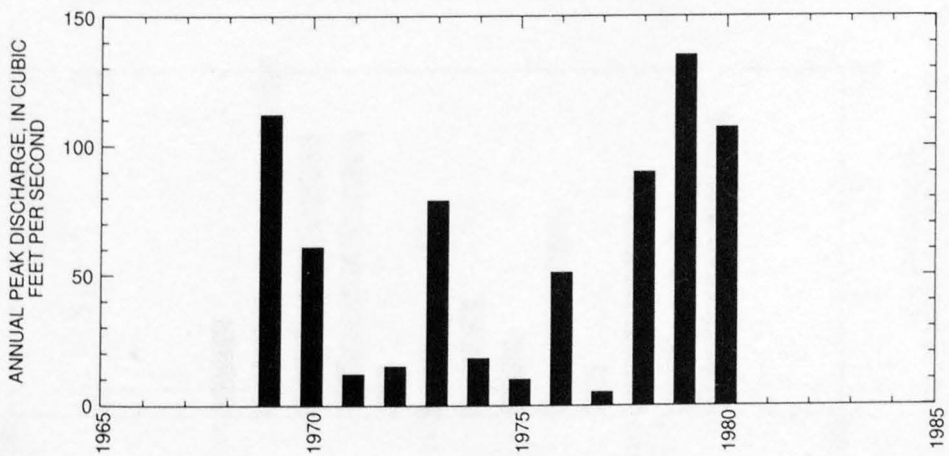
Magnitude and probability of instantaneous peak flow based on period of record 1969-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
38.4	95.9	151	240	321	413
Weighted skew	(logs) =	-0.25			
Mean	(logs) =	1.56			
Standard dev.	(logs) =	0.49			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
375	2.4	7,130	45.0	3.0	19.9	2.0	4.0



09400700 SWITZER CANYON TRIBUTARY AT FLAGSTAFF, AZ

LOCATION.--Lat 35°12'03", long 111°36'46", in NE$^1/_4$SE$^1/_4$ sec.14, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at gravel road 500 ft upstream from Interstate 40, and $^1/_4$ mi downstream from U.S. Highway 66 in Flagstaff.

DRAINAGE AREA.--7.02 mi^2, of which 2.50 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	08-02-68	262	C	1975	07-16-75	65	C
1969	09-12-69	70	C	1976	02-09-76	45	C
1970	09-05-70	178	C	1977	08-09-77	47	C
1971	08-03-71	42	C	1978	07-15-78	76	C
1972	12-28-71	15	C	1979	08-12-79	103	C
1973	07-16-73	73	C	1980	02-19-80	84	C
1974	08-06-74	100	C				

Magnitude and probability of instantaneous peak flow based on period of record 1968-80

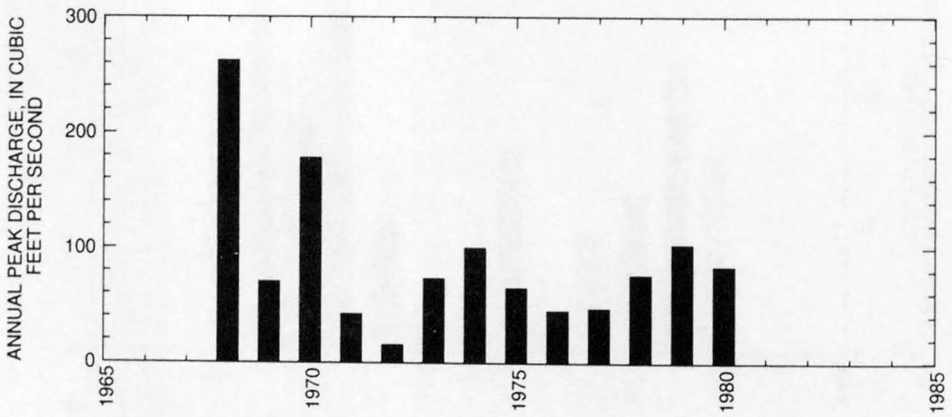
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
75.2	124	163	221	271	326

Weighted skew (logs) = 0.28
Mean (logs) = 1.89
Standard dev. (logs) = 0.25

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
267	4.1	6,950	78.0	3.0	20.0	2.0	4.0



09400730 LOCKETT FANNING DIVERSION AT FLAGSTAFF, AZ

LOCATION.--Lat 35°13'19", long 111°35'58", in $NW^1/_4NE^1/_4$ sec.12, T.21 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at Linda Vista Drive in Flagstaff.

DRAINAGE AREA.--1.05 mi^2.

Annual peak discharges

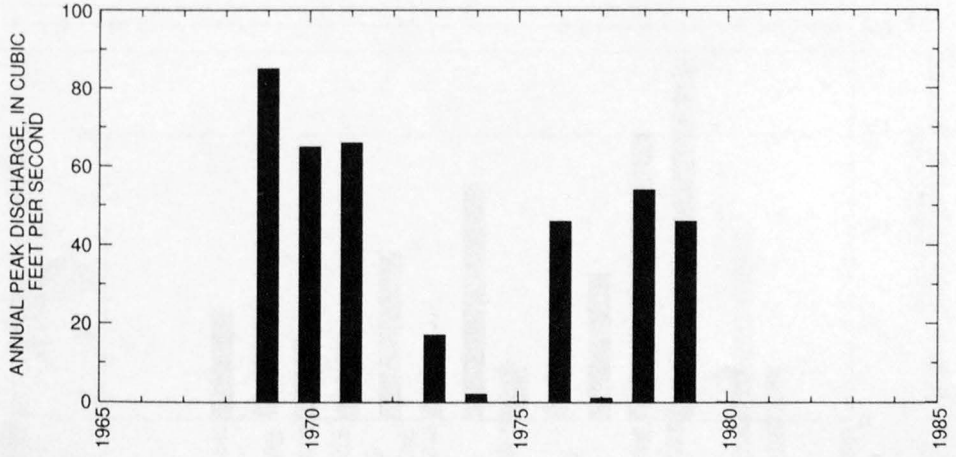
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	09-12-69	85		1975	00-00-75	0	
1970	09-05-70	65		1976	07-14-76	46	
1971	08-22-71	66		1977	08-09-77	1.0	ES
1972	00-00-72	0		1978	07-26-78	54	
1973	07-16-73	17		1979	12-18-78	46	
1974	08-06-74	2.0	ES	1980	00-00-80	0	

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
928	2.0	8,020	100	3.0	20.0	2.0	4.0



09400740 HARENBERG WASH AT FLAGSTAFF, AZ

LOCATION.--Lat 35°13'09", long 111°35'16", in $SE^1/_4NW^1/_4$ sec.7, T.21 N., R.8 E., Coconino County, Hydrologic Unit 15020015, at Atchison, Topeka, and Santa Fe railroad tracks at the east edge of Flagstaff.

DRAINAGE AREA.--2.41 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	09-12-69	183	C	1975	09-00-75	24	C
1970	09-05-70	146	C	1976	07-13-76	85	C
1971	08-19-71	74	C	1977	08-09-77	44	C
1972	07-24-72	30	C	1978	02-28-78	42	C
1973	07-00-73	25	ES,C	1979	02-17-79	57	C
1974	08-06-74	120	C	1980	07-00-80	57	C

Magnitude and probability of instantaneous peak flow based on period of record 1969-80

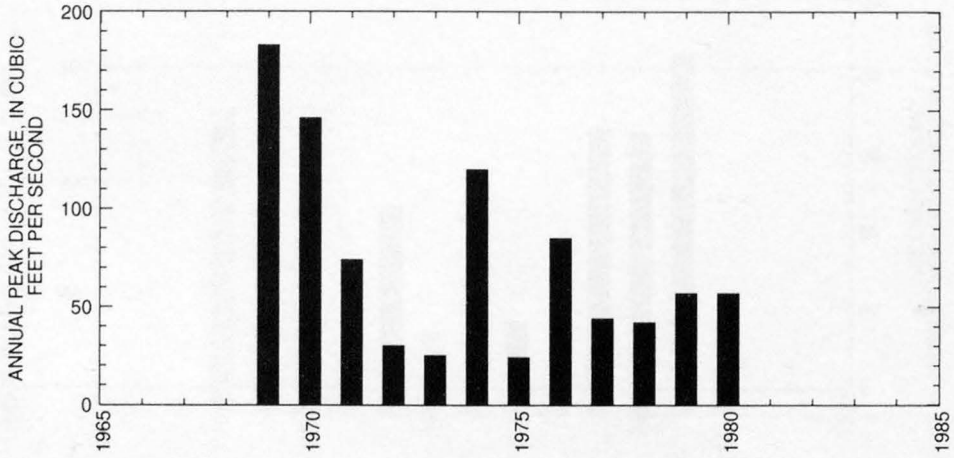
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
60.2	107	144	198	243	293

Weighted skew	(logs) =	-0.02
Mean	(logs) =	1.78
Standard dev.	(logs) =	0.30

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
594	3.1	7,570	91.0	3.0	20.1	2.0	4.0



09400910 FAY CANYON NEAR FLAGSTAFF, AZ

LOCATION.--Lat 35°08'06", long 111°37'48", in $NW^1/_4NW^1/_4$ sec.11, T.20 N., R.7 E., Coconino County, Hydrologic Unit 15020015, at Lake Mary Road within corporate limits of Flagstaff.

DRAINAGE AREA.--3.28 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	00-00-64	0.3	LT	1972	10-24-71	31	
1965	09-18-65	9.0		1973	10-00-72	10	ES
1966	12-30-65	87		1974	08-06-74	3.0	LT
1967	00-00-67	10	LT	1975	09-00-75	1.0	LT
1968	04-00-68	4.0		1976	00-00-76	10	ES
1969	01-25-69	10	LT	1977	08-09-77	18	
1970	09-05-70	3.0	ES	1979	00-00-79	70	
1971	08-15-71	2.0	ES	1980	02-19-80	29	

Magnitude and probability of instantaneous peak flow based on period of record 1964-77, 1979-80

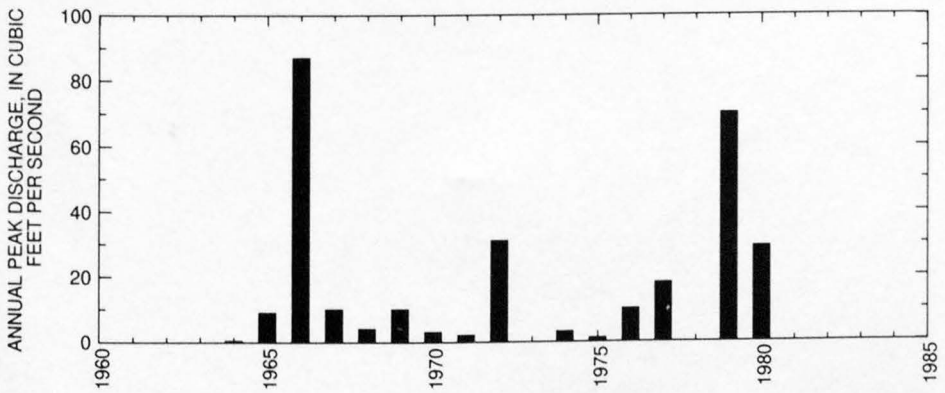
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
8	36	66	98	128	182

Weighted skew	(logs) =	0.01
Mean	(logs) =	0.96
Standard dev.	(logs) =	0.56

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
72.2	2.4	7,000	73.0	3.0	19.6	2.1	4.1



09401000 LITTLE COLORADO RIVER AT GRAND FALLS, AZ

LOCATION.--Lat 35°26'45", long 111°12'12", in T.24 N., R.11 E. (unsurveyed), Coconino County, Hydrologic Unit 15020016, in Navajo Indian Reservation, on left bank 1,000 ft downstream from Grand Falls, 4.5 mi upstream from Dinnebito Wash, 30 mi northeast of Flagstaff, and 96 mi upstream from mouth.

DRAINAGE AREA.--21,068 mi^2, of which 368 mi^2 are noncontributing.

PERIOD OF RECORD.--November 1925 to September 1951, October 1951 to September 1953 (peak discharges only), October 1953 to June 1960, October 1989 to September 1994 (discontinued). Monthly discharges only for January to September 1950, published in WSP 1313.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,438.9 ft above sea level.

REMARKS.-- Diversions above station for irrigation of about 29,000 acres. Some regulation by reservoirs above station (combined capacity, about 71,000 acre-feet in 1950, not including Long Pine Reservoir or Lake Mary).

AVERAGE DISCHARGE.--35 years (water years 1928-51, 1954-59, 1990-94), 247 ft^3/s, 181,800 acre-ft/yr; median of yearly mean discharges, 210 ft^3/s, 152,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,500 ft^3/s Apr. 5, 1929, gage height 30.0 ft, no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of about 120,000 ft^3/s, gage height 47.0 ft, from floodmarks, occurred on Sept. 19, 1923, and is the highest since 1870.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1923	09-19-23	[1]120,000	HP	1947	08-24-47	10,600	
1926	09-27-26	27,800		1948	10-16-47	12,400	
1927	06-28-27	28,800		1949	08-09-49	10,400	
1928	02-07-28	2,140		1950	07-18-50	3,500	
1929	04-05-29	50,500		1951	08-30-51	10,200	
1930	07-19-30	13,700		1952	01-20-52	26,100	
1931	08-01-31	6,530		1953	07-31-53	4,140	
1932	02-10-32	31,000		1954	03-25-54	7,450	
1933	09-12-33	7,500		1955	06-15-55	9,020	
1934	10-07-33	4,920		1956	08-17-56	2,320	
1935	04-10-35	7,350		1957	01-12-57	8,390	
1936	08-06-36	5,430		1958	08-23-58	4,560	
1937	02-09-37	21,800		1959	08-07-59	3,080	
1938	03-05-38	38,000		1960	11-01-59	7,960	
1939	04-05-39	6,680		1970	09-06-70	11,400	KR,HP
1940	07-27-40	20,100		1972	10-03-71	13,200	KR,HP
1941	03-15-41	17,000		1990	08-17-90	1,920	KR
1942	10-04-41	8,760		1991	04-11-91	3,320	KR
1943	09-28-43	3,900		1992	08-29-92	3,716	KR
1944	09-29-44	5,320		1993	01-11-93	16,600	KR
1945	08-12-45	4,650		1994	03-23-94	2,760	KR
1946	09-19-46	12,900					

[1]Highest since 1870.

09401000 LITTLE COLORADO RIVER AT GRAND FALLS, AZ--Continued

Discharge rating table developed October 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
7.0	390	25.0	34,790
8.0	955	28.0	44,020
10.0	2,680	31.0	54,080
13.0	6,550	34.0	64,940
16.0	11,820	38.0	80,600
19.0	18,360	41.0	93,210
22.0	26,100	43.0	102,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
10.5	234	6,440	33.0	2.7	12.9	1.5	2.9

09401000 LITTLE COLORADO RIVER AT GRAND FALLS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1927-49, 1951, 1954-59, 1990-91, 1993-94

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	927	0.00	116	229	2.0	3.7
NOVEMBER	287	0.00	45	75	1.7	1.4
DECEMBER	468	0.00	39	88	2.3	1.3
JANUARY	4,100	0.00	211	716	3.4	6.7
FEBRUARY	2,670	0.00	376	693	1.8	12.0
MARCH	2,390	0.00	644	659	1.0	20.6
APRIL	2,610	8.8	624	638	1.0	19.9
MAY	1,410	0.00	97	249	2.6	3.1
JUNE	622	0.00	30	117	3.9	1.0
JULY	1,580	0.00	163	311	1.9	5.2
AUGUST	1,990	0.00	475	482	1.0	15.2
SEPTEMBER	1,940	0.00	309	427	1.4	9.9
ANNUAL	811	26	260	204	0.78	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1927-49, 1955-60, 1991-92, 1994

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.58	0.00	0.00	0.00	0.00	0.00
120	7.1	1.4	0.17	0.00	0.00	0.00
183	55	20	11	6.8	3.8	2.5

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1923, 1926-60, 1990-91, 1993-94

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
8,310	17,280	26,100	41,500	56,800	76,000

WEIGHTED SKEW (LOGS)= 0.38
MEAN (LOGS)= 3.94
STANDARD DEV. (LOGS)= 0.36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1927-49, 1951, 1954-59, 1990-91, 1993-94

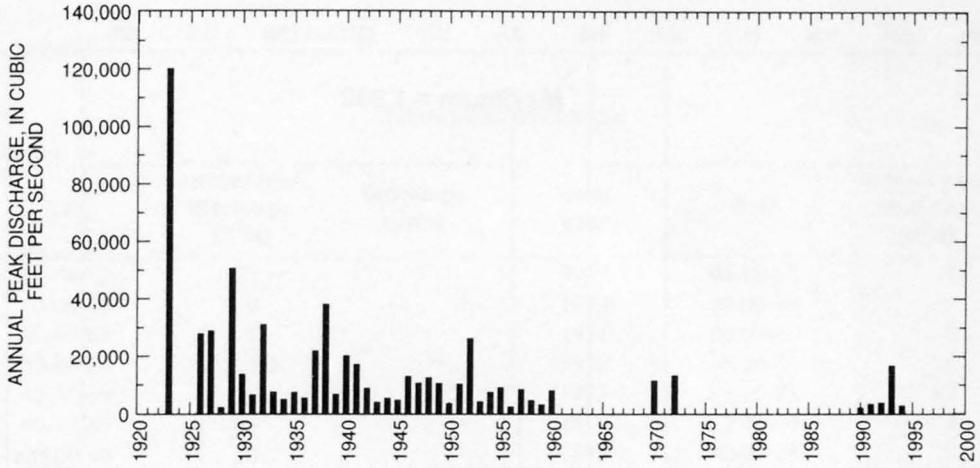
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	5,170	10,100	14,400	21,100	27,000	33,700
3	3,780	7,130	9,880	13,900	17,300	21,100
7	2,520	4,400	5,690	7,320	8,500	9,640
15	1,780	2,990	3,690	4,420	4,860	5,230
30	1,210	2,040	2,540	3,080	3,430	3,720
60	789	1,440	1,920	2,540	3,010	3,470
90	566	1,080	1,490	2,070	2,550	3,060

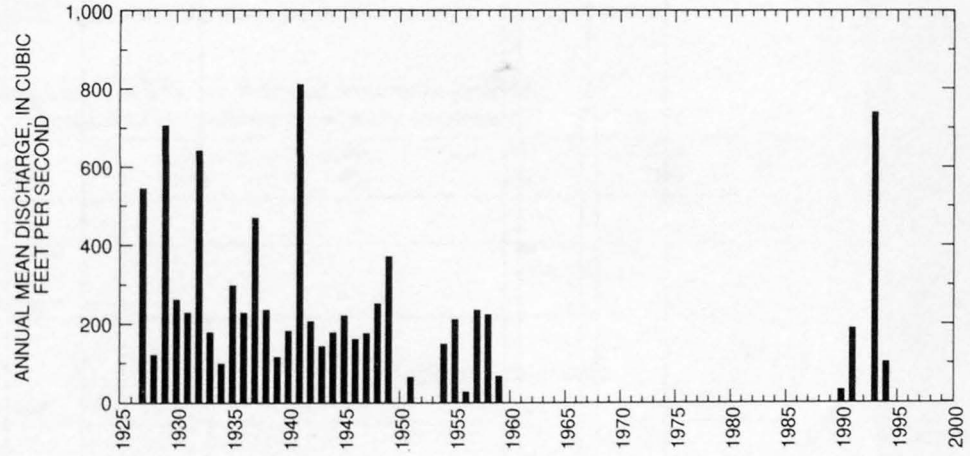
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1927-49, 1951, 1954-59, 1990-91, 1993-94

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3,390	1,440	745	402	226	79	25	7.7	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

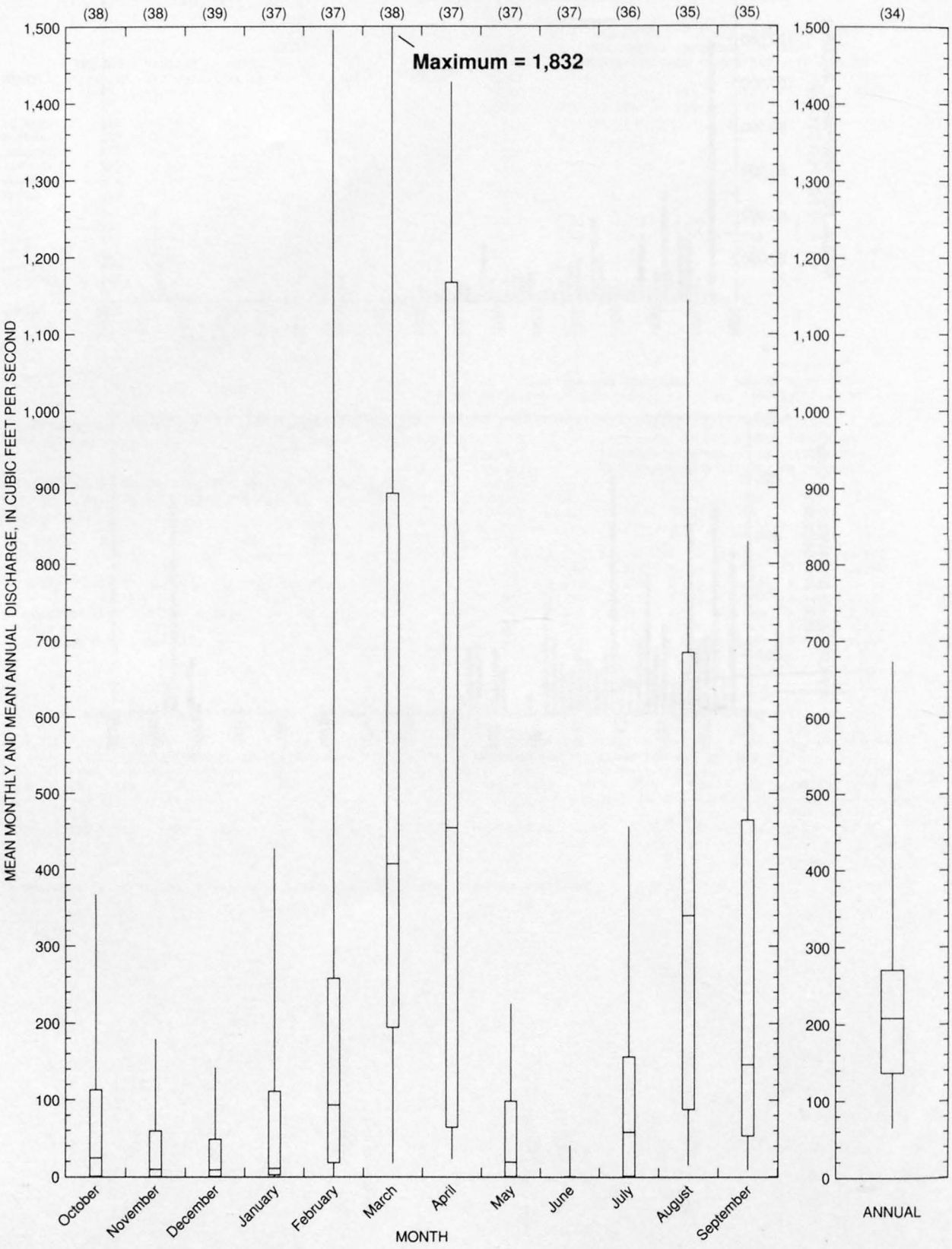
Reliability of values in column is uncertain, and potential errors are large.

09401000 LITTLE COLORADO RIVER AT GRAND FALLS, AZ--Continued





09401000 LITTLE COLORADO RIVER AT GRAND FALLS, AZ--Continued



09401210 SLATE MOUNTAIN WASH NEAR FLAGSTAFF, AZ

LOCATION.--Lat 35°30'55", long 111°50'55", in SW$^1/_4$ sec.26, T.25 N., R.5 E., Coconino County, at U.S. Highway 180, 24 mi northwest of Flagstaff.

DRAINAGE AREA.--5.43 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	77		1969	08-00-69	1.0	LT
1963	00-00-63	0		1970	00-00-70	13	
1964	00-00-64	0		1971	00-00-71	0	
1965	10-00-64	5.0		1972	06-06-72	40	
1966	12-31-65	37		1973	04-00-73	88	
1967	00-00-67	66		1974	00-00-74	0	
1968	00-00-68	0		1975	00-00-75	0	

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
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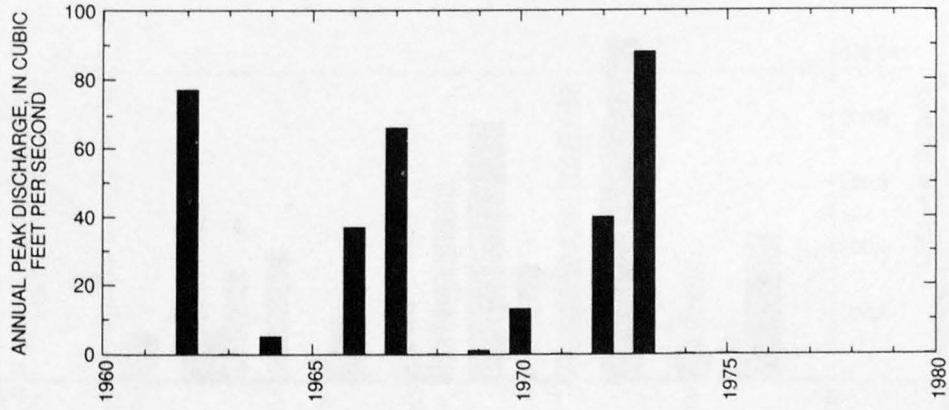
Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
46.4	9.8	7,350	60.0	3.0	19.7	2.1	3.8



09401220 CEDAR WASH NEAR CAMERON, AZ

LOCATION.--Lat 35°51'31", long 111°26'32", in $NW^1/_4NW^1/_4$ sec.33, T.29 N., R.9 E., Coconino County, Hydrologic Unit 15020016 downstream from State Highway 64 at the Tappan Spring, and 1 mi west of the intersection of State Highway 64 and U.S. Highway 89.

DRAINAGE AREA.--579 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	00-00-67	4,400		1972	07-18-72	440	
1968	07-00-68	880		1973	10-19-72	1,950	
1969	09-11-69	10,400		1974	09-05-74	50	
1970	09-05-70	50	ES	1975	09-00-75	1,490	
1971	09-29-71	7,900		1976	00-00-76	1,400	

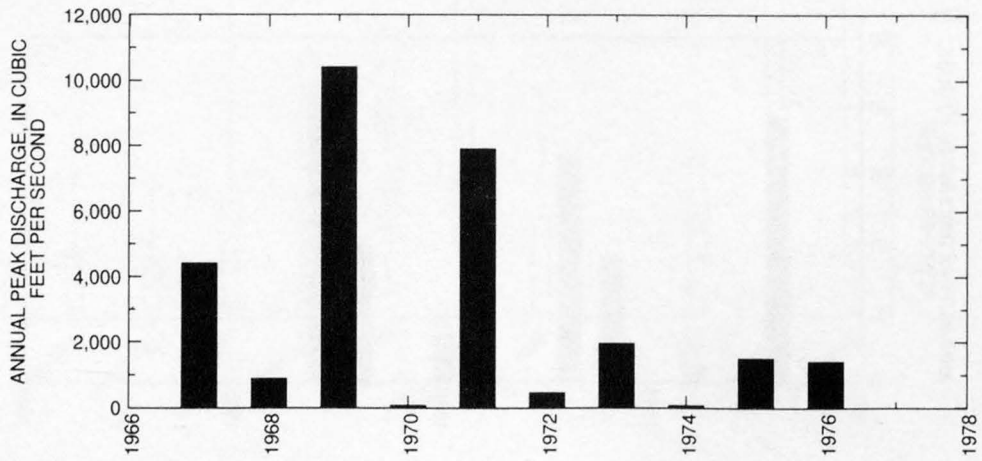
Magnitude and probability of instantaneous peak flow based on period of record 1967-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,510	4,550	8,040	14,600	21,400	30,200
Weighted skew	(logs) =	-0.08			
Mean	(logs) =	3.17			
Standard dev.	(logs) =	0.58			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
123	32.4	6,430	37.0	3.0	13.7	1.7	3.1



09401245 KETHLA VALLEY TRIBUTARY NEAR KAYENTA, AZ

LOCATION.--Lat 36°29'53", long 110°37'15", Navajo County, Hydrologic Unit 15020018, at State Highway 64, 15.5 mi southwest of Tsegi Trading Post, and 26 mi southwest of Kayenta.

DRAINAGE AREA.--0.79 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	175		1970	09-05-70	137	
1963	08-06-63	109		1971	08-00-71	290	
1964	08-00-64	128		1972	09-02-72	250	
1965	00-00-65	23		1973	10-00-72	225	
1966	11-2-365	12	LT	1974	07-22-74	114	
1967	07-30-67	80		1975	07-11-75	57	
1968	07-25-68	195		1976	00-00-76	0.3	ES
1969	09-00-69	94					

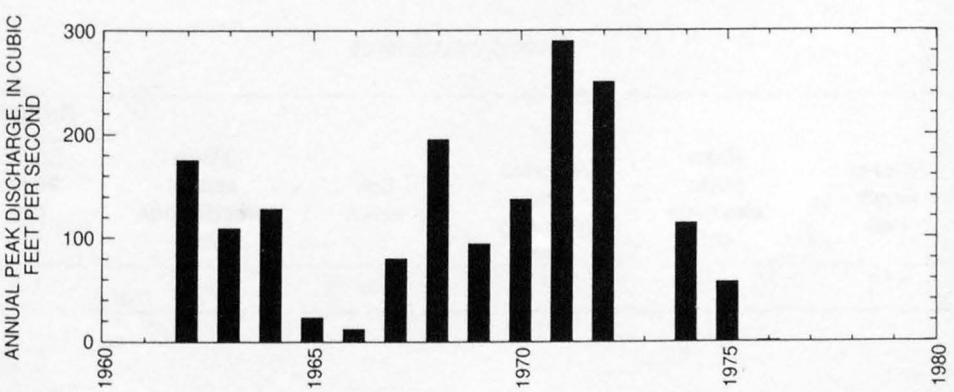
Magnitude and probability of instantaneous peak flow based on period of record 1962-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
121	193	244	312	365	419
Weighted skew	(logs) =	-0.14			
Mean	(logs) =	2.08			
Standard dev.	(logs) =	0.25			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
87.7	2.3	6,730	21.0	3.0	10.2	1.3	2.8



09401260 MOENKOPI WASH AT MOENKOPI, AZ

LOCATION.--Lat 36°06'18", long 111°12'04", in NW$^1/_4$NE$^1/_4$ sec.3, T.31 N., R.11 E. (unsurveyed), Coconino County, Hydrologic Unit 15020018, in Hopi Indian Reservation on right bank, 100 ft upstream from bridge on State Highway 264, 1.3 mi southeast of Moenkopi, 2.5 mi downstream from former gaging station 09401250, and 12.5 mi downstream from Begashibito Wash.

DRAINAGE AREA.--1,629 mi^2.

PERIOD OF RECORD.--July 1976 to current year. Records for October 1973 to July 1976, at site 2.5 mi upstream, not equivalent below 1.5 ft^3/s due to channel losses.

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder and crest stage gages. Elevation of gage is 4,610 ft above sea level, from topographic map.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft^3/s Sept. 30, 1983, gage height, 15.10 ft, from rating curve extended above 220 ft^3/s on basis of step-backwater computation at gage heights 12.2 ft, 15.0 ft, and 17.8 ft; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 15,100 ft^3/s occurred Aug. 4, 1929, at former gaging station site 3.5 mi downstream.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1974	07-19-74	2,340		1986	09-09-86	7,970	
1975	09-13-75	2,380		1987	08-24-87	3,990	
1976	09-25-76	5,420		1988	08-27-88	7,280	
1977	07-21-77	4,120		1989	08-01-89	3,380	
1978	09-25-78	262		1990	07-08-90	2,090	
1979	11-12-78	330		1991	10-02-90	1,290	
1980	09-10-80	1,740		1992	09-19-92	3,110	
1981	07-14-81	4,640		1993	02-20-93	3,150	
1982	10-02-81	8,010		1994	10-06-93	2,970	
1983	09-30-83	10,100		1995	07-14-95	3,920	
1984	08-18-84	9,030		1996	09-14-96	737	
1985	09-12-85	520					

Discharge rating table developed October 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	135	9.0	4,330
5.0	560	10.0	5,520
6.0	1,200	11.0	6,520
7.0	2,070	12.0	7,520
8.0	3,140	13.0	8,420

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
24.8	87.1	5,850	47.2	3.0	9.5	1.3	2.6

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1977-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	82	0.24	9.2	19	2.0	8.7
NOVEMBER	71	1.1	7.2	15	2.1	6.8
DECEMBER	14	0.62	3.6	2.7	0.74	3.4
JANUARY	28	2.0	5.3	5.6	1.1	5.0
FEBRUARY	48	2.2	8.2	11	1.4	7.8
MARCH	11	2.0	3.9	2.4	0.60	3.7
APRIL	8.5	1.0	2.4	1.5	0.65	2.2
MAY	16	0.31	2.3	3.8	1.6	2.2
JUNE	11	0.00	0.75	2.3	3.2	0.7
JULY	92	0.00	14	24	1.7	12.9
AUGUST	129	0.00	24	33	1.3	22.9
SEPTEMBER	134	0.00	25	33	1.3	23.6
ANNUAL	19	2.1	8.8	5.6	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1978-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.17	0.03	0.00	0.00	0.00	0.00
90	0.63	0.32	0.22	0.17	0.12	0.09
120	1.6	0.70	0.44	0.30	0.18	0.13
183	2.9	1.4	0.99	0.75	0.55	0.44

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1974-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,320	5,820	7,760	10,500	12,700	15,000

WEIGHTED SKEW (LOGS)= -0.12
MEAN (LOGS)= 3.52
STANDARD DEV. (LOGS)= 0.30

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1977-96

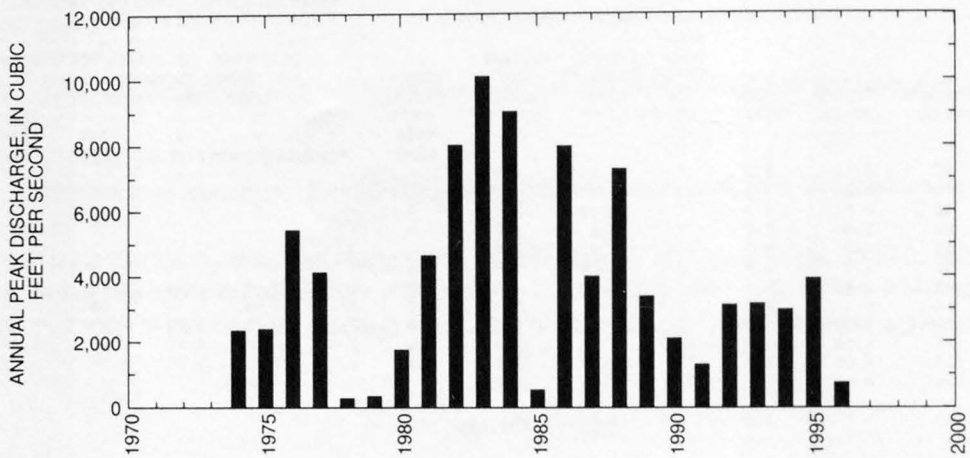
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	539	1,270	2,000	3,260	4,480	5,960
3	279	603	881	1,300	1,650	2,030
7	136	290	415	591	733	881
15	69	151	220	323	409	502
30	40	85	121	173	216	261
60	24	51	74	107	136	168
90	18	38	54	78	98	120

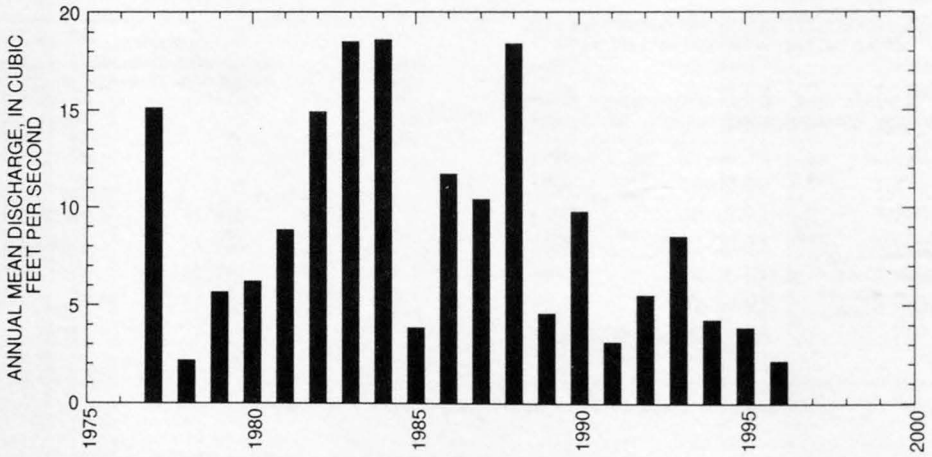
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1977-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
146	18	7.4	5.0	3.9	3.1	2.4	2.0	1.4	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00

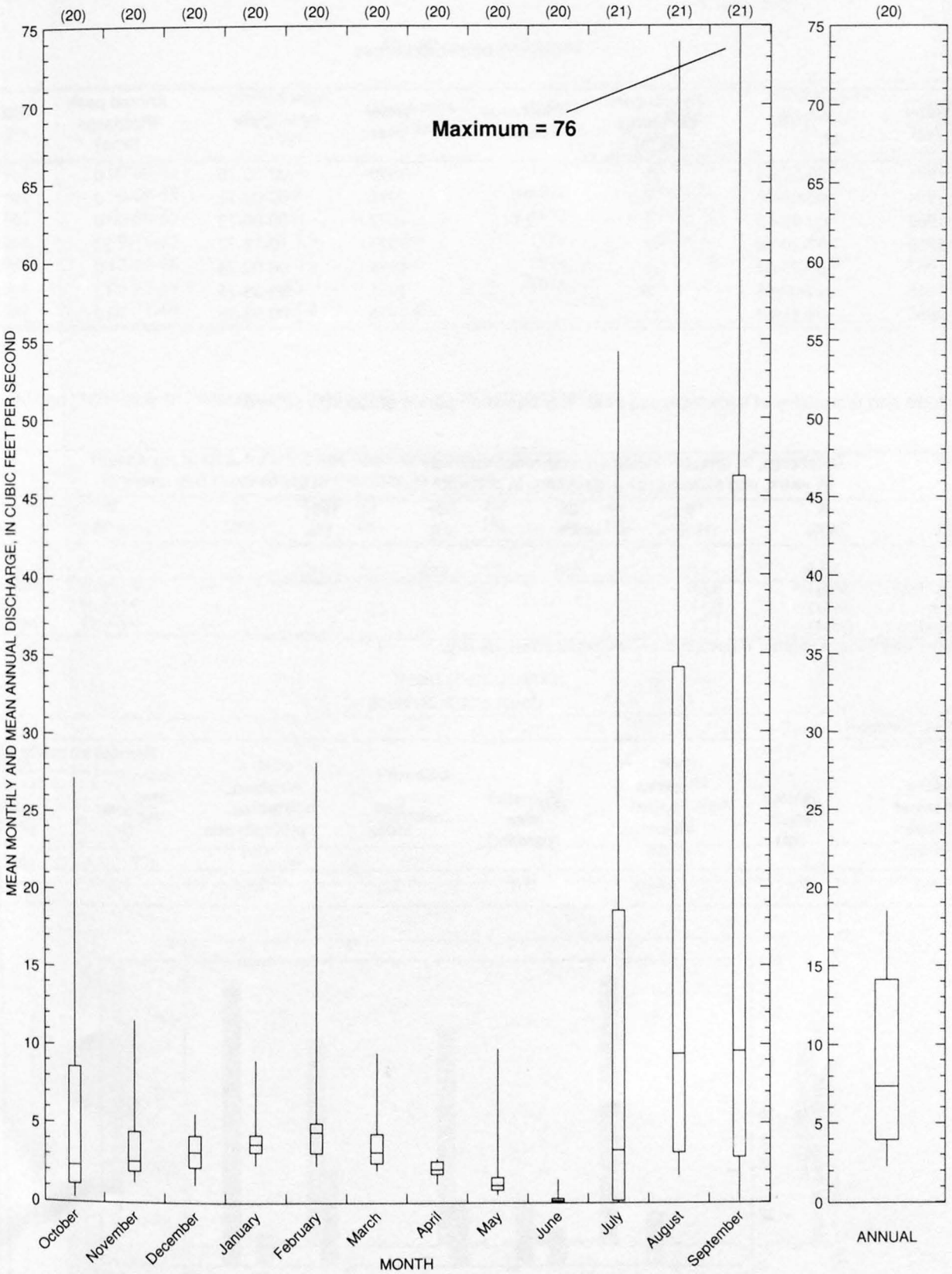
Reliability of values in column is uncertain, and potential errors are large.

09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued





09401260 MOENKOPI WASH AT MOENKOPI, AZ--Continued



09401300 HAMBLIN WASH TRIBUTARY NEAR CEDAR RIDGE, AZ

LOCATION.--Lat 36°20'55", long 111°30'15", Coconino County, Hydrologic Unit 15020018, at U.S. Highway 89, 3.3 mi south of Cedar Ridge.
DRAINAGE AREA.--0.10 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-07-63	21		1970	00-00-70	0	
1964	00-00-64	0.3	ES	1971	00-00-71	0	
1965	00-00-65	1.0	LT	1972	00-00-72	0	
1966	07-30-66	15		1973	10-19-72	37	
1967	09-25-67	26		1974	00-00-74	0	
1968	00-00-68	0		1975	09-08-75	12	
1969	09-11-69	25		1976	00-00-76	110	

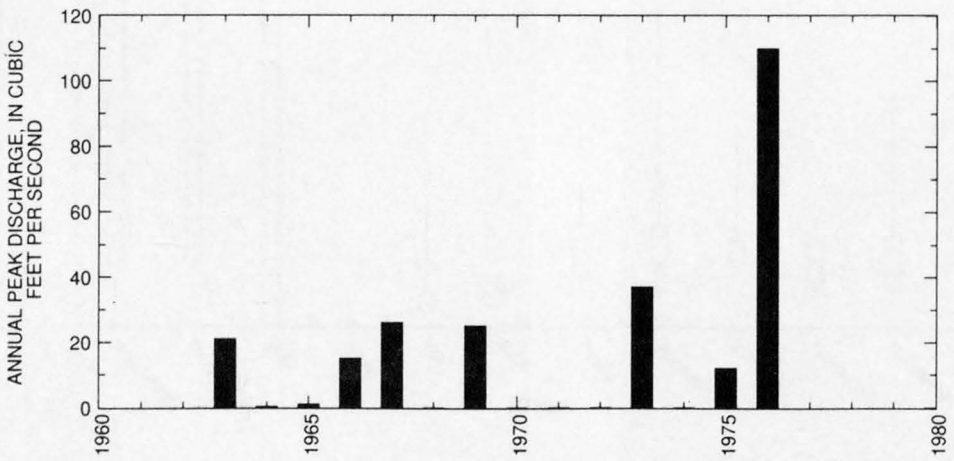
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1.7	37.3	156	638	1,480	3,040
Weighted skew	(logs) =	-0.48			
Mean	(logs) =	0.11			
Standard dev.	(logs) =	1.71			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
263	0.61	5,860	0.0	3.0	7.6	1.3	2.4



09401370 HAMBLIN WASH TRIBUTARY NO. 2 NEAR TUBA CITY, AZ

LOCATION.--Lat 36°03'20", long 111°23'35", Coconino County, Hydrologic Unit 15020018, at U.S. Highway 89, 10 mi west of Tuba City.
DRAINAGE AREA.--2.16 mi^2.

Annual peak discharges

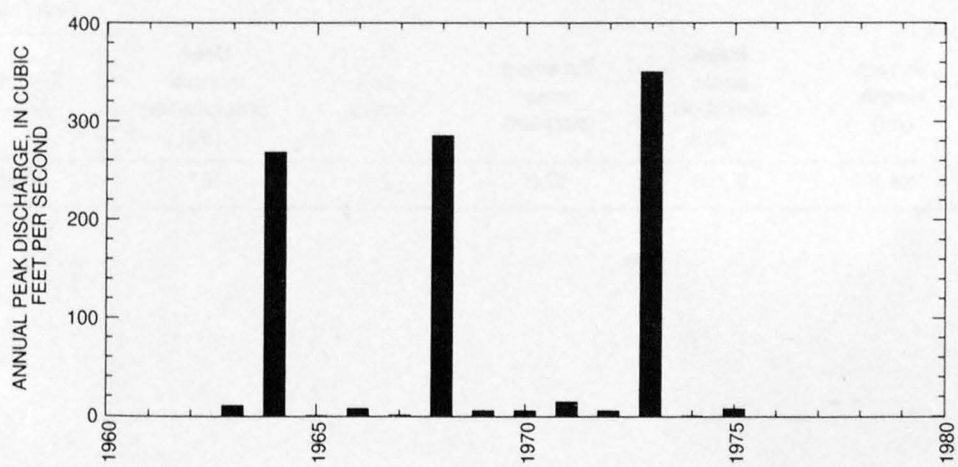
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	10	LT	1970	10-21-69	5.0	LT
1964	00-00-64	268		1971	07-00-71	14	ES
1965	00-00-65	0		1972	07-18-72	5.0	LT
1966	10-16-65	7.0	ES	1973	10-19-72	350	
1967	12-06-66	0.5	ES	1974	00-00-74	0	
1968	08-07-68	285		1975	09-00-75	7.0	ES
1969	09-11-69	5.0	LT				

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
348	2.3	4,670	0.0	3.0	6.0	1.2	2.5



09401400 MOENKOPI WASH NEAR TUBA CITY, AZ

LOCATION.--Lat 36°01'25", long 111°23'48", in sec.35, T.31 N., R.9 E. (unsurveyed), Coconino County, Hydrologic Unit 15020018, on Navajo Indian Reservation, on downstream side of bridge on U.S. Highway 89, 3,500 ft downstream from Hamblin Wash, 11 mi upstream from mouth, and 12 mi southwest of Tuba City.

DRAINAGE AREA.--2,500 mi^2, approximately, of which about 1,200 mi^2 is partly or entirely noncontributing.

PERIOD OF RECORD.--June 1941 to December 1953 (published as "near Tuba"), February 1965 to September 1978 (discontinued). Records for July 1926 to June 1941 at site 8 mi upstream not equivalent.

REVISED RECORDS.--WSP 1213: 1943(M). WSP 1926: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,309 ft above sea level. June 23, 1941, to Dec. 10, 1953, at site 2,500 ft upstream at datum 4,310.96 ft above sea level (State Highway Department bench mark).

REMARKS.--Records poor. Diversions above station for irrigation of about 500 acres.

AVERAGE DISCHARGE.--25 years (water years 1942-53, 1966-78), 14.7 ft^3/s, 10,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft^3/s Oct. 19, 1972, gage height, 16.98 ft, from floodmarks in recorder shelter; no flow for many days in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 15,100 ft^3/s occurred 8 mi upstream (published as "near Tuba City") Aug. 4, 1929, from rating curve extended above 200 ft^3/s on basis of slope-area measurement of peak flow; maximum discharge for period 1926-41.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1941	08-16-41	5,240		1966	07-29-66	742	
1942	10-13-41	7,000		1967	09-08-67	3,790	
1943	08-17-43	7,150		1968	08-12-68	3,120	
1944	09-27-44	964		1969	07-29-69	1,900	
1945	08-01-45	6,290		1970	09-06-70	4,990	
1946	08-12-46	3,910		1971	08-26-71	5,410	
1947	08-17-47	2,860		1972	08-27-72	2,510	
1948	10-13-47	6,980		1973	10-19-72	12,100	
1949	08-09-49	2,210		1974	07-19-74	1,840	
1950	07-25-50	2,890		1975	07-15-75	1,200	
1951	09-30-51	5,000		1976	09-25-76	3,990	
1952	09-21-52	10,000		1977	07-23-77	3,360	
1953	07-30-53	5,700		1978	06-28-78	1,710	
1965	07-30-65	2,960					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
27.2	88.3	5,820	37.0	2.7	8.7	1.3	2.5

09401400 MOENKOPI WASH NEAR TUBA CITY, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-53, 1966-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	686	0.00	53	141	2.7	29.0
NOVEMBER	7.9	0.33	3.2	1.6	0.50	1.8
DECEMBER	20	0.70	5.0	4.1	0.83	2.8
JANUARY	18	1.0	4.9	3.7	0.75	2.7
FEBRUARY	25	0.80	5.1	5.6	1.1	2.8
MARCH	17	0.43	4.1	4.0	0.96	2.3
APRIL	14	0.00	1.4	3.2	2.2	0.8
MAY	1.1	0.00	0.22	0.34	1.6	0.1
JUNE	12	0.00	1.1	2.9	2.7	0.6
JULY	174	0.00	26	39	1.5	14.3
AUGUST	226	0.69	48	57	1.2	26.5
SEPTEMBER	191	0.00	30	47	1.6	16.3
ANNUAL	62	3.1	15	12	0.81	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1942-53, 1966-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.12	0.00	0.00	0.00	0.00	0.00
120	1.3	0.47	0.25	0.14	0.07	0.04
183	3.4	1.8	1.3	1.1	0.88	0.78

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1941-53, 1965-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3,740	6,120	7,900	10,400	12,400	14,500

WEIGHTED SKEW (LOGS)= -0.02
MEAN (LOGS)= 3.57
STANDARD DEV. (LOGS)= 0.25

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-53, 1966-78

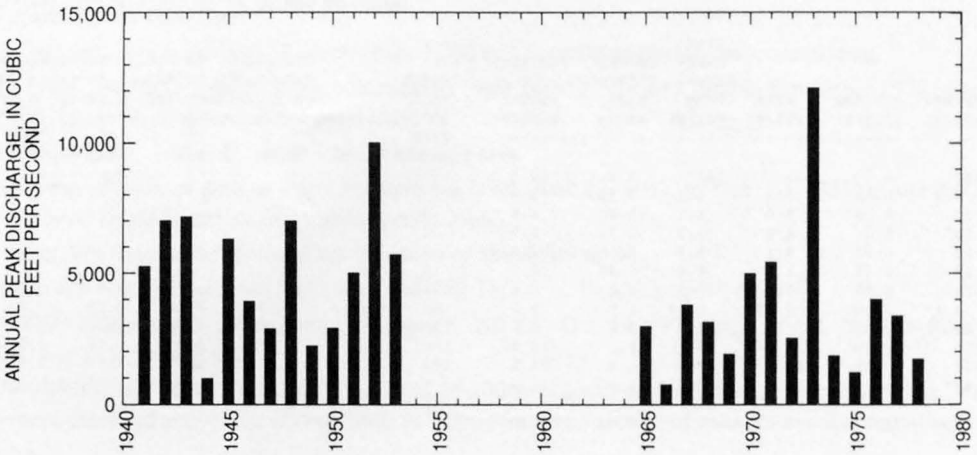
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	1,030	2,330	3,400	4,910	6,100	7,330
3	513	1,170	1,760	2,670	3,450	4,330
7	272	607	890	1,310	1,650	2,020
15	146	341	514	777	1,000	1,250
30	88	199	295	435	551	675
60	51	112	165	242	306	375
90	36	77	111	160	201	244

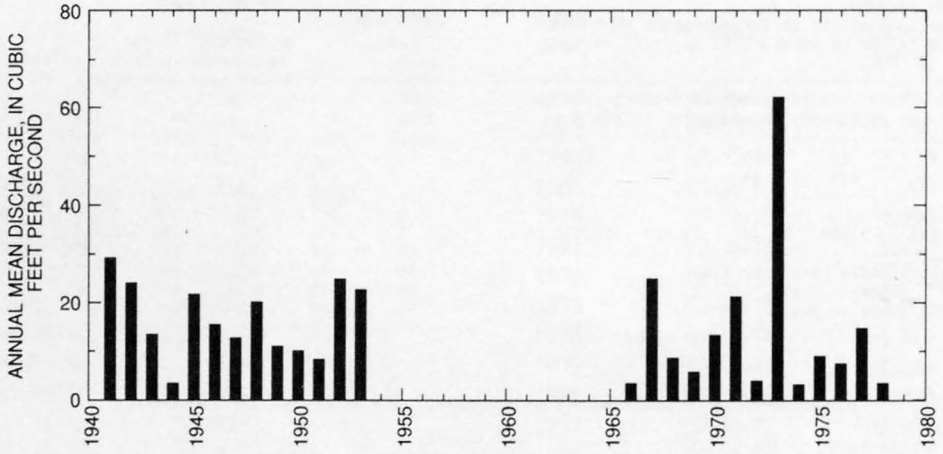
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-53, 1966-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
306	29	9.5	5.3	4.4	3.2	2.3	1.3	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

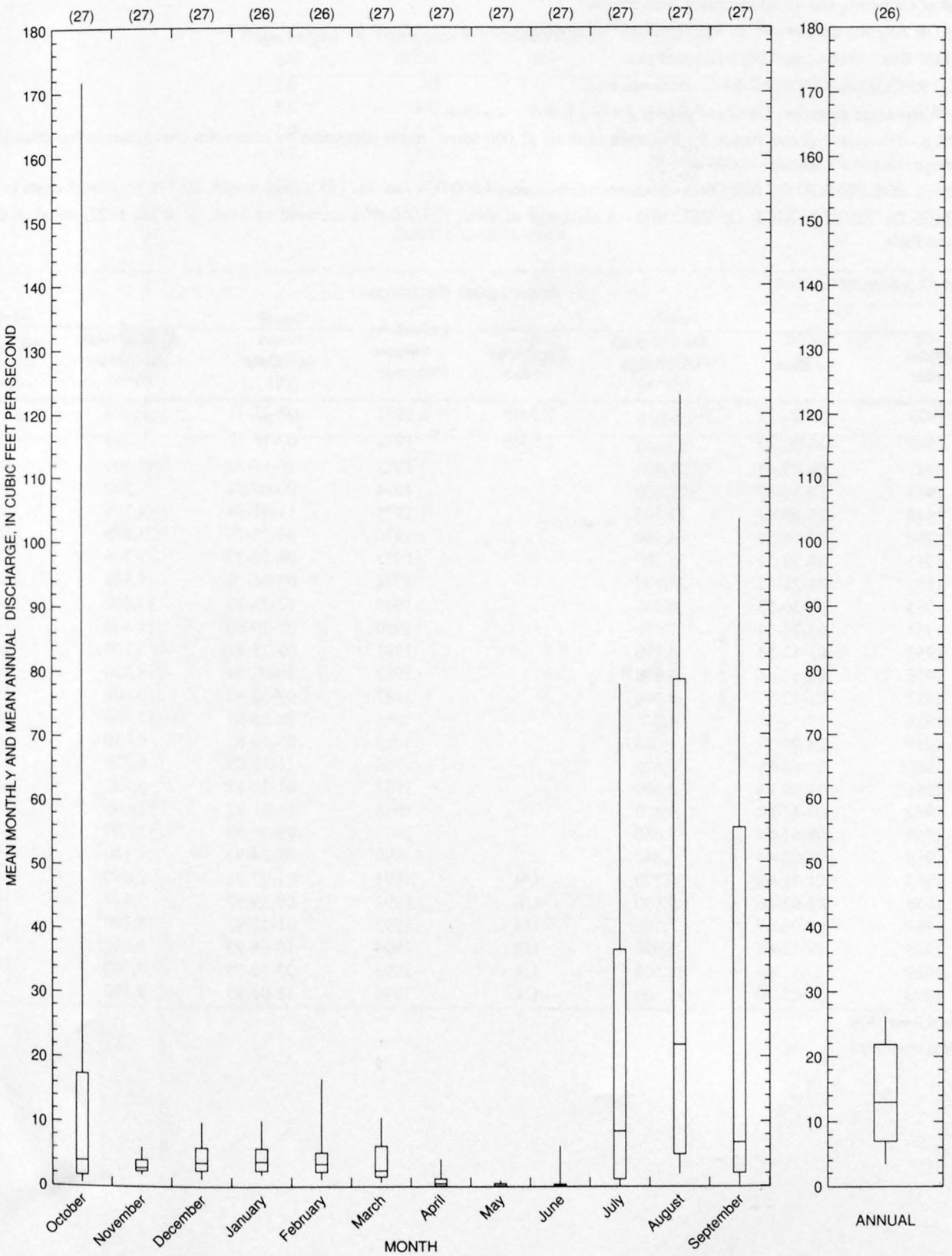
Reliability of values in column is uncertain, and potential errors are large.

09401400 MOENKOPI WASH NEAR TUBA CITY, AZ--Continued





09401400 MOENKOPI WASH NEAR TUBA CITY, AZ--Continued



09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ

LOCATION.--Lat 35°55'35", long 111°34'00", in NW$^1/_4$ sec.5, T.29 N., R.8 E. (unsurveyed), Coconino County, Hydrologic Unit 15020016, in Navajo Indian Reservation, on left bank 3 mi downstream from Coconino damsite, 9.5 mi downstream from Moenkopi Wash, 9.5 mi northwest of Cameron, and 45 mi upstream from mouth.

DRAINAGE AREA.--26,459 mi^2, of which 368 mi^2 are noncontributing.

PERIOD OF RECORD.--June 1947 to current year.

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,979.2 ft above sea level.

REMARKS.--Diversions above station for irrigation of about 32,000 acres. Some regulation by reservoirs above station (combined capacity of principal reservoirs, about 135,000 acre-ft).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft^3/s Jan. 21, 1952, gage height, 20.7 ft; no flow at times in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of about 120,000 ft^3/s occurred on Sept. 19 or 20, 1923, based on discharge at Grand Falls.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1923	09-20-23	[1]120,000	ES,HP	1971	08-27-71	7,290	UR
1929	04-06-29	[2]50,000	ES,HP	1972	07-18-72	9,250	UR
1947	08-09-47	21,900		1973	10-19-72	22,400	UR
1948	10-14-47	18,600		1974	00-00-74	1,590	UR
1949	08-09-49	12,400		1975	11-01-74	4,100	UR
1950	07-18-50	4,340		1976	09-25-76	3,870	UR
1951	08-30-51	11,700		1977	08-20-77	3,300	UR
1952	01-21-52	24,900		1978	03-06-78	9,540	UR
1953	07-30-53	6,230		1979	12-23-78	17,800	UR
1954	03-25-54	7,070		1980	02-20-80	12,400	UR
1955	06-13-55	8,990		1981	09-23-81	5,100	UR
1956	08-17-56	6,650		1982	10-02-81	8,320	UR
1957	01-12-57	8,060		1983	09-30-83	10,600	UR
1958	10-14-57	4,840		1984	08-26-84	12,400	UR
1959	08-07-59	4,600		1985	03-16-85	6,030	UR
1960	11-02-59	6,620		1986	11-30-85	6,530	UR
1961	09-09-61	2,600		1987	01-30-87	6,730	UR
1962	02-17-62	3,470		1988	11-01-87	12,600	UR
1963	09-01-63	7,680		1989	08-19-89	12,800	UR
1964	08-02-64	8,540		1990	09-24-90	4,140	UR
1965	01-11-65	6,770	UR	1991	01-07-91	2,690	UR
1966	01-03-66	9,100	UR	1992	09-19-92	5,620	UR
1967	09-08-67	7,580	UR	1993	01-12-93	18,200	UR
1968	08-12-68	5,600	UR	1994	10-06-93	8,820	UR
1969	09-11-69	11,600	UR	1995	03-10-95	7,700	UR
1970	09-07-70	12,600	UR	1996	11-01-95	2,180	UR

[1]Highest since 1870.

[2]Highest since 1923.

09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ--Continued

Discharge rating table developed October ---

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	62	13.0	9,860
5.0	880	15.0	13,060
7.0	2,510	17.0	16,620
9.0	4,600	19.0	20,530
11.0	7,030	22.0	27,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
7.48	285	6,300	32.0	2.7	12.2	1.5	2.8

09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1948-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4,190	0.00	218	636	2.9	7.5
NOVEMBER	753	0.00	76	161	2.1	2.6
DECEMBER	1,690	0.00	108	264	2.4	3.7
JANUARY	4,690	0.00	250	730	2.9	8.7
FEBRUARY	2,720	0.00	280	518	1.8	9.7
MARCH	1,870	0.00	496	551	1.1	17.1
APRIL	3,970	0.00	603	799	1.3	20.9
MAY	2,880	0.00	140	427	3.1	4.8
JUNE	595	0.00	17	85	4.9	0.6
JULY	616	0.00	111	134	1.2	3.8
AUGUST	2,260	0.00	373	469	1.3	12.9
SEPTEMBER	832	0.00	219	219	1.0	7.6
ANNUAL	1,130	24	241	206	0.86	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	1.0	0.10	0.00	0.00	0.00	0.00
120	7.3	0.86	0.20	0.02	0.00	0.00
183	42	9.2	3.5	1.4	0.48	0.22

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1947-64, 1965-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
7,730	12,200	15,600	20,500	24,400	28,700

WEIGHTED SKEW (LOGS)= 0.14
MEAN (LOGS)= 3.89
STANDARD DEV. (LOGS)= 0.23

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-96

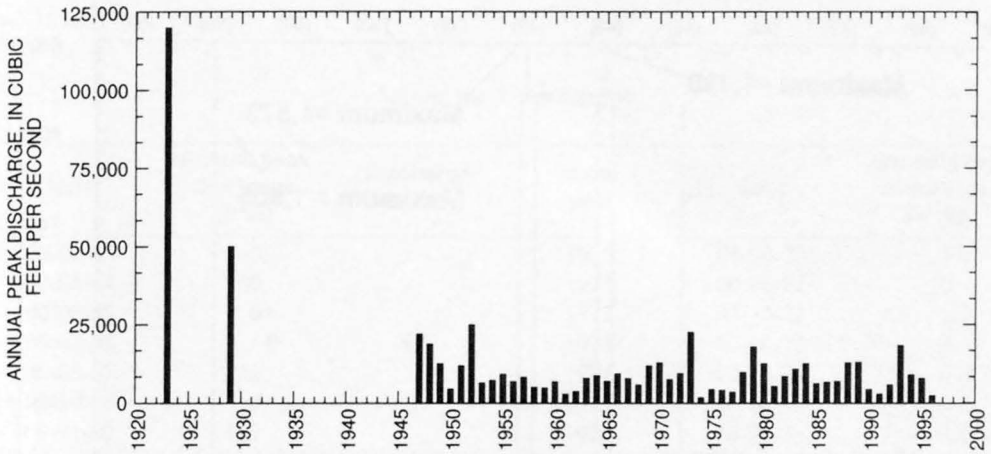
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	4,210	7,660	10,500	14,600	18,200	22,100
3	3,230	6,050	8,400	11,900	14,900	18,300
7	2,190	3,990	5,400	7,410	9,050	10,800
15	1,420	2,570	3,430	4,620	5,550	6,520
30	991	1,860	2,540	3,490	4,250	5,060
60	651	1,280	1,780	2,480	3,040	3,640
90	502	1,010	1,410	1,980	2,430	2,890

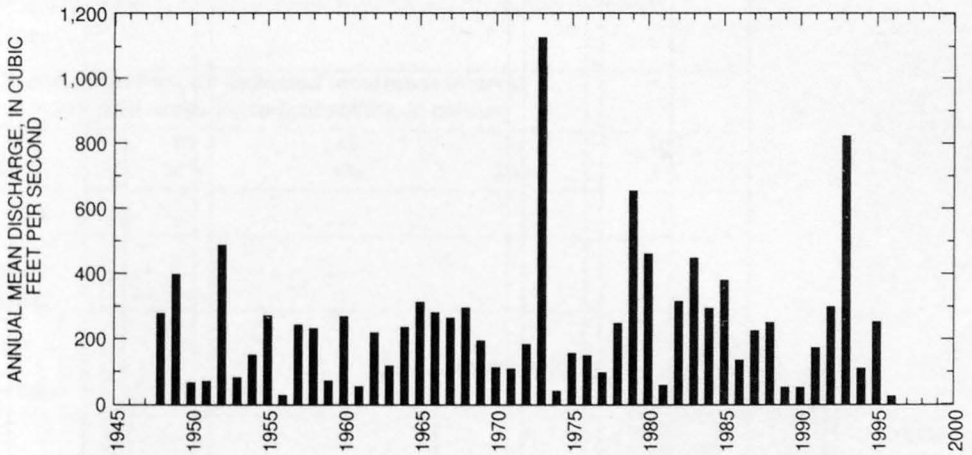
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3,620	1,360	687	361	195	66	19	3.1	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

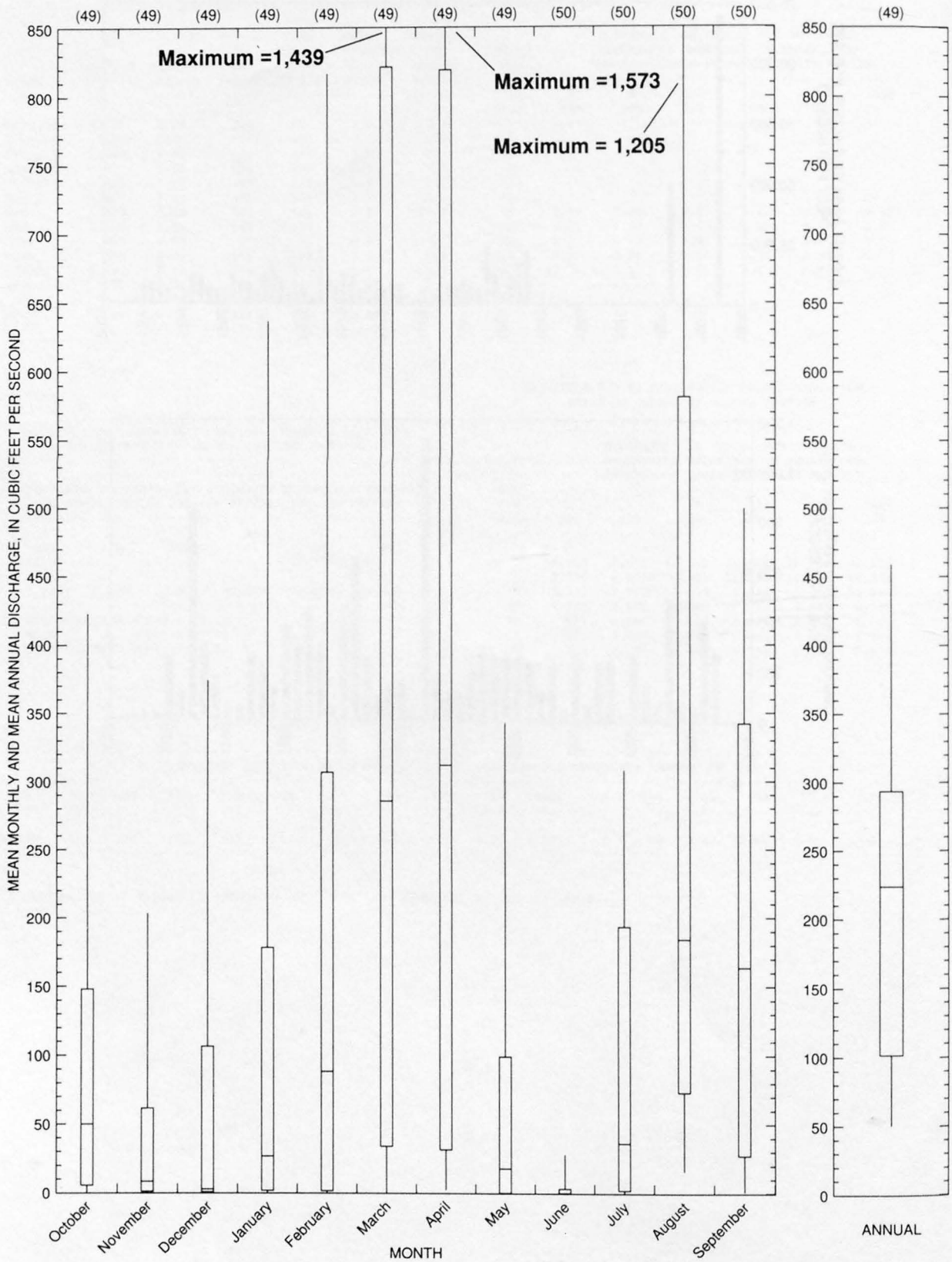
Reliability of values in column is uncertain, and potential errors are large.

09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ--Continued





09402000 LITTLE COLORADO RIVER NEAR CAMERON, AZ--Continued



09402100 FOREST BOUNDARY WASH NEAR CAMERON, AZ

LOCATION.--Lat 35°55'25", long 111°44'15", in NE$^1/_4$SW$^1/_4$ sec.3, T.29 N., R.6 E., Coconino County, Hydrologic Unit 15020016, at State Highway 64, 0.6 mi inside eastern boundary of Kaibab National Forest, and 18 mi west of Cameron.

DRAINAGE AREA.--0.72 mi^2.

Annual peak discharges

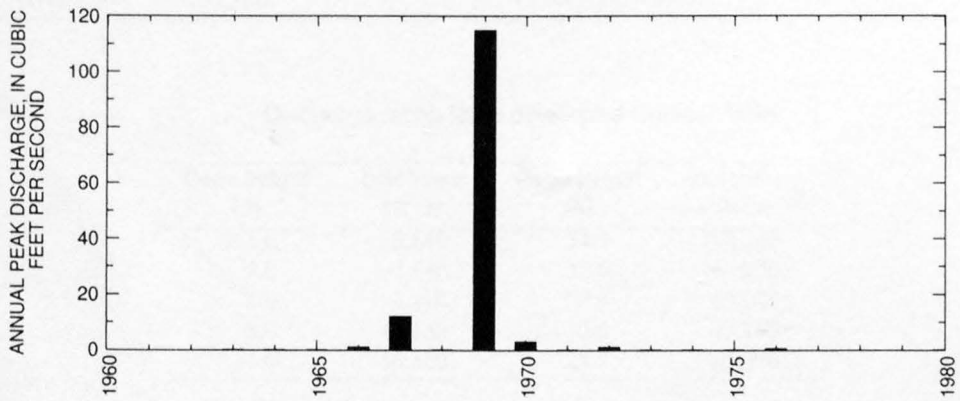
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	0		1970	08-00-70	3.0	
1964	00-00-64	0		1971	00-00-71	0	
1965	00-00-65	0		1972	07-18-72	1.0	ES
1966	00-00-66	1.0	LT	1973	00-00-73	0	
1967	00-00-67	12		1974	00-00-74	0	
1968	00-00-68	0		1975	00-00-75	0	
1969	09-11-69	115		1976	00-00-76	0.5	ES

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
167	1.6	6,810	94.0	3.0	11.9	1.4	3.2



09402500 COLORADO RIVER NEAR GRAND CANYON, AZ

LOCATION.--Lat 36°06'05", long 112°05'08", in sec.5, T.31 N., R.3 E. (unsurveyed), Coconino County, Hydrologic Unit 15010001, in Grand Canyon National Park, on left bank 0.2 mi upstream from Kaibab Bridge, 0.4 mi upstream from Bright Angel Creek, 4.5 mi northeast of village of Grand Canyon, 26 mi downstream from Little Colorado River, and 267 mi upstream from Hoover Dam.

DRAINAGE AREA.--141,600 mi^2 approximately, including 3,959 mi^2 in Great Divide basin in southern Wyoming which is noncontributing.

PERIOD OF RECORD.--October 1922 to current year. Prior to 1944, published as "Colorado River at Bright Angel Creek, near Grand Canyon." Gage-height records collected 1.5 mi downstream 1908-13, published in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 2,418.7 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Lake Powell, 104 mi upstream, since Mar. 13, 1963. (See elsewhere in this report.) Many diversions above station for irrigation, municipal, and industrial uses.

EXTREMES FOR PERIOD OF RECORD.--1922-62: Maximum discharge, 127,000 ft^3/s July 2, 1927, gage height, 29.25 ft; minimum, 700 ft^3/s Dec. 28, 1924, gage height, -0.70 ft.

1963-96: Maximum discharge, 96,200 ft^3/s June 29, 1983, gage height, 26.26 ft; minimum, 850 ft^3/s Jan. 26, 1963, gage height, -0.55 ft, result of closing coffer dam at Glen Canyon Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1884, 300,000 ft^3/s about July 8, 1884 (computed on basis of flood studies at Lees Ferry). Crest discharge of flood of June 19, 1921, was 220,000 ft^3/s, gage height, 37.5 ft from floodmarks, from rating curve extended above 120,000 ft^3/s.

09402500 COLORADO RIVER NEAR GRAND CANYON, AZ

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1884	07-08-84	300,000	ES,HP	1959	06-19-59	38,300	
1921	06-19-21	220,000		1960	06-10-60	46,300	
1922	06-01-22	115,000	ES	1961	06-06-61	39,800	
1923	09-19-23	112,000		1962	05-17-62	85,600	
1924	06-18-24	74,000		1963	10-22-62	20,700	KR
1925	06-03-25	53,700		1964	04-29-64	19,700	KR
1926	05-29-26	85,600		1965	06-15-65	58,400	KR
1927	07-02-27	127,000		1966	05-04-66	21,300	KR
1928	06-03-28	115,000		1967	09-09-67	23,900	KR
1929	05-29-29	111,000		1968	07-20-68	26,800	KR
1930	06-04-30	71,000		1969	09-12-69	30,800	KR
1931	05-22-31	34,600		1970	08-27-70	27,600	KR
1932	05-26-32	102,000		1971	08-24-71	33,400	KR
1933	06-05-33	81,500		1972	05-26-72	29,500	KR
1934	05-17-34	25,500		1973	04-19-73	38,300	KR
1935	06-19-35	105,000		1974	08-21-74	28,200	KR
1936	05-24-36	76,300		1975	07-30-75	28,900	KR
1937	05-21-37	85,300		1976	05-20-76	27,700	KR
1938	06-08-38	100,000		1977	08-19-77	32,100	KR
1939	05-26-39	49,000		1978	09-09-78	29,400	KR
1940	05-18-40	46,800		1979	12-23-78	38,600	KR
1941	05-17-41	120,000		1980	06-24-80	45,000	KR
1942	05-31-42	91,800		1981	07-30-81	25,400	KR
1943	06-06-43	66,800		1982	08-28-82	27,900	KR
1944	05-20-44	93,400		1983	06-29-83	96,200	KR
1945	05-17-45	63,300		1984	08-13-84	47,600	KR
1946	06-14-46	50,100		1985	06-02-85	47,400	KR
1947	05-14-47	80,100		1986	05-31-86	53,500	KR
1948	05-26-48	89,800		1987	01-31-87	31,600	KR
1949	06-22-49	112,000		1988	07-29-88	25,500	KR
1950	06-06-50	58,400		1989	08-19-89	31,300	KR
1951	06-01-51	63,700		1990	08-01-90	28,200	KR
1952	06-12-52	122,000		1991	06-18-91	29,000	KR
1953	06-17-53	68,500		1992	07-24-92	19,900	KR
1954	05-27-54	32,800		1993	01-13-93	34,100	KR
1955	06-14-55	40,400		1994	08-18-94	22,000	KR
1956	06-06-56	67,200		1995	09-09-95	25,400	KR
1957	06-13-57	125,000		1996	03-31-96	47,900	KR
1958	06-02-58	107,700					

Discharge rating table developed October 1984

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.0	2,640	14.0	28,360
2.0	3,640	17.0	40,220
5.0	7,110	20.0	55,040
8.0	12,130	23.0	73,130
11.0	18,820	25.7	91,810

09402500 COLORADO RIVER NEAR GRAND CANYON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1923-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	31,000	1,260	9,750	4,900	0.50	5.2
NOVEMBER	25,000	1,280	9,650	4,220	0.44	5.2
DECEMBER	25,200	1,260	9,170	4,760	0.52	4.9
JANUARY	26,300	1,280	9,340	5,380	0.58	5.0
FEBRUARY	27,200	4,260	9,680	4,540	0.47	5.2
MARCH	25,800	3,300	10,700	4,030	0.38	5.7
APRIL	46,400	1,200	17,300	8,870	0.51	9.3
MAY	82,300	1,280	30,200	20,500	0.68	16.2
JUNE	93,100	1,290	35,800	24,000	0.67	19.2
JULY	65,600	1,370	19,400	11,100	0.57	10.4
AUGUST	32,400	1,820	13,600	6,770	0.50	7.3
SEPTEMBER	36,400	2,050	11,600	6,750	0.58	6.2
ANNUAL	28,600	3,760	15,500	5,450	0.35	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1924-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,400	2,200	1,710	1,370	1,060	884
3	3,850	2,460	1,910	1,530	1,180	985
7	4,440	2,800	2,160	1,730	1,330	1,110
14	5,040	3,160	2,420	1,930	1,470	1,220
30	5,820	3,740	2,910	2,340	1,810	1,510
60	6,780	4,350	3,340	2,640	2,000	1,640
90	7,430	4,820	3,740	2,990	2,290	1,900
120	7,940	5,210	4,070	3,270	2,520	2,100
183	8,680	5,750	4,530	3,660	2,850	2,390

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%

WEIGHTED SKEW (LOGS)=******
MEAN (LOGS)=******
STANDARD DEV. (LOGS)=******

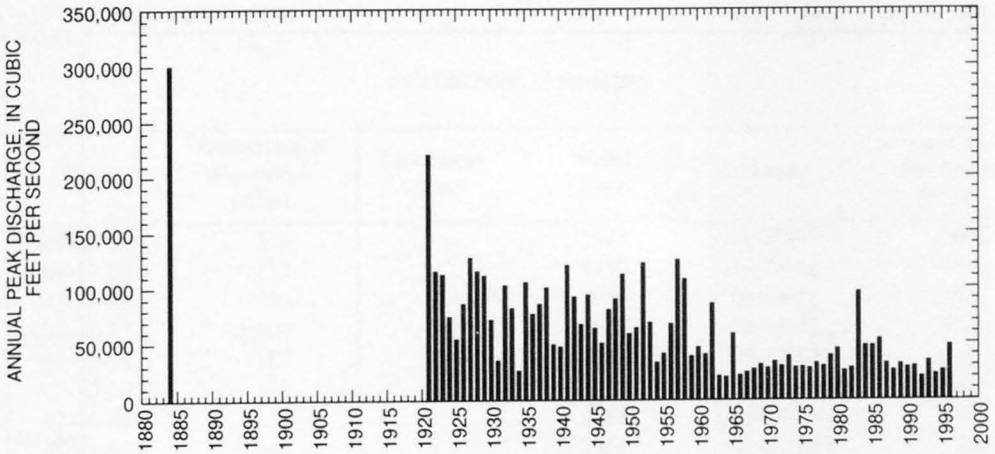
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1923-96

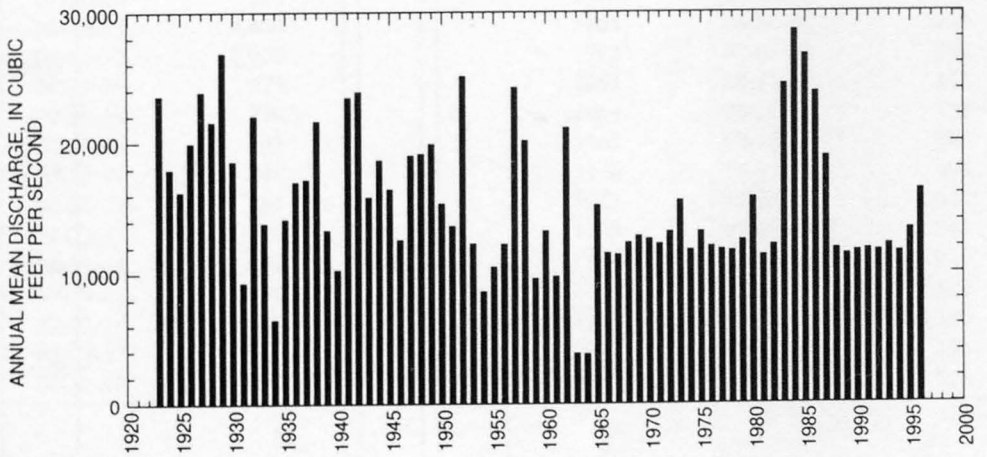
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	44,800	76,800	102,000	138,000	168,000	201,000
3	43,400	75,100	100,000	136,000	165,000	197,000
7	41,000	71,500	95,400	129,000	157,000	188,000
15	37,900	65,800	87,500	118,000	144,000	171,000
30	34,900	59,700	78,700	105,000	127,000	151,000
60	30,500	50,700	66,000	87,400	105,000	123,000
90	26,900	43,300	55,300	71,700	84,700	98,400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1923-96

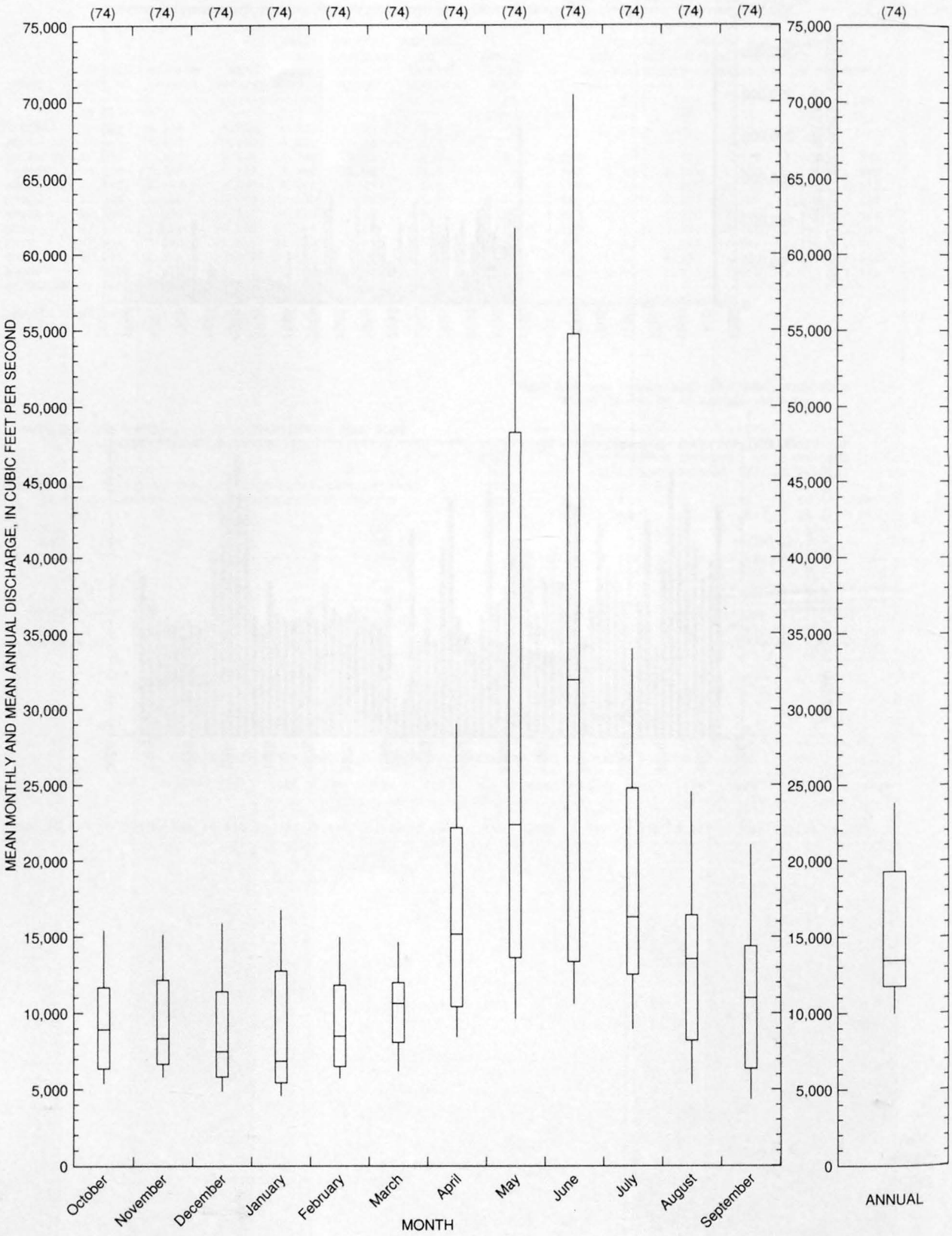
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
79,500	48,000	31,000	24,000	19,900	15,700	13,100	11,000	9,180	7,560	6,300	5,040	3,930	2,580	1,360	1,210	1,120

09402500 COLORADO RIVER NEAR GRAND CANYON, AZ--Continued





09402500 COLORADO RIVER NEAR GRAND CANYON, AZ--Continued



09403000 BRIGHT ANGEL CREEK NEAR GRAND CANYON, AZ

LOCATION.--Lat 36°06'11", long 112°05'44", in sec.5, T.31 N., R.3 E. (unsurveyed), Coconino County, Hydrologic Unit 15010001, in Grand Canyon National Park, on right bank 0.4 mi upstream from mouth and 4 mi northeast of Grand Canyon.

DRAINAGE AREA.--101 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1924	09-10-24	530		1949	04-28-49	206	
1925	09-17-25	122		1950	10-18-49	197	
1926	07-27-26	1,000		1951	08-29-51	193	
1927	09-16-27	1,000		1952	05-05-52	672	
1928	05-03-28	187		1953	08-27-53	930	
1929	07-10-29	173		1954	03-23-54	446	
1930	02-23-30	113		1955	06-13-55	103	
1931	06-25-31	45		1956	01-27-56	77	
1932	02-09-32	500		1957	08-05-57	1,770	
1933	08-07-33	186		1958	08-22-58	900	ES
1934	10-09-33	250		1959	08-11-59	660	
1935	07-20-35	270		1960	06-06-60	240	
1936	08-19-36	4,400		1961	08-30-61	266	
1937	07-29-37	2,000		1962	02-08-62	240	
1938	04-21-38	575		1963	08-17-63	855	
1939	09-06-39	270		1964	08-26-64	353	
1940	08-24-40	602		1965	08-15-65	788	
1941	05-13-41	848		1966	11-23-65	484	
1942	04-23-42	264		1967	12-06-66	4,000	
1943	04-23-43	426		1968	07-07-68	240	
1944	05-15-44	199		1969	01-25-69	930	
1945	07-30-45	297		1970	03-01-70	1,180	
1946	07-22-46	840		1971	07-19-71	2,300	
1947	08-27-47	310		1972	07-25-72	126	
1948	08-11-48	1,900		1973	05-12-73	578	

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.8	10.0	5.2	150
4.0	18.6	5.5	204
4.3	38.4	5.8	268
4.6	66.5	6.1	344
4.9	104	6.4	430

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
421	17.6	7,390	53	2.2	19.8	2.5	4.3

09403000 BRIGHT ANGEL CREEK NEAR GRAND CANYON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1924-73

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	34	15	21	4.1	0.20	5.0
NOVEMBER	34	15	21	4.2	0.20	5.1
DECEMBER	181	16	25	23	0.90	6.0
JANUARY	33	16	22	4.0	0.18	5.3
FEBRUARY	51	16	24	7.6	0.31	5.8
MARCH	64	16	27	9.8	0.36	6.5
APRIL	217	15	77	51	0.66	18.3
MAY	501	14	103	106	1.0	24.4
JUNE	131	14	34	23	0.67	8.0
JULY	44	13	23	5.8	0.25	5.5
AUGUST	41	13	22	4.7	0.21	5.2
SEPTEMBER	45	14	21	5.6	0.26	5.1
ANNUAL	89	15	35	15	0.44	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1925-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	14	13	12	11	11
3	17	14	13	12	11	10
7	17	15	13	12	12	11
14	18	15	14	13	12	12
30	18	16	15	14	13	12
60	19	16	15	14	13	13
90	19	17	16	15	14	13
120	20	17	16	15	14	13
183	20	18	16	15	14	14

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1924-73

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
435	1,010	1,600	2,640	3,670	4,970

WEIGHTED SKEW (LOGS)= 0.18
MEAN (LOGS)= 2.65
STANDARD DEV. (LOGS)= 0.43

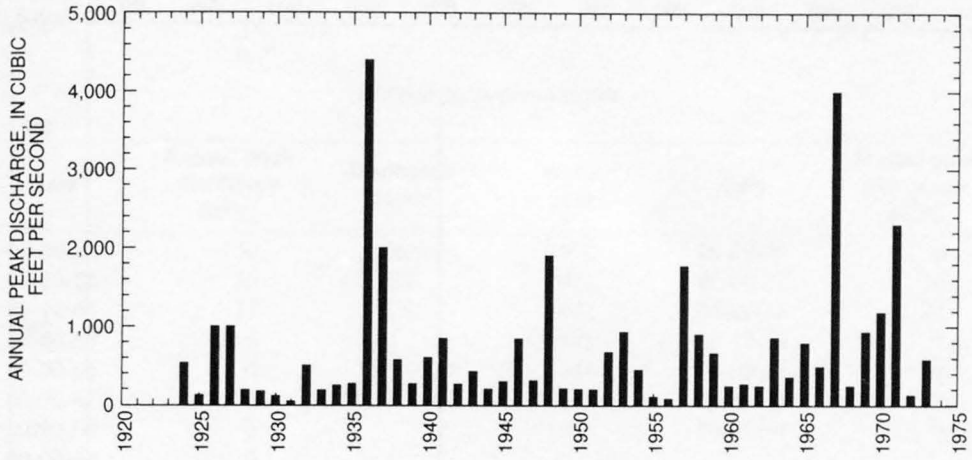
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1924-73

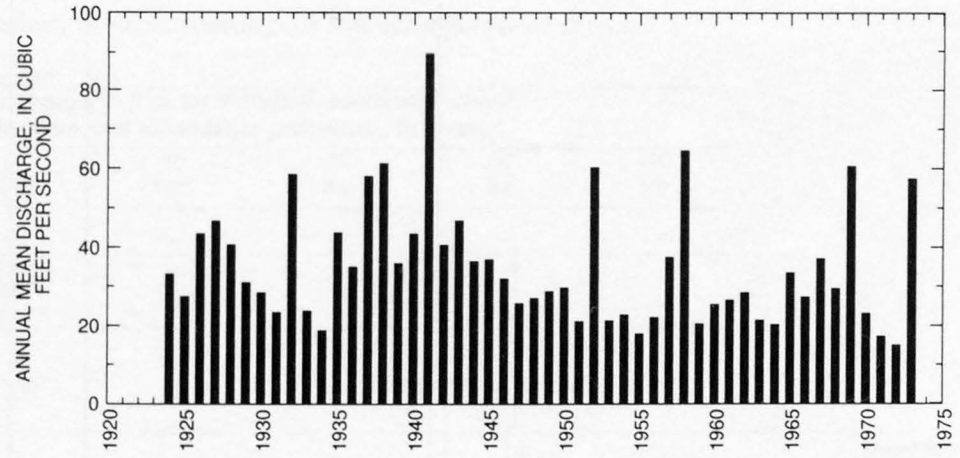
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	148	339	539	907	1,290	1,780
3	137	309	476	760	1,030	1,360
7	126	281	424	654	863	1,110
15	112	242	360	546	712	902
30	94	195	284	422	544	681
60	72	138	194	281	357	444
90	58	104	143	203	256	315

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1924-73

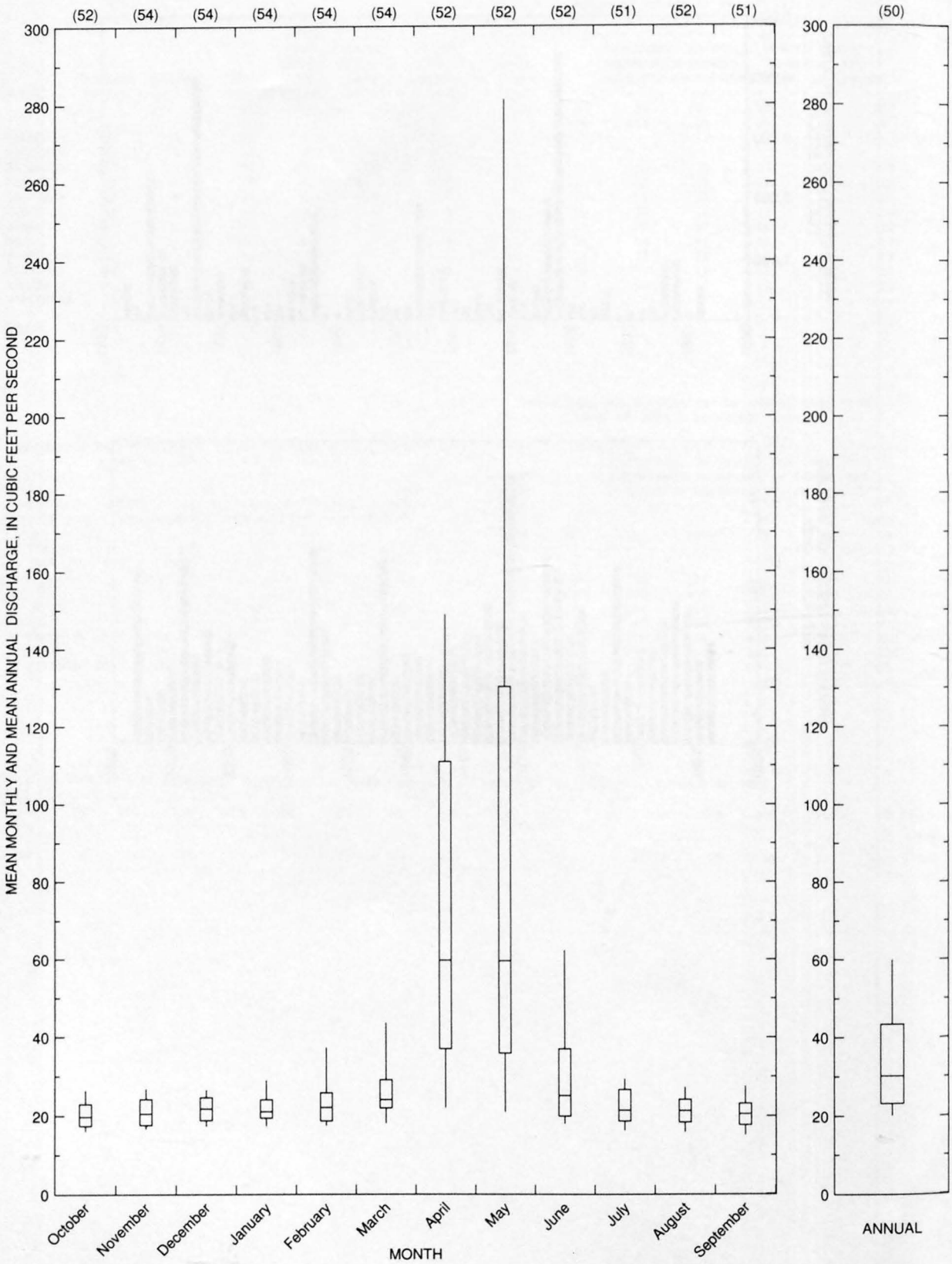
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
294	100	54	37	32	27	25	23	22	20	19	17	16	15	14	13	12

09403000 BRIGHT ANGEL CREEK NEAR GRAND CANYON, AZ--Continued





09403000 BRIGHT ANGEL CREEK NEAR GRAND CANYON, AZ--Continued



09403750 SAGEBRUSH DRAW NEAR FREDONIA, AZ

LOCATION.--Lat 36°54'05", long 112°22'35", in $NE^1/_4NE^1/_4$ sec.3, T.40 N., R.1 W. (unsurveyed), Coconino County, Hydrologic Unit 15010003, at U.S. Highway 89 Alt., 9.5 mi east of Fredonia.

DRAINAGE AREA.--0.68 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	00-00-60	150	HP	1970	00-00-70	0	
1963	08-30-63	50	ES	1971	02-00-71	16	ES
1964	07-14-64	35	ES	1972	06-22-72	20	ES
1965	00-00-65	0		1973	10-19-72	5.0	ES
1966	00-00-66	0		1974	00-00-74	0	
1967	00-00-67	0		1975	08-21-75	10	LT
1968	00-00-68	0		1976	00-00-76	0.1	
1969	00-00-69	0					

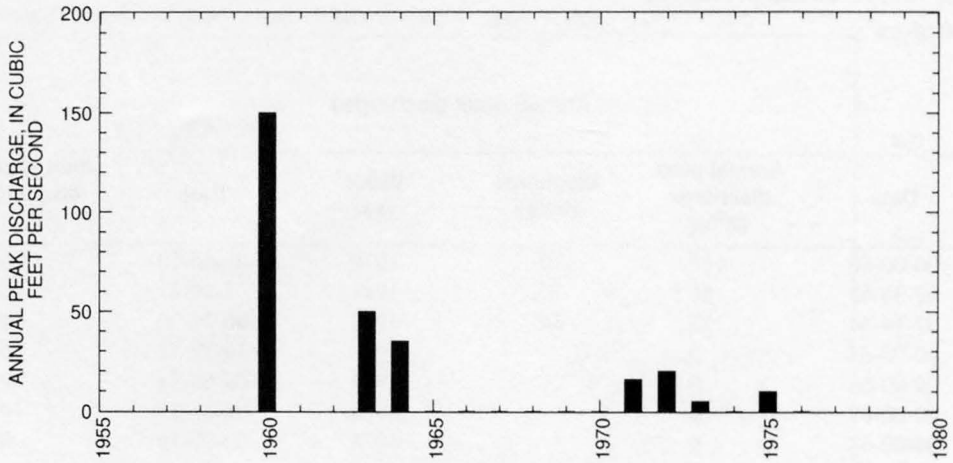
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
106	2.3	5,290	0.0	3.0	12.0	1.4	3.2

09403750 SAGEBRUSH DRAW NEAR FREDONIA, AZ--Continued



09403780 KANAB CREEK NEAR FREDONIA, AZ

LOCATION.--Lat 36°51'50", long 112°34'45", in $SE^1/_4$ sec.14, T.40 N., R.3 W. (unsurveyed), Coconino County, Hydrologic Unit 15010003, in Kaibab Indian Reservation, at Nagles Crossing, on left bank 0.2 mi downstream from Johnson Wash and 6.5 mi southwest of Fredonia.

DRAINAGE AREA.--1,085 mi^2.

PERIOD OF RECORD.--October 1963 to September 1980 (discontinued).

REVISED RECORDS.--WRD Ariz. 1974:

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,500 ft, from topographic map.

REMARKS.--Records fair except those for periods of no gage-height record, which are poor. Diversions upstream for irrigation of about 1,400 acres in Utah and 800 acres in Arizona in 1967.

AVERAGE DISCHARGE.--17 years, 6.78 ft^3/s, 4,910 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,630 ft^3/s Aug. 18, 1970, gage height, 9.11 ft, inside, 9.7 ft, from profile past gage, from rating curve extended above 850 ft^3/s on basis of slope-area measurement of peak flow; no flow for most of time.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1550	00-00-50	[1]15,000	ES,PF	1972	09-19-72	1,680	
1964	08-13-65	([2])		1973	04-14-73	660	
1965	04-18-65	250		1974	07-23-74	84	
1966	03-08-66	668		1975	07-13-75	603	
1967	12-07-67	2,960		1976	09-25-76	410	
1968	07-31-68	1,130		1977	07-23-77	435	
1969	07-23-69	1,330		1978	04-11-78	460	
1970	08-18-70	4,630		1979	02-14-79	2,020	
1971	08-18-71	1,340		1980	02-20-80	957	

[1]Highest since 1488, Smith.

[2]Discharge not determined.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
56.4	49.6	6,100	60.0	3.0	12.0	1.5	3.0

09403780 KANAB CREEK NEAR FREDONIA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1964-80

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	19	0.00	1.8	4.6	2.6	2.2
NOVEMBER	16	0.00	2.2	5.1	2.3	2.7
DECEMBER	58	0.00	7.3	15	2.0	8.9
JANUARY	30	0.00	5.9	8.2	1.4	7.2
FEBRUARY	49	0.00	9.9	14	1.5	12.2
MARCH	90	0.00	17	24	1.5	20.5
APRIL	80	0.00	21	30	1.4	25.8
MAY	6.5	0.00	0.71	1.6	2.3	0.9
JUNE	0.77	0.00	0.05	0.19	3.5	0.1
JULY	20	0.00	3.5	6.4	1.8	4.3
AUGUST	48	0.00	7.6	14	1.9	9.4
SEPTEMBER	29	0.00	4.8	8.6	1.8	5.9
ANNUAL	18	0.78	6.8	5.2	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-80

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.02	0.00	0.00	0.00	0.00	0.00
120	0.21	0.09	0.00	0.00	0.00	0.00
183	0.92	0.21	0.09	0.04	0.02	0.01

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1550, 1965-80

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
875	1,760	2,610	4,050	5,440	7,140

WEIGHTED SKEW (LOGS)= 0.34
MEAN (LOGS)= 2.96
STANDARD DEV. (LOGS)= 0.35

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-80

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	223	482	679	936	1,130	1,310
3	139	290	397	529	620	704
7	85	179	244	319	369	414
15	50	116	166	232	280	327
30	32	74	108	154	188	221
60	19	46	67	97	119	142
90	14	35	53	78	99	121

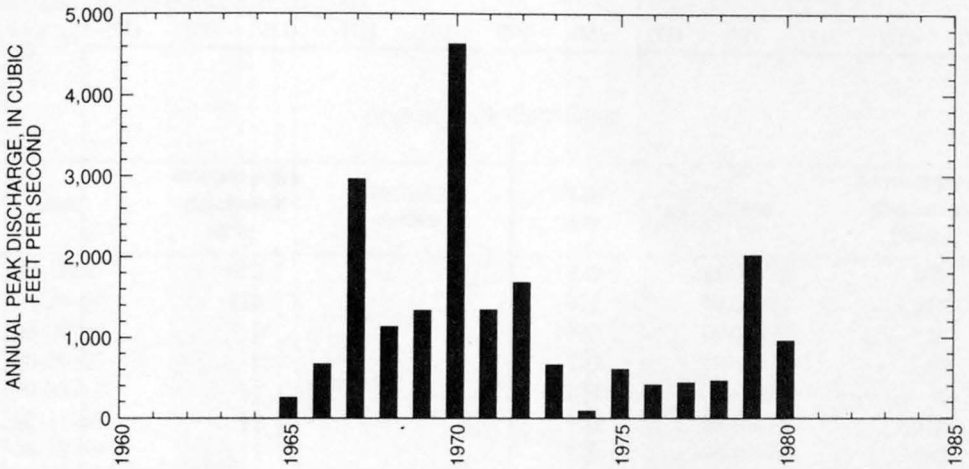
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-80

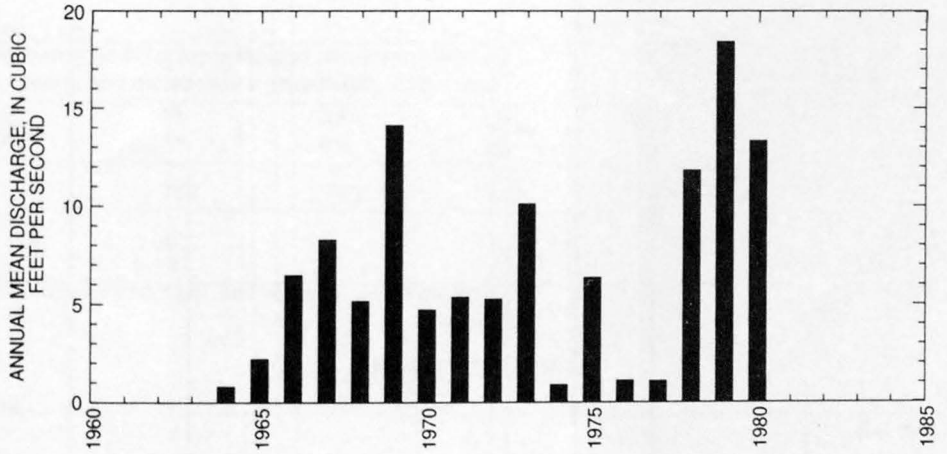
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
146	28	11	5.6	2.9	0.69	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

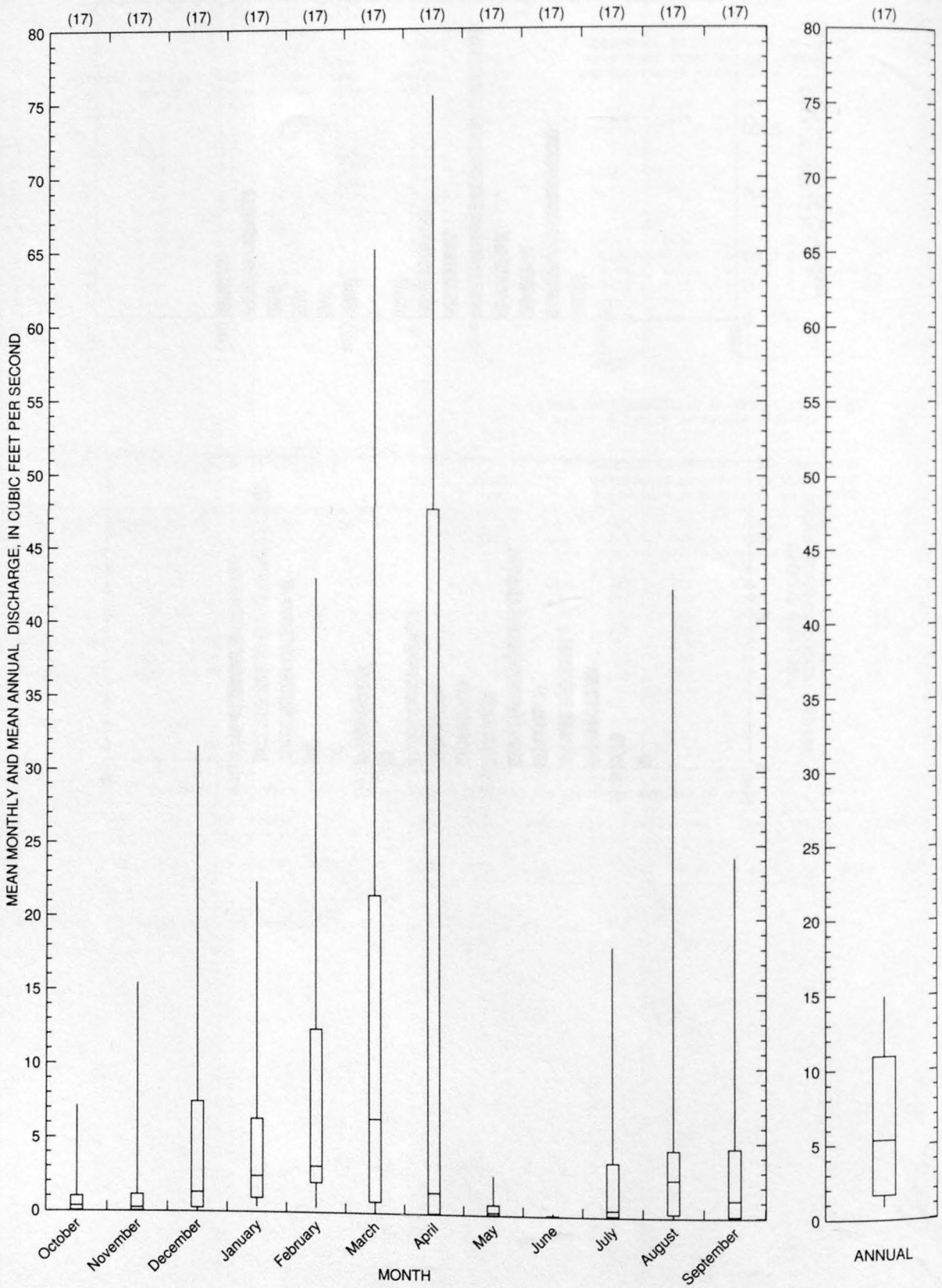
Reliability of values in column is uncertain, and potential errors are large.

09403780 KANAB CREEK NEAR FREDONIA, AZ--Continued





09403780 KANAB CREEK NEAR FREDONIA, AZ--Continued



09403800 BITTER SEEPS WASH TRIBUTARY NEAR FREDONIA, AZ

LOCATION.--Lat 36°51'25", long 112°45'30", in NE$^1/_4$ sec.19, T.40 N., R.4 W., Mohave County, at State Highway 389, 1 mi west of Pipe Spring National Monument, and 14 mi southwest of Fredonia.

DRAINAGE AREA.--2.85 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-30-63	622		1970	08-18-70	670	
1964	07-24-64	736		1971	08-23-71	1,950	
1965	00-00-65	0		1972	09-20-72	50	ES
1966	00-00-66	0		1973	10-19-72	30	
1967	09-23-67	55		1974	00-00-74	0	
1968	07-31-68	57		1975	07-08-75	1,050	
1969	08-29-69	137		1976	00-00-76	165	

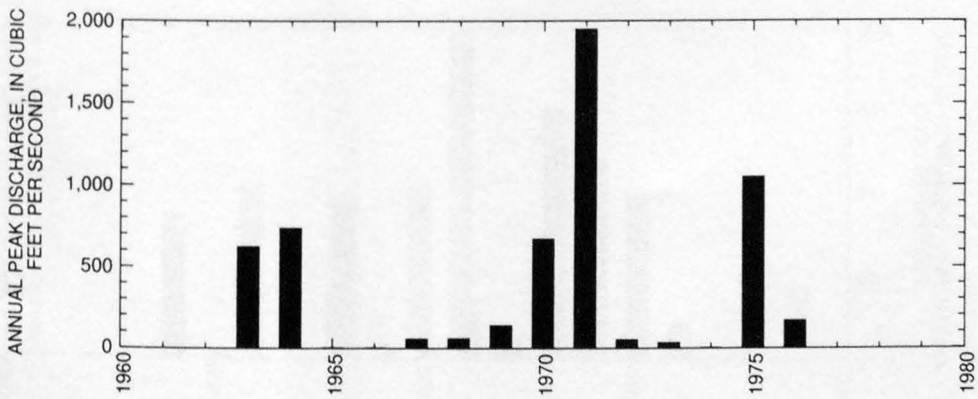
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
127	575	1,240	2,780	4,660	7,350
Weighted skew	(logs) =	-0.11			
Mean	(logs) =	2.09			
Standard dev.	(logs) =	0.79			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
129	2.9	5,120	40.0	3.0	12.0	1.5	3.2



09403930 WEST CATARACT CREEK NEAR WILLIAMS, AZ

LOCATION.--Lat 35°14'52", long 112°13'28", in NW$^1/_4$ sec.31, T.22 N., R.2 E., Coconino County, Hydrologic Unit 15010004, at Country Club Road, 0.25 mi above Cataract Lake, and 1 mi west of Williams city limits.

DRAINAGE AREA.--3.18 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-26-64	21		1971	00-00-71	4.0	
1965	04-00-65	99		1972	12-26-71	60	
1966	11-25-65	122		1973	10-00-72	96	
1967	12-06-66	151		1974	07-00-74	1.0	LT
1968	00-00-68	12		1975	04-00-75	2.0	
1969	03-00-69	36		1976	00-00-76	88	
1970	00-00-70	5.0					

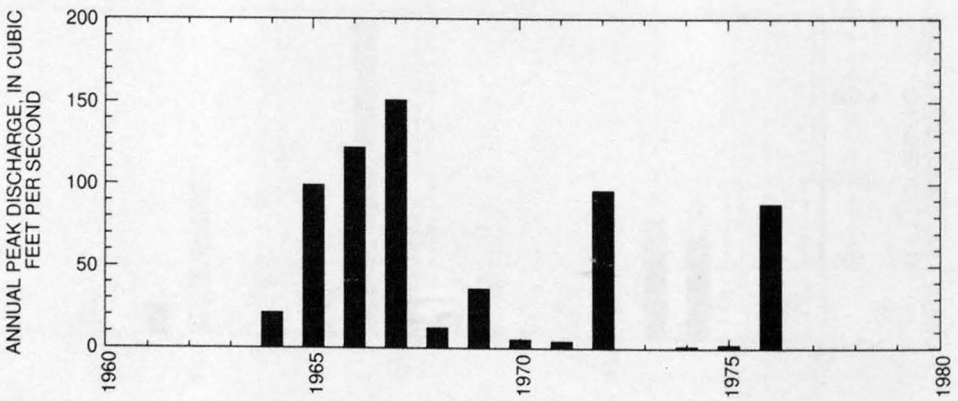
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
26.2	96.4	181	342	505	708
Weighted skew	(logs) =	-0.34			
Mean	(logs) =	1.38			
Standard dev.	(logs) =	0.71			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
465	3.9	7,190	82.0	3.0	23.5	2.0	4.2



09404050 SPRING VALLEY WASH TRIBUTARY NEAR WILLIAMS, AZ

LOCATION.--Lat 35°34'28", long 112°09'12", in $SW^1/_4$ sec.2, T.25 N., R.2 E., Coconino County, Hydrologic Unit 15010004, at State Highway 64, 6 mi southeast of Valle, and 22.5 mi north of Williams.

DRAINAGE AREA.--5.00 mi^2, of which 1.07 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-24-63	100		1970	07-22-70	30	ES
1964	07-00-64	25	ES	1971	00-00-71	1.0	LT
1965	09-06-65	35	ES	1972	07-17-72	8.0	LT
1966	00-00-66	20	ES	1973	00-00-73	1.0	LT
1967	00-00-67	98		1974	00-00-74	0	
1968	00-00-68	190		1975	00-00-75	0	
1969	00-00-69	1.0	ES	1976	09-26-76	32	

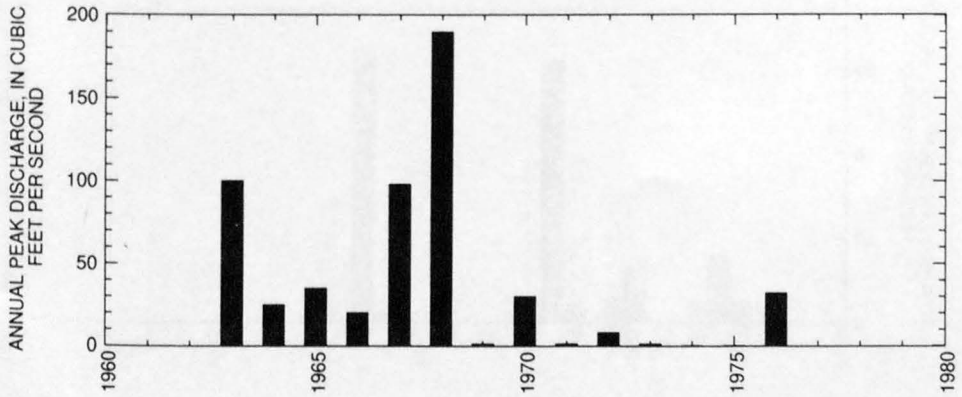
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
17.7	61.2	113	213	317	449
Weighted skew	(logs) =	-0.23			
Mean	(logs) =	1.22			
Standard dev.	(logs) =	0.66			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
40.5	2.4	6,750	9.2	3.0	12.2	1.5	3.3



09404070 LITTLE RED HORSE WASH NEAR GRAND CANYON, AZ

LOCATION.--Lat 35°50'45", long 112°07'55", in NW$^1/_4$ sec.1, T.28 N., R.2 E., Coconino County, Hydrologic Unit 15010004, at State Highway 64, 0.1 mi south of road to Old Grand Canyon airport, and 15 mi south of Grand Canyon Village.

DRAINAGE AREA.--21.8 mi^2.

Annual peak discharges

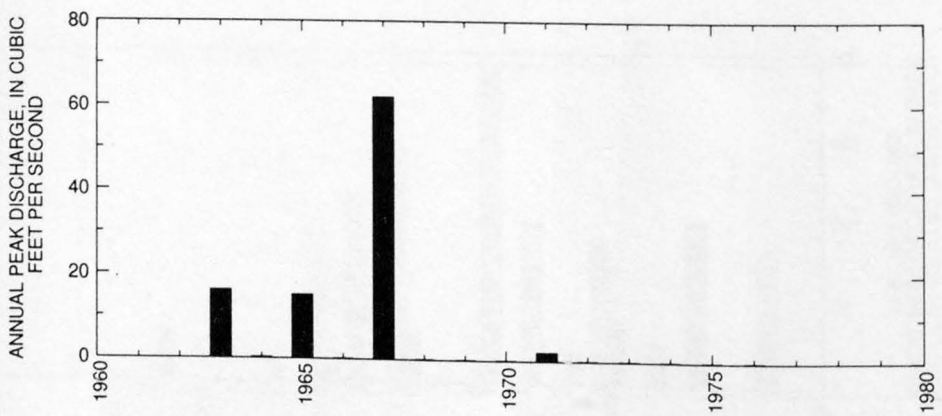
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-24-63	16		1970	00-00-70	0	
1964	00-00-64	0.1		1971	00-00-71	2.0	ES
1965	10-17-64	15		1972	00-00-72	0	
1966	00-00-66	0		1973	00-00-73	0	
1967	00-00-67	62		1974	00-00-74	0	
1968	00-00-68	0		1975	00-00-75	0	
1969	00-00-69	0		1976	00-00-76	0	

Magnitude and probability of instantaneous peak flow based on period of record

	Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100	
50%	20%	10%	4%	2%	1%	
---	---	---	---	---	---	---
Weighted skew	(logs) =	---				
Mean	(logs) =	---				
Standard dev.	(logs) =	---				

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
56.9	9.6	6,780	87.0	3.0	13.2	1.7	3.3



09404310 YAMPAI CANYON TRIBUTARY NEAR PEACH SPRINGS, AZ

LOCATION.--Lat 35°33'07", long 113°23'17", in $SE^1/_4NW^1/_4$ sec.18, T.25 N., R.10 W., Mohave County, Hydrologic Unit 15010002, at U.S. Highway 66, 2.8 mi northeast of the Peach Springs Post Office.

DRAINAGE AREA.--0.20 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	00-00-64	0		1971	08-10-71	21	
1965	00-00-65	0		1972	08-12-72	27	
1966	07-30-66	177		1973	00-00-73	0	
1967	09-03-67	17		1974	07-21-74	25	ES
1968	08-04-68	19		1975	07-06-75	25	
1969	07-29-69	6.0	ES	1976	00-00-76	5.0	
1970	07-00-70	27					

Magnitude and probability of instantaneous peak flow based on period of record 1964-76

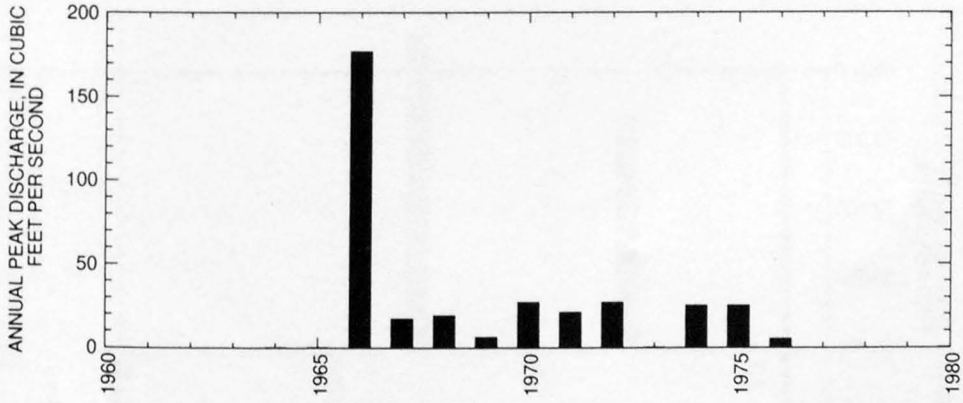
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
13.8	37.2	63.5	114	167	237

Weighted skew	(logs) =	0.16
Mean	(logs) =	1.15
Standard dev.	(logs) =	0.50

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
444	0.30	5,360	0.0	3.0	12.2	1.5	3.4



09404340 TRUXTON WASH AT VALENTINE, AZ

LOCATION.--Lat 35°23'10", long 113°39'20", in SE$^1/_4$ sec.10, T.23 N., R.13 W., Mohave County, Hydrologic Unit 15010007, in Hualapai Indian Reservation, at Valentine.

DRAINAGE AREA.--370 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1904	07-30-04	[1]49,000	ES,HP	1971	08-21-71	1,130	
1965	07-29-65	250		1972	09-19-72	40	
1966	08-18-66	1,960		1973	07-08-73	380	
1967	09-15-67	1,640		1974	07-20-74	6,500	
1968	08-04-68	8,760		1975	00-00-75	1,400	
1969	07-19-69	900		1976	00-00-76	5.0	ES
1970	07-22-70	2,650					

[1]Highest since 1898.

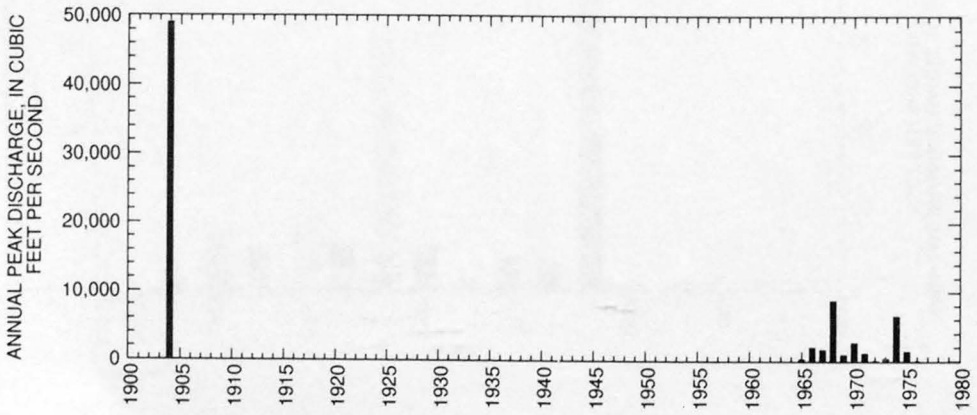
Magnitude and probability of instantaneous peak flow based on period of record 1904, 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,150	3,510	6,330	12,000	18,100	26,300
Weighted skew	(logs) =	0.06			
Mean	(logs) =	3.07			
Standard dev.	(logs) =	0.57			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
57.0	30.4	4,630	72.0	2.0	12.1	1.5	3.5



09404350 VALENTINE WASH AT VALENTINE, AZ

LOCATION.--Lat 35°23'00", long 113°39'45", in SW$^1/_4$ sec.15, T.23 N., R.13 W., Mohave County, Hydrologic Unit 15010007, at U.S. Highway 66, 0.3 mi southwest of Valentine.

DRAINAGE AREA.--3.15 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	0		1970	07-00-70	30	ES
1964	08-00-64	5.0	ES	1971	00-00-71	15	ES
1965	10-17-64	20	ES	1972	08-12-72	2,800	
1966	12-09-65	4.0	ES	1973	03-12-73	25	ES
1967	08-20-67	3,800		1974	00-00-74	0	
1968	08-04-68	50	ES	1975	00-00-75	1.0	ES
1969	07-29-69	2.0	LT	1976	00-00-76	10	LT

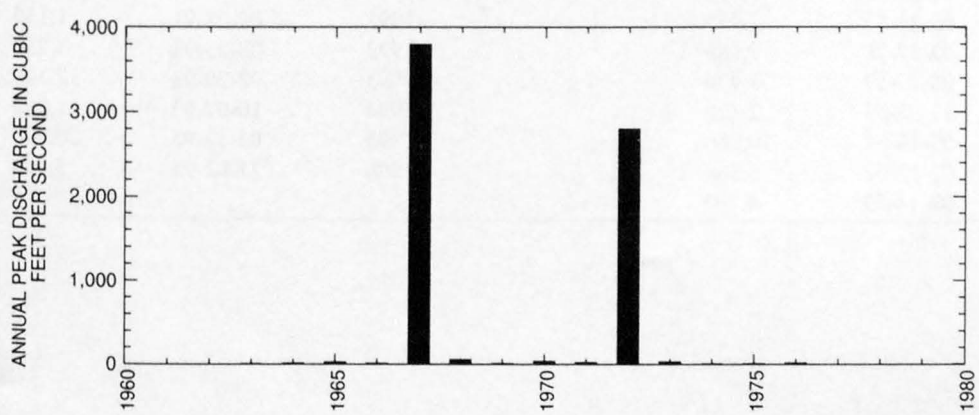
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
12.7	142	552	2,540	7,090	18,400
Weighted skew	(logs) =	0.37			
Mean	(logs) =	1.18			
Standard dev.	(logs) =	1.19			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
378	3.1	4,490	63.0	1.0	12.1	1.5	3.5



09415000 VIRGIN RIVER AT LITTLEFIELD, AZ

LOCATION.--Lat 36°53'30", long 113°55'25", in $SW^1/_4SW^1/_4$ sec.4, T.40 N., R.15 W., Mohave County, Hydrologic Unit 1115010010, on right bank, 0.5 mi downstream from Beaver Dam Wash, 0.4 mi upstream from Littlefield, and 36 mi upstream from Lake Mead.

DRAINAGE AREA.--5,090 mi^2, approximately.

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 959: 1932. WSP 979: 1930-31, 1933-37. WSP 1313: 1940 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,763.68 ft above sea level. Prior to May 28, 1933, nonrecording gage at site 300 ft upstream, and May 28, 1933, to November 7, 1939, at same site, both at datum 2.53 ft higher. November 8, 1939, to March 31, 1942, nonrecording gage at same site at datum 2.00 ft higher. April 1, 1942, to September 30, 1970, water-stage recorder at same site at same datum. October 1, 1970, to August 7, 1979, at site 300 ft upstream at same datum.

REMARKS.--Records fair.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1930	08-09-30	6,500		1964	08-14-64	6,300	
1931	11-18-30	3,000		1965	09-06-65	4,040	
1932	08-27-32	18,000		1966	12-30-65	5,490	
1933	05-01-33	1,500		1967	12-06-66	35,200	
1934	12-14-33	1,220		1968	08-08-68	2,180	
1935	08-16-35	1,900		1969	01-26-69	21,400	
1936	07-10-36	2,710		1970	07-22-70	8,960	
1937	02-07-37	1,440		1971	08-15-71	6,140	
1938	03-03-38	22,000		1972	12-25-71	8,180	
1939	09-12-39	13,000		1973	05-11-73	3,740	
1940	09-18-40	11,000		1974	09-05-74	5,840	
1941	03-02-41	6,000		1975	07-30-75	5,910	
1942	10-13-41	3,740		1976	02-09-76	5,180	
1943	03-11-43	2,660		1977	10-02-76	7,140	
1944	05-09-44	1,900		1978	03-02-78	22,000	
1945	02-03-45	4,170		1979	03-28-79	4,440	
1946	08-12-46	5,010		1980	02-20-80	10,380	
1947	10-29-46	9,400		1981	07-16-81	2,260	
1948	09-16-48	1,090		1982	09-27-82	4,840	
1949	09-10-49	2,290		1983	12-01-82	6,200	
1950	07-18-50	3,450		1984	07-23-84	4,940	
1951	08-04-51	12,000		1985	04-11-85	1,260	
1952	12-30-51	7,170		1986	11-30-85	1,970	
1953	08-27-53	5,490		1987	07-21-87	5,690	
1954	08-04-54	6,020		1988	08-03-88	8,280	ES
1955	08-25-55	19,800		1989	01-01-89	61,000	DF
1956	01-27-56	2,460		1990	09-24-90	2,810	
1957	08-21-57	3,950		1991	09-08-91	1,150	
1958	03-17-58	7,180		1992	08-23-92	3,730	
1959	08-19-59	3,490		1993	02-20-93	12,300	
1960	11-03-59	2,320		1994	10-07-93	1,980	
1961	09-18-61	10,900		1995	03-12-95	20,500	
1962	02-12-62	5,380		1996	11-02-95	5,430	
1963	09-14-63	4,720					

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	104	14.0	18,680
6.0	1,000	16.0	26,170
8.0	3,130	18.0	35,240
10.0	7,180	20.0	45,980
12.0	12,660	22.3	60,520

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
38.4	112	5,500	50.0	3.0	16.0	1.8	3.4

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1930-95

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	602	53	147	89	0.61	5.0
NOVEMBER	552	101	190	78	0.41	6.5
DECEMBER	1,250	111	226	148	0.65	7.7
JANUARY	775	108	237	124	0.52	8.1
FEBRUARY	2,330	110	324	331	1.0	11.1
MARCH	1,810	85	377	390	1.0	12.9
APRIL	1,390	62	418	378	0.90	14.3
MAY	2,120	50	434	517	1.2	14.8
JUNE	1,120	47	143	165	1.2	4.9
JULY	381	52	107	70	0.65	3.7
AUGUST	976	50	181	168	0.93	6.2
SEPTEMBER	737	53	146	127	0.87	5.0
ANNUAL	697	100	244	139	0.57	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1931-95

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	56	50	47	44	42	40
3	57	51	47	45	42	41
7	58	52	49	46	44	42
14	59	53	50	48	46	45
30	61	55	53	52	51	51
60	68	59	56	55	54	53
90	83	64	58	54	51	49
120	92	71	63	58	54	52
183	120	92	81	74	66	62

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1930-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
4,920	9,810	14,200	21,300	27,800	35,500

WEIGHTED SKEW (LOGS)= 0.14
MEAN (LOGS)= 3.70
STANDARD DEV. (LOGS)= 0.35

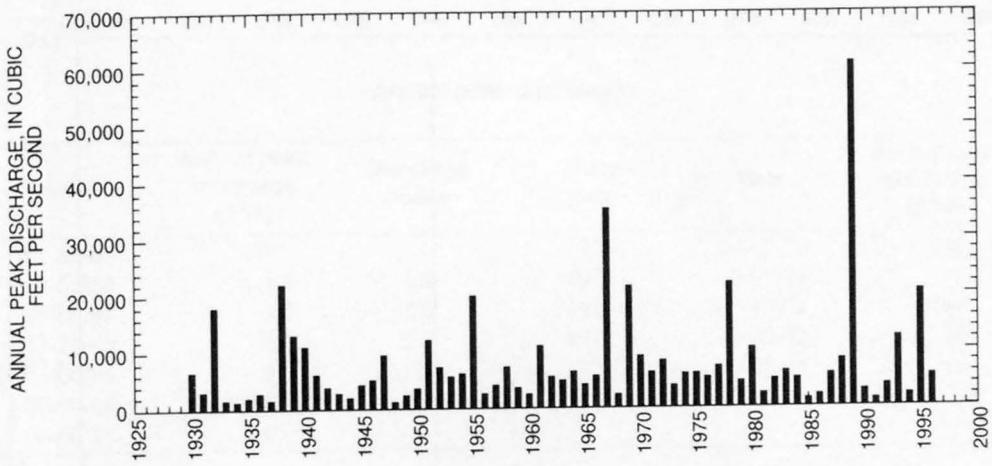
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-95

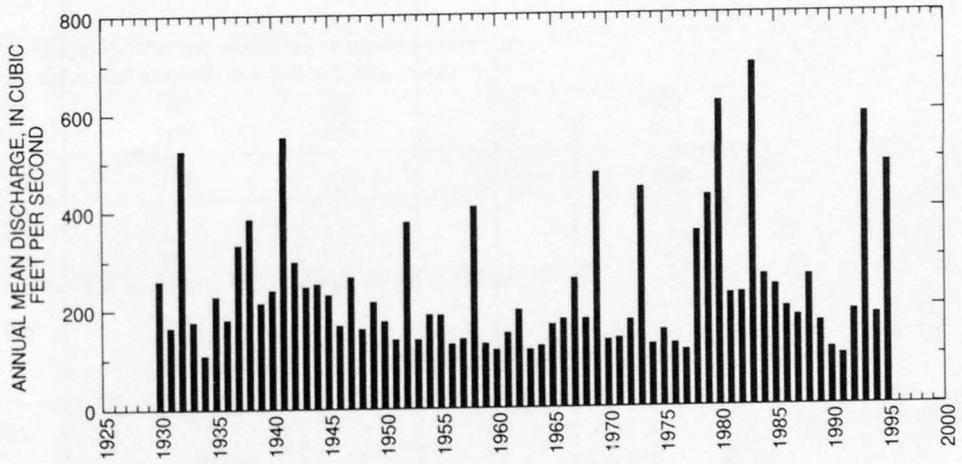
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,180	4,630	7,280	12,300	17,800	25,100
3	1,370	2,880	4,510	7,650	11,100	15,700
7	915	1,880	2,870	4,700	6,590	9,080
15	670	1,320	1,960	3,090	4,210	5,620
30	516	984	1,430	2,180	2,910	3,820
60	406	759	1,100	1,670	2,230	2,920
90	355	654	941	1,440	1,920	2,540

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-95

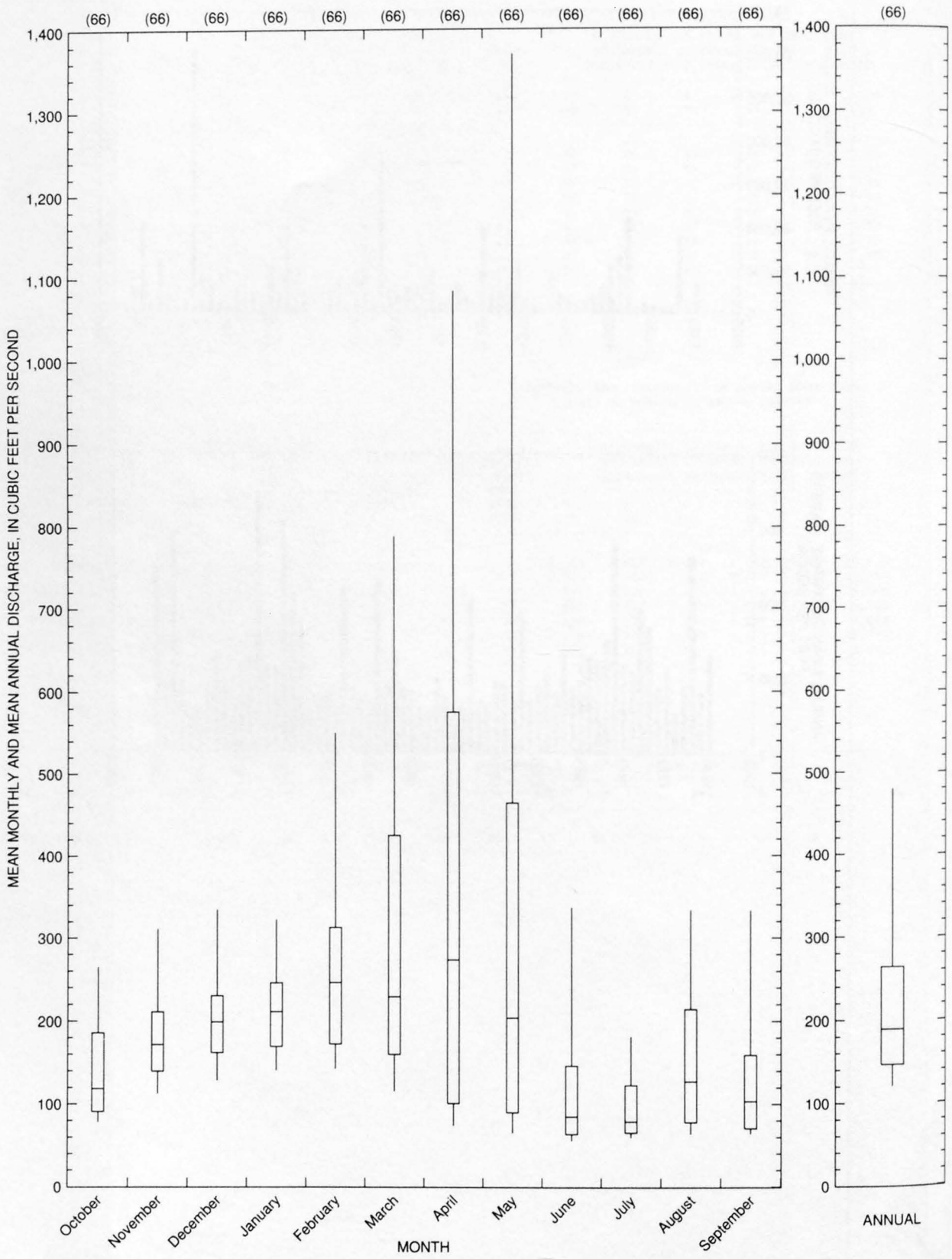
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,870	789	443	322	271	216	179	148	116	86	69	61	56	51	49	48	42

09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued





09415000 VIRGIN RIVER AT LITTLEFIELD, AZ--Continued



09415050 BIG BEND WASH TRIBUTARY NEAR LITTLEFIELD, AZ

LOCATION.--Lat 36°51'45", long 113°58'05", in SE$^1/_4$ sec.13, T.40 N., R.16 W., Mohave County, Hydrologic Unit 15010010, at U.S. Highway 91, 2.7 mi southest of Littlefield.

DRAINAGE AREA.--7.27 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-18-63	248		1970	00-00-70	250	
1964	07-00-64	1.5	ES	1971	00-00-71	0	
1965	08-00-65	3.0	ES	1972	09-19-72	160	
1966	11-23-65	2.0	ES	1973	10-09-72	10	ES
1967	12-06-66	2.0	ES	1974	00-00-74	0	
1968	00-00-68	0.1	LT	1975	11-00-74	1.0	LT
1969	00-00-69	0					

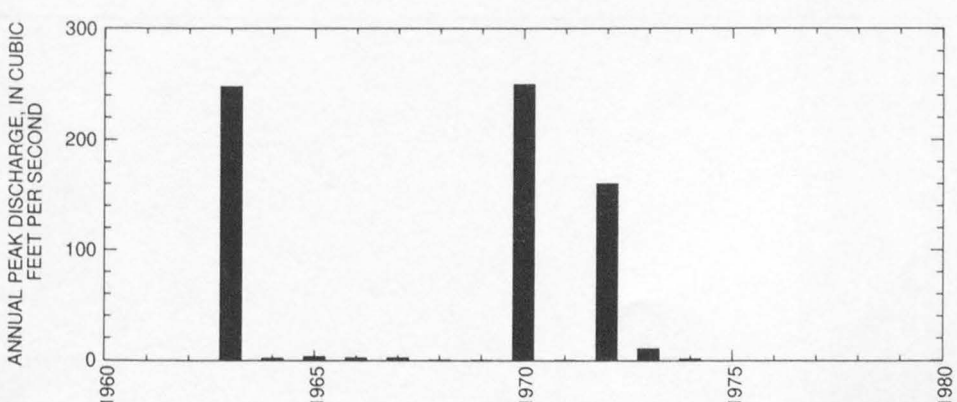
Magnitude and probability of instantaneous peak flow based on period of record 1963-75

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1.7	32.8	152	759	2,120	5,300
Weighted skew	(logs) =	-0.09			
Mean	(logs) =	0.20			
Standard dev.	(logs) =	1.56			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
55.8	7.4	2,240	0.0	3.0	7.6	1.5	3.6



09419590 DETRITAL WASH TRIBUTARY NEAR CHLORIDE, AZ

LOCATION.--Lat 35°25'55", long 114°17'05", in NW$^1/_4$ sec.35, T.24 N., R.19 W., Mohave County, Hydrologic Unit 15010014, at U.S. Highway 93, 5.5 mi northwest of Chloride.

DRAINAGE AREA.--1.23 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-17-63	25	ES	1971	08-12-71	470	
1964	08-12-64	50	ES	1972	09-19-72	92	
1965	04-03-65	0.2	ES	1973	00-00-73	0	
1966	08-16-66	73		1974	07-21-74	46	
1967	09-00-67	117		1975	00-00-75	0	
1968	00-00-68	20	ES	1976	09-10-76	460	
1969	07-27-69	42		1980	00-00-80	[1]30	ES,HP
1970	00-00-70	0					

[1]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1980

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
41.4	126	233	457	715	1,080

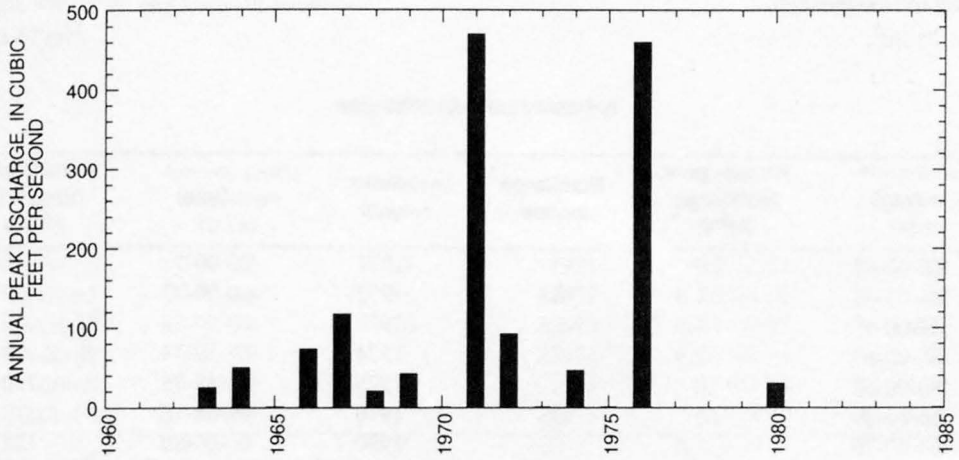
Weighted skew	(logs) =	0.23
Mean	(logs) =	1.64
Standard dev.	(logs) =	0.56

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
200	2.4	3,710	0.0	3.0	10.1	1.4	3.6

09419590 DETRITAL WASH TRIBUTARY NEAR CHLORIDE, AZ--Continued



09421800 RINGBOLT WASH NEAR HOOVER DAM, AZ

LOCATION.--Lat 35°58'05", long 114°41'00", in SW$^1/_4$ sec.19, T.30 N., R.22 W., Mohave County, Hydrologic Unit 15030101, at U.S. Highway 93, 5.9 mi southeast of Hoover Dam.

DRAINAGE AREA.--1.21 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	00-00-64	0		1971	00-00-71	16	ES
1965	04-03-65	1.0	ES	1972	00-00-72	0	
1966	12-00-65	1.0	ES	1973	00-00-73	0	
1967	08-00-67	2.0	ES	1974	07-19-74	1.0	LT
1968	00-00-68	0		1975	08-19-75	250	ES
1969	00-00-69	10	ES	1976	09-08-76	310	
1970	08-00-70	1.0	ES	1980	00-00-80	[1]125	HP

[1]Highest since 1976.

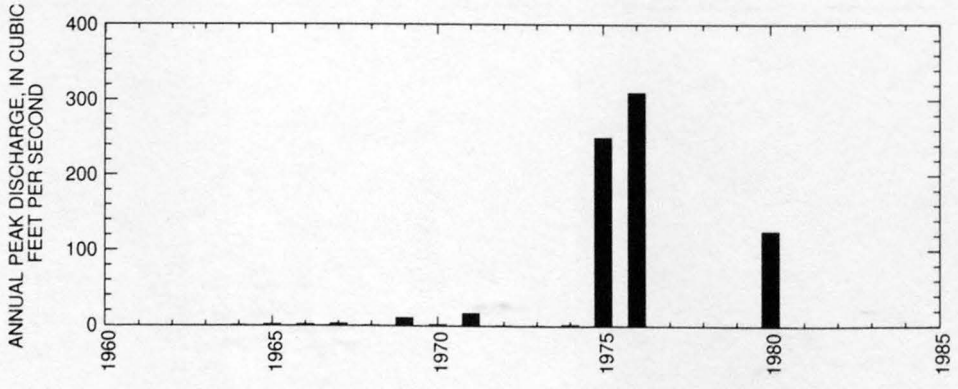
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---

Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
428	3.0	2,590	0.0	1.0	5.8	1.4	3.6



09423760 LITTLE MEADOW CREEK NEAR OATMAN, AZ

LOCATION.--Lat 35°01'50", long 114°18'30", in $NE^1/_4SW^1/_4$ sec.16, T.19 N., R.19 W., Mohave County, Hydrologic Unit 15030103, at Eds Camp, 4 mi east of Oatman, and 19 mi southwest of Kingman.

DRAINAGE AREA.--8.47 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	04-00-65	10	LT	1971	08-12-71	50	ES
1966	12-09-65	20	ES	1972	09-00-72	50	ES
1967	08-06-67	0.5	ES	1973	11-00-72	600	ES
1968	00-00-68	0		1974	07-19-74	182	
1969	00-00-69	0		1975	00-00-75	0	
1970	08-00-70	869		1976	02-08-76	105	

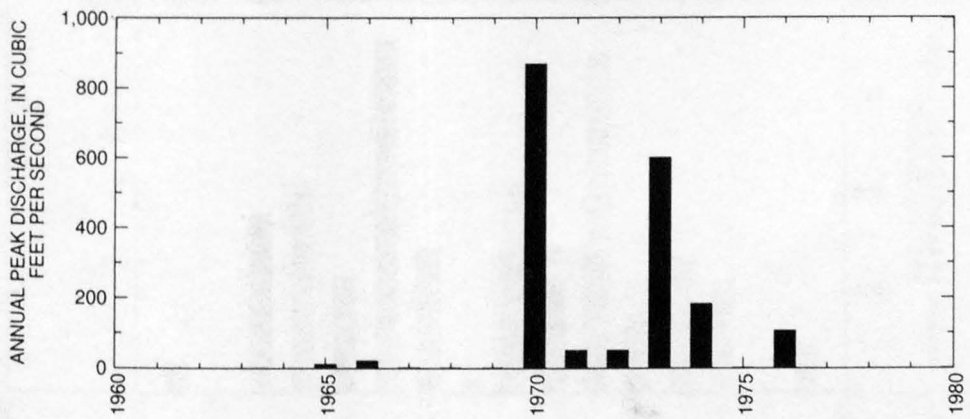
Magnitude and probability of instantaneous peak flow based on period of record 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
28.7	194	508	1,390	2,610	4,590
Weighted skew	(logs) =	-0.16			
Mean	(logs) =	1.43			
Standard dev.	(logs) =	1.01			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
241	3.8	3,400	0.0	1.0	12.0	1.6	3.9



09423780 WALNUT CREEK NEAR KINGMAN, AZ

LOCATION.--Lat 35°02'00", long 114°01'05", in $SE^1/_4NW^1/_4$ sec.18, T.19 N., R.16 W., Mohave County, Hydrologic Unit 15030103, 11 mi south of Kingman.

DRAINAGE AREA.--31.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	08-00-65	152		1971	08-12-71	715	
1966	07-20-66	288		1972	06-06-72	235	
1967	00-00-67	228		1973	07-00-73	425	
1968	00-00-68	289		1974	09-00-74	360	
1969	09-13-69	2.0	LT	1975	00-00-75	0	
1970	08-15-70	290		1976	00-00-76	60	ES

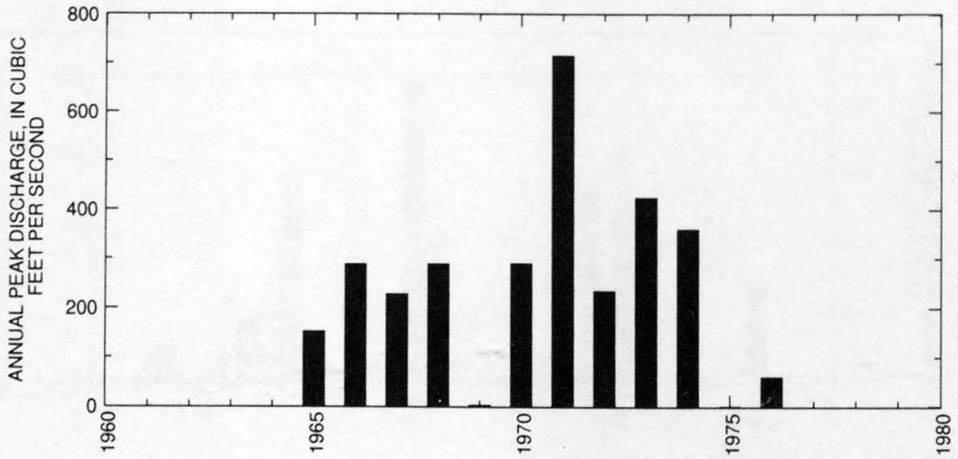
Magnitude and probability of instantaneous peak flow based on period of record 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2 50%	5 20%	10 10%	25 4%	50† 2%	100† 1%
247	389	496	644	764	892
Weighted skew	(logs) =	0.08			
Mean	(logs) =	2.40			
Standard dev.	(logs) =	0.23			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
255	9.3	5,040	50.0	1.0	13.9	1.8	4.0



09423820 SACRAMENTO WASH NEAR YUCCA, AZ

LOCATION.--Lat 34°48'40", long 114°09'40", in $SE^1/_4SE^1/_4$ sec.35, T.17 N., R.18 W., Mohave County, Hydrologic Unit 15030103, at Sante Fe Railroad bridge, 5 mi south of Yucca.

DRAINAGE AREA.--787 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	00-00-65	0		1971	08-12-71	13,000	
1966	12-09-65	2,060		1972	06-00-72	3,010	
1967	09-00-67	800		1973	11-16-72	5,200	
1968	07-00-68	520		1974	07-19-74	4,260	
1969	09-16-69	8,030		1975	00-00-75	0	
1970	00-00-70	3,000		1976	09-25-76	2,100	

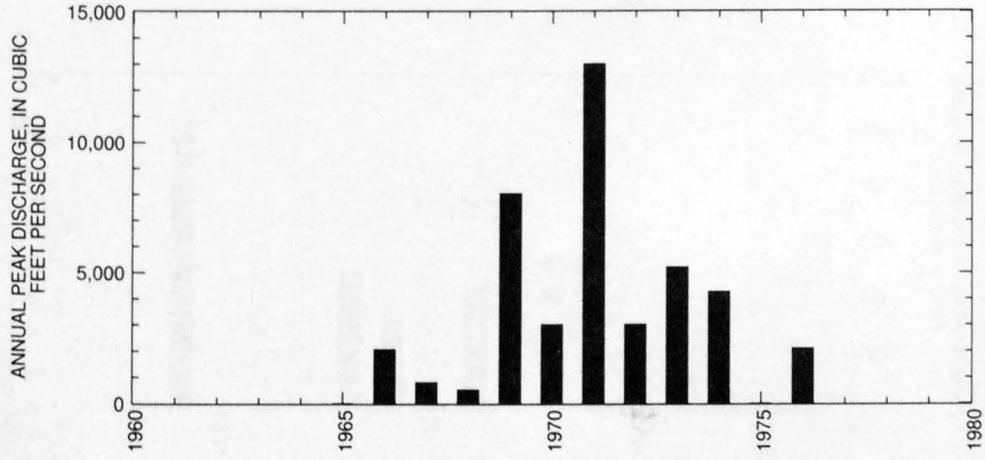
Magnitude and probability of instantaneous peak flow based on period of record 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
2,640	5,540	8,200	12,500	16,500	21,200
Weighted skew	(logs) =	0.07			
Mean	(logs) =	3.43			
Standard dev.	(logs) =	0.38			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
45.2	48.4	3,400	6.4	2.5	10.1	1.6	3.7



09423900 SACRAMENTO WASH TRIBUTARY NEAR TOPOCK, AZ

LOCATION.--Lat 34°43'47", long 114°18'45", in $SW^1/_4NW^1/_4$ sec.13, T.16 N., R.20 W., Mohave County, Hydrologic Unit 15030103, at U.S. Highway 66, 9.7 mi east of Topock.

DRAINAGE AREA.--14.7 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	70		1970	08-00-70	15	ES
1964	07-26-64	128		1971	08-00-71	320	
1965	08-10-65	10	ES	1972	00-00-72	500	ES
1966	12-09-65	20	ES	1973	10-00-72	240	ES
1967	00-00-67	0		1974	01-00-74	1.0	ES
1968	11-21-67	10	LT	1975	00-00-75	0	
1969	07-17-69	430		1976	09-10-76	1,030	

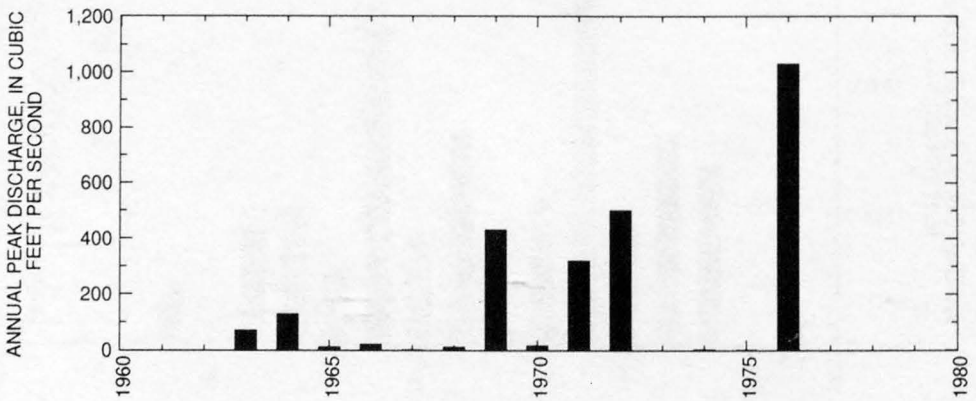
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
48.7	291	710	1,780	3,180	5,290
Weighted skew	(logs) =	-0.20			
Mean	(logs) =	1.66			
Standard dev.	(logs) =	0.95			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
98.2	7.6	1,450	0.0	3.0	6.2	1.5	3.6



09424200 WILLOW CREEK (COTTONWOOD WASH NO. 1) NEAR KINGMAN, AZ

LOCATION.--Lat 35°10'52", long 113°28'08", in NW$^1/_4$ sec.29, T.21 N., R.11 W., Mohave County, Hydrologic Unit 15030201, on right bank, 13 mi upstream from mouth, and 34 mi east of Kingman.

DRAINAGE AREA.--143 mi^2.

PERIOD OF RECORD.--January 1959 to August 1963 (fragmentary low flow only published in WSP 1858), February 1964 to September 1978 (discontinued).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,545 ft, from special U.S. Geological Survey project map. Prior to June 20, 1969, at site 10 ft downstream at datum 2.72 ft lower.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--14 years, 4.69 ft^3/s, 3,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft^3/s July 31, 1964, gage height, 7.36 ft at former site and datum of supplementary gage, from rating curve extended above 400 ft^3/s on basis of slope-area measurements at gage heights 3.82 and 7.36 ft; minimum daily, 0.10 ft^3/s many days in 1972, 1974-78.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	07-31-64	7,000		1972	06-07-72	436	
1965	08-15-65	820		1973	06-13-73	1,720	
1966	08-18-66	6,700		1974	07-21-74	6,450	
1967	08-19-67	6,300		1975	07-27-75	870	
1968	10-05-67	3,640		1976	07-24-76	5,250	
1969	09-13-69	5,580		1977	09-10-77	2,620	
1970	08-19-70	3,120		1978	03-01-78	3,080	
1971	08-21-71	4,020					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
67.0	17.6	5,350	90.0	1.0	14.0	1.7	3.6

09424200 WILLOW CREEK (COTTONWOOD WASH NO. 1) NEAR KINGMAN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1965-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7.8	0.27	1.4	1.9	1.3	2.5
NOVEMBER	2.0	0.65	1.1	0.38	0.35	1.9
DECEMBER	38	0.68	4.3	10	2.3	7.7
JANUARY	6.6	0.61	1.7	1.5	0.86	3.1
FEBRUARY	82	0.91	8.8	22	2.4	15.7
MARCH	88	0.51	10	24	2.3	18.7
APRIL	18	0.15	2.4	4.7	1.9	4.3
MAY	1.3	0.18	0.74	0.33	0.45	1.3
JUNE	4.2	0.10	0.94	1.1	1.2	1.7
JULY	21	0.13	5.1	6.3	1.3	9.0
AUGUST	32	0.21	12	11	0.99	20.7
SEPTEMBER	31	0.20	7.6	11	1.5	13.4
ANNUAL	11	0.86	4.7	3.4	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.27	0.13	0.09	0.06	0.04	0.03
3	0.29	0.14	0.09	0.07	0.05	0.04
7	0.30	0.14	0.10	0.07	0.05	0.03
14	0.31	0.14	0.09	0.07	0.05	0.03
30	0.34	0.16	0.10	0.07	0.05	0.03
60	0.49	0.25	0.16	0.11	0.07	0.05
90	0.54	0.29	0.20	0.14	0.09	0.07
120	0.81	0.50	0.37	0.28	0.20	0.15
183	1.2	0.82	0.69	0.61	0.54	0.50

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1964-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,690	5,860	7,310	9,110	10,400	11,700

WEIGHTED SKEW (LOGS)= -0.40
MEAN (LOGS)= 3.55
STANDARD DEV. (LOGS)= 0.25

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-78

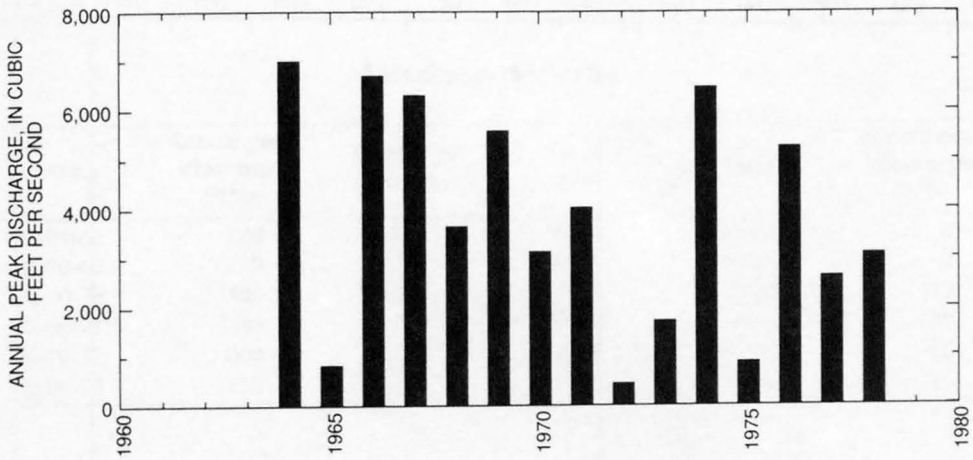
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	298	697	1,060	1,640	2,160	2,740
3	143	322	469	679	848	1,020
7	76	175	254	363	447	532
15	42	93	131	179	213	246
30	24	52	73	99	118	135
60	14	29	41	55	65	75
90	9.3	20	28	38	46	53

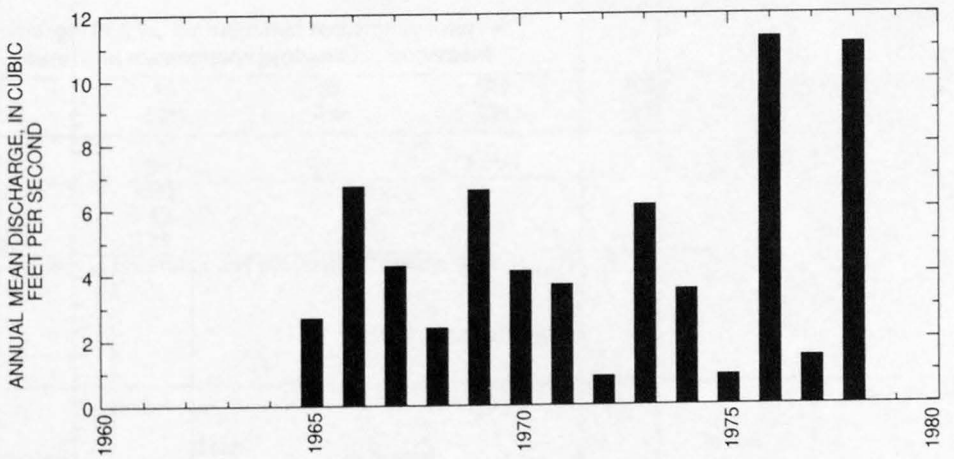
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
86	3.8	1.6	1.5	1.4	1.2	1.1	0.94	0.80	0.66	0.50	0.23	0.18	0.11	0.11	0.10	0.10

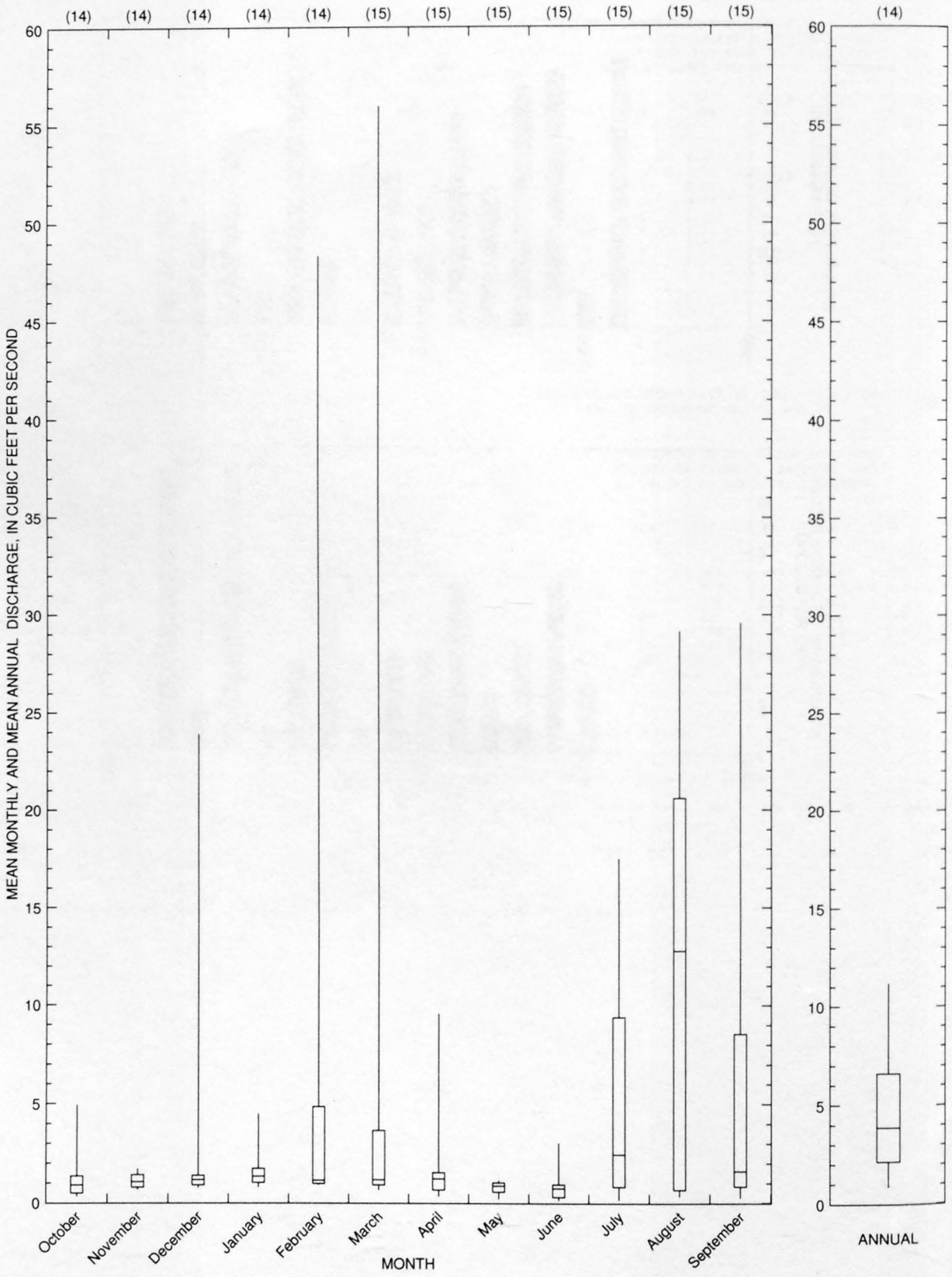
Reliability of values in column is uncertain, and potential errors are large.

09424200 WILLOW CREEK (COTTONWOOD WASH NO. 1) NEAR KINGMAN, AZ--Continued





09424200 WILLOW CREEK (COTTONWOOD WASH NO. 1) NEAR KINGMAN, AZ--Continued



09424407 MCGARRYS WASH NEAR KINGMAN, AZ

LOCATION.--Lat 35°07'00", long 113°39'00", in sec.16, T.20 N., R.13 W., Mohave County, Hydrologic Unit 15030201, at U.S. Highway 93, 1.2 mi north of junction of U.S. Highway 93 and Hackberry Road, and 23 mi southeast of Kingman.

DRAINAGE AREA.--13.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	08-04-68	20	ES	1974	00-00-74	0	
1969	00-00-69	0		1975	10-29-74	2	ES
1970	08-00-70	400	ES	1976	00-00-76	20	LT
1971	07-00-71	40	ES	1977	00-00-77	25	LT
1972	09-19-72	1,000		1978	00-00-78	25	LT
1973	00-00-73	150		1979	00-00-79	25	LT

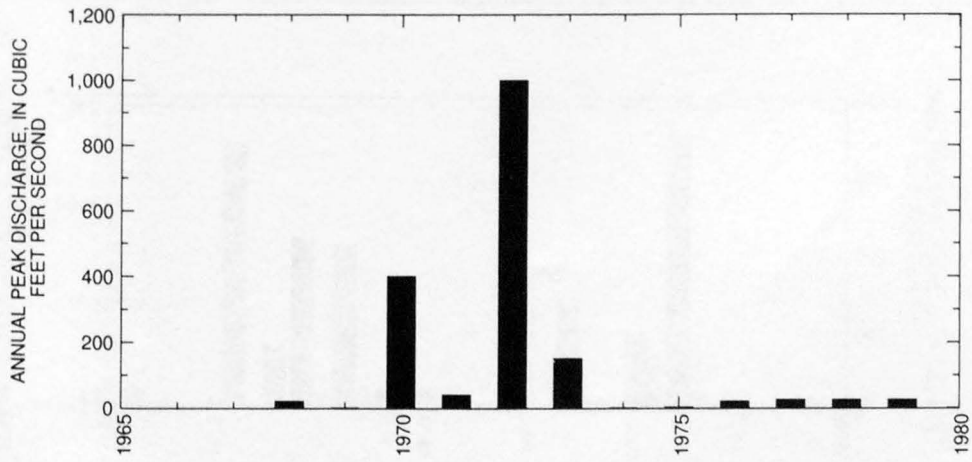
Magnitude and probability of instantaneous peak flow based on period of record 1968-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
26.9	150	369	963	1,790	3,130
Weighted skew	(logs) =	0.00			
Mean	(logs) =	1.43			
Standard dev.	(logs) =	0.89			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
203	12.1	4,610	40.0	3.0	12.0	1.5	3.7



09424410 BIG SANDY RIVER TRIBUTARY NEAR KINGMAN, AZ

LOCATION.--Lat 35°05'30", long 113°39'30", in NE$^1/_4$ sec.28, T.20 N., R.13 W., Mohave County, Hydrologic Unit 15030201, at U.S. Highway 93, 21 mi southeast of Kingman.

DRAINAGE AREA.--1.99 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	10	ES	1971	08-00-71	25	ES
1964	08-02-64	353		1972	09-19-72	210	
1965	08-29-65	100	ES	1973	08-00-73	220	
1966	07-30-66	10	ES	1974	00-00-74	0	
1967	12-06-66	5.0	LT	1975	11-02-74	10	ES
1968	08-04-68	1.0	ES	1976	02-09-76	7.0	ES
1969	07-18-69	5.0	ES	1977	00-00-77	25	LT
1970	08-00-70	30	ES	1978	03-01-78	25	ES

Magnitude and probability of instantaneous peak flow based on period of record 1963-78

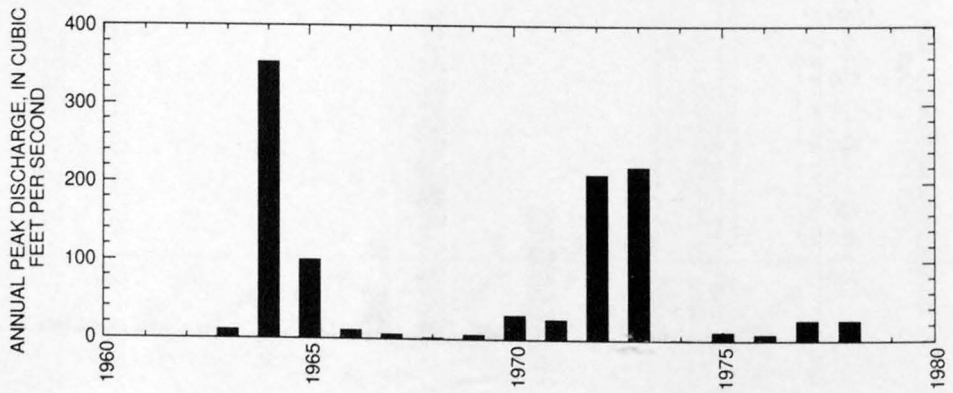
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
18.6	80.2	173	394	672	1,090

Weighted skew	(logs) =	0.03
Mean	(logs) =	1.27
Standard dev.	(logs) =	0.75

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
214	4.3	3,700	60.0	3.0	12.0	1.5	3.7



09424430 KAISER SPRING CANYON TRIBUTARY NEAR WIKIEUP, AZ

LOCATION.--Lat 34°34'20", long 113°28'40", in NW$^1/_4$ sec.12, T.14 N., R.12 W., Mohave County, Hydrologic Unit 15030202, at U.S. Highway 93, 13 mi southeast of Wikieup.

DRAINAGE AREA.--1.7 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-22-63	1,310		1971	08-19-71	510	
1964	08-02-64	290		1972	00-00-72	0	
1965	00-00-65	50	LT	1973	05-31-73	250	ES
1966	12-10-65	90		1974	09-00-74	50	ES
1967	00-00-67	50	LT	1975	00-00-75	0	
1968	08-04-68	2.0	ES	1976	00-00-76	0	
1969	00-00-69	0		1977	00-00-77	30	LT
1970	08-00-70	50	ES	1978	00-00-78	30	ES

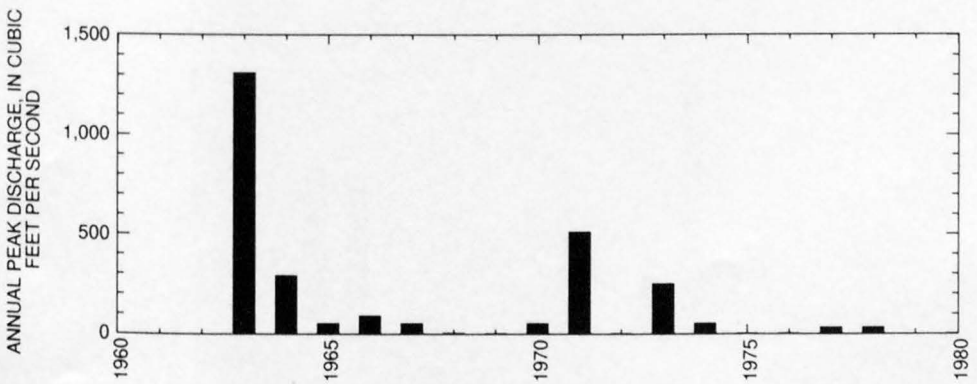
Magnitude and probability of instantaneous peak flow based on period of record 1963-78

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
49.2	196	413	933	1,600	2,610
Weighted skew	(logs) =	0.17			
Mean	(logs) =	1.71			
Standard dev.	(logs) =	0.70			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
615	1.3	3,520	0.0	1.0	11.2	1.7	3.9



09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE, NEAR BAGDAD, AZ

LOCATION.--Lat 34°32'30", long 113°26'40", in SW$^1/_4$ sec.19, T.14 N., R.11 W., Mohave County, Hydrologic Unit 15030202, on left bank 15 mi upstream from confluence with Big Sandy River, and 15 mi southwest of Bagdad.

DRAINAGE AREA.--611 mi^2, of which 10 mi^2 is noncontributing.

PERIOD OF RECORD.--August 1980 to current year.

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,880 ft above sea level, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,300 ft^3/s Feb. 8, 1993, gage height, 16.30 ft; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s Feb. 14, 1980, from slope-area measurement of peak flow at present site and datum, gage height, 15.6 ft, from high-water mark in vicinity of gage.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1980	02-14-80	47,400		1987	03-05-87	565	1987
1981	09-05-81	728		1988	08-27-88	6,410	1988
1982	02-11-82	5,400		1989	01-05-89	798	1989
1983	03-03-83	30,600		1990	09-18-90	1,410	1990
1984	08-24-84	3,950		1991	03-01-91	29,900	1991
1985	12-27-84	12,400		1992	02-13-92	12,300	1992
1986	11-30-85	6,210		1993	02-08-93	55,300	1993

Discharge rating table developed September 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	7.0	12.0	18,140
5.0	176	13.0	24,540
7.0	1,660	14.0	32,220
9.0	5,580	15.0	41,270
10.0	8,770	16.0	51,820
11.0	12,920	16.4	56,500

09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE, NEAR BAGDAD, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1981-93

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	69	0.00	6.2	19	3.1	0.5
NOVEMBER	112	0.00	19	38	2.0	1.7
DECEMBER	710	0.00	102	205	2.0	8.9
JANUARY	2,610	3.3	256	715	2.8	22.4
FEBRUARY	2,090	5.8	325	568	1.8	28.4
MARCH	1,370	4.9	336	458	1.4	29.3
APRIL	93	1.6	30	34	1.1	2.6
MAY	15	0.56	3.8	3.9	1.0	0.3
JUNE	4.4	0.04	0.93	1.2	1.2	0.1
JULY	6.2	0.00	1.5	2.2	1.4	0.1
AUGUST	188	0.06	28	58	2.1	2.4
SEPTEMBER	403	0.00	38	110	2.9	3.3
ANNUAL	414	5.6	95	116	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1982-93

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.03	0.00	0.00	0.00	0.00	0.00
7	0.05	0.00	0.00	0.00	0.00	0.00
14	0.10	0.00	0.00	0.00	0.00	0.00
30	0.13	0.00	0.00	0.00	0.00	0.00
60	0.24	0.00	0.00	0.00	0.00	0.00
90	0.34	0.09	0.02	0.00	0.00	0.00
120	1.0	0.23	0.04	0.00	0.00	0.00
183	2.5	0.45	0.17	0.07	0.02	0.01

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1981-93

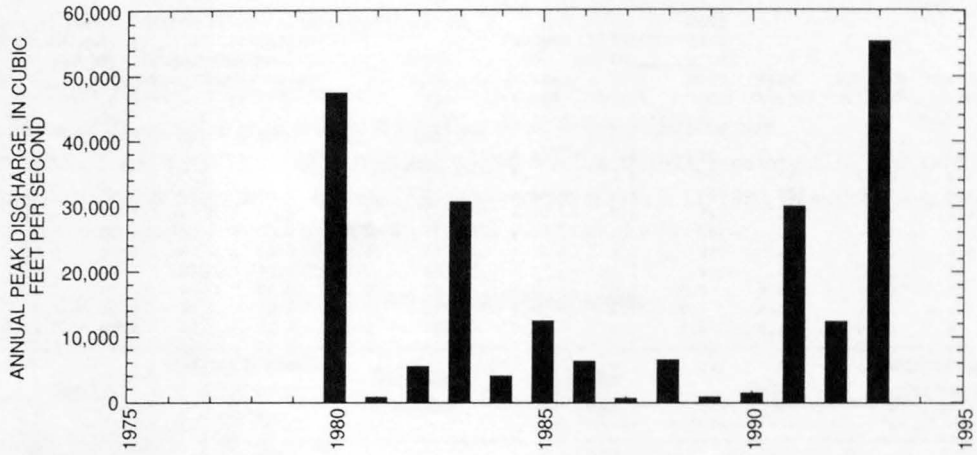
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	2,160	7,900	15,300	30,600	47,600	70,500
3	1,270	4,600	8,730	16,900	25,500	36,600
7	743	2,630	4,900	9,220	13,700	19,200
15	437	1,580	3,000	5,820	8,810	12,700
30	290	1,050	1,980	3,790	5,690	8,130
60	190	726	1,440	2,950	4,670	7,020
90	134	497	976	1,990	3,140	4,720

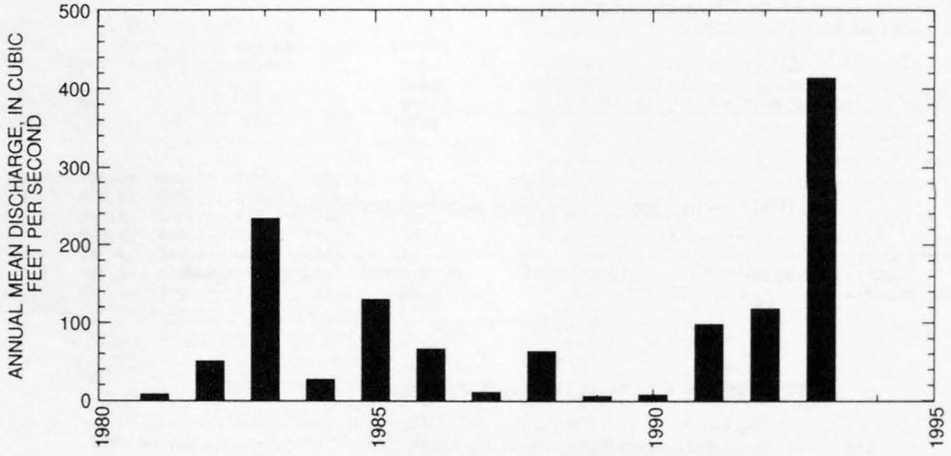
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1981-93

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,900	236	62	28	18	10	6.0	2.8	1.4	0.69	0.30	0.08	0.00	0.00	0.00	0.00	0.00

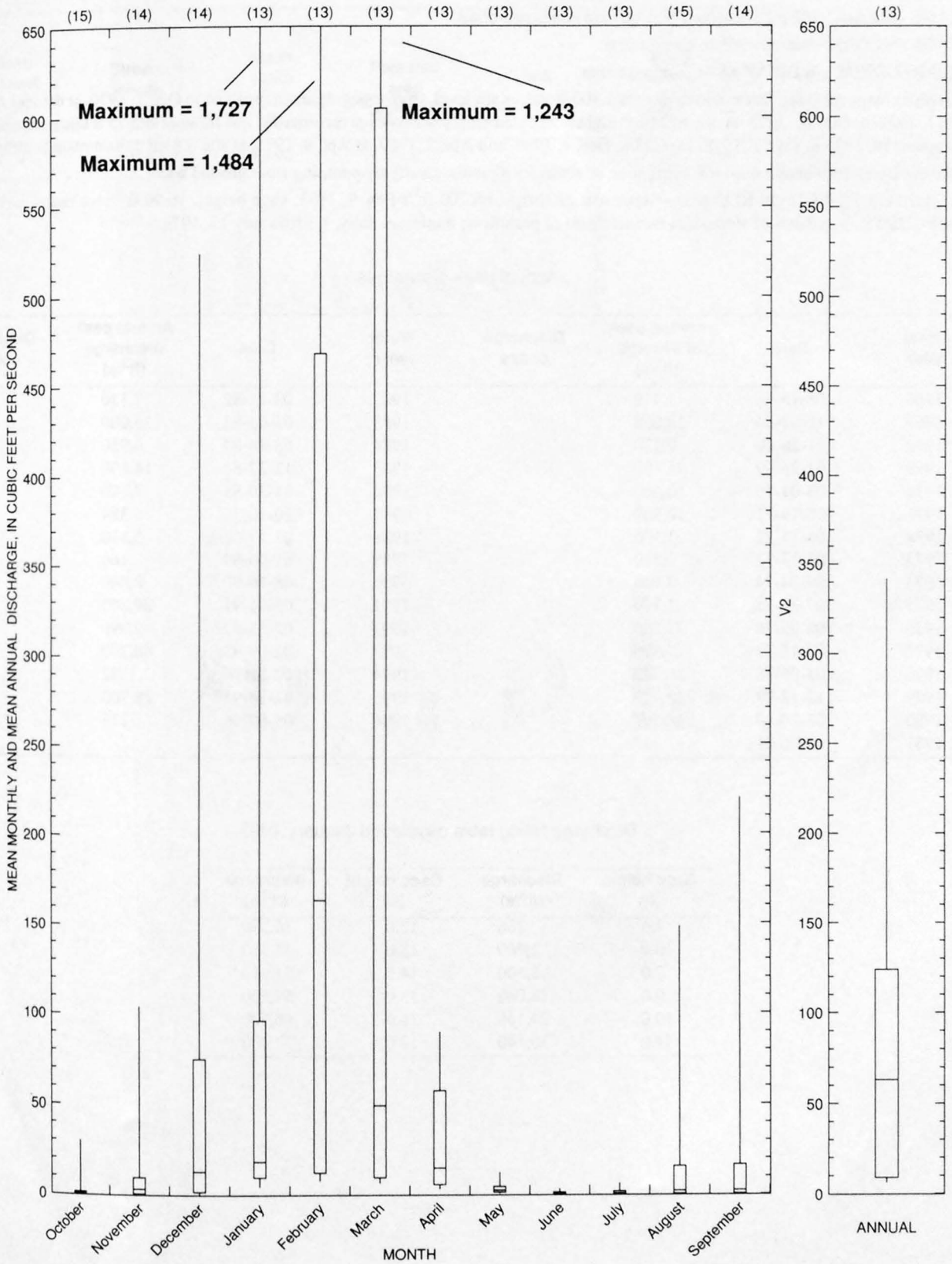
Reliability of values in column is uncertain, and potential errors are large.

09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE, NEAR BAGDAD, AZ--Continued





09424447 BURRO CREEK AT OLD U.S. 93 BRIDGE, NEAR BAGDAD, AZ--Continued



09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ

LOCATION.--Lat 34°27'45", long 113°37'25", in SE$^1/_4$ sec.16, T.13 N., R.13 W., Mohave County, Hydrologic Unit 15030201, on left bank 7 m downstream from Burro Creek, 15 mi upstream from confluence with Santa Maria River, and 17 mi south of Wikieup.

DRAINAGE AREA.--2,742 mi^2, of which 10.1 mi^2 are noncontributing.

PERIOD OF RECORD.--March 1966 to current year.

REVISED RECORDS.--WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft, above sea level, from topographic map. Prior to Oct. 1, 1970, at datum 3.06 ft higher Oct. 1, 1970, to Oct. 10, 1973, at datum 2.06 ft higher. Supplementary water-stage recorder for low flows at site 75 ft upstream at same datum from Apr. 10, 1975 to Mar. 1, 1978; Mar. 28 to Dec. 7, 1966, and Apr. 2, 1969, to Apr. 9, 1975, at site 0.8 mi downstream at different datum

REMARKS.--Diversions above station for irrigation of about 3,800 acres, mostly by pumping from ground water.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,700 ft^3/s Feb. 9, 1993, gage height, 16.00 ft, from rating curve extended above 2,200 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 1.3 ft^3/s July 13, 1974.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-15-66	1,410		1982	02-11-82	7,330	
1967	12-07-66	28,000		1983	03-03-83	25,000	
1968	01-28-68	9,520		1984	08-18-84	4,950	
1969	01-26-69	11,100		1985	12-27-84	14,600	
1970	03-01-70	10,000		1986	11-30-85	7,680	
1971	08-19-71	10,300		1987	10-10-86	384	
1972	08-13-72	1,300		1988	08-27-88	5,310	
1973	03-13-73	5,310		1989	01-06-89	166	
1974	09-24-74	3,000		1990	08-16-90	2,040	
1975	07-29-75	1,720		1991	03-01-91	29,800	
1976	02-09-76	23,700		1992	02-13-92	9,990	
1977	08-15-77	3,370		1993	02-09-93	68,700	
1978	03-01-78	36,500		1994	02-11-94	52	
1979	12-18-78	28,400		1995	02-14-95	28,700	
1980	02-20-80	38,500		1996	09-09-96	275	
1981	09-06-81	437					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	256	12.0	36,350
5.0	2,700	13.0	43,330
7.0	8,500	14.0	51,910
9.0	18,060	15.0	59,550
10.0	24,160	16.0	68,700
11.0	30,140	17.0	77,000

09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
41.9	58.8	4,490	46.0	1.7	14.2	1.8	4.1

09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	100	2.7	10	21	2.1	0.9
NOVEMBER	252	2.4	22	53	2.4	2.0
DECEMBER	737	2.8	84	186	2.2	7.5
JANUARY	2,670	2.4	195	508	2.6	17.3
FEBRUARY	3,890	3.5	396	862	2.2	35.1
MARCH	1,940	4.1	323	479	1.5	28.6
APRIL	153	3.6	36	42	1.2	3.2
MAY	36	2.0	9.2	8.2	0.89	0.8
JUNE	14	2.1	5.2	2.6	0.50	0.5
JULY	21	1.9	5.6	4.1	0.73	0.5
AUGUST	178	2.7	24	43	1.8	2.1
SEPTEMBER	226	2.8	18	40	2.3	1.6
ANNUAL	586	3.9	93	125	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	2.5	1.9	1.6	1.4	1.2	1.1
3	2.7	2.0	1.7	1.5	1.3	1.1
7	2.8	2.2	1.8	1.6	1.4	1.2
14	3.0	2.3	2.0	1.7	1.5	1.3
30	3.3	2.5	2.2	1.9	1.7	1.5
60	3.7	3.0	2.6	2.3	2.0	1.8
90	4.1	3.3	2.9	2.6	2.3	2.1
120	4.3	3.4	3.1	2.8	2.6	2.4
183	5.3	3.9	3.6	3.4	3.3	3.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
7,900	21,300	34,700	57,200	78,100	102,400

WEIGHTED SKEW (LOGS)= -0.26
MEAN (LOGS)= 3.87
STANDARD DEV. (LOGS)= 0.53

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-96

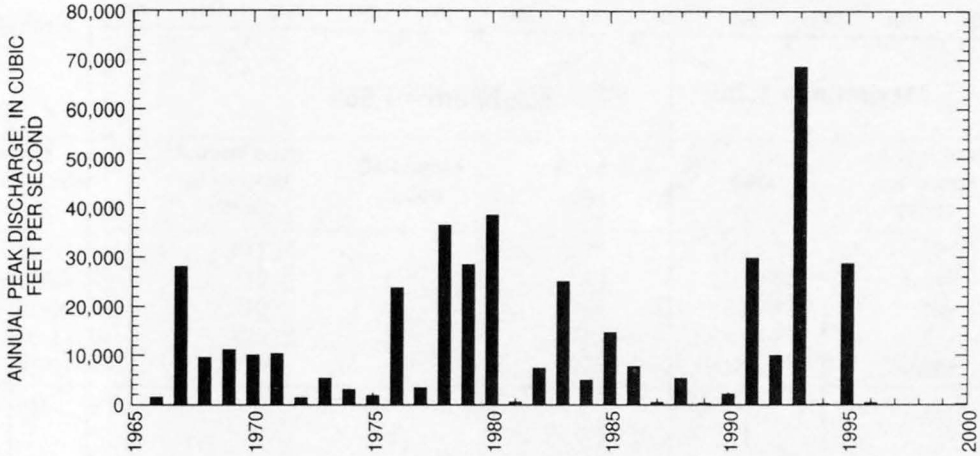
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	1,900	9,360	19,200	38,200	57,000	79,600
3	1,100	5,340	11,000	21,900	32,900	46,300
7	634	3,010	6,210	12,600	19,100	27,300
15	365	1,720	3,590	7,500	11,700	17,300
30	233	1,070	2,230	4,680	7,380	10,900
60	152	668	1,390	2,920	4,640	6,950
90	111	473	976	2,060	3,280	4,950

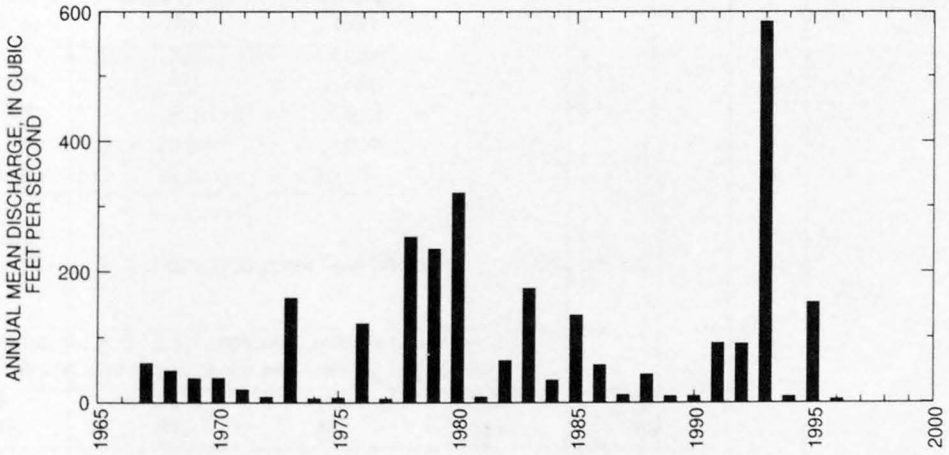
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,880	218	64	29	18	8.9	6.3	5.3	4.8	4.3	3.7	3.1	2.6	2.2	1.9	1.8	1.5

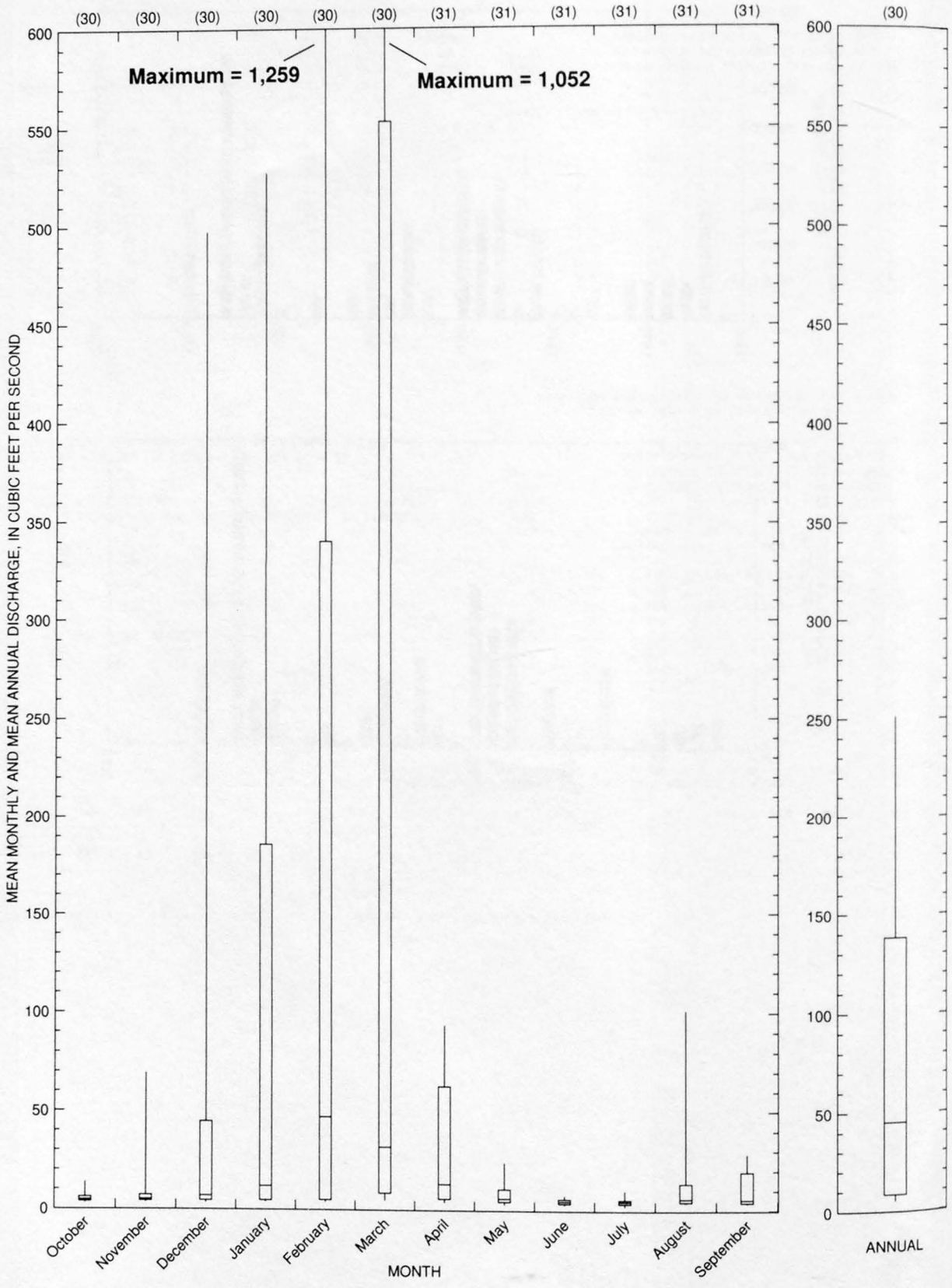
Reliability of values in column is uncertain, and potential errors are large.

09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ--Continued





09424450 BIG SANDY RIVER NEAR WIKIEUP, AZ--Continued



09424470 KIRKLAND CREEK NEAR KIRKLAND, AZ

LOCATION.--Lat 34°23'38", long 112°43'19", in SW$^1/_4$ sec.7, T.12 N., R.4 W., Yavapai County, Hydrologic Unit 15030203, on right bank 1.3 mi upstream from Skull Valley Wash and 1.7 mi southwest of Kirkland.

DRAINAGE AREA.--109 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1974	08-02-74	615		1979	11-11-78	10,300	
1975	07-28-75	776		1980	02-19-80	8,440	
1976	02-09-76	2,710		1981	07-11-81	706	
1977	10-23-76	328		1982	03-15-82	520	
1978	03-01-78	7,890		1983	03-03-83	2,980	

Discharge rating table developed February 1980

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	152	7.0	4,040
3.0	450	8.0	5,680
4.0	957	9.0	7,650
5.0	1,710	10.0	10,000
6.0	2,730	10.2	10,500

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
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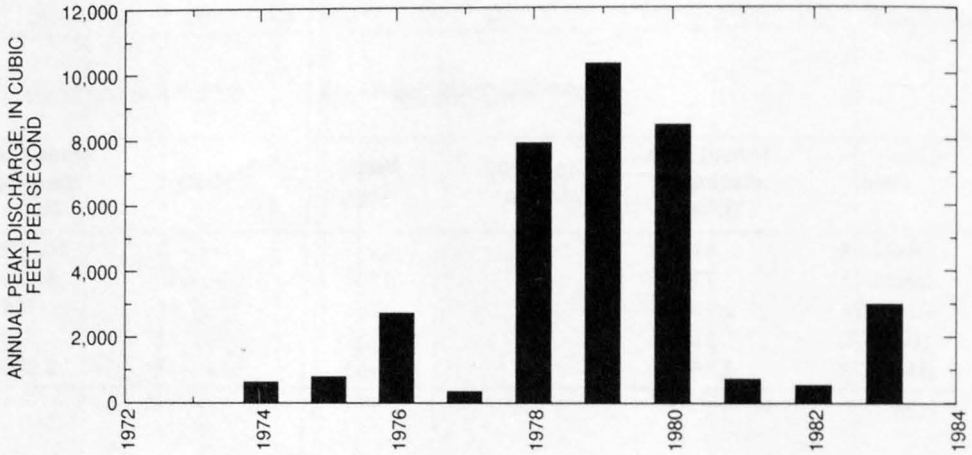
Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
40.5	23	4,665	72.0	1.0	18.4	1.4	4.4

09424470 KIRKLAND CREEK NEAR KIRKLAND, AZ--Continued



09424480 ASH CREEK NEAR KIRKLAND, AZ

LOCATION.--Lat 34°27'12", long 112°47'45", in NW$^1/_4$ sec.21, T.13 N., R.5 W., Yavapai County, Hydrologic Unit 15030203, at State Highway 96, 5.5 mi west of Kirkland.

DRAINAGE AREA.--6.95 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	00-00-60	4,000	HP	1971	08-19-71	300	ES
1963	08-20-63	109		1972	08-13-72	20	
1964	09-13-64	1,020		1973	10-07-72	60	ES
1965	09-03-65	140		1974	00-00-74	15	ES
1966	12-10-65	230		1975	11-02-74	20	ES
1967	07-15-67	225		1976	09-25-76	240	
1968	08-12-68	140		1978	03-01-78	300	
1969	08-19-69	250		1979	12-18-78	205	
1970	08-00-70	15	ES				

Magnitude and probability of instantaneous peak flow based on period of record 1960, 1963-76, 1978-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
133	459	882	1,780	2,810	4,250

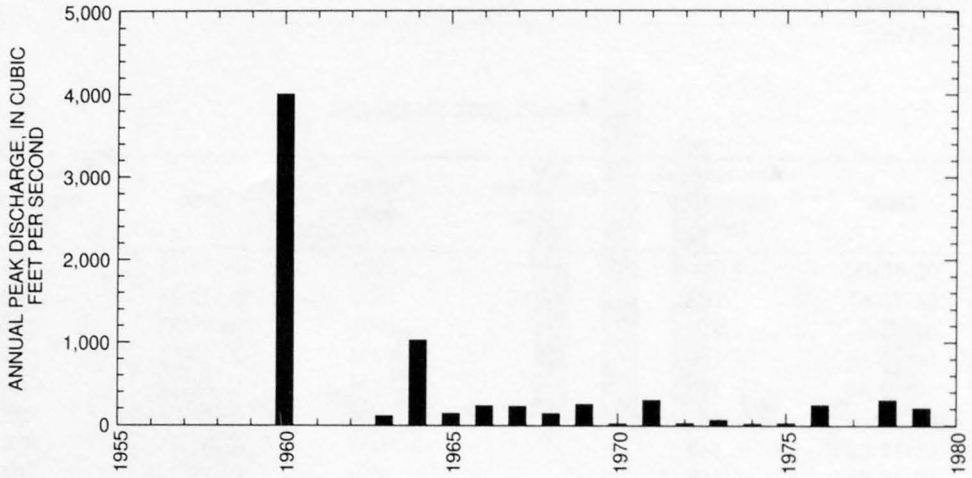
Weighted skew	(logs) =	0.05
Mean	(logs) =	2.13
Standard dev.	(logs) =	0.63

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
278	5.3	4,680	1.4	1.0	10.4	1.9	4.0

09424480 ASH CREEK NEAR KIRKLAND, AZ--Continued



09424700 IRON SPRING WASH TRIBUTARY NEAR BAGDAD, AZ

LOCATION.--Lat 34°31'20", long 113°06'43", in $NE^1/_4SE^1/_4$ sec.29, T.14 N., R.8 W., Yavapai County, Hydrologic Unit 15030203, at State Highway 96, 6.6 mi southeast of Bagdad.

DRAINAGE AREA.--0.64 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-25-64	150		1972	08-00-72	0.5	
1965	04-04-65	10	ES	1973	10-00-72	25	ES
1966	11-23-65	65		1974	08-05-74	4.0	ES
1967	12-06-66	10		1975	11-02-74	1.0	ES
1968	08-12-68	85		1976	02-06-76	9.0	
1969	01-14-69	5.0	ES	1978	03-01-78	180	
1970	08-12-70	6.0	ES	1979	00-00-79	125	
1971	08-00-71	0.6	ES				

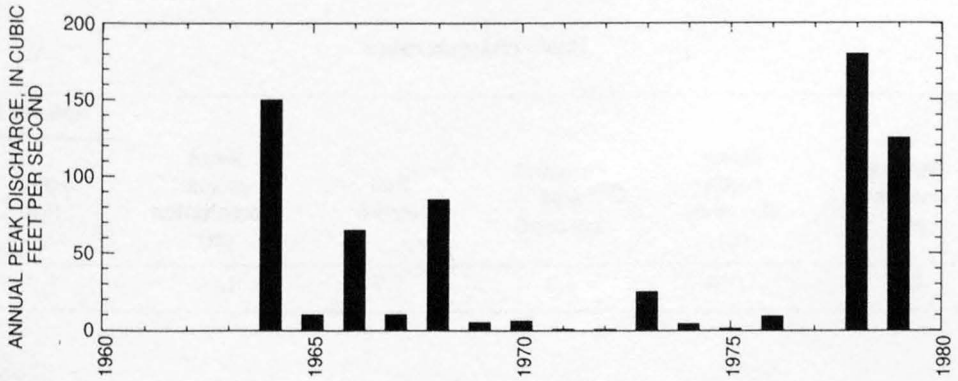
Magnitude and probability of instantaneous peak flow based on period of record 1964-76, 1978-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
12.4	63.5	146	348	607	993
Weighted skew	(logs) =	-0.11			
Mean	(logs) =	1.08			
Standard dev.	(logs) =	0.86			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
431	2.6	3,470	0.0	1.0	12.1	1.9	4.0



09424900 SANTA MARIA RIVER NEAR BAGDAD, AZ

LOCATION.--Lat 34°18'21", long 113°20'47", in SE$^1/_4$ sec.12, T.11 N., R.11 W., Mohave County, Hydrologic Unit 15030203, on right bank 4.0 mi east of Palmerita Ranch, 12 mi upstream from confluence with Big Sandy River, and 21 mi southwest of Bagdad.

DRAINAGE AREA.--1,129 mi^2.

PERIOD OF RECORD.--April 1966 to September 1985, October 1988 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,360 ft above sea level, from topographic map.

REMARKS.--Records fair. Diversions above station for irrigation of about 5,300 acres, most of which is by pumping from ground water.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft^3/s Mar. 1, 1978, gage height, 7.82 ft, from rating curve extended above 5,000 ft^3/s on basis of step-backwater computations and slope-area measurements at gage heights 5.50 and 7.82 ft; no flow for many days in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	12-07-66	13,500		1981	03-06-81	191	
1968	01-28-68	6,500		1982	02-11-82	6,750	
1969	01-26-69	7,200		1983	09-24-83	15,200	
1970	03-03-70	1,420		1984	08-17-84	5,450	
1971	08-25-71	2,940		1985	02-10-85	10,400	
1972	08-13-72	1,350		1989	02-06-89	394	HP
1973	10-19-72	11,000		1990	10-04-89	6,650	
1974	08-05-74	600	ES	1991	03-01-91	18,900	
1975	07-29-75	1,890		1992	08-23-92	9,310	
1976	02-09-76	11,800		1993	02-09-93	15,700	
1977	09-11-77	1,500		1994	09-03-94	2,170	
1978	03-01-78	23,100		1995	02-14-95	8,790	
1979	12-18-78	17,200		1996	00-00-96	0	
1980	01-30-80	19,800					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.8	233	8.0	16,360
2.0	350	9.0	21,000
3.0	1,340	10.0	26,330
4.0	3,040	11.0	31,950
5.0	5,420	12.0	37,670
6.0	8,450	13.0	43,810
7.0	12,130	13.8	49,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
91.9	46.4	4,010	1.0	1.7	14.0	1.9	3.5

09424900 SANTA MARIA RIVER NEAR BAGDAD, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-85, 1989, 1991-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	505	0.00	25	102	4.0	3.0
NOVEMBER	392	0.00	23	82	3.5	2.8
DECEMBER	461	0.00	86	151	1.8	10.4
JANUARY	936	0.00	137	244	1.8	16.5
FEBRUARY	1,520	0.00	234	352	1.5	28.1
MARCH	1,040	0.00	243	346	1.4	29.2
APRIL	204	0.00	37	51	1.4	4.5
MAY	37	0.00	8.2	12	1.5	1.0
JUNE	17	0.00	2.1	5.0	2.4	0.3
JULY	6.7	0.00	0.52	1.5	2.9	0.1
AUGUST	198	0.00	18	48	2.7	2.1
SEPTEMBER	355	0.00	18	70	3.9	2.1
ANNUAL	232	0.00	69	76	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-85, 1992-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.35	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1967-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7,510	13,400	17,700	23,500	28,000	32,600

WEIGHTED SKEW (LOGS)= -0.33
MEAN (LOGS)= 3.86
STANDARD DEV. (LOGS)= 0.31

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-85, 1989, 1991-96

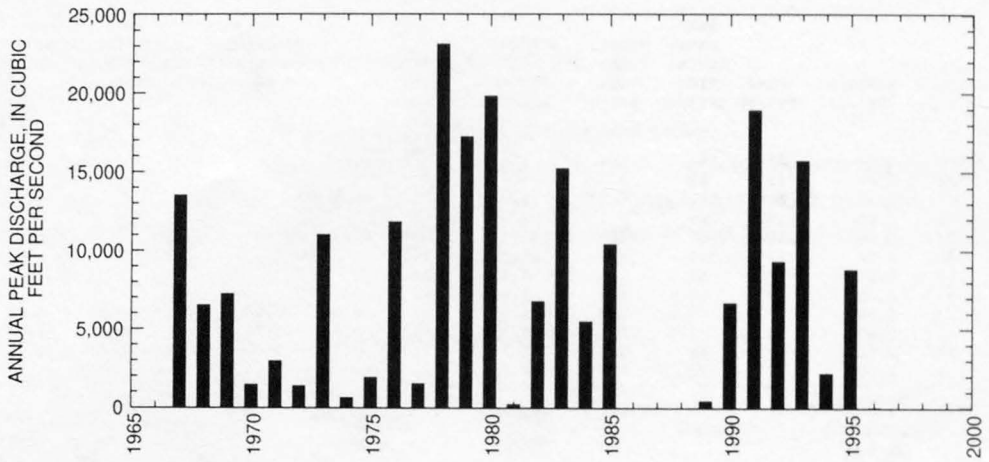
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,630	5,210	8,760	14,300	19,100	24,400
3	911	3,140	5,480	9,300	12,700	16,500
7	518	1,890	3,390	5,900	8,190	10,800
15	306	1,210	2,250	4,010	5,650	7,530
30	189	785	1,480	2,660	3,760	5,020
60	125	555	1,060	1,930	2,730	3,640
90	93	417	800	1,460	2,060	2,730

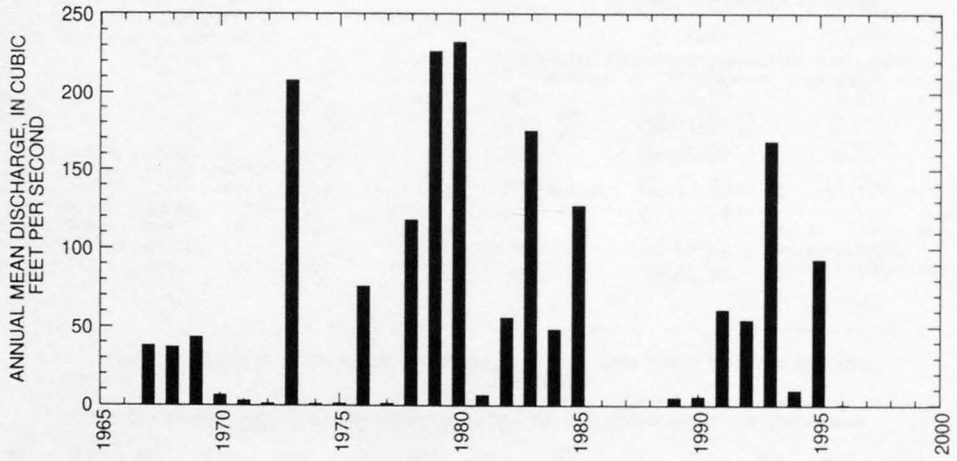
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-85, 1989, 1991-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,650	265	87	36	19	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

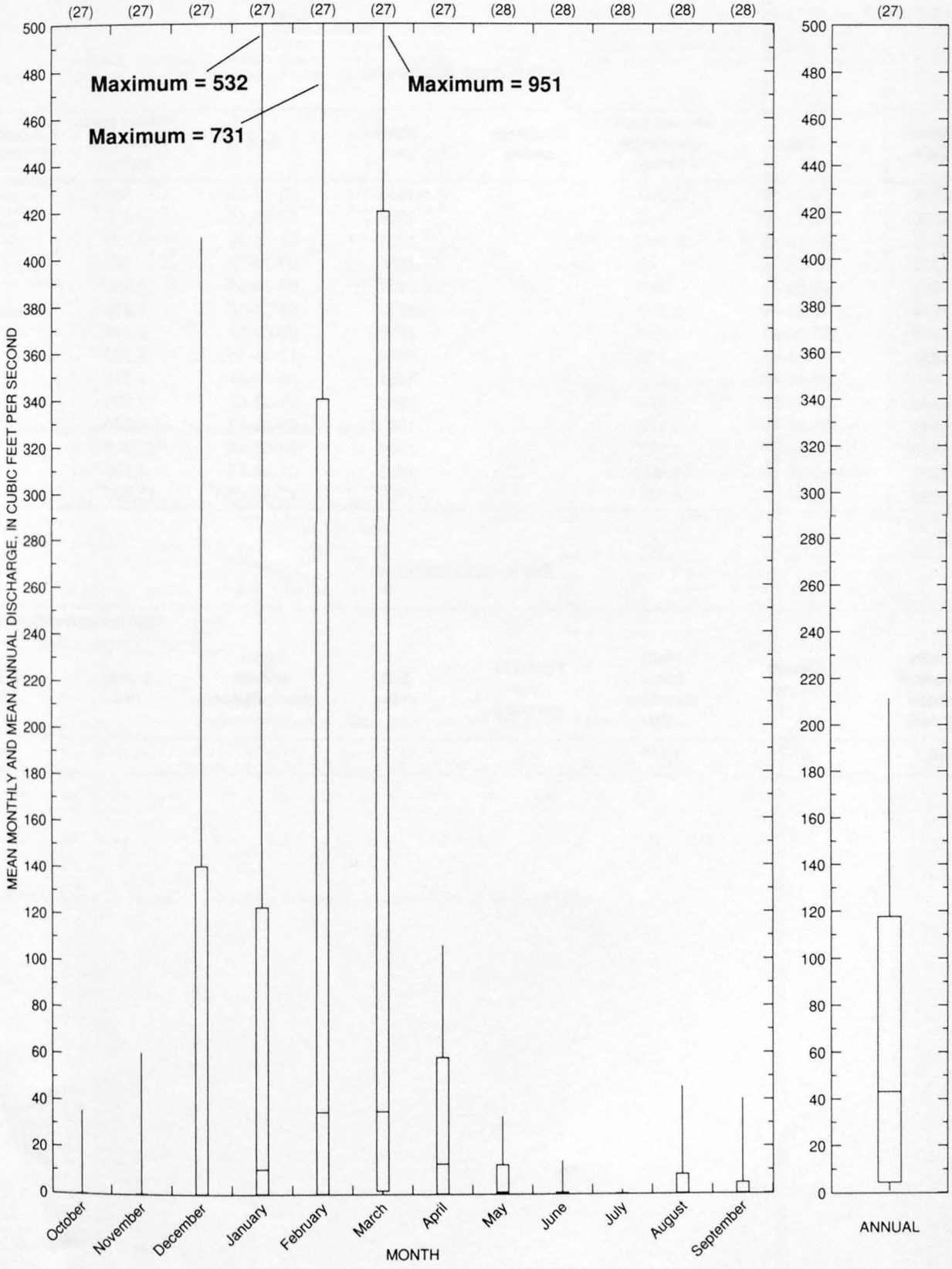
Reliability of values in column is uncertain, and potential errors are large.

09424900 SANTA MARIA RIVER NEAR BAGDAD, AZ--Continued





09424900 SANTA MARIA RIVER NEAR BAGDAD, AZ--Continued



09425500 SANTA MARIA RIVER NEAR ALAMO, AZ

LOCATION.--Lat 34°18', long 113°31', in $NE^1/_4SW^1/_4$ sec.9, T.11 N., R.12 W., Mohave County, Hydrologic Unit 15030204, on right bank 0.5 mi upstream from confluence with Big Sandy River and 5.25 mi upstream from Alamo.

DRAINAGE AREA.--1,439 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1939	09-06-39	22,300		1953	08-28-53	560	
1940	09-17-40	262		1954	03-23-54	16,000	
1941	03-14-41	20,600		1955	08-18-55	7,180	
1942	01-14-42	91		1956	07-24-56	107	
1943	08-04-43	544		1957	08-20-57	2,050	
1944	02-24-44	6,000		1958	03-22-58	7,870	
1945	03-26-45	1,530		1959	08-03-59	2,940	
1946	07-24-46	1,170		1960	12-26-59	3,220	
1947	09-19-47	1,610		1961	08-30-61	1,720	
1948	08-05-48	1,520		1962	09-27-62	3,800	
1949	02-25-49	1,100		1963	08-23-63	4,240	
1950	10-18-49	1,570		1964	08-02-64	22,500	
1951	08-29-51	33,600		1965	04-04-65	4,100	
1952	12-31-51	8,020		1966	12-30-65	15,900	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
46.5	81.7	3,650	0.9	1.7	14.4	1.9	4.0

09425500 SANTA MARIA RIVER NEAR ALAMO, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-65

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	34	0.55	6.4	9.2	1.4	1.7
NOVEMBER	13	0.92	3.9	3.3	0.85	1.0
DECEMBER	228	2.1	20	50	2.5	5.5
JANUARY	160	2.7	20	39	1.9	5.4
FEBRUARY	397	1.9	47	101	2.2	12.6
MARCH	1,070	3.3	129	259	2.0	34.6
APRIL	880	2.6	65	199	3.1	17.6
MAY	34	1.4	4.8	7.1	1.5	1.3
JUNE	38	0.79	3.4	7.3	2.2	0.9
JULY	38	0.60	3.4	7.2	2.1	0.9
AUGUST	624	0.74	50	131	2.7	13.4
SEPTEMBER	257	0.53	19	52	2.8	5.1
ANNUAL	255	2.4	31	52	1.7	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-66

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.71	0.34	0.22	0.15	0.09	0.07
3	0.77	0.38	0.25	0.17	0.11	0.08
7	0.88	0.45	0.30	0.20	0.13	0.09
14	0.95	0.52	0.37	0.26	0.18	0.13
30	1.0	0.68	0.54	0.44	0.35	0.30
60	1.3	0.92	0.76	0.65	0.55	0.48
90	1.5	1.0	0.89	0.78	0.68	0.62
120	1.7	1.2	1.1	0.94	0.83	0.77
183	2.7	1.7	1.5	1.4	1.3	1.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1939-66

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,260	9,870	17,600	32,600	48,600	69,600

WEIGHTED SKEW (LOGS)= 0.00
MEAN (LOGS)= 3.51
STANDARD DEV. (LOGS)= 0.57

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-65

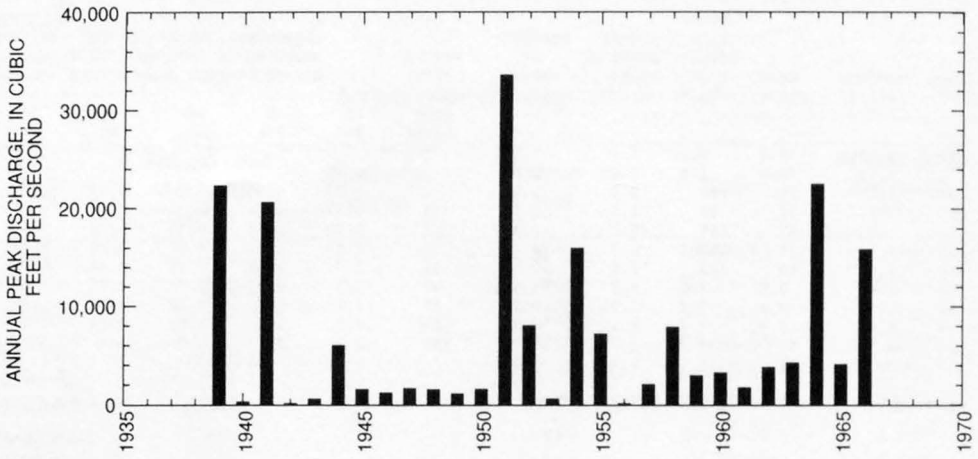
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	633	2,810	5,930	12,800	20,700	31,600
3	359	1,550	3,260	7,040	11,500	17,600
7	200	871	1,860	4,170	6,980	11,100
15	126	537	1,140	2,560	4,300	6,850
30	78	318	672	1,500	2,530	4,060
60	48	186	386	855	1,440	2,320
90	36	133	271	591	991	1,590

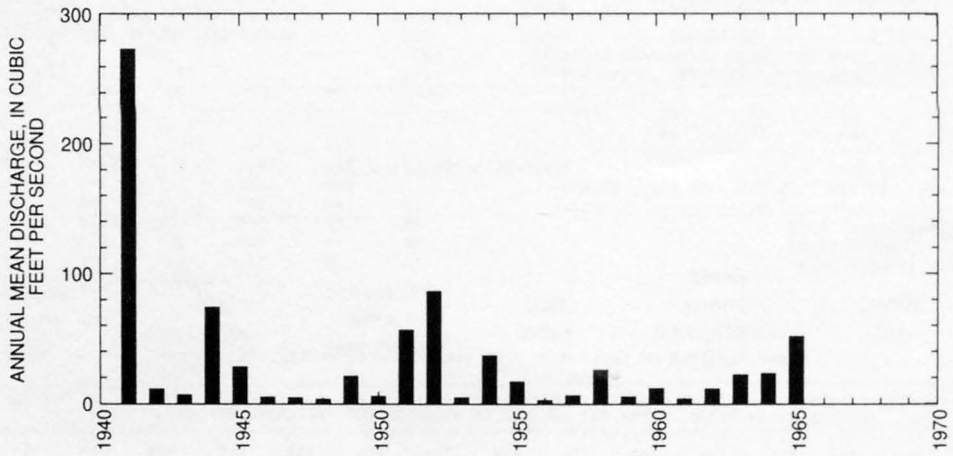
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-65

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
662	49	13	7.9	6.0	4.6	3.7	2.9	2.3	2.0	1.6	1.1	0.84	0.56	0.46	0.41	0.21

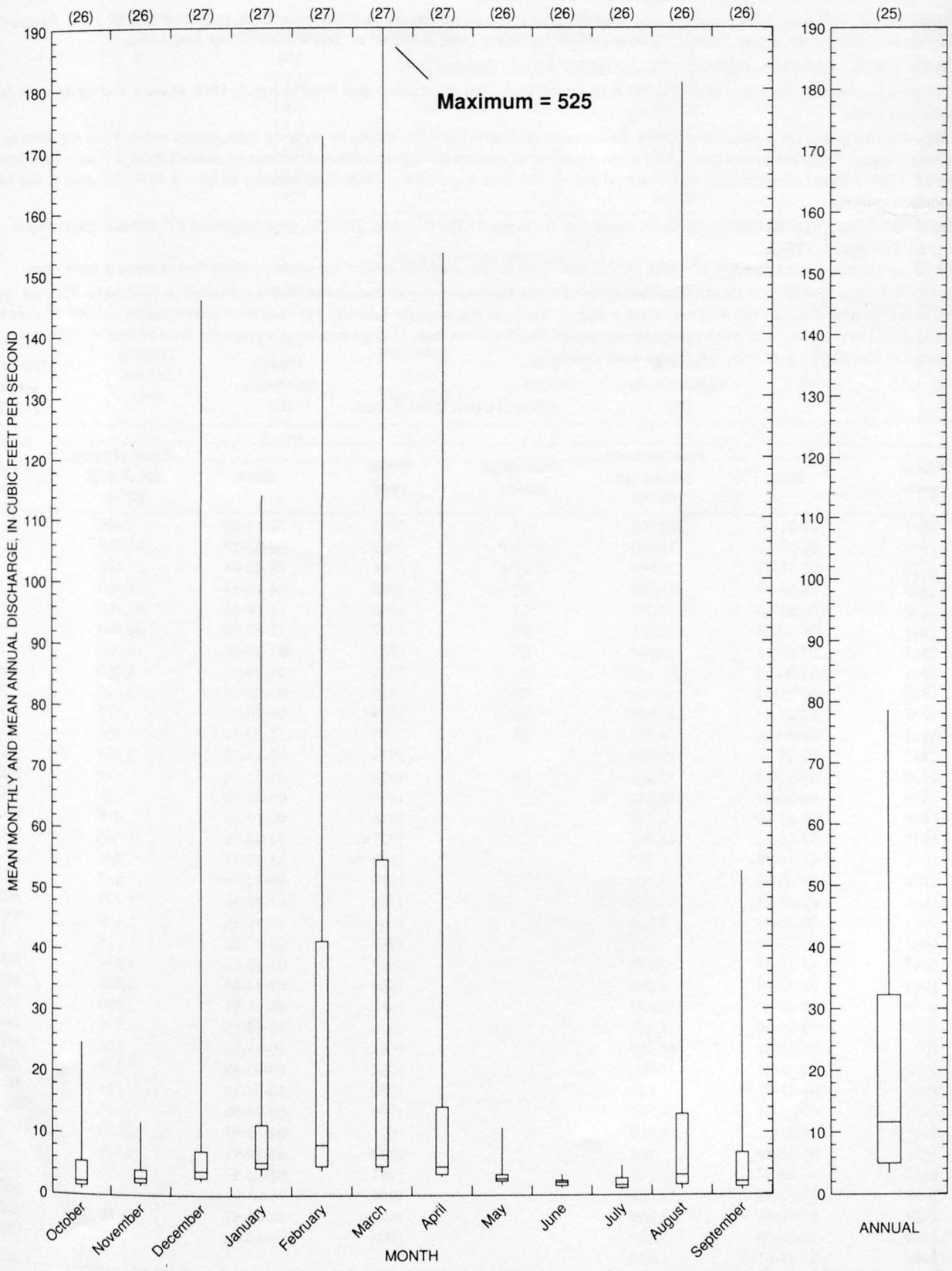
Reliability of values in column is uncertain, and potential errors are large.

09425500 SANTA MARIA RIVER NEAR ALAMO, AZ--Continued





09425500 SANTA MARIA RIVER NEAR ALAMO, AZ--Continued



09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ

LOCATION.--Lat 34°13'51", long 113°36'29", in $SE^1/_4SE^1/_4$ sec.4, T.10 N., R.13 W., La Paz County, Hydrologic Unit 15030204, on left bank 0.6 mi downstream from Alamo Dam, 3.7 mi downstream from Bullard Wash, and 8 mi downstream from confluence of Santa Maria and Big Sandy Rivers.

DRAINAGE AREA.--4,633 mi^2, of which 10 mi^2 probably is noncontributing.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for October and November 1939, published in WSP 1313. Prior to October 1943, published as "Williams River near Alamo." October 1943 to September 1967, published as "Bill Williams River near Alamo."

REVISED RECORDS.--WSP 1213: 1939(M). 1941(P). WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 967 ft above sea level, from construction data. Prior to Apr. 9, 1968, at site 1.7 mi upstream at datum 1,002.95 ft above sea level.

REMARKS.--Records good. Diversions above station for irrigation of about 9,100 acres, mostly by pumping from ground water. Flow regulated by Alamo Lake, beginning Mar. 2, 1969. Temporary storage and slight regulation of releases through uncontrolled rectangular conduit through Alamo Dam June 23, 1968, to Mar. 27, 1969. Alamo Lake is formed by an earthfill and rockfill dam, completed in 1968. Total capacity of lake is 1,043,000 acre-ft. See table below for monthend contents.

EXTREMES FOR PERIOD OF RECORD.--1940-68: Maximum discharge, 65,100 ft^3/s Aug. 29, 1951, gage height, 30.8 ft, site and datum then in use; minimum daily, 1.1 ft^3/s Sept. 4, 1958.
1969-95: Maximum discharge, 6,980 ft^3/s Mar. 16, 22, 1993, gage height, unknown as weir had washed out; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--The history of floods that occurred prior to October 1939 is published in WSP 1683. The peak discharges have been correlated with those for Bill Williams River at Planet. The peak discharge for February 1937 has been determined as 105,000 ft^3/s at a stage of 46 ft, site and datum then in use, from rating curve extended above 50,000 ft^3/s on basis of slope-area measurement for flood of Sept. 6, 1939, at a stage of 39.6 ft, discharge of 86,000 ft^3/s and known stable high-water control.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1891	02-21-91	[1]200,000	HP	1962	02-13-62	8,400	
1916	01-19-16	175,000	ES,HP	1963	08-22-63	10,300	
1927	02-16-27	125,000	ES,HP	1964	08-02-64	25,600	
1929	09-04-29	35,000	ES	1965	04-10-65	12,300	
1930	09-08-30	90,000	ES	1966	12-10-65	41,900	
1931	08-05- 31	100,000	ES	1967	12-07-66	38,900	
1932	02-09-32	60,000	ES	1968	01-28-68	16,000	ES
1933	03-04-33	150	ES	1969	01-26-69	4,950	KR
1934	08-29-34	2,000	ES	1970	03-03-70	2,240	KR
1935	02-07-35	20,000	ES	1971	08-30-71	732	KR
1936	08-09-36	4,000	ES	1972	12-29-71	108	MD,KR
1937	02-07-37	105,000		1973	03-16-73	2,150	MD,KR
1938	03-04-38	70,000	ES	1974	03-11-74	13	MD,KR
1939	09-06-39	86,000		1975	04-04-75	27	MD,KR
1940	02-03-40	2,700		1976	02-19-76	418	MD,KR
1941	03-14-41	46,000		1977	12-08-76	60	MD,KR
1942	01-14-42	407		1978	03-04-78	286	MD,KR
1943	03-05-43	2,480		1979	09-30-79	652	MD,KR
1944	02-24-44	11,000		1980	03-22-80	3,400	MD,KR
1945	03-16-45	7,380		1981	10-11-80	1,100	MD,KR
1946	07-25-46	972		1982	03-12-82	25	KR
1947	12-28-46	7,230		1983	03-30-83	1,930	MD,KR
1948	08-05-48	2,070		1984	03-14-84	2,000	MD,KR
1949	02-25-49	2,900		1985	03-21-85	2,000	MD,KR
1950	09-06-50	1,850		1986	10-15-85	379	MD,KR
1951	08-29-51	65,100		1987	10-01-86	300	MD,KR
1952	12-31-51	37,600		1988	09-03-88	328	MD,KR
1953	08-28-53	193		1989	10-04-89	54	MD,KR
1954	03-23-54	34,700		1990	06-06-90	13	MD,KR
1955	08-23-55	4,610		1991	04-13-91	2,280	MD,KR
1956	07-24-56	162		1992	02-19-92	2,120	MD,KR
1957	08-20-57	12,100		1993	03-16-93	6,980	MD,KR
1958	03-22-58	13,000		1994	10-01-93	255	MD,KR
1959	08-18-59	2,900		1995	02-16-95	6,680	MD,KR
1960	12-26-59	3,420		1996	09-10-96	48	MD,KR
1961	09-13-61	1,630					

[1]Highest since 1861.

09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ--Continued

Discharge rating table developed February 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
13.0	170	19.0	3,120
14.0	368	20.0	4,010
15.0	664	21.0	5,020
16.0	1,090	22.0	6,160
17.0	1,660	23.0	7,440
18.0	2,330	23.4	8,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
42.6	125	4,120	28.0	1.7	13.7	1.8	3.9

09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-89, 1991-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	456	0.00	47	101	2.2	3.1
NOVEMBER	576	0.00	46	111	2.4	3.0
DECEMBER	1,980	1.3	119	317	2.7	7.9
JANUARY	1,470	1.5	100	239	2.4	6.6
FEBRUARY	3,390	2.7	223	529	2.4	14.7
MARCH	4,790	5.0	504	936	1.9	33.2
APRIL	2,160	2.1	160	385	2.4	10.6
MAY	719	0.00	46	123	2.7	3.0
JUNE	494	0.00	34	86	2.5	2.2
JULY	1,420	0.00	61	204	3.4	4.0
AUGUST	964	0.00	101	200	2.0	6.6
SEPTEMBER	1,110	0.05	78	171	2.2	5.1
ANNUAL	955	2.1	126	197	1.6	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1941-89, 1992-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	3.5	0.24	0.00	0.00	0.00	0.00
3	3.7	0.25	0.00	0.00	0.00	0.00
7	3.8	0.43	0.00	0.00	0.00	0.00
14	4.9	0.81	0.00	0.00	0.00	0.00
30	5.1	1.4	0.18	0.00	0.00	0.00
60	5.1	2.3	1.1	0.00	0.00	0.00
90	7.6	1.6	0.47	0.07	0.00	0.00
120	8.2	2.3	1.0	0.49	0.20	0.10
183	13	4.4	2.5	1.6	0.91	0.63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1941-89, 1991-96

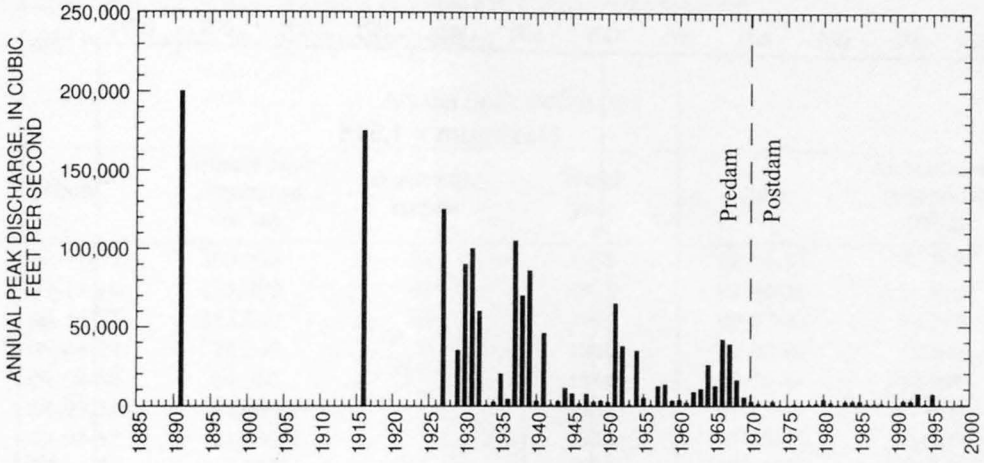
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	1,190	5,130	10,200	20,000	29,900	42,300
3	888	3,490	6,550	12,100	17,300	23,500
7	625	2,390	4,440	8,130	11,700	15,800
15	429	1,680	3,210	6,090	8,970	12,500
30	293	1,150	2,240	4,370	6,590	9,410
60	191	719	1,380	2,690	4,060	5,830
90	144	524	1,000	1,940	2,950	4,270

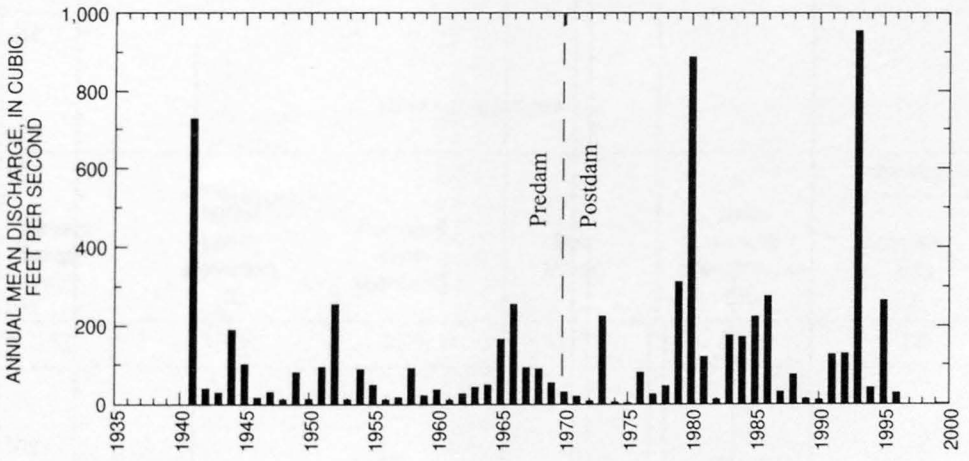
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-89, 1991-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,360	511	248	81	43	21	15	11	9.6	7.8	6.0	3.8	1.0	0.00	0.00	0.00	0.00

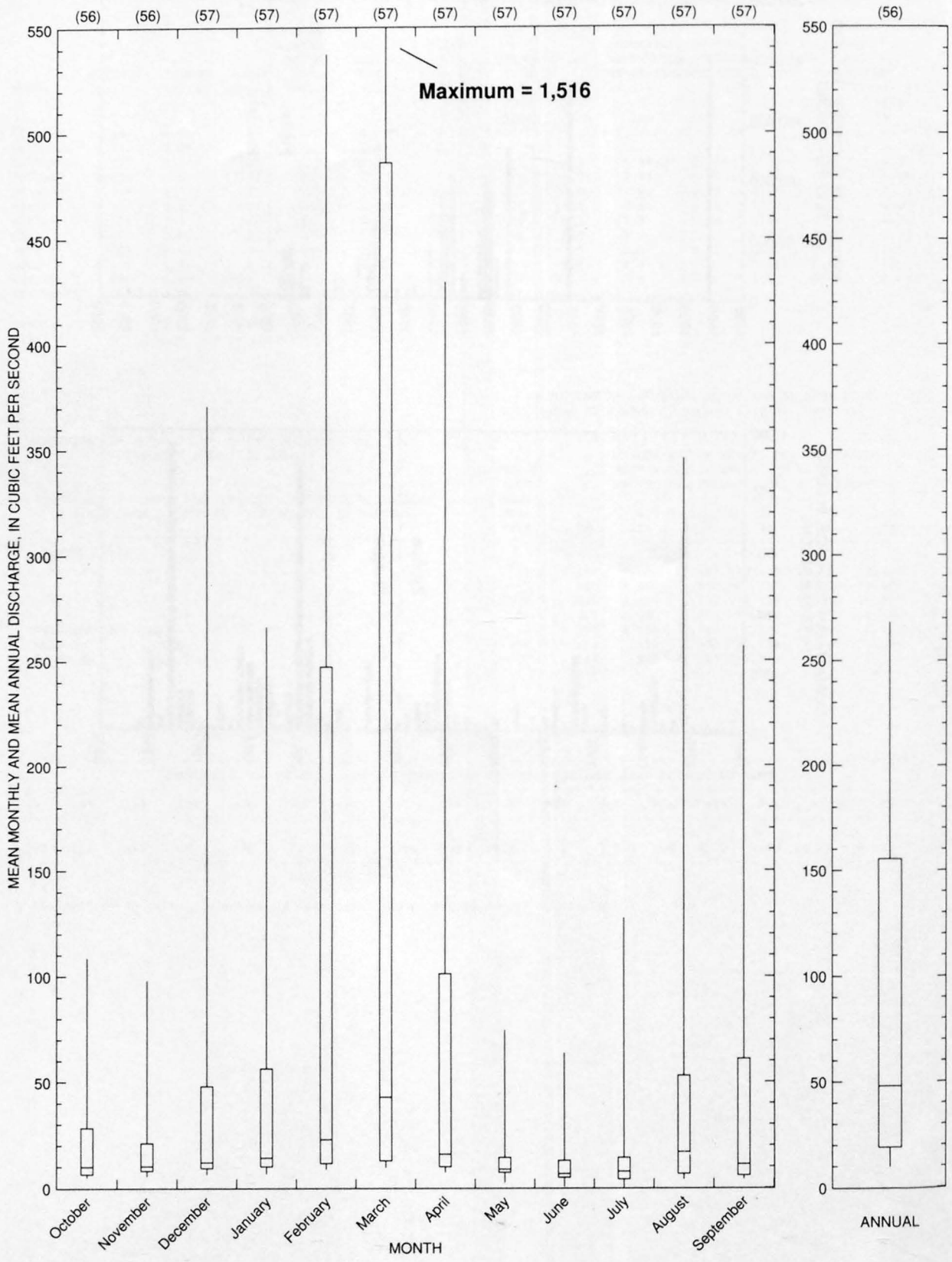
Reliability of values in column is uncertain, and potential errors are large.

09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ--Continued





09426000 BILL WILLIAMS RIVER BELOW ALAMO DAM, AZ--Continued



09426500 BILL WILLIAMS RIVER AT PLANET, AZ

LOCATION.--Lat 34°15'23", long 113°58'41", in NE$^1/_4$ sec.36, T.11 N., R.17 W., Yuma County, Hydrologic Unit 15030204, 1 mi west of Planet and 6 mi upstream from water line of Havasu Lake at elevation 450 ft above mean sea level.

DRAINAGE AREA.--5,054 mi^2, of which 10.1 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1891	02-21-91	200,000	HP	1937	02-07-37	92,500	
1916	01-19-16	175,000	HP	1938	03-04-38	61,000	
1927	02-16-27	125,000	HP	1939	09-07-39	73,000	
1929	09-04-29	25,000		1940	02-03-40	2,600	
1930	09-08-30	64,000		1941	03-02-41	42,600	
1931	08-05-31	80,000		1942	01-15-42	300	
1932	02-09-32	51,000		1943	03-05-43	1,580	
1933	03-04-33	107		1944	02-24-44	10,800	
1934	08-29-34	1,470		1945	03-16-45	4,520	
1935	02-07-35	15,900		1946	07-22-46	328	
1936	08-09-36	2,900					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
38.6	152	3,900	26.0	1.7	13.2	1.8	3.9

09426500 BILL WILLIAMS RIVER AT PLANET, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1915, 1929-46

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	46	9.2	21	8.5	0.40	1.1
NOVEMBER	26	10	19	3.8	0.20	1.0
DECEMBER	659	13	68	150	2.2	3.7
JANUARY	445	13	78	125	1.6	4.2
FEBRUARY	4,680	13	687	1,320	1.9	36.9
MARCH	2,780	13	425	730	1.7	22.9
APRIL	1,830	12	121	414	3.4	6.5
MAY	122	11	28	29	1.0	1.5
JUNE	95	11	21	18	0.86	1.1
JULY	80	9.5	22	15	0.70	1.2
AUGUST	1,180	14	93	264	2.8	5.0
SEPTEMBER	3,660	13	276	832	3.0	14.8
ANNUAL	603	16	152	164	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1930-46

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	12	10	9.3	8.6	7.8	7.3
3	13	10	9.4	8.5	7.6	7.1
7	14	11	10	9.3	8.2	7.5
14	14	12	11	9.6	8.6	7.9
30	15	13	11	10	8.9	8.1
60	16	13	12	11	9.3	8.4
90	17	14	12	11	9.7	8.9
120	17	14	13	12	12	11
183	23	15	13	12	12	11

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
----	----	----	----	----	----

WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1915, 1929-46

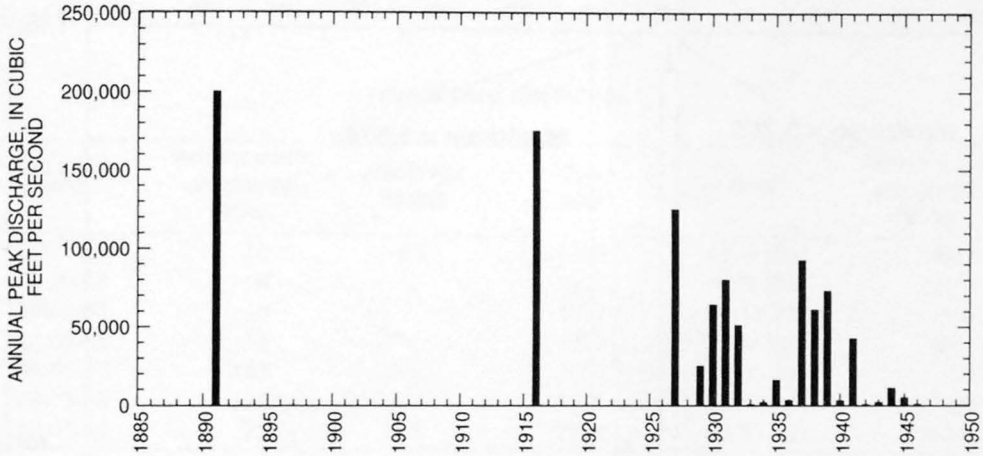
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	4,220	19,600	39,200	75,900	112,000	154,000
3	2,560	11,200	22,000	42,100	61,800	85,200
7	1,440	5,730	10,800	19,700	28,100	37,900
15	937	3,680	6,920	12,700	18,300	24,800
30	584	2,220	4,160	7,700	11,200	15,300
60	333	1,200	2,240	4,210	6,200	8,690
90	237	813	1,500	2,810	4,160	5,870

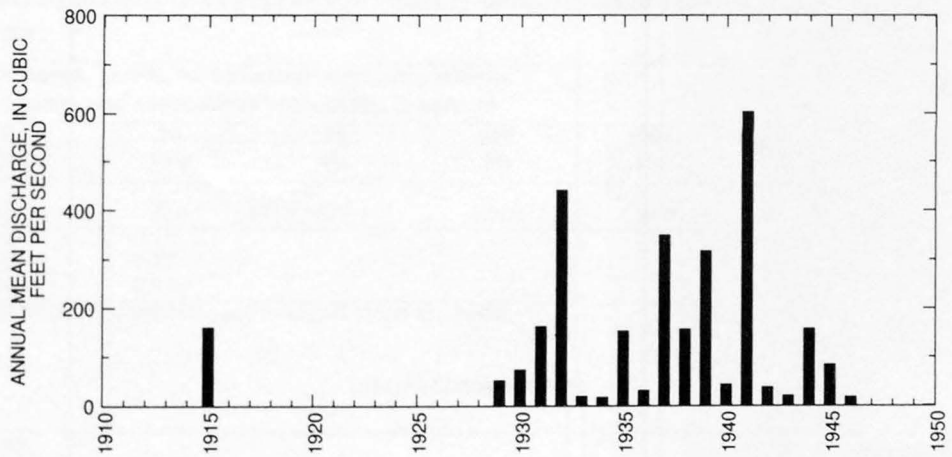
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1915, 1929-46

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3,030	275	82	39	28	23	21	20	18	17	15	13	12	10	10	9.0	8.2

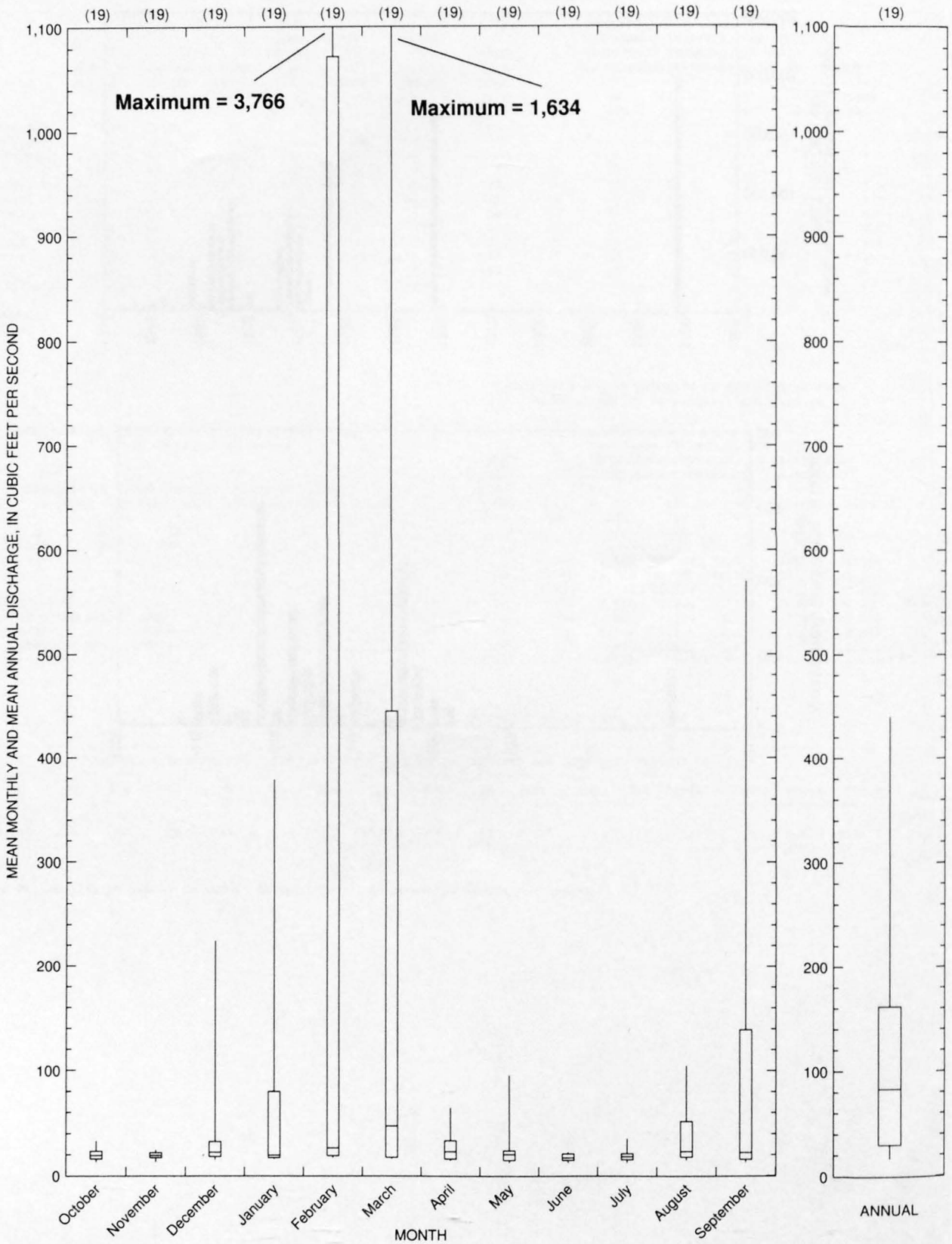
Reliability of values in column is uncertain, and potential errors are large.

09426500 BILL WILLIAMS RIVER AT PLANET, AZ--Continued





09426500 BILL WILLIAMS RIVER AT PLANET, AZ--Continued



09427700 MONKEYS HEAD WASH NEAR PARKER, AZ

LOCATION.--Lat 34°16'40", long 114°07'46", in $SW^1/_4SW^1/_4$ sec.22, T.11 N., R.18 W., Yuma County, Hydrologic Unit 15030104, at State Highway 172, 1.5 mi south of Parker Dam, and 13 mi northeast of Parker.

DRAINAGE AREA.--1.84 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	10	ES	1970	03-0-170	35	
1964	00-00-64	0		1971	00-00-71	265	
1965	00-00-65	0		1972	09-18-72	5.0	ES
1966	12-09-65	12		1973	11-16-72	60	
1967	09-00-67	103		1974	00-00-74	0	
1968	08-13-68	320		1975	08-00-75	0.5	LT
1969	10-03-68	12	ES	1976	09-25-76	160	

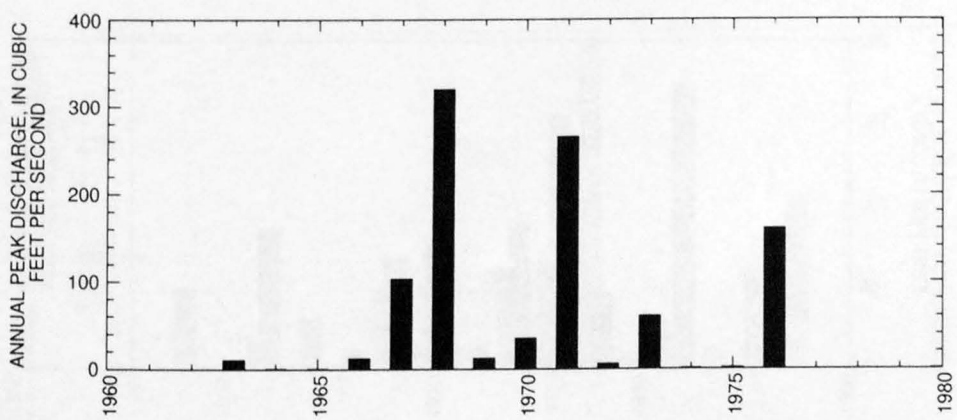
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
18.2	100	236	572	1,000	1,640
Weighted skew	(logs) =	-0.18			
Mean	(logs) =	1.23			
Standard dev.	(logs) =	0.91			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
415	2.7	1,130	0.0	3.0	5.5	1.4	3.4



09428545 CUNNINGHAM WASH TRIBUTARY NEAR WENDEN, AZ

LOCATION.--Lat 34°00'35", long 113°34'40", in $SE^1/_4NE^1/_4$ sec.26, T.8 N., R.13 W., Yuma County, Hydrologic Unit 15030105, Alamo Dam access road, 13 mi north of Wenden.

DRAINAGE AREA.--0.77 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-02-64	173		1971	00-00-71	68	
1965	04-04-65	5.0	ES	1972	09-17-72	12	
1966	08-18-66	46		1973	10-06-72	31	
1967	08-20-67	155		1974	07-20-74	85	
1968	08-06-68	88		1975	07-25-75	0.4	ES
1969	08-00-69	15		1976	09-25-76	48	
1970	08-10-70	80	ES				

Magnitude and probability of instantaneous peak flow based on period of record 1964-76

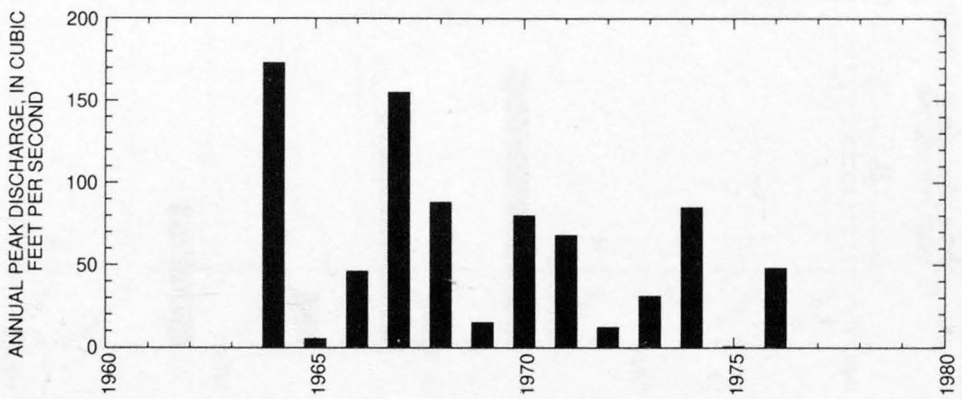
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probability, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
52.1	101	140	198	245	296

Weighted skew	(logs) =	-0.19
Mean	(logs) =	1.71
Standard dev.	(logs) =	0.35

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
365	1.8	2,330	0.0	3.0	8.1	1.6	3.8



09428550 BOUSE WASH TRIBUTARY NEAR BOUSE, AZ

LOCATION.--Lat 33°54'05", long 113°58'25", in $SW^1/_4SW^1/_4$ sec.31, T.7 N., R.16 W., Yuma County, Hydrologic Unit 15030105, at State Highway 72, 3 mi southeast of Bouse.

DRAINAGE AREA.--14.6 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-17-63	248		1970	08-02-70	1,000	ES
1964	10-18-63	75		1971	08-10-71	2,920	
1965	04-03-65	20	ES	1972	09-17-72	76	
1966	09-20-66	678		1973	08-16-73	390	
1967	10-04-66	170		1974	08-03-74	120	
1968	08-03-68	180		1975	07-29-75	828	
1969	08-08-69	890		1976	09-25-76	1,500	

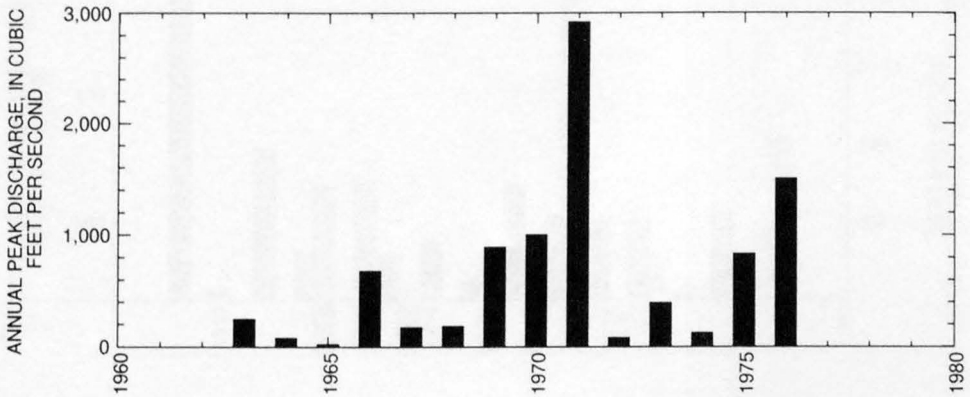
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
344	998	1,730	3,070	4,440	6,170
Weighted skew	(logs) =	-0.08			
Mean	(logs) =	2.53			
Standard dev.	(logs) =	0.56			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
50.0	8.3	1,230	0.0	3.0	6.5	1.5	3.7



09428800 TYSON WASH TRIBUTARY NEAR QUARTZSITE, AZ

LOCATION.--Lat 33°30'45", long 114°13'00", in $SW^1/_4$ sec.15, T.2 N., R.19 W., Yuma County, Hydrologic Unit 15030106, at U.S. Highway 95, 10.7 mi south of Quartzsite.

DRAINAGE AREA.--13.7 mi^2, contributing drainage area not determined.

Annual peak discharges

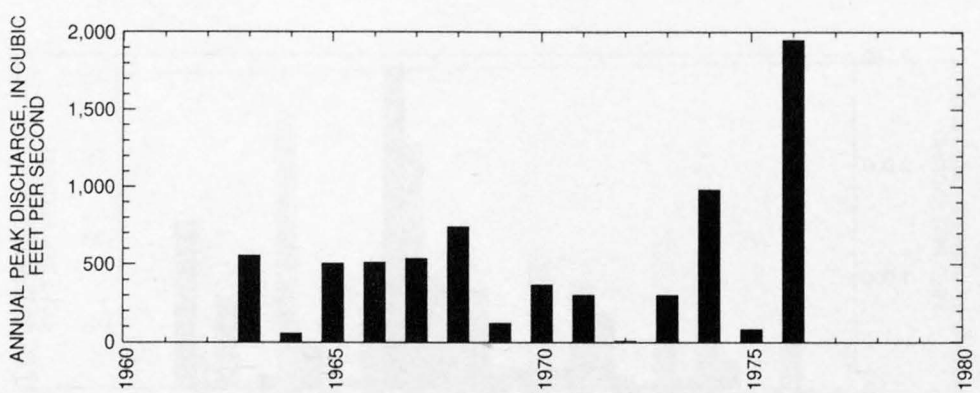
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-17-63	554		1970	08-00-70	365	
1964	08-01-64	55		1971	08-19-71	300	
1965	08-19-65	503		1972	08-08-72	5.0	ES
1966	09-13-66	510		1973	08-04-73	300	
1967	10-04-66	535		1974	08-03-74	980	
1968	07-05-68	740		1975	09-07-75	80	
1969	09-13-69	120		1976	09-25-76	1,950	

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
75	8.0	1,520	0.0	3.0	6.0	1.5	3.7



09429150 CREOSOTE WASH NEAR EHRENBERG, AZ

LOCATION.--Lat 33°37'15", long 114°29'41", in NE$^1/_4$ sec.2, T.3 N., R.22 W., Yuma County, Hydrologic Unit 15030104, at Parker Valley Road, 2.5 mi northeast of Ehrenberg, and 6 mi northeast of Blythe, California.

DRAINAGE AREA.--1.98 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	08-16-65	259		1971	08-10-71	580	
1966	12-09-65	265		1972	08-08-72	72	
1967	08-14-67	98		1973	08-16-73	125	
1968	07-06-68	43		1974	08-00-74	5.0	LT
1969	07-17-69	65		1975	09-16-75	28	
1970	02-28-70	34		1976	09-25-76	325	

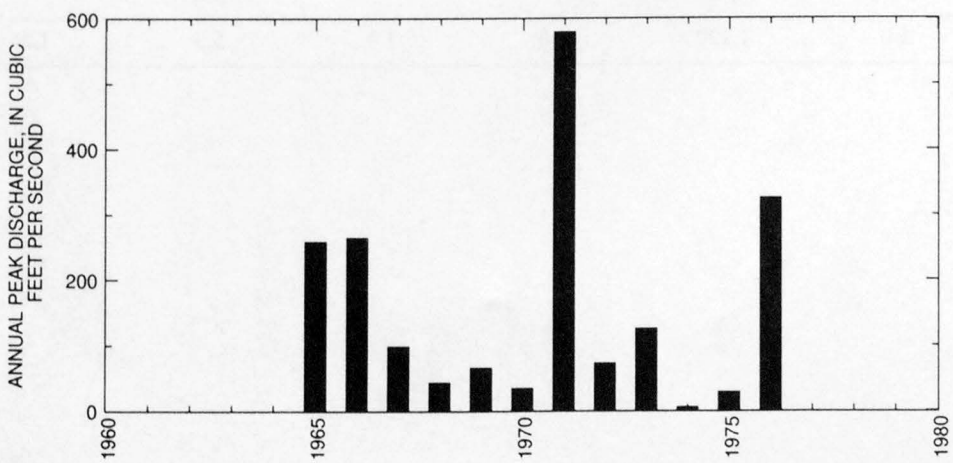
Magnitude and probability of instantaneous peak flow based on period of record 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
95.6	239	390	660	932	1,270
Weighted skew	(logs) =	0.09			
Mean	(logs) =	1.99			
Standard dev.	(logs) =	0.47			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
95.2	4.2	509	0.0	3.0	5.5	1.2	3.3



09429400 INDIAN WASH TRIBUTARY NEAR YUMA, AZ

LOCATION.--Lat 33°06'33", long 114°17'41", in NW$^1/_4$ sec.2, T.4 N., R.20 W. (unsurveyed), Yuma County, Hydrologic Unit 15030104, at U.S. Highway 95, 33 mi northeast of Dome.

DRAINAGE AREA.--2.56 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-17-63	72		1971	09-29-71	45	
1964	10-18-63	24		1972	08-00-72	29	
1965	04-03-65	37		1973	10-06-72	37	
1966	09-13-66	90		1974	07-21-74	57	
1967	10-03-66	24		1975	00-00-75	40	
1968	11-00-67	50		1976	09-25-76	61	
1969	09-06-69	43		1980	00-00-80	[1]98	HP
1970	03-01-70	36					

[1]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1980

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
44.7	64.8	79.3	99	115	131

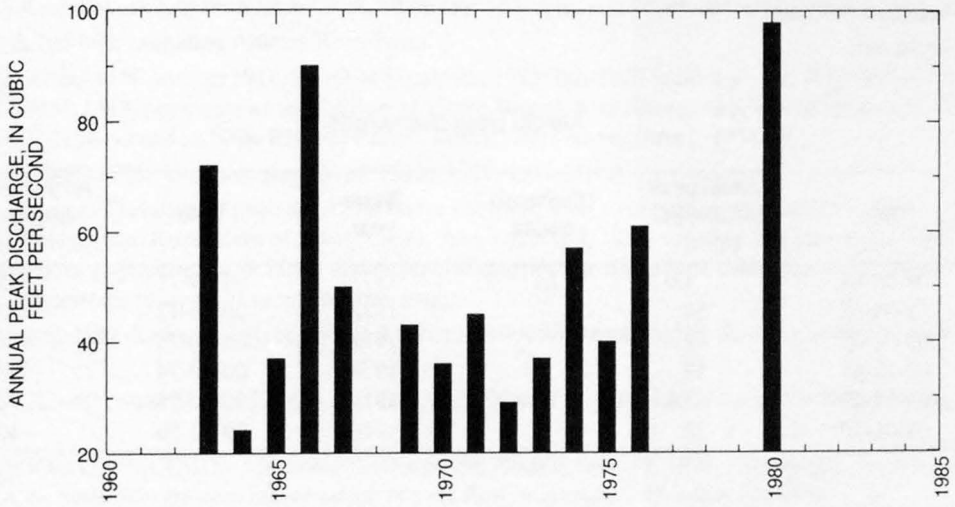
Weighted skew	(logs) =	0.19
Mean	(logs) =	1.66
Standard dev.	(logs) =	0.19

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
66.7	5.0	1,190	0.0	3.0	5.5	1.5	3.7

09429400 INDIAN WASH TRIBUTARY NEAR YUMA, AZ--Continued



09429510 MITTRY LAKE TRIBUTARY NEAR YUMA, AZ

LOCATION.--Lat 32°51'35", long 114°26'05", in $SW^1/_4SE^1/_4$ sec.32, T.6 S., R.21 W., Yuma County, Hydrologic Unit 15030107, at Yuma Test Station, 14.5 mi northeast of Yuma.

DRAINAGE AREA.--0.30 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	04-03-65	1.0	LT	1971	09-29-71	45	
1966	12-09-65	50		1972	06-06-72	55	
1967	09-02-67	42		1973	08-16-73	165	
1968	02-12-68	48		1974	00-00-74	0	
1969	01-14-69	3.0	ES	1975	00-00-75	0	
1970	03-01-70	22		1976	09-24-76	10	

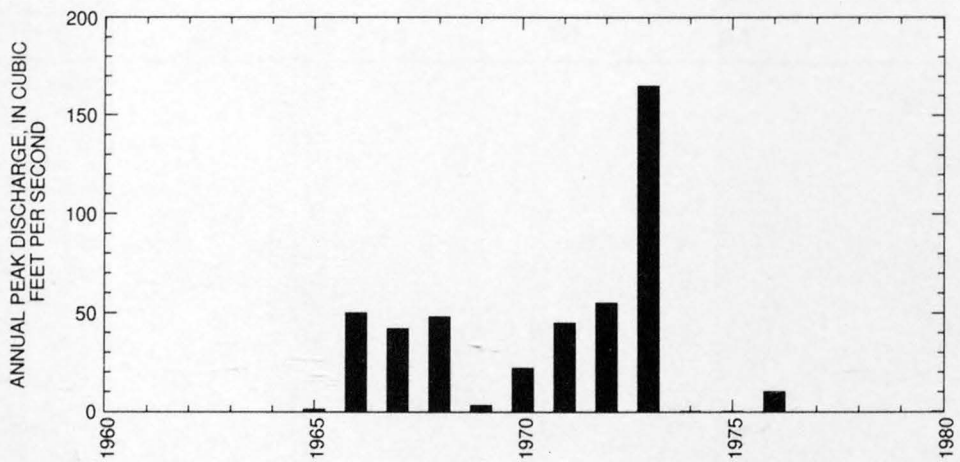
Magnitude and probability of instantaneous peak flow based on period of record 1965-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
22	62.8	106	182	256	346
Weighted skew	(logs) =	-0.19			
Mean	(logs) =	1.33			
Standard dev.	(logs) =	0.56			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
122	0.98	346	0.0	3.0	4.2	1.3	3.6



09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM

LOCATION.--Lat 32°38'53", long 108°50'43", in $SE^1/_4SW^1/_4$ sec.18, T.19 S., R.19 W., Grant County, Hydrologic Unit 15040002, on left bank at head of canyon, 1.4 mi downstream from Blue Creek, 10 mi east of Virden, and 16 mi upstream from New Mexico-Arizona State line.

DRAINAGE AREA.--3,203 mi^2, excluding Animas River basin.

PERIOD OF RECORD.--May to November 1914, March to September 1915, July 1927 to current year. July 1927 to May 1931 monthly discharge only, published in WSP 1313, computed as sum of flow at Virden Bridge, 9 mi downstream, and in Sunset Canal. Published as "Gila River near Duncan, Ariz.," 1914-15 and as "Gila River at Fuller's Ranch, near Duncan, Ariz.," 1931-38.

REVISED RECORDS.--WSP 1283: Drainage area. WSP 1313: 1929, 1931-32(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,875 ft above sea level, from river-profile map. May 11, 1914, to Sept. 30, 1915, at site 6 mi downstream, 1,000 ft upstream from intake of Sunset Canal. June 1 to July 7, 1931, nonrecording gage at present site and datum. Since April 18, 1980, supplementary gage on left bank 800 ft downstream at same datum. Since June 1980, crest-stage gages at supplementary gage site. Since Nov. 1990, water-stage recorder at supplementary gage.

REMARKS.--No estimated daily discharges. Records fair. Station is above all Duncan Valley diversions. Diversions for irrigation of about 6,200 acres above station.

AVERAGE DISCHARGE.--69 (water years 1928-96), 215 ft^3/s, 155,800 acre-ft/yr; median of yearly mean discharges, 150 ft^3/s, 109,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,700 ft^3/s Dec. 19, 1978, gage height, 29.00 ft, from rating curve extended above 38,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 1 ft^3/s July 14, 1934.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1927	07-04-27	1,800		1962	09-26-62	3,920	
1928	07-26-28	1,630		1963	08-31-63	7,320	
1929	07-30-29	5,700		1964	07-25-64	4,480	
1930	08-11-30	7,400		1965	07-24-65	2,540	
1931	08-03-31	8,000		1966	12-23-65	10,900	
1932	07-30-32	6,800		1967	08-12-67	11,500	
1933	09-08-33	5,650		1968	02-15-68	2,920	
1934	08-2634	8,920		1969	09-02-69	1,790	
1935	09-27-35	8,600		1970	09-19-70	1,130	
1936	06-11-36	3,600		1971	09-18-71	3,730	
1937	02-17-37	9,070		1972	10-26-71	5,700	
1938	08-31-38	6,400		1973	10-20-72	27,200	
1939	09-16-39	1,630		1974	08-04-74	7,560	
1940	09-06-40	11,000		1975	09-08-75	7,720	
1941	09-29-41	[1]41,700		1976	09-15-76	3,700	
1942	09-13-42	3,140		1977	08-13-77	4,450	
1943	09-27-43	1,600		1978	03-03-78	7,800	
1944	08-19-44	4,010		1979	12-19-78	58,700	
1945	08-11-45	5,370		1980	09-10-80	4,300	
1946	10-08-45	10,600		1981	08-18-81	1,890	
1947	08-22-47	3,400		1982	10-02-81	3,680	
1948	08-12-48	2,240		1983	02-04-83	5,870	
1949	01-14-49	15,600		1984	10-02-83	15,500	
1950	09-24-50	2,190		1985	12-28-84	37,000	
1951	08-28-51	440		1986	10-11-85	6,670	
1952	01-19-52	6,100		1987	08-11-87	2,680	
1953	08-21-53	3,330		1988	09-22-88	9,000	
1954	08-21-54	6,670		1989	07-30-89	696	
1955	07-28-55	5,280		1990	08-23-90	710	
1956	08-13-56	2,660		1991	03-02-91	10,200	
1957	08-05-57	6,710		1992	02-14-92	4,430	
1958	03-23-58	4,550		1993	01-11-93	30,000	
1959	08-13-59	16,400		1994	09-06-94	783	
1960	01-12-60	5,220		1995	12-06-94	22,700	
1961	08-15-61	1,920		1996	08-21-96	11,200	

[1]Highest since 1891.

09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM--Continued

Discharge rating table developed November 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	207	18.0	26,480
6.0	1,200	20.0	31,570
8.0	4,200	22.0	37,010
10.0	9,850	24.0	42,800
12.0	13,450	26.0	48,920
14.0	17,400	28.0	55,360
16.0	21,750	29.0	58,700

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
35.8	115	6,690	54.0	3.0	16.2	1.6	3.3

09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1991, 1995-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	120	41	70	43	0.62	1.6
NOVEMBER	1,040	67	409	547	1.3	9.3
DECEMBER	1,550	85	673	773	1.2	15.2
JANUARY	1,640	103	745	798	1.1	16.9
FEBRUARY	1,350	116	584	670	1.2	13.2
MARCH	1,390	91	699	656	0.94	15.8
APRIL	722	58	311	359	1.2	7.0
MAY	246	34	126	109	0.86	2.9
JUNE	99	11	56	44	0.78	1.3
JULY	122	52	89	35	0.39	2.0
AUGUST	537	125	320	207	0.65	7.2
SEPTEMBER	538	86	335	230	0.69	7.6
ANNUAL	564	130	367	220	0.60	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1996

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	15,400	7,640	4,000	2,910	2,270	1,450
3	9,020	4,780	2,810	2,220	1,860	1,390
7	5,380	3,360	1,870	1,310	953	492
14						
30						
60						
90						
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1927-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5,120	11,200	16,700	25,400	33,200	42,100

WEIGHTED SKEW (LOGS)= -0.10
MEAN (LOGS)= 3.70
STANDARD DEV. (LOGS)= 0.41

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1991, 1995-96

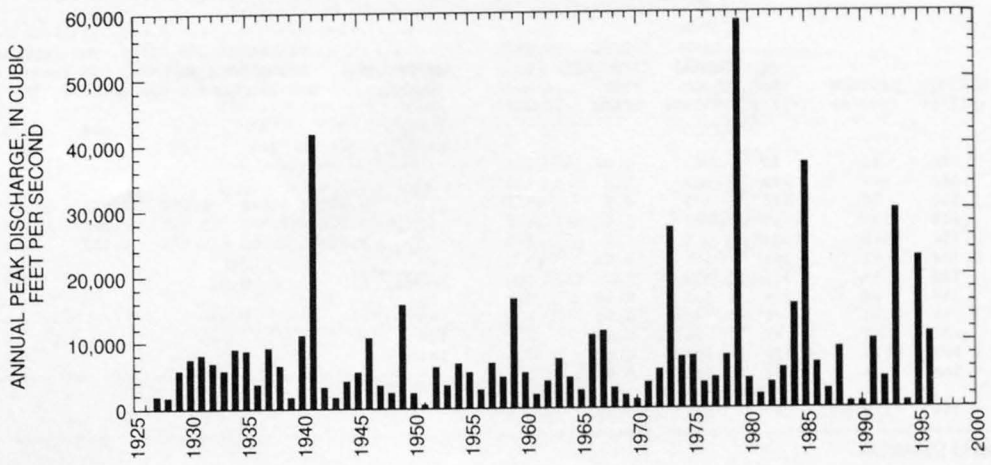
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1						
3						
7						
15	2,040	3,030	3,490	3,870	4,070	4,200
30	1,380	2,230	2,770	3,440	3,910	4,360
60	1,030	1,720	2,130	2,560	2,840	3,070
90	808	1,470	1,930	2,490	2,900	3,290

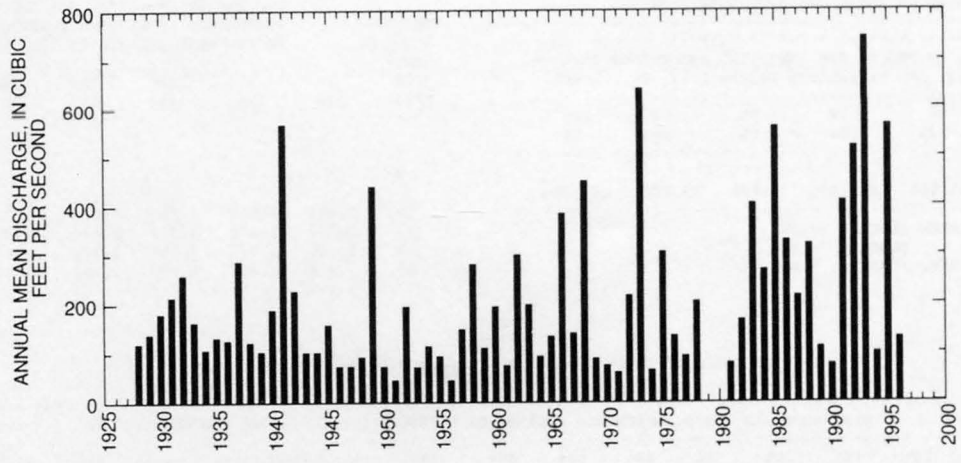
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1991, 1995-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4,070	1,260	747	577	451	243	156	120	99	77	59	42	30	13	9.4	8.3	7.5

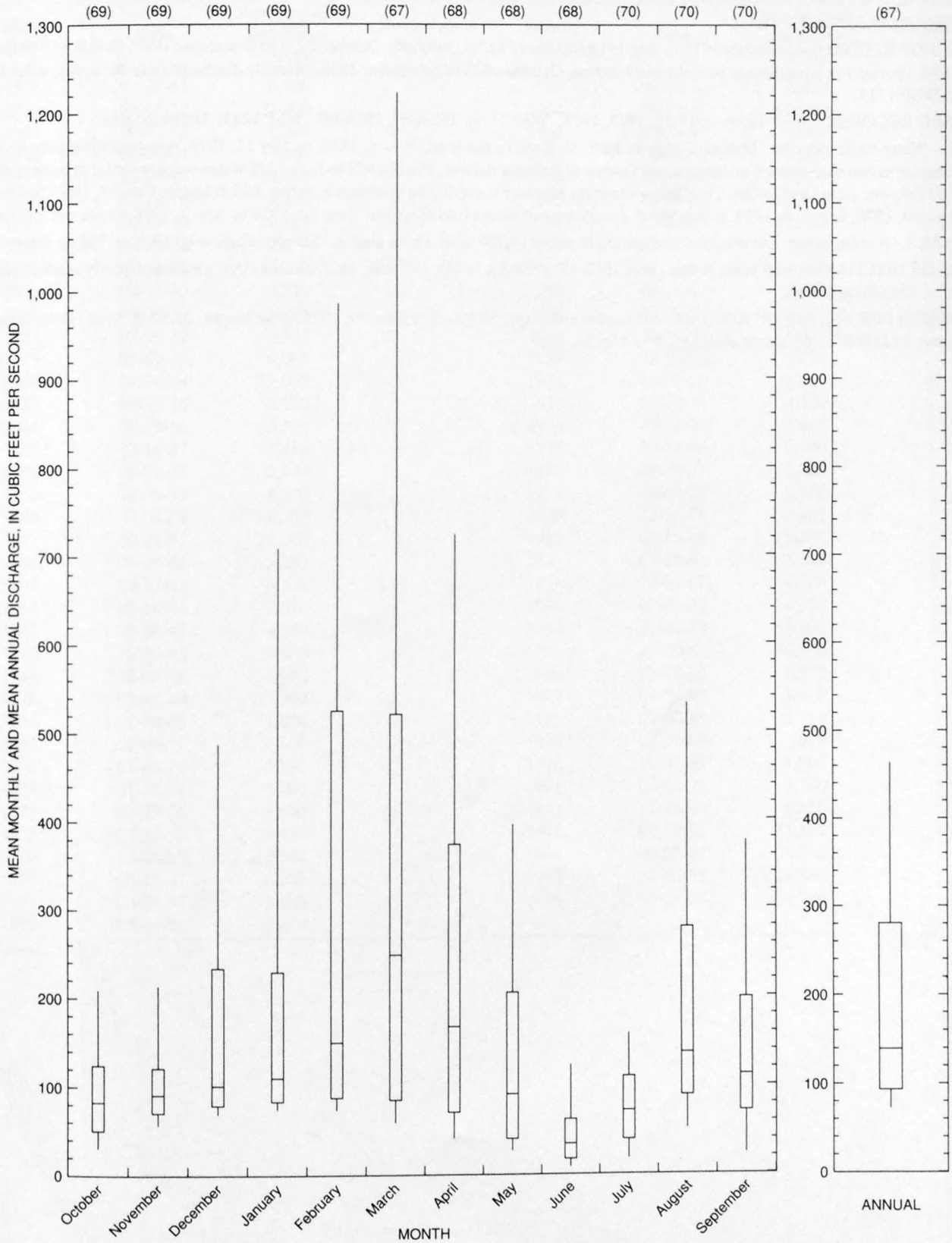
Reliability of values in column is uncertain, and potential errors are large.

09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM--Continued





09432000 GILA RIVER BELOW BLUE CREEK, NEAR VIRDEN, NM--Continued



09442000 GILA RIVER NEAR CLIFTON, AZ

LOCATION.--Lat 32°57'57", long 109°18'35", in $NE^1/_4SE^1/_4$ sec.25, T.5 S., R.29 E., Greenlee County, Hydrologic Unit 15040002, on right bank 60 ft upstream from bridge on county road, 6 mi upstream from San Francisco River, and 6 mi south of Clifton.

DRAINAGE AREA.--4,010 mi^2.

PERIOD OF RECORD.--November 1910 to July 1918 (published as "at Guthrie"), October 1927 to September 1989, October 1989 to September 1995, operated as a crest-stage partial-record station, October 1995 to September 1996. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 1059: 1911-12, 1915, 1917. WSP 1179: 1929(M), 1934(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,336.38 ft above sea level. Nov. 6, 1910, to July 11, 1918, non-recording gage or water-stage recorder at two sites about 6 mi upstream at Guthrie at different datums. March 1928 to June 1948 water-stage recorder at present site at datum 0.91 ft lower. June 1948 to Oct. 17, 1967, water-stage recorder at site 0.2 mi upstream at datum 3.12 ft higher. Oct. 18, 1967, to June 23, 1974, Apr. 10, 1978, to Feb. 6, 1979, at site 500 ft downstream at datum 0.44 ft higher. June 24, 1974 to Apr. 9, 1978, at present site and datum.

REMARKS.--Records poor. Diversions for irrigation of about 14,300 acres above station. Station is below all Duncan Valley diversions.

AVERAGE DISCHARGE.--69 years (water years 1912-17, 1928-89, 1996), 197 ft^3/s, 142,700 acre-ft/yr; median of yearly mean discharges, 140 ft^3/s, 101,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft^3/s Dec. 19, 1978, gage height, 23.80 ft, from rating curve extended above 28,000 ft^3/s; minimum daily, 3.7 ft^3/s July 27, 1987.

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1911	07-25-11	16,000		1960	01-13-60	4,000	
1912	03-11-12	21,000		1961	08-13-61	2,400	
1913	09-22-13	1,200		1962	09-26-62	8,980	
1914	08-06-14	5,700		1963	08-31-63	3,580	
1915	12-20-14	12,000		1964	07-15-64	5,070	
1916	01-18-16	7,600		1965	09-03-65	3,310	
1917	10-15-16	19,500		1966	12-24-65	10,700	
1928	07-31-28	2,870		1967	08-12-67	11,100	
1929	07-30-29	13,200		1968	03-11-68	4,380	
1930	08-11-30	6,300		1969	09-11-69	3,610	
1931	09-04-31	6,900		1970	08-05-70	4,220	
1932	07-09-32	4,500		1971	10-02-70	5,010	
1933	09-09-33	4,000		1972	09-03-72	6,160	
1934	08-26-34	17,000		1973	10-21-72	[1]33,000	
1935	08-31-35	3,100		1974	07-19-74	3,460	
1936	08-28-36	4,300		1975	09-08-75	4,660	
1937	02-18-37	7,450		1976	02-11-76	2,390	
1938	08-06-38	5,930		1977	08-13-77	2,820	
1939	08-05-39	8,670		1978	03-04-78	8,420	
1940	10-08-39	6,300		1979	12-19-78	57,000	
1941	09-29-41	28,200		1980	09-10-80	8,500	
1942	08-06-42	3,280		1981	07-12-81	8,190	
1943	09-27-43	6,770		1982	10-02-81	4,520	
1944	08-19-44	2,610		1983	02-04-83	4,980	
1945	08-08-45	4,540		1984	10-02-83	15,300	
1946	10-09-45	5,800		1985	12-29-84	48,800	
1947	08-03-48	1,090		1986	10-18-85	6,270	
1948	01-15-49	13,900		1987	07-21-87	3,020	
1950	07-30-50	1,680		1988	09-22-88	6,710	
1951	08-03-51	4,600		1989	07-31-89	620	
1952	01-20-52	4,280		1990	10-05-89	1,690	
1953	07-30-53	3,700		1991	03-02-91	9,730	
1954	08-23-54	6,000		1992	12-21-91	6,460	
1955	07-23-55	9,450		1993	01-19-93	35,500	
1956	10-04-55	12,700		1994	09-07-94	700	
1957	08-29-57	8,070		1995	01-05-95	24,800	
1958	03-24-58	3,980		1996	09-14-96	4,780	
1959	08-26-59	5,610					

[1]Highest since 1891.

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	146	12.0	13,090
4.0	1,150	13.0	15,410
6.0	2,990	14.0	17,910
8.0	5,610	15.0	20,580
9.0	7,210	16.0	23,420
10.0	8,990	17.0	26,430
11.0	10,950	17.5	28,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
29.0	158	6,250	44.0	2.9	15.4	1.6	3.4

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1912-17, 1929-33, 1936-46, 1949-89, 1996

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,750	8.7	192	334	1.7	7.8
NOVEMBER	564	11	110	105	0.95	4.5
DECEMBER	2,390	17	235	455	1.9	9.6
JANUARY	1,360	43	256	327	1.3	10.4
FEBRUARY	1,670	24	321	365	1.1	13.0
MARCH	1,770	21	390	435	1.1	15.8
APRIL	1,690	12	246	302	1.2	10.0
MAY	874	12	119	157	1.3	4.8
JUNE	171	9.4	41	38	0.93	1.7
JULY	934	13	119	166	1.4	4.8
AUGUST	898	17	235	216	0.92	9.6
SEPTEMBER	1,210	8.2	198	235	1.2	8.0
ANNUAL	930	43	205	166	0.81	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1912-18, 1929-33, 1937-47, 1950-89

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	8.9	6.9	5.5	4.3	3.6
3	15	9.4	7.4	6.1	4.8	4.1
7	15	10	8.3	7.0	5.8	5.1
14	17	11	9.2	7.8	6.4	5.7
30	20	13	10	8.8	7.3	6.4
60	26	16	12	10	8.2	7.1
90	37	21	16	12	9.1	7.5
120	53	31	23	18	14	11
183	85	50	38	30	23	20

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1911-17, 1928-46, 1948-89

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
6,000	12,600	18,600	28,300	37,300	47,700

WEIGHTED SKEW (LOGS)= 0.06
MEAN (LOGS)= 3.78
STANDARD DEV. (LOGS)= 0.38

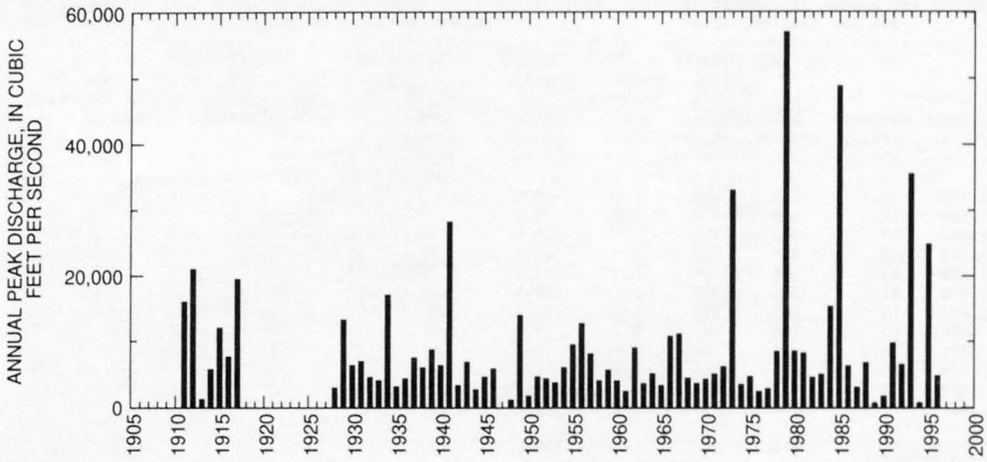
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1912-17, 1929-33, 1936-46, 1949-89, 199

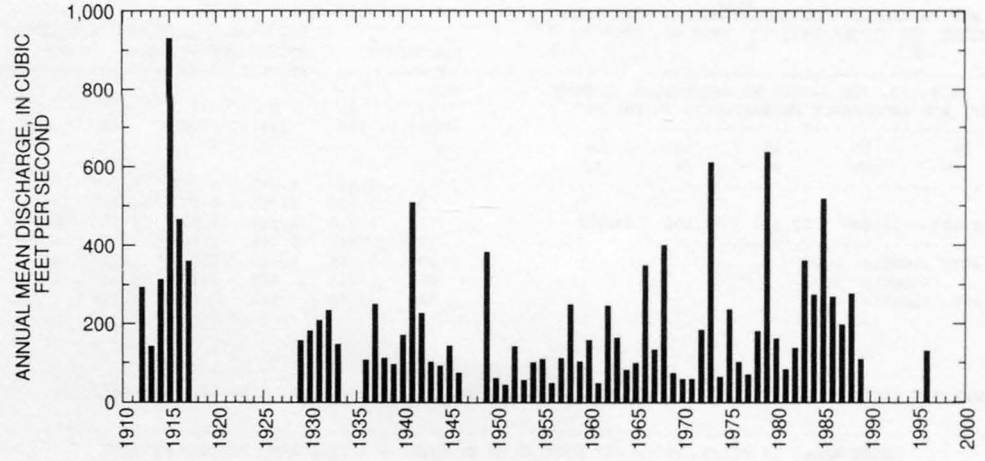
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,690	6,150	9,750	16,300	23,100	31,700
3	1,800	4,060	6,320	10,300	14,200	19,000
7	1,210	2,600	3,920	6,120	8,210	10,700
15	827	1,700	2,480	3,700	4,780	6,020
30	589	1,160	1,630	2,310	2,870	3,470
60	412	818	1,160	1,680	2,120	2,610
90	326	660	961	1,440	1,880	2,380

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1912-17, 1929-33, 1936-46, 1949-89, 1996

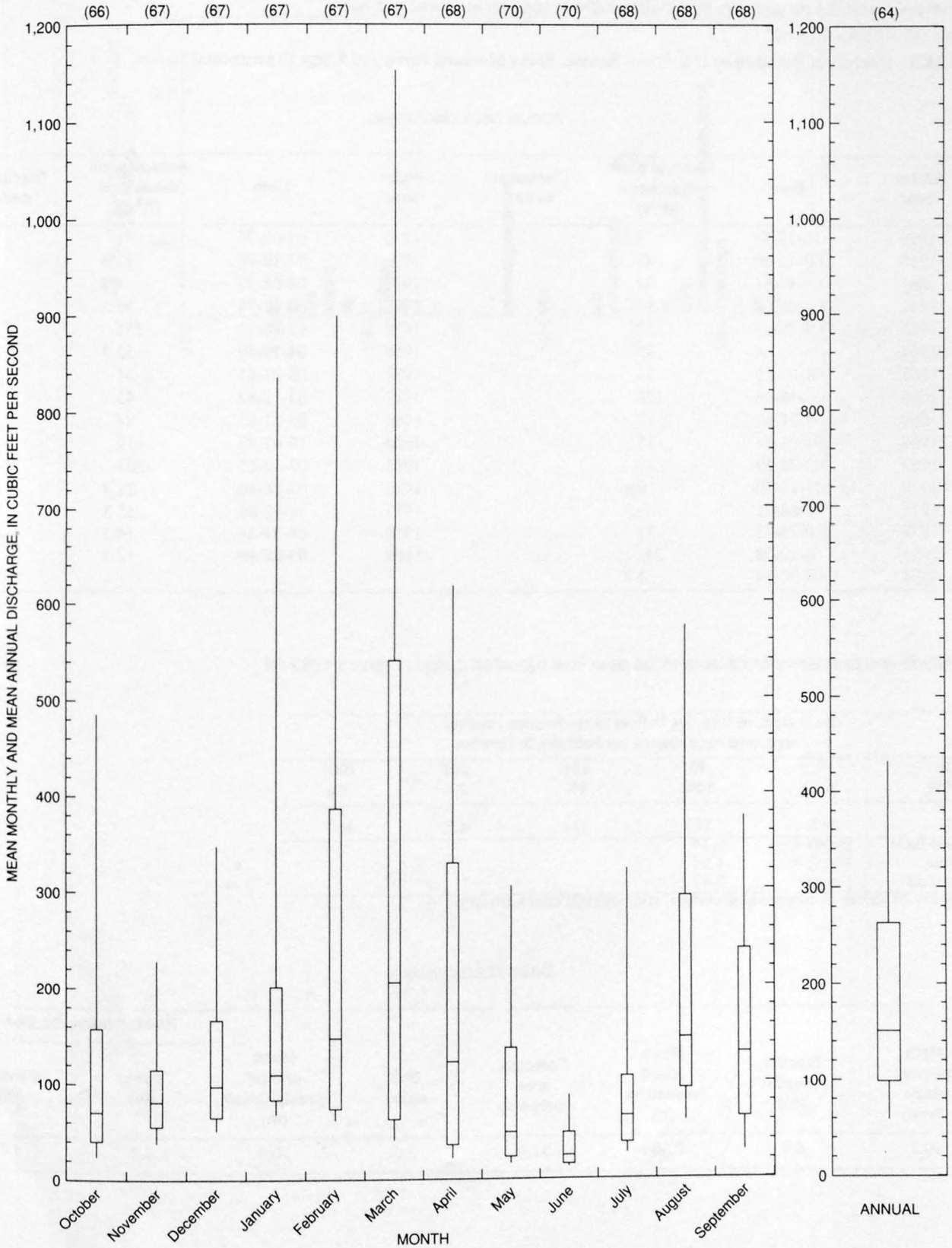
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,010	813	452	310	227	144	102	79	61	43	28	18	13	10	9.0	8.3	6.5

09442000 GILA RIVER NEAR CLIFTON, AZ--Continued





09442000 GILA RIVER NEAR CLIFTON, AZ--Continued



09444100 CAMPBELL BLUE CREEK NEAR ALPINE, AZ

LOCATION.--Lat 33°44'46", long 109°12'17", in $SE^1/_4SE^1/_4$ sec.26, T.4 N., R.30 E., Greenlee County, Hydrologic Unit 15040004, Apache National Forest, 2.5 mi upstream from Coleman Creek, and 8 mi southwest of Alpine.

DRAINAGE AREA.--11.6 mi^2.

REMARKS.--Discharges furnished by U.S. Forest Service, Rocky Mountain Forest and Range Experimental Station.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1959	10-13-58	8.2		1975	03-08-75	71	
1960	03-12-60	41		1976	02-10-76	13.6	
1961	08-23-61	32		1977	04-08-77	4.2	
1962	01-05-62	61		1978	03-22-78	58.5	
1963	08-25-63	132		1979	12-18-78	255	
1964	08-10-64	48		1980	04-10-80	53.3	
1965	01-07-65	33		1981	08-01-81	34	
1966	03-18-66	123		1982	03-12-82	43	
1967	07-31-67	17		1983	03-31-83	84	
1968	04-01-68	35		1984	10-02-83	619	
1969	03-28-69	37		1985	03-12-85	204	
1970	03-15-70	9.6		1986	03-26-86	29.9	
1971	09-08-71	3.3		1987	11-18-86	53.3	
1972	10-26-71	23		1988	08-31-88	54.3	
1973	10-20-72	342		1989	03-08-89	12.3	
1974	03-20-74	3.7					

Magnitude and probability of instantaneous peak flow based on period of record 1959-89

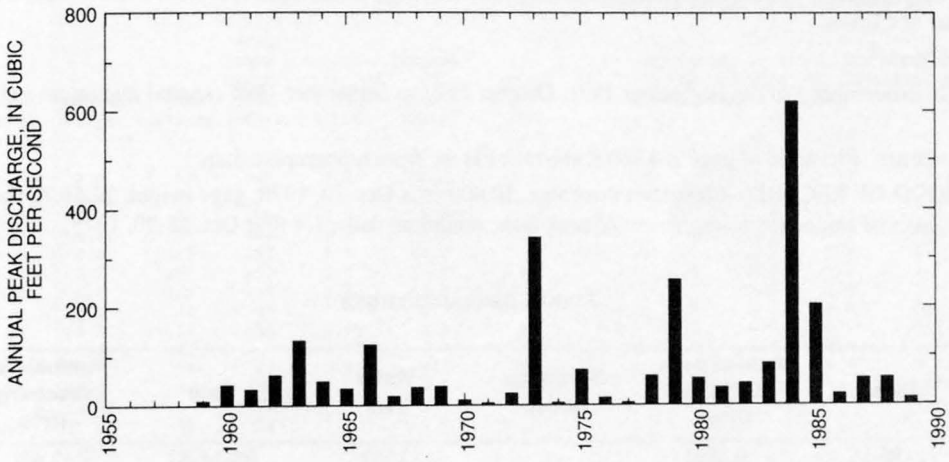
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
42	108	181	321	470	667
Weighted skew	(logs) =	0.24			
Mean	(logs) =	1.64			
Standard dev.	(logs) =	0.47			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
90.2	8.9	8,300	91.0	3.0	20.0	2.2	4.0

09444100 CAMPBELL BLUE CREEK NEAR ALPINE, AZ--Continued



09444200 BLUE RIVER NEAR CLIFTON, AZ

LOCATION.--Lat 33°17'27", long 109°11'44", in sec.6, T.2 S., R.31 E. (unsurveyed), Greenlee County, Hydrologic Unit 15040004, in Apache National Forest, on right bank 0.1 mi downstream from county road crossing, 0.9 mi upstream from Clear Creek, 8 mi upstream from mouth, and 17 mi northeast of Clifton.

DRAINAGE AREA.--506 mi^2.

PERIOD OF RECORD.--November 1967 to September 1991, October 1992 to September 1995 (annual maximum only), October 1995 to September 1996.

GAGE.--Water-stage recorder. Elevation of gage is 4,160 ft above sea level, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft^3/s Oct. 20, 1972, gage height, 22.56 ft, from rating curve extended above 960 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 1.4 ft^3/s Oct. 18-20, 1978.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	12-30-65	9,380		1982	08-14-82	2,620	
1968	08-09-68	6,290		1983	07-27-83	2,040	
1969	08-07-69	1,360		1984	10-01-83	24,300	
1970	07-28-70	1,180		1985	12-28-84	7,630	
1971	10-03-70	4,240		1986	07-16-86	2,040	
1972	10-25-71	2,520		1987	07-30-87	2,910	
1973	10-20-72	[1]30,000		1988	08-31-88	6,410	
1974	08-23-74	2,380		1989	09-22-89	1,380	
1975	09-08-75	25,500		1990	07-23-90	2,220	
1976	02-10-76	2,550		1991	03-02-91	3,820	
1977	08-19-77	1,570		1992	02-14-92	1,700	
1978	03-02-78	3,660		1993	01-19-93	17,000	
1979	11-24-78	14,700		1994	09-03-94	835	
1980	02-15-80	5,570		1995	11-24-94	7,290	
1981	08-07-81	1,910		1996	08-29-96	2,430	

[1]Highest since 1885.

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	370	18.0	15,900
8.0	1,240	20.0	21,200
10.0	2,730	22.0	27,600
12.0	4,900	24.0	35,000
14.0	7,810	26.0	43,200
16.0	11,400	26.4	45,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
65.3	40.8	6,910	85.0	3.0	20.7	1.8	3.6

09444200 BLUE RIVER NEAR CLIFTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1969-90, 1996

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,030	2.6	99	249	2.5	11.4
NOVEMBER	443	3.9	44	91	2.1	5.1
DECEMBER	616	3.7	82	155	1.9	9.4
JANUARY	569	5.4	68	123	1.8	7.9
FEBRUARY	707	8.0	115	167	1.5	13.2
MARCH	584	8.9	157	179	1.1	18.1
APRIL	488	6.7	122	147	1.2	14.0
MAY	338	4.1	58	80	1.4	6.7
JUNE	46	2.9	12	12	0.95	1.4
JULY	71	7.6	25	17	0.67	2.9
AUGUST	108	8.7	39	23	0.60	4.5
SEPTEMBER	366	7.4	47	78	1.7	5.4
ANNUAL	243	10	72	72	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-90

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	3.4	2.2	1.8	1.5	1.3	1.1
3	3.5	2.3	1.8	1.5	1.3	1.1
7	3.8	2.5	2.1	1.8	1.5	1.3
14	4.3	2.9	2.4	2.0	1.7	1.5
30	5.1	3.5	2.9	2.5	2.2	2.0
60	7.1	4.8	4.0	3.6	3.1	2.9
90	9.8	6.1	4.9	4.2	3.6	3.2
120	13	7.7	6.0	4.8	3.8	3.3
183	16	11	9.2	8.4	7.9	7.6

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966, 1968-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3,780	8,960	14,400	24,100	34,000	46,600

WEIGHTED SKEW (LOGS)= 0.22
MEAN (LOGS)= 3.59
STANDARD DEV. (LOGS)= 0.43

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-90, 1996

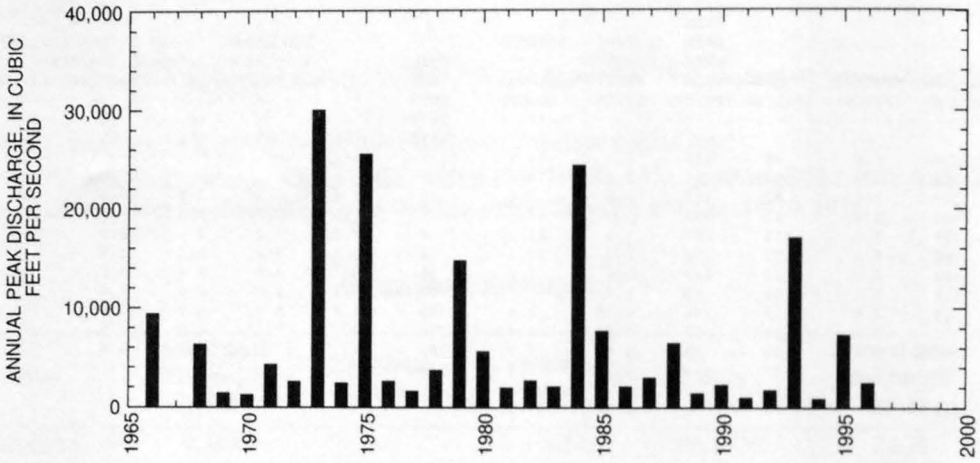
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	790	2,990	6,240	14,200	24,600	40,700
3	494	1,820	3,750	8,370	14,300	23,500
7	324	1,080	2,080	4,280	6,880	10,600
15	223	666	1,200	2,250	3,420	4,980
30	159	433	745	1,340	1,980	2,810
60	113	296	500	885	1,290	1,820
90	94	249	419	740	1,080	1,510

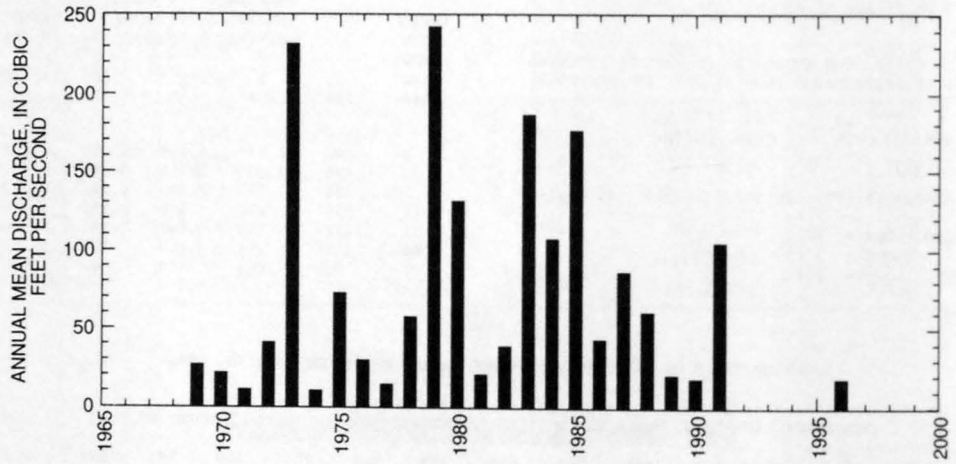
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-90, 1996

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME															
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
682	316	164	97	67	41	28	20	14	11	7.9	5.1	3.8	3.0	2.6	2.4	1.8

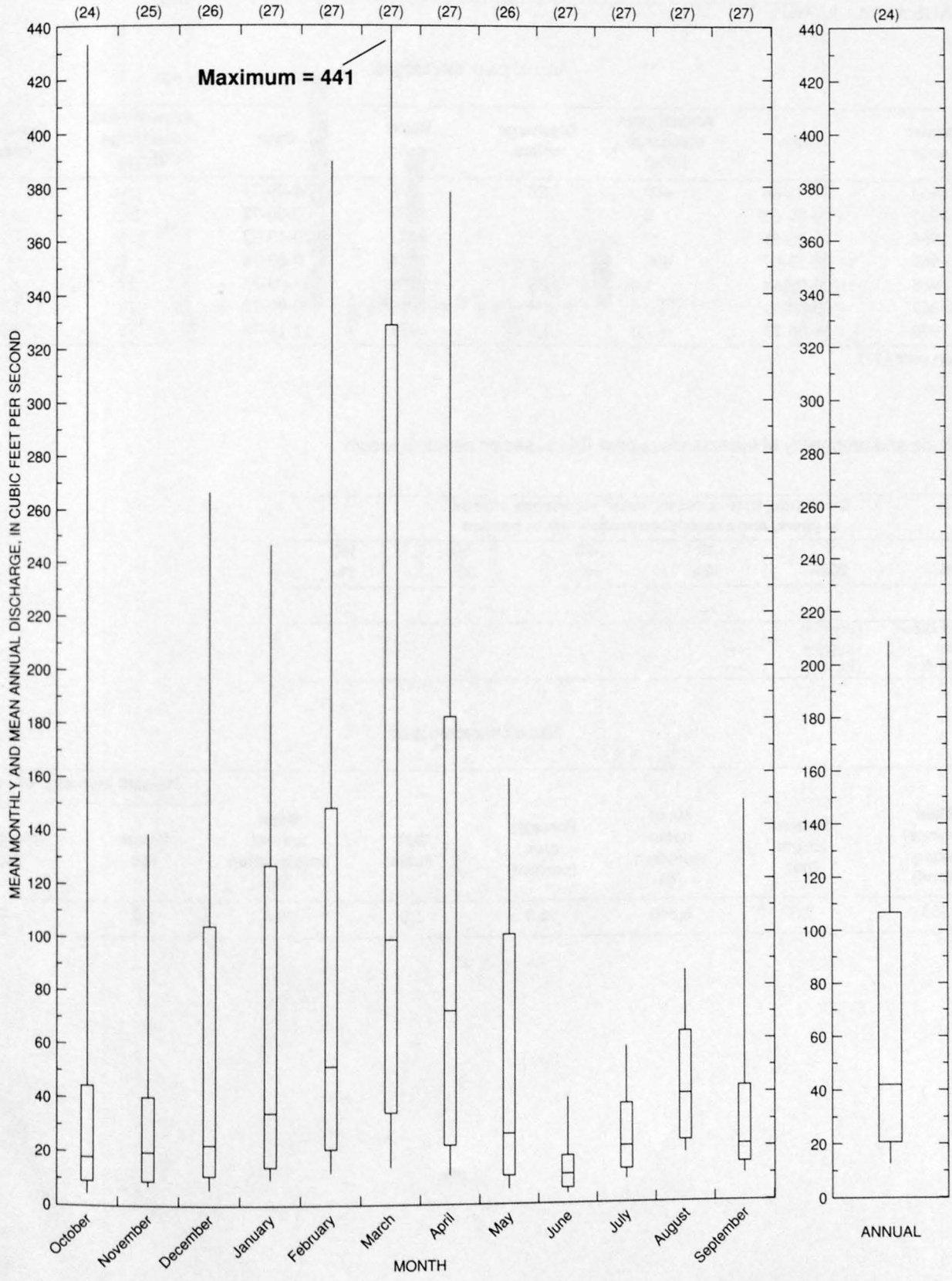
Reliability of values in column is uncertain, and potential errors are large.

09444200 BLUE RIVER NEAR CLIFTON, AZ--Continued





09444200 BLUE RIVER NEAR CLIFTON, AZ--Continued



09444400 CHASE CREEK NEAR CLIFTON, AZ

LOCATION.--Lat 33°10'20", long 109°22'10", in NW$^1/_4$ sec.16, T.3 S., R.29 E., Greenlee County, Hydrologic Unit 15040004, at U.S. Highway 666, 9 mi northwest of Clifton.

DRAINAGE AREA.--1.37 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	07-25-64	600	ES	1971	00-00-71	0	
1965	00-00-65	0		1972	00-00-72	0	
1966	12-22-65	29		1973	10-19-72	150	
1967	08-12-67	400		1974	00-00-74	0	
1968	00-00-68	1.0	ES	1975	09-09-75	22	
1969	00-00-69	0		1976	00-00-76	10	LT
1970	08-06-70	1.0	LT	1979	12-18-78	[1]72	HP

[1]Highest since 1973.

Magnitude and probability of instantaneous peak flow based on period of record

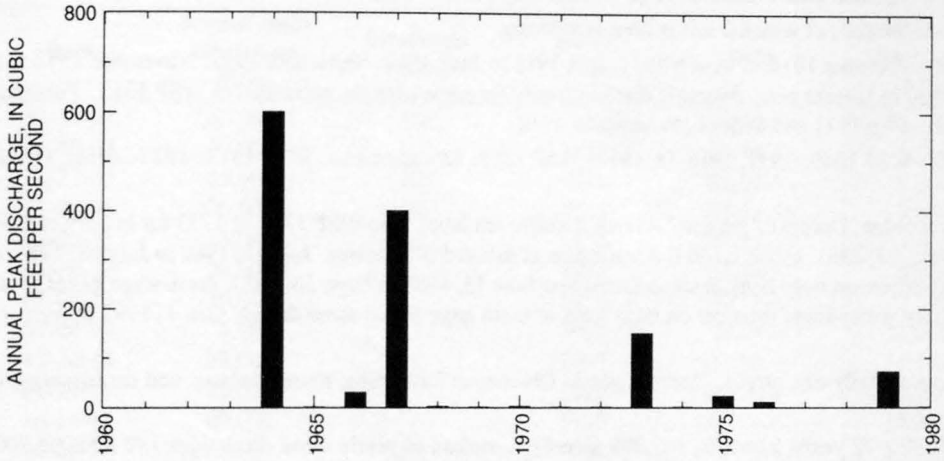
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---

Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
363	2.5	6,840	98.0	1.0	20.0	2.2	4.0

09444400 CHASE CREEK NEAR CLIFTON, AZ



09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ

LOCATION.--Lat 33°02'58", long 109°17'43", in $SW^1/_4SE^1/_4$ sec.30, T.4 S., R.30 E., Greenlee County, Hydrologic Unit 15040004, on downstream side of right pier at Railroad Boulevard Bridge (U.S. Highway 666), at Clifton, 9.9 mi upstream from mouth.

DRAINAGE AREA.--2,766 mi^2, of which 2 mi^2 is noncontributing.

PERIOD OF RECORD.--October 1910 to March 1911, July 1911 to June 1912, September 1912, November 1912 to March 1913, May 1913 to July 1918, July 1927 to current year. Monthly discharge only for some periods, published in WSP 1313. Published as "San Francisco River at dam above Clifton" in 1911 and under both names in 1912.

REVISED RECORDS.--WSP 1049: 1911, 1913-15, 1917. WSP 1283: Drainage area. WSP 1313: 1927-30(M), 1932(M), 1934(M). WRD Ariz. 1972: 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 3,436.16 ft above sea level. See WSP 1713 or 1733 for history of changes prior to Apr. 7, 1959. Apr. 7, 1959, to Mar. 23, 1961, at site 1,140 ft downstream at datum 5.37 ft lower. July 18, 1980 to July 28, 1983, supplementary water-stage recorder 0.4 mi upstream on right bank at same datum and June 15, 1981 to Sept. 30, 1983, crest-stage gages at site. Aug. 4, 1983 to Mar. 1, 1985, supplementary water-stage recorder on right bank at main gage site at same datum, Oct. 1, 1992 at main gage site, at datum 10.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Diversions for mining, municipal use, and for irrigation of about 2,700 acres above station.

AVERAGE DISCHARGE.--72 years, 224 ft^3/s, 162,300 acre-ft/yr; median of yearly mean discharges 130 ft^3/s, 94,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 ft^3/s Oct. 2, 1983, gage height, 19.72 ft, from high-water mark, from rating curve extended above 30,000 ft^3/s on basis of slope-area measurement at gage height 17.0 ft; minimum daily, 6.1 ft^3/s June 21, 1971.

09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1891	02-21-91	65,000	HP	1952	01-19-52	15,800	
1905	01-10-05	60,000	HP	1953	08-18-53	6,090	
1906	11-27-05	65,000	HP	1954	08-07-54	7,280	
1907	12-03-06	[1]70,000	HP	1955	07-23-55	8,450	
1911	03-07-11	15,000		1956	10-04-55	5,820	
1912	03-10-12	20,000		1957	07-26-57	5,230	
1913	07-00-13	10,000		1958	09-12-58	7,000	
1914	07-04-14	5,000		1959	08-2859	11,600	
1915	12-20-14	23,000		1960	01-12-60	11,800	
1916	01-19-16	59,000		1961	09-10-61	7,100	
1917	10-14-16	60,000		1962	09-26-62	14,300	
1918	00-00-18	3,000	ES	1963	10-18-62	12,200	
1919	00-00-19	15,000	ES	1964	07-31-64	8,670	
1920	00-00-20	5,500	ES	1965	08-02-65	5,640	
1921	00-00-21	16,000	ES	1966	12-23-65	30,500	
1922	00-00-22	3,500	ES	1967	08-12-67	34,700	
1923	00-00-23	10,000	ES	1968	12-20-67	9,480	
1924	00-00-24	10,000	ES	1969	09-01-69	1,270	
1925	00-00-25	16,000	ES	1970	10-21-69	902	
1926	00-00-26	5,000	ES	1971	10-04-70	5,420	
1927	09-12-27	4,060		1972	10-25-71	9,200	
1928	07-15-28	3,380		1973	10-20-72	[2]64,000	
1929	09-23-29	5,200		1974	07-21-74	964	
1930	08-11-30	3,420		1975	09-09-75	30,000	
1931	09-29-31	3,330		1976	02-10-76	3,100	
1932	02-10-32	10,000		1977	09-05-77	2,520	
1933	07-23-33	3,800		1978	03-03-78	9,500	
1934	08-26-34	11,700		1979	12-19-78	56,000	
1935	09-01-35	2,450		1980	02-16-80	9,900	
1936	02-17-36	3,700		1981	07-09-81	1,570	
1937	02-08-37	12,400		1982	03-13-82	2,020	
1938	03-04-38	4,540		1983	03-25-83	6,060	
1939	04-06-39	1,230		1984	10-02-83	90,900	
1940	09-06-40	8,700		1985	12-28-84	27,400	
1941	12-31-40	8,700		1986	10-17-85	3,590	
1942	12-11-41	7,930		1987	11-03-86	1,940	
1943	03-05-43	1,580		1988	08-31-88	3,630	
1944	09-26-44	3,800		1989	10-15-88	882	
1945	08-22-45	2,820		1990	08-14-90	952	
1946	09-05-46	1,380		1991	03-02-91	13,800	
1947	08-23-47	5,860		1992	02-14-92	6,420	
1948	06-01-48	5,850		1993	01-18-93	42,900	
1949	01-13-49	24,100		1994	09-04-94	972	
1950	07-27-50	825		1995	01-05-95	22,200	
1951	08-29-51	735		1996	08-30-96	1,750	

[1]Highest since 1870.

[2]Highest since 1907.

09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ--Continued

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
10.0	91	24.0	32,200
12.0	983	26.0	42,250
14.0	2,970	28.0	53,790
16.0	6,160	30.0	66,840
18.0	10,630	33.0	89,320
20.0	16,420	36.0	115,400
22.0	23,600	39.0	145,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
48.9	93.2	6,880	87.0	2.9	18.1	1.6	3.4

09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1914-15, 1917, 1928-33, 1936-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4,290	23	228	624	2.7	8.4
NOVEMBER	1,450	28	126	201	1.6	4.6
DECEMBER	2,450	34	267	485	1.8	9.8
JANUARY	4,200	37	314	598	1.9	11.5
FEBRUARY	2,430	39	349	468	1.3	12.8
MARCH	2,140	44	443	496	1.1	16.2
APRIL	2,250	36	332	407	1.2	12.2
MAY	1,240	24	165	215	1.3	6.0
JUNE	310	11	57	47	0.81	2.1
JULY	657	29	103	96	0.93	3.8
AUGUST	1,360	41	198	201	1.0	7.2
SEPTEMBER	816	22	148	141	0.95	5.4
ANNUAL	937	42	227	202	0.89	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1915, 1917-18, 1929-33, 1937-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
1	21	14	11	9.5	7.7	6.7
3	23	16	13	11	9.0	8.0
7	25	17	14	12	10	9.2
14	28	20	16	14	12	11
30	33	23	19	17	14	12
60	41	29	24	21	18	16
90	50	35	30	26	22	20
120	58	42	36	32	29	27
183	75	52	45	40	36	34

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1891, 1905-07, 1911-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6,780	18,300	31,100	55,400	80,800	113,900

WEIGHTED SKEW (LOGS)= 0.12
MEAN (LOGS)= 3.84
STANDARD DEV. (LOGS)= 0.50

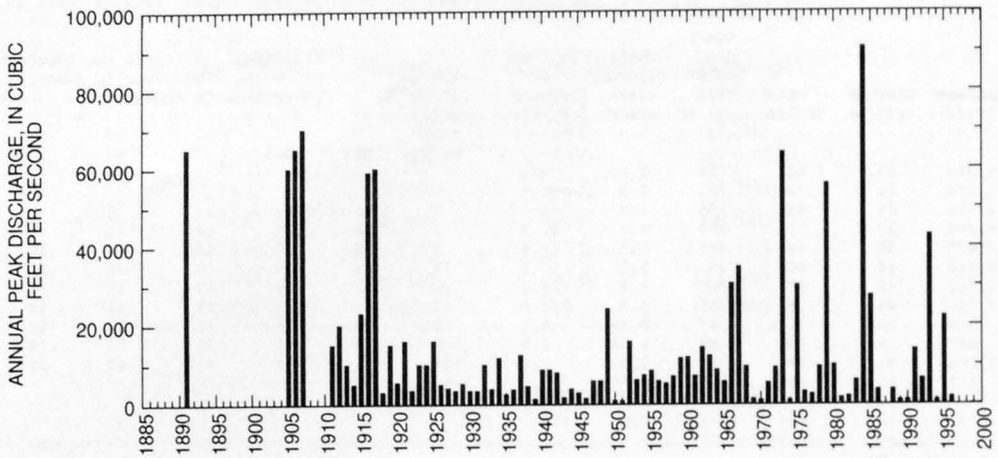
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1914-15, 1917, 1928-33, 1936-96

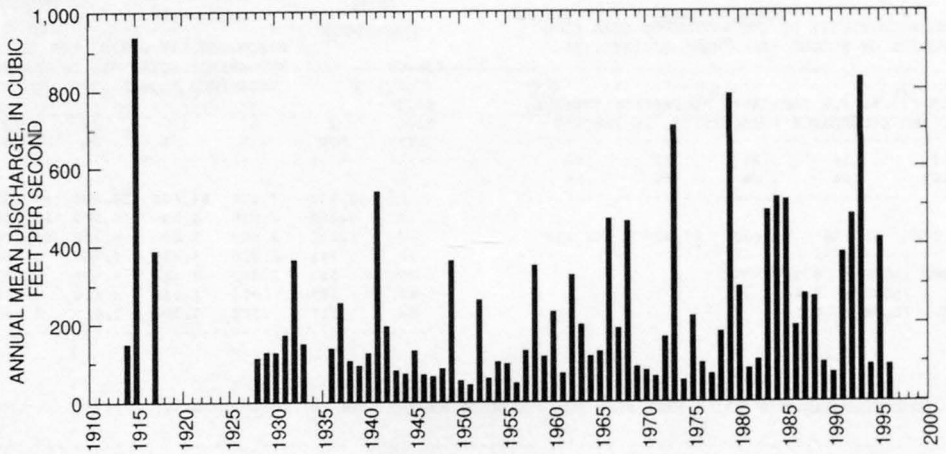
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2,550	7,870	14,600	28,800	45,200	68,400
3	1,660	4,870	8,790	16,800	26,000	38,600
7	1,100	2,950	5,090	9,310	13,900	20,200
15	745	1,920	3,230	5,740	8,420	12,000
30	537	1,300	2,100	3,550	5,030	6,910
60	389	914	1,450	2,410	3,360	4,560
90	316	747	1,200	2,010	2,850	3,910

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1914-15, 1917, 1928-33, 1936-96

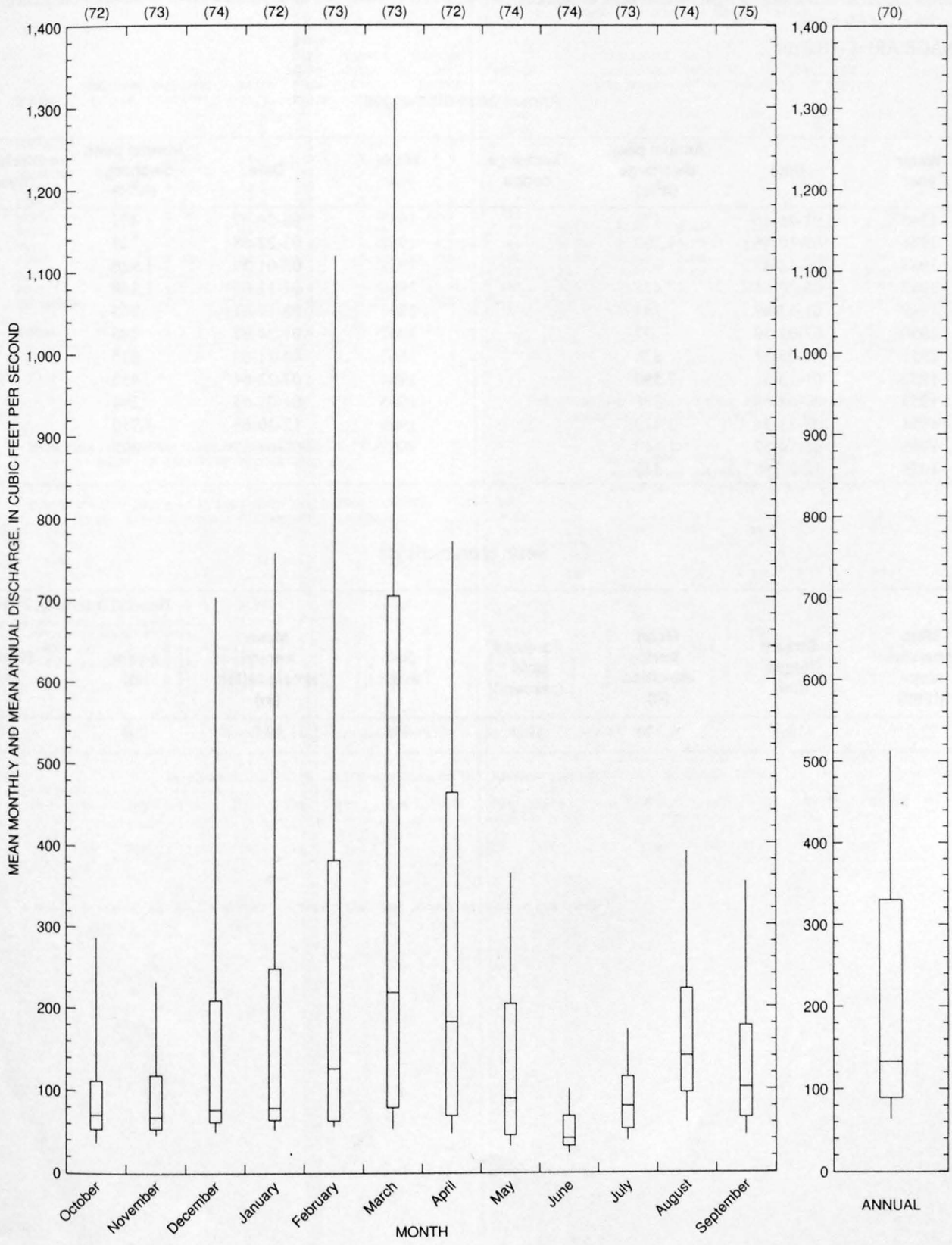
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,220	829	449	299	218	139	100	78	65	55	46	35	27	21	18	15	10

09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ--Continued





09444500 SAN FRANCISCO RIVER AT CLIFTON, AZ--Continued



09445500 WILLOW CREEK NEAR POINT OF PINES, NEAR MORENCI, AZ

LOCATION.--Lat 33°22'45", long 109°39'00", in NW$^1/_4$ sec.2, T.1 S., R.26 E., Graham County, Hydrologic Unit 15040005 (unsurveyed), in San Carlos Indian Reservation, on right bank at head of Box Canyon, 4 mi east of Point of Pines, 10 mi west of Double Circle Ranch, and 23 mi northwest of Morenci.

DRAINAGE AREA.--102 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1945	03-26-45	178		1957	08-24-57	459	
1946	07-10-46	1,390		1958	03-22-58	727	
1947	08-12-47	935		1959	08-01-59	1,920	
1948	08-20-48	428		1960	01-11-60	1,140	
1949	01-13-49	744		1961	08-17-61	245	
1950	07-01-50	37		1962	01-24-62	195	
1951	08-05-51	878		1963	08-21-63	825	
1952	01-13-52	2,590		1964	07-22-64	435	
1953	07-08-53	378		1965	01-07-65	294	
1954	03-23-54	1,410		1966	12-30-65	3,710	
1955	08-10-55	1,140		1967	09-04-67	895	
1956	10-02-55	440					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
73.0	18.3	6,340	59.0	3.0	19.8	2.0	4.0

09445500 WILLOW CREEK NEAR POINT OF PINES, NEAR MORENCI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1945-67

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	21	0.00	9.6	6.6	0.69	7.0
NOVEMBER	17	0.00	6.8	5.7	0.84	5.0
DECEMBER	157	0.00	11	32	2.9	8.1
JANUARY	103	0.00	12	25	2.1	8.6
FEBRUARY	33	0.00	6.1	10	1.6	4.5
MARCH	76	0.00	17	18	1.1	12.4
APRIL	21	0.00	13	5.6	0.44	9.3
MAY	19	0.00	12	4.8	0.41	8.7
JUNE	22	0.00	12	5.9	0.49	8.8
JULY	25	0.06	12	6.0	0.50	8.7
AUGUST	35	4.1	15	6.2	0.42	10.9
SEPTEMBER	19	0.00	11	6.0	0.55	7.9
ANNUAL	32	1.0	11	6.3	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-67

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.28	0.00	0.00	0.00	0.00	0.00
120	1.7	0.17	0.00	0.00	0.00	0.00
183	5.6	2.7	1.5	0.48	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1945-67

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
678	1,370	1,970	2,890	3,710	4,620

WEIGHTED SKEW (LOGS)= -0.04
MEAN (LOGS)= 2.83
STANDARD DEV. (LOGS)= 0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-67

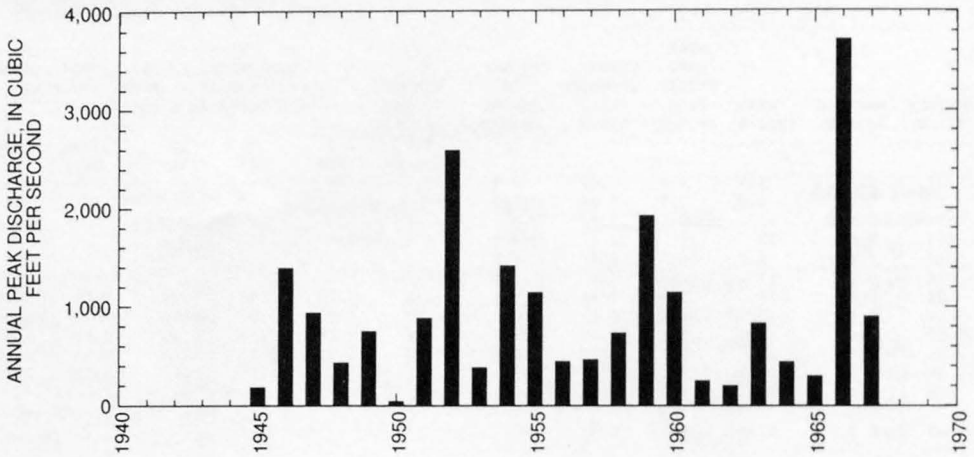
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	108	357	710	1,560	2,660	4,380
3	63	187	360	772	1,310	2,170
7	45	115	206	409	662	1,050
15	32	72	120	225	351	540
30	25	50	77	131	191	275
60	20	36	50	71	91	113
90	19	32	42	55	66	78

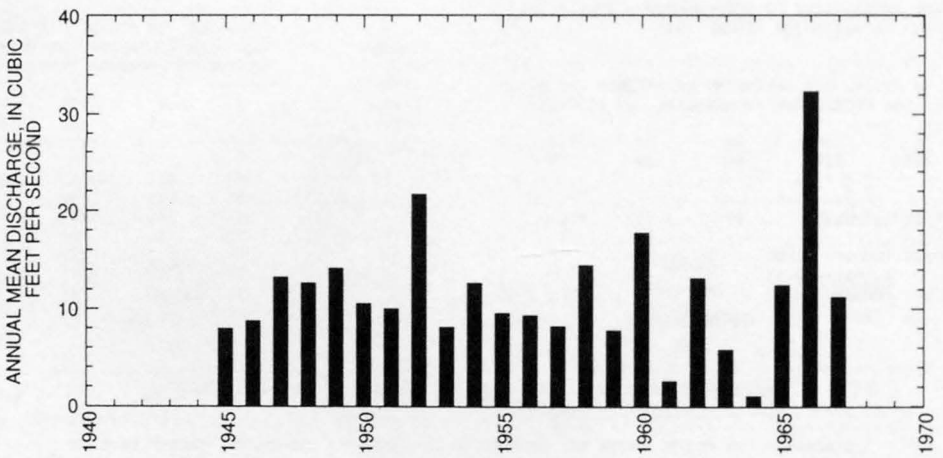
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-67

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
66	24	20	18	17	15	13	10	6.3	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00

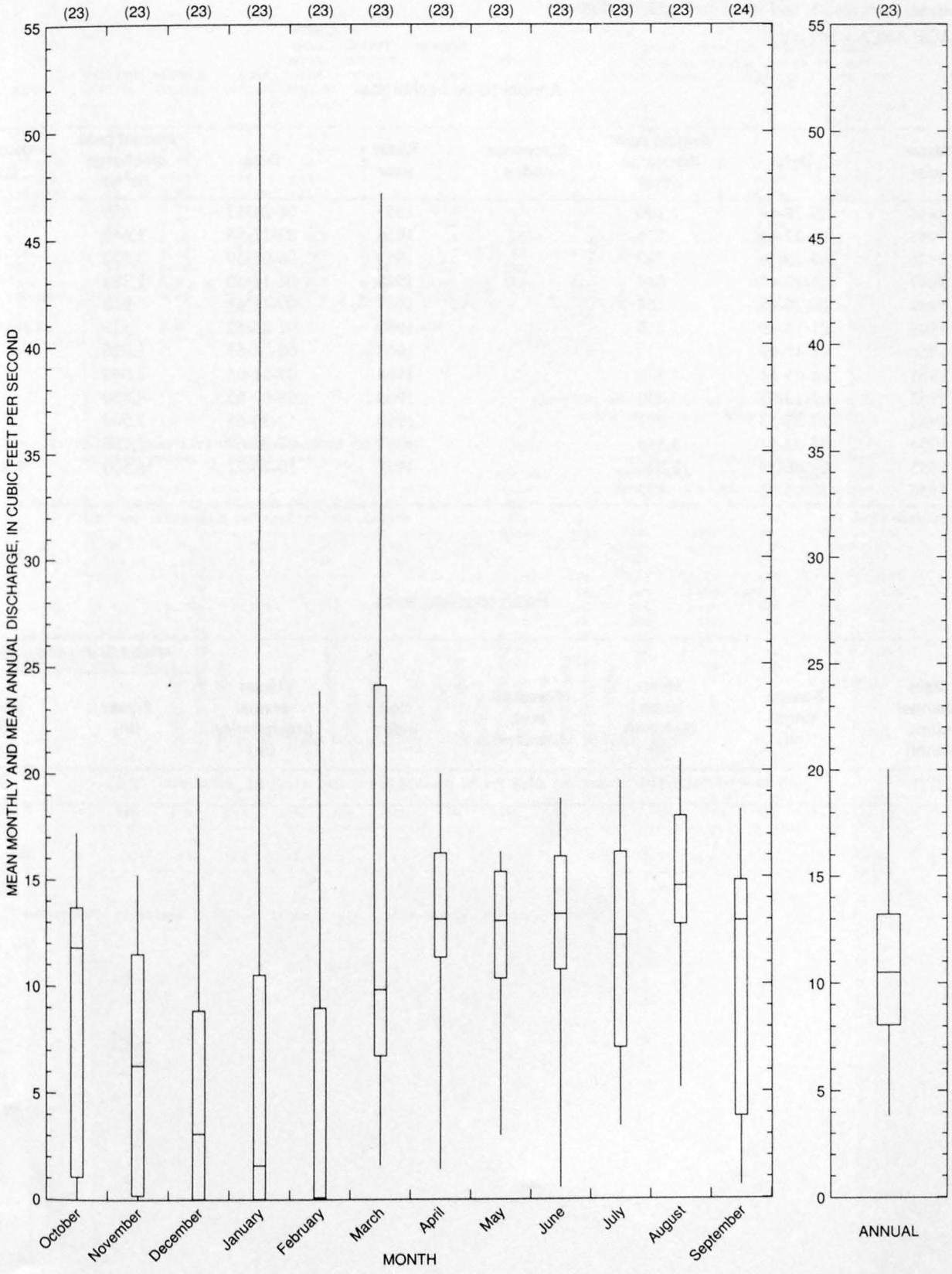
Reliability of values in column is uncertain, and potential errors are large.

09445500 WILLOW CREEK NEAR POINT OF PINES, NEAR MORENCI, AZ--Continued





09445500 WILLOW CREEK NEAR POINT OF PINES, NEAR MORENCI, AZ--Continued



09446000 WILLOW CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ

LOCATION.--Lat 33°21'15", long 109°31'30", in NE$^1/_4$ sec.13, T.1 S., R.27 E., Graham County, Hydrologic Unit 15040005, (unsurveyed), in San Carlos Indian Reservation, on left bank 1 mi upstream from lower end of Box Canyon, 2.25 mi northwest of Double Circle Ranch, 2.5 mi upstream from mouth, and 19 mi northwest of Morenci.

DRAINAGE AREA.--149 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1944	09-28-44	1,100		1957	08-24-57	630	
1945	03-27-45	134		1958	03-22-58	1,640	
1946	07-10-46	1,240		1959	08-01-59	3,520	
1947	07-22-47	629		1960	01-11-60	2,380	
1948	08-20-48	164		1961	09-11-61	950	
1949	01-13-49	2,010		1962	01-25-62	378	
1950	12-11-49	28		1963	08-22-63	1,020	
1951	08-05-51	1,370		1964	07-31-64	2,040	
1952	01-13-52	4,230		1965	08-01-65	4,880	
1953	07-08-53	202		1966	12-30-65	7,500	
1954	03-23-54	1,610		1967	07-24-67	1,750	
1955	08-06-55	2,840		1973	10-20-72	[1]6,500	KR,HP
1956	10-03-55	122					

[1]Highest since 1944.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
77.7	27.5	6,310	63.0	3.0	19.2	2.0	3.9

09446000 WILLOW CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1945-67

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	22	0.84	10	6.1	0.61	6.3
NOVEMBER	19	0.86	8.1	5.6	0.69	5.0
DECEMBER	273	0.93	18	56	3.1	11.2
JANUARY	163	0.90	19	40	2.1	11.8
FEBRUARY	36	0.86	7.9	11	1.4	4.9
MARCH	103	0.79	19	23	1.2	11.8
APRIL	23	0.76	13	5.4	0.41	8.3
MAY	19	0.59	12	4.8	0.42	7.2
JUNE	20	0.03	11	5.7	0.51	7.0
JULY	24	0.40	13	5.6	0.44	7.9
AUGUST	55	6.3	19	9.8	0.52	11.6
SEPTEMBER	20	0.43	11	5.4	0.48	7.0
ANNUAL	42	2.8	13	8.3	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-67

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.71	0.19	0.02	0.00	0.00	0.00
3	0.77	0.22	0.02	0.00	0.00	0.00
7	0.87	0.28	0.05	0.00	0.00	0.00
14	0.87	0.32	0.10	0.00	0.00	0.00
30	1.0	0.46	0.24	0.00	0.00	0.00
60	1.4	0.59	0.37	0.25	0.16	0.12
90	1.9	0.94	0.69	0.54	0.43	0.37
120	3.0	1.7	1.2	0.97	0.76	0.65
183	6.8	3.8	2.7	2.0	1.3	1.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1944-67, 1973

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,430	2,910	4,200	6,210	7,990	10,000

WEIGHTED SKEW (LOGS)= -0.03
MEAN (LOGS)= 3.15
STANDARD DEV. (LOGS)= 0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-67

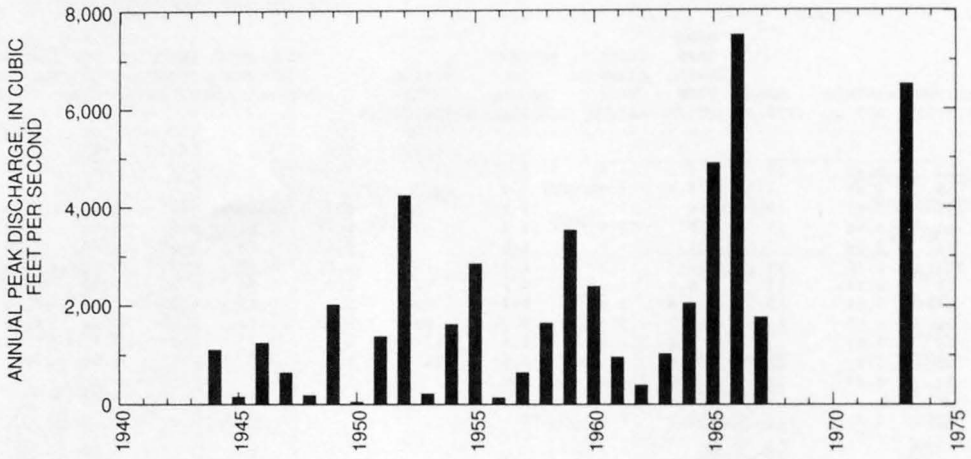
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	181	593	1,150	2,400	3,930	6,200
3	96	300	582	1,250	2,100	3,430
7	63	176	326	668	1,100	1,760
15	42	106	188	374	610	975
30	31	68	114	210	326	499
60	23	45	68	112	158	222
90	20	37	54	83	113	150

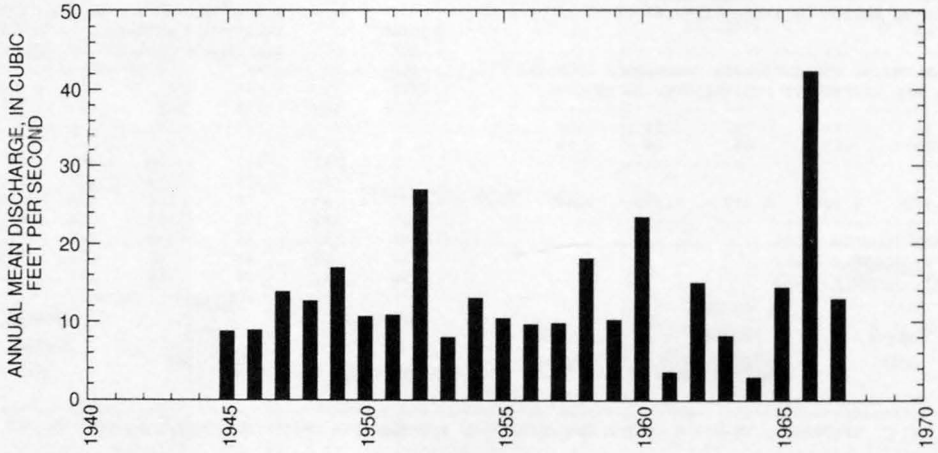
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-67

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
83	26	21	18	16	14	12	10	7.3	2.9	1.4	0.97	0.67	0.27	0.00	0.00	0.00

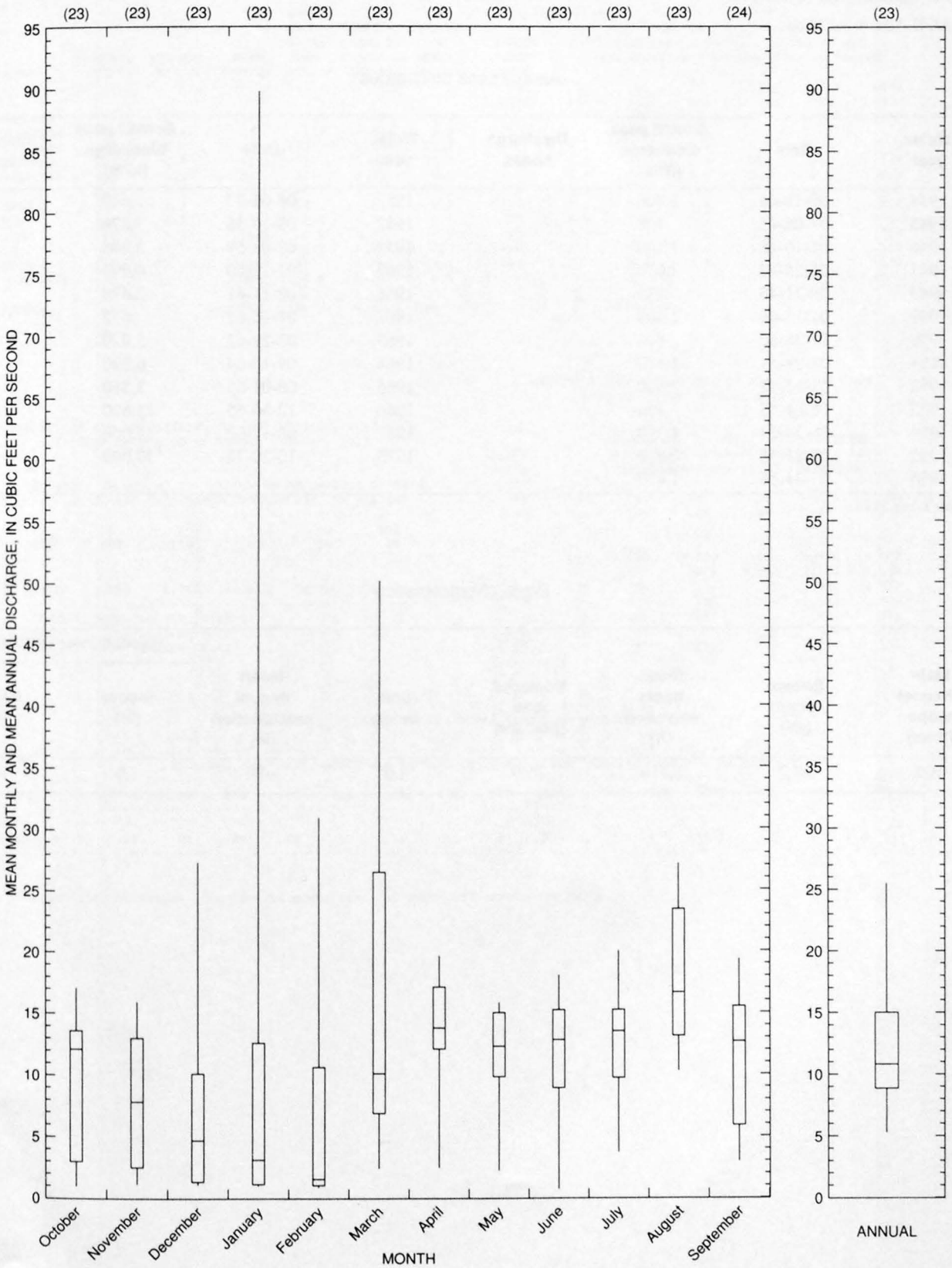
Reliability of values in column is uncertain, and potential errors are large.

09446000 WILLOW CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued





09446000 WILLOW CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued



09446500 EAGLE CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ

LOCATION.--Lat 33°18'00", long 109°29'30", in SW$^1/_4$ sec.32, T.1 S., R.28 E., Graham County, Hydrologic Unit 15040005, (unsurveyed), on left bank 0.5 mi upstream from head of Box Canyon, 2.75 mi downstream from Willow Creek, 3.25 mi downstream from Double Circle Ranch, and 17 mi northwest of Morenci.

DRAINAGE AREA.--377 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1944	09-11-44	2,400		1957	08-01-57	1,610	
1945	08-06-45	798		1958	09-10-58	7,270	
1946	07-10-46	1,160		1959	08-01-59	3,200	
1947	08-25-47	2,070		1960	01-12-60	4,990	
1948	08-21-48	135		1961	09-11-61	2,470	
1949	01-13-49	2,400		1962	01-25-62	612	
1950	07-28-50	874		1963	08-21-63	3,920	
1951	08-28-51	1,470		1964	09-10-64	6,390	
1952	01-13-52	7,000		1965	08-01-65	3,510	
1953	08-01-53	456		1966	12-30-65	13,600	
1954	08-24-54	4,380		1967	08-11-67	6,000	
1955	08-21-55	2,680		1973	10-20-72	[1]30,000	HP
1956	07-31-56	1,410					

[1]Highest since 1944.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
100	29.2	6,410	75.0	3.0	20.0	2.0	3.9

09446500 EAGLE CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1945-67

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	33	5.7	18	5.9	0.33	5.7
NOVEMBER	22	5.2	14	5.3	0.38	4.5
DECEMBER	502	4.7	36	103	2.9	11.6
JANUARY	310	4.7	41	76	1.8	13.3
FEBRUARY	101	4.1	22	27	1.2	7.1
MARCH	213	5.9	41	48	1.2	13.1
APRIL	89	4.3	27	18	0.64	8.9
MAY	25	5.3	18	4.3	0.24	5.7
JUNE	25	3.7	16	4.6	0.30	5.0
JULY	36	13	21	6.3	0.30	6.7
AUGUST	93	13	38	25	0.66	12.1
SEPTEMBER	42	11	20	8.8	0.45	6.4
ANNUAL	81	11	26	16	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-67

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	4.1	3.1	2.7	2.3	2.0	1.9
3	4.2	3.1	2.7	2.4	2.1	1.9
7	4.4	3.3	2.9	2.6	2.3	2.2
14	5.1	3.9	3.4	3.1	2.8	2.7
30	5.8	4.5	4.0	3.8	3.5	3.4
60	6.8	5.0	4.4	3.9	3.6	3.3
90	7.5	5.4	4.6	4.1	3.6	3.4
120	9.1	6.6	5.6	5.0	4.3	3.9
183	12	9.4	8.2	7.3	6.5	6.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1944-67, 1973

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,510	5,690	8,760	13,900	18,800	24,600

WEIGHTED SKEW (LOGS)= 0.03
MEAN (LOGS)= 3.40
STANDARD DEV. (LOGS)= 0.42

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-67

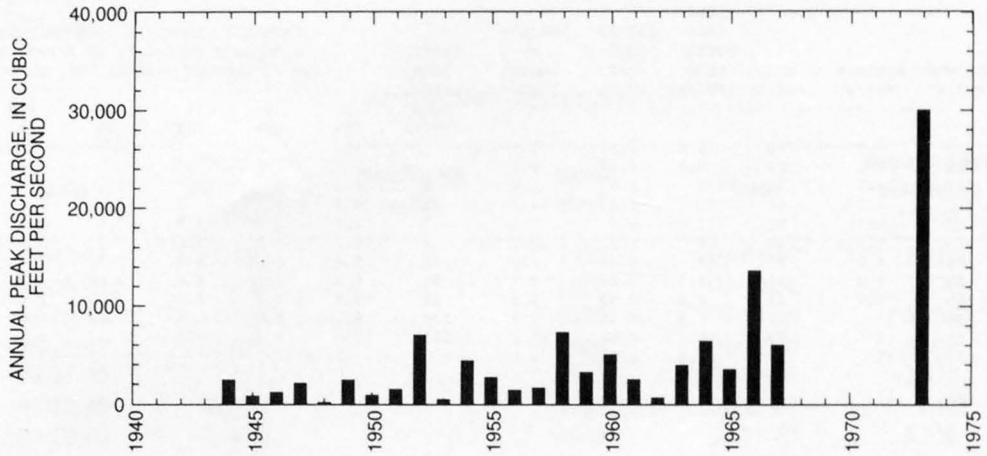
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	290	908	1,780	3,850	6,550	10,800
3	181	532	1,000	2,090	3,460	5,550
7	121	326	584	1,140	1,810	2,790
15	85	215	376	719	1,130	1,720
30	65	147	238	415	608	871
60	48	97	147	238	332	454
90	39	75	113	182	254	349

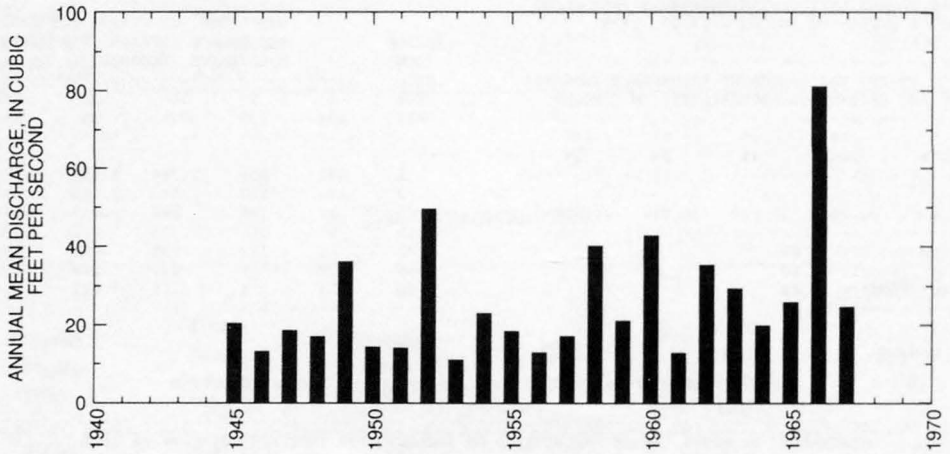
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-67

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
193	70	38	27	24	20	18	16	14	11	7.9	5.6	4.9	4.2	3.8	2.9	2.4

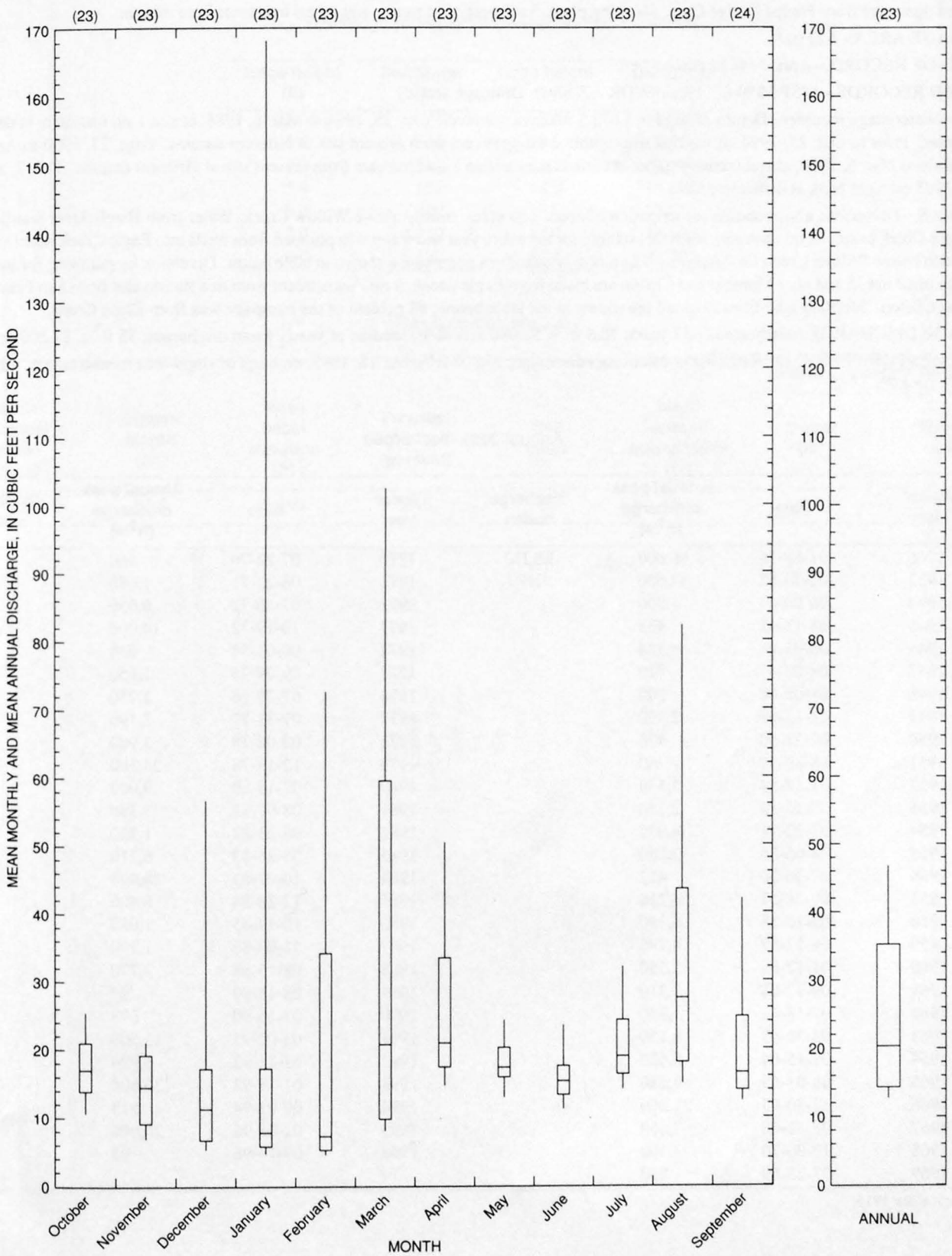
Reliability of values in column is uncertain, and potential errors are large.

09446500 EAGLE CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued





09446500 EAGLE CREEK NEAR DOUBLE CIRCLE RANCH, NEAR MORENCI, AZ--Continued



09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ

LOCATION.--Lat 33°03'52", long 109°26'30", in SW$^1/_4$SE$^1/_4$ sec.23, T.4 S., R.28 E., Greenlee County, Hydrologic Unit 15040005, on right bank 2 mi upstream from Phelps Dodge Corp. pumping plant, 5 mi west of Morenci, and 12 mi upstream from mouth.

DRAINAGE AREA.--622 mi^2.

PERIOD OF RECORD.--April 1944 to current year.

REVISED RECORDS.--WSP 1850-C: 1966. WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,673.5 ft above sea level. Oct. 25, 1984 to Mar. 6, 1986, at site 1 mi upstream at datum 24.1 ft higher. Prior to Oct. 25, 1984, at various sites within 1 mi upstream from present site at different datums. Aug. 23, 1950 to Aug. 1, 1981, and since Mar. 6, 1984, supplementary gages at various sites within 1 mi upstream from present site at different datums. Feb. 7, 1993 to July 2, 1993 on right bank at different datum.

REMARKS.--Diversions above station for irrigation of about 500 acres, mostly above Willow Creek. Water from Black River was pumped into Eagle Creek basin, 52 mi upstream from this station, for the entire year and water was pumped from wells into Eagle Creek near Double Circle Ranch below Willow Creek for 7 months. The monthly quantities pumped are shown in table below. Diversion by pumping for industrial and municipal use in and near Morenci and Clifton are made from Eagle Creek, 3 mi downstream from this station and from San Francisco River near Clifton. Monthly quantities diverted are shown in the table below; 98 percent of the pumpage was from Eagle Creek.

AVERAGE DISCHARGE (unadjusted).--52 years, 70.5 ft^3/s, 51,080 acre-ft/yr; median of yearly mean discharges, 38 ft^3/s, 27,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,800 ft^3/s Jan. 18, 1993, on basis of slope-area measurement; minimum, 2.9 ft^3/s June 25, 1982.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-18-16	36,000	ES,HP	1970	07-23-70	560	
1932	02-10-32	13,000	HP	1971	08-22-71	1,680	
1944	00-00-44	7,500		1972	07-16-72	6,650	
1945	08-11-45	433		1973	10-19-72	14,000	
1946	08-07-46	384		1974	08-03-74	630	
1947	08-08-47	710		1975	09-09-75	1,550	
1948	08-05-48	300		1976	07-29-76	2,250	
1949	01-13-49	2,500		1977	07-31-77	2,190	
1950	07-28-50	470		1978	03-02-78	3,900	
1951	08-28-51	1,260		1979	12-18-78	24,500	
1952	01-14-52	5,340		1980	02-15-80	9,000	
1953	07-25-53	2,780		1981	08-07-81	3,380	
1954	07-22-54	4,930		1982	08-23-82	1,720	
1955	08-06-55	3,260		1983	03-25-83	6,210	
1956	07-30-56	452		1984	10-02-83	36,400	
1957	07-26-57	4,210		1985	12-28-84	8,400	
1958	09-10-58	6,150		1986	10-17-85	1,030	
1959	08-17-59	4,780		1987	11-03-86	1,990	
1960	01-12-60	5,350		1988	08-15-88	3,770	
1961	09-12-61	1,210		1989	08-18-89	97	
1962	07-18-62	1,850		1990	07-16-90	698	
1963	08-30-63	6,150		1991	03-02-91	13,500	
1964	07-15-64	8,620		1992	02-14-92	6,920	
1965	08-01-65	3,080		1993	01-18-93	[1]36,800	
1966	12-30-65	21,000		1994	09-03-94	513	
1967	08-12-67	7,650		1995	01-05-95	20,000	
1968	12-06-70	3,300		1996	09-14-96	95	
1969	07-25-69	250					

[1]Highest since 1916.

09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ--Continued

Discharge rating table developed October 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	42	9.0	7,220
3.0	64	10.0	9,550
4.0	164	11.0	12,100
5.0	655	12.0	14,870
6.0	1,800	13.0	17,830
7.0	3,320	14.0	20,990
8.0	5,130	14.4	22,300

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
60.9	52.5	6,060	64.0	2.8	19.2	2.0	3.8

09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1945-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,170	13	60	164	2.8	7.1
NOVEMBER	228	10	35	35	1.0	4.2
DECEMBER	884	11	87	160	1.8	10.2
JANUARY	4,440	11	184	630	3.4	21.7
FEBRUARY	1,760	11	135	290	2.1	16.0
MARCH	709	14	109	151	1.4	12.9
APRIL	214	11	53	41	0.78	6.3
MAY	84	9.2	33	16	0.50	3.9
JUNE	49	5.3	25	9.4	0.38	2.9
JULY	98	16	37	17	0.45	4.4
AUGUST	203	19	55	38	0.70	6.5
SEPTEMBER	114	13	35	19	0.54	4.1
ANNUAL	568	17	71	86	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1945-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.2	5.4	4.2	3.2	2.6
3	12	7.6	5.7	4.5	3.4	2.7
7	14	8.4	6.3	4.9	3.7	3.0
14	15	9.8	7.5	5.9	4.5	3.7
30	17	12	9.0	7.2	5.5	4.6
60	19	13	11	8.9	7.2	6.2
90	20	14	12	9.9	8.1	7.1
120	23	16	13	11	9.6	8.5
183	26	20	17	15	13	12

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1944-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,730	8,300	14,400	24,900	35,000	47,000

WEIGHTED SKEW (LOGS)= -0.32
MEAN (LOGS)= 3.40
STANDARD DEV. (LOGS)= 0.61

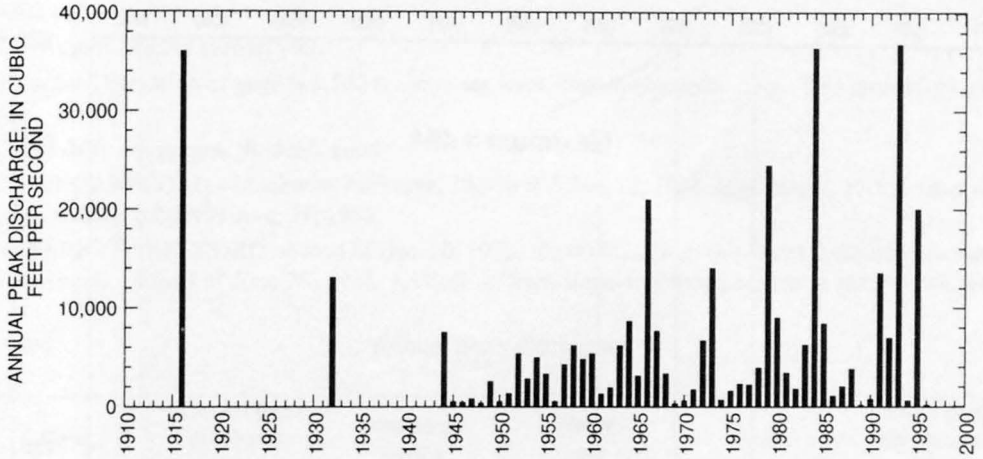
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-96

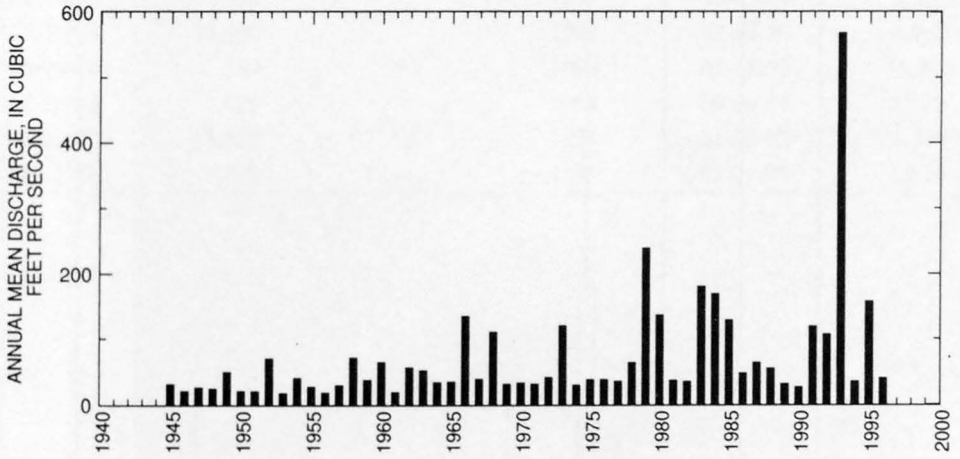
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	708	2,900	6,320	14,900	26,400	44,700
3	428	1,700	3,690	8,860	16,000	27,700
7	271	987	2,080	4,860	8,670	14,900
15	180	605	1,240	2,870	5,120	8,840
30	132	394	756	1,610	2,730	4,480
60	96	267	500	1,050	1,750	2,870
90	79	208	379	769	1,260	2,030

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-96

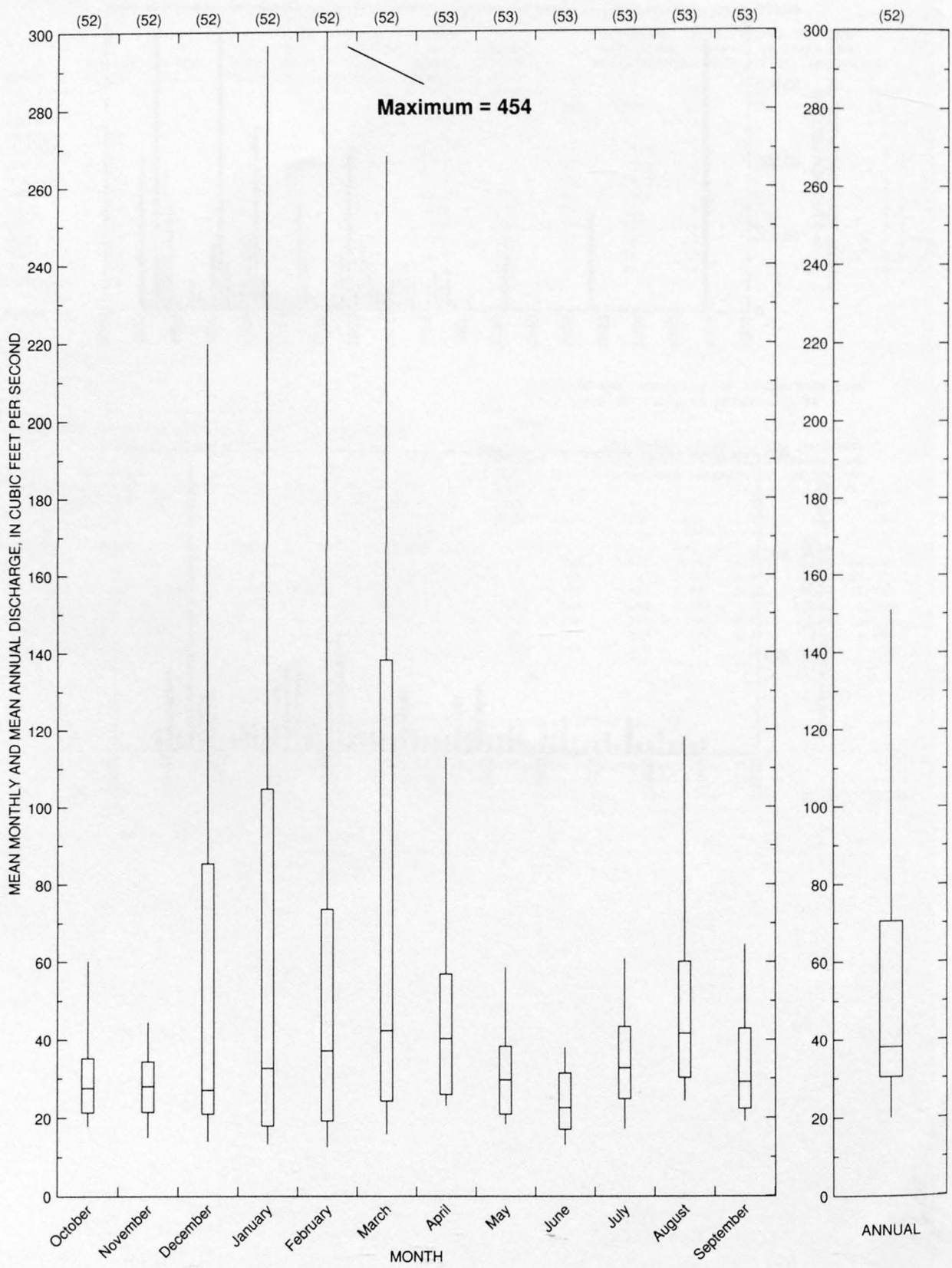
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
686	168	88	58	46	38	33	30	26	23	19	15	12	10	9.0	7.3	4.2

09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ--Continued





09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ--Continued



09447800 BONITA CREEK NEAR MORENCI, AZ

LOCATION.--Lat 32°57'20", long 109°31'50", in $SE^1/_4NW^1/_4$ sec.36, T.5 S., R.27 E., Graham County, Hydrologic Unit 15040005, on left bank 2.0 mi upstream from intake of City of Safford water supply, 6.3 mi upstream from mouth, and 12.8 mi southwest of Morenci.

DRAINAGE AREA.--302 mi^2.

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,500 ft above sea level, from topographic map. Two crest-stage gages 440 ft upstream on right and left banks.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft^3/s Jan. 18, 1993, gage height, 16.5 ft, from slope-area measurement of peak flow; minimum daily, 0.66 ft^3/s Aug. 31, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 20, 1972, 10,000 ft^3/s, from slope-area measurement made by City of Safford at site about 2 mi downstream. Flood of June 27, 1981, 1,340 ft^3/s, from slope-area measurement at present site, gage height, 5.6 ft, from floodmark.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1981	08-10-81	1,340		1989	08-07-89	367	
1982	07-29-82	595		1990	08-21-90	1,680	
1983	02-04-83	950		1991	09-05-91	3,220	
1984	10-02-83	19,400		1992	02-14-92	2,000	
1985	12-28-84	269		1993	01-18-93	19,500	
1986	08-20-86	456		1994	09-04-94	1,910	
1987	07-21-87	3,510		1995	01-05-95	5,300	
1988	09-12-88	798		1996	09-11-96	2,020	

09447800 BONITA CREEK NEAR MORENCI, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1981-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	176	1.5	16	44	2.7	8.5
NOVEMBER	22	1.9	6.3	4.9	0.78	3.3
DECEMBER	30	5.0	11	7.4	0.68	5.7
JANUARY	769	5.7	71	197	2.8	37
FEBRUARY	165	4.2	34	47	1.4	18
MARCH	54	3.5	16	17	1.0	8.6
APRIL	8.3	2.0	5.1	1.9	0.36	2.7
MAY	6.3	2.1	4.1	1.5	0.36	2.2
JUNE	5.9	1.3	3.2	1.2	0.38	1.7
JULY	14	2.3	5.5	3.5	0.63	2.9
AUGUST	14	4.3	8.3	3.4	0.41	4.4
SEPTEMBER	29	2.5	8.7	7.3	0.84	4.6
ANNUAL	84	4.2	16	20	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1981-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	1.3	0.97	0.72	0.49	0.37
3	2.2	1.4	1.0	0.75	0.52	0.39
7	2.2	1.4	1.1	0.83	0.59	0.46
14	2.4	1.8	1.5	1.3	1.0	0.91
30	2.6	1.9	1.6	1.3	1.1	0.97
60	2.8	2.0	1.7	1.4	1.2	1.0
90	3.1	2.3	1.9	1.7	1.5	1.3
120	3.6	2.9	2.6	2.4	2.1	2.0
183	4.9	4.2	3.8	3.6	3.3	3.2

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1981-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,320	5,680	9,070	15,000	20,600	27,600

WEIGHTED SKEW (LOGS)= 0.00
MEAN (LOGS)= 3.36
STANDARD DEV. (LOGS)= 0.46

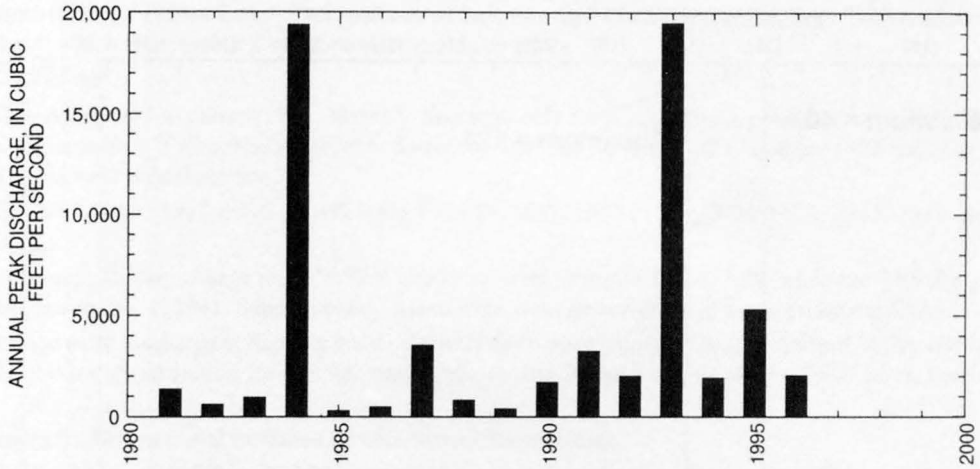
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1981-96

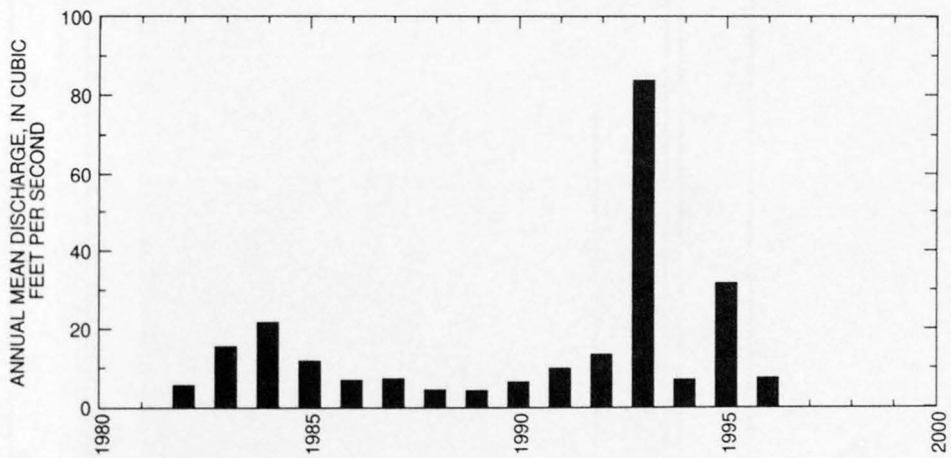
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	271	1,140	2,720	7,640	15,700	31,200
3	157	644	1,490	3,920	7,670	14,500
7	96	359	771	1,850	3,350	5,840
15	55	202	438	1,080	2,020	3,660
30	33	111	230	545	996	1,770
60	23	71	142	324	581	1,020
90	18	53	103	228	402	691

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1981-96

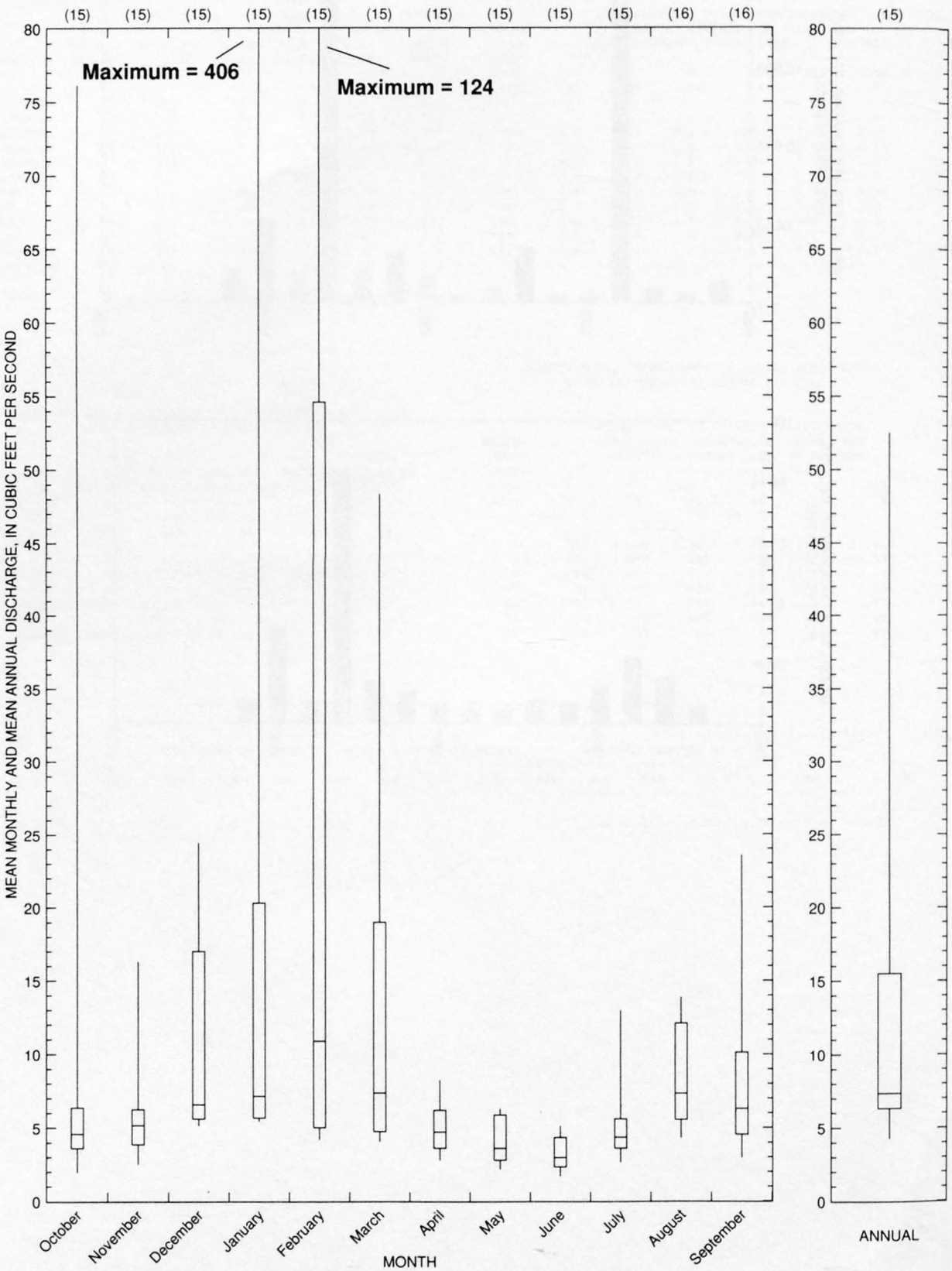
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
189	23	9.9	7.2	6.1	5.7	5.3	4.6	4.2	3.1	3.1	2.4	1.9	0.00	0.00	0.00	0.00

09447800 BONITA CREEK NEAR MORENCI, AZ--Continued





09447800 BONITA CREEK NEAR MORENCI, AZ--Continued



09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ

LOCATION.--Lat 32°52'06", long 109°30'38", in $SE^1/_4NE^1/_4$ sec.31, T.6 S., R.28 E., Graham County, Hydrologic Unit 15040005, on left bank 0.6 mi downstream from intake of Brown Canal, 8 mi northeast of Solomon, and 17 mi downstream from San Francisco River. Records include flow of Brown Canal, which is measured 2,000 ft downstream from intake.

DRAINAGE AREA.--7,896 mi^2.

PERIOD OF RECORD.--April 1914 to current year. Monthly discharge only for some periods, published in WSP 1313. Prior to October 1932 and October 1940 to September 1949 published as "near Solomonsville" and October 1932 to October 1933 and May 1935 to September 1940 as "below Bonita Creek near Solomonsville."

REVISED RECORDS.--WSP 1059: 1914, 1916-17, 1923(M), 1924-25, 1927, 1929-31(M). WSP 1179: 1915, 1918-19(M). WSP 1313: 1934. WSP 1733: 1923.

GAGE.--Water-stage recorder. Datum of gage is 3,059.92 ft above sea level. Prior to July 8, 1980, at datum 4.96 ft higher. See WSP 1733 for history of changes prior to Jan. 1, 1941. Supplementary water-stage recorder and Parshall flume on Brown Canal.

REMARKS.--No estimated daily discharges. Records good. Records show water reaching head of Safford Valley and include water diverted to Brown Canal. Diversions above station for mining, municipal use, and for irrigation of about 17,500 acres, much of it by pumping from ground water.

COOPERATION.--Record for Brown Canal furnished by Gila Water Commissioner.

AVERAGE DISCHARGE.--82 years, 512 ft^3/s, 370,900 acre-ft/yr; median of yearly mean discharges, 340 ft^3/s, 246,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft^3/s Oct. 2, 1983, gage height, 20.8 ft, from rating curve extended above 52,000 ft^3/s on basis of slope-area measurements at 14.40 ft and 20.8 ft; minimum, 11 ft^3/s June 25, 1956.

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1914	08-21-14	9,000		1956	10-04-55	13,300	
1915	12-20-14	50,000		1957	07-26-57	5,980	
1916	01-19-16	[1]100,000		1958	03-23-58	9,060	
1917	10-14-16	67,900		1959	08-28-59	7,860	
1918	07-01-18	2,700		1960	01-12-60	16,700	
1919	08-03-19	15,000		1961	09-10-61	4,800	
1920	12-05-19	7,620		1962	09-26-62	16,100	
1921	08-21-21	15,700		1963	10-19-62	9,350	
1922	08-15-22	3,780		1964	07-15-64	9,880	
1923	08-12-23	12,600		1965	08-02-65	4,800	
1924	12-28-23	10,600		1966	12-22-65	43,000	
1925	09-03-25	15,900		1967	08-12-67	34,800	
1926	04-07-26	5,660		1968	12-20-67	9,280	
1927	09-13-27	9,320		1969	09-11-69	2,460	
1928	08-01-28	3,230		1970	08-06-70	2,250	
1929	07-30-29	12,700		1971	10-03-70	4,510	
1930	08-11-30	10,100		1972	10-25-71	10,200	
1931	02-15-31	10,500		1973	10-20-72	82,400	
1932	02-10-32	24,000		1974	08-16-74	3,280	
1933	09-09-33	9,600		1975	09-09-75	35,000	
1934	08-27-34	23,000		1976	02-11-76	3,400	
1935	09-01-35	5,550		1977	08-13-77	2,540	
1936	02-17-36	8,000		1978	03-02-78	21,600	
1937	02-08-37	23,700		1979	12-19-78	100,000	
1938	03-04-38	4,690		1980	02-16-80	25,300	
1939	08-06-39	7,370		1981	07-12-81	7,000	
1940	09-06-40	9,840		1982	10-03-81	5,240	
1941	09-30-41	31,900		1983	03-25-83	11,300	
1942	12-12-41	7,730		1984	10-02-83	[2]132,000	
1943	09-27-43	6,680		1985	12-29-84	60,200	
1944	09-25-44	15,800		1986	10-17-85	7,690	
1945	08-11-45	4,820		1987	11-0-386	3,020	
1946	10-09-45	5,100		1988	09-23-88	7,820	
1947	08-30-47	9,250		1989	10-15-88	891	
1948	06-01-48	2,540		1990	08-16-90	2,240	
1949	01-14-49	25,200		1991	03-02-91	26,200	
1950	07-30-50	1,240		1992	02-14-92	17900	
1951	08-03-51	4,240		1993	01-19-93	86,200	
1952	01-19-52	19,700		1994	09-04-94	1,760	
1953	07-30-53	3,040		1995	01-05-95	62,400	
1954	03-24-54	9,850		1996	08-10-96	7,470	
1955	07-24-55	11,700					

[1]Highest since 1906.

[2]Highest since 1916.

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

Discharge rating table developed October 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
9.0	2,570	15.0	32,700
9.5	3,320	16.0	42,000
10.0	4,200	17.0	54,900
11.0	6,500	18.0	70,500
12.0	9,800	19.0	89,200
13.0	14,900	20.0	111,400
14.0	22,600	20.8	132,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
26.4	177	6,360	58.0	2.8	16.7	1.7	3.4

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1921-33, 1936-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7,450	40	380	1,010	2.7	6.7
NOVEMBER	2,230	49	258	326	1.3	4.5
DECEMBER	5,800	60	538	932	1.7	9.5
JANUARY	14,000	93	737	1,760	2.4	12.9
FEBRUARY	5,510	103	779	1,050	1.3	13.7
MARCH	3,630	82	873	980	1.1	15.3
APRIL	2,780	64	592	629	1.1	10.4
MAY	2,040	38	313	404	1.3	5.5
JUNE	716	20	110	104	0.95	1.9
JULY	735	44	210	148	0.70	3.7
AUGUST	2,500	66	511	505	0.99	9.0
SEPTEMBER	2,080	36	392	389	0.99	6.9
ANNUAL	2,230	101	474	404	0.85	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1922-33, 1937-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	27	21	18	14	12
3	44	28	23	19	15	13
7	46	31	25	21	17	15
14	50	34	27	23	19	17
30	60	40	32	27	22	19
60	78	51	42	35	29	26
90	101	66	54	45	37	32
120	130	89	72	61	50	44
183	176	120	100	87	76	70

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1914-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
9,860	24,500	40,400	70,000	100,800	140,700

WEIGHTED SKEW (LOGS)= 0.22
MEAN (LOGS)= 4.01
STANDARD DEV. (LOGS)= 0.46

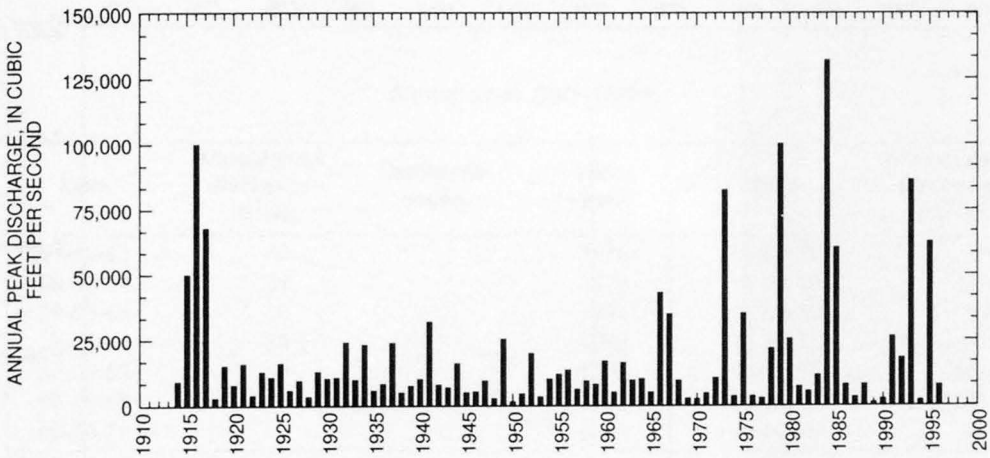
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1921-33, 1936-96

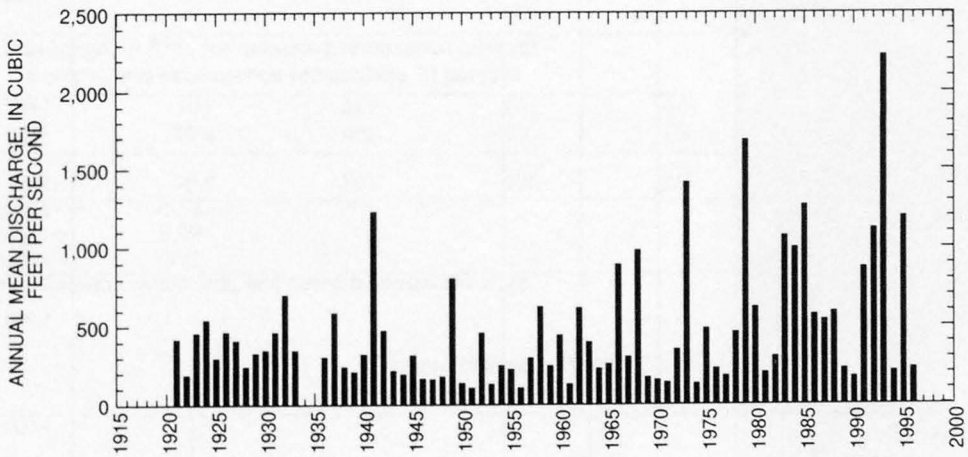
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,910	13,300	23,200	43,400	66,000	97,400
3	3,510	9,220	15,800	28,900	43,200	62,700
7	2,390	5,940	9,840	17,200	25,100	35,500
15	1,680	3,950	6,360	10,800	15,400	21,300
30	1,220	2,700	4,190	6,780	9,340	12,500
60	878	1,920	2,940	4,710	6,430	8,550
90	702	1,550	2,400	3,890	5,370	7,230

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1921-33, 1936-96

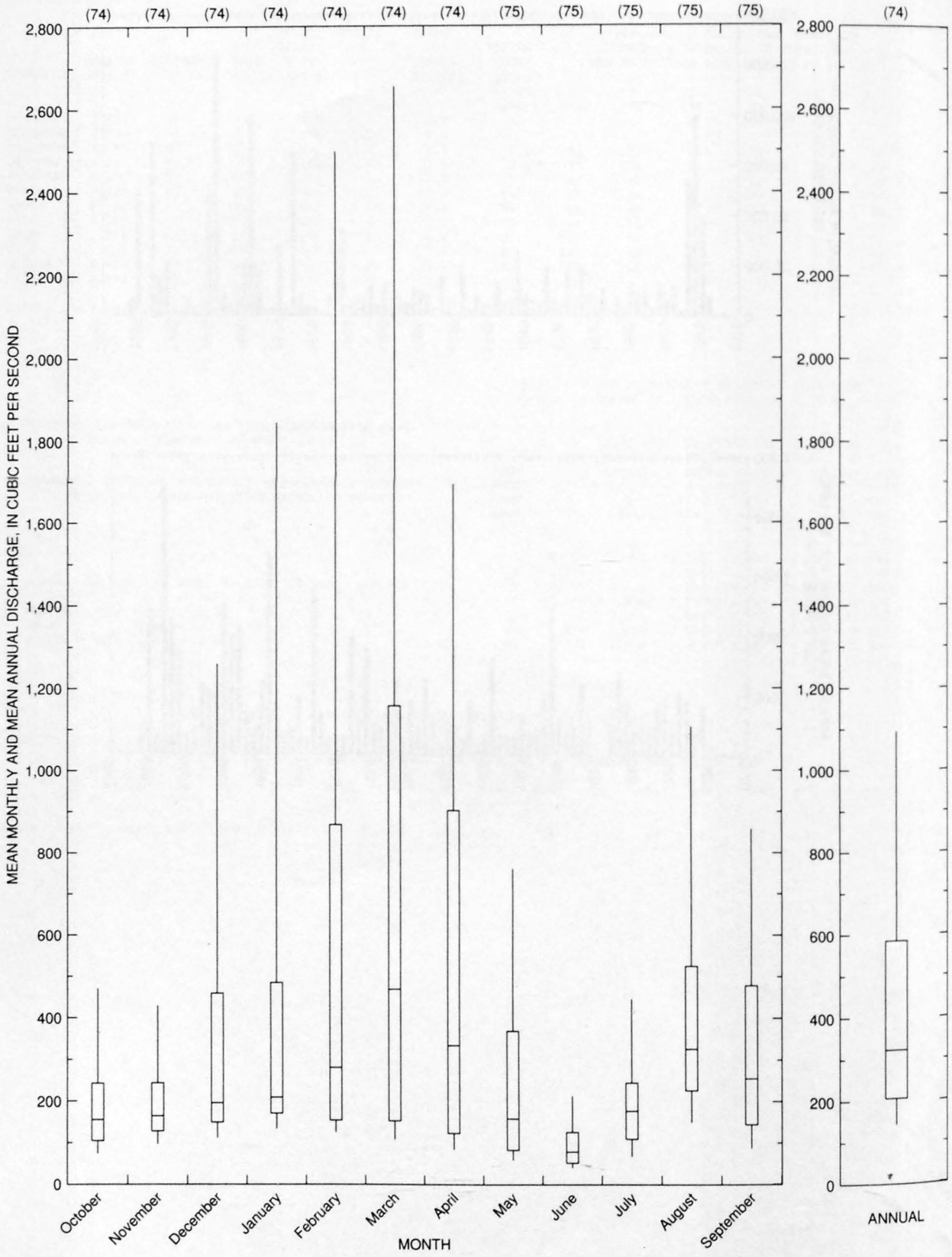
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4,300	1,810	1,010	657	478	304	217	179	148	120	94	64	48	36	30	25	19

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued





09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ--Continued



09451800 TOLLGATE WASH TRIBUTARY NEAR CLIFTON, AZ

LOCATION.--Lat 32°51'00", long 109°20'15", in $SW^1/_4$ sec.1, T.7 S., R.29 E., Graham County, Hydrologic Unit 15040005, at U.S. Highway 666, at Graham-Greenlee County line 14 mi south of Clifton.

DRAINAGE AREA.--0.12 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	07-19-63	62		1970	00-00-70	0	
1964	00-00-64	29		1971	10-02-70	15	
1965	09-03-65	10		1972	00-00-72	8.0	LT
1966	09-15-66	34		1973	10-19-72	63	
1967	00-00-67	0		1974	08-23-74	56	
1968	00-00-68	0		1975	07-24-75	22	
1969	00-00-69	0		1976	00-00-76	0	

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

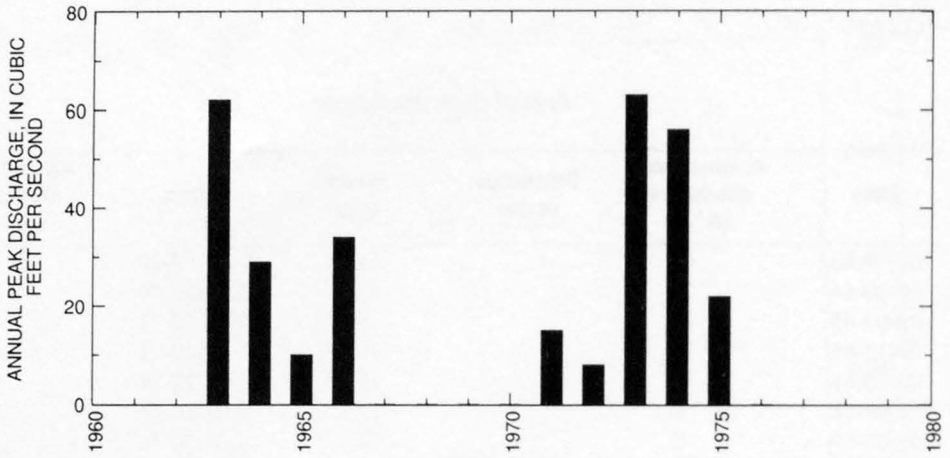
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
11.4	39.7	70.5	123	170	225
Weighted skew	(logs) =	-0.54			
Mean	(logs) =	0.99			
Standard dev.	(logs) =	0.71			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
878	0.60	4,800	0.0	1.0	13.5	1.8	3.4

09451800 TOLLGATE WASH TRIBUTARY NEAR CLIFTON, AZ--Continued



09456000 SAN SIMON RIVER NEAR SAN SIMON, AZ

LOCATION.--Lat 32°13'30", long 109°10'30", in SW$^1/_4$ sec.10, T.14 S., R.31 E., Cochise County, Hydrologic Unit 15040006, 4.5 mi southeast of San Simon.

DRAINAGE AREA.--814 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1923	07-21-23	5,350	HP	1936	08-18-36	4,190	
1931	08-10-31	4,500		1937	08-09-37	548	
1932	07-25-32	1,250		1938	06-29-38	2,280	
1933	08-04-33	1,550		1939	08-13-39	2,840	
1934	08-00-34	4,550		1940	06-29-40	4,280	
1935	08-28-35	5,020		1941	08-15-41	1,870	

Magnitude and probability of instantaneous peak flow based on period of record 1923, 1931-41

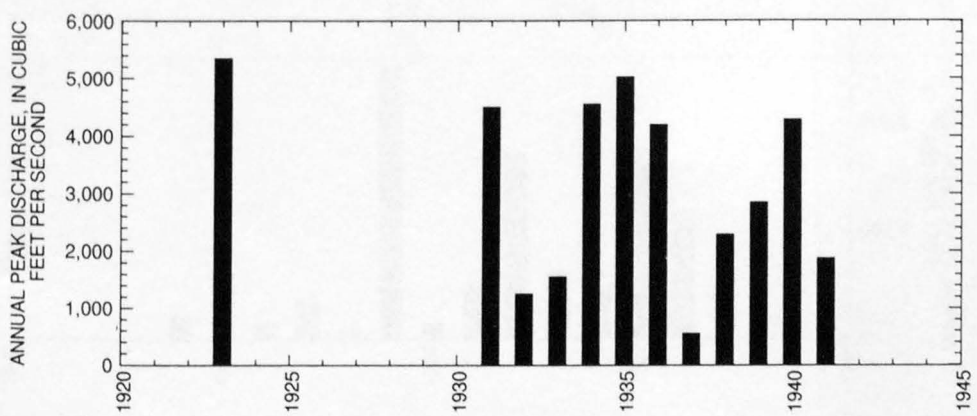
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
2,920	4,520	5,570	6,860	7,770	8,660

Weighted skew	(logs) =	-0.41
Mean	(logs) =	3.45
Standard dev.	(logs) =	0.24

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
23.8	64.6	4,830	23.0	2.3	14.9	1.9	3.6



09456400 GOLD GULCH NEAR BOWIE, AZ

LOCATION.--Lat 32°20'52", long 109°36'10", in $SW^1/_4NW^1/_4$ sec.33, T.12 S., R.27 E., Cochise County, Hydrologic Unit 15040006, 100 ft upstream from State Highway 86, 7 mi west of Bowie.

DRAINAGE AREA.--15.0 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-23-63	420		1970	07-20-70	150	ES
1964	08-18-64	1,180		1971	08-18-71	2,550	
1965	08-29-65	1,770		1972	00-00-72	90	LT
1966	08-07-66	450	ES	1973	10-00-72	400	
1967	07-07-67	640		1974	08-24-74	147	
1968	12-20-67	1,740		1975	07-22-75	630	
1969	09-11-69	520		1976	00-00-76	225	

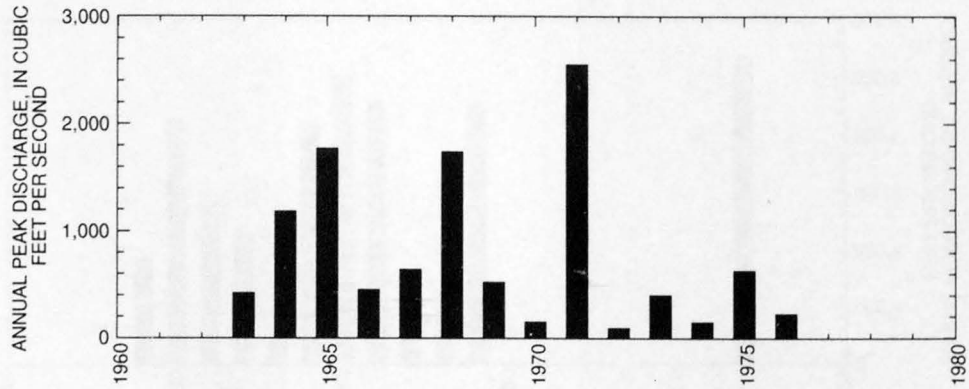
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
527	1,180	1,790	2,760	3,630	4,640
Weighted skew	(logs) =	-0.11			
Mean	(logs) =	2.71			
Standard dev.	(logs) =	0.42			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
201	9.6	5,170	0.0	2.0	10.9	1.8	4.4



09457000 SAN SIMON RIVER NEAR SOLOMON, AZ

LOCATION.--Lat 32°48'06", long 109°38'19", in $NW^1/_4NE^1/_4$ sec.25, T.7 S., R.26 E., Graham County, Hydrologic Unit 15040006, 1.0 mi southwest of Solomon and 2.2 mi upstream from mouth.

DRAINAGE AREA.--2,192 mi^2.

PERIOD OF RECORD.--June 1931 to September 1932, May 1935 to September 1982 (discontinued). Published as "San Simon Creek near Solomonsville" prior to October 1949 and as "San Simon Creek near Solomon" October 1949 to September 1961.

GAGE.--Water-stage recorder. Datum of gage is 2,960.15 ft above sea level.

REMARKS.--Records poor. Records do not include waste water passing station from San Jose Canal, which diverts from Gila River. Irrigation of about 34,000 acres above station, mostly by pumping from ground water. Floodflows are partly regulated by flood-control detention structures on main stream and tributaries; combined maximum capacity in excess of 10,500 acre-ft.

AVERAGE DISCHARGE.--48 years, 11.7 ft^3/s, 8,480 acre-ft/yr; median of yearly mean discharges, 8.4 ft^3/s 6,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft^3/s Aug. 9, 1931, gage height, 19.0 ft, by slope-area measurement of peak flow; no flow for most of time.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1931	08-09-31	[1]27,500		1958	08-16-58	4,250	UR
1932	07-30-32	8,800		1959	08-23-59	4,610	UR
1933	07-16-33	4,000		1960	09-09-60	3,260	UR
1934	08-00-34	11,500		1961	08-22-61	7,750	UR
1935	08-01-35	12,000		1962	09-26-62	3,970	UR
1936	09-10-36	10,600		1963	08-26-63	5,170	UR
1937	08-21-37	2,370		1964	07-14-64	5,800	UR
1938	07-12-38	4,500		1965	08-29-65	4,880	UR
1939	08-14-39	2,140		1966	09-15-66	2,250	UR
1940	09-05-40	6,080		1967	08-12-67	5,570	UR
1941	08-17-41	13,000		1968	07-02-68	3,870	UR
1942	09-11-42	5,000		1969	07-10-69	2,310	UR
1943	08-15-43	6,430		1970	08-17-70	1,010	UR
1944	09-25-44	5,900		1971	09-23-71	3,310	UR
1945	08-10-45	7,350		1972	08-26-72	4,570	UR
1946	08-30-46	4,820		1973	10-19-72	1,820	UR
1947	06-18-47	2,700		1974	08-15-74	4,840	UR
1948	08-06-48	5,880		1975	09-08-75	3,690	UR
1949	08-08-49	8,100		1976	09-24-76	3,070	UR
1950	09-18-50	2,060		1977	08-22-77	3,010	UR
1951	08-02-51	7,390		1978	07-22-78	1,630	UR
1952	08-17-52	5,100		1979	08-14-79	4,370	UR
1953	07-07-53	3,970	UR	1980	08-13-80	484	UR
1954	09-12-54	6,980	UR	1981	09-17-81	3,560	UR
1955	07-30-55	6,400	UR	1982	07-26-82	4,430	UR
1956	10-04-55	1,520	UR	1984	10-02-83	5,500	UR,HP
1957	08-30-57	8,950	UR				

[1]Highest since 1880.

09457000 SAN SIMON RIVER NEAR SOLOMON, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
14.6	119	4,270	11.0	2.3	12.2	1.8	3.4

09457000 SAN SIMON RIVER NEAR SOLOMON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1932, 1936-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	71	0.00	8.8	17	1.9	6.3
NOVEMBER	8.0	0.00	0.65	1.9	2.9	0.5
DECEMBER	25	0.00	1.1	4.1	3.6	0.8
JANUARY	8.0	0.00	0.45	1.6	3.5	0.3
FEBRUARY	14	0.00	0.86	3.0	3.4	0.6
MARCH	5.5	0.00	0.20	0.85	4.4	0.1
APRIL	15	0.00	0.52	2.5	4.8	0.4
MAY	11	0.00	0.44	1.7	3.9	0.3
JUNE	20	0.00	1.6	4.1	2.6	1.2
JULY	274	0.00	32	44	1.4	23.0
AUGUST	328	0.00	68	74	1.1	49.1
SEPTEMBER	176	0.00	24	32	1.4	17.3
ANNUAL	38	1.4	12	8.8	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1937-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.58	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1931-82, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
4,520	7,250	9,320	12,200	14,500	17,000

WEIGHTED SKEW (LOGS)= 0.05
MEAN (LOGS)= 3.66
STANDARD DEV. (LOGS)= 0.24

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1932, 1936-82

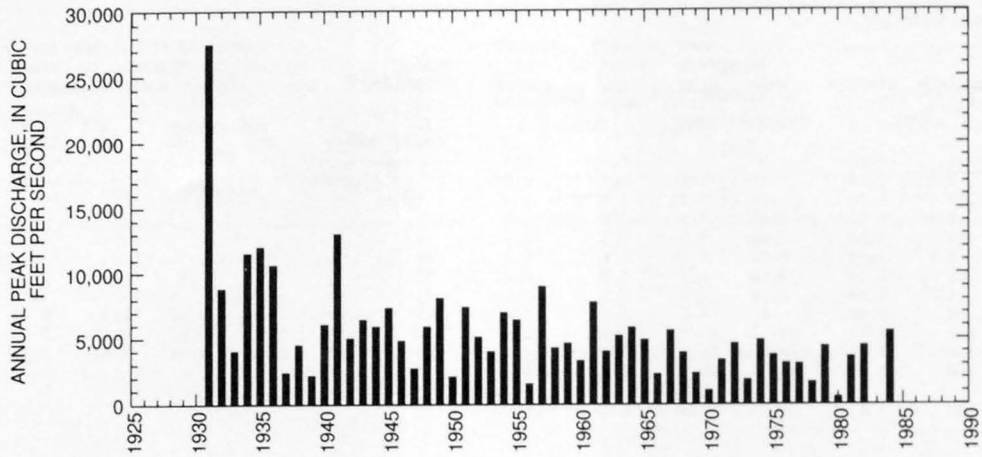
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	721	1,260	1,670	2,230	2,670	3,130
3	381	725	1,010	1,420	1,770	2,160
7	197	389	556	817	1,050	1,310
15	117	237	340	498	635	790
30	72	147	212	312	401	501
60	45	91	130	188	239	295
90	32	63	89	129	163	201

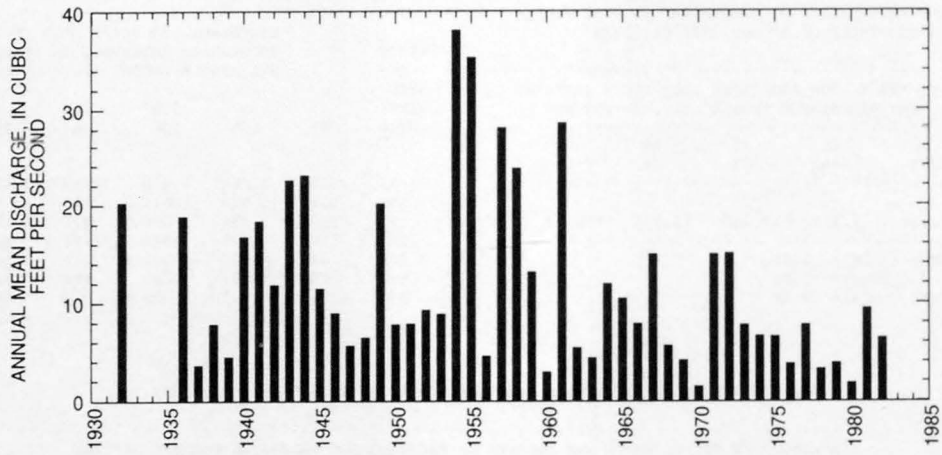
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1932, 1936-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
329	25	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

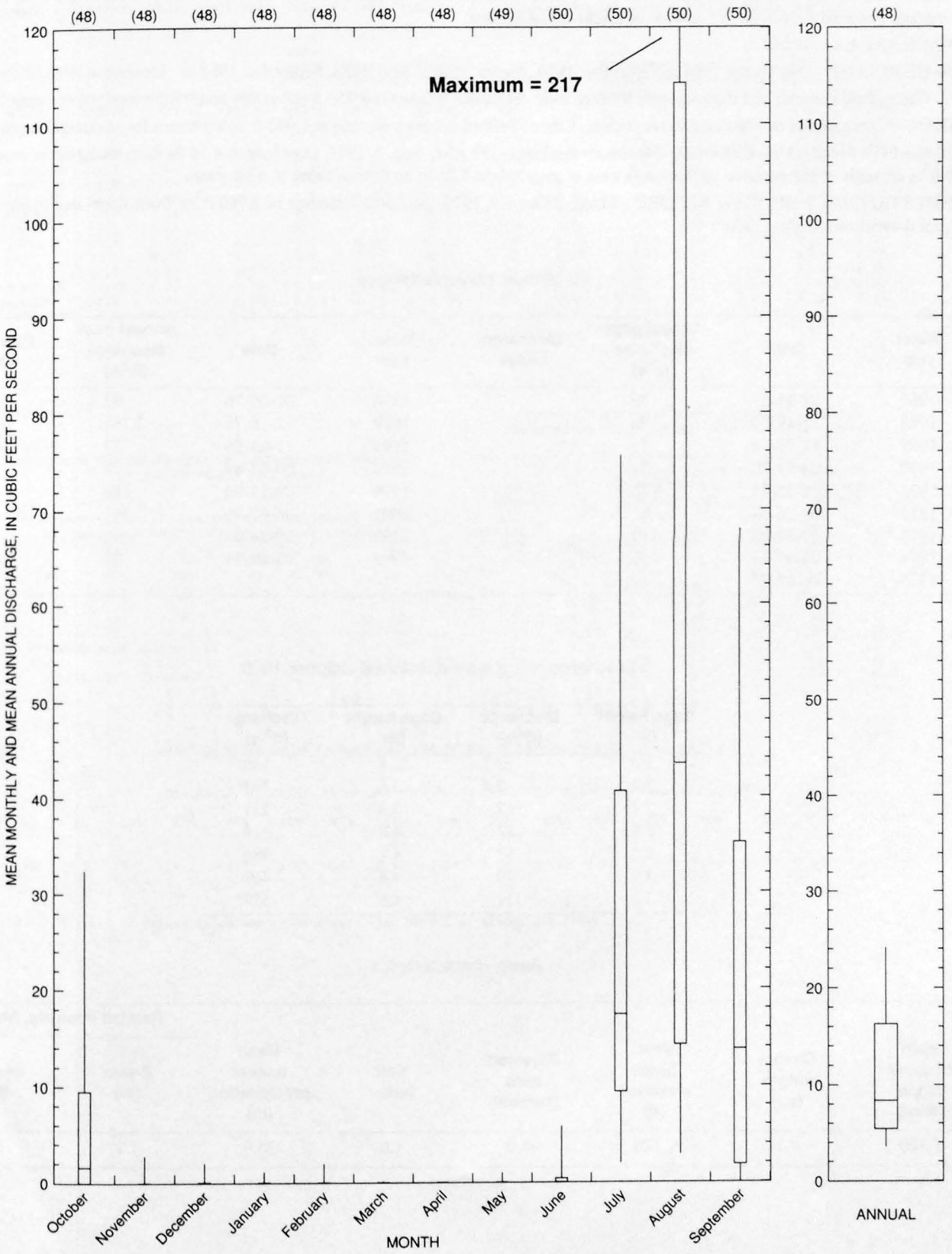
Reliability of values in column is uncertain, and potential errors are large.

09457000 SAN SIMON RIVER NEAR SOLOMON, AZ--Continued





09457000 SAN SIMON RIVER NEAR SOLOMON, AZ--Continued



09458200 DEADMAN CREEK NEAR SAFFORD, AZ

LOCATION.--Lat 32°43'59", long 109°48'57", in SW$^1/_4$ sec.17, T.8 S., R.25 E., (unsurveyed), Graham County, Hydrologic Unit 15040005, in Coronado National Forest, on left bank 9 mi southwest of Safford.

DRAINAGE AREA.--4.78 mi^2.

PERIOD OF RECORD.--November 1966 to September 1976, August 1986 to May 1988, September 1988 to September 1993 (discontinued).

GAGE.--Water-stage recorder and sharp-crested V-notch weir. Elevation of gage is 4,950 ft above sea level, from topographic map.

REMARKS.--No regulation or diversion above station. City of Safford diverts water about 1,000 ft downstream for municipal supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 393 ft^3/s, Aug. 7, 1991, gage height, 4.30 ft, from rating curve extended above 90 ft^3/s on basis of computation of flow over weir, at gage height 3.25 ft; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 19, 1978, reached a discharge of 2,760 ft^3/s, from slope-area measurement $^1/_4$ mi downstream from station.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	08-11-67	89		1976	02-09-76	43	
1968	12-19-67	96		1979	12-18-78	2,760	HP
1969	12-26-68	12		1987	11-03-86	33	
1970	08-07-70	21		1989	09-04-89	74	
1971	09-08-71	12		1990	09-23-90	186	
1972	08-26-72	82		1991	08-07-91	393	
1973	10-19-72	119		1992	08-24-92	92	
1974	08-06-74	57		1993	01-08-93	97	
1975	09-06-75	82					

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	2.3	3.4	150
2.2	7.4	3.6	197
2.4	17	3.8	251
2.6	32	4.0	314
2.8	52	4.2	386
3.0	79	4.4	467
3.2	111	4.6	557

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
1,100	4.1	7,520	48.0	1.0	25.0	1.9	3.8

09458200 DEADMAN CREEK NEAR SAFFORD, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-76, 1987, 1989-93

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4.1	0.00	0.98	1.3	1.4	4.4
NOVEMBER	3.3	0.08	0.66	0.89	1.3	3.0
DECEMBER	4.5	0.09	1.7	1.7	1.0	7.8
JANUARY	18	0.13	2.4	4.5	1.8	11.1
FEBRUARY	9.9	0.14	2.5	3.1	1.2	11.5
MARCH	9.5	0.12	3.0	3.0	1.0	13.5
APRIL	8.5	0.13	3.1	2.9	0.96	14.0
MAY	13	0.03	4.1	4.0	0.97	18.9
JUNE	4.1	0.00	1.5	1.6	1.1	6.6
JULY	0.73	0.00	0.27	0.23	0.86	1.2
AUGUST	2.4	0.00	0.57	0.70	1.2	2.6
SEPTEMBER	6.7	0.03	1.2	2.1	1.8	5.3
ANNUAL	4.7	0.11	1.8	1.6	0.86	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-76, 1988, 1990-93

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.06	0.00	0.00	0.00	0.00	0.00
90	0.10	0.03	0.00	0.00	0.00	0.00
120	0.17	0.06	0.02	0.00	0.00	0.00
183	0.29	0.12	0.08	0.05	0.03	0.02

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-76, 1987, 1989-93

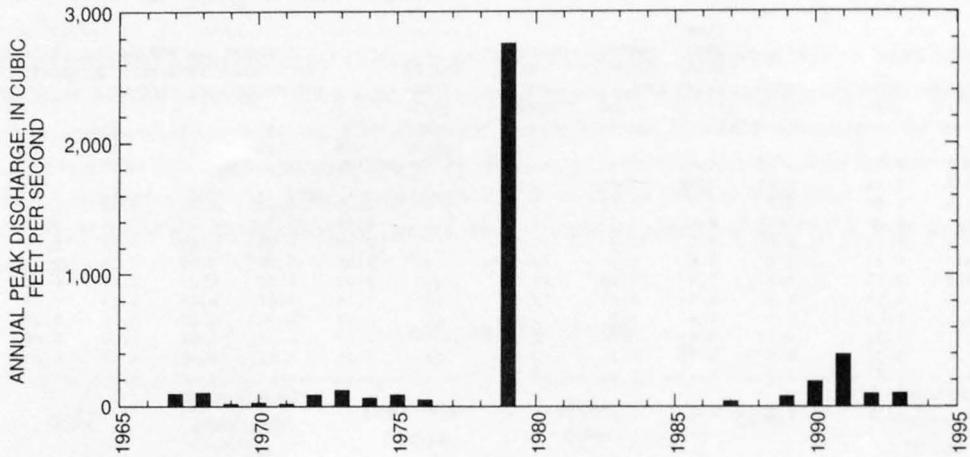
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	23	49	64	78	85	90
3	15	33	44	54	60	64
7	10	22	30	37	41	44
15	7.1	16	21	27	30	33
30	5.0	11	16	21	24	27
60	3.4	8.0	12	17	20	24
90	2.9	7.1	10	15	18	22

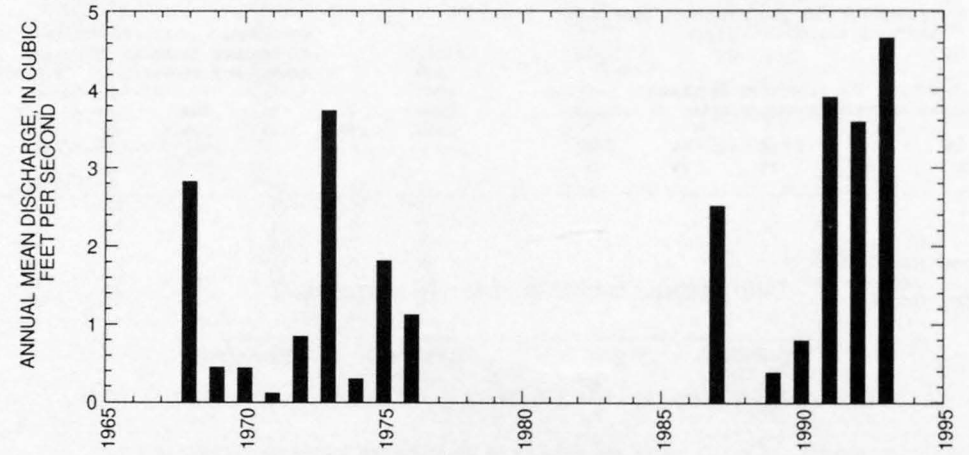
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-76, 1987, 1989-93

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
18	8.3	5.7	4.1	2.7	1.2	0.63	0.42	0.28	0.19	0.12	0.02	0.00	0.00	0.00	0.00	0.00

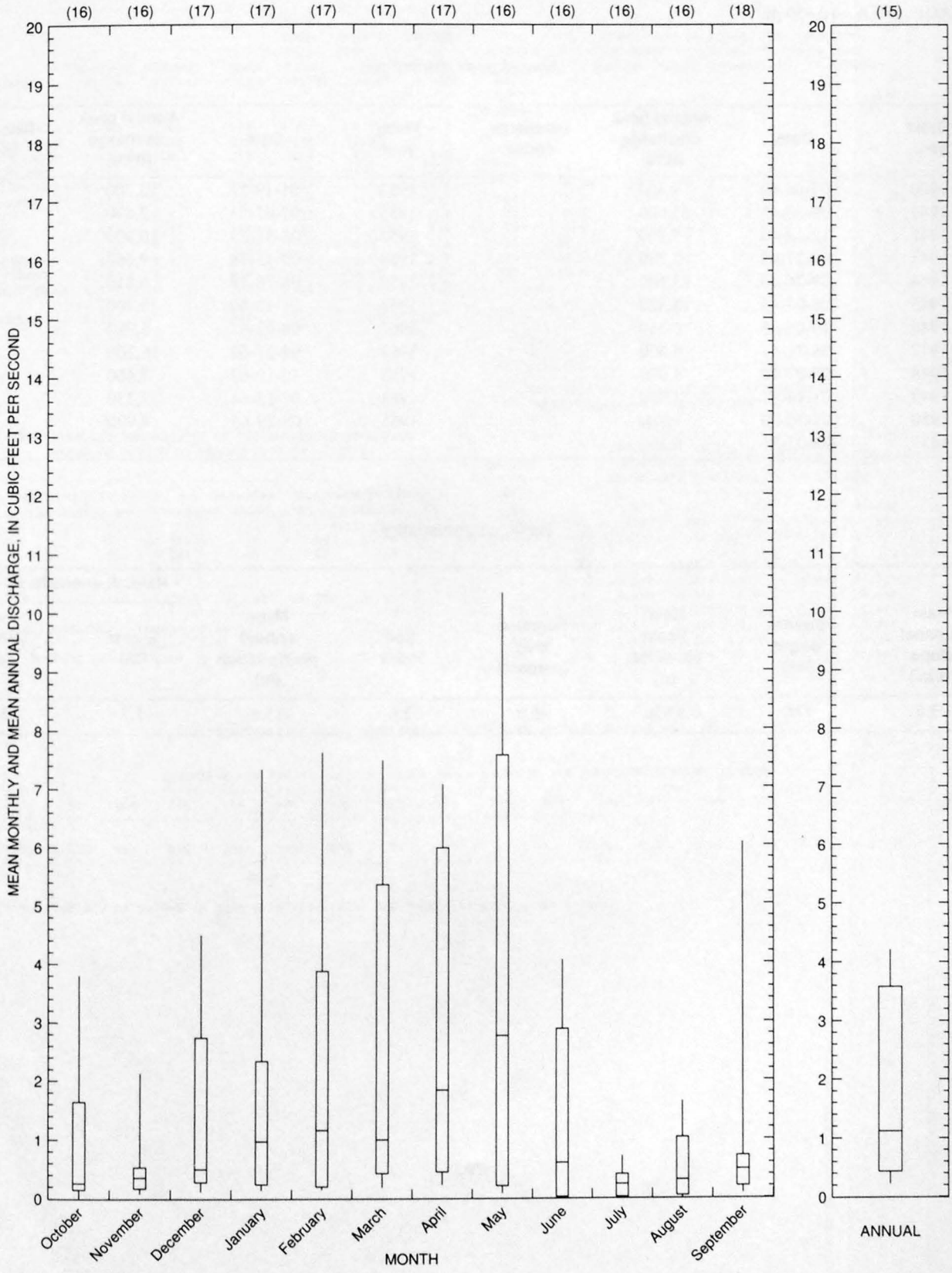
Reliability of values in column is uncertain, and potential errors are large.

09458200 DEADMAN CREEK NEAR SAFFORD, AZ--Continued





09458200 DEADMAN CREEK NEAR SAFFORD, AZ--Continued



09458500 GILA RIVER AT SAFFORD, AZ

LOCATION.--Lat 32°50'50", long 109°42'55", in $SW^1/_4SW^1/_4$ sec.5, T.7 S., R.26 E., Graham County, Hydrologic Unit 15040005, on downstream side of highway bridge 1 mi north of Safford and 4.5 mi downstream from San Simon River.

DRAINAGE AREA.--10,459 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	09-06-40	8,600		1952	01-19-52	15,700	
1941	09-30-41	33,000		1953	07-07-53	2,670	
1942	12-12-41	7,800		1957	08-31-57	10,300	
1943	09-27-43	5,780		1958	09-13-58	9,660	
1944	09-26-44	13,600		1959	08-28-59	6,810	
1945	08-03-45	5,320		1960	01-12-60	15,400	
1946	10-09-45	6,340		1961	08-22-61	6,990	
1947	08-31-47	4,600		1962	09-27-62	16,200	
1948	08-07-48	6,090		1963	10-19-62	7,460	
1949	01-14-49	23,900		1964	07-15-64	7,330	
1950	07-30-50	1,860		1965	08-29-65	4,900	
1951	08-03-51	6,390					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
23.6	186	5,830	46.0	2.6	15.6	1.7	3.4

09458500 GILA RIVER AT SAFFORD, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-46, 1957-65

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,180	0.16	194	292	1.5	5.7
NOVEMBER	403	0.28	139	128	0.92	4.1
DECEMBER	1,400	1.3	288	423	1.5	8.4
JANUARY	2,040	74	445	574	1.3	13.0
FEBRUARY	2,170	27	458	640	1.4	13.4
MARCH	2,660	13	491	796	1.6	14.3
APRIL	1,680	4.7	337	533	1.6	9.8
MAY	1,560	0.13	154	393	2.6	4.5
JUNE	130	0.00	15	33	2.2	0.4
JULY	442	5.6	94	115	1.2	2.7
AUGUST	1,660	11	428	417	0.98	12.5
SEPTEMBER	1,180	16	380	332	0.87	11.1
ANNUAL	1,120	87	284	263	0.92	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1942-47, 1958-65

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.01	0.00	0.00	0.00	0.00	0.00
30	0.51	0.00	0.00	0.00	0.00	0.00
60	4.3	0.75	0.27	0.11	0.04	0.02
90	14	5.2	3.4	2.4	1.7	1.3
120	36	19	14	11	8.3	7.0
183	116	57	38	26	17	13

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-53, 1957-65

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8,230	13,500	17,700	24,100	29,700	35,900

WEIGHTED SKEW (LOGS)= 0.33
MEAN (LOGS)= 3.93
STANDARD DEV. (LOGS)= 0.24

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-46, 1957-65

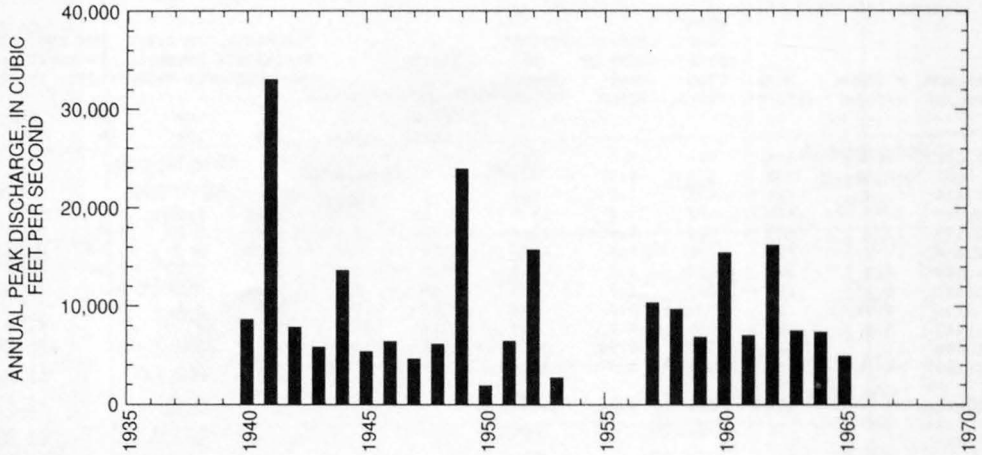
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	4,090	7,800	11,500	17,900	24,400	32,600
3	2,900	5,340	7,490	10,900	14,000	17,700
7	1,940	3,490	4,700	6,440	7,870	9,400
15	1,310	2,390	3,250	4,500	5,540	6,660
30	873	1,640	2,290	3,300	4,190	5,210
60	610	1,180	1,700	2,560	3,380	4,360
90	479	967	1,440	2,250	3,050	4,030

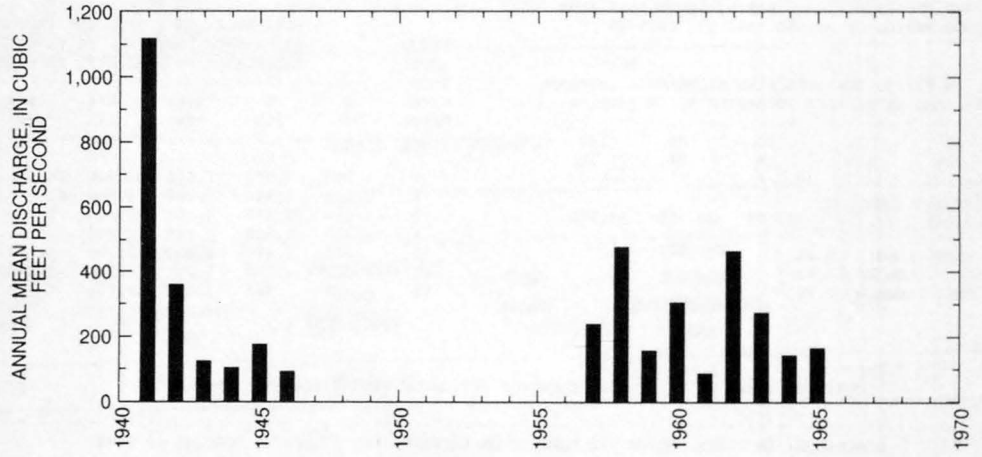
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-46, 1957-65

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3,480	1,360	694	442	322	176	103	66	40	21	7.9	0.52	0.00	0.00	0.00	0.00	0.00

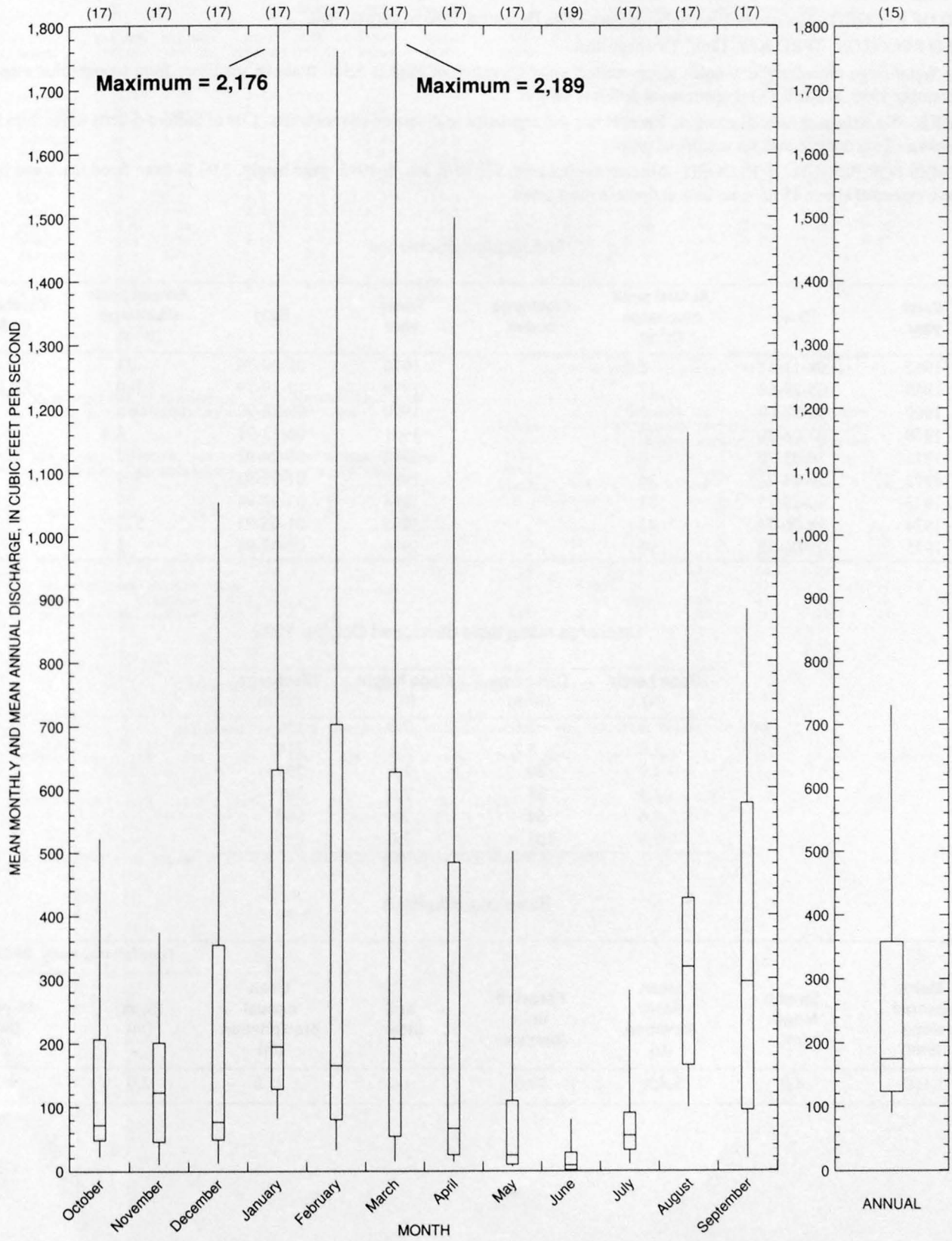
Reliability of values in column is uncertain, and potential errors are large.

09458500 GILA RIVER AT SAFFORD, AZ--Continued





09458500 GILA RIVER AT SAFFORD, AZ--Continued



09460150 FRYE CREEK NEAR THATCHER, AZ

LOCATION.--Lat 32°44'38", long 109°50'15", in NE$^1/_4$ sec.13, T.8 S., R.24 E. (unsurveyed), Graham County, Hydrologic Unit 15040005, in Coronado National Forest, on left bank 8.5 mi southwest of Thatcher.

DRAINAGE AREA.--4.02 mi^2. (Area at site used 1966-76, 3.91 mi2.)

PERIOD OF RECORD.--December 1966 to September 1976, December 1988 to current year.

REVISED RECORDS.--WRD Ariz. 1968: Drainage area.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 5,580 ft above sea level, from topographic map. Prior to December 1988, at site 0.25 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion above station. City of Safford diverts water from Frye Mesa Reservoir 1 mi downstream for municipal supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 577 ft^3/s, Jan. 5, 1995, gage height, 2.90 ft, from flood mark and from rating curve extended above 45 ft^3/s; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	08-11-67	2.2		1976	02-09-76	24	
1968	05-29-68	17		1979	12-19-79	2,300	ES,HP
1969	05-23-69	3.2		1990	09-23-90	unknown	
1970	09-06-70	30		1991	06-13-91	8.4	
1971	10-03-70	0.8		1992	08-24-92	102	
1972	10-24-71	36		1993	01-08-93	509	
1973	10-19-72	51		1994	03-20-94	37	
1974	08-06-74	42		1995	01-05-95	577	
1975	09-06-75	96		1996	08-09-96	5.2	

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
.8	3.1	2.0	150
1.0	8.2	2.2	214
1.2	20	2.4	293
1.4	38	2.6	391
1.6	64	2.8	509
1.8	101	3.0	650

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
1,160	4.0	8,400	79.0	1.0	25.0	2.0	4.0

09460150 FRYE CREEK NEAR THATCHER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-76, 1990-95

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5.9	0.00	0.88	1.5	1.7	3.6
NOVEMBER	9.3	0.00	1.2	2.3	1.9	4.9
DECEMBER	5.1	0.09	1.2	1.5	1.3	5.1
JANUARY	29	0.17	3.5	7.7	2.2	14.4
FEBRUARY	11	0.18	2.4	3.3	1.4	10.0
MARCH	11	0.19	2.4	2.7	1.2	9.8
APRIL	9.4	0.15	2.5	2.5	0.99	10.2
MAY	17	0.07	4.9	5.1	1.0	19.9
JUNE	7.4	0.00	2.7	2.8	1.1	10.9
JULY	4.3	0.00	0.72	1.1	1.5	3.0
AUGUST	2.0	0.00	0.66	0.72	1.1	2.7
SEPTEMBER	6.9	0.00	1.3	2.1	1.6	5.5
ANNUAL	5.4	0.13	2.0	1.8	0.86	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-76, 1991-95

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.07	0.00	0.00	0.00	0.00	0.00
90	0.18	0.04	0.01	0.00	0.00	0.00
120	0.26	0.09	0.03	0.00	0.00	0.00
183	0.44	0.15	0.07	0.04	0.02	0.01

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1968-76, 1990-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
25.6	116	254	581	986	1,580

WEIGHTED SKEW (LOGS)= -0.06
MEAN (LOGS)= 1.40
STANDARD DEV. (LOGS)= 0.79

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-76, 1990-95

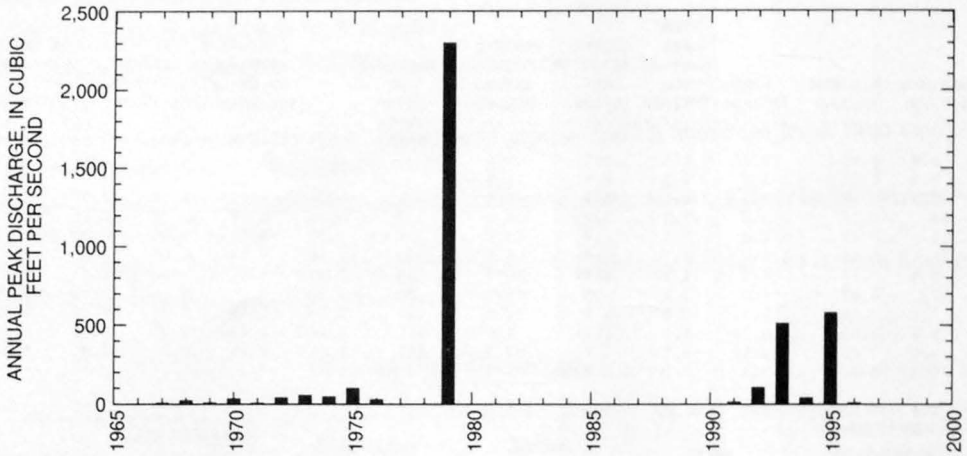
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	21	58	91	137	174	211
3	15	40	61	92	117	143
7	11	27	42	64	83	104
15	7.8	19	29	44	56	69
30	5.6	14	21	33	42	52
60	4.1	10	15	23	29	36
90	3.4	8.1	12	18	23	28

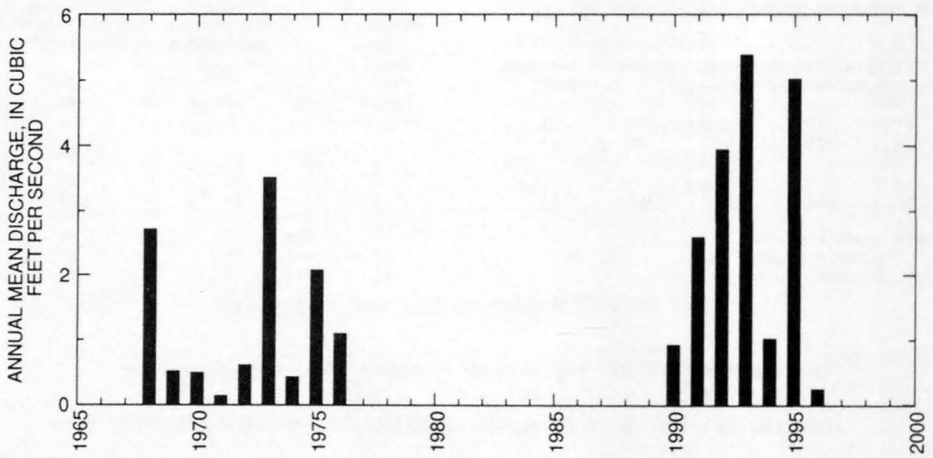
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-76, 1990-95

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
21	7.7	4.7	3.2	2.6	1.4	0.87	0.60	0.41	0.29	0.18	0.04	0.00	0.00	0.00	0.00	0.00

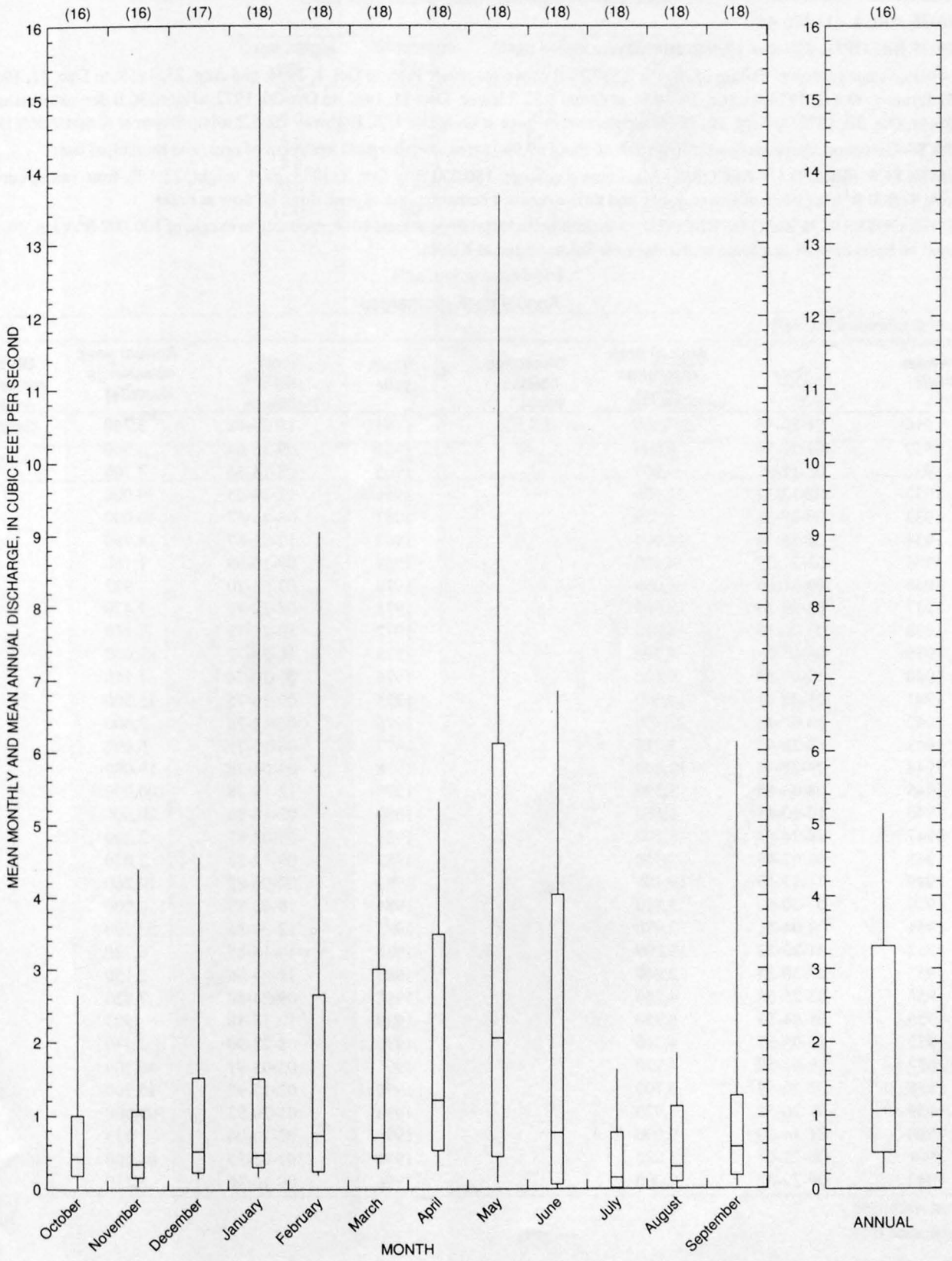
Reliability of values in column is uncertain, and potential errors are large.

09460150 FRYE CREEK NEAR THATCHER, AZ--Continued





09460150 FRYE CREEK NEAR THATCHER, AZ--Continued



09466500 GILA RIVER AT CALVA, AZ

LOCATION.--Lat 33°11'08", long 110°13'10", in SW$^1/_4$ sec.8, T.3 S., R.21 E. (unsurveyed), Graham County, Hydrologic Unit 15040005, in San Carlos Indian Reservation, on Southern Pacific Railroad bridge at head of San Carlos Reservoir, 2.0 mi west of Calva.

DRAINAGE AREA.--11,470 mi^2.

PERIOD OF RECORD.--October 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,517.29 ft above sea level. Prior to Oct. 1, 1954, and Aug. 25, 1958, to Dec. 31, 1962, at datum 2.52 ft lower. Oct. 1, 1954, to Aug. 24, 1958, at datum 5.52 ft lower. Dec. 31, 1962, to Oct. 20, 1972, at site 530 ft downstream at datum 3.65 ft lower. Oct. 20, 1972, to Sept. 30, 1974, supplementary gage at bridge on U.S. Highway 70, 6.2 mi upstream at datum 2,560.19 ft, NGVD.

REMARKS.--Diversion above station for irrigation of about 69,000 acres, metallurgical treatment of ores, and municipal uses.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft^3/s Oct. 3, 1983, gage height, 23.1 ft, from rating curve extended above 87,000 ft^3/s on basis of area-velocity and flow-over-road computations of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1914, probably in excess of 100,000 ft^3/s Jan. 20, 1916, determined on basis of peak discharge at stations near Solomon and at Kelvin.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-20-16	[1]100,000	ES,HP	1963	10-20-62	3,240	
1930	07-29-30	9,600		1964	09-26-64	3,060	
1931	08-11-31	9,900		1965	08-14-65	4,700	
1932	02-12-32	21,500		1966	12-24-65	39,000	
1933	09-09-33	6,560		1967	08-13-67	40,000	
1934	08-28-34	18,000		1968	12-21-67	8,960	
1935	07-31-35	4,470		1969	09-14-69	1,160	
1936	09-11-36	6,000		1970	03-03-70	982	
1937	02-09-37	12,800		1971	08-22-71	7,470	
1938	03-05-38	4,310		1972	10-28-71	7,160	
1939	08-07-39	4,260		1973	10-20-72	80,000	
1940	10-09-39	5,620		1974	07-20-74	1,160	
1941	01-02-41	14,300		1975	09-10-75	15,800	
1942	10-01-41	27,900		1976	02-12-76	2,600	
1943	09-28-43	3,710		1977	08-15-77	6,090	
1944	09-27-44	12,800		1978	03-04-78	19,000	
1945	08-03-45	3,390		1979	12-19-78	100,000	
1946	10-10-45	4,680		1980	02-16-80	20,600	
1947	08-24-47	3,200		1981	08-02-81	2,200	
1948	08-07-48	2,570		1982	09-12-82	2,020	
1949	01-15-49	19,400		1983	02-06-83	10,260	
1950	07-30-50	3,210		1984	10-03-83	[2]150,000	
1951	08-04-51	2,970		1985	12-29-84	53,700	
1952	01-20-52	13,200		1986	10-18-85	6,720	
1953	07-30-53	2,040		1987	11-04-86	2,150	
1954	03-25-54	4,260		1988	09-24-88	7,820	
1955	08-04-55	4,950		1989	10-16-88	903	
1956	10-05-55	4,240		1990	08-23-90	1,110	
1957	09-01-57	4,220		1991	03-03-91	46,400	
1958	03-26-58	6,700		1992	02-15-92	15,700	
1959	08-26-59	3,920		1993	01-20-93	109,000	
1960	01-14-60	9,090		1994	02-10-94	553	
1961	08-23-61	3,080		1995	01-06-95	64,500	
1962	09-29-62	9,000		1996	09-16-96	3,250	

[1]Highest since 1906.

[2]Highest since 1907.

09466500 GILA RIVER AT CALVA, AZ--Continued

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	109	14.0	23,300
4.0	618	16.0	38,000
6.0	1,800	18.0	60,000
8.0	4,250	20.0	91,000
10.0	8,400	22.0	130,000
12.0	15,000	24.0	180,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
20.4	225	5,650	44.0	2.6	15.5	1.7	3.5

09466500 GILA RIVER AT CALVA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1930-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	8,490	0.00	348	1,180	3.4	7.5
NOVEMBER	2,270	0.00	203	352	1.7	4.4
DECEMBER	5,650	0.00	469	941	2.0	10.1
JANUARY	16,300	22	796	2,110	2.7	17.1
FEBRUARY	6,230	29	762	1,150	1.5	16.4
MARCH	3,760	10	749	997	1.3	16.1
APRIL	2,620	1.3	410	612	1.5	8.8
MAY	3,080	1.3	229	503	2.2	4.9
JUNE	1,270	0.00	54	163	3.0	1.2
JULY	838	0.00	82	140	1.7	1.8
AUGUST	1,660	0.00	308	392	1.3	6.6
SEPTEMBER	1,680	0.00	247	334	1.3	5.3
ANNUAL	2,450	29	387	453	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1931-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.15	0.00	0.00	0.00	0.00	0.00
14	0.78	0.00	0.00	0.00	0.00	0.00
30	2.2	0.02	0.00	0.00	0.00	0.00
60	8.0	1.7	0.56	0.06	0.00	0.00
90	18	5.7	2.8	0.79	0.00	0.00
120	39	12	4.7	1.5	0.00	0.00
183	82	35	22	14	9.0	6.5

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916, 1930-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6,760	19,600	35,500	68,700	106,900	161,000

WEIGHTED SKEW (LOGS)= 0.31
MEAN (LOGS)= 3.86
STANDARD DEV. (LOGS)= 0.53

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-96

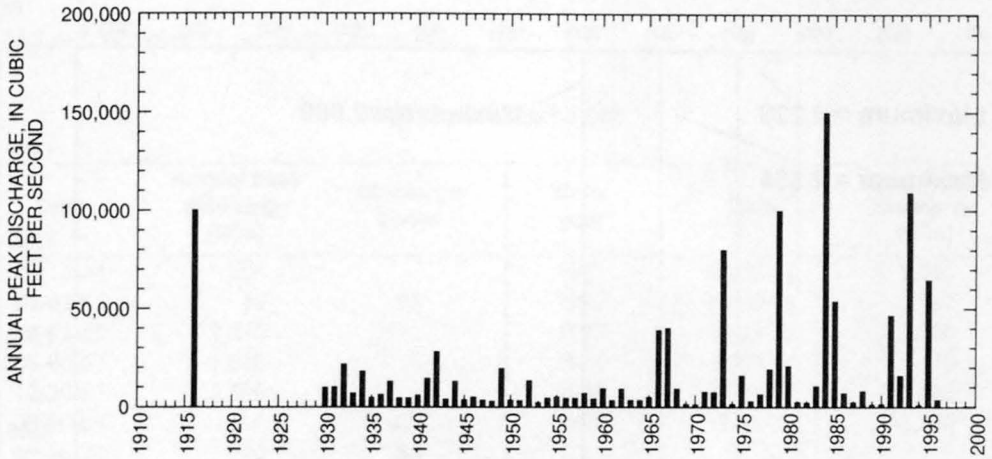
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	4,300	13,300	25,100	51,100	82,400	128,000
3	3,140	9,400	17,200	33,600	52,500	79,200
7	2,130	6,080	10,700	19,800	29,700	43,000
15	1,440	3,980	6,860	12,400	18,300	26,000
30	983	2,590	4,350	7,640	11,000	15,400
60	675	1,780	3,000	5,320	7,750	10,900
90	529	1,410	2,410	4,330	6,380	9,100

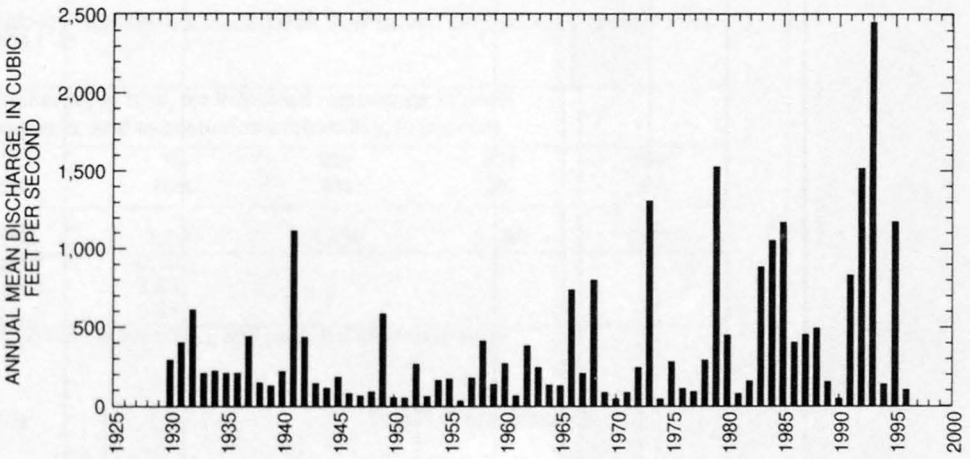
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4,300	1,770	826	513	360	198	115	69	43	26	12	2.3	0.00	0.00	0.00	0.00	0.00

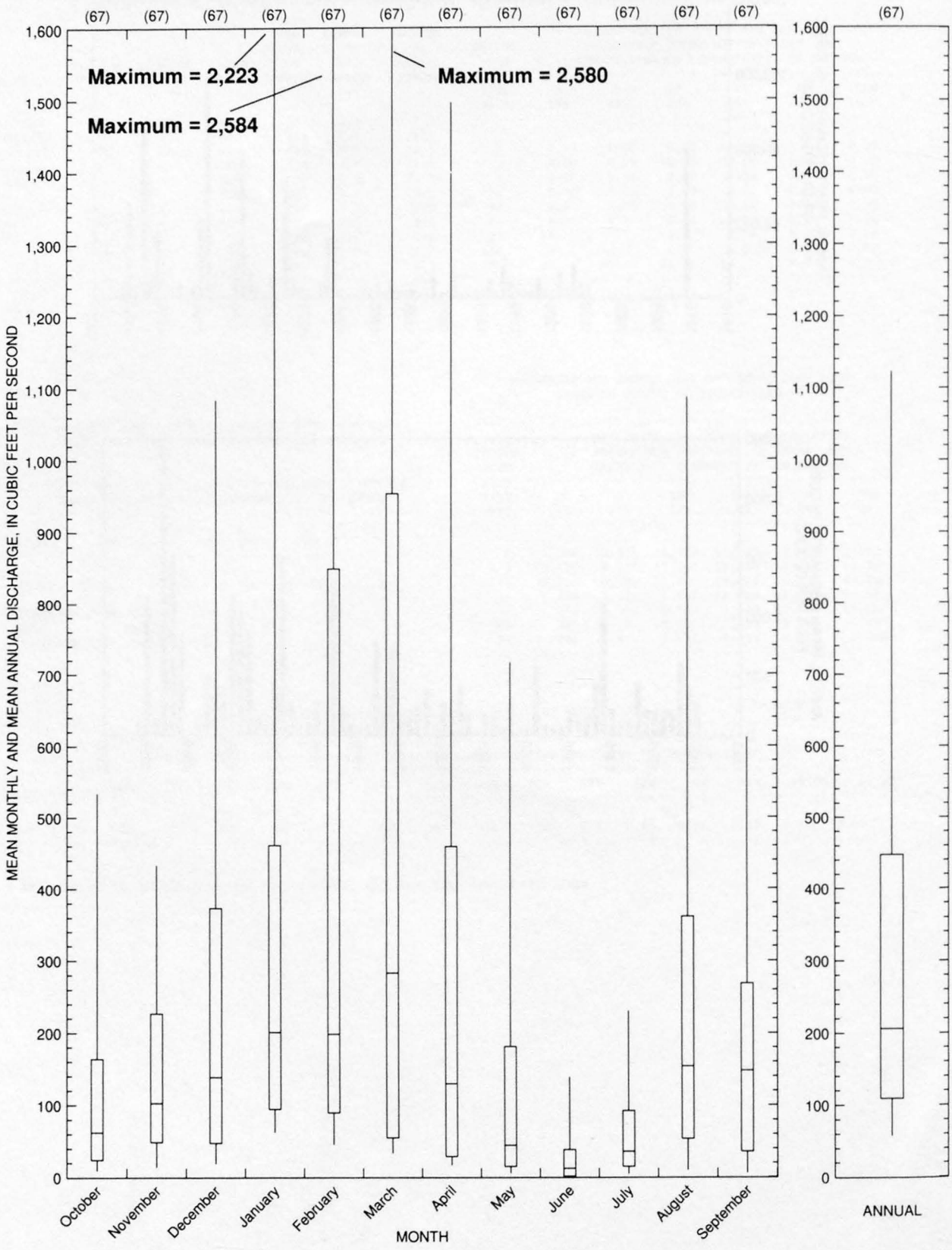
Reliability of values in column is uncertain, and potential errors are large.

09466500 GILA RIVER AT CALVA, AZ--Continued





09466500 GILA RIVER AT CALVA, AZ--Continued



09467120 SALT CREEK NEAR PERIDOT, AZ

LOCATION.--Lat 33°16'15", long 110°18'15", Graham County, Hydrologic Unit 15040005, at U.S. Highway 70, 4 mi above mouth, and 9.5 mi southeast of Peridot.

DRAINAGE AREA.--35.1 mi^2, of which 4.9 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-13-64	604		1971	09-30-71	2,300	
1965	01-03-65	17	ES	1972	10-00-71	517	
1966	12-22-65	1,270		1973	10-19-72	3,200	
1967	08-06-67	1,650		1974	00-00-74	0	
1968	12-20-67	2,500		1975	07-20-75	880	
1969	00-00-69	100	LT	1979	12-18-78	[1]2,200	HP
1970	09-06-70	40	ES				

[1]Highest since 1975.

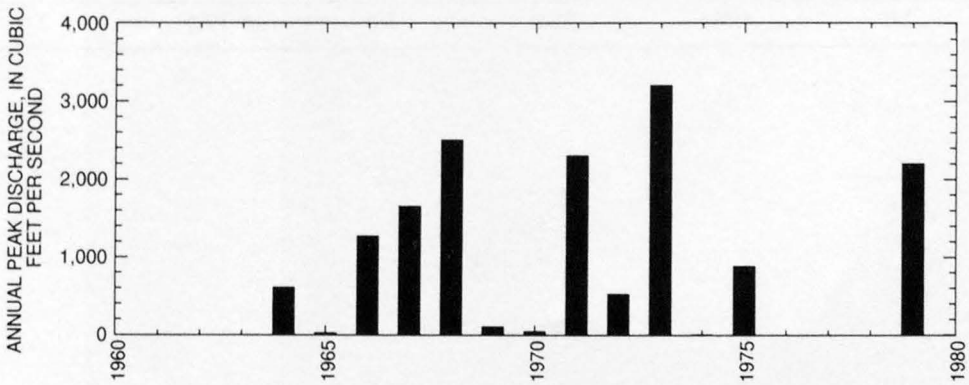
Magnitude and probability of instantaneous peak flow based on period of record 1964-75, 1979

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
810	1,920	2,890	4,350	5,580	6,910
Weighted skew	(logs) =	-0.40			
Mean	(logs) =	2.88			
Standard dev.	(logs) =	0.48			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
169	14.4	3,490	2.3	1.0	16.0	1.9	3.9



09468300 SEVENMILE WASH TRIBUTARY NEAR GLOBE, AZ

LOCATION.--Lat 33°35'10", long 110°39'00", Gila County, Hydrologic Unit 15040007, at U.S. Highway 60, 0.2 mi south of Sevenmile Wash, and 15 mi northwest of Globe.

DRAINAGE AREA.--0.83 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
----	--------	[1]526	HP	1970	08-00-70	150	
1962	00-00-62	38		1971	00-00-71	50	LT
1963	08-17-63	22		1972	10-17-71	5.0	ES
1964	07-31-64	486		1973	10-19-72	245	
1965	00-00-65	0		1974	07-19-74	4.0	
1966	12-10-65	30		1975	09-08-75	0.1	ES
1967	00-00-67	0		1976	00-00-76	5.0	ES
1968	08-04-68	135		1979	12-18-78	[2]640	HP
1969	08-27-69	35					

[1]Highest since 1933, year of occurrence unknown.

[2]Highest since 1933.

Magnitude and probability of instantaneous peak flow based on period of record 1933, 1962-76, 1979

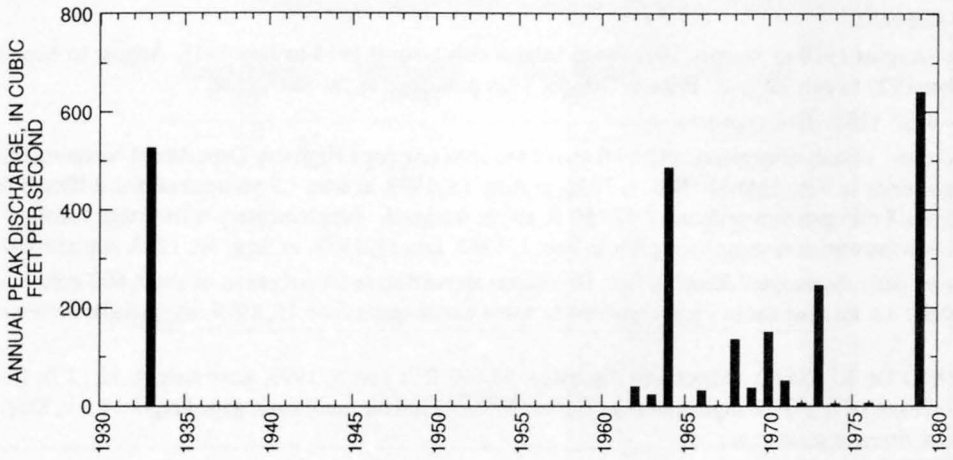
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
27.3	134	295	660	1,090	1,690
Weighted skew	(logs) =	-0.26			
Mean	(logs) =	1.40			
Standard dev.	(logs) =	0.86			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
280	2.0	4,410	36.0	3.0	19.0	2.0	4.0

09468300 SEVENMILE WASH TRIBUTARY NEAR GLOBE, AZ--Continued



09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ

LOCATION.--Lat 33°17'47", long 110°27'03", in SE$^1/_4$ sec.36, T.1 S., R.18 E. (unsurveyed), Gila County, Hydrologic Unit 15040007, in San Carlos Indian Reservation, on U.S. Highway 70 bridge, 0.9 mi south of Peridot.

DRAINAGE AREA.--1,026 mi^2.

PERIOD OF RECORD.--August 1910 to January 1911 (gage heights only), April 1914 to July 1915, August to September 1915 (monthly discharge only), October 1929 to current year. Prior to October 1929 published as "at San Carlos."

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,542.29 ft above sea level (Arizona Highway Department bench mark). See WSP 1713 or 1733 for history of changes prior to Feb. 1, 1942. Feb. 1, 1942, to Aug. 13, 1970, at sites 1.9 mi upstream at different datums. Aug 14, 1970, to Sept. 30, 1980, at site 1.8 mi upstream at datum 2,578.90 ft, above sea level. Supplementary water-stage recorder Dec. 21, 1967, to July 2, 1968, at site 2.2 mi downstream at datum in use prior to Feb. 1, 1942; Jan. 31, 1979, to Sept. 30, 1980, at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. Diversions above station for irrigation of about 600 acres. Small inflow from sewage treatment system about 3.6 mi upstream. Flow regulated to some extent since June 15, 1979, by Talkalai Reservoir; capacity, about 6,000 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 54,800 ft^3/s Jan. 8, 1993, gage height, 12.12 ft, from rating curve extended above 23,000 ft^3/s on basis of rate of change in storage in San Carlos Reservoir; maximum gage height 14.8 ft, Dec. 22, 1965, site and datum then in use; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-18-16	25,000	ES,HP	1963	02-11-63	9,740	
1930	03-17-30	5,700		1964	07-25-64	6,610	
1931	08-07-31	7,000		1965	01-08-65	1,710	
1932	02-10-32	12,000		1966	12-22-65	36,300	
1933	09-08-33	11,000		1967	07-29-67	16,100	
1934	08-18-34	8,200		1968	12-20-67	32,000	
1935	02-07-35	13,800		1969	01-22-69	4,580	
1936	02-17-36	14,400		1970	09-06-70	5,080	
1937	02-07-37	29,400		1971	08-14-71	7,930	
1938	03-04-38	8,640		1972	10-17-71	4,970	
1939	08-03-39	10,200		1973	10-19-72	25,000	
1940	08-03-40	6,000		1974	07-20-74	7,800	
1941	03-14-41	40,600		1975	04-11-75	1,960	
1942	12-12-41	2,520		1976	09-25-76	12,000	
1943	09-26-43	5,060		1977	09-11-77	5,400	
1944	09-27-44	795		1978	03-02-78	18,600	
1945	08-09-45	3,200		1979	12-18-78	22,500	
1946	07-27-46	4,530		1980	02-15-80	12,300	
1947	08-08-47	15,000		1981	09-22-81	565	
1948	08-02-48	2,850		1982	02-11-82	6,260	
1949	01-09-49	3,260		1983	03-25-83	6,260	
1950	07-21-50	2,150		1984	10-01-83	10,300	
1951	08-29-51	2,940		1985	12-27-84	4,470	
1952	01-13-52	39,200		1986	07-16-86	3,240	
1953	08-27-53	860		1987	12-07-86	4,130	
1954	03-23-54	23,500		1988	08-27-88	3,400	
1955	08-06-55	14,600		1989	08-03-89	3,160	
1956	01-29-56	9,300		1990	08-14-90	12,900	
1957	07-26-57	7,310		1991	03-01-91	13,900	
1958	03-22-58	7,670		1992	02-13-92	13,200	
1959	08-18-59	2,280		1993	01-08-93	54,800	
1960	12-26-59	14,300		1994	03-20-94	2,940	
1961	07-22-61	5,510		1995	01-05-95	27,900	
1962	09-26-62	4,400		1996	09-11-96	1,990	

09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ--Continued

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	276	10.0	33,500
7.0	2,150	10.5	45,150
7.5	4,210	11.0	59,300
8.0	7,300	11.5	71,930
8.5	11,550	12.0	86,000
9.0	17,200	12.5	102,200
9.5	24,450	13.0	120,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
29.4	56.7	4,480	10	2.0	17.2	2.1	4.0

09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1930-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	519	0.20	30	83	2.8	3.9
NOVEMBER	178	2.7	19	25	1.3	2.5
DECEMBER	1,580	5.1	111	245	2.2	14.5
JANUARY	3,210	5.8	151	421	2.8	19.8
FEBRUARY	1,500	7.0	170	280	1.6	22.3
MARCH	1,260	4.8	149	254	1.7	19.6
APRIL	170	2.2	24	31	1.3	3.1
MAY	42	0.03	7.8	7.6	0.97	1.0
JUNE	20	0.00	3.6	4.4	1.2	0.5
JULY	85	0.00	19	20	1.1	2.4
AUGUST	320	1.6	55	66	1.2	7.2
SEPTEMBER	166	0.00	25	29	1.2	3.2
ANNUAL	426	8.2	63	71	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1931-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.13	0.00	0.00	0.00	0.00	0.00
7	0.29	0.00	0.00	0.00	0.00	0.00
14	0.55	0.00	0.00	0.00	0.00	0.00
30	0.96	0.00	0.00	0.00	0.00	0.00
60	2.1	0.46	0.10	0.00	0.00	0.00
90	3.7	1.6	0.99	0.64	0.37	0.26
120	7.1	3.7	2.4	1.7	1.1	0.80
183	13	6.6	4.7	3.5	2.5	2.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1930-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
7,460	15,800	23,500	36,200	48,000	62,100

WEIGHTED SKEW (LOGS)= 0.11
MEAN (LOGS)= 3.88
STANDARD DEV. (LOGS)= 0.38

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-96

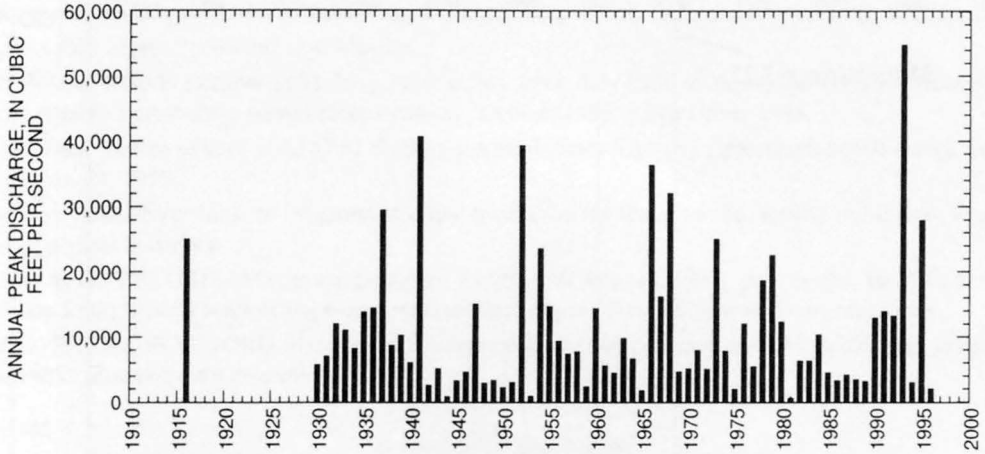
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	1,910	5,390	9,400	17,200	25,500	36,500
3	1,070	3,110	5,520	10,300	15,500	22,500
7	592	1,680	2,950	5,430	8,120	11,700
15	341	938	1,630	2,990	4,470	6,470
30	210	562	963	1,750	2,590	3,720
60	135	357	609	1,100	1,630	2,330
90	101	270	463	842	1,250	1,810

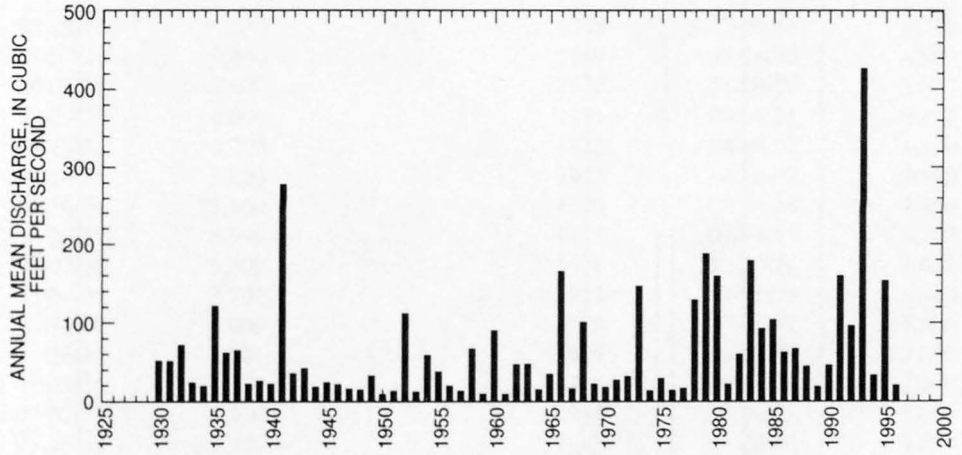
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,090	162	69	41	28	18	13	10	7.6	5.4	3.4	1.1	0.00	0.00	0.00	0.00	0.00

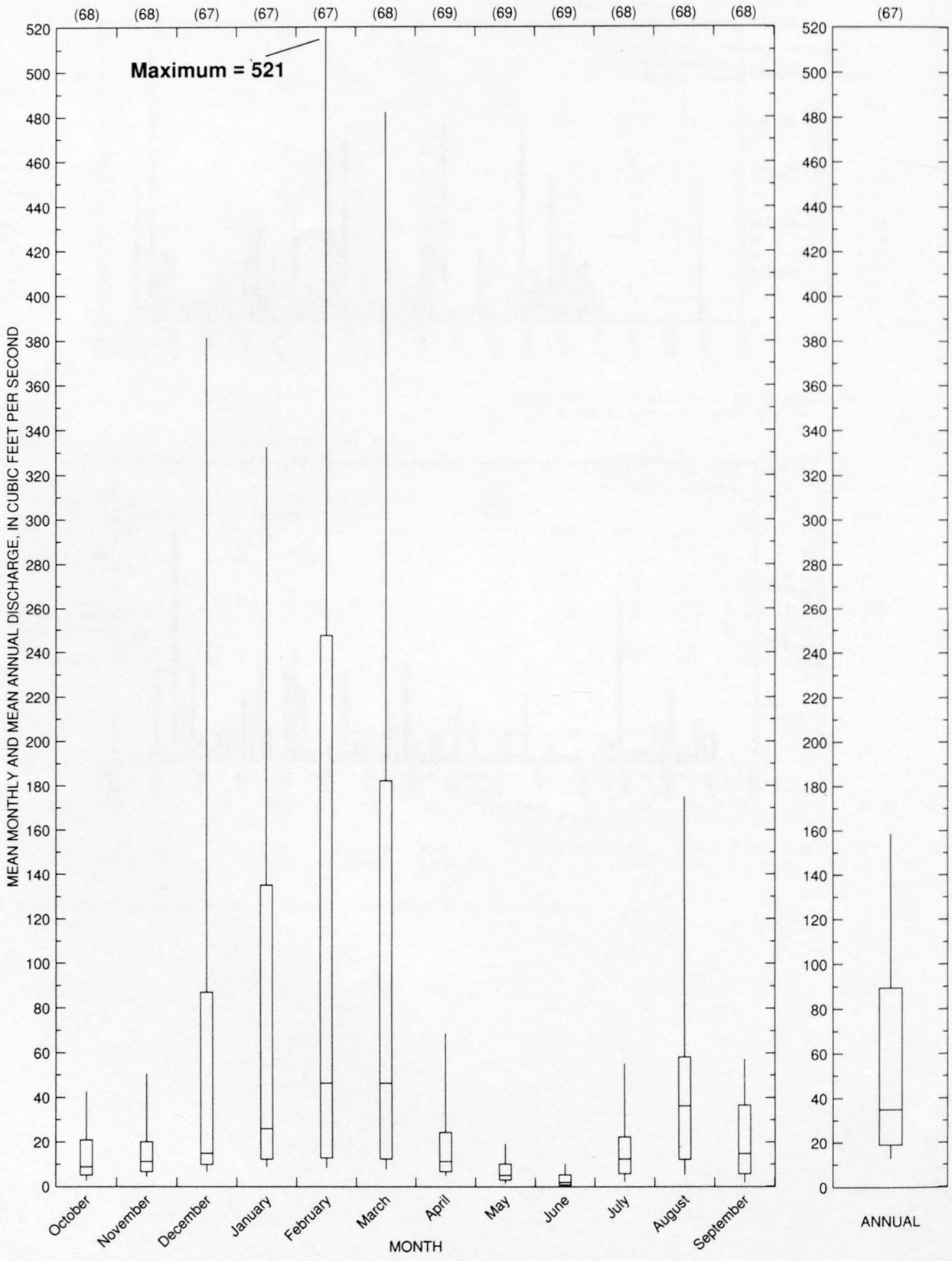
Reliability of values in column is uncertain, and potential errors are large.

09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ--Continued





09468500 SAN CARLOS RIVER NEAR PERIDOT, AZ--Continued



09470500 SAN PEDRO RIVER AT PALOMINAS, AZ

LOCATION.--Lat 31°22'48", long 110°06'38", in SW$^1/_4$SE$^1/_4$ sec.33, T.23 S., R.22 E., Cochise County, Hydrologic Unit 15050202, near left bank on downstream side of pier of bridge on State Highway 92, 0.7 mi east of Palominas, 2.5 mi upstream from Green Brush Draw, 4.5 mi downstream from international boundary, and 12 mi southwest of Bisbee.

DRAINAGE AREA.--741 mi^2, of which 649 mi^2 is in Mexico.

PERIOD OF RECORD.--May 1930 to October 1933, May 1935 to July 1941, July 1950 to September 30, 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station). October 1995 to September 1996.

GAGE.--Water-stage recorder. Datum of gage is 4,187.62 ft above sea level (State Highway Department bench mark). See WSP 1733 for history of changes prior to Nov. 24, 1955.

REMARKS.--Records fair. Small diversions for irrigation of a few hundred acres above station, mostly in Mexico. Records show approximate flow of river at international boundary.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft^3/s Aug. 14, 1940, gage height, 16.16 ft, present datum, from rating curve extended above 5,600 ft^3/s on basis of slope-area measurement of peak flow; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Greatest flood since at least 1906 occurred Sept. 28, 1926, gage height, about 23.9 ft, present datum, from floodmarks; discharge not determined.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1926	09-28-26	([1])	HP	1968	12-20-67	6,500	
1930	08-07-30	9,400		1969	07-28-69	4,000	ES
1931	08-08-31	8,900		1970	08-09-70	5,870	
1932	08-09-32	6,000		1971	08-11-71	6,380	
1933	09-19-33	4,700		1972	08-26-72	1,830	
1935	08-14-35	3,000		1973	10-18-72	2,900	
1936	09-10-36	13,500		1974	07-30-74	7,360	
1937	08-20-37	8,090		1975	09-14-75	6,840	
1938	08-07-38	6,300		1976	07-27-76	5,000	
1939	08-06-39	7,500		1977	07-31-77	3,310	
1940	08-14-40	[2]22,000		1978	10-09-77	14,500	
1941	01-28-41	5,900		1979	01-18-79	12,000	
1950	07-05-50	6,270		1980	08-04-80	2,000	
1951	07-02-51	5,710		1981	07-10-81	3,360	
1952	08-16-52	7,400		1982	09-10-82	4,260	
1953	07-07-53	11,900		1983	02-04-83	1,940	
1954	08-14-54	6,510		1984	10-02-83	8,180	
1955	07-31-55	6,250		1985	12-28-84	10,600	
1956	07-17-56	4,640		1986	08-18-86	4,000	
1957	08-20-57	2,540		1987	08-10-87	978	
1958	08-05-58	16,500		1988	09-11-88	7,020	
1959	07-27-59	13,000		1989	08-04-89	1,550	
1960	08-16-60	3,410		1990	07-16-90	2,260	
1961	07-29-61	3,820		1991	03-02-91	1,680	
1962	07-26-62	4,130		1992	08-24-92	2,320	
1963	07-27-63	6,340		1993	01-19-93	11,200	
1964	08-14-64	11,000		1994	08-21-94	2,050	
1965	07-28-65	4,530		1995	11-12-94	10,700	
1966	07-28-66	3,610		1996	08-03-96	6,310	
1967	07-26-67	5,560					

[1]Highest since 1906; discharge unknown.

[2]Highest since 1927.

09470500 SAN PEDRO RIVER AT PALOMINAS, AZ--Continued

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	125	10.0	3,600
5.0	350	11.0	4,710
6.0	700	12.0	6,000
7.0	1,200	13.0	7,460
8.0	1,830	14.0	9,110
9.0	2,640	14.5	10,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
23.5	35.4	4,950	12.0	2.3	17.9	1.9	4.0

09470500 SAN PEDRO RIVER AT PALOMINAS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1931-33, 1936-40, 1951-81, 1996

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	770	0.00	25	121	4.8	6.7
NOVEMBER	43	0.00	4.9	7.8	1.6	1.3
DECEMBER	414	0.10	22	70	3.2	5.8
JANUARY	452	0.04	21	73	3.4	5.6
FEBRUARY	74	0.07	11	16	1.5	2.9
MARCH	76	0.22	8.1	14	1.8	2.2
APRIL	15	0.00	2.6	3.1	1.2	0.7
MAY	7.0	0.00	1.2	1.5	1.3	0.3
JUNE	23	0.00	3.9	6.4	1.6	1.0
JULY	280	3.0	89	70	0.80	23.6
AUGUST	591	2.7	151	165	1.1	40.4
SEPTEMBER	275	0.19	35	52	1.5	9.4
ANNUAL	93	7.1	32	22	0.69	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1932-33, 1937-41, 1952-81

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.02	0.00	0.00	0.00	0.00	0.00
30	0.09	0.00	0.00	0.00	0.00	0.00
60	0.25	0.05	0.00	0.00	0.00	0.00
90	0.55	0.12	0.05	0.03	0.01	0.01
120	2.4	0.69	0.32	0.16	0.07	0.04
183	3.9	1.1	0.54	0.30	0.15	0.09

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1926, 1930-33, 1935-41, 1950-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5,460	9,300	12,100	15,800	18,600	21,500

WEIGHTED SKEW (LOGS)= -0.27
MEAN (LOGS)= 3.72
STANDARD DEV. (LOGS)= 0.29

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1931-33, 1936-40, 1951-81, 1996

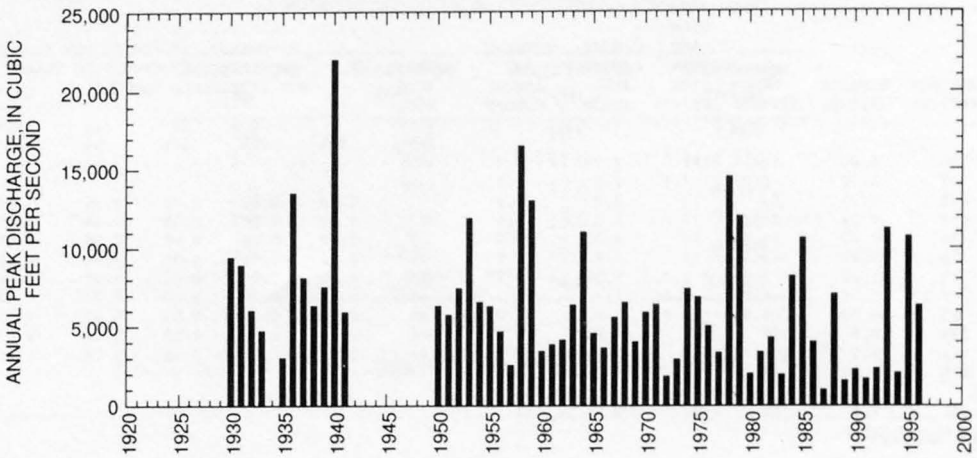
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	1,540	3,130	4,660	7,260	9,780	12,900
3	806	1,640	2,460	3,920	5,390	7,250
7	463	934	1,370	2,110	2,800	3,630
15	296	583	839	1,250	1,620	2,050
30	194	372	524	758	964	1,200
60	124	233	322	454	565	689
90	88	163	223	311	383	462

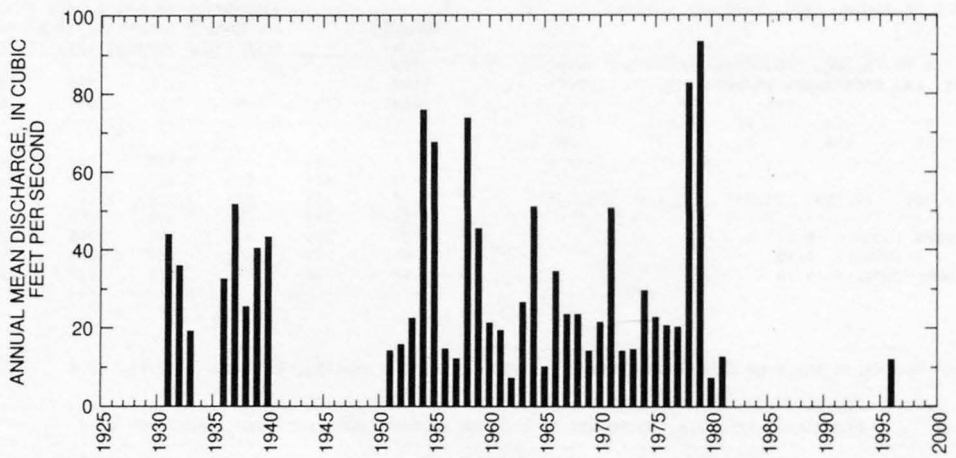
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1931-33, 1936-40, 1951-81, 1996

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
630	108	35	17	11	6.5	4.2	2.6	1.3	0.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00

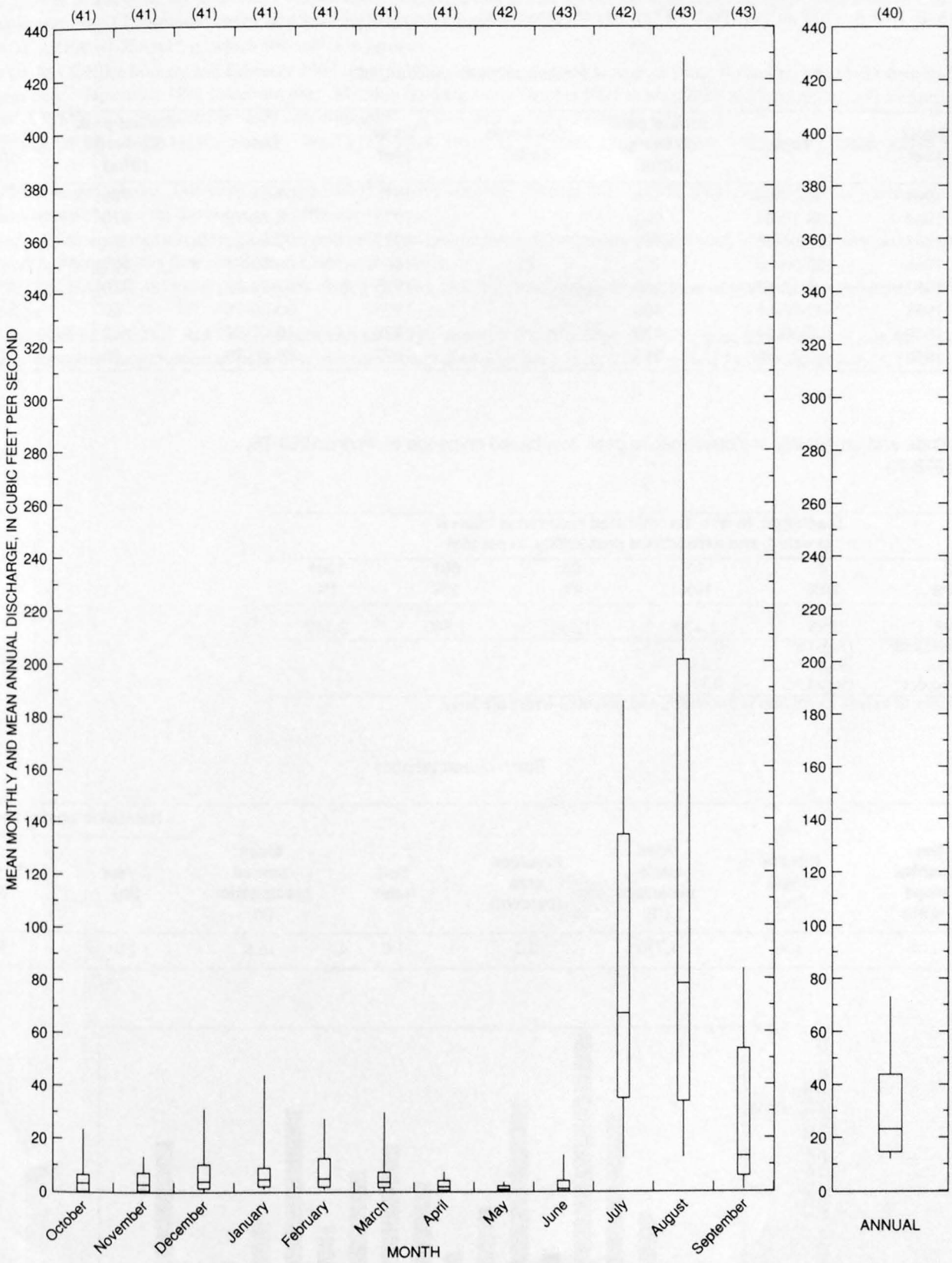
Reliability of values in column is uncertain, and potential errors are large.

09470500 SAN PEDRO RIVER AT PALOMINAS, AZ--Continued





09470500 SAN PEDRO RIVER AT PALOMINAS, AZ--Continued



09470900 SAN PEDRO RIVER TRIBUTARY NEAR BISBEE, AZ

LOCATION.--Lat 31°34'12", long 110°01'36", $SW^1/_4SE^1/_4$ sec.29. T.21 S., R.23 E., Cochise County, Hydrologic Unit 15050202, at U.S. Highway 80, 11 mi northwest of Bisbee.

DRAINAGE AREA.--7.12 mi^2, of which 1.87 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-20-63	360		1971	07-23-71	780	
1964	08-10-64	962		1972	08-26-72	620	
1965	09-04-65	1,460		1973	07-00-73	280	
1966	00-00-66	150	LT	1974	00-00-74	1,000	
1967	08-12-67	1,060		1975	07-24-75	320	
1968	07-00-68	400		1976	00-00-76	60	
1969	08-30-69	120		1978	10-07-77	800	
1970	07-28-70	556		1979	00-00-79	20	LT

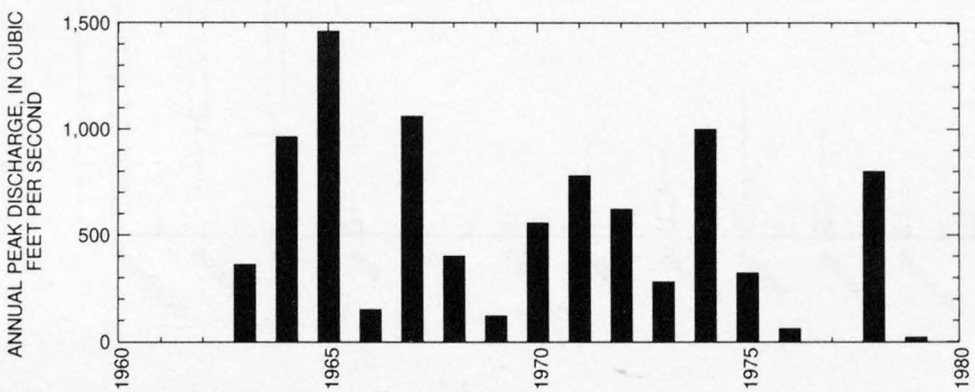
Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1978-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
498	885	1,170	1,550	1,840	2,140
Weighted skew	(logs) =	-0.34			
Mean	(logs) =	2.68			
Standard dev.	(logs) =	0.31			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
129	3.9	4,770	2.2	1.0	16.0	1.9	4.1



09471000 SAN PEDRO RIVER AT CHARLESTON, AZ

LOCATION.--Lat 31°37'33", long 110°10'26", in $NE^1/_4NE^1/_4$ sec.11, T.21 S., R.21 E., Cochise County, Hydrologic Unit 15050202, in Spanish land grant of San Juan de las Boquillas y Nogales, at downstream side of pier near center of highway bridge, 0.3 mi south of Charleston, 1.5 mi upstream from Charleston damsite, and 9 mi upstream from Babocomari River.

DRAINAGE AREA.--1,234 mi^2, of which 696 mi^2 is in Mexico.

PERIOD OF RECORD.--January and February 1904 (gage heights only); March 1904 to August 1906; November 1910 to December 1911 (gage heights only); September 1912 to current year. Monthly discharge only October 1926 to May 1928 and December 1933 to April 1935, published in WSP 1313. Published as "near Lewis Springs" 1910-11, and as "near Fairbank" 1911-26.

REVISED RECORDS.--WSP 1119: 1939(M). WSP 1213: 1914, 1916(M), 1918(M), 1919 , 1920(M), 1922-23(M), WDR AZ-90-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,954.01 ft above sea level. Prior to Dec. 1, 1942, nonrecording gage or water-stage recorder at various sites within 6.5 mi downstream at different datums.

REMARKS.--Diversions above station, mostly by pumping from ground water, for irrigation of 3,200 acres in 1978, excluding an unknown amount in Mexico. Record shows flow available at Charleston damsite.

AVERAGE DISCHARGE.--85 years (water years 1905, 1913-96), 56.0 ft^3/s, 40,570 acre-ft/yr; median of yearly mean discharges, 46 ft^3/s, 33,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 98,000 ft^3/s Sept. 28, 1926, gage height, 21.9 ft, site and datum then in use, by slope-area measurement of peak flow; minimum daily discharge since 1928, 0.06 ft^3/s June 11, 1996, gage height, 1.75 ft.

09471000 SAN PEDRO RIVER AT CHARLESTON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	08-16-16	7,700		1957	07-25-57	6,000	
1917	08-12-17	13,000		1958	08-05-58	8,400	
1918	07-01-18	4,000	ES	1959	07-27-59	7,480	
1919	08-16-19	25,100		1960	08-11-60	3,900	
1920	09-05-20	4,500		1961	07-30-61	3,620	
1921	07-19-21	19,000		1962	07-28-62	3,580	
1922	09-09-22	3,720		1963	07-27-63	6,460	
1923	08-12-23	5,200		1964	08-14-64	7,690	
1924	07-24-24	1,900		1965	09-04-65	4,180	
1925	08-06-25	11,900		1966	08-03-66	4,400	
1926	09-28-26	[1]98,000		1967	07-26-67	6,010	
1927	10-09-26	5,100	ES	1968	12-20-67	5,050	
1928	07-15-28	3,800		1969	07-28-69	3,920	
1929	07-29-29	10,400		1970	08-09-70	4,600	
1930	08-07-30	9,740		1971	08-10-71	5,920	
1931	08-09-31	24,500		1972	08-26-72	5,950	
1932	08-09-32	7,000		1973	07-15-73	3,340	
1933	07-22-33	9,600		1974	07-20-74	13,100	
1934	00-00-34	5,000	ES	1975	09-14-75	4,020	
1935	08-28-35	8,600		1976	09-05-76	3,620	
1936	09-11-36	13,000		1977	08-23-77	5,200	
1937	08-20-37	9,430		1978	10-09-77	23,700	
1938	08-07-38	7,450		1979	01-18-79	11,800	
1939	08-07-39	9,370		1980	08-15-80	990	
1940	08-13-40	31,000		1981	09-03-81	3,210	
1941	08-16-41	10,800		1982	09-10-82	8,800	
1942	07-24-42	2,870		1983	09-12-83	3,100	
1943	08-09-43	8,650		1984	10-03-83	8,560	
1944	08-18-44	3,430		1985	12-28-84	13,000	
1945	08-09-45	7,670		1986	08-18-86	5,020	
1946	08-04-46	12,000		1987	08-04-87	3,290	
1947	08-09-47	10,100		1988	09-12-88	3,640	
1948	08-03-48	7,850		1989	08-04-89	1,680	
1949	07-24-49	6,720		1990	08-12-90	2,820	
1950	07-06-50	6,070		1991	03-02-91	1,950	
1951	07-02-51	5,730		1992	08-24-92	1,680	
1952	08-17-52	7,850		1993	01-19-93	11,500	
1953	07-07-53	8,590		1994	09-10-94	6,260	
1954	08-15-54	23,600		1995	11-12-94	9,760	
1955	08-06-55	14,400		1996	07-15-96	2,070	
1956	07-18-56	6,550					

[1]Highest since 1906.

09471000 SAN PEDRO RIVER AT CHARLESTON, AZ--Continued

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	45	8.0	6,040
4.0	297	9.0	9,190
5.0	938	10.0	13,290
6.0	2,070	11.0	18,470
7.0	3,700	11.3	20,250

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
18.4	56.2	4,840	12.0	2.0	16.5	1.9	3.8

09471000 SAN PEDRO RIVER AT CHARLESTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1905, 1913-26, 1929-33, 1936-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,090	2.9	37	127	3.5	5.5
NOVEMBER	128	5.0	18	17	0.97	2.6
DECEMBER	1,230	6.0	49	147	3.0	7.2
JANUARY	507	9.5	42	80	1.9	6.2
FEBRUARY	217	7.2	29	33	1.2	4.3
MARCH	160	8.1	25	28	1.1	3.7
APRIL	67	3.0	13	9.1	0.68	2.0
MAY	37	2.4	8.3	5.4	0.65	1.2
JUNE	167	1.2	12	22	1.8	1.8
JULY	876	3.1	138	150	1.1	20.6
AUGUST	968	10	216	225	1.0	32.2
SEPTEMBER	1,890	4.1	85	212	2.5	12.6
ANNUAL	206	13	56	37	0.66	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1914-26, 1930-33, 1937-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	1.0	0.63	0.40	0.21	0.14
3	2.3	1.1	0.70	0.43	0.23	0.15
7	2.5	1.3	0.82	0.51	0.28	0.18
14	2.6	1.5	1.0	0.74	0.48	0.36
30	3.2	2.1	1.6	1.3	1.0	0.89
60	4.6	3.2	2.7	2.3	1.9	1.7
90	6.6	4.7	4.0	3.4	3.0	2.7
120	12	8.2	6.7	5.7	4.8	4.4
183	16	10	8.8	7.9	7.2	6.9

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
6,130	11,300	16,600	26,200	36,200	49,500

WEIGHTED SKEW (LOGS)= 0.95
MEAN (LOGS)= 3.83
STANDARD DEV. (LOGS)= 0.29

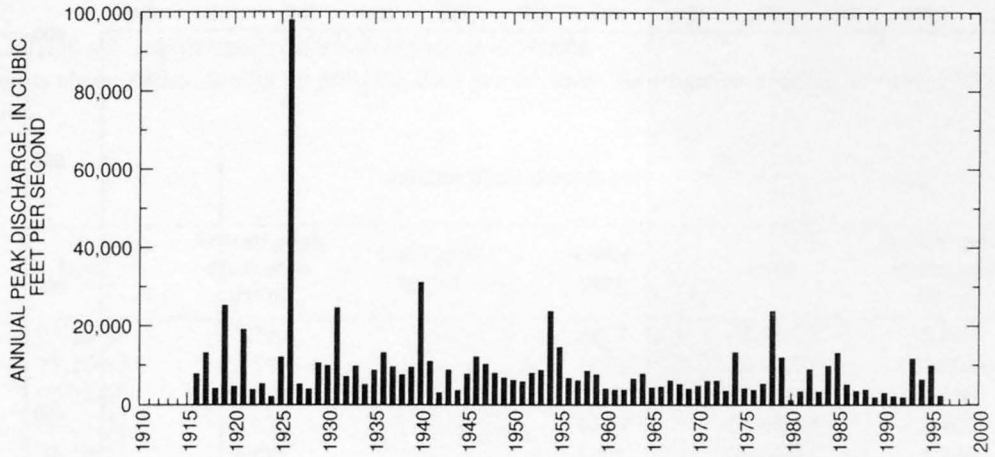
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1905, 1913-26, 1929-33, 1936-96

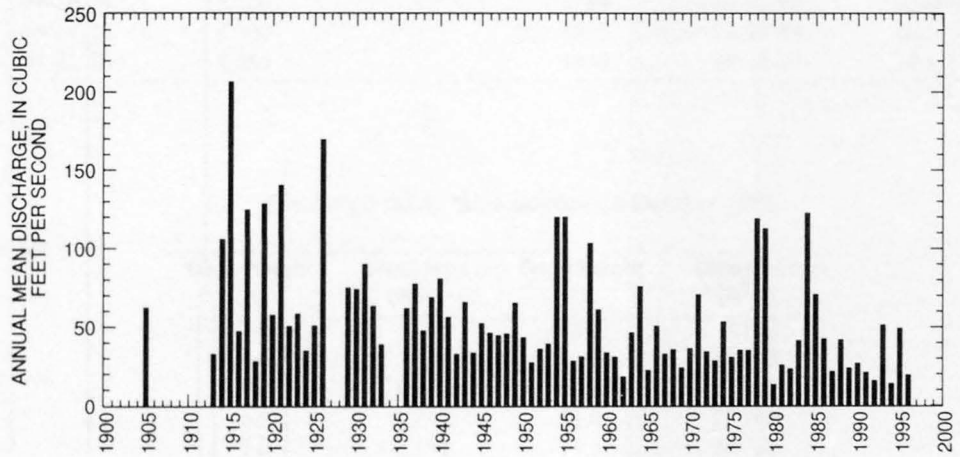
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,860	3,950	6,070	9,850	13,700	18,600
3	1,030	2,190	3,390	5,620	7,960	11,000
7	606	1,280	1,960	3,180	4,400	5,960
15	394	818	1,230	1,960	2,670	3,550
30	269	536	783	1,190	1,560	2,020
60	182	347	487	700	887	1,100
90	135	252	348	491	613	747

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1905, 1913-26, 1929-33, 1936-96

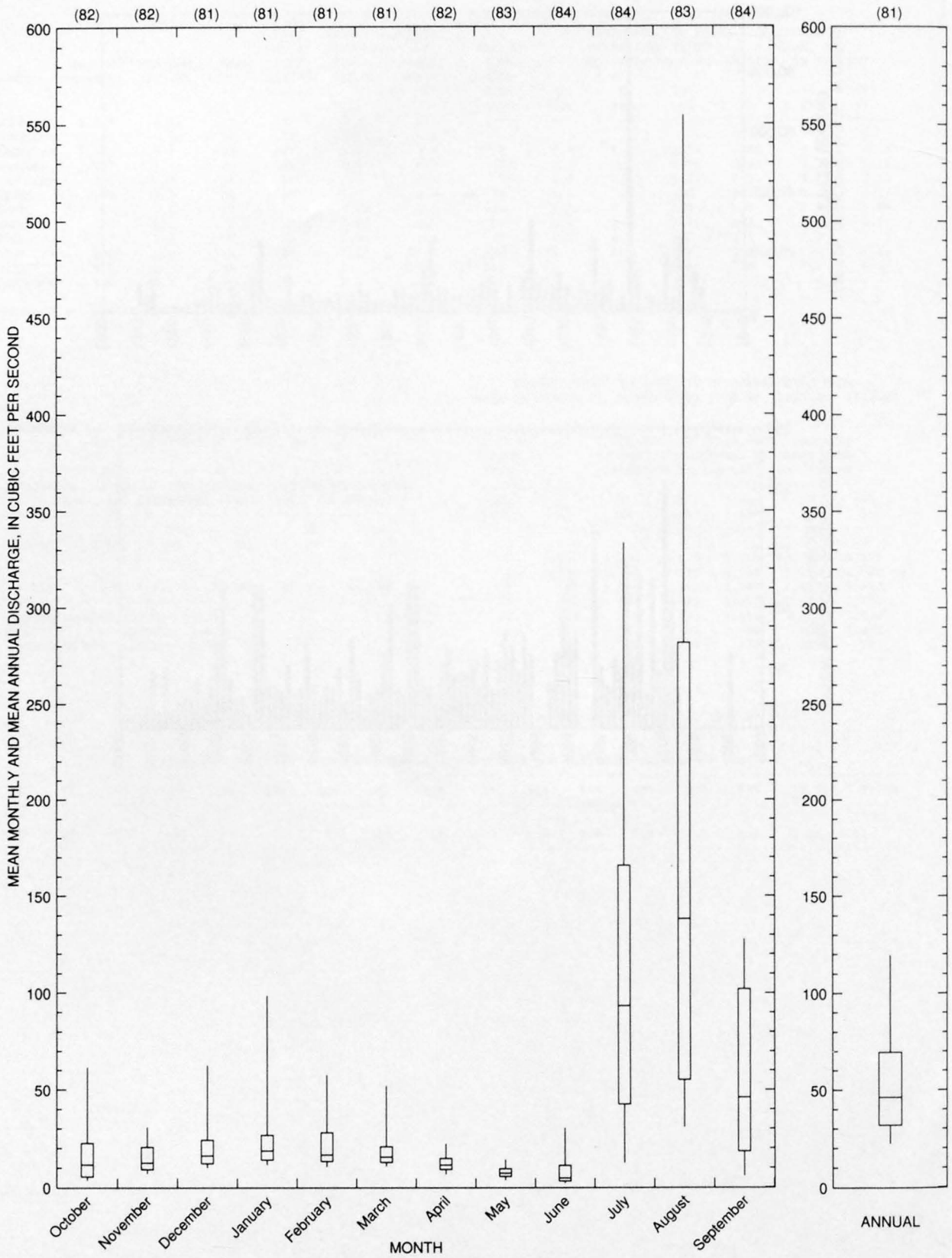
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
902	184	74	42	31	22	17	14	12	9.0	6.3	3.8	2.6	1.8	1.4	1.0	0.42

09471000 SAN PEDRO RIVER AT CHARLESTON, AZ--Continued





09471000 SAN PEDRO RIVER AT CHARLESTON, AZ--Continued



09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ

LOCATION.--Lat 31°45'03", long 110°12'02", in SE$^1/_4$ sec.28, T.19 S., R.21 E., Cochise County, Hydrologic Unit 15050202, in Spanish land grant of San Juan de las Boquillas y Nogales, at right bank 0.5 mi downstream from Willow Wash, 2.6 mi north of Fairbank, and 8 mi northwest of Tombstone.

DRAINAGE AREA.--1,730 mi^2, approximately, of which 696 mi^2 is in Mexico.

REMARKS.--Diversions above station, mostly by pumping from ground water, for irrigation of 3,200 acres in 1978, excluding an unknown amount in Mexico.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	07-26-67	7,790		1977	08-23-77	8,900	
1968	12-20-67	7,340		1978	10-09-77	24,200	
1969	07-28-69	2,950		1979	01-18-79	10,200	
1970	08-03-70	5,400		1980	08-15-80	1,400	
1971	08-10-71	9,220		1981	08-01-81	5,640	
1972	08-12-72	12,900		1982	09-10-82	6,500	
1973	08-21-73	1,880		1983	09-10-83	4,720	
1974	07-20-74	18,500		1984	10-02-83	13,600	
1975	09-14-75	4,500		1985	12-28-84	10,500	
1976	07-27-76	8,580		1986	08-18-86	4,410	

Discharge rating table developed October 1986

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	32	8.0	9,190
4.0	656	9.0	12,780
5.0	1,940	10.0	17,210
6.0	3,790	11.0	22,100
7.0	6,250	11.5	24,700

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
18.0	67.4	4,820	13.0	2.0	16.2	1.9	3.8

09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-86

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	998	0.00	95	247	2.6	14.4
NOVEMBER	61	2.8	16	14	0.88	2.4
DECEMBER	375	6.4	63	112	1.8	9.6
JANUARY	450	9.7	56	105	1.9	8.5
FEBRUARY	214	9.1	45	53	1.2	6.7
MARCH	179	9.1	37	42	1.1	5.7
APRIL	44	4.2	15	9.4	0.63	2.3
MAY	21	1.7	7.9	4.9	0.62	1.2
JUNE	22	0.00	3.8	5.8	1.5	0.6
JULY	369	1.8	104	102	0.98	15.8
AUGUST	820	15	160	188	1.2	24.1
SEPTEMBER	177	0.09	58	56	0.96	8.8
ANNUAL	157	13	56	36	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-86

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.10	0.00	0.00	0.00	0.00	0.00
60	2.0	0.89	0.50	0.00	0.00	0.00
90	5.1	2.7	1.7	1.1	0.66	0.45
120	10	5.9	4.5	3.6	2.8	2.4
183	16	8.5	6.4	5.1	4.1	3.7

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1967-86

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7,490	12,000	15,400	20,100	23,900	28,000

WEIGHTED SKEW (LOGS)= 0.08
MEAN (LOGS)= 3.88
STANDARD DEV. (LOGS)= 0.24

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-86

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,840	4,060	6,440	10,900	15,600	21,900
3	1,120	2,370	3,670	6,030	8,470	11,600
7	654	1,320	1,940	2,950	3,890	5,020
15	431	816	1,130	1,590	1,980	2,410
30	285	501	666	896	1,080	1,280
60	198	332	420	527	602	674
90	145	237	294	358	402	441

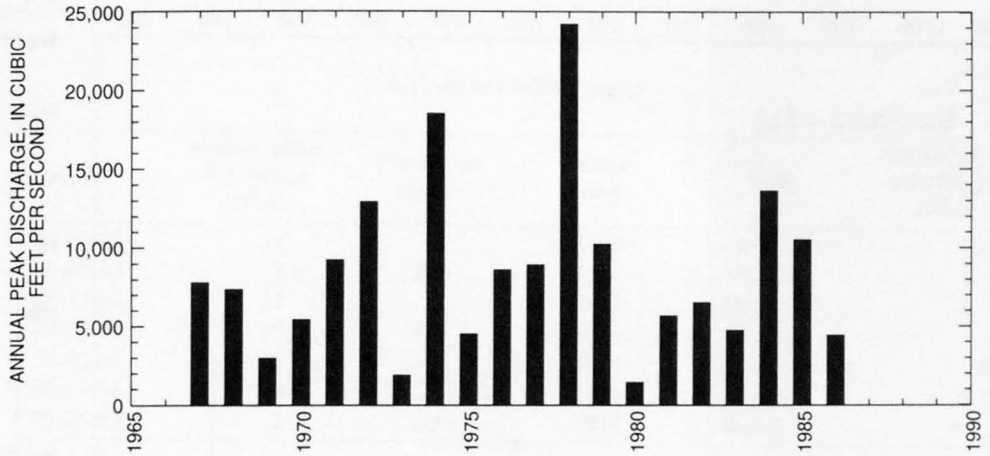
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-86

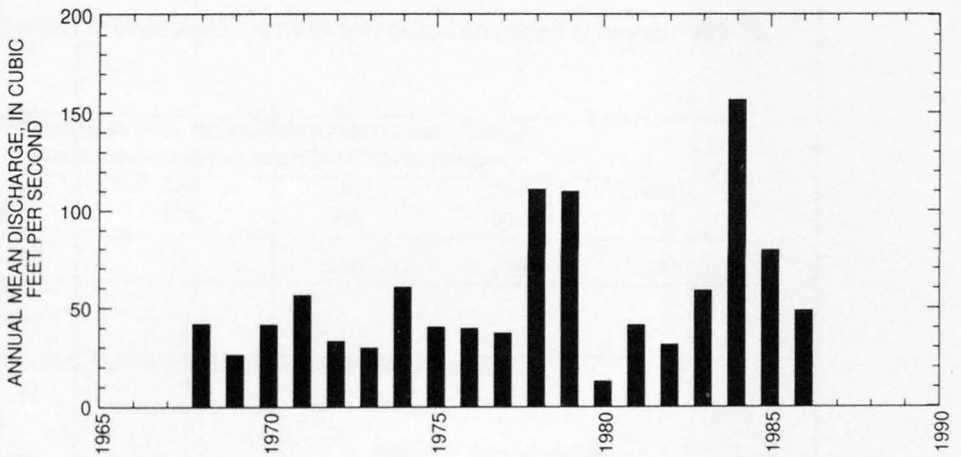
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
898	182	82	49	36	23	17	13	10	6.9	3.7	0.03	0.00	0.00	0.00	0.00	0.00

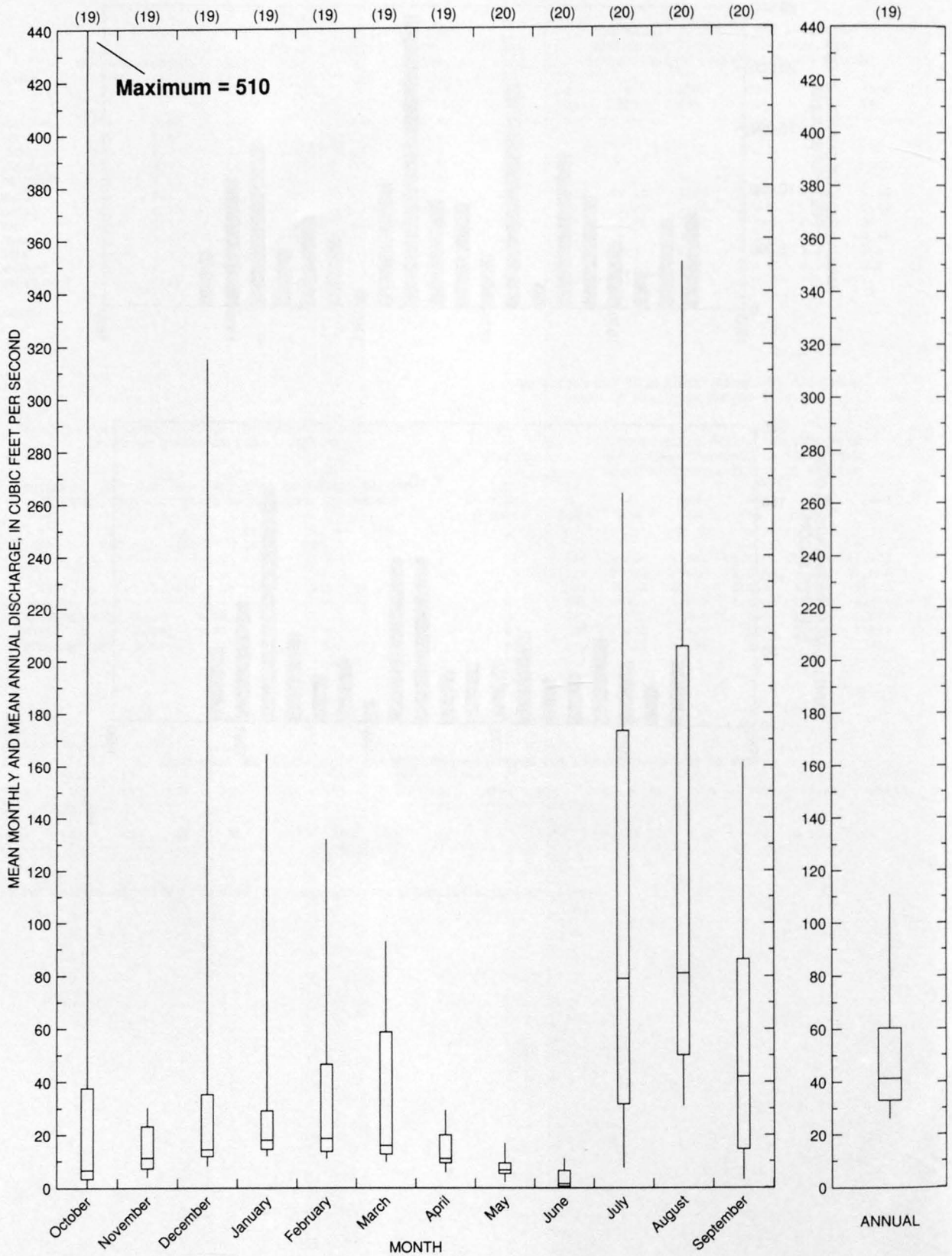
Reliability of values in column is uncertain, and potential errors are large.

09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ--Continued





09471550 SAN PEDRO RIVER NEAR TOMBSTONE, AZ--Continued



09471600 CANARY WASH NEAR BENSON, AZ

LOCATION.--Lat 31°52'35", long 110°20'30", NW$^1/_4$ sec.18, T.18 S., R.20 E., Cochise County, Hydrologic Unit 15050202, at State Highway 90, 6.5 mi southwest of Benson.
DRAINAGE AREA.--0.79 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	84		1970	00-00-70	0	
1964	00-00-64	2.0	ES	1971	00-00-71	0	
1965	08-13-65	59		1972	00-00-72	0	
1966	08-00-66	20	ES	1973	00-00-73	0	
1967	07-00-67	15	ES	1974	07-19-74	2.0	ES
1968	00-00-68	10	LT	1975	10-00-74	2.0	ES
1969	09-06-69	2.0	ES	1978	00-00-78	[1]55	HP

[1]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1963-75, 1978

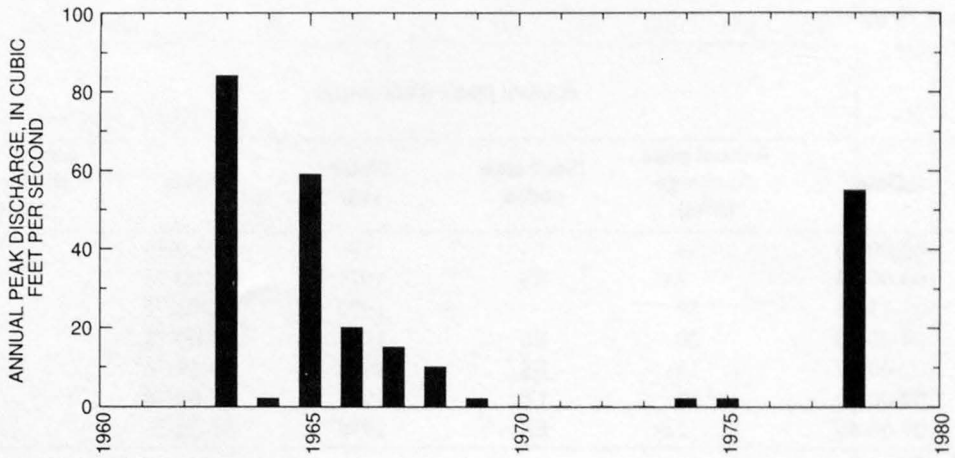
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
4.4	24.7	58	139	239	385
Weighted skew	(logs) =	-0.26			
Mean	(logs) =	0.60			
Standard dev.	(logs) =	0.93			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
472	2.6	5,240	66.0	3.0	15.0	1.7	3.9

09471600 CANARY WASH NEAR BENSON, AZ--Continued



09471700 FENNER WASH NEAR BENSON, AZ

LOCATION.--Lat 31°58'49", long 110°12'57", $SE^1/_4SE^1/_4$ sec.5, T.17 S., R.21 E., Cochise County, Hydrologic Unit 15050202, at Interstate 10, 4.3 mi east of Benson.

DRAINAGE AREA.--2.71 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	[1]950		1970	07-00-70	615	
1963	07-30-63	896		1971	08-03-71	250	
1964	00-00-64	110	ES	1972	09-07-72	649	
1965	10-17-64	70	ES	1973	00-00-73	48	
1966	08-00-66	300	ES	1974	07-19-74	225	
1967	09-24-67	330		1975	07-22-75	50	
1968	10-03-67	27		1976	00-00-76	220	
1969	08-30-69	40		1978	00-00-78	[2]290	HP

[1]Highest since 1958.

[2]Highest since 1972.

Magnitude and probability of instantaneous peak flow based on period of record 1962-76, 1978

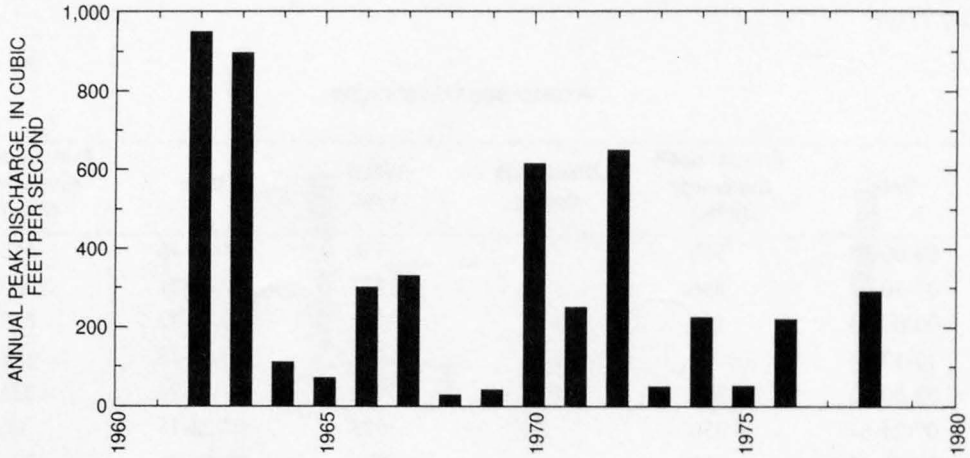
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
196	501	798	1,290	1,740	2,270
Weighted skew	(logs) =	-0.22			
Mean	(logs) =	2.27			
Standard dev.	(logs) =	0.50			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
93.8	5.4	4,180	0.0	1.0	12.3	1.7	4.3

09471700 FENNER WASH NEAR BENSON, AZ--Continued



09471800 SAN PEDRO RIVER NEAR BENSON, AZ

LOCATION.--Lat 32°07'35", long 110°17'22", SW$^1/_4$ sec.15, T.15 S., R.20 E., Cochise County, Hydrologic Unit 15050203, on right bank, 6 mi downstream from Tres Alamo Wash, and 11 mi north of Benson.

DRAINAGE AREA.--2,490 mi^2, of which 696 mi^2 is in Mexico.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-06-66	5,470		1972	08-26-72	9,800	
1967	07-26-67	4,560		1973	07-16-73	2,140	
1968	08-10-68	5,900		1974	07-20-74	9,520	
1969	07-28-69	2,640		1975	07-23-85	8,920	
1970	07-20-70	8,200		1976	07-28-76	5,110	
1971	08-11-71	7,390					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
17.3	84.0	4,800	12.0	1.9	15.6	1.9	4.4

09471800 SAN PEDRO RIVER NEAR BENSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-76

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	71	0.00	8.6	22	2.6	2.3
NOVEMBER	23	0.00	2.3	7.2	3.2	0.6
DECEMBER	196	0.00	20	62	3.1	5.4
JANUARY	28	0.00	2.8	8.9	3.1	0.8
FEBRUARY	47	0.00	8.2	18	2.1	2.2
MARCH	46	0.00	8.1	17	2.1	2.1
APRIL	0.01	0.00	0.00	0.00	3.2	0.0
MAY	0.08	0.00	0.01	0.03	2.3	0.0
JUNE	34	0.00	4.6	11	2.3	1.2
JULY	260	11	124	85	0.68	32.8
AUGUST	555	2.0	165	177	1.1	43.6
SEPTEMBER	81	0.00	34	25	0.74	9.0
ANNUAL	61	15	32	14	0.43	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-76

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.20	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
----	----	----	----	----	----

WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-76

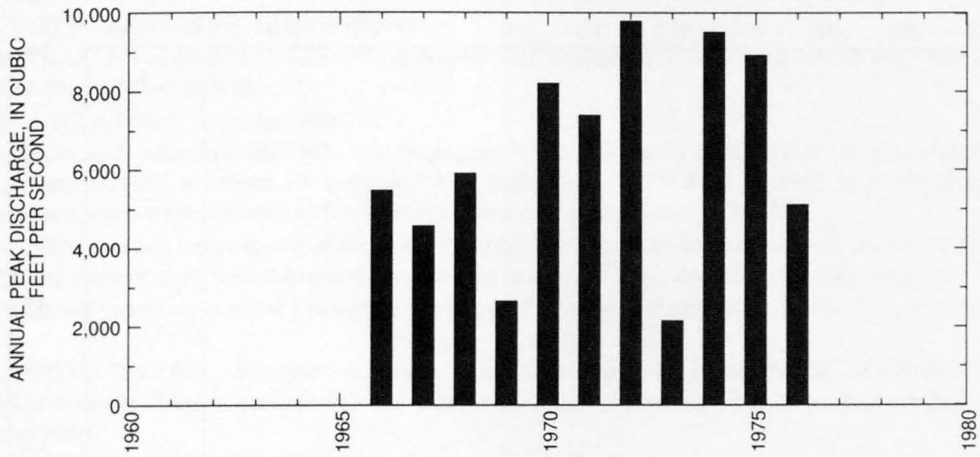
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,970	2,910	3,440	4,030	4,400	4,730
3	1,100	1,620	1,930	2,260	2,470	2,660
7	608	915	1,100	1,330	1,480	1,620
15	392	619	774	974	1,120	1,270
30	251	414	532	688	810	934
60	153	243	302	374	427	477
90	110	170	207	250	279	306

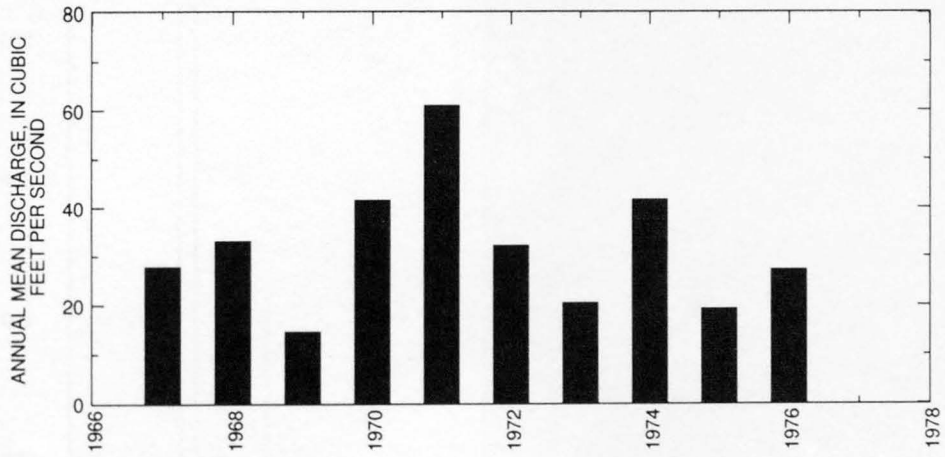
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-76

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
777	126	41	16	2.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

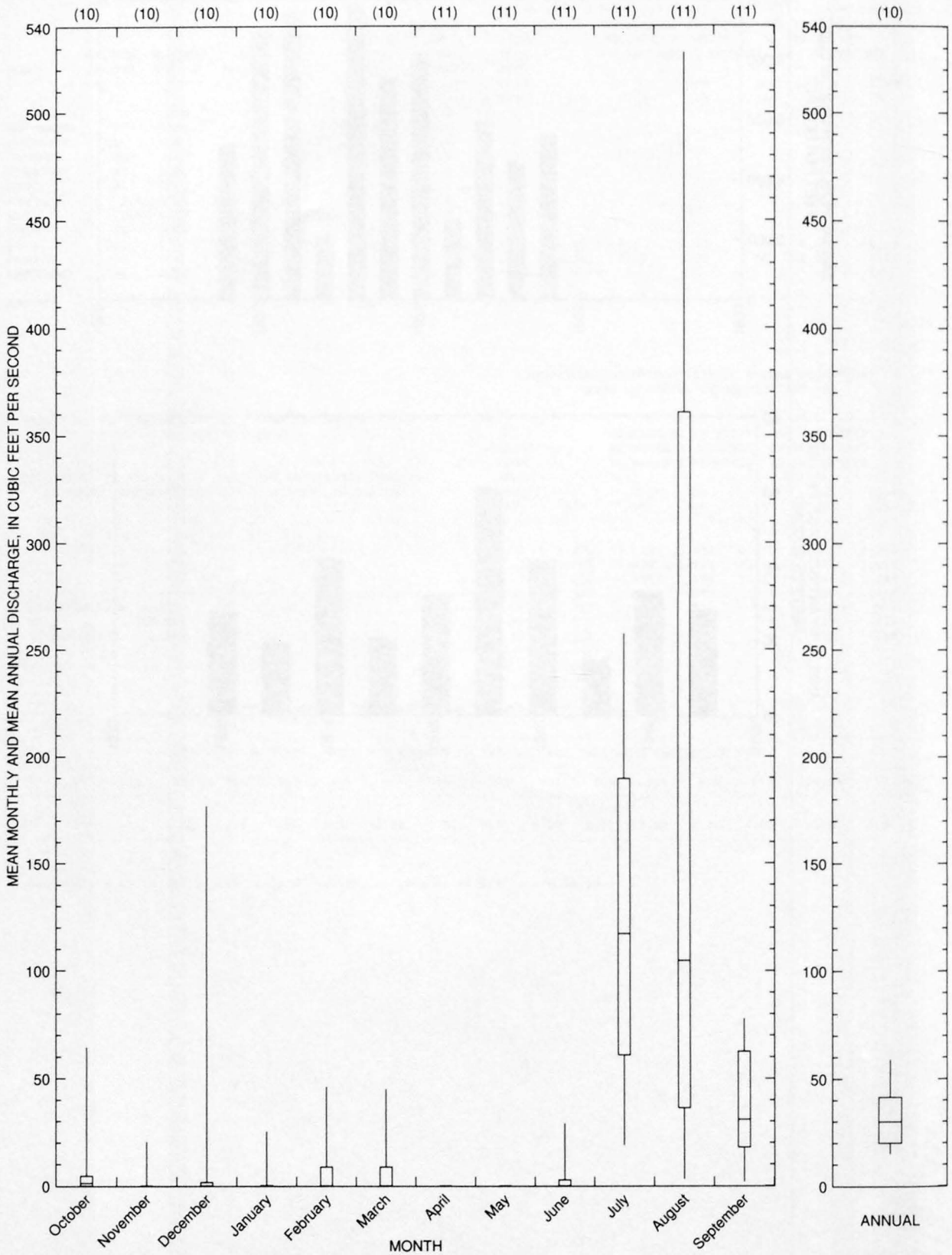
Reliability of values in column is uncertain, and potential errors are large.

09471800 SAN PEDRO RIVER NEAR BENSON, AZ--Continued





09471800 SAN PEDRO RIVER NEAR BENSON, AZ--Continued



09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ

LOCATION.--Lat 32°22'50", long 110°26'45", in $NE^1/_4NW^1/_4$ sec.19, T.12 S., R.19 E., Cochise County, Hydrologic Unit 15050203, on left bank, 0.3 mi upstream from Cochise-Pima County line, 4.3 mi southeast of Redington, and 30 mi north of Benson.

DRAINAGE AREA.--2,927 mi^2, of which 696 mi^2 is in Mexico.

PERIOD OF RECORD.--June 1943 to June 1947, July 1950 to current year (monthly discharge only, July 1954 to March 1955). Also extremes for water years 1948-50, published in WSP 1179.

REVISED RECORDS.--WDR AZ-90-1: Drainage area.

GAGE.--Water-stage recorder, and, since Aug. 26, 1981, crest-stage gage. Datum of gage is 2,930.04 ft above sea level. June 1943 to June 1947, and Oct. 1, 1962, to June 27, 1963, at present site at datum 7.49 ft higher. July 1950 to Sept. 30, 1962, at site 400 ft upstream at datum 10.47 ft higher. Supplementary water-stage recorder 50 ft upstream at same datum since June 29, 1977.

REMARKS.--Diversions above station for irrigation of about 10,800 acres in 1978, excluding an unknown amount in Mexico. Diversion above gage into formerly used ditch on right bank was placed in operation in January 1972; diversion was measured Oct. 20, Mar. 2, and May 5.

AVERAGE DISCHARGE.--49 years (water years 1944-46, 1951-96), 43.7 ft^3/s, 31,660 acre-ft/yr; median of yearly mean discharges, 27 ft^3/s, 19,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,600 ft^3/s Aug. 2, 1951, gage height, 20.2 ft, present site and datum, from rating curve extended above 16,000 ft^3/s on basis of slope-area measurement of peak flow, maximum gage height 21.60 ft, Oct. 2, 1983; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1906, about 90,000 ft^3/s Sept. 28, 1926, gage height, 29.0 ft, present site and datum, from floodmark, computed on basis of peak discharge of same flood for station at Charleston and for Gila River at Kelvin.

09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1926	09-28-26	[1]90,000	ES,HP	1964	08-15-64	6,070	
1931	08-10-31	18,000	ES	1965	08-14-65	2,140	
1932	10-02-31	19,400	ES	1966	07-29-66	5,890	
1933	07-23-33	13,500	ES	1967	09-25-67	7,800	
1934	08-04-34	7,400	ES	1968	12-20-67	5,000	
1935	08-24-35	16,300	ES	1969	08-07-69	2,480	
1936	09-11-36	10,400	ES	1970	07-21-70	8,490	
1937	08-30-37	14,100	ES	1971	08-11-71	8,600	
1938	08-05-38	7,800	ES	1972	08-27-72	11,400	
1939	08-02-39	9,920	ES	1973	10-19-72	1,680	
1940	08-14-40	50,000	ES	1974	07-20-74	12,100	
1941	01-29-41	10,100	ES	1975	07-23-75	8,030	
1943	08-09-43	7,090		1976	07-28-76	6,550	
1944	09-24-44	19,000		1977	08-24-77	1,980	
1945	08-10-45	14,600		1978	10-10-77	23,000	
1946	08-04-46	9,000		1979	01-18-79	10,800	
1947	08-08-47	23,000		1980	08-14-80	392	
1948	09-26-48	11,500	ES	1981	07-29-81	3,460	
1949	00-00-49	10,000	ES	1982	09-11-82	7,190	
1950	07-30-50	8,800		1983	09-28-83	6,880	
1951	08-02-51	28,600		1984	10-02-83	25,400	
1952	08-16-52	4,470		1985	12-29-84	7,000	
1953	07-07-53	7,290		1986	08-18-86	2,140	
1954	08-01-54	18,500		1987	08-22-87	410	
1955	08-07-55	18,800		1988	09-12-88	1,020	
1956	07-30-56	3,160		1989	10-20-88	2,210	
1957	08-18-57	9,300		1990	07-24-90	2,960	
1958	08-17-58	10,800		1991	03-02-91	5,060	
1959	07-27-59	8,580		1992	08-24-92	3,980	
1960	09-05-60	1,980		1993	01-19-93	19,100	
1961	07-30-61	3,800		1994	08-27-94	1,090	
1962	07-28-62	2,050		1995	01-05-95	5,970	
1963	08-26-63	5,530		1996	09-02-96	1,680	

[1]Highest since 1906.

09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ--Continued

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.0	171	14.0	6,330
9.0	491	15.0	8,610
10.0	1,040	16.0	11,330
11.0	1,860	17.0	14,520
12.0	2,990	18.0	18,220
13.0	4,470	19.0	22,450

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
15.3	124	4,660	13.0	1.8	15.5	1.9	3.7

09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1944-46, 1951-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	939	0.00	44	173	4.0	8.4
NOVEMBER	108	0.00	5.4	17	3.2	1.0
DECEMBER	532	0.00	38	111	2.9	7.4
JANUARY	1,160	0.00	58	198	3.4	11.2
FEBRUARY	223	0.00	25	52	2.1	4.7
MARCH	193	0.00	19	40	2.1	3.6
APRIL	59	0.00	3.7	9.5	2.6	0.7
MAY	19	0.00	1.3	3.7	3.0	0.2
JUNE	26	0.00	1.6	4.4	2.8	0.3
JULY	621	0.00	90	115	1.3	17.3
AUGUST	1,480	0.08	188	278	1.5	36.3
SEPTEMBER	367	0.07	45	70	1.5	8.7
ANNUAL	179	2.9	44	42	0.96	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1945-47, 1952-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.08	0.00	0.00	0.00	0.00	0.00
120	1.0	0.09	0.00	0.00	0.00	0.00
183	3.2	0.52	0.16	0.05	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1926, 1931-41, 1943-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7,220	15,200	22,200	32,900	42,200	52,700

WEIGHTED SKEW (LOGS) = -0.14
MEAN (LOGS) = 3.85
STANDARD DEV. (LOGS) = 0.39

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1944-46, 1951-96

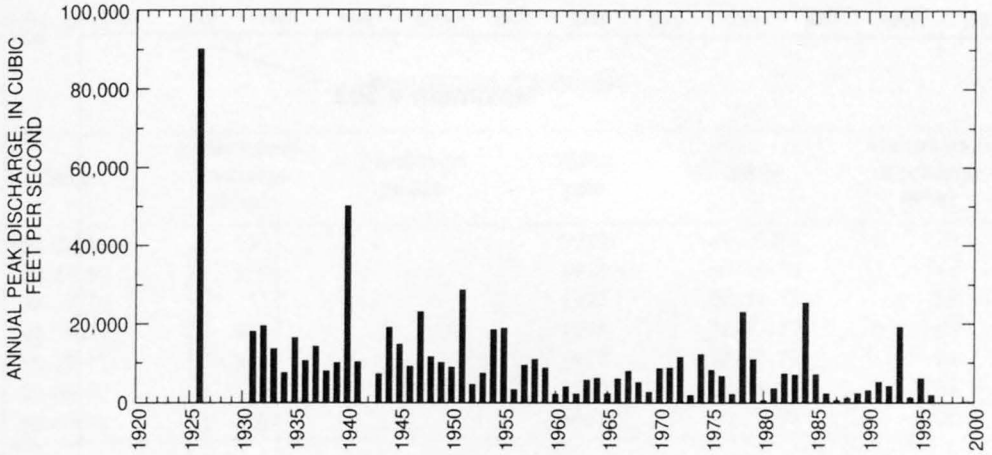
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,800	4,100	5,960	8,550	10,600	12,600
3	1,020	2,370	3,520	5,190	6,550	7,980
7	565	1,300	1,930	2,860	3,630	4,450
15	361	838	1,250	1,870	2,400	2,960
30	233	536	807	1,230	1,590	1,990
60	146	333	499	752	969	1,210
90	103	233	347	517	662	819

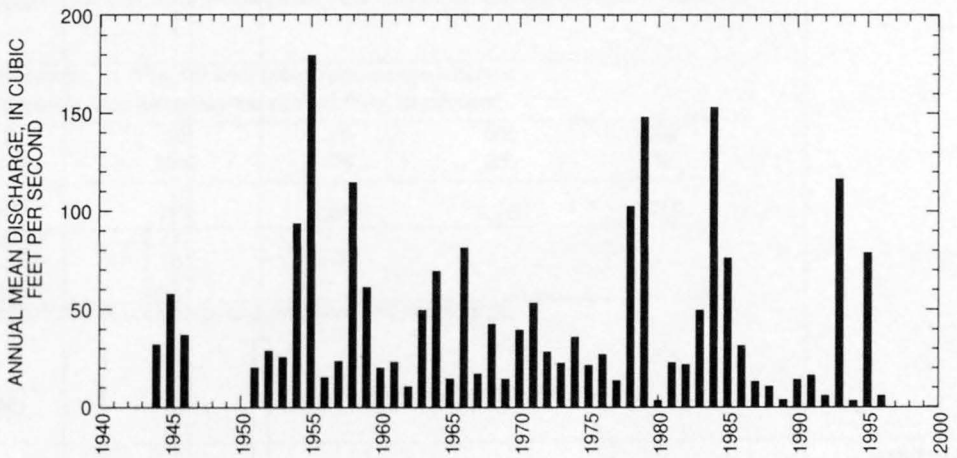
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1944-46, 1951-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
941	168	52	24	11	3.0	1.2	0.46	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

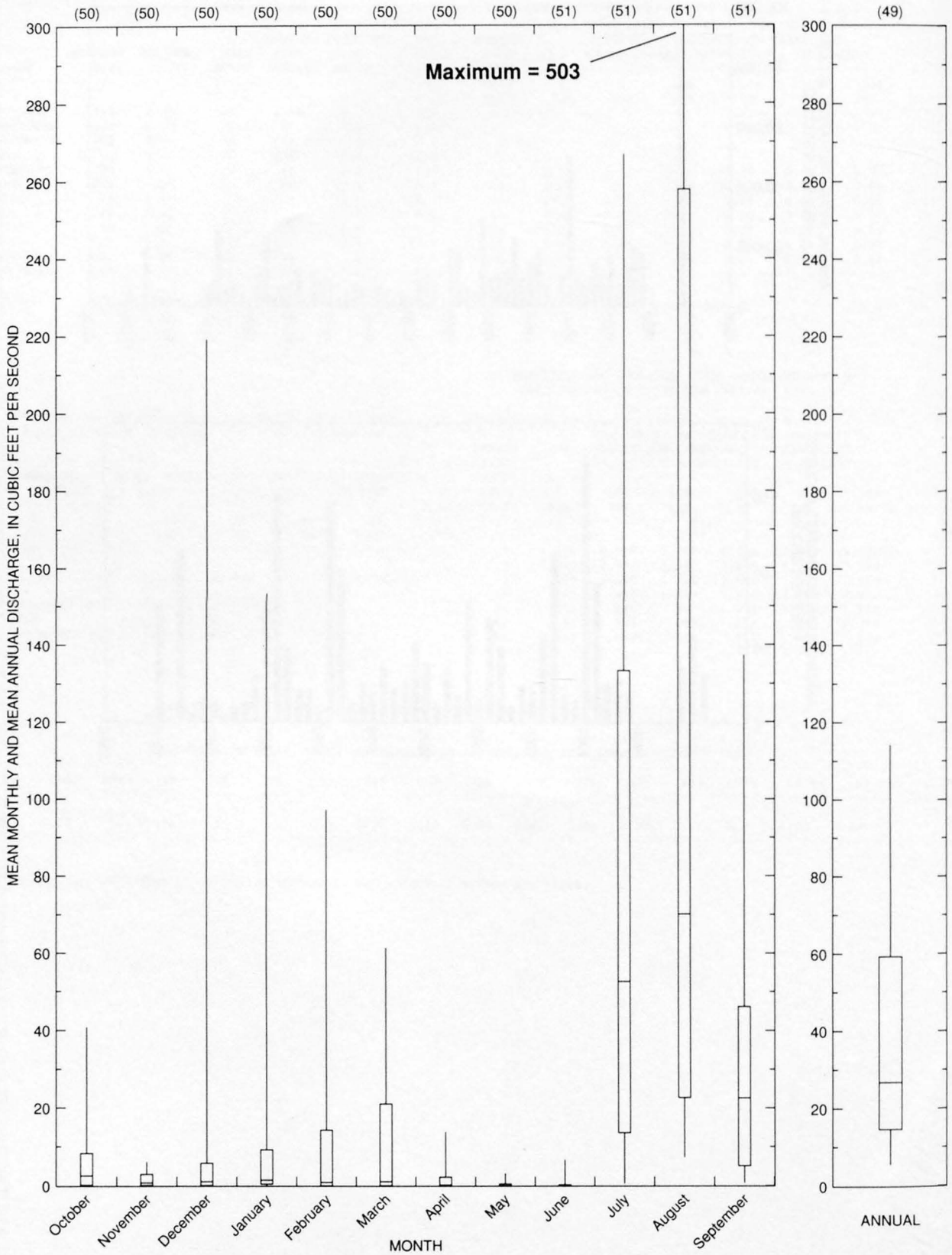
Reliability of values in column is uncertain, and potential errors are large.

09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ--Continued





09472000 SAN PEDRO RIVER NEAR REDINGTON, AZ--Continued



09472100 PECK CANYON TRIBUTARY NEAR REDINGTON, AZ

LOCATION.--Lat 32°29'12", long 110°30'00", $SW^1/_4SW^1/_4$ sec.10, T.11 S., R.18 E., Pima County, Hydrologic Unit 15050203, on left bank 0.2 mi upstream from mouth and 4 mi north of Redington.

DRAINAGE AREA.--8.02 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	08-09-68	650		1975	10-00-74	70	
1969	08-28-69	150		1976	07-19-76	110	
1970	08-14-70	73		1977	08-14-77	58	
1971	07-29-71	442		1978	10-07-77	69	
1972	08-12-72	4,340		1979	08-07-79	94	
1973	10-00-72	10	ES	1980	08-11-80	51	
1974	00-00-74	120		1981	07-20-81	100	

Magnitude and probability of instantaneous peak flow based on period of record 1968-81

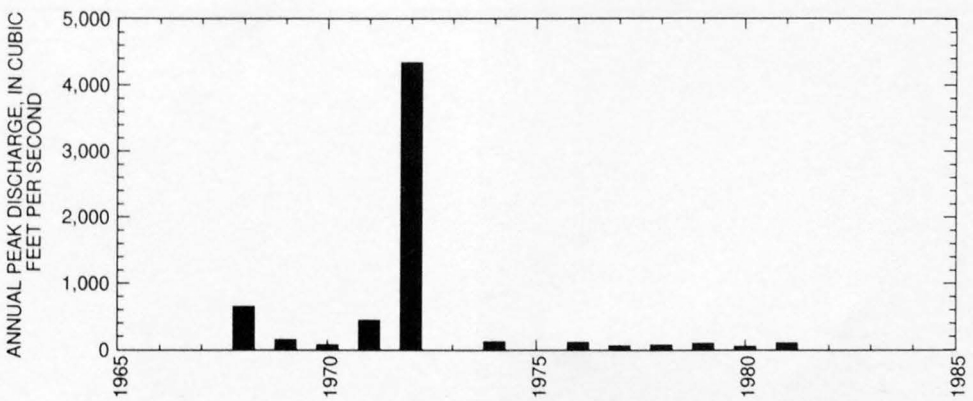
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
118	402	793	1,680	2,780	4,410

Weighted skew	(logs) =	0.27
Mean	(logs) =	2.10
Standard dev.	(logs) =	0.61

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
146	9.3	3,680	0.0	1.0	11.7	1.7	3.9



09472400 MAMMOTH WASH NEAR MAMMOTH, AZ

LOCATION.--Lat 32°40'35", long 110°41'05", SW$^1/_4$ sec.2, T.9 S., R.16 E., Pinal County, Hydrologic Unit 15050203, at State Highway 76, 3 mi southwest of Mammoth..

DRAINAGE AREA.--2.40 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
----	--------	[1]3,200	HP	1970	03-03-70	1.0	LT
1963	00-00-63	1,290		1971	09-29-71	240	
1964	00-00-64	736		1972	12-00-71	15	
1965	07-16-65	300	ES	1973	08-05-73	1,060	
1966	12-10-65	10	LT	1974	09-00-74	236	
1967	07-17-67	510		1975	08-13-75	40	ES
1968	08-26-68	100		1976	00-00-76	260	
1969	09-05-69	12	ES				

[1]Highest since 1956, year of occurrence unknown.

Magnitude and probability of instantaneous peak flow based on period of record 1956, 1963-76

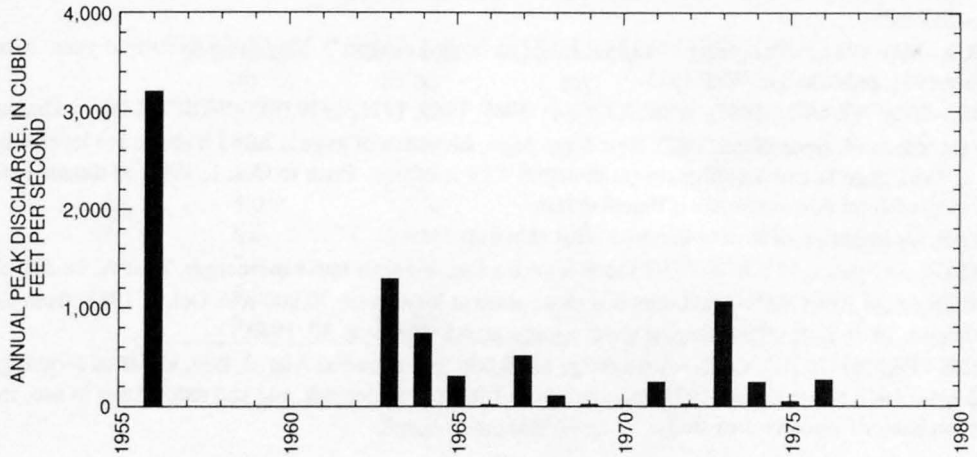
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
167	752	1,540	3,130	4,810	6,960
Weighted skew	(logs) =	-0.42			
Mean	(logs) =	2.16			
Standard dev.	(logs) =	0.83			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
181	4.2	3,700	0.0	1.0	13.8	1.8	4.1

09472400 MAMMOTH WASH NEAR MAMMOTH, AZ--Continued



09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ

LOCATION.--Lat 32°50'37", long 110°37'09", in $NW^1/_4NW^1/_4$ sec.9, T.7 S., R.17 E., Pinal County, Hydrologic Unit 15050203, on right bank 6 mi upstream from mouth and 9 mi north of Mammoth.

DRAINAGE AREA.--537 mi^2.

PERIOD OF RECORD.--May 1931 to December 1942 (published as "near Feldman"), May 1966 to current year. Monthly discharge only July 1941 to September 1941, published in WSP 1313.

REVISED RECORDS.--WDR AZ-68-1: 1967. WDR AZ-82-1: 1968, 1969, 1973, 1979 (M). WDR AZ-90-1: Drainage area.

GAGE.--Water-stage recorder and, since March 1980, crest-stage gage. Elevation of gage is 2,345 ft above sea level, from topographic map. Oct. 1, 1981 to Oct. 1, 1983 gage at site 300 ft upstream at datum 4.19 ft higher. Prior to Oct. 1, 1981, at datum 1.00 ft higher. May 1931 to December 1942 at site 0.3 mi downstream at different datum.

REMARKS.--Diversions for irrigation of several hundred acres above station.

AVERAGE DISCHARGE.--41 years, 37.2 ft^3/s, 26,950 acre-ft/yr; median of yearly mean discharges, 26 ft^3/s, 18,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since at least 1919, 70,800 ft^3/s Oct. 1, 1983, from slope-area measurement of peak flow, gage height, 16.76 ft, from profile past gage; minimum, 0.3 ft^3/s Aug. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 20,000 ft^3/s occurred Aug. 2, 1919, at site of former gaging station 6 mi downstream, operated April 1919 to September 1921, gage height, 6.3 ft, from floodmark, site and datum then in use, from rating curve extended above 5,100 ft^3/s on basis of velocity-area study.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1919	08-02-19	20,000		1974	08-02-74	2,100	
1920	01-05-20	7,400		1975	10-22-74	836	
1921	07-31-21	12,600		1976	08-23-76	1,120	
1931	08-20-31	4,700		1977	07-12-77	2,560	
1932	10-01-31	6,300		1978	08-01-78	5,100	
1933	07-23-33	9,340		1979	12-18-78	16,200	
1934	07-20-34	3,100		1980	02-15-80	2,460	
1935	08-15-35	10,200		1981	08-10-81	2,460	
1936	07-25-36	6,500		1982	08-12-82	1,620	
1937	02-07-37	3,380		1983	03-19-83	3,920	
1938	03-04-38	3,600		1984	10-01-83	[1]70,800	
1939	08-05-39	6,450		1985	12-12-84	1,330	
1940	09-21-40	5,480		1986	03-14-86	1,060	
1941	12-31-40	9,600		1987	10-12-86	1,320	
1965	09-03-65	4,480		1988	07-31-88	1,040	
1966	12-22-65	6,340		1989	09-03-89	3,610	
1967	09-25-67	2,340		1990	07-20-90	5,090	
1968	12-17-67	15,300		1991	03-02-91	6,760	
1969	08-29-69	1,800		1992	08-24-92	4,710	
1970	03-03-70	5,560		1993	01-11-93	13,000	
1971	08-21-71	1,780		1994	02-08-94	2,750	
1972	09-10-72	1,830		1995	01-05-95	8,930	
1973	10-19-72	8,200		1996	09-11-96	932	

[1]Highest in 1100 years based on Roberts (1987).

09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ--Continued

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.7	58	10.0	17,000
3.0	136	11.0	22,300
4.0	686	12.0	28,400
5.0	1,770	13.0	35,400
6.0	3,460	14.0	43,400
7.0	5,830	15.0	52,400
8.0	8,930	16.0	62,400
9.0	12,600	17.0	73,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
45.7	55.4	4,530	24.0	2.0	16.2	2.0	4.0

09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1932-40, 1942, 1967-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,100	6.2	52	173	3.3	12.0
NOVEMBER	91	8.7	24	16	0.69	5.4
DECEMBER	474	9.7	47	78	1.7	10.8
JANUARY	682	10	57	111	2.0	13.1
FEBRUARY	215	11	64	60	0.93	14.8
MARCH	349	9.5	60	76	1.3	13.8
APRIL	53	7.2	21	12	0.58	4.8
MAY	45	4.3	15	10	0.67	3.5
JUNE	40	1.9	13	9.7	0.77	2.9
JULY	115	7.1	25	22	0.89	5.7
AUGUST	133	7.8	32	24	0.75	7.5
SEPTEMBER	56	5.4	25	13	0.51	5.7
ANNUAL	140	9.6	36	28	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1933-41, 1968-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	4.1	1.6	1.0	0.68	0.43	0.32
3	4.4	1.8	1.1	0.76	0.49	0.36
7	4.9	2.1	1.3	0.90	0.59	0.44
14	5.6	2.6	1.8	1.3	0.90	0.71
30	6.9	3.5	2.5	1.9	1.4	1.1
60	8.6	4.9	3.7	2.9	2.2	1.9
90	11	6.6	5.3	4.4	3.6	3.1
120	13	9.2	7.6	6.6	5.7	5.2
183	18	13	11	9.8	8.6	7.9

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1888, 1919-21, 1931-41, 1965-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,980	8,000	11,500	16,800	21,600	26,900

WEIGHTED SKEW (LOGS)= -0.04
MEAN (LOGS)= 3.60
STANDARD DEV. (LOGS)= 0.36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1932-40, 1942, 1967-96

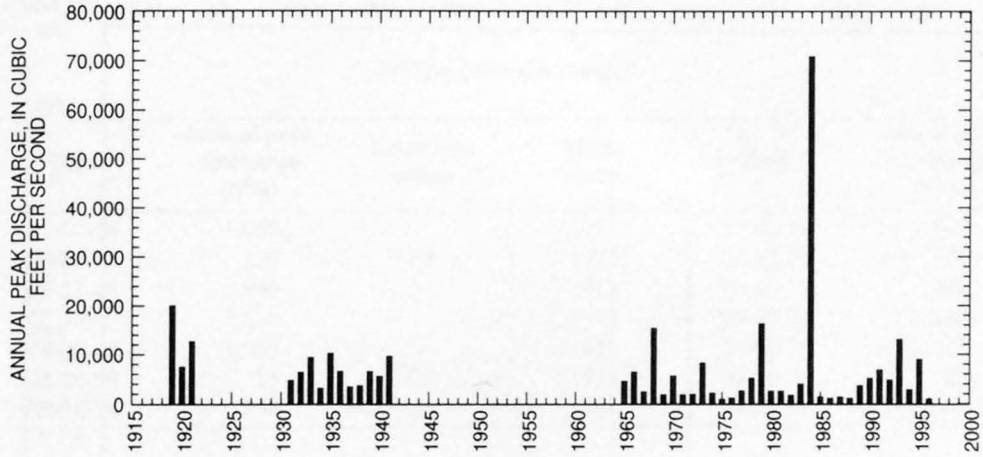
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	726	2,020	3,640	7,130	11,300	17,300
3	400	1,130	2,080	4,140	6,640	10,300
7	233	624	1,090	2,070	3,180	4,750
15	138	343	583	1,070	1,620	2,390
30	90	212	350	620	919	1,330
60	63	141	227	395	577	825
90	51	110	173	289	411	572

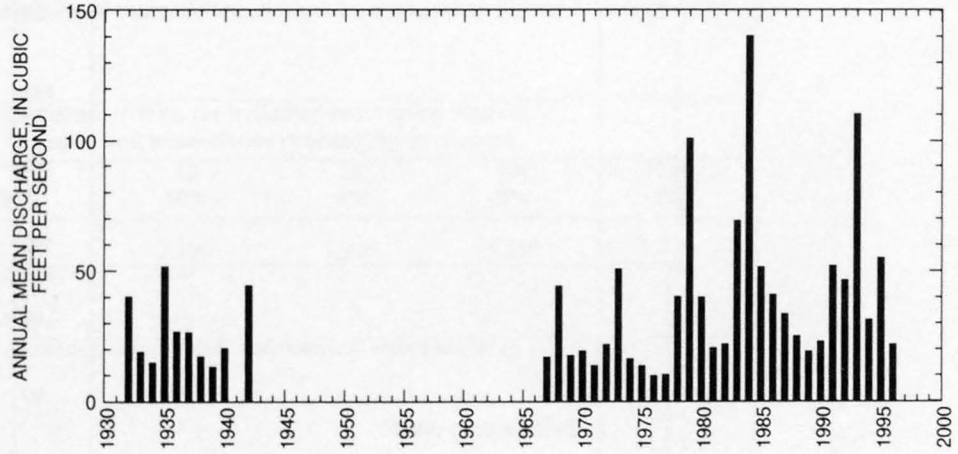
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1932-40, 1942, 1967-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
379	83	48	37	32	25	21	17	14	12	9.2	6.2	4.2	2.8	2.2	1.5	0.93

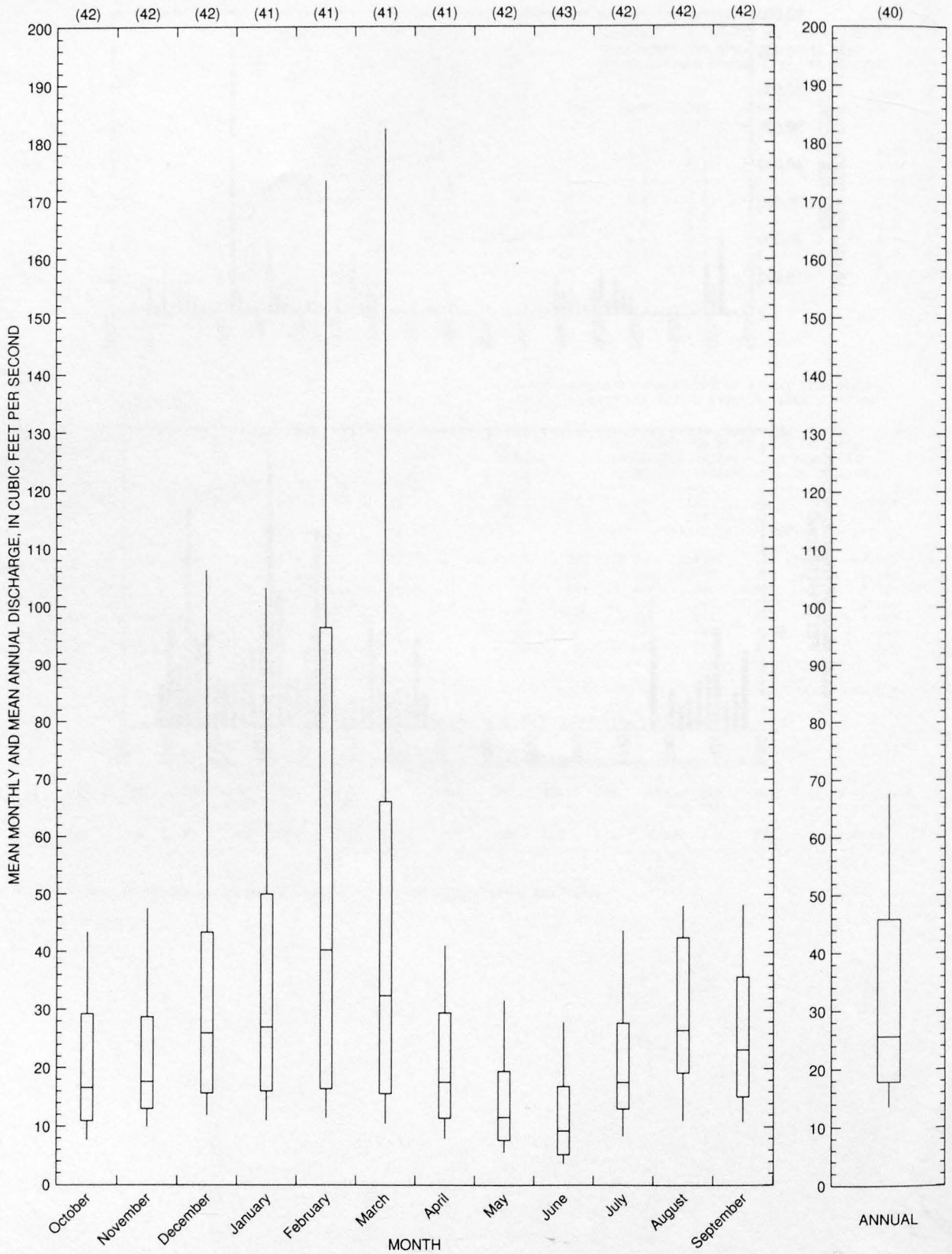
Reliability of values in column is uncertain, and potential errors are large.

09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ--Continued





09473000 ARAVAIPA CREEK NEAR MAMMOTH, AZ--Continued



09473200 GREEN LANTERN WASH NEAR WINKELMAN, AZ

LOCATION.--Lat 32°55'30", long 110°43'35", NE$^1/_4$SE$^1/_4$ sec.8, T.6 S., R.16 E., Pinal County, Hydrologic Unit 15050203, at State Highway 77, 5 mi southeast of Winkelman.
DRAINAGE AREA.--3.63 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-00-64	1,060		1971	09-30-71	600	
1965	07-23-65	200	ES	1972	08-12-72	170	
1966	09-13-66	900		1973	10-00-72	440	
1967	07-17-67	2,650		1974	07-00-74	100	
1968	08-03-68	1,960		1975	09-00-75	1,200	
1969	08-29-69	15	ES	1976	09-25-76	200	ES
1970	08-16-70	250	ES	1981	05-01-81	[1]3,700	HP

[1]Highest since 1964.

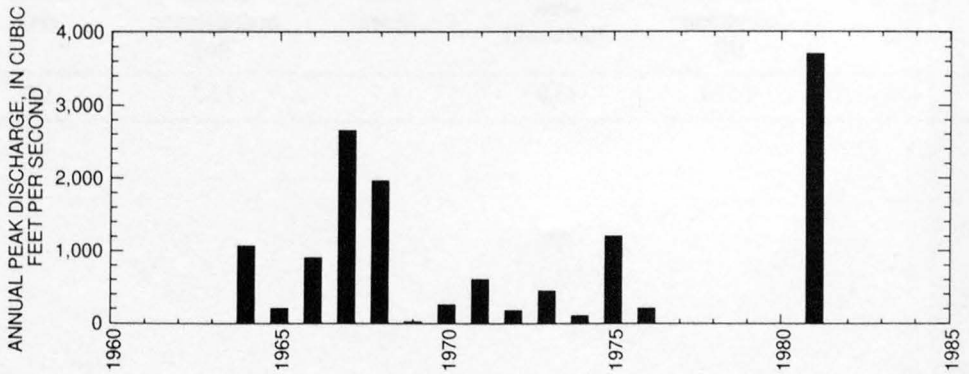
Magnitude and probability of instantaneous peak flow based on period of record 1964-76, 1981

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
509	1,380	2,290	3,920	5,520	7,490
Weighted skew	(logs) =	-0.09			
Mean	(logs) =	2.70			
Standard dev.	(logs) =	0.52			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
189	4.8	2,590	0.0	1.0	14.0	1.9	4.1



09473500 SAN PEDRO RIVER AT WINKELMAN, AZ

LOCATION.--Lat 32°58'38", long 110°46'11", SE$^1/_4$SW$^1/_4$ sec.24, T.5 S., R.15 E., Pinal County, Hydrologic Unit 15050203, on right bank 0.7 mi south of Winkelman, and 1.0 mi upstream from mouth.

DRAINAGE AREA.--4,453 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1919	08-13-19	[1]20,000	ES,HP	1972	08-27-72	4,130	
1926	09-28-26	[2]85,000	ES,HP	1973	10-20-72	13,300	
1930	08-08-30	[3]25,000	ES,HP	1974	07-21-74	6,620	
1935	08-28-35	[4]20,000	ES,HP	1975	07-23-75	5,050	
1940	08-14-40	[5]45,000	ES,HP	1976	07-28-76	4,300	
1963	02-12-63	5,220		1977	09-11-77	4,900	
1964	08-15-64	6,460		1978	10-10-77	16,000	
1965	09-03-65	4,080		1979	12-18-78	18,000	
1966	12-22-65	16,800		1980	02-15-80	2,900	ES
1967	09-24-67	3,640		1981	00-00-81	3,800	
1968	12-20-67	15,000		1982	00-00-82	4,950	
1969	12-26-68	2,060		1983	00-00-83	6,730	
1970	03-03-70	6,340		1984	00-00-84	[2]135,000	
1971	08-19-71	10,500					

[1]Highest since 1917.
[2]Highest since 1906.
[3]Highest since 1927.
[4]Highest since 1931.
[5]Highest since 1927.

Discharge rating table developed January ---

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	36	11.0	5,780
7.0	371	12.0	8,400
8.0	1,070	13.0	11,830
9.0	2,180	14.0	16,080
10.0	3,730	14.5	18,500

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
18.0	176	4,520	15.0	1.7	15.3	1.9	3.8

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	565	0.00	80	174	2.2	15.2
NOVEMBER	25	0.01	6.9	7.6	1.1	1.3
DECEMBER	538	0.34	55	153	2.8	10.5
JANUARY	48	2.3	15	17	1.1	2.9
FEBRUARY	206	0.76	43	73	1.7	8.1
MARCH	459	0.00	74	133	1.8	14.1
APRIL	35	0.00	8.2	11	1.4	1.6
MAY	7.2	0.00	1.6	2.2	1.4	0.3
JUNE	16	0.00	2.3	5.4	2.3	0.4
JULY	184	10	66	59	0.89	12.5
AUGUST	586	3.4	134	156	1.2	25.6
SEPTEMBER	81	0.13	39	27	0.68	7.5
ANNUAL	104	13	44	30	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.02	0.00	0.00	0.00	0.00	0.00
90	0.49	0.05	0.00	0.00	0.00	0.00
120	4.9	1.6	0.82	0.46	0.23	0.14
183	9.4	2.6	1.2	0.63	0.29	0.17

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963-84

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
6,390	12,800	19,500	31,600	44,300	60,900

WEIGHTED SKEW (LOGS)= 0.68
MEAN (LOGS)= 3.84
STANDARD DEV. (LOGS)= 0.33

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-78

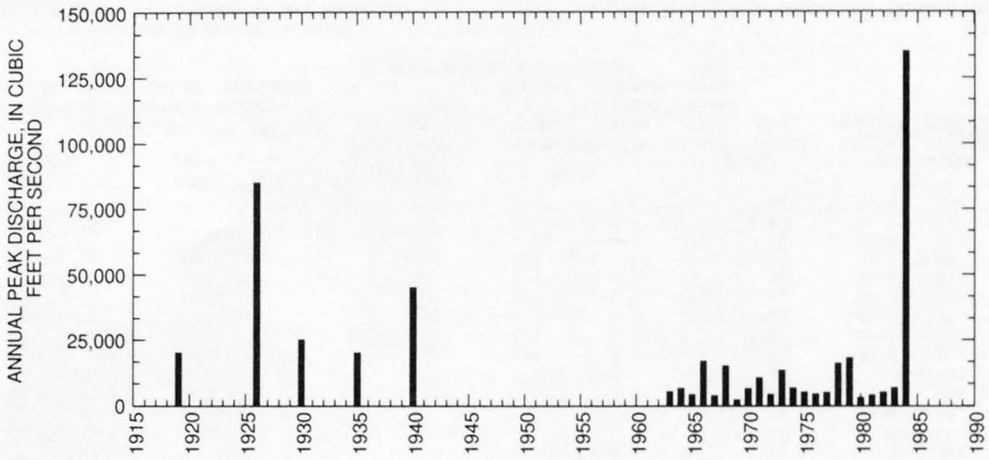
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	2,000	4,460	7,020	11,700	16,600	22,900
3	1,130	2,380	3,650	5,950	8,290	11,300
7	587	1,230	1,880	3,050	4,230	5,750
15	362	715	1,040	1,590	2,100	2,720
30	236	425	578	802	993	1,200
60	147	244	323	439	539	650
90	105	173	228	309	379	456

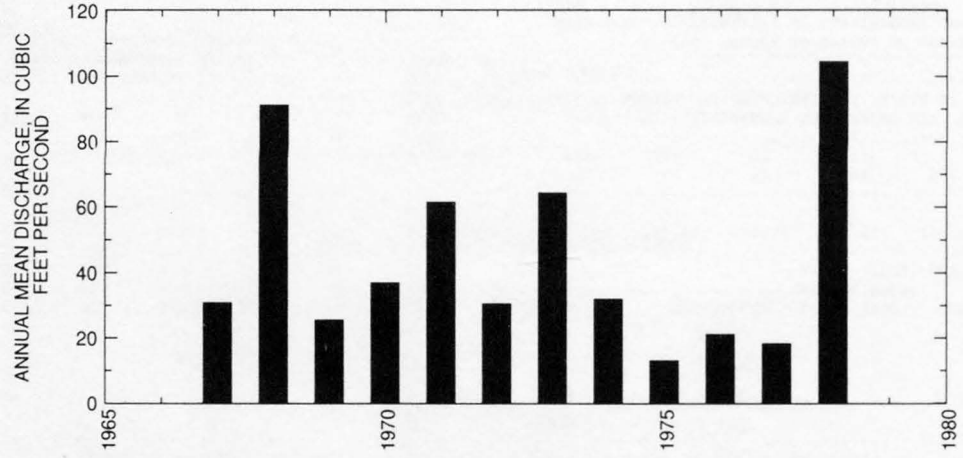
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
810	145	52	28	20	10	5.5	3.0	1.1	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00

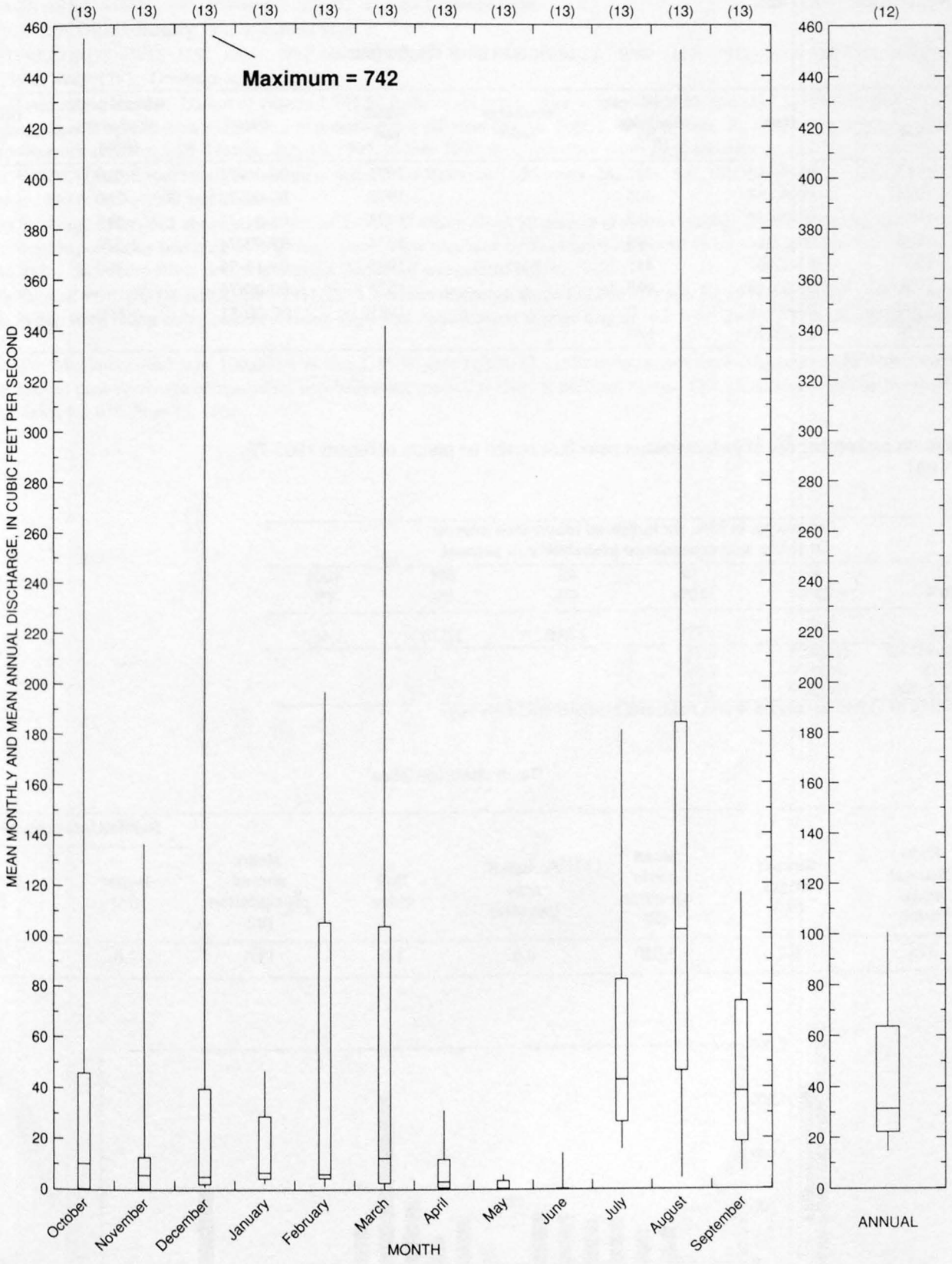
Reliability of values in column is uncertain, and potential errors are large.

09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued





09473500 SAN PEDRO RIVER AT WINKELMAN, AZ--Continued



09473600 TAM O'SHANTER WASH NEAR HAYDEN, AZ

LOCATION.--Lat 33°01'46", long 110°52'22", SE$^1/_4$NW$^1/_4$ sec.1, T.5 S., R.14 E., Pinal County, Hydrologic Unit 15050100, at State Highway 177, 6 mi west of Hayden.

DRAINAGE AREA.--4.37 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	322		1971	09-30-71	410	
1964	00-00-64	305		1972	09-02-72	260	
1965	07-00-65	412		1973	05-31-73	615	
1966	09-13-66	399		1974	08-02-74	1,570	
1967	07-22-67	445		1975	09-13-75	360	
1968	08-03-68	460		1976	00-00-76	5.0	
1969	00-00-69	0		1981	00-00-81	[1]690	HP
1970	03-03-70	180					

[1]Highest since 1974.

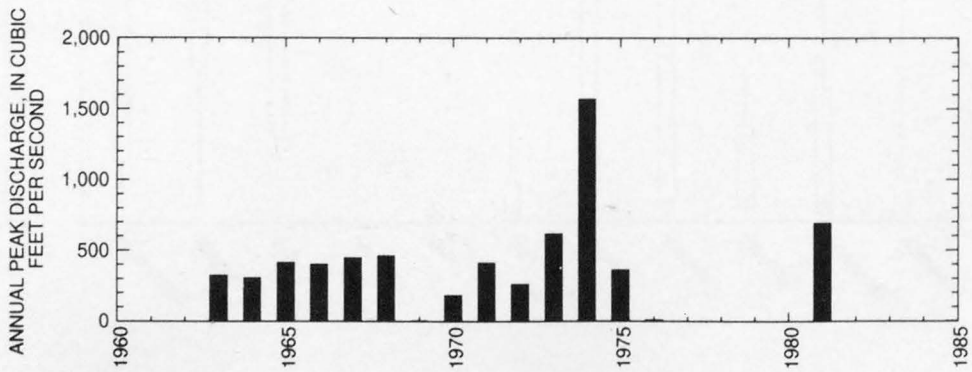
Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1981

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
368	586	759	1,010	1,220	1,460
Weighted skew	(logs) =	0.28			
Mean	(logs) =	2.58			
Standard dev.	(logs) =	0.23			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
324	6.1	3,050	0.0	1.0	15.6	2.0	4.3



09474000 GILA RIVER AT KELVIN, AZ

LOCATION.--Lat 33°06'10", long 110°58'33", in $NE^1/_4NW^1/_4$ sec.12, T.4 S., R.13 E., Pinal County, Hydrologic Unit 15050100, on left bank at Kelvin, 500 ft downstream from Mineral Creek, 18 mi downstream from San Pedro River, and 19 mi upstream from Ashurst-Hayden Dam.

DRAINAGE AREA.--18,011 mi^2, of which 5,125 mi^2 is below Coolidge Dam.

PERIOD OF RECORD.--January 1911 to current year.

REVISED RECORDS.--WSP 329: 1911. WSP 609: 1916(M). WSP 629: 1914-17. WSP 1119: 1913, 1915, 1917(M), 1921(M), 1922-23, 1927(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,745.02 ft above sea level. Prior to June 15, 1914, and Dec. 1, 1914, to Aug. 31, 1915, nonrecording gages at several sites within 2 mi of present site at different datums. Sept. 1, 1915, to Sept. 30, 1963, water-stage recorder at site 900 ft downstream at datum 1.80 ft lower. Jan. 16, 1985, to June 1990, supplementary water-stage recorder at same site and datum.

AVERAGE DISCHARGE (adjusted for storage in San Carlos Reservoir).--85 years, 542 ft^3/s, 392,700 acre-ft/yr; median of yearly mean discharges, 340 ft^3/s, 246,000 acre-ft/yr.

REMARKS.--Large diversions above station for irrigation, of which about 90 percent is above Coolidge Dam. About 82,000 acres irrigated, a considerable portion by pumping from ground water. Flow regulated by San Carlos Reservoir 49 mi upstream since Nov. 15, 1928. (See sta 09469000.) San Pedro River contributes major portion of unregulated inflow.

EXTREMES FOR PERIOD OF RECORD.--1911-28: Maximum discharge, about 132,000 ft^3/s Jan. 20, 1916, gage height, 19.5 ft, site and datum then in use, from rating curve extended above slope-area measurement at gage height, 16.2 ft for flood of Sept. 28, 1926; no flow Feb. 25, 1913.

1929-96: Maximum discharge, 100,000 ft^3/s Oct. 2, 1983, gage height, 33.0 ft from floodmark, from rating curve extended above 12,000 ft^3/s on basis of peak discharge computed by step-backwater method at Hayden Railroad Bridge, 17.8 mi upstream, and by flood-routing; minimum daily, 0.1 ft^3/s June 25, 1961.

09474000 GILA RIVER AT KELVIN, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1913	02-25-13	4,400		1955	08-08-55	9,860	
1914	09-21-14	18,000		1956	08-17-56	1,800	
1915	12-24-14	67,300	ES	1957	08-19-57	4,540	
1916	01-20-16	132,000		1958	08-06-58	5,310	
1917	10-15-16	55,000	ES	1959	08-17-59	5,930	
1918	08-06-18	15,100	ES	1960	12-26-59	11,200	
1919	08-03-19	20,800	ES	1961	07-22-61	9,600	
1920	12-05-19	25,800	ES	1962	12-16-61	4,910	
1921	07-31-21	24,000	ES	1963	02-12-63	5,880	
1922	07-26-22	7,520		1964	08-15-64	4,150	
1923	07-14-23	11,700		1965	08-17-65	4,980	
1924	12-29-23	11,700		1966	12-23-65	26,300	
1925	09-04-25	11,200		1967	09-24-67	4,220	
1926	09-28-26	82,000		1968	12-20-67	27,700	
1927	02-18-27	8,570	ES	1969	01-22-69	5,800	
1928	08-02-28	12,000		1970	03-03-70	6,600	
1929	09-24-29	11,600		1971	08-20-71	3,120	
1930	08-08-30	42,800		1972	10-01-71	3,930	
1931	08-30-31	28,600		1973	10-20-72	10,300	
1932	10-02-31	12,800		1974	08-02-74	3,880	
1933	07-24-33	8,800		1975	07-23-75	2,650	
1934	08-23-34	6,750		1976	07-28-76	2,510	
1935	08-29-35	21,000		1977	09-11-77	2,540	ES
1936	09-11-36	12,600		1978	10-11-77	16,100	
1937	08-21-37	10,200		1979	12-19-78	27,000	
1938	08-05-38	5,660		1980	02-15-80	6,950	
1939	08-07-39	9,320		1981	08-01-81	3,320	
1940	08-14-40	38,200		1982	09-12-82	3,530	
1941	12-31-40	23,300		1983	03-19-83	4,490	
1942	08-09-42	3,300		1984	10-02-83	100,000	
1943	09-26-43	6,290		1985	12-30-84	6,150	
1944	08-09-44	28,000		1986	03-18-86	4,270	
1945	08-10-45	9,200		1987	08-04-87	1,670	
1946	08-05-46	6,440		1988	07-25-88	4,080	
1947	08-08-47	10,000		1989	07-24-89	1,720	
1948	08-03-48	5,850		1990	08-14-90	5,120	
1949	09-15-49	5,610		1991	03-03-91	11,100	
1950	07-30-50	6,920		1992	02-14-92	5,150	
1951	08-03-51	13,200		1993	01-19-93	74,900	
1952	01-14-52	5,30		1994	02-08-94	2,010	
1953	07-07-53	4,210		1995	01-06-95	19,700	
1954	08-05-54	17,800		1996	07-26-96	2,370	

09474000 GILA RIVER AT KELVIN, AZ--Continued

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	218	25.0	30,000
4.0	468	28.0	43,000
7.0	1,950	31.0	67,000
10.0	4,600	34.0	122,300
13.0	7,800	37.0	148,000
16.0	11,200	40.0	178,700
19.0	15,200	43.0	213,000
22.0	21,700	46.0	250,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
17.8	284	5,150	13.0	2.2	15.7	1.9	3.6

09474000 GILA RIVER AT KELVIN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1912-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4,370	1.0	277	603	2.2	4.3
NOVEMBER	810	3.1	152	165	1.1	2.4
DECEMBER	12,400	7.1	469	1,370	2.9	7.3
JANUARY	17,100	9.3	702	2,370	3.4	10.9
FEBRUARY	7,210	22	577	1,130	2.0	9.0
MARCH	5,820	38	749	914	1.2	11.6
APRIL	3,930	9.2	569	642	1.1	8.8
MAY	1,270	2.5	411	315	0.77	6.4
JUNE	1,610	0.46	456	405	0.89	7.1
JULY	3,460	2.7	710	557	0.78	11.0
AUGUST	4,590	43	895	655	0.73	13.9
SEPTEMBER	1,970	2.1	476	334	0.70	7.4
ANNUAL	3,280	78	538	513	0.95	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1913-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
1	13	2.3	0.72	0.25	0.04	0.00
3	14	2.3	0.76	0.26	0.04	0.00
7	15	2.6	0.86	0.30	0.05	0.00
14	18	3.2	1.2	0.45	0.15	0.06
30	27	5.4	2.1	0.84	0.29	0.13
60	53	13	5.4	2.4	0.90	0.44
90	90	28	13	6.5	2.7	1.4
120	132	53	29	16	7.8	4.6
183	218	104	66	43	25	17

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
----	----	----	----	----	----

WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

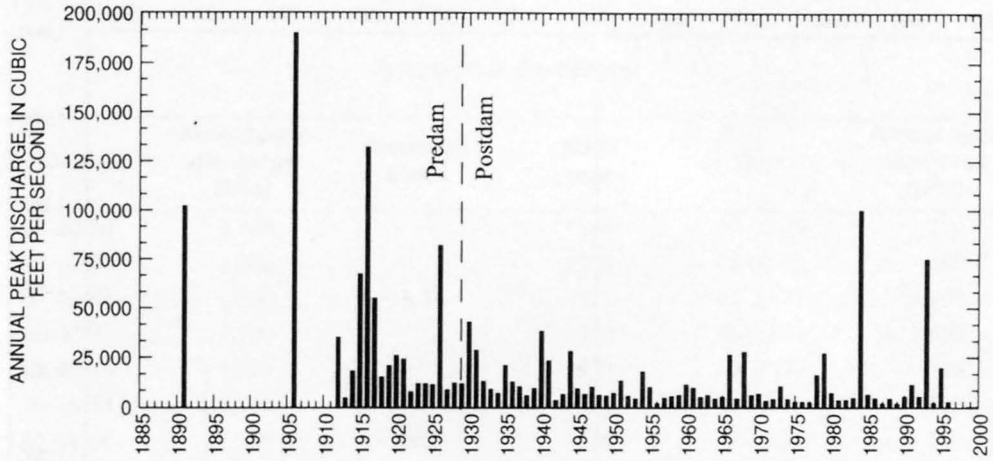
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1912-96

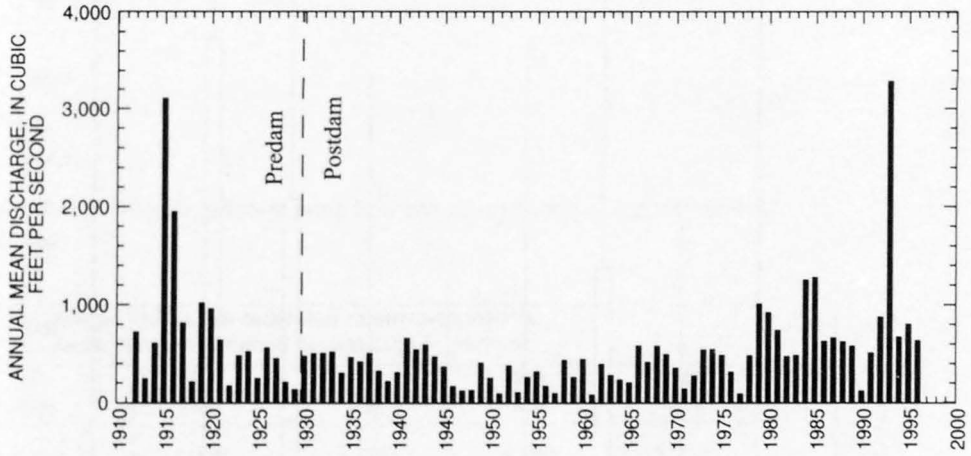
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4,070	10,500	18,800	37,400	60,600	95,800
3	2,690	6,760	12,000	23,800	38,600	61,500
7	1,770	4,350	7,720	15,500	25,400	40,900
15	1,260	2,970	5,150	10,000	16,200	25,700
30	1,020	2,220	3,630	6,570	10,000	15,100
60	832	1,720	2,690	4,540	6,570	9,340
90	726	1,490	2,270	3,660	5,070	6,900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1912-96

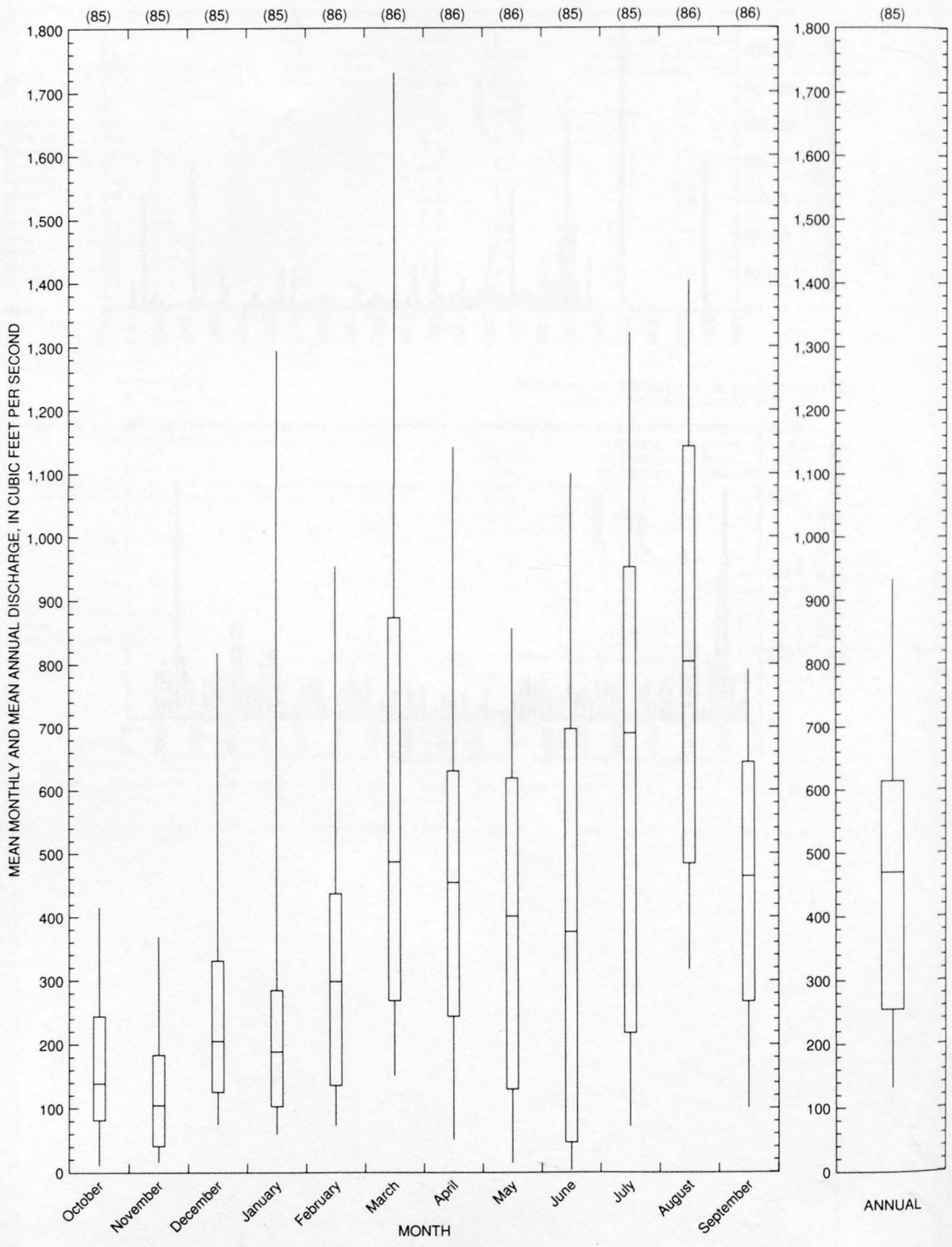
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4,570	1,470	1,090	889	740	527	379	270	189	128	71	26	8.3	1.9	0.90	0.64	0.17

09474000 GILA RIVER AT KELVIN, AZ--Continued





09474000 GILA RIVER AT KELVIN, AZ--Continued



09478200 DURHAM WASH NEAR FLORENCE, AZ

LOCATION.--Lat 32°43'20", long 111°06'30", NE$^1/_4$ sec.21, T.8 S., R.12 E., Pinal County, Hydrologic Unit 15050100, at U.S. Highway 80, 27 mi southeast of Florence.

DRAINAGE AREA.--15.6 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1954	07-20-54	3,340		1969	00-00-69	310	
1955	08-00-55	1,000		1970	08-00-70	290	
1956	07-00-56	100	ES	1971	08-20-71	[2]3,500	
1957	00-00-57	2,700		1972	06-00-72	1,450	
1963	09-01-63	1,080		1973	10-19-72	100	ES
1964	09-14-64	[1]1,790		1974	08-02-74	550	
1965	09-08-65	40	ES	1975	09-13-75	570	
1966	12-00-65	50	ES	1976	09-25-76	1,100	
1967	09-25-67	230		1980	07-00-80	[3]500	HP
1968	00-00-68	500					

[1]Highest since 1957.

[2]Highest since 1954.

[3]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1954-57, 1963-76, 1980

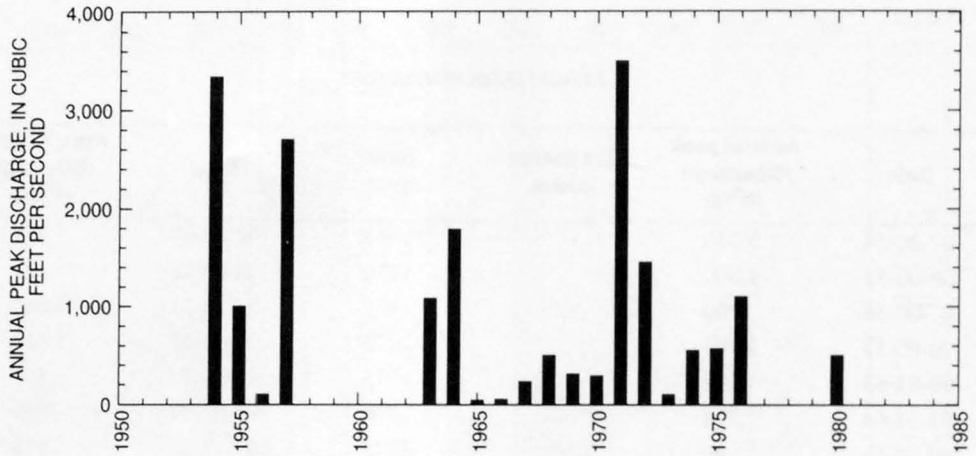
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
561	1,320	2,050	3,260	4,390	5,710
Weighted skew	(logs) =	-0.08			
Mean	(logs) =	2.74			
Standard dev.	(logs) =	0.45			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
143	11.0	3,670	0.0	3.0	12.1	1.9	4.3

09478200 DURHAM WASH NEAR FLORENCE, AZ--Continued



09478500 QUEEN CREEK AT WHITLOW DAMSITE, NEAR SUPERIOR, AZ

LOCATION.--Lat 33°17'55", long 111°16'25", $NW^1/_4SE^1/_4$ sec.36, T.1 S., R.10 E., Pinal County, Hydrologic Unit 15050100, at Whitlow damsite, 2.5 mi upstream from Whitlow Canyon, 4 mi northeast of Florence Junction, and 10 mi west of Superior.
DRAINAGE AREA.--144 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1917	05-20-17	2,800		1952	01-18-52	1,170	
1918	08-05-18	5,000		1953	07-29-53	1,780	
1919	08-01-19	10,000		1954	08-19-54	42,900	
1920	02-20-20	750		1955	08-03-55	5,430	
1939	08-06-39	13,200		1956	08-17-56	4,100	
1948	07-21-48	676		1957	08-19-57	8,260	
1949	07-22-49	2,630		1958	03-22-58	3,970	
1950	07-18-50	5,100		1959	08-17-59	30,000	ES
1951	08-03-51	1,510					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
137	19.4	3,180	5.6	1.0	17.9	2.4	4.8

09478500 QUEEN CREEK AT WHITLOW DAMSITE, NEAR SUPERIOR, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1949-58

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	8.5	0.00	1.1	2.7	2.4	2.3
NOVEMBER	3.8	0.00	0.61	1.2	2.0	1.2
DECEMBER	13	0.00	2.0	4.0	2.0	4.1
JANUARY	17	0.00	3.8	5.1	1.4	7.7
FEBRUARY	4.4	0.00	0.65	1.4	2.1	1.3
MARCH	50	0.00	13	18	1.4	25.6
APRIL	8.9	0.00	1.7	3.3	2.0	3.5
MAY	2.4	0.00	0.55	0.87	1.6	1.1
JUNE	10	0.00	1.4	3.2	2.2	2.9
JULY	19	0.30	5.6	6.8	1.2	11.4
AUGUST	106	0.03	18	32	1.8	37.4
SEPTEMBER	2.8	0.00	0.75	1.2	1.6	1.5
ANNUAL	14	1.3	4.1	3.7	0.89	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1950-58

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.14	0.00	0.00	0.00	0.00	0.00
183	0.84	0.23	0.10	0.04	0.02	0.01

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1917-20, 1939, 1948-59

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
3,630	8,850	14,300	24,000	33,800	46,100

WEIGHTED SKEW (LOGS)= 0.13
MEAN (LOGS)= 3.57
STANDARD DEV. (LOGS)= 0.45

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1949-58

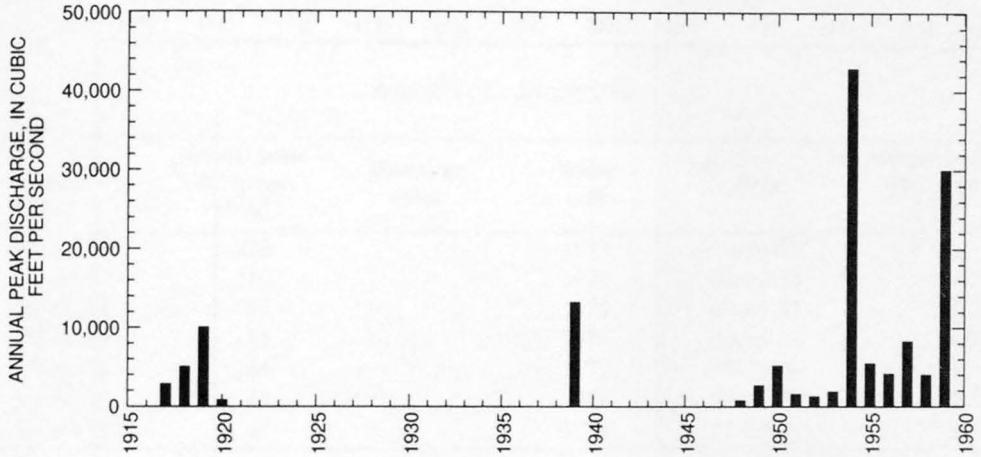
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	297	670	1,150	2,250	3,650	5,860
3	122	266	436	792	1,210	1,830
7	60	129	205	354	518	745
15	35	76	118	195	274	376
30	22	43	65	103	142	193
60	12	24	35	53	71	93
90	9.1	18	27	40	54	69

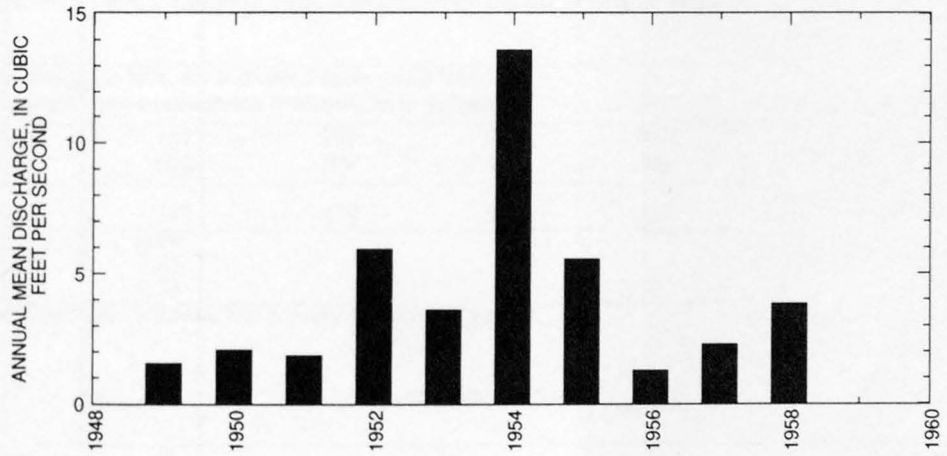
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1949-58

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
88	3.3	1.7	0.96	0.53	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

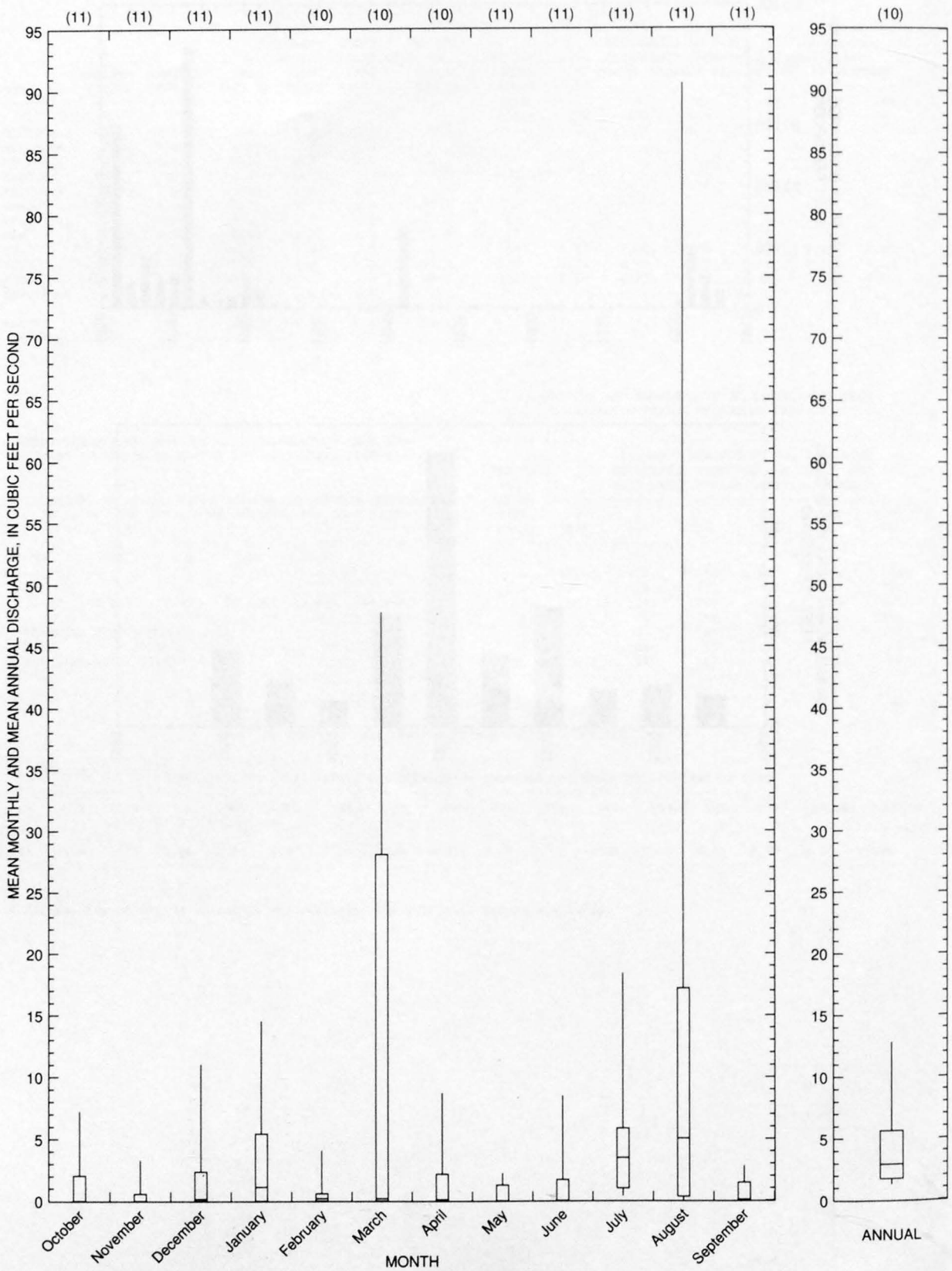
Reliability of values in column is uncertain, and potential errors are large.

09478500 QUEEN CREEK AT WHITLOW DAMSITE, NEAR SUPERIOR, AZ--Continued





09478500 QUEEN CREEK AT WHITLOW DAMSITE, NEAR SUPERIOR, AZ--Continued



09478600 QUEEN CREEK TRIBUTARY NO. 3 AT WHITLOW DAM, AZ

LOCATION.--Lat 33°17'30", long 111°16'50", N$^1/_2$ sec.1, T.2 S., R.10 E., Pinal County, Hydrologic Unit 15050100, 0.5 mi south of Whitlow Dam, and 4.5 mi northeast of Florence Junction.
DRAINAGE AREA.--0.37 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	09-13-66	280		1973	10-19-72	80	
1967	08-00-67	110		1974	00-00-74	0	
1968	08-00-68	95		1975	09-05-75	35	
1969	09-16-69	85		1976	04-16-76	4.0	
1970	08-09-70	64		1977	10-23-76	115	
1971	08-00-71	63		1978	03-02-78	240	
1972	08-00-72	44		1979	12-18-78	5.0	ES

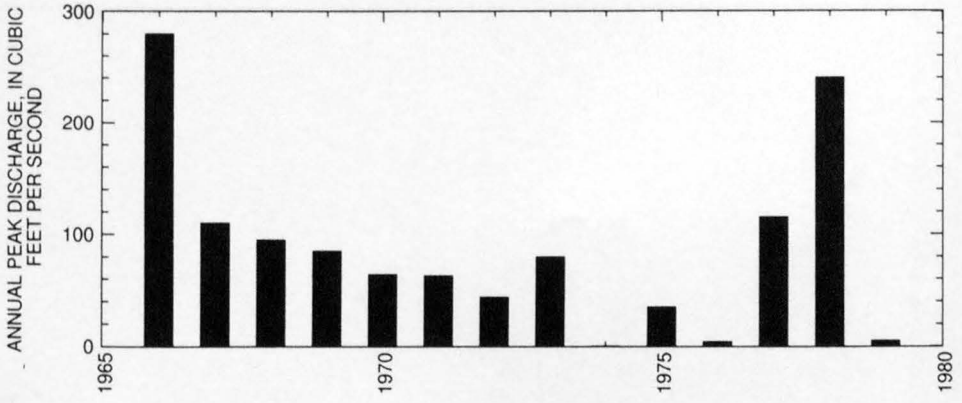
Magnitude and probability of instantaneous peak flow based on period of record 1966-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
71.3	135	189	270	339	417
Weighted skew	(logs) =	-0.00			
Mean	(logs) =	1.85			
Standard dev.	(logs) =	0.33			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
187	1.1	2,320	0.0	1.0	12.0	1.8	3.9



09479200 QUEEN CREEK TRIBUTARY AT APACHE JUNCTION, AZ

LOCATION.--Lat 33°24'13", long 111°32'27", NE$^1/_4$SW$^1/_4$ sec.21, T.1 S., R.8 E., Pinal County, Hydrologic Unit 15050100, at eastbound lane of U.S. Highway 60, 0.6 mi southeast of Apache Junction.

DRAINAGE AREA.--0.51 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	08-18-61	179		1971	09-30-71	262	
1962	11-21-61	39		1972	00-00-72	0	
1963	08-17-63	46		1973	10-18-72	109	
1964	09-14-64	74		1974	07-07-74	22	
1965	08-17-65	1.7		1975	09-05-75	54	
1966	08-30-66	126		1976	07-24-76	176	
1967	07-11-67	42		1977	00-00-77	0	
1968	08-03-68	70		1978	00-00-78	0	
1969	09-16-69	19		1979	00-00-79	0	
1970	09-05-70	137					

Magnitude and probability of instantaneous peak flow based on period of record 1961-79

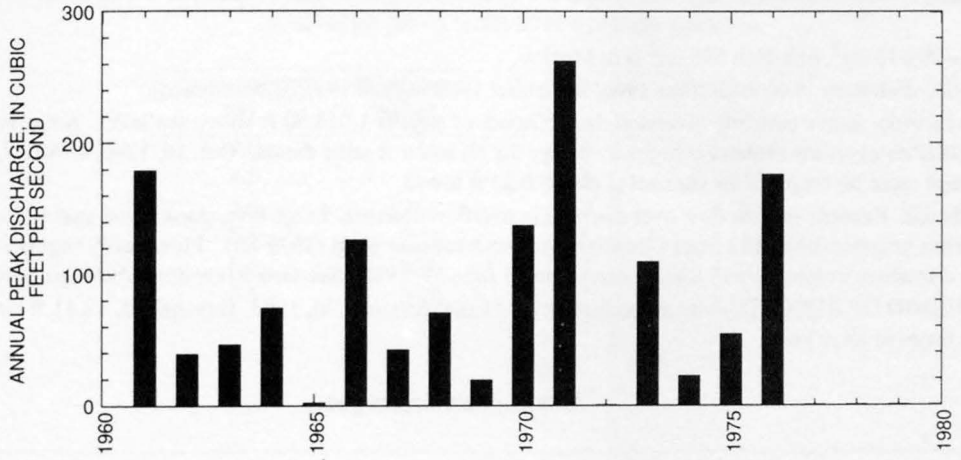
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
52.5	120	179	269	346	431
Weighted skew	(logs) =	-0.31			
Mean	(logs) =	1.70			
Standard dev.	(logs) =	0.45			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
76.2	1.4	1,760	0.0	1.0	10.5	1.6	3.6

09479200 QUEEN CREEK TRIBUTARY AT APACHE JUNCTION, AZ--Continued



09479500 GILA RIVER NEAR LAVEEN, AZ

LOCATION.--Lat 33°15'25", long 112°09'59", in $SW^1/_4NW^1/_4$ sec.16, T.2 S., R.2 E., Pinal County, Hydrologic Unit 15050100, on Gila River Indian Reservation, on left abutment of highway bridge, 2.1 mi upstream from Santa Cruz River, 2.6 mi south of Komatke, and 7.3 mi south of Laveen.

DRAINAGE AREA.--20,615 mi^2, of which 696 mi^2 is in Mexico.

PERIOD OF RECORD.--February 1940 to October 1946, December 1947 to June 1995 (discontinued).

GAGE.--Water-stage recorder above concrete diversion dam. Datum of gage is 1,018.90 ft above sea level. Since July 9, 1969, supplementary water-stage recorder on overflow channel at highway bridge 0.2 mi south at same datum. Oct. 16, 1940, to July 8, 1969, supplementary staff gage or water-stage recorder on overflow channel at datum 0.23 ft lower.

REMARKS.--Records fair. Records include flow over dam and in overflow channel. Large diversions above station for irrigation. Most low flow is waste water from irrigated lands and from Chandler, Arizona treatment plant (1979-83). Flow partly regulated by storage in San Carlos Reservoir. (See elsewhere in this report.) Station discontinued June 19, 1995. See Gila River near Maricopa (09479350).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,600 ft^3/s Jan. 20, 1993, gage height, 12.41 ft main gage, 12.12 ft overflow gage; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-20-16	[1]65,000	ES,HP	1968	12-23-68	5,890	UR
1926	09-28-26	[2]40,000	ES,HP	1969	00-00-69	0	UR
1940	08-17-40	8,740	UR	1970	03-05-70	178	UR
1941	01-02-41	11,900	UR	1971	08-23-71	1,130	UR
1942	12-12-42	1,170	UR	1972	10-03-72	544	UR
1943	09-27-43	1,570	UR	1973	10-23-73	1,500	UR
1944	08-11-44	1,330	UR	1974	08-07-74	1,220	UR
1945	08-13-45	2,800	UR	1975	11-02-75	19	UR
1946	09-20-46	1,260	UR	1976	09-25-76	397	UR
1948	08-05-48	1,430	UR	1977	10-22-77	430	UR
1949	08-10-49	1,250	UR	1978	10-13-78	6,360	UR
1950	08-02-50	1,500	UR	1979	12-21-79	9,720	UR
1951	08-29-51	1,210	UR	1980	02-23-80	545	UR
1952	01-20-52	1,070	UR	1981	03-03-81	20	MD,U
1953	07-31-53	565	UR	1982	09-15-82	194	MD,U
1954	08-08-54	4,510	UR	1983	02-09-83	385	UR
1955	08-24-55	3,230	UR	1984	10-04-84	35,000	UR
1956	01-31-56	46	UR	1985	01-11-85	2,080	MD,U
1957	08-20-57	446	UR	1986	12-10-86	10	UR
1958	08-19-58	995	UR	1987	02-25-87	7.1	UR
1959	08-19-59	934	UR	1988	12-18-87	16	UR
1960	01-14-60	1,760	UR	1989	01-05-89	12	UR
1961	08-25-61	655	UR	1990	08-17-90	456	UR
1962	12-18-62	1,020	UR	1991	03-06-91	203	UR
1963	02-14-63	798	UR	1992	07-24-92	245	UR
1964	08-17-64	996	UR	1993	01-20-93	[3]41,600	UR
1965	02-09-65	85	UR	1994	11-17-93	1,230	UR
1966	12-26-66	10,900	UR	1995	01-07-95	13,090	UR
1967	09-28-67	350	UR				

[1]Highest since 1907.

[2]Highest since 1916.

[3]Highest since 1926.

09479500 GILA RIVER NEAR LAVEEN, AZ--Continued

Discharge rating table developed January ----

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	26	7.0	414
4.5	212	7.5	512
5.0	264	8.0	788
5.5	299	8.5	1,180
6.0	327	9.0	1,680
6.5	357	9.7	2,630

09479500 GILA RIVER NEAR LAVEEN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-46, 1949-91, 1993-94

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2,660	0.00	61	372	6.1	8.0
NOVEMBER	182	0.00	8.6	27	3.2	1.1
DECEMBER	518	0.00	39	111	2.8	5.2
JANUARY	9,730	0.00	255	1,370	5.4	33.5
FEBRUARY	5,020	0.00	152	722	4.8	20.0
MARCH	3,210	0.00	111	474	4.3	14.6
APRIL	1,760	0.00	41	246	6.1	5.3
MAY	26	0.00	1.8	4.4	2.4	0.2
JUNE	12	0.00	1.0	2.3	2.2	0.1
JULY	249	0.00	14	40	2.9	1.8
AUGUST	895	0.00	63	154	2.5	8.2
SEPTEMBER	106	0.00	13	26	1.9	1.8
ANNUAL	1,630	0.00	63	232	3.7	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-46, 1949-91, 1994-95

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.75	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1941-46, 1949-91, 1993-94

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,020	3,760	8,040	19,200	34,800	60,900

WEIGHTED SKEW (LOGS)= 0.53
MEAN (LOGS)= 3.06
STANDARD DEV. (LOGS)= 0.64

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-46, 1949-91, 1993-94

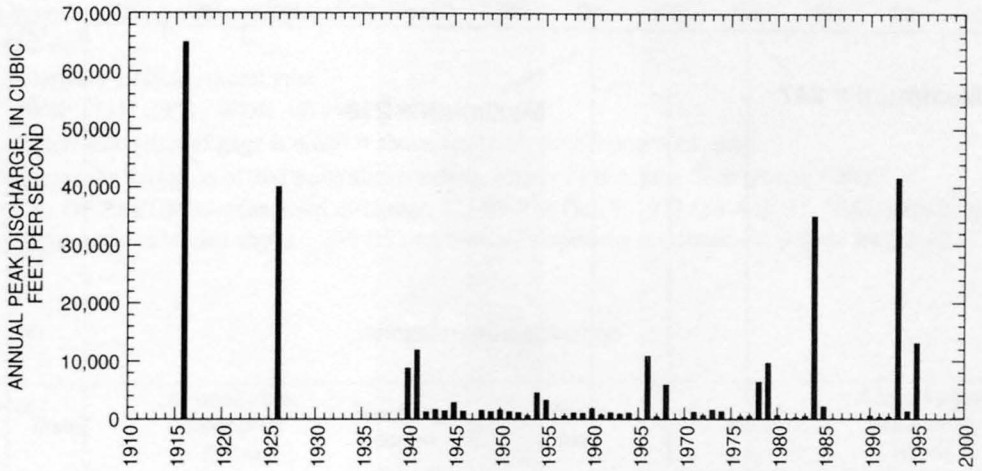
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	499	2,620	5,710	12,300	19,600	29,200
3	311	1,770	4,000	8,930	14,500	22,100
7	165	1,010	2,400	5,620	9,440	14,800
15	88	587	1,460	3,640	6,390	10,400
30	55	376	947	2,380	4,200	6,880
60	32	228	590	1,530	2,780	4,660
90	23	164	433	1,160	2,160	3,710

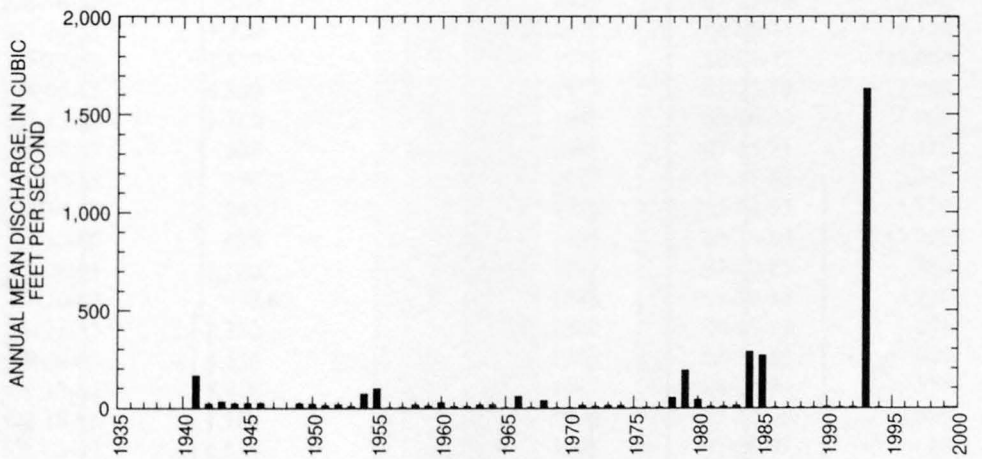
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-46, 1949-91, 1993-94

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,390	55	16	8.6	5.8	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

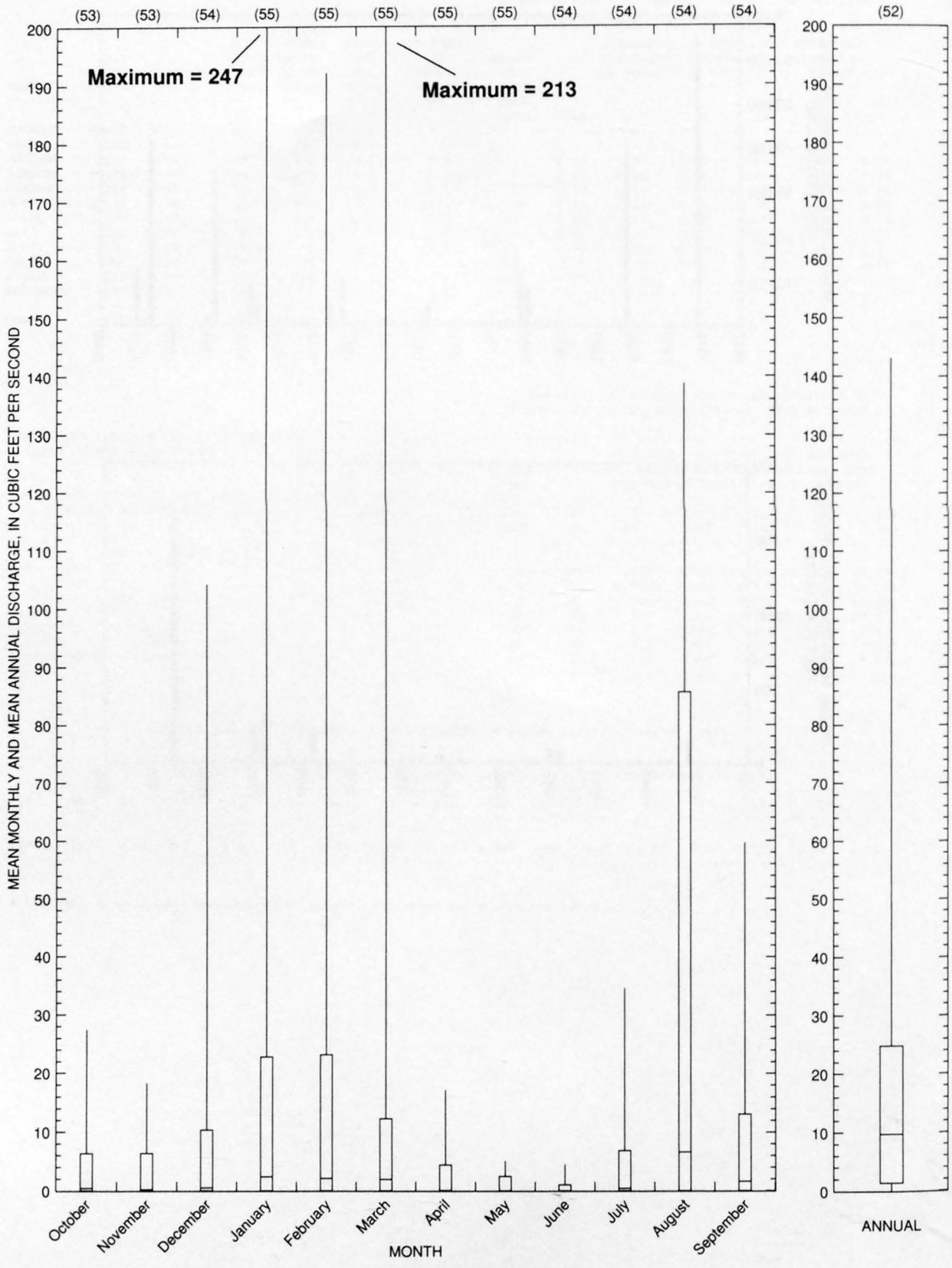
Reliability of values in column is uncertain, and potential errors are large.

09479500 GILA RIVER NEAR LAVEEN, AZ--Continued





09479500 GILA RIVER NEAR LAVEEN, AZ--Continued



09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ

LOCATION.--Lat 31°21'19", long 110°35'20", in SW$^1/_4$ sec.11, T.24 S., R.17 E. (unsurveyed), Santa Cruz County, Hydrologic Unit 15050301, on southern border of Spanish land grant of San Rafael, near left bank on downstream side of pier of bridge on county road, 1.7 mi upstream from international boundary, and 2.5 mi northeast of Lochiel.

DRAINAGE AREA.--82.2 mi^2.

PERIOD OF RECORD.--January 1949 to current year.

REVISED RECORDS.--WSP 1733: 1951. WDR AZ 94-1: 1993.

GAGE.--Water-stage recorder. Elevation of gage is 4,620 ft above sea level, from topographic map.

REMARKS.--Small diversions for irrigation of 200 acres above station, mostly by pumping from ground water.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s Oct. 9, 1977 and Aug. 15, 1984, gage height, 10.21 ft and 10.2 ft respectively, from rating curve extended above 1,600 ft^3/s on basis of slope-area measurement at gage height 10.21 ft; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1949	09-13-49	1,650		1973	06-30-73	1,490	
1950	07-30-50	4,520		1974	08-04-74	1,730	
1951	08-02-51	2,560		1975	07-22-75	3,330	
1952	08-16-52	550		1976	07-22-76	3,540	
1953	07-14-53	3,320		1977	09-05-77	1,130	
1954	07-22-54	1,570		1978	10-09-77	[1]12,000	
1955	08-06-55	4,300		1979	01-25-79	1,060	
1956	07-17-56	1,360		1980	06-30-80	406	
1957	08-09-57	688		1981	07-15-81	1,110	
1958	08-07-58	380		1982	08-11-82	2,640	
1959	08-14-59	243		1983	03-04-83	1,120	
1960	07-30-60	625		1984	08-15-84	12,000	
1961	08-08-61	1,120		1985	07-19-85	850	
1962	07-29-62	7.6		1986	08-29-86	4,210	
1963	08-25-63	2,390		1987	08-10-87	291	
1964	09-09-64	2,330		1988	08-23-88	804	
1965	09-12-65	4,810		1989	08-04-89	871	
1966	08-18-66	1,780		1990	07-17-90	3,510	
1967	08-03-67	1,870		1991	07-26-91	17	
1968	12-20-67	986		1992	08-01-92	483	
1969	08-05-69	484		1993	01-18-93	7,320	
1970	08-03-70	880		1994	08-30-94	478	
1971	08-10-71	2,830		1995	07-12-95	2,020	
1972	07-16-72	2,070		1996	07-10-96	1,860	

[1]Highest since 1926.

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	265	5.0	2,100
2.5	465	5.5	2,540
3.0	710	6.0	3,020
3.5	999	6.5	3,520
4.0	1,330	7.0	4,070
4.5	1,700	7.7	4,880

09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
42.2	12.0	5,150	31.0	2.3	18.2	1.9	4.3

09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1950-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	77	0.00	4.6	15	3.4	10.0
NOVEMBER	6.8	0.00	1.1	1.4	1.3	2.3
DECEMBER	18	0.00	1.8	3.5	1.9	3.9
JANUARY	116	0.02	5.0	18	3.6	10.9
FEBRUARY	18	0.03	1.9	3.5	1.8	4.2
MARCH	34	0.01	2.0	5.2	2.7	4.3
APRIL	8.7	0.00	0.93	1.6	1.7	2.0
MAY	2.8	0.00	0.46	0.68	1.5	1.0
JUNE	2.8	0.00	0.33	0.62	1.9	0.7
JULY	69	0.03	7.7	14	1.9	16.7
AUGUST	187	0.00	15	36	2.3	33.5
SEPTEMBER	44	0.00	4.8	8.9	1.9	10.3
ANNUAL	29	0.31	3.9	5.1	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1950-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.03	0.00	0.00	0.00	0.00	0.00
60	0.09	0.00	0.00	0.00	0.00	0.00
90	0.14	0.02	0.00	0.00	0.00	0.00
120	0.46	0.15	0.07	0.02	0.00	0.00
183	0.77	0.24	0.12	0.06	0.03	0.02

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1949-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
1,450	3,020	4,460	6,820	9,010	11,600

WEIGHTED SKEW (LOGS)= 0.12
MEAN (LOGS)= 3.17
STANDARD DEV. (LOGS)= 0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1950-96

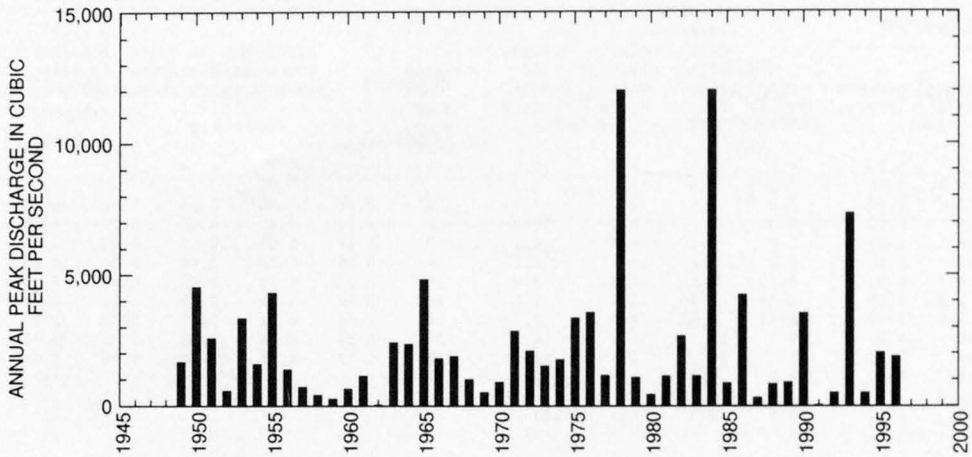
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	150	441	721	1,160	1,530	1,930
3	66	206	361	640	912	1,240
7	34	109	198	373	558	801
15	20	62	113	214	324	470
30	12	38	69	132	202	296
60	8.0	23	42	78	117	169
90	5.8	16	29	54	81	118

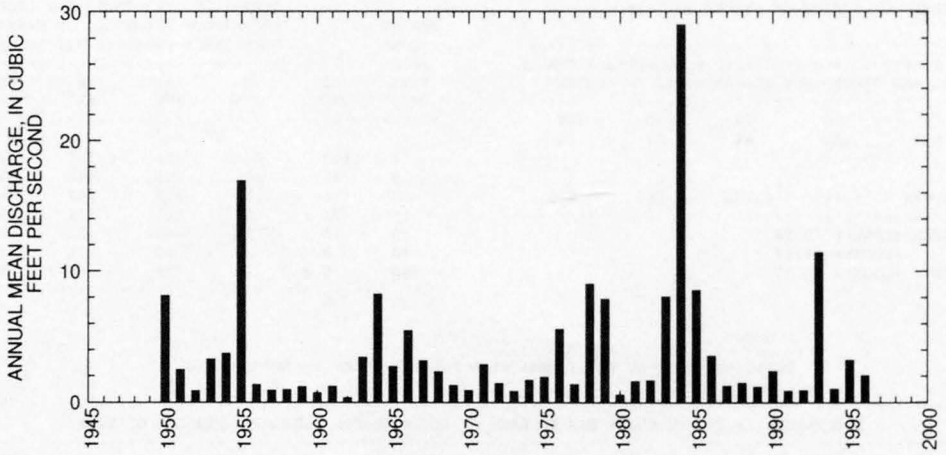
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1950-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
55	8.8	4.4	2.4	1.6	1.0	0.72	0.54	0.37	0.24	0.11	0.00	0.00	0.00	0.00	0.00	0.00

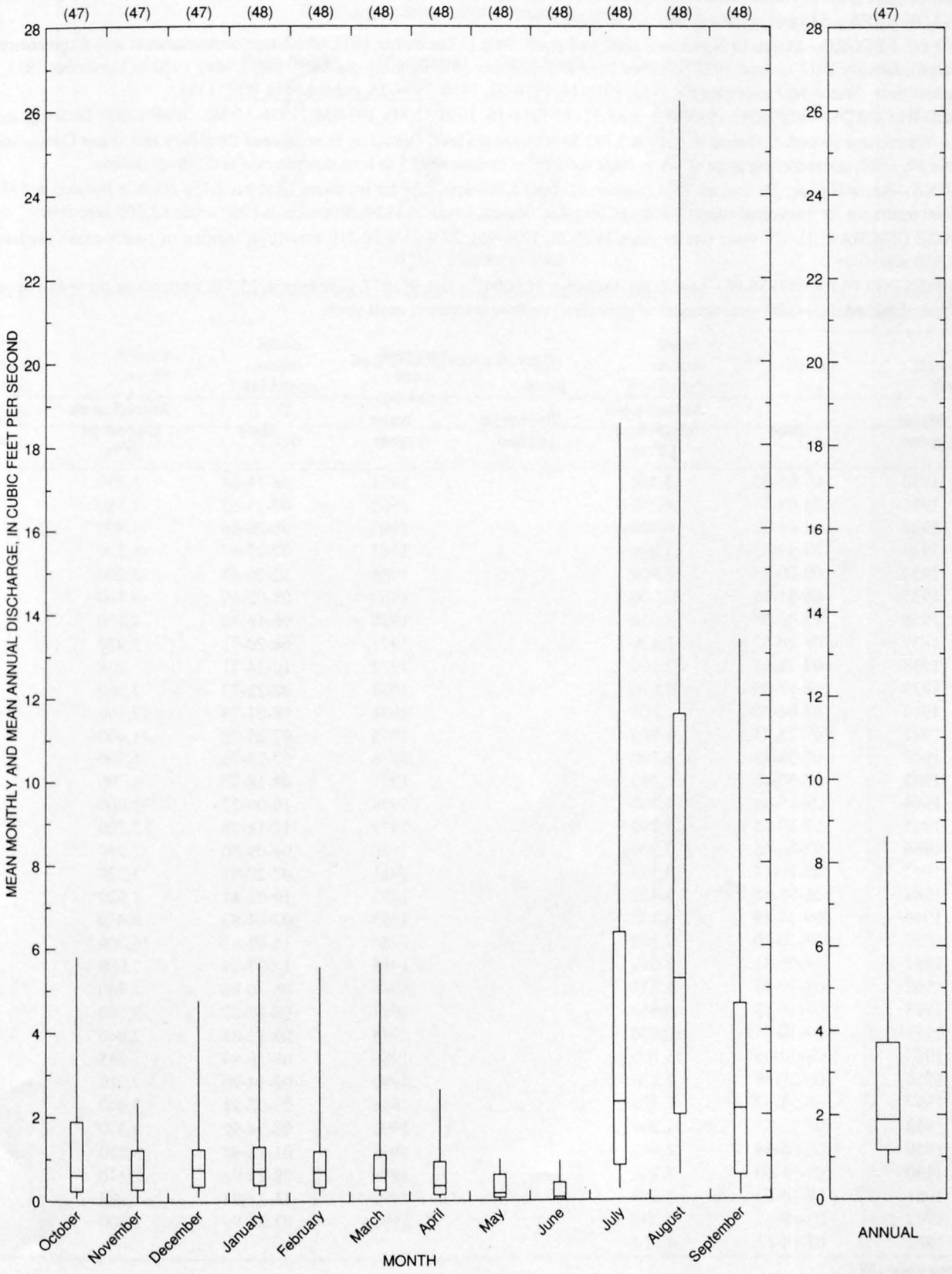
Reliability of values in column is uncertain, and potential errors are large.

09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ--Continued





09480000 SANTA CRUZ RIVER NEAR LOCHIEL, AZ--Continued



09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ

LOCATION.--Lat 31°20'40", long 110°51'03", in NW$^1/_4$ sec.18, T.24 S., R.15 E. (unsurveyed), Santa Cruz County, Hydrologic Unit 15050301, in Spanish land grant of Maria Santisima del Carmen, on left bank 0.8 mi downstream from international boundary and 5.5 mi east of Nogales.

DRAINAGE AREA.--533 mi^2, of which 348 mi^2 is in Mexico.

PERIOD OF RECORD.--March to November 1907 and April 1909 to December 1912 (discharge measurements and fragmentary gage-height record), January 1913 to June 1922 (October 1915 to September 1916 monthly discharge only), May 1930 to December 1933, July 1935 to current year. Water-year estimates for 1913, 1915-16, 1920-22, 1930, 1934-35, published in WSP 1733.

REVISED RECORDS.--WSP 959: 1935(M). WSP 1213: 1915-16, 1930-32(M), 1934(M), 1936-37(M). WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,702.54 ft above sea level (levels by International Boundary and Water Commission). Prior to June 30, 1922, nonrecording gage or water-stage recorder at various sites 5 to 6 mi downstream at different datums.

REMARKS.--Records poor. Diversions above station of about 4,300 acre-ft/yr for irrigation of about 2,150 acres in Mexico in 1977. Diversion 19 mi upstream for municipal supply of city of Nogales, Sonora, began in 1949; diversion in 1968 totaled 3,500 acre-ft/yr.

AVERAGE DISCHARGE.--77 years (water years 1913-22, 1930-96), 27.9 ft^3/s, 20,210 acre-ft/yr; median of yearly mean discharges, 19 ft^3/s, 13,800 acre-ft/yr.

EXTREMES FOR PERIOD 1930-96.--Maximum discharge, 31,000 ft^3/s Oct. 9, 1977, gage height, 15.5 ft, from rating curve extended above 1,660 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1930	08-07-30	5,400		1964	08-14-64	5,630	
1931	08-04-31	4,150		1965	09-13-65	1,580	
1932	07-08-32	6,400		1966	08-20-66	4,400	
1933	09-19-33	1,900		1967	07-27-67	6,310	
1934	08-00-34	5,900		1968	12-20-67	15,200	
1935	08-31-35	12,000		1969	08-02-69	4,460	
1936	08-09-36	4,050		1970	08-16-70	4,100	
1937	08-16-37	2,400		1971	08-20-71	2,930	
1938	07-28-38	2,200		1972	10-24-71	738	
1939	08-13-39	7,010		1973	02-22-73	2,300	
1940	08-04-40	1,800		1974	08-01-74	17,100	
1941	07-21-41	1,980		1975	07-22-75	11,400	
1942	07-08-42	8,200		1976	07-22-76	6,700	
1943	07-30-43	5,300		1977	08-18-77	6,700	
1944	08-15-44	4,700		1978	10-09-77	[1]31,000	
1945	07-30-45	3,290		1979	12-18-78	12,700	
1946	07-26-46	7,200		1980	08-09-80	1,950	
1947	08-29-47	2,550		1981	07-29-81	3,220	
1948	08-01-48	3,410		1982	10-02-81	1,620	
1949	09-14-49	6,350		1983	02-04-83	6,410	
1950	07-20-50	7,210		1984	10-02-83	16,200	
1951	08-03-51	3,040		1985	12-27-84	7,080	
1952	07-29-52	2,330		1986	08-30-86	2,440	
1953	07-14-53	3,500		1987	08-10-87	3,560	
1954	07-10-54	10,600		1988	09-12-88	2,940	
1955	08-20-55	11,100		1989	08-16-89	663	
1956	06-28-56	2,530		1990	09-14-90	7,010	
1957	08-18-57	1,620		1991	03-02-91	3,640	
1958	08-13-58	4,000		1992	08-24-92	9,370	
1959	08-06-59	2,640		1993	01-18-93	8,800	
1960	01-11-60	2,760		1994	08-21-94	2,310	
1961	08-15-61	1,640		1995	11-12-94	1,980	
1962	08-19-62	2,390		1996	07-25-96	1,800	
1963	07-10-63	4,510					

[1]Highest since 1892.

09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ--Continued

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	177	8.0	6,800
4.0	800	9.0	9,130
5.0	1,800	10.0	11,600
6.0	3,150	11.0	14,400
7.0	4,820	12.0	17,150

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
26.0	51.2	4,850	28.0	2.1	18.7	2.0	4.3

09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1914, 1917-19, 1931-33, 1936-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	905	0.00	25	113	4.6	7.2
NOVEMBER	120	0.00	8.9	17	1.9	2.6
DECEMBER	542	0.00	36	99	2.8	10.6
JANUARY	493	0.00	43	101	2.3	12.6
FEBRUARY	370	0.00	34	67	2.0	10.0
MARCH	318	0.00	25	52	2.1	7.4
APRIL	58	0.00	7.6	12	1.6	2.2
MAY	17	0.00	1.9	3.5	1.8	0.56
JUNE	24	0.00	1.4	3.7	2.6	0.41
JULY	254	0.00	42	53	1.3	12.4
AUGUST	745	1.5	89	120	1.3	26.2
SEPTEMBER	159	0.00	27	35	1.3	7.9
ANNUAL	123	2.1	27.9	29.3	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1914, 1917-19, 1931-33, 1936-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.02	0.00	0.00	0.00	0.00	0.00
60	0.18	0.01	0.00	0.00	0.00	0.00
90	0.67	0.11	0.01	0.00	0.00	0.00
120	2.5	0.65	0.27	0.04	0.00	0.00
183	5.1	1.6	0.85	0.46	0.18	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1930-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4,090	7,610	10,600	15,000	18,900	23,200

WEIGHTED SKEW (LOGS)= 0.05
MEAN (LOGS)= 3.61
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1914, 1917-19, 1931-33, 1936-96

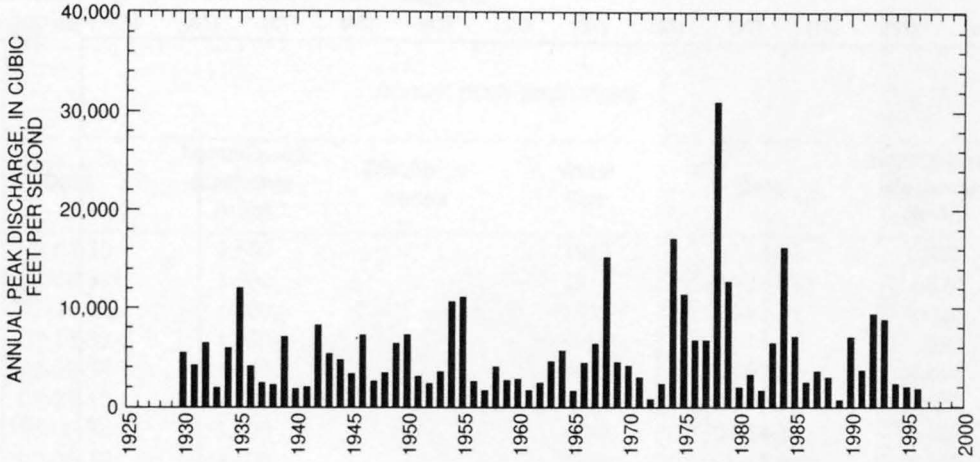
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	735	1,950	3,320	5,910	8,660	12,270
3	419	1,110	1,890	3,370	4,940	7,010
7	255	649	1,070	1,830	2,610	3,600
15	166	406	649	1,080	1,490	2,000
30	112	264	414	667	908	1,200
60	73	174	272	439	597	787
90	53	126	198	320	436	576

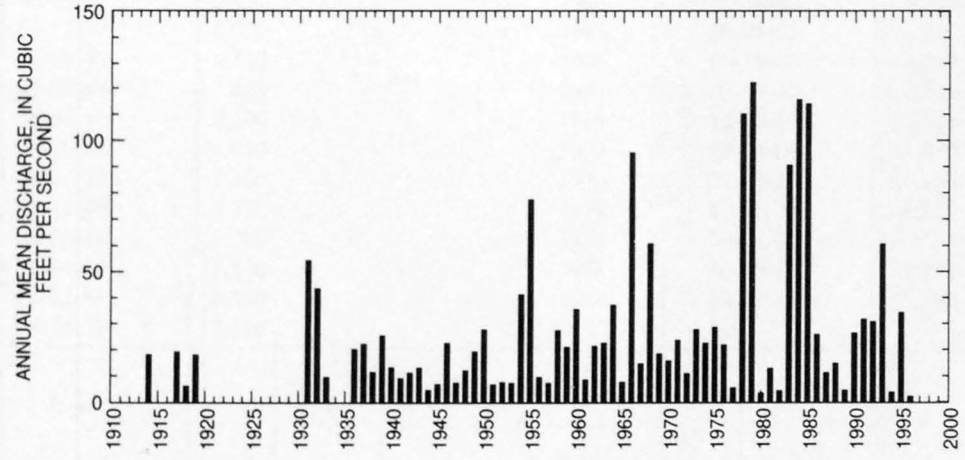
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1914, 1917-19, 1931-33, 1936-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
545	102	43	26	17	7.2	4.2	2.7	1.0	0.66	0.19	0.00	0.00	0.00	0.00	0.00	0.00

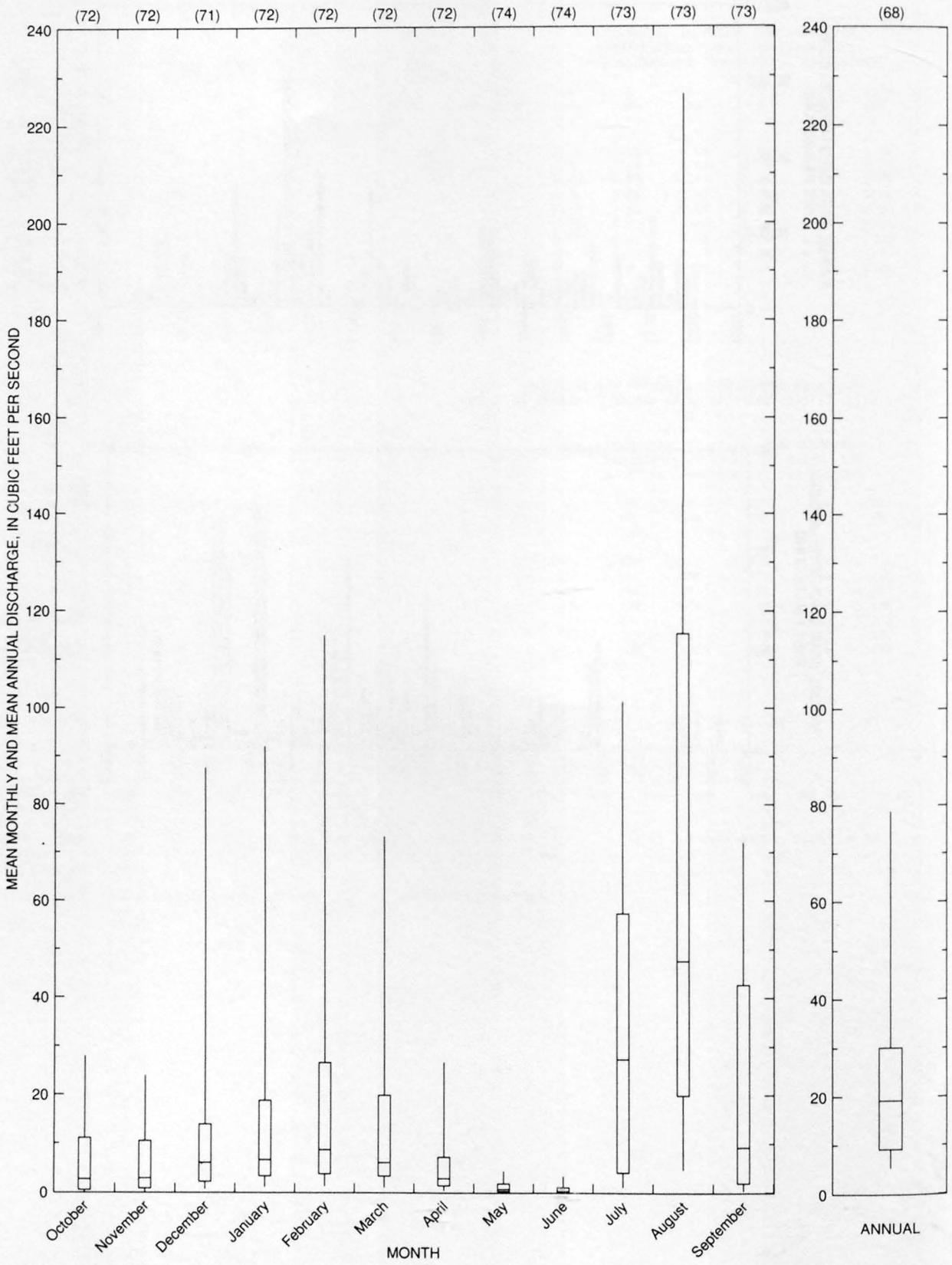
Reliability of values in column is uncertain, and potential errors are large.

09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ--Continued





09480500 SANTA CRUZ RIVER NEAR NOGALES, AZ--Continued



09481500 SONOITA CREEK NEAR PATAGONIA, AZ

LOCATION.--Lat 31°30'00", long 110°49'00", $SE^1/_4SW^1/_4$ sec.21, T.22 S., R.15 E., Santa Cruz County, Hydrologic Unit 15050301, on left abutment of former railroad bridge, 5 mi downstream from Patagonia.

DRAINAGE AREA.--209 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1930	08-07-30	2,600		1953	07-14-53	2,870	
1931	07-28-31	1,900		1954	07-20-54	4,670	
1932	07-26-32	1,700		1955	08-12-55	6,920	
1933	07-15-33	1,050		1956	07-19-56	780	
1934	08-00-34	11,000		1957	08-02-57	4,860	
1935	08-23-35	4,700		1958	07-05-58	5,590	
1936	08-09-36	3,600		1959	08-24-59	2,310	
1937	09-06-37	3,600		1960	08-13-60	1,550	
1938	09-09-38	3,400		1961	10-09-60	2,760	
1939	08-08-39	3,300		1962	12-15-61	680	
1940	08-13-40	2,580		1963	08-26-63	4,320	
1941	08-09-41	2,150		1964	09-10-64	2,640	
1942	09-12-42	1,000		1965	09-08-65	806	
1943	08-28-43	4,530		1966	08-18-66	4,120	
1944	08-09-44	669		1967	07-03-67	2,060	
1945	08-06-45	3,140		1968	12-20-67	5,410	
1946	09-30-46	14,000		1969	08-24-69	450	
1947	08-12-47	2,360		1970	08-03-70	622	
1948	08-15-48	4,750		1971	08-11-71	2,860	
1949	08-08-49	5,790		1972	09-09-72	368	
1950	07-30-50	7,300		1978	10-09-77	[1]7,380	HP
1951	08-02-51	5,030		1984	10-02-83	[2]16,000	HP
1952	08-14-52	3,630					

[1]Highest since 1946.

[2]Highest since 1930.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
76.7	21.7	4,800	52.0	2.0	19.3	2.0	4.1

09481500 SONOITA CREEK NEAR PATAGONIA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1931-33, 1936-72

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	20	0.03	3.9	3.9	0.99	4.0
NOVEMBER	18	0.32	4.0	3.3	0.83	4.1
DECEMBER	107	0.99	10	21	2.1	10.5
JANUARY	52	1.1	7.5	8.9	1.2	7.8
FEBRUARY	96	0.99	9.9	18	1.8	10.2
MARCH	16	0.87	5.5	3.3	0.61	5.7
APRIL	12	0.49	4.1	2.9	0.70	4.3
MAY	10	0.06	2.5	2.4	0.95	2.6
JUNE	8.6	0.00	1.6	2.1	1.3	1.7
JULY	112	0.06	13	19	1.4	13.5
AUGUST	151	1.5	25	27	1.1	26.1
SEPTEMBER	71	0.05	9.2	13	1.4	9.5
ANNUAL	33	1.9	8.1	5.6	0.69	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1932-33, 1937-72

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.08	0.00	0.00	0.00	0.00	0.00
7	0.11	0.00	0.00	0.00	0.00	0.00
14	0.19	0.00	0.00	0.00	0.00	0.00
30	0.35	0.05	0.00	0.00	0.00	0.00
60	0.70	0.18	0.08	0.03	0.00	0.00
90	1.3	0.52	0.31	0.20	0.12	0.09
120	2.4	1.3	0.97	0.74	0.55	0.45
183	3.8	2.2	1.6	1.2	0.90	0.73

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1930-72, 1978, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
3,130	5,360	7,190	9,950	12,300	15,100

WEIGHTED SKEW (LOGS)= 0.22
MEAN (LOGS)= 3.51
STANDARD DEV. (LOGS)= 0.27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1931-33, 1936-72

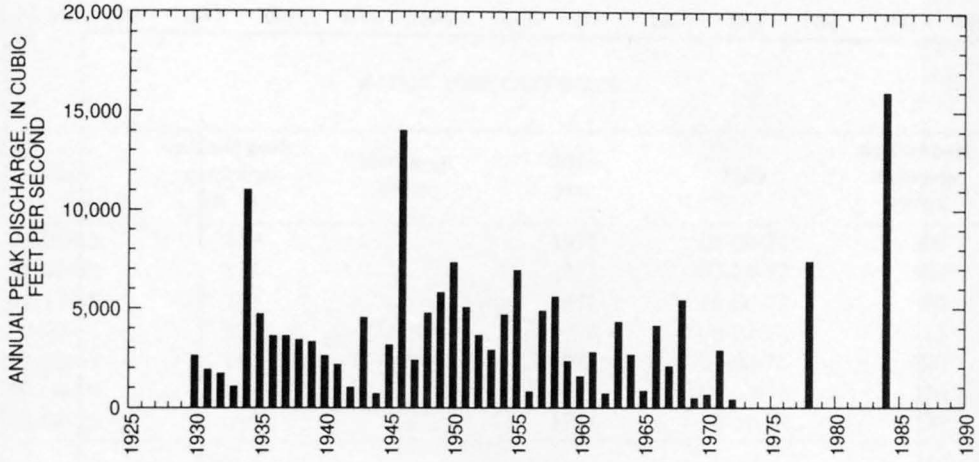
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	277	599	881	1,310	1,680	2,090
3	132	285	415	608	771	948
7	74	156	225	329	418	516
15	44	92	138	212	282	364
30	29	59	87	131	171	218
60	20	39	54	79	100	124
90	15	28	39	56	71	87

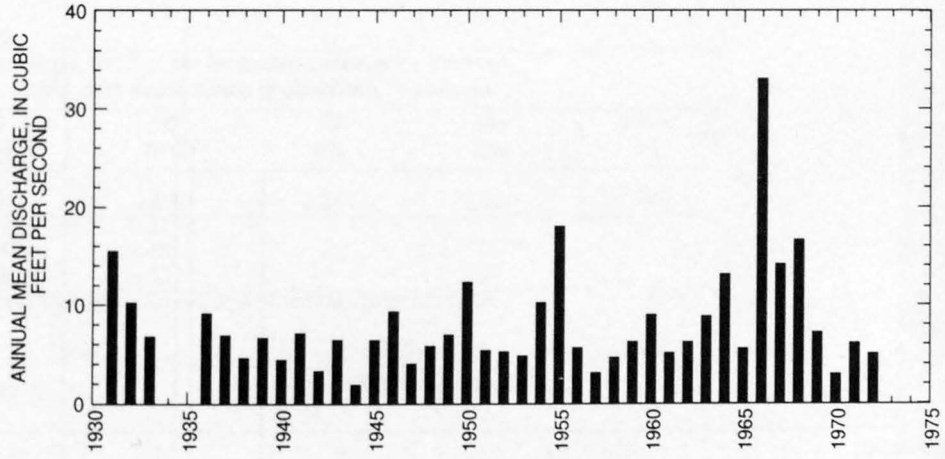
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1931-33, 1936-72

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
115	19	11	8.0	7.1	5.3	4.0	3.2	2.6	2.1	1.2	0.45	0.10	0.00	0.00	0.00	0.00

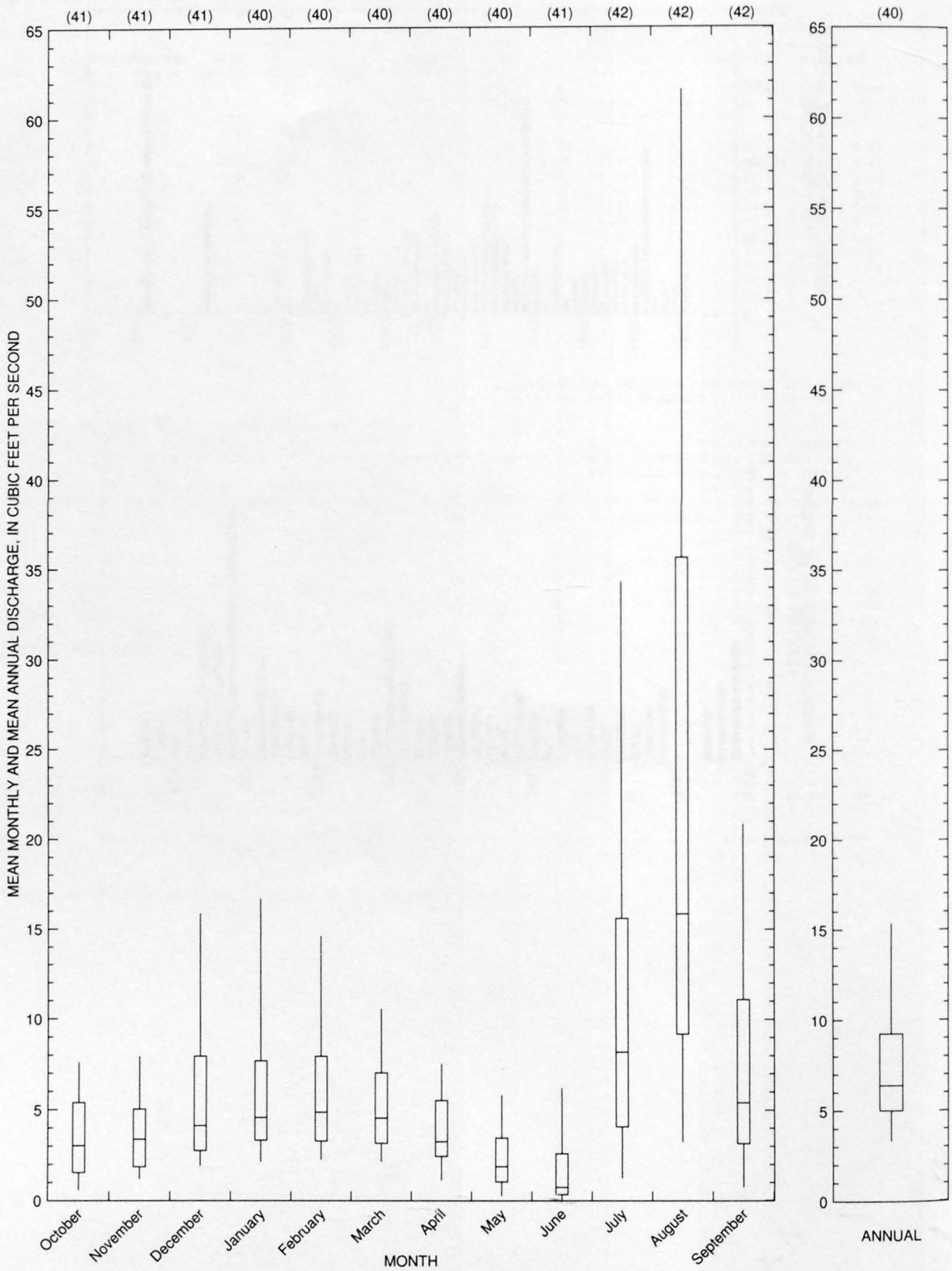
Reliability of values in column is uncertain, and potential errors are large.

09481500 SONOITA CREEK NEAR PATAGONIA, AZ--Continued





09481500 SONOITA CREEK NEAR PATAGONIA, AZ--Continued



09481700 CALABASAS CANYON NEAR NOGALES, AZ

LOCATION.--Lat 31°27'25", long 110°59'09", SE$^1/_4$NW$^1/_4$ sec.2, T.23 S., R.13 E., Santa Cruz County, Hydrologic Unit 15050301, at U.S. Highway 89, 8.5 mi north of Nogales.
DRAINAGE AREA.--10.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-05-63	179		1971	08-00-71	700	
1964	07-00-64	813		1972	07-24-72	300	
1965	07-17-65	263		1973	10-00-72	80	
1967	07-00-67	520		1974	08-02-74	115	
1968	12-20-67	150	ES	1975	07-00-75	600	
1969	09-00-69	1,000		1976	00-00-76	220	
1970	08-08-70	50	LT	1978	10-09-77	1,200	HP

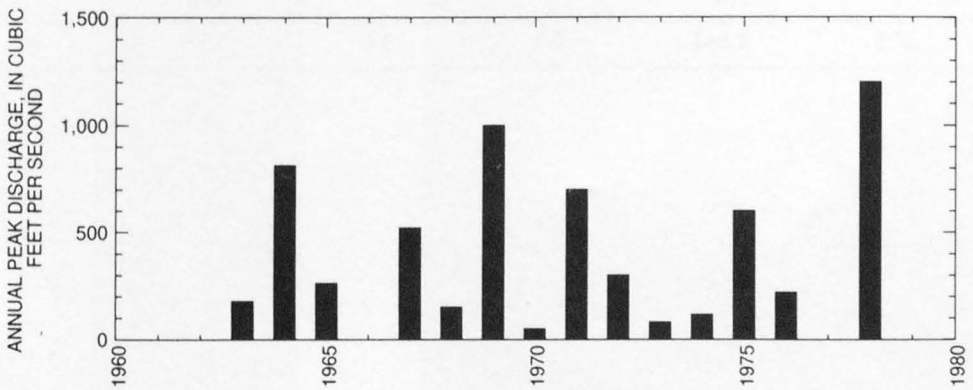
Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1978

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
309	691	1,030	1,560	2,020	2,540
Weighted skew	(logs) =	-0.21			
Mean	(logs) =	2.48			
Standard dev.	(logs) =	0.43			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
75.4	11.5	4,360	17.0	3.0	15.8	2.0	4.3



09481750 SOPORI WASH AT AMADO, AZ

LOCATION.--Lat 31°43'25", long 111°03'40", NE$^1/_4$NE$^1/_4$ sec.1, T.20 S., R.12 E., Santa Cruz County, Hydrologic Unit 15050301, 200 ft below bridge on State Highway 89, 1.1 mi north of Amado.

DRAINAGE AREA.--176 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1948	08-15-48	16,000	HP	1968	00-00-68	500	LT
1954	00-00-54	6,500		1969	00-00-69	500	LT
1955	08-00-55	2,700		1970	09-04-70	1,800	
1956	00-00-56	500	ES	1971	09-01-71	2,900	
1957	00-00-57	100	ES	1972	07-14-72	[2]7,300	
1958	00-00-58	[1]8,000		1973	07-00-73	400	
1964	09-10-64	3,800		1974	07-23-74	3,900	
1965	00-00-65	500	LT	1975	08-23-75	2,700	
1966	12-22-65	1500		1976	09-25-76	2,500	
1967	00-00-67	500	LT	1978	10-00-77	2,300	HP

[1]Highest since 1949.

[2]Highest since 1958.

Magnitude and probability of instantaneous peak flow based on period of record 1948, 1954-58, 1964-76, 1978

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
2,230	4,610	6,780	10,200	13,400	17,100

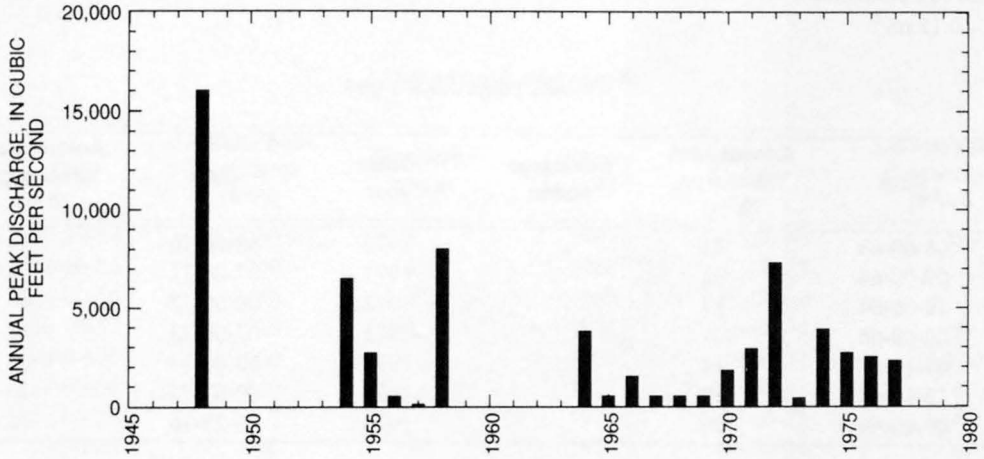
Weighted skew	(logs) =	0.05
Mean	(logs) =	3.35
Standard dev.	(logs) =	0.37

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
35.9	27.3	3,840	0.3	3.0	15.5	2.2	4.3

09481750 SOPORI WASH AT AMADO, AZ--Continued



09481800 DEMETRIE WASH TRIBUTARY NEAR CONTINENTAL, AZ

LOCATION.--Lat 31°52'15", long 111°05'15", SW$^1/_4$SE$^1/_4$ sec.11, T.18 S., R.12 E., Pima County, Hydrologic Unit 15050301, at Duval Mine Road, 6.5 mi west of Continental.

DRAINAGE AREA.--0.15 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-08-63	71		1970	08-00-70	10	
1964	00-00-64	71		1971	07-00-71	4.0	ES
1965	10-00-64	17		1972	00-00-72	60	
1966	00-00-66	11		1973	07-00-73	17	
1967	07-17-67	19		1974	00-00-74	63	
1968	12-15-67	10		1975	09-07-75	110	
1969	09-00-69	20		1976	09-25-76	36	

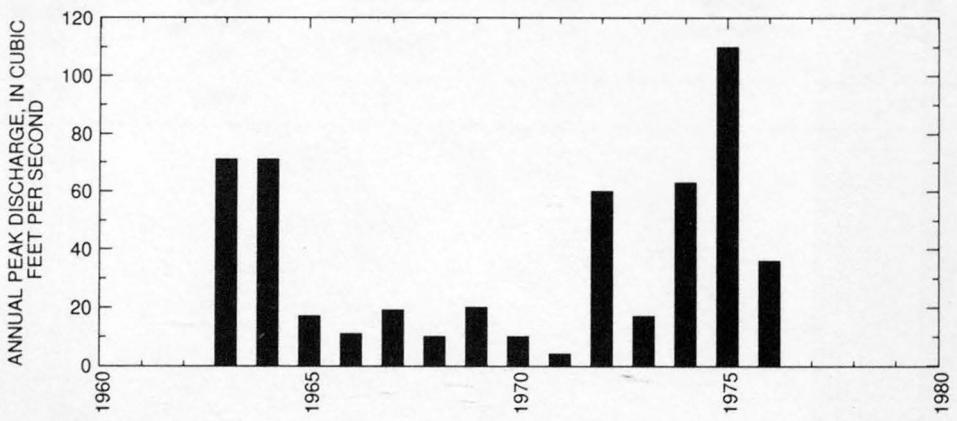
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
25.6	56.9	85.2	130	169	214
Weighted skew	(logs) =	-0.15			
Mean	(logs) =	1.40			
Standard dev.	(logs) =	0.42			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
100	0.80	3,620	0.0	1.0	14.5	2.3	4.7



09481900 OCOTILLO WASH NEAR CONTINENTAL, AZ

LOCATION.--Lat 31°50'00", long 111°00'00", SE$^1/_4$ sec.27, T.18 S., R.12 E. (unsurveyed), Pima County, Hydrologic Unit 15050301, in Spanish Land Grant of San Ignacio del la Canoa at U.S. Highway 89, 1.5 mi southwest of Continental.
DRAINAGE AREA.--3.60 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1954	07-20-54	1,250		1967	00-00-67	20	ES
1955	00-00-55	200	ES	1968	12-00-67	1.0	LT
1956	00-00-56	90	ES	1969	00-00-69	0	
1957	00-00-57	35	ES	1970	00-00-70	0	KR
1963	08-0-563	[1]1,660		1971	08-00-71	12	KR
1964	07-00-64	[2]1,840		1972	00-00-72	0	KR
1965	00-00-65	0		1973	00-00-73	10	ES,KR
1966	00-00-66	40	ES	1974	00-00-74	0	KR

[1]Highest since 1954.

[2]Highest since 1954.

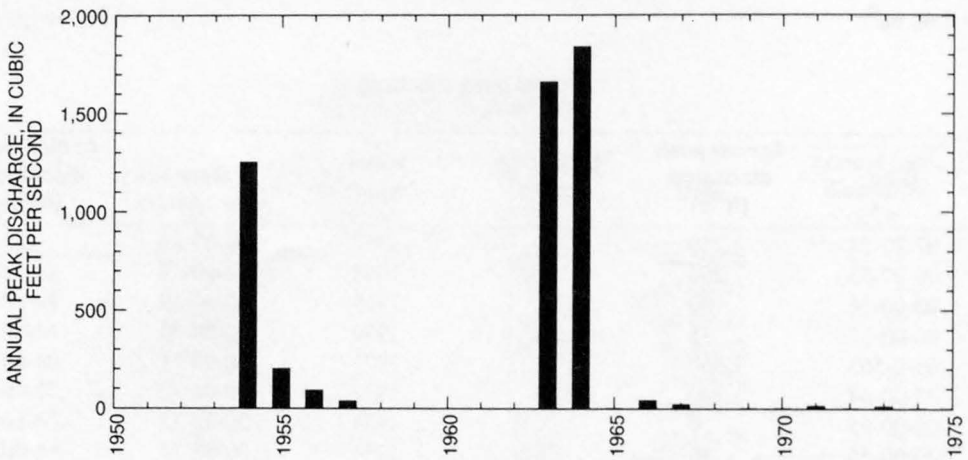
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
106	5.99	3,280	0.0	3.0	14.1	2.1	4.6

09481900 OCOTILLO WASH NEAR CONTINENTAL, AZ--Continued



09482000 SANTA CRUZ RIVER AT CONTINENTAL, AZ

LOCATION.--Lat 31°52'17", long 110°58'46", in $SE^1/_4SE^1/_4$ sec.11, T.18 S., R.13 E. (unsurveyed), Pima County, Hydrologic Unit 15050301, in Spanish land grant of San Ignacio de la Canoa, on right bank 0.8 mi northeast of Green Valley Post Office, and 1.5 mi north of Continental. Prior to Feb. 13, 1981, at site 1.5 mi upstream.

DRAINAGE AREA.--1,682 mi^2, revised, of which 395 mi^2 is in Mexico.

PERIOD OF RECORD.--May 1940 to December 1946, October 1951 to September 1985, October 1991 to current year (monthly discharge only for 1985-86), (crest-stage partial record station for 1987-1990). Low-flow records not equivalent prior to Feb. 13, 1981, due to undetermined amount of underflow between sites.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 2,806.61 ft above sea level. Prior to Feb. 13, 1981, at site 1.5 mi upstream. July 21, 1940 to Sept. 8, 1965 at datum 17.28 ft higher; Sept. 8, 1965 to present at datum 13.21 ft higher. Old site used as supplementary gage until Oct. 29, 1985.

REMARKS.--Records poor. Irrigation above station of about 12,500 acres including about 2,300 acres in Mexico, mostly by pumping from ground water.

AVERAGE DISCHARGE.--46 years, 27.1 ft^3/s, 19,630 acre-ft/yr; median of yearly mean discharges, 9.5 ft^3/s, 6,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft^3/s Oct. 2, 1983, gage height, 16.34 ft from rating curve extended above 530 ft^3/s on basis of float-area measurement at gage height 7.75 ft and slope-area measurement of peak flow, maximum gage height 16.70 ft Oct. 9, 1977, site and datum then in use; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-14-40	12,100		1971	08-20-71	3,270	
1941	08-09-41	3,670		1972	07-14-72	3,290	
1942	07-28-42	2,700		1973	03-14-73	2,130	
1943	08-01-43	4,000		1974	09-03-74	3,450	
1944	08-12-44	4,440		1975	09-01-75	3,350	
1945	08-09-45	7,820		1976	07-12-76	3,800	
1946	09-09-46	4,120		1977	07-18-77	3,290	
1947	10-01-46	5,330		1978	10-09-77	26,500	
1952	08-15-52	1,820		1979	12-18-78	16,000	
1953	07-14-53	4,910		1980	08-25-80	2,360	
1954	08-05-54	14,600		1981	09-05-81	3,350	
1955	08-19-55	17,500		1982	08-15-82	2,160	
1956	07-29-56	3,090		1983	02-04-83	4,800	
1957	08-21-57	1,690		1984	10-02-83	[1]45,000	
1958	08-05-58	5,620		1985	12-28-84	11,600	
1959	08-17-59	3,900		1986	07-16-86	840	
1960	01-12-60	3,740		1987	08-05-87	340	
1961	08-23-61	4,820		1988	07-28-88	930	
1962	01-25-62	2,480		1989	09-03-89	1,200	
1963	08-06-63	4,220		1990	10-05-89	1,790	
1964	09-10-64	14,000		1991	09-01-91	1,270	
1965	09-12-65	370		1992	08-24-92	4,120	
1966	12-23-65	5,990		1993	01-19-93	32,400	
1967	07-27-67	3,730		1994	08-22-94	707	
1968	12-20-67	18,000		1995	01-06-95	2,350	
1969	08-05-69	1,680		1996	09-03-96	1,520	
1970	07-20-70	3,720					

[1]Highest since 1892.

09482000 SANTA CRUZ RIVER AT CONTINENTAL, AZ--Continued

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.5	57	9.0	7,130
3.0	147	10.0	9,910
4.0	460	11.0	13,300
5.0	1,030	12.0	17,360
6.0	1,920	13.0	22,140
7.0	3,190	14.0	27,700
8.0	4,910	14.7	32,070

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
21.0	99.2	4,350	22.0	2.0	18.1	2.1	4.3

09482000 SANTA CRUZ RIVER AT CONTINENTAL, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-46, 1952-85, 1992-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,530	0.00	53	251	4.8	16.1
NOVEMBER	133	0.00	3.3	20	6.1	1.0
DECEMBER	658	0.00	47	146	3.1	14.3
JANUARY	1,390	0.00	56	223	4.0	17.1
FEBRUARY	207	0.00	18	48	2.7	5.4
MARCH	181	0.00	12	37	3.2	3.6
APRIL	32	0.00	0.72	4.7	6.5	0.2
MAY	1.3	0.00	0.03	0.20	6.3	0.0
JUNE	6.2	0.00	0.34	1.2	3.4	0.1
JULY	227	0.00	32	45	1.4	9.9
AUGUST	753	0.00	86	160	1.8	26.3
SEPTEMBER	285	0.00	20	45	2.3	6.1
ANNUAL	206	0.26	28	41	1.5	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1942-46, 1953-85, 1993-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.16	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-47, 1952-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3,580	7,980	12,800	22,000	32,000	45,400

WEIGHTED SKEW (LOGS)= 0.59
MEAN (LOGS)= 3.59
STANDARD DEV. (LOGS)= 0.39

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-46, 1952-85, 1992-96

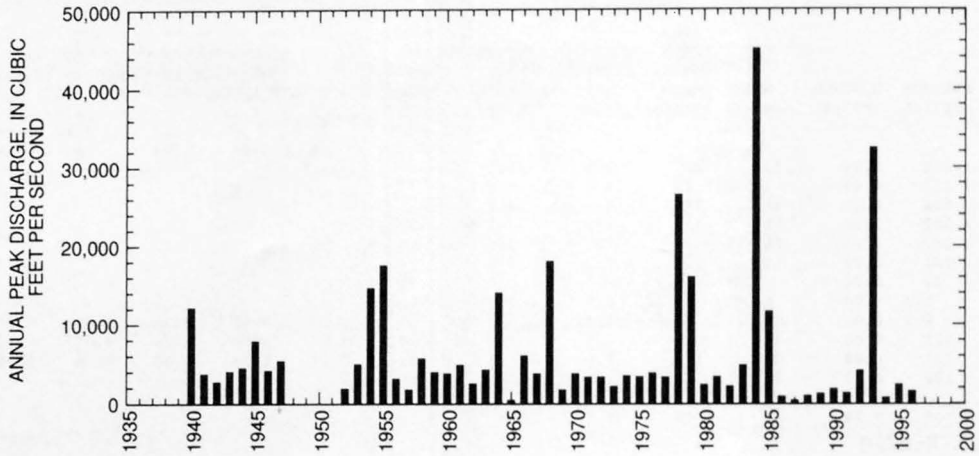
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,000	3,260	6,180	12,400	19,700	30,000
3	518	1,750	3,390	6,920	11,100	17,000
7	270	920	1,780	3,640	5,830	8,950
15	159	533	1,010	2,010	3,150	4,730
30	105	332	598	1,110	1,640	2,320
60	63	196	348	634	928	1,300
90	44	136	241	439	643	902

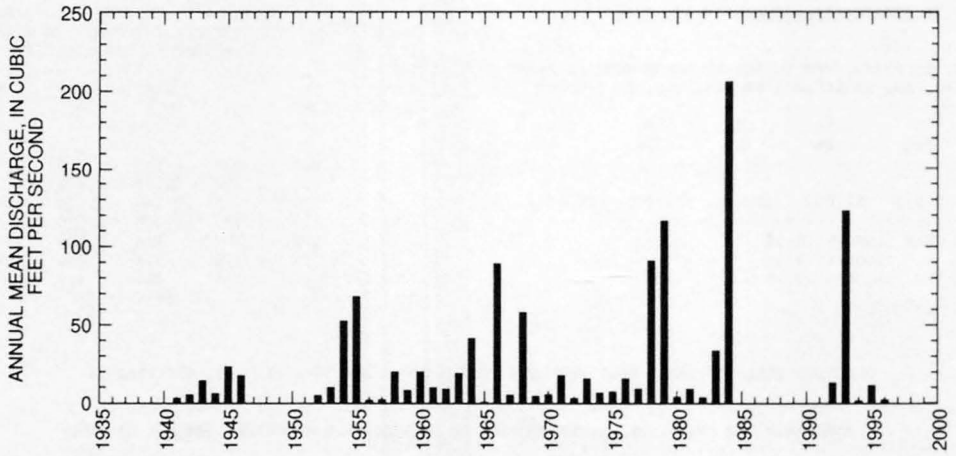
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-46, 1952-85, 1992-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
600	52	2.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

09482000 SANTA CRUZ RIVER AT CONTINENTAL, AZ--Continued





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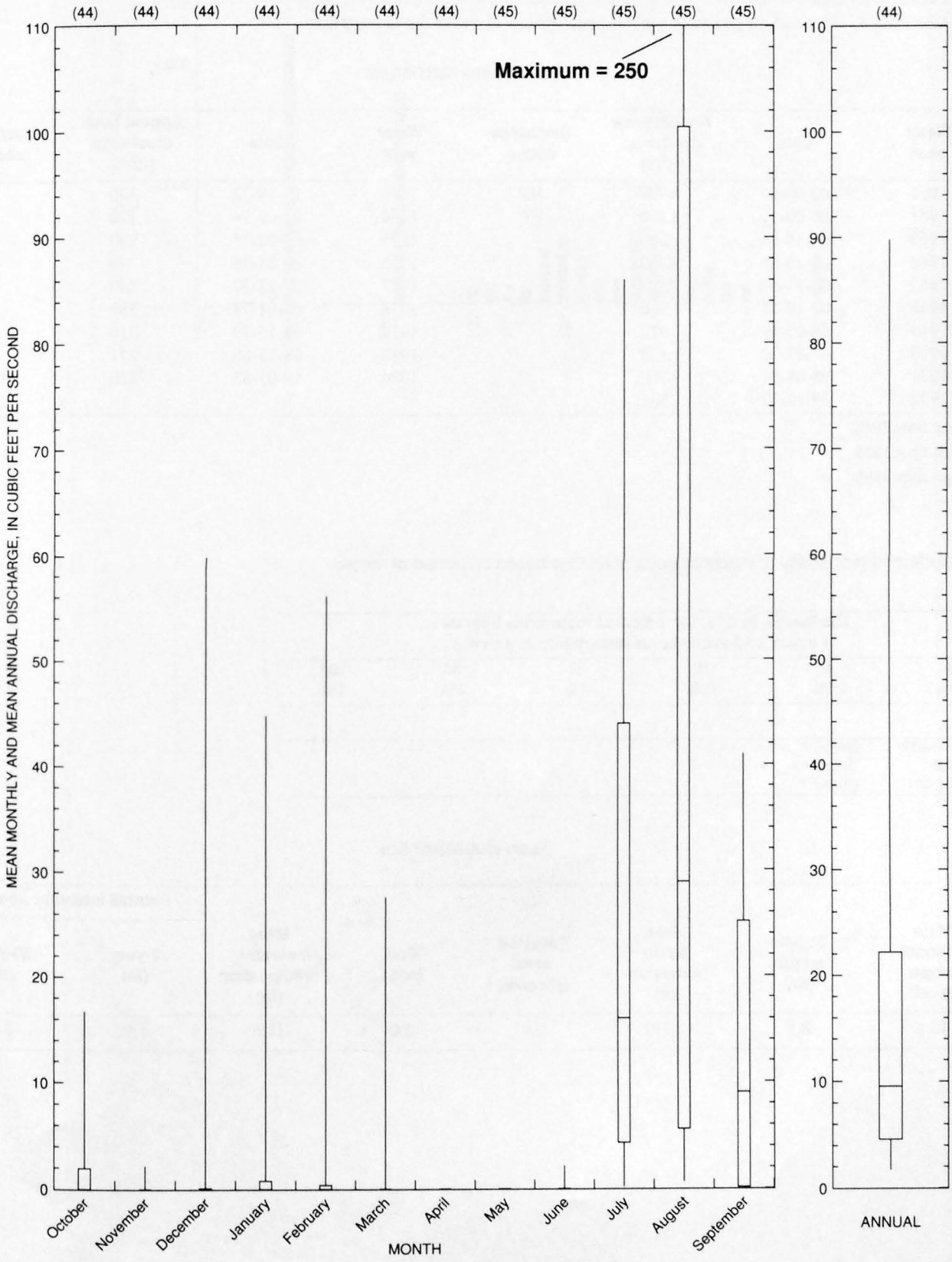


09482200 FLATO WASH NEAR SAHUARITA, AZ

LOCATION.--Lat 32°02'43", long 110°57'00", SW$^1/_4$SE$^1/_4$ sec.7, T.16 S., R.14 E., Pima County, Hydrologic Unit 15050301, at U.S. Highway 89, 6 mi north Sahuarita.

DRAINAGE AREA.--30.1 mi^2, of which 23.4 mi^2 is noncontributing and/or distributary flow.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1955	00-00-55	[1]4,500	HP	1973	10-19-72	370	
1961	00-00-61	[2]3,500	HP	1974	07-07-74	1,170	
1965	08-30-65	250		1975	09-07-75	960	
1966	08-19-66	340		1976	09-25-76	790	
1967	07-17-67	307		1977	07-22-77	390	
1968	02-12-68	230		1978	08-01-78	580	
1969	08-07-69	913		1979	08-15-79	310	
1970	07-21-70	1,150		1980	08-13-80	271	
1971	08-08-71	760		1984	10-01-83	[3]820	HP
1972	09-12-72	365					

[1]Highest since 1928.

[2]Highest since 1955.

[3]Highest since 1980.

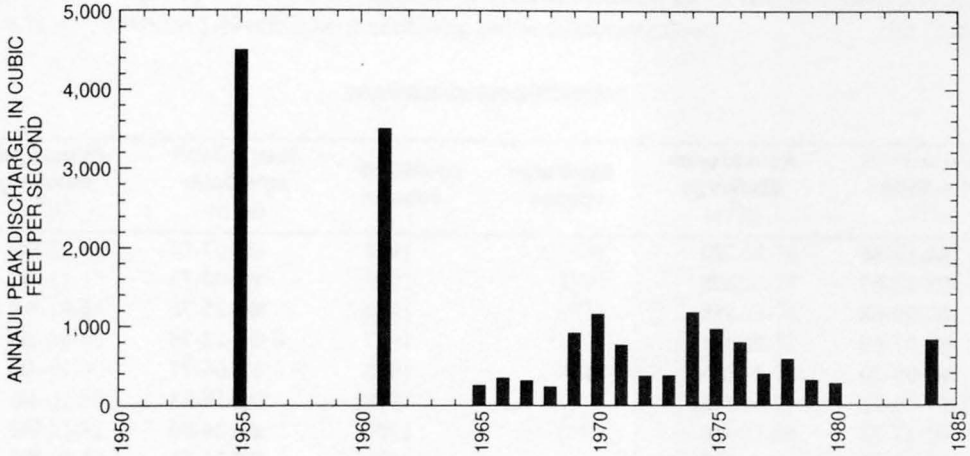
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
40.4	8.8	2,770	0.0	3.0	11.6	1.9	4.3

09482200 FLATO WASH NEAR SAHUARITA, AZ--Continued



09482330 PUMPING WASH NEAR VAIL, AZ

LOCATION.--Lat 32°04'10", long 110°48'23", SW$^1/_4$NW$^1/_4$ sec.3, T.16 S., R.15 E., Pima County, Hydrologic Unit 15050301, at road to pumping station 1.1 mi south of Interstate 10, and 5.7 mi west of Vail.

DRAINAGE AREA.--0.81 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-16-66	90		1974	07-07-74	210	
1967	07-17-67	205		1975	07-00-75	43	
1968	00-00-68	135		1976	09-25-76	9.0	
1969	08-07-69	33		1977	10-22-76	67	
1970	08-00-70	220		1978	10-06-77	90	
1971	07-00-71	337		1979	12-18-78	41	
1972	07-17-72	30		1980	08-24-80	190	
1973	10-05-72	142		1981	07-25-81	195	

Magnitude and probability of instantaneous peak flow based on period of record 1966-81

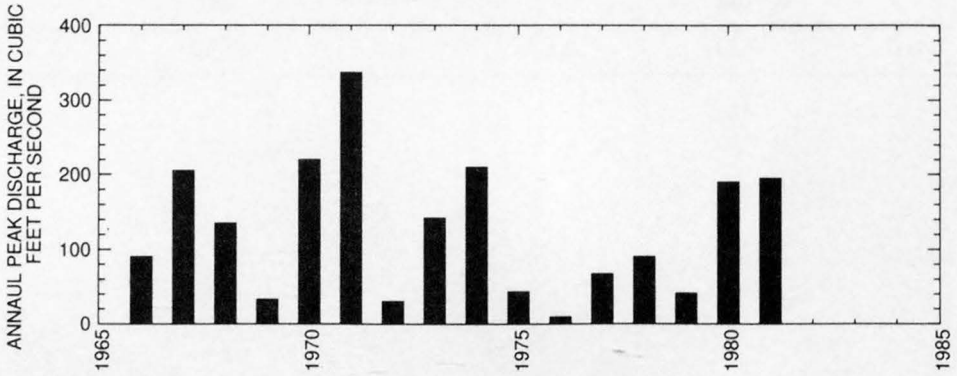
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
102	198	274	382	469	560

Weighted skew	(logs) =	-0.31
Mean	(logs) =	1.99
Standard dev.	(logs) =	0.36

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
57.7	2.3	3,010	0.0	1.0	11.2	1.8	3.9



09482350 SOUTH FORK AIRPORT WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°06'00", long 110°54'30", $SE^1/_4NE^1/_4$ sec.28, T.15 S., R.14 E., Pima County, Hydrologic Unit 15050301, at Hughes Access Road, 3.25 mi south of U.S. Highway 80, and 1.5 mi southeast of Tucson city limits.

DRAINAGE AREA.--9.78 mi^2, of which 5.40 mi^2 is noncontributing and/or distributary flow.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	07-28-66	225		1974	07-08-74	[1]1,890	
1967	07-17-67	450		1975	07-00-75	10	LT
1968	08-19-68	180		1976	09-25-76	980	
1969	07-28-69	8.0		1977	01-29-77	69	
1970	07-19-70	216		1978	01-15-78	59	
1971	10-02-70	480		1979	00-00-79	0.0	
1972	08-12-72	180		1980	09-07-80	620	
1973	10-19-72	250					

[1]Highest since 1956.

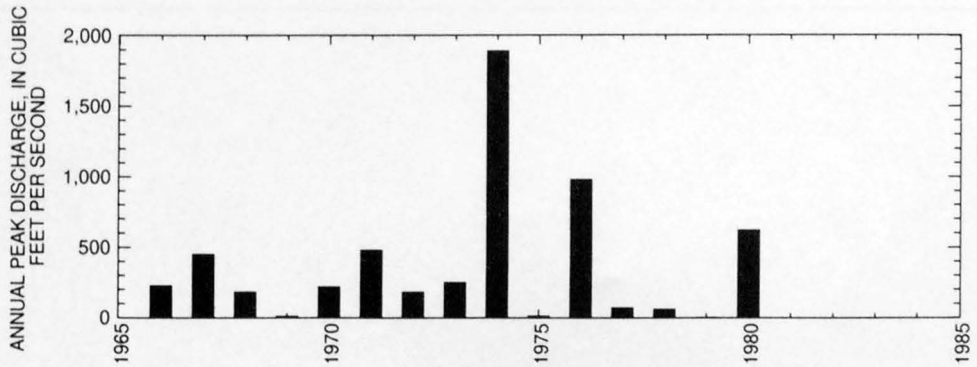
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---

Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
36.5	3.1	2,740	0.0	1.0	11.0	1.8	3.9



09482370 NORTH FORK AIRPORT WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°06'40", long 110°54'30", NE$^1/_4$SE$^1/_4$ sec.21, T.15 S., R.14 E., Pima County, Hydrologic Unit 15050301, at Hughes Access Road, 2.5 mi south of U.S. Highway 80, and 1 mi east of Tucson city limits.

DRAINAGE AREA.--6.65 mi^2, of which 1.37 mi^2 is noncontributing and/or distributary flow.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	08-22-61	[1]1,350	HP	1973	10-19-72	230	
1965	00-00-65	[2]650		1974	07-08-74	[1]1,030	
1966	07-28-66	100	ES	1975	07-12-75	10	LT
1967	07-17-67	30	ES	1976	09-25-76	700	
1968	08-19-68	370		1977	11-11-76	70	
1969	09-15-69	40		1978	01-15-78	115	
1970	07-19-70	190		1979	00-00-79	0	
1971	10-02-70	450		1980	09-07-80	460	
1972	08-12-72	130					

[1]Highest since 1956.

[2]Highest since 1961.

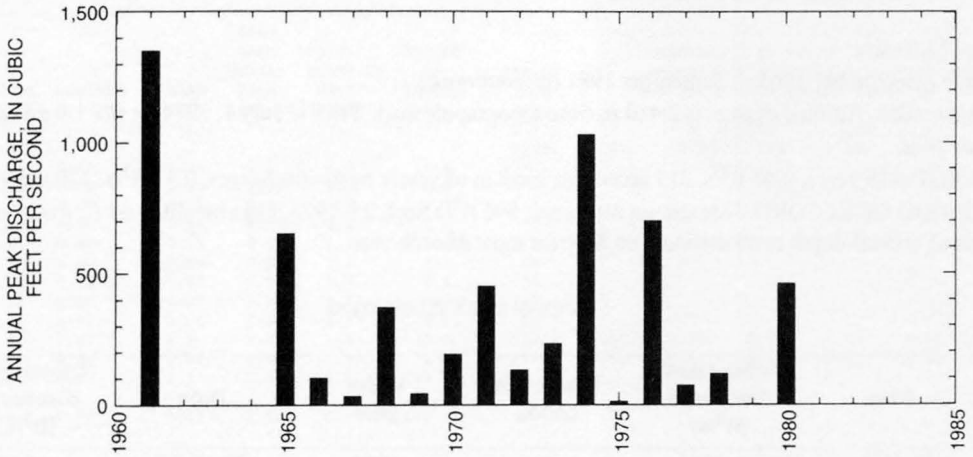
Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
40.6	4.6	2,780	3.0	1.0	10.8	1.8	3.9

09482370 NORTH FORK AIRPORT WASH NEAR TUCSON, AZ--Continued



09482400 AIRPORT WASH AT TUCSON, AZ

LOCATION.--Lat 32°09'09", long 110°58'52", in $NE^1/_4SE^1/_4$ sec.2, T.15 S., R.13 E., Pima County, Hydrologic Unit 15050301, 25 ft upstream from Santa Clara Avenue, 0.7 mi upstream from mouth, 4.3 mi downstream from confluence of North and South Forks, and 4.9 mi south of city hall in Tucson.

DRAINAGE AREA.--23.0 mi^2.

PERIOD OF RECORD.--September 1965 to September 1981 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,460 ft, from topographic map. Prior to July 1, 1974, at site 1.8 mi upstream at different datum.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--16 years, 0.43 ft^3/s, 312 acre-ft/yr; median of yearly mean discharges, 0.37 ft^3/s, 270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 896 ft^3/s Sept. 25, 1976, gage height, 2.64 ft, from rating curve extended above 150 ft^3/s on basis of critical-depth computations; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	09-11-66	322	C	1975	07-12-75	377	C
1967	07-17-67	106	C	1976	09-25-76	896	C
1968	08-20-68	385	C	1977	09-09-77	304	C
1969	08-28-69	118	C	1978	09-21-78	405	C
1970	07-20-70	823	C	1979	10-21-78	279	C
1971	10-02-70	549	C	1980	09-07-80	378	C
1972	07-16-72	310	C	1981	07-27-81	385	C
1973	10-19-72	159	C	1984	10-01-83	2,900	HP,C
1974	07-07-74	689	C	1988	08-23-88	1,200	C

Discharge rating table developed April 1987

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.0	2.4	2.0	372
1.2	16	2.2	528
1.4	69	2.4	680
1.6	146	2.6	860
1.8	250		

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
37.0	10.8	2,700	1.1	1.0	10.8	1.8	3.9

09482400 AIRPORT WASH AT TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-81

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3.4	0.00	0.54	1.1	2.0	10.6
NOVEMBER	0.67	0.00	0.10	0.20	2.0	2.0
DECEMBER	0.97	0.00	0.19	0.32	1.7	3.7
JANUARY	0.53	0.00	0.09	0.18	2.0	1.7
FEBRUARY	1.4	0.00	0.13	0.35	2.7	2.6
MARCH	0.41	0.00	0.06	0.12	1.8	1.2
APRIL	0.24	0.00	0.02	0.06	3.0	0.4
MAY	0.05	0.00	0.00	0.01	3.4	0.1
JUNE	0.19	0.00	0.01	0.05	3.8	0.2
JULY	9.4	0.00	1.9	2.7	1.4	38.0
AUGUST	3.0	0.00	0.81	0.80	0.98	16.0
SEPTEMBER	6.0	0.00	1.2	1.8	1.5	23.5
ANNUAL	1.1	0.08	0.43	0.31	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-81

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50 2%	100 1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.11	0.03	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-81, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
403	666	889	1,230	1,540	1,900

WEIGHTED SKEW (LOGS)= 0.47
MEAN (LOGS)= 2.63
STANDARD DEV. (LOGS)= 0.25

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-81

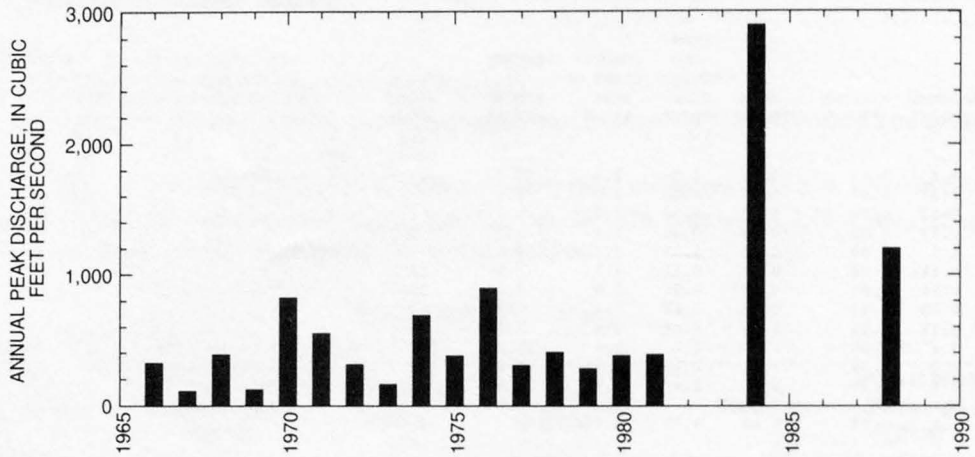
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	41	81	118	176	229	291
3	17	38	58	92	124	162
7	7.8	17	27	42	57	74
15	3.9	8.7	13	20	27	35
30	2.5	5.3	7.8	12	15	19
60	1.5	3.1	4.6	7.0	9.1	11
90	1.0	2.1	3.1	4.6	6.0	7.6

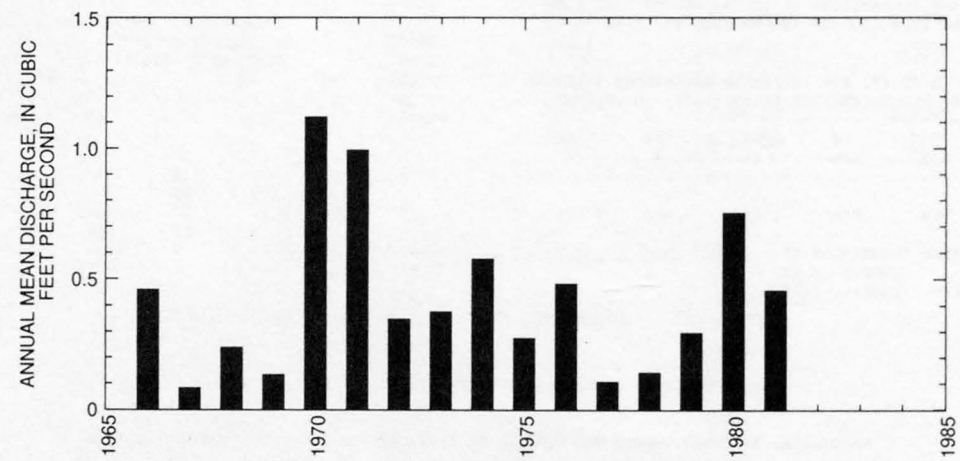
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-81

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
9.3	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

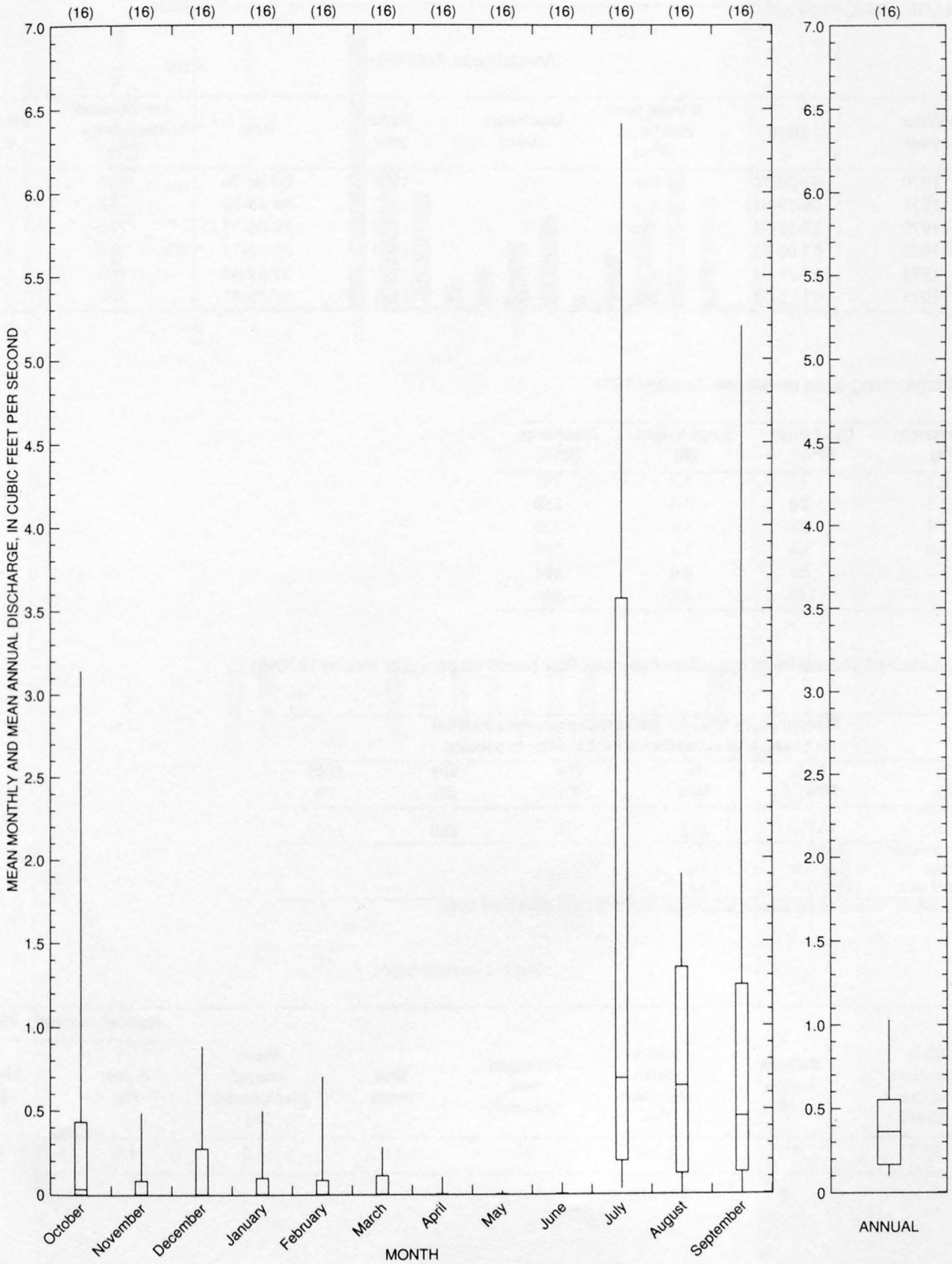
Reliability of values in column is uncertain, and potential errors are large.

09482400 AIRPORT WASH AT TUCSON, AZ--Continued





09482400 AIRPORT WASH AT TUCSON, AZ--Continued



09482410 RODEO WASH AT TUCSON, AZ

LOCATION.--Lat 32°10'20", long 110°58'35", SW$^1/_4$NW$^1/_4$ sec.36, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, at South 12th Avenue, 0.8 mi above mouth in Tucson city limits.
DRAINAGE AREA.--7.24 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	07-20-70	898	C	1976	00-00-76	300	C
1971	08-19-71	476	C	1977	08-15-77	32	C
1972	07-16-72	380	C	1978	10-06-77	170	C
1973	07-00-73	97	C	1979	08-12-79	320	C
1974	07-21-74	125	C	1980	09-07-80	460	C
1975	07-12-75	212	C	1981	07-29-81	360	C

Discharge rating table developed January 1971

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.1	13	3.2	191
2.2	20	3.4	250
2.4	38	3.6	320
2.6	64	3.8	398
2.8	96	4.0	488
3.0	139	4.2	590

Magnitude and probability of instantaneous peak flow based on period of record 1970-81

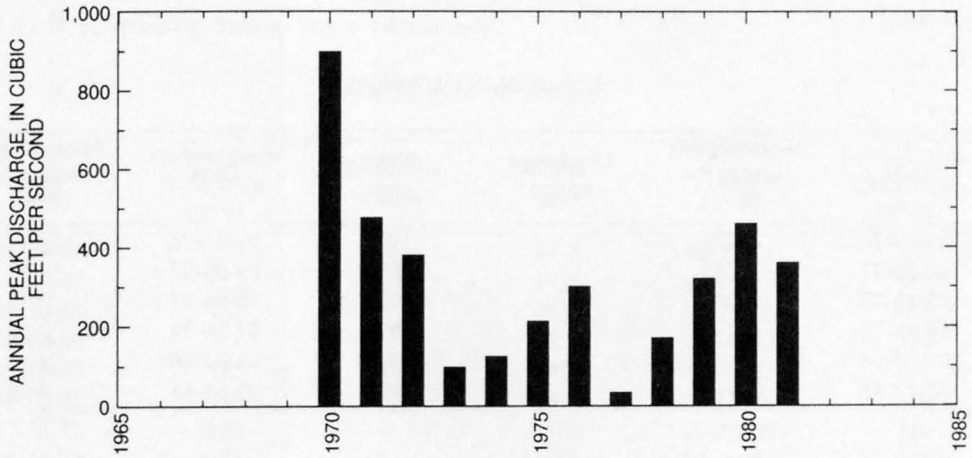
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
260	441	572	746	880	1,020
Weighted skew	(logs) =	-0.27			
Mean	(logs) =	2.40			
Standard dev.	(logs) =	0.28			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
33.7	7.9	2,560	0.0	1.0	10.6	1.9	4.2

09482410 RODEO WASH AT TUCSON, AZ--Continued



09482420 JULIAN WASH AT TUCSON, AZ

LOCATION.--Lat 32°10'15", long 110°56'25", $SW^1/_4NW^1/_4$ sec.32, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050302, 1,600 ft above confluence with Tucson Diversion channel, and 0.5 mi south of Ajo Road in Tucson.

DRAINAGE AREA.--26.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	07-19-70	1,270		1976	09-25-76	1,050	
1971	08-20-71	1,050		1977	09-09-77	680	
1972	07-16-72	440		1978	10-06-77	395	
1973	10-19-72	330		1979	07-29-79	190	
1974	07-07-74	130		1980	09-07-80	435	
1975	07-12-75	112		1981	03-02-81	400	

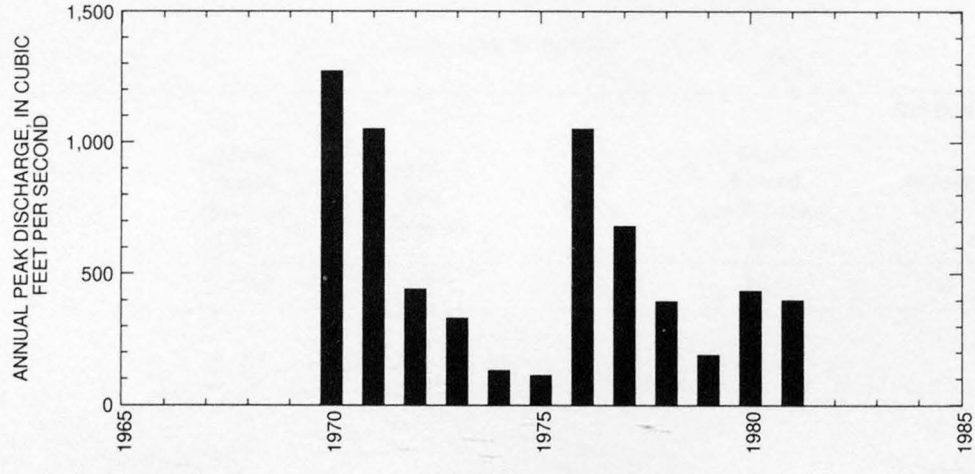
Magnitude and probability of instantaneous peak flow based on period of record 1970-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
428	817	1,130	1,570	1,930	2,310
Weighted skew	(logs) =	-0.22			
Mean	(logs) =	2.62			
Standard dev.	(logs) =	0.34			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
38.9	17.3	2,900	1.9	1.0	11.0	1.7	4.0



09482450 WEST BRANCH SANTA CRUZ RIVER AT TUCSON, AZ

LOCATION.--Lat 32°08'00", long 111°00'30", $NE^1/_4NE^1/_4$ sec.16, T.15 S., R.13 E., Pima County, Hydrologic Unit 15050301, at Valencia Road, 0.4 mi west of Tucson city limits.

DRAINAGE AREA.--23.6 mi^2, contributing drainage area not determined.

Annual peak discharges

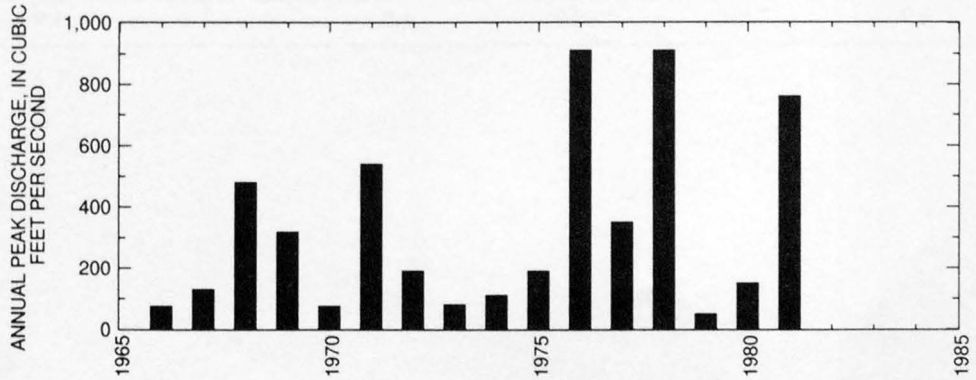
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-19-66	75	ES	1974	06-25-74	110	
1967	07-17-67	130	ES	1975	09-09-75	190	
1968	08-10-68	480		1976	09-25-76	910	
1969	08-08-69	318		1977	09-09-77	350	
1970	07-19-70	75	ES	1978	10-06-77	910	
1971	08-17-71	540		1979	12-18-78	50	
1972	07-16-72	190		1980	09-25-80	150	
1973	08-23-73	80		1981	07-29-81	760	

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
80.9	15.3	2,800	0.3	3.0	11.2	2.1	4.4



09482480 BIG WASH AT TUCSON, AZ

LOCATION.--Lat 32°11'10", long 111°00'07", SW$^1/_4$NE$^1/_4$ sec.27, T.14 S., R.13 E., Pima County, at Mission Road, 0.6 mi north of State Highway 86, in Tucson.

DRAINAGE AREA.--2.94 mi^2.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	07-10-65	1,000	ES	1974	00-00-74	0	
1966	08-12-66	240		1975	00-00-75	0	
1967	07-17-67	50		1976	09-25-76	120	
1968	08-10-68	65		1977	00-00-77	0	
1969	00-00-69	0		1978	10-06-77	380	
1970	07-19-70	[1]1,070		1979	08-12-79	20	
1971	08-17-71	[2]3,000		1980	09-07-80	3.0	
1972	07-16-72	285		1981	09-18-81	29	
1973	07-00-73	300	ES				

[1]Highest since 1963.

[2]Highest since 1920.

Magnitude and probability of instantaneous peak flow based on period of record 1965-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
63.0	390	887	1,940	3,060	4,460

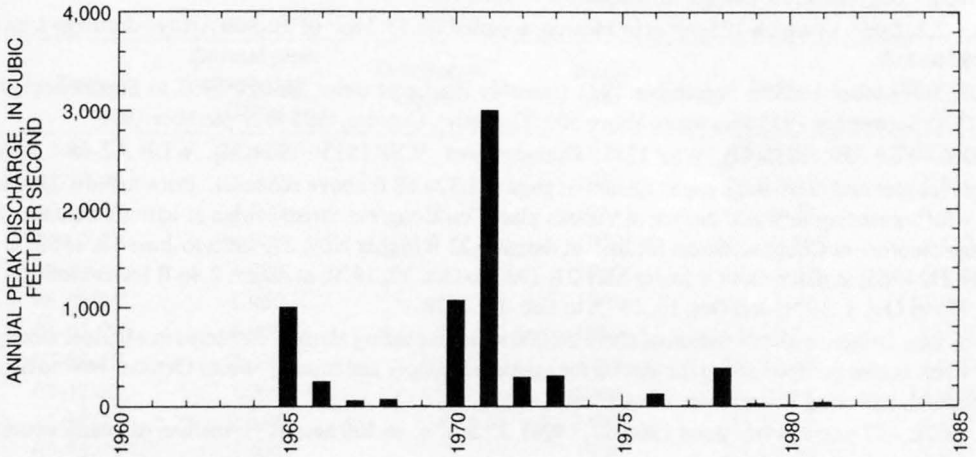
Weighted skew	(logs) =	-0.62
Mean	(logs) =	1.69
Standard dev.	(logs) =	1.05

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
95.2	4.9	2,850	0.0	1.0	11.0	1.9	4.4

09482480 BIG WASH AT TUCSON, AZ--Continued



09482500 SANTA CRUZ RIVER AT TUCSON, AZ

LOCATION.--Lat 32°13'19", long 110°58'52", in $SE^1/_4SE^1/_4$ sec.11, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, on right bank, 300 ft downstream from Congress Street Bridge, in Tucson.

DRAINAGE AREA.--2,222 mi^2, of which 395 mi^2 is in Mexico, adjusted for 15.2 mi^2 of Tucson Arroyo drainage area contributing to this station effective July 1956.

PERIOD OF RECORD.--October 1905 to September 1981 (monthly discharge only, January 1907 to September 1912, January to September 1914), June 1986 to September 1995 (discharge above 500 ft3/s only), October 1995 to September 1996.

REVISED RECORDS.--WSP 859: 1915(M). WSP 1283: Drainage area. WSP 1313: 1939(M). WDR AZ-88-1: 1986-87(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,320.68 ft above sea level. Prior to Nov. 27, 1929, nonrecording gages or reference points for measuring to water surface at various places on Congress Street bridge at various datums. Nov. 27, 1929 to Sept. 30, 1981, water-stage recorder at Congress Street bridge: at datum 6.22 ft higher Nov. 27, 1929 to June 18, 1958; at datum 2.22 ft higher June 18, 1958 to May 21, 1963; at datum 3.48 ft lower May 21, 1963 to Oct. 27, 1970; at datum 2.86 ft lower Oct. 1, 1971 to Sept. 30, 1981. No gage Oct. 27, 1970 to Oct. 1, 1971, and Oct. 10, 1977, to Feb. 14, 1978.

REMARKS.--Records fair. Irrigation above station of about 26,000 acres, including about 2,300 acres in Mexico, mostly by pumping from ground water. Ground water is also pumped above the station for municipal supply and mining. From October 1969 to September 1981, all flow past station was published, including waste water when known.

AVERAGE DISCHARGE.--77 years (water years 1906-81, 1996), 22.5 ft^3/s, 16,300 acre-ft/yr; median of yearly mean discharges, 13 ft^3/s, 9,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,400 ft^3/s Jan. 19, 1993, gage height, 11.67 ft; no flow for most of each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1892, 52,700 ft^3/s, from slope-area measurement of peak flow, Oct. 2, 1983; gage height, 22.2 ft, from floodmark, at site and datum used in 1981.

Maximum discharge during the 1985 water year was 10,000 ft^3/s Dec. 28, 1984; gage height, 12.5 ft, at site and datum used in 1981.

09482500 SANTA CRUZ RIVER AT TUCSON, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1915	12-23-14	[1]15,000		1956	07-29-56	2,610	
1916	01-20-16	5,000		1957	08-31-57	3,050	
1917	09-08-17	7,500		1958	07-29-58	6,350	
1918	08-07-18	4,900		1959	08-20-59	4,420	
1919	08-02-19	4,700		1960	08-10-60	6,140	
1920	08-09-20	1,950		1961	08-23-61	16,600	
1921	08-01-21	4,000		1962	09-26-62	4,980	
1922	07-20-22	2,000		1963	08-26-63	4,670	
1923	08-17-23	1,900		1964	09-10-64	13,000	
1924	11-17-23	2,050		1965	07-16-65	1,190	
1925	09-18-25	3,400		1966	08-19-66	5,500	
1926	09-28-26	11,400		1967	07-17-67	5,860	
1927	09-07-27	1,950		1968	12-20-67	16,100	
1928	08-01-28	1,600		1969	08-06-69	8,710	
1929	09-24-29	10,400		1970	07-20-70	8,530	
1930	08-07-30	1,770		1971	08-17-71	8,000	
1931	08-10-31	9,200		1972	07-15-72	3,470	
1932	07-30-32	4,200		1973	10-19-72	4,710	
1933	08-21-33	6,100		1974	07-08-74	7,930	
1934	08-23-34	6,000		1975	07-12-75	2,480	
1935	09-01-35	10,300		1976	09-25-76	7,100	
1936	07-26-36	5,400		1977	08-15-77	2,660	
1937	07-10-37	3,280		1978	10-10-77	23,700	
1938	08-05-38	9,000		1979	12-19-78	13,500	
1939	08-03-39	8,000		1980	08-13-80	2,760	
1940	08-14-40	11,300		1981	07-27-81	2,700	
1941	08-14-41	2,490		1982	00-00-82	10,000	
1942	08-09-42	1,670		1983	00-00-83	7,000	
1943	08-02-43	4,510		1984	10-02-83	[2]52,700	
1944	08-16-44	6,530		1985	12-28-84	10,000	
1945	08-10-45	10,800		1986	07-21-86	1,920	HP
1946	08-04-46	4,260		1987	08-02-87	1,500	
1947	10-01-46	2,960		1988	08-23-88	10,700	
1948	08-16-48	3,860		1989	10-20-88	2,960	
1949	08-08-49	3,800		1990	07-24-90	9,430	
1950	07-30-50	9,490		1991	08-09-91	2,130	
1951	08-02-51	5,020		1992	08-06-92	5,970	
1952	08-16-52	3,820		1993	01-19-93	37,400	
1953	07-15-53	5,900		1994	07-28-94	4,890	
1954	07-24-54	9,570		1995	02-16-95	576	
1955	08-03-55	10,900		1996	09-03-97	9,370	

[1]Highest since 1905.

[2]Highest since 1892.

09482500 SANTA CRUZ RIVER AT TUCSON, AZ--Continued

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	73	7.0	9,600
2.5	263	8.0	14,000
3.0	570	9.0	19,400
4.0	1,700	10.0	25,000
5.0	3,550	11.0	32,500
6.0	6,100	12.0	40,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
20.1	128	4,050	17.0	2.0	16.9	2.1	4.2

09482500 SANTA CRUZ RIVER AT TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1906, 1913, 1915-81, 1996

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	656	0.00	13	79	6.0	4.9
NOVEMBER	215	0.00	6.5	28	4.3	2.4
DECEMBER	895	0.00	35	145	4.1	13.0
JANUARY	518	0.00	21	81	3.8	7.8
FEBRUARY	202	0.00	11	37	3.3	4.1
MARCH	102	0.00	4.8	17	3.6	1.8
APRIL	1.7	0.00	0.10	0.28	2.7	0.0
MAY	2.3	0.00	0.09	0.34	3.8	0.0
JUNE	25	0.00	1.4	4.3	3.2	0.5
JULY	430	0.00	51	71	1.4	18.8
AUGUST	682	0.00	93	114	1.2	34.4
SEPTEMBER	312	0.00	33	60	1.8	12.3
ANNUAL	112	1.3	23	23	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1916-81

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.12	0.00	0.00	0.00	0.00	0.00
183	0.76	0.08	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1915-81, 1984-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5,110	9,720	13,800	20,300	26,300	33,300

WEIGHTED SKEW (LOGS)= 0.22
MEAN (LOGS)= 3.72
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1906, 1913, 1915-81, 1996

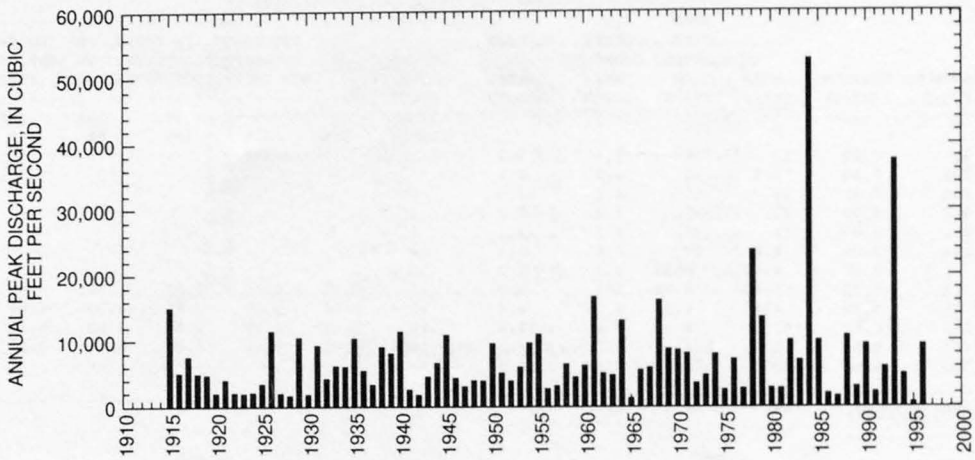
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,410	3,230	4,840	7,330	9,480	11,900
3	703	1,640	2,480	3,770	4,890	6,130
7	364	852	1,300	2,000	2,610	3,310
15	211	484	730	1,110	1,450	1,820
30	131	291	434	654	845	1,060
60	79	174	262	403	533	684
90	56	122	183	282	371	475

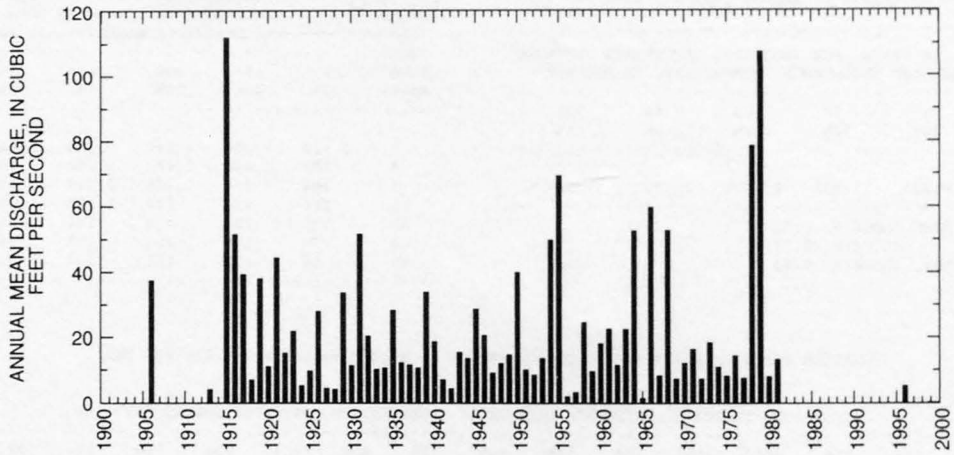
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1906, 1913, 1915-81, 1996

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
535	50	5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

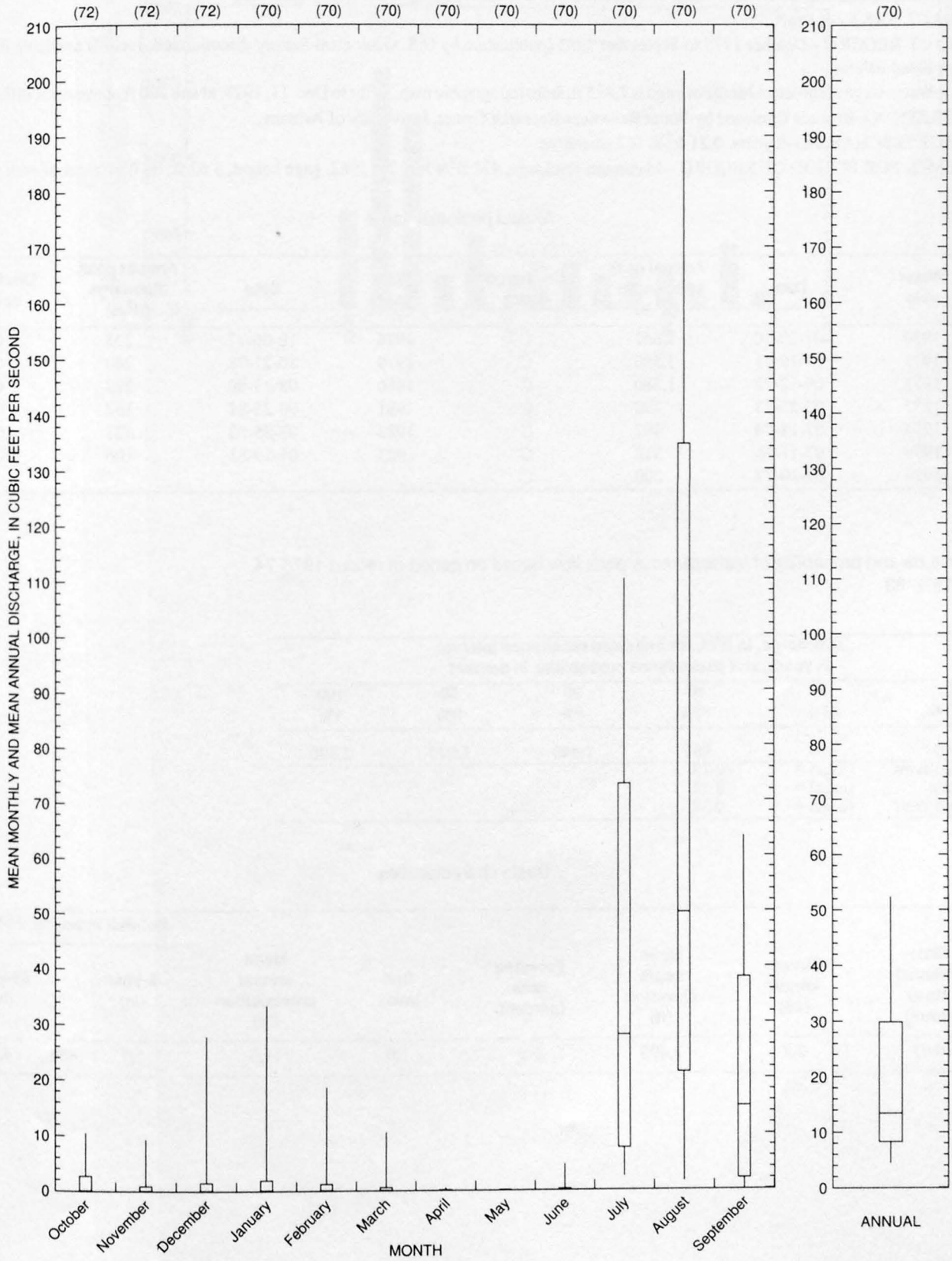
Reliability of values in column is uncertain, and potential errors are large.

09482500 SANTA CRUZ RIVER AT TUCSON, AZ--Continued





09482500 SANTA CRUZ RIVER AT TUCSON, AZ--Continued



09482950 RAILROAD WASH AT TUCSON, AZ

LOCATION.--Lat 32°12'50", long 110°56'45", in $NE^1/_4SE^1/_4$ sec.18, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on center of culvert on upstream side of Winsett Street in Tucson. Prior to Dec. 11, 1978, at site 200 ft upstream.

DRAINAGE AREA.--2.3 mi^2.

PERIOD OF RECORD.--October 1975 to September 1983 (publication by U.S. Geological Survey discontinued; records available from cooperator listed below).

GAGE.--Water-stage recorder. Altitude of gage is 2,425 ft, from topographic map. Prior to Dec. 11, 1978, at site 200 ft upstream at different datum.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

AVERAGE DISCHARGE.--8 years, 0.21 ft^3/s, 152 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 421 ft^3/s July 25, 1982, gage height, 5.62 ft; no flow most of each year.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	07-20-70	642	C	1978	10-06-77	223	C
1971	07-19-71	1,590	C	1979	10-21-78	243	C
1972	08-12-72	1,280	C	1980	08-23-80	222	C
1973	07-27-73	220	C	1981	06-25-81	162	C
1974	07-18-74	482	C	1982	07-25-82	421	C
1976	07-11-76	312	C	1983	01-29-83	106	C
1977	09-10-77	300	C				

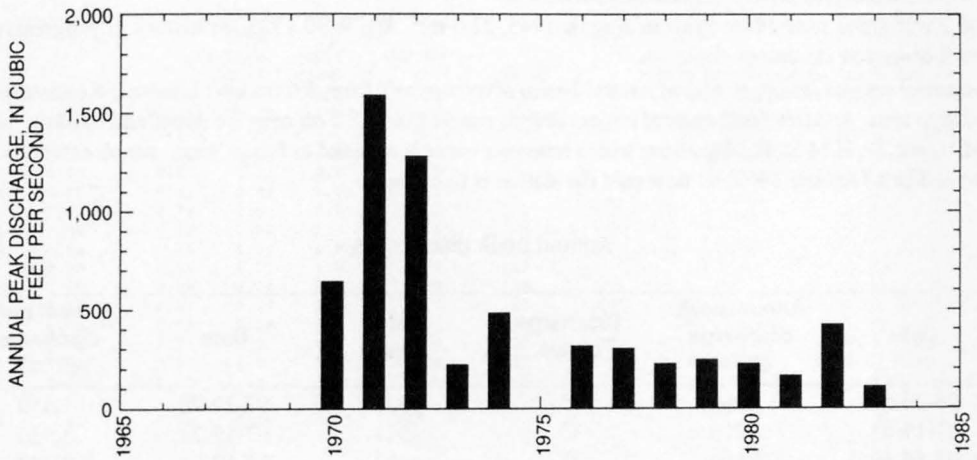
Magnitude and probability of instantaneous peak flow based on period of record 1970-74, 1976-83

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
340	666	961	1,440	1,870	2,390
Weighted skew	(logs) =	0.19			
Mean	(logs) =	2.54			
Standard dev.	(logs) =	0.34			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
0.73	2.7	2,490	0.0	1.0	11.0	1.7	4.2

09482950 RAILROAD WASH AT TUCSON, AZ--Continued



09483000 TUCSON ARROYO AT VINE AVENUE, TUCSON, AZ

LOCATION.--Lat 32°13'00", long 110°56'54", SW$^1/_4$NE$^1/_4$ sec.18, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on right bank at Vine Avenue in Tucson, 0.2 mi downstream from Arroyo Chico.

DRAINAGE AREA.--8.2 mi^2 since June 1956. Prior to August 1945, 27.0 mi^2. See WSP 1733 for history of progressive reduction of drainage area by flood-control diversion structures.

REMARKS.--A flood-control project, at upper end of natural basin, diverts runoff from 3.6 mi into Lakeside Reservoir (Atterbury), which is in Pantano Wash drainage area. Another flood-control project diverts runoff from 15.2 mi near the upper end of basin into a flood-control detention reservoir in SE$^1/_4$ sec.29, T.14 S., R.14 E., from which reservoir water is released to Julian Wash, which enters Santa Cruz River upstream from Tucson Arroyo. Since October 1969, all flow past the station is published.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1956	08-26-56	364	C	1970	07-20-70	1,550	C
1957	07-17-57	716	C	1971	07-19-71	2,930	C
1959	08-20-59	2,540	C	1972	08-12-72	2,950	C
1960	08-20-60	609	C	1973	10-18-72	720	C
1961	08-22-61	[1]5,000	UR,C	1974	07-18-74	332	C
1962	09-26-62	1,060	C	1975	07-25-75	760	C
1963	09-03-63	208	C	1976	09-04-76	446	C
1964	08-12-64	1,060	C	1977	09-10-77	1,480	C
1965	07-16-65	1,220	C	1978	10-06-77	764	C
1966	09-13-66	593	C	1979	10-21-78	1,040	C
1967	05-24-67	350	C	1980	08-13-80	816	C
1968	08-19-68	644	C	1981	06-25-81	746	C
1969	08-01-69	800	C				

[1]Highest since 1940.

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	73	7.0	9,600
2.5	263	8.0	14,000
3.0	570	9.0	19,400
4.0	1,700	10.0	25,000
5.0	3,550	11.0	32,500
6.0	6,100	12.0	40,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
37.0	5.5	2,510	0.0	1.0	11.0	1.8	3.9

09483000 TUCSON ARROYO AT VINE AVENUE, TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1957-81

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	8.7	0.00	0.81	1.7	2.1	7.8
NOVEMBER	4.4	0.00	0.43	0.82	1.9	4.2
DECEMBER	8.5	0.00	0.79	1.8	2.2	7.5
JANUARY	3.8	0.00	0.56	0.94	1.7	5.4
FEBRUARY	3.8	0.00	0.50	0.94	1.9	4.8
MARCH	2.0	0.00	0.36	0.57	1.6	3.5
APRIL	0.69	0.00	0.09	0.15	1.8	0.8
MAY	1.0	0.00	0.07	0.19	2.8	0.7
JUNE	1.3	0.00	0.10	0.24	2.5	1.0
JULY	12	0.00	2.8	2.9	1.0	26.4
AUGUST	15	0.00	2.9	3.7	1.3	27.8
SEPTEMBER	5.7	0.00	1.1	1.5	1.4	10.2
ANNUAL	1.8	0.12	0.88	0.45	0.51	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1958-81

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.09	0.00	0.00	0.00	0.00	0.00
183	0.26	0.08	0.03	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1956-81

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
842	1,540	2,150	3,090	3,920	4,890

WEIGHTED SKEW (LOGS)= 0.20
MEAN (LOGS)= 2.93
STANDARD DEV. (LOGS)= 0.31

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1957-81

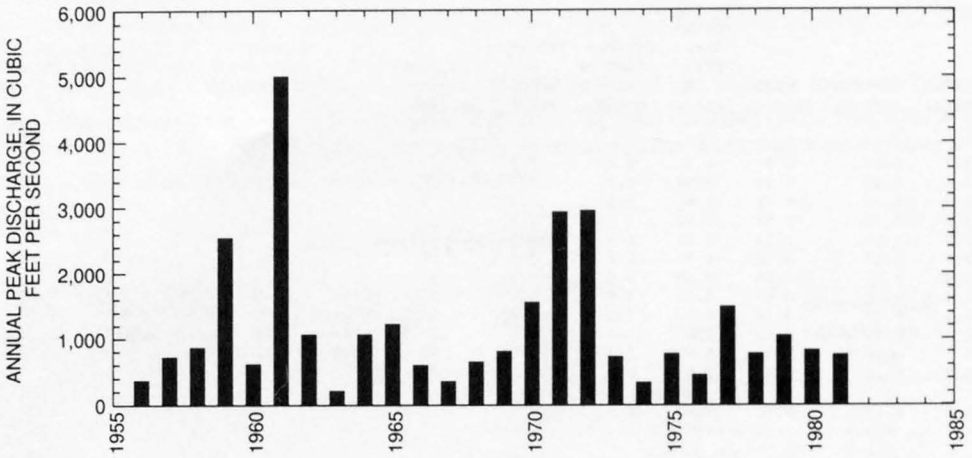
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	79	153	216	316	404	506
3	31	58	81	116	147	181
7	14	27	38	54	68	83
15	8.1	15	21	30	37	45
30	5.1	9.2	12	16	20	23
60	3.1	5.4	7.0	9.1	11	12
90	2.3	3.9	5.1	6.5	7.5	8.5

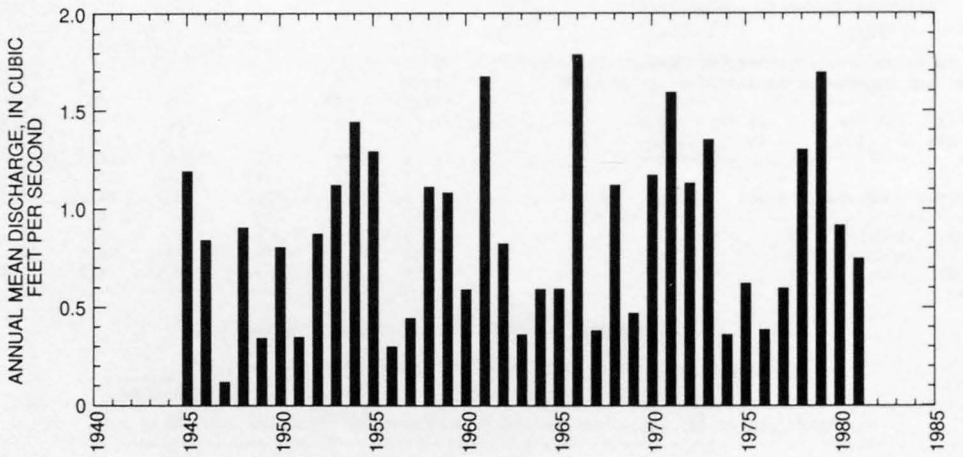
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1957-81

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
23	1.2	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

09483000 TUCSON ARROYO AT VINE AVENUE, TUCSON, AZ--Continued





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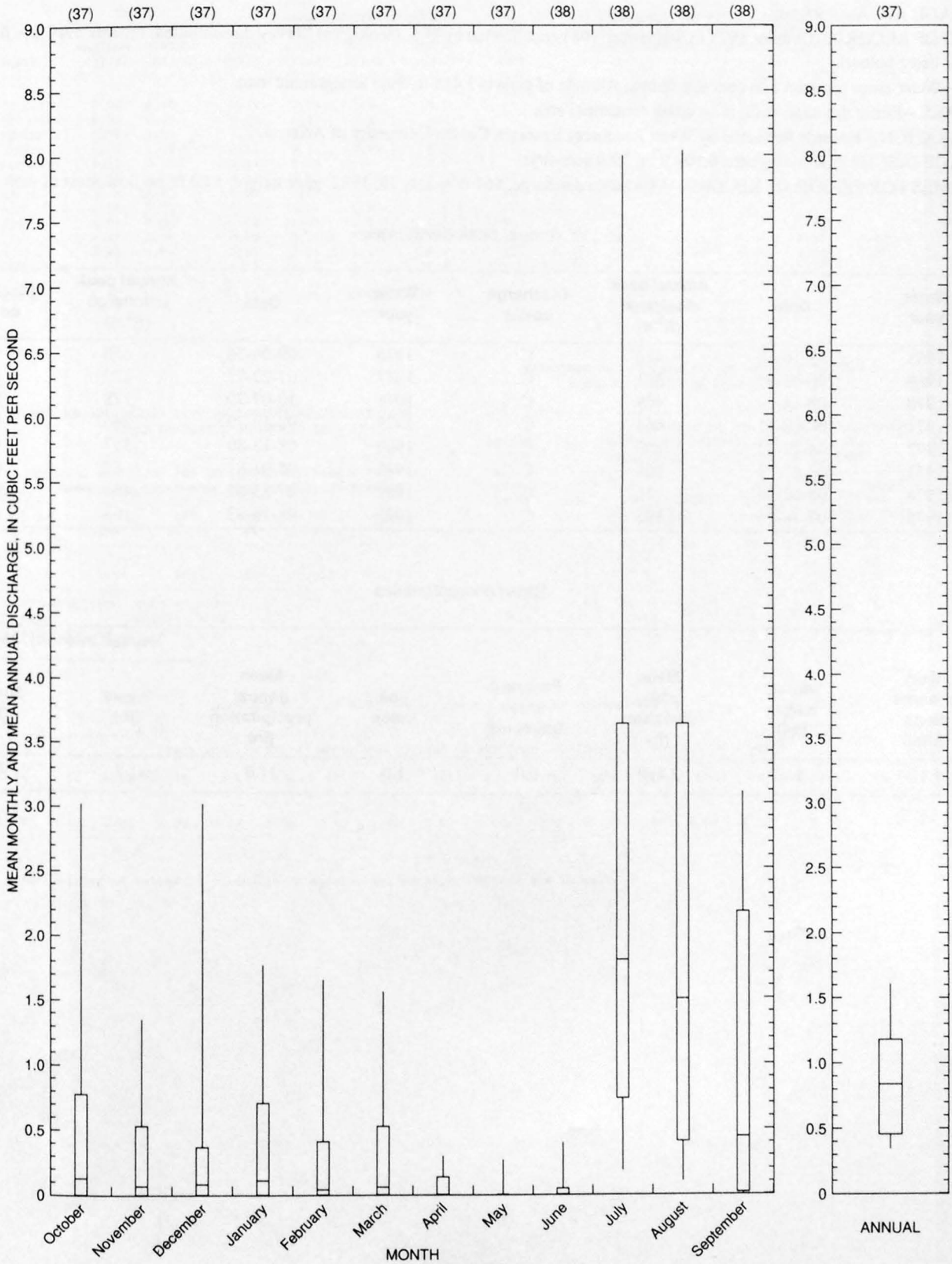


09483010 HIGH SCHOOL WASH AT TUCSON, AZ

LOCATION.--Lat 32°13'28", long 110°56'48", in $SE^1/_4SE^1/_4$ sec.7, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050301, on right bank 200 ft upstream from Cherry Avenue in Tucson.

DRAINAGE AREA.--0.95 mi^2.

PERIOD OF RECORD.--October 1973 to September 1983 (publication by U.S. Geological Survey discontinued; records available from cooperator listed below).

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 2,415 ft, from topographic map.

REMARKS.--Entire drainage basin is an urban residential area.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

AVERAGE DISCHARGE.--10 years, 0.109 ft^3/s, 79.0 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 464 ft^3/s July 25, 1982, gage height, 5.00 ft; no flow most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	08-10-68	486	C	1976	09-04-76	156	C
1969	08-01-69	341	C	1977	07-22-77	129	C
1970	08-11-70	409	C	1978	10-07-77	178	C
1971	08-08-71	664	C	1979	08-12-79	346	C
1972	08-12-72	800	C	1980	08-13-80	357	C
1973	07-07-73	204	C	1981	05-01-81	85	C
1974	08-02-74	126	C	1982	07-25-82	464	C
1975	07-16-75	195	C	1983	08-16-83	163	C

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
1.11	1.6	2,460	0.0	1.0	11.0	1.7	4.2

09483010 HIGH SCHOOL WASH AT TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1974-83

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.38	0.00	0.10	0.16	1.5	8.0
NOVEMBER	0.20	0.00	0.05	0.07	1.4	4.0
DECEMBER	0.35	0.00	0.07	0.11	1.5	5.7
JANUARY	0.28	0.00	0.12	0.11	0.92	9.5
FEBRUARY	0.31	0.00	0.07	0.12	1.6	5.6
MARCH	0.26	0.00	0.09	0.07	0.78	7.1
APRIL	0.10	0.00	0.02	0.03	2.0	1.2
MAY	0.10	0.00	0.02	0.03	1.9	1.4
JUNE	0.09	0.00	0.02	0.03	1.5	1.5
JULY	0.57	0.04	0.23	0.19	0.81	17.8
AUGUST	0.82	0.01	0.27	0.30	1.1	20.9
SEPTEMBER	0.78	0.00	0.22	0.24	1.1	17.4
ANNUAL	0.20	0.05	0.11	0.05	0.43	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1975-83

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90						
120	0.02	0.01	0.00	0.00	0.00	0.00
183	0.05	0.02	0.02	0.01	0.01	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1968-83

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
261	454	606	827	1,010	1,210

WEIGHTED SKEW (LOGS)= 0.22
MEAN (LOGS)= 2.42
STANDARD DEV. (LOGS)= 0.28

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1974-83

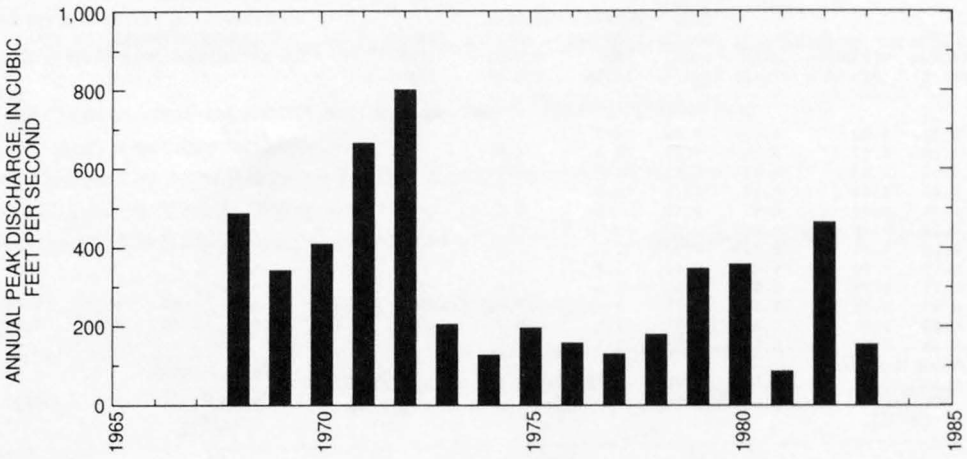
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	6.0	10	14	20	25	31
3	2.6	4.6	6.3	9.0	11	14
7	1.3	2.2	2.9	4.0	4.9	5.8
15	0.72	1.2	1.5	2.0	2.3	2.8
30	0.43	0.72	0.98	1.4	1.8	2.3
60	0.30	0.52	0.72	1.0	1.4	1.7
90	0.25	0.41	0.53	0.71	0.86	1.0

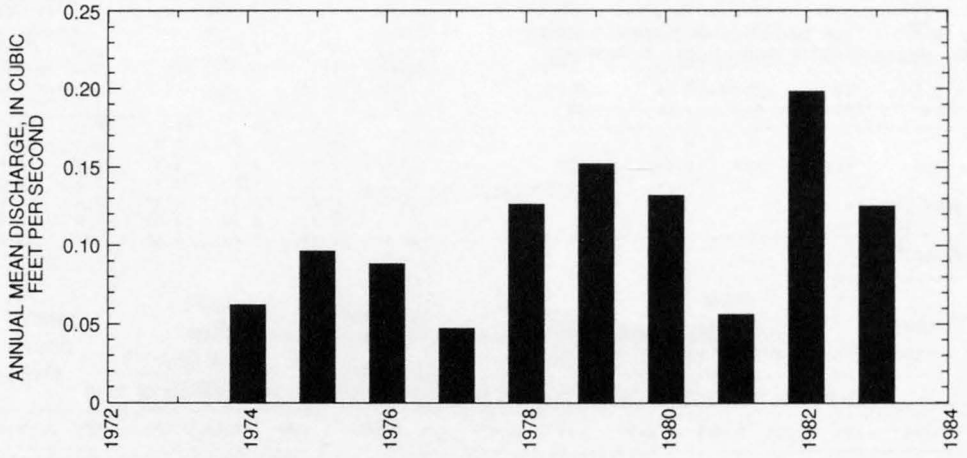
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1974-83

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3.0	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

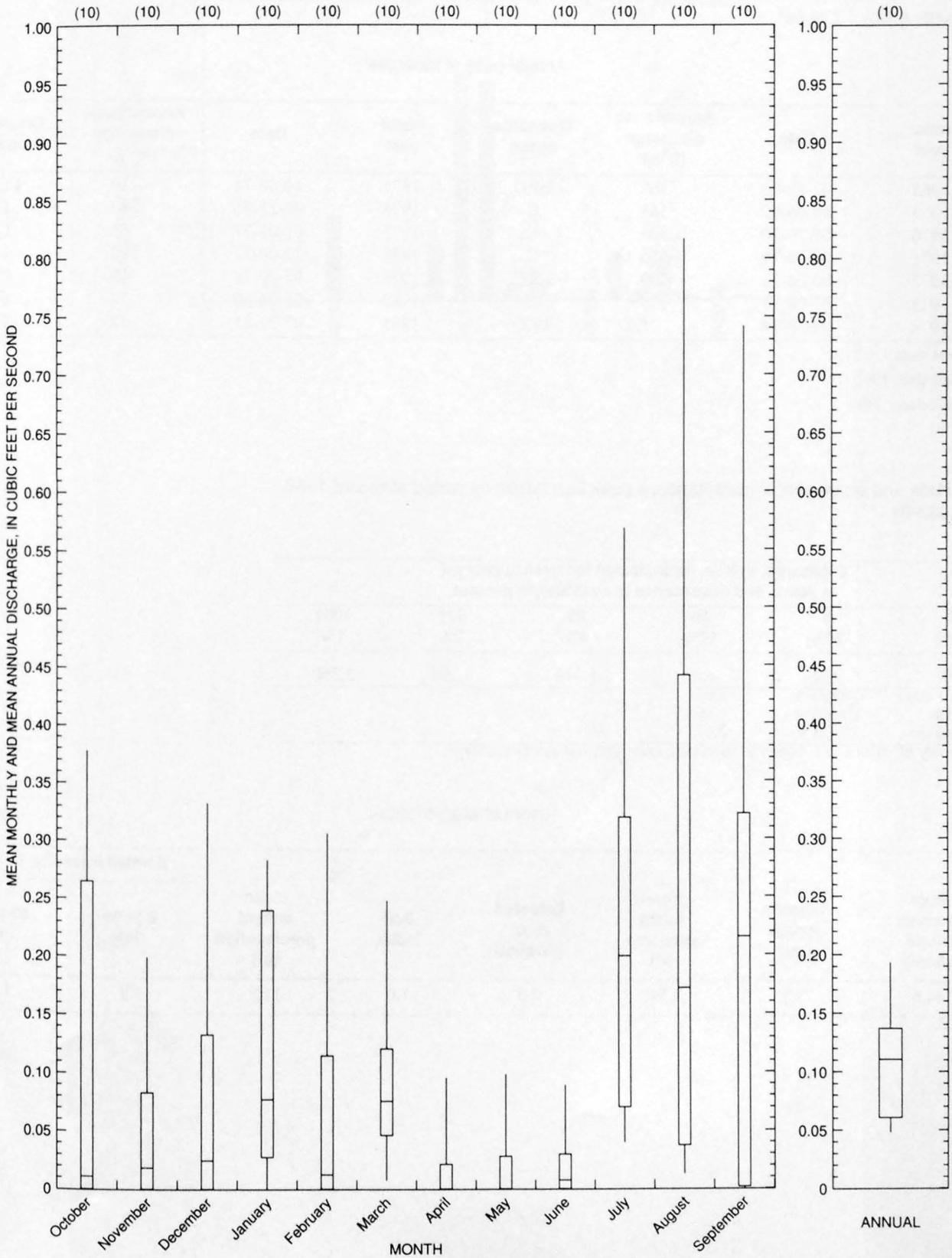
Reliability of values in column is uncertain, and potential errors are large.

09483010 HIGH SCHOOL WASH AT TUCSON, AZ--Continued





09483010 HIGH SCHOOL WASH AT TUCSON, AZ--Continued



09483025 SILVERCROFT WASH AT TUCSON, AZ

LOCATION.--Lat 32°13'53", long 111°00'10", NW$^1/_4$ sec.10, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, 0.1 mi west of Silverbell Road, 0.3 mi northwest of St. Mary's Hospital, and 0.4 mi north of Anklam Road at Tucson.
DRAINAGE AREA.--2.74 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	07-10-65	[1]560	HP,C	1975	10-30-74	10	LT,C
1969	08-00-69	[2]365	C	1976	09-25-76	310	C
1970	07-20-70	[3]1,500	C	1977	01-01-77	63	C
1971	08-00-71	1,450	C	1978	10-06-77	290	C
1972	00-00-72	100	ES,C	1979	07-20-79	19	C
1973	07-00-73	115	C	1980	08-24-80	72	C
1974	07-20-74	5.0	LT,C	1981	07-21-81	22	C

[1]Highest since 1961.
[2]Highest since 1965.
[3]Highest since 1961.

Magnitude and probability of instantaneous peak flow based on period of record 1965, 1969-81

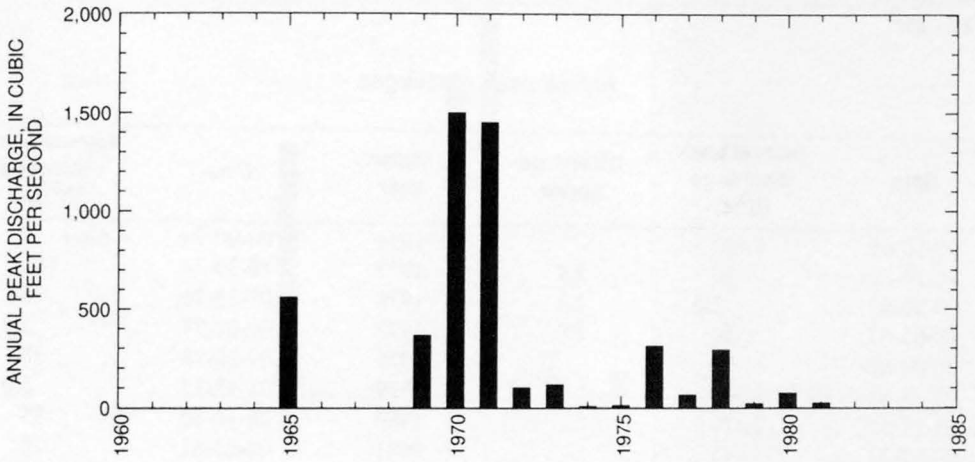
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
90	332	659	1,370	2,200	3,360
Weighted skew	(logs) =	0.01			
Mean	(logs) =	1.96			
Standard dev.	(logs) =	0.67			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
44.6	3.3	2,540	0.0	1.0	11.8	1.9	4.4

09483025 SILVERCROFT WASH AT TUCSON, AZ--Continued



09483030 ANKLAM WASH AT TUCSON, AZ

LOCATION.--Lat 32°13'30", long 111°01'50", SE$^1/_4$ sec.8, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, at Anklam Road, 1 mi west of Tucson city limits, and 2 mi west of St. Mary's Hospital.
DRAINAGE AREA.--2.11 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	07-10-65	1,600		1974	00-00-74	0	
1966	12-10-65	30	ES	1975	10-30-74	160	
1967	00-00-67	2.0	ES	1976	09-25-76	75	
1968	10-03-67	50	ES	1977	01-01-77	5.0	ES
1969	08-00-69	98		1978	07-30-78	38	
1970	07-19-70	2,000		1979	01-18-79	5.0	
1971	08-17-71	2,420		1980	08-14-80	35	
1972	09-07-72	75		1981	08-13-81	76	
1973	07-15-73	140	ES				

Magnitude and probability of instantaneous peak flow based on period of record 1965-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2† 50%	5† 20%	10† 10%	25† 4%	50† 2%	100† 1%
75.6	362	855	2,210	4,140	7,390

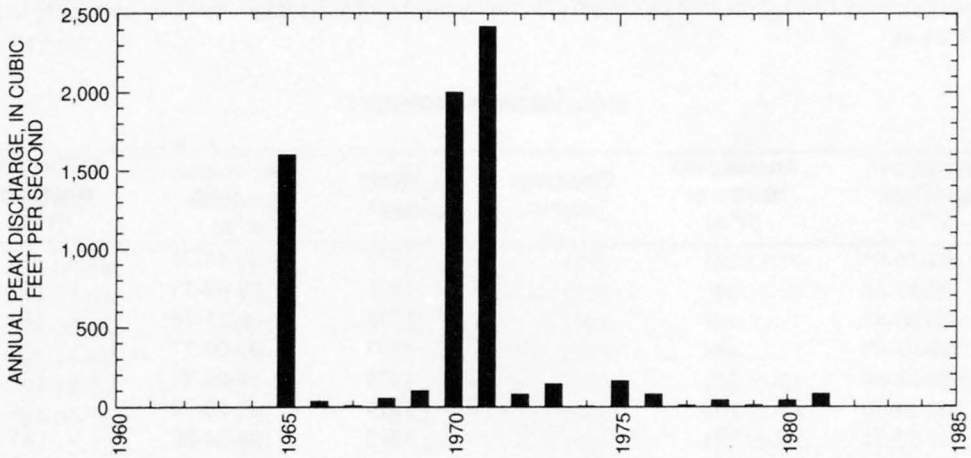
Weighted skew	(logs) =	0.24
Mean	(logs) =	1.91
Standard dev.	(logs) =	0.78

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
298	2.1	2,700	0.0	1.0	11.8	1.9	4.4

09483030 ANKLAM WASH AT TUCSON, AZ--Continued



09483040 WEST SPEEDWAY WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°14'20", long 111°02'43", $SE^1/_4SE^1/_4$ sec.6, T.14 S., R.13 E., Pima County, Hydrologic Unit 15050301, at driveway to Power substation off West Speedway Road, 2 mi west of Tucson city limits, and 3 mi northwest of St. Mary's Hospital.
DRAINAGE AREA.--0.46 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	07-10-65	224		1974	09-14-74	15	
1966	09-13-66	41		1975	09-07-75	160	
1967	00-00-67	37		1976	09-25-76	240	
1968	10-03-67	44		1977	00-00-77	10	ES
1969	08-08-69	236		1978	10-06-77	104	
1970	09-04-70	236		1979	07-20-79	74	
1971	08-20-71	144		1980	08-24-80	86	
1972	08-12-72	159		1981	08-13-81	40	
1973	07-00-73	238					

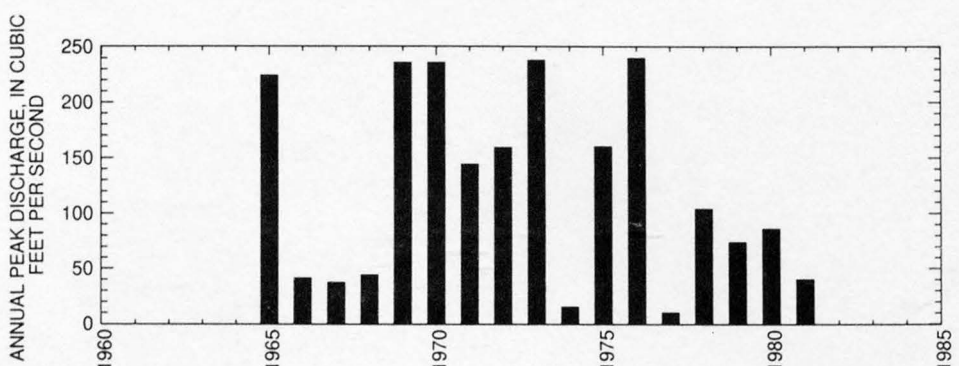
Magnitude and probability of instantaneous peak flow based on period of record 1965-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
92.2	202	291	419	521	627
Weighted skew	(logs) =	-0.05			
Mean	(logs) =	1.93			
Standard dev.	(logs) =	0.43			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
364	1.1	2,750	0.0	1.0	11.8	1.9	4.6



09483042 CEMETERY WASH AT TUCSON, AZ

LOCATION.--Lat 32°15'50", long 110°58'38", $NW^1/_4NW^1/_4$ sec.36, T.13 S., R.13 E., Pima County, Hydrologic Unit 15050301, at U.S. Highway 89, 0.25 mi north of junction with State Highway 84 in Tucson.
DRAINAGE AREA.--1.17 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-00-66	229	C	1979	08-12-79	375	C
1967	07-17-67	396	C	1980	08-14-80	225	C
1968	08-20-68	600	C	1981	04-30-81	156	C
1969	11-14-68	570	C	1982	08-23-82	540	C
1970	08-18-70	285	C	1983	08-15-83	209	C
1971	08-00-71	100	ES,C	1984	10-02-83	456	C
1972	08-12-72	400	ES,C	1985	00-00-85	172	C
1973	07-00-73	150	ES,C	1986	07-15-86	264	C
1974	09-06-74	580	C	1987	02-25-87	52	C
1975	07-17-75	290	C	1988	08-20-88	216	C
1976	09-25-76	360	C	1989	07-26-89	262	C
1977	09-10-77	205	C	1990	07-24-90	302	C
1978	07-30-78	160	C				

Discharge rating table developed October 1981

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
.8	47	3.0	278
1.0	63	3.5	346
1.5	108	4.0	418
2.0	159	4.5	493
2.5	215	4.8	540

Magnitude and probability of instantaneous peak flow based on period of record 1966-90

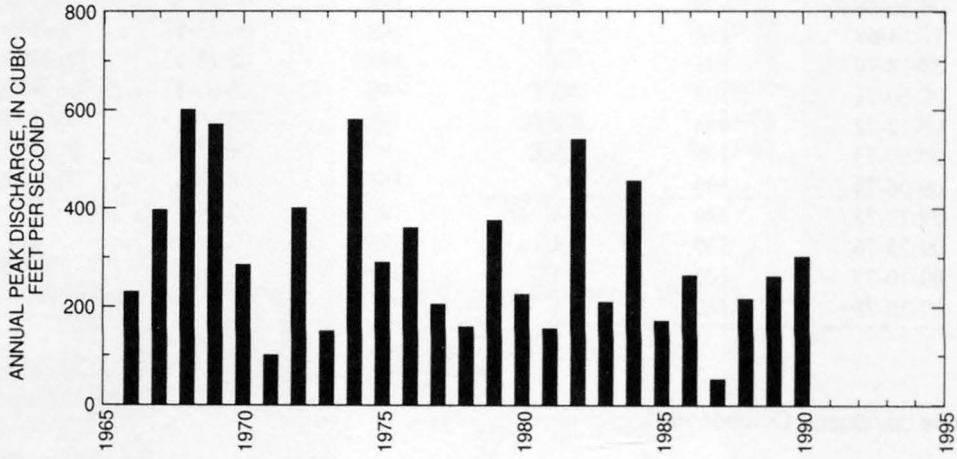
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
274	418	517	646	743	842
Weighted skew	(logs) =	-0.15			
Mean	(logs) =	2.43			
Standard dev.	(logs) =	0.22			

† Reliability of values in column is uncertain, and potential errors are large.

09483042 CEMETERY WASH AT TUCSON, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
40.0	2.2	2,370	0.0	1.0	11.0	1.9	4.2



09483045 FLOWING WELLS WASH AT TUCSON, AZ

LOCATION.--Lat 32°15'55", long 110°59'40", $SW^1/_4SW^1/_4$ sec.26, T.13 S., R.13 E., Pima County, Hydrologic Unit 15050301, at intersection of Ft. Lowell Road and Flowing Wells Road in Tucson city limits.
DRAINAGE AREA.--3.53 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1971	08-00-71	1,250	C	1981	04-30-81	220	C
1972	08-12-72	870	C	1982	08-23-82	1,470	C
1973	00-00-73	430	C	1983	08-09-83	943	C
1974	09-06-74	1,150	C	1984	07-22-84	995	C
1975	07-12-75	620	C	1985	00-00-85	356	C
1976	07-11-76	920	C	1986	07-15-86	310	C
1977	09-10-77	225	C	1987	02-25-87	81	C
1978	07-30-78	185	C	1988	08-19-88	438	C
1979	08-12-79	490	C	1989	07-26-89	532	C
1980	02-13-80	330	C	1990	07-24-90	674	C

Discharge rating table developed January 1979

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	80	6.0	800
3.0	199	7.0	1,060
4.0	364	8.0	1,370
5.0	565	9.0	1,720

Magnitude and probability of instantaneous peak flow based on period of record 1971-90

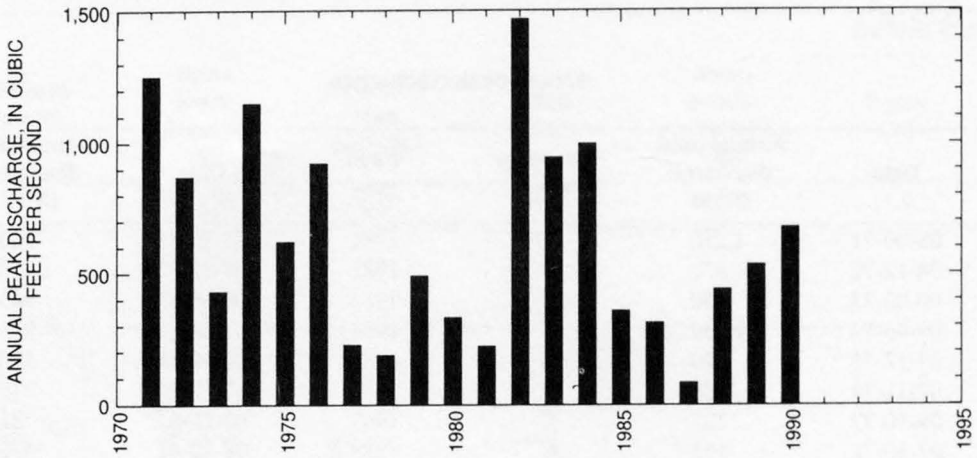
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
524	911	1,200	1,610	1,920	2,260
Weighted skew	(logs) =	-0.17			
Mean	(logs) =	2.71			
Standard dev.	(logs) =	0.29			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
32.1	4.2	2,380	0.0	1.0	11.0	1.9	4.2

09483045 FLOWING WELLS WASH AT TUCSON, AZ--Continued



09483100 TANQUE VERDE CREEK NEAR TUCSON, AZ

LOCATION.--Lat 32°14'48", long 110°40'46", NE$^1/_4$NW$^1/_4$ sec.2, T.14 S., R.16 E., Pima County, Hydrologic Unit 15050302, 4.4 mi east of Tanque Verde School, 7.4 mi upstream from Agua Caliente Wash, and 17.5 mi east of city hall in Tucson.
DRAINAGE AREA.--43.0 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	01-11-60	789		1973	10-19-72	2,120	
1961	09-08-61	1,260		1974	07-08-74	804	
1962	12-16-61	925		1975	00-00-75	210	
1963	02-11-63	1,520		1976	09-05-76	300	
1964	09-10-64	2,630		1977	01-01-77	420	
1965	09-04-65	828		1978	07-25-78	1,280	
1966	12-22-65	2,760		1979	12-18-78	4,100	
1967	07-16-67	1,260		1980	02-14-80	1,150	
1968	12-20-67	3,080		1981	07-30-81	6,700	
1969	01-15-69	278		1982	08-23-82	2,460	
1970	03-02-70	1,060		1983	02-03-83	1,100	
1971	08-21-71	2,350		1984	10-02-83	8,600	
1972	07-16-72	1,190		1985	12-28-84	7,880	

Discharge rating table developed October 1980

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	668	6.0	4,900
3.5	1,060	6.5	6,100
4.0	1,570	7.0	7,470
4.5	2,190	7.5	9,000
5.0	2,960	8.0	10,710
5.5	3,860	8.5	12,600

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
156	11.0	4,780	21.0	1.0	17.0	2.0	4.0

09483100 TANQUE VERDE CREEK NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1960-74

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	44	0.00	4.6	12	2.6	4.3
NOVEMBER	12	0.00	2.1	3.4	1.7	1.9
DECEMBER	198	0.00	25	51	2.1	23.1
JANUARY	94	0.00	15	24	1.6	13.8
FEBRUARY	83	0.00	21	31	1.5	19.8
MARCH	100	0.00	15	26	1.7	14.0
APRIL	19	0.00	3.4	5.2	1.5	3.2
MAY	3.5	0.00	0.31	0.90	2.9	0.3
JUNE	0.82	0.00	0.05	0.21	3.9	0.1
JULY	16	0.00	3.2	4.8	1.5	3.0
AUGUST	46	0.00	8.2	12	1.5	7.7
SEPTEMBER	69	0.00	9.6	19	2.0	9.0
ANNUAL	32	1.1	8.9	8.5	0.96	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1961-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120	0.04	0.00	0.00	0.00	0.00	0.00
183	0.40	0.06	0.02	0.01	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1960-85

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,530	3,130	4,620	7,110	9,460	12,300

WEIGHTED SKEW (LOGS)= 0.23
MEAN (LOGS)= 3.20
STANDARD DEV. (LOGS)= 0.36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1960-74

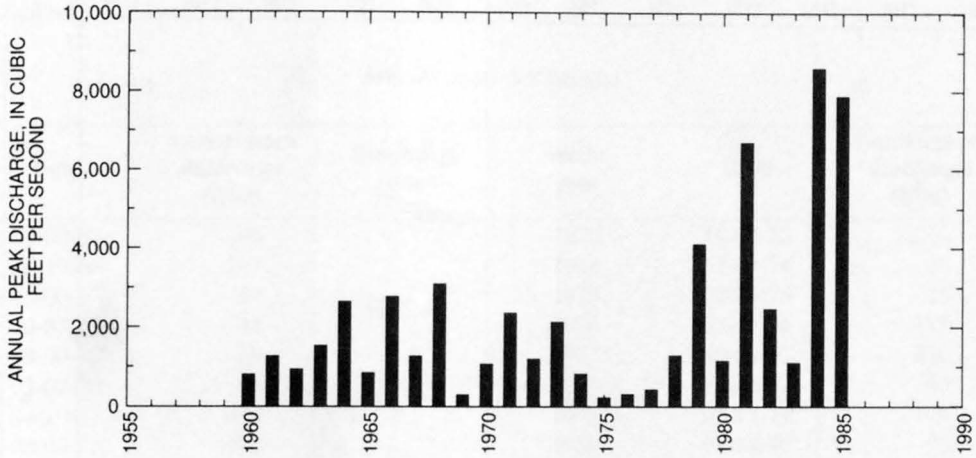
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	267	525	757	1,130	1,470	1,870
3	161	334	495	758	1,000	1,300
7	98	198	285	420	539	673
15	63	131	195	300	398	515
30	41	86	130	206	281	375
60	27	56	82	126	167	216
90	20	43	64	101	137	180

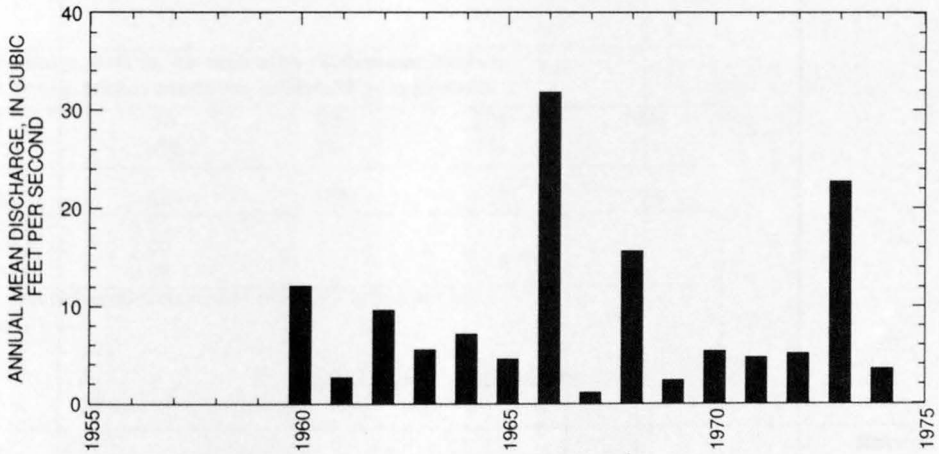
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-74

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
181	38	16	8.9	5.4	1.2	0.18	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

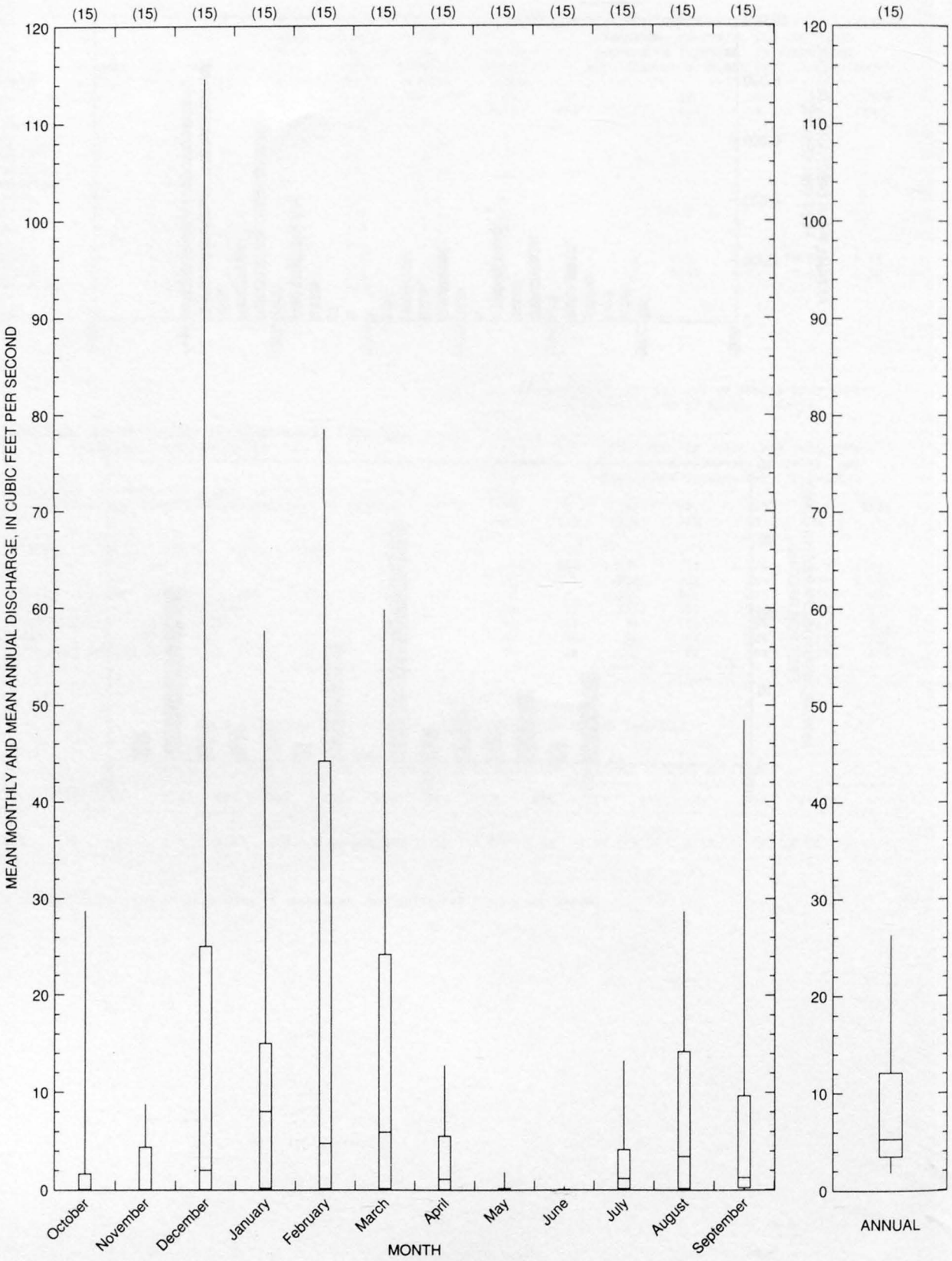
Reliability of values in column is uncertain, and potential errors are large.

09483100 TANQUE VERDE CREEK NEAR TUCSON, AZ--Continued





09483100 TANQUE VERDE CREEK NEAR TUCSON, AZ--Continued



09483200 AGUA CALIENTE WASH TRIBUTARY NEAR TUCSON, AZ

LOCATION.--Lat 32°16'07", long 110°44'15", $SW^1/_4SW^1/_4$ sec.29, T.13 S., R.16 E., Pima County, Hydrologic Unit 15050302, at Soldier Trail, 1.4 mi north of Tanque Verde Road, and 5 mi northeast of Tucson City Limits.
DRAINAGE AREA.--2.04 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	08-00-65	86		1973	10-00-72	210	
1966	07-19-66	217		1974	07-07-74	10	LT
1967	08-00-67	57		1975	07-25-75	25	
1968	10-03-67	44		1976	07-17-76	175	
1969	08-00-69	69		1977	00-00-77	240	
1970	03-02-70	64		1978	10-06-77	70	
1971	08-19-71	430		1979	08-12-79	48	
1972	08-00-72	430		1980	08-13-80	76	

Magnitude and probability of instantaneous peak flow based on period of record 1965-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
98.9	208	309	470	619	793

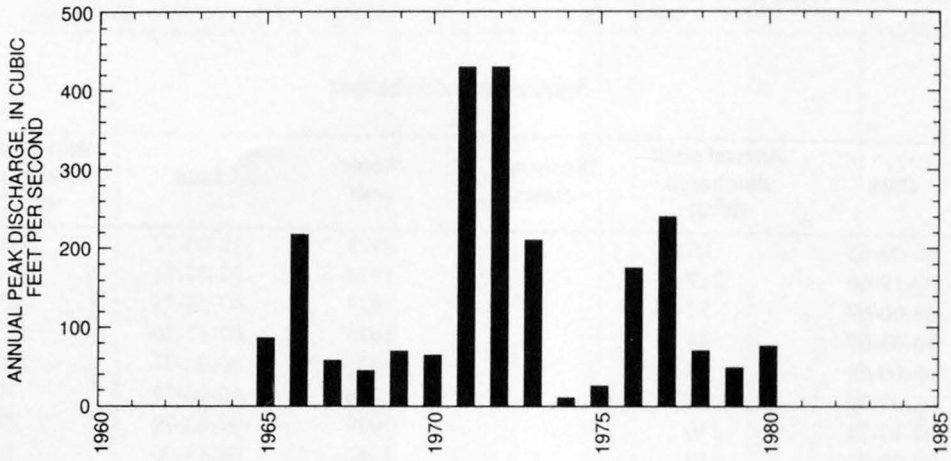
Weighted skew	(logs) =	0.05
Mean	(logs) =	2.00
Standard dev.	(logs) =	0.38

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
368	4.6	3,300	7.8	1.0	14.0	1.9	4.1

09483200 AGUA CALIENTE WASH TRIBUTARY NEAR TUCSON, AZ--Continued



09483250 ROB WASH AT TUCSON, AZ

LOCATION.--Lat 32°14'08", long 110°48'58", NE$^1/_4$NW$^1/_4$ sec.9, T.14 S., R.15 E., Pima County, Hydrologic Unit 15050302, at Speedway Blvd., 0.4 mi west of Pantano Road, and 1 mi north of East Broadway in Tucson city limits.
DRAINAGE AREA.--2.08 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1971	00-00-71	1,400	ES,C	1981	07-19-81	305	C
1972	00-00-72	600	ES,C	1982	08-23-82	1,900	C
1973	00-00-73	180	C	1983	09-23-83	156	C
1974	01-00-74	200	C	1984	07-16-84	405	C
1975	07-12-75	400	C	1985	00-00-85	55	C
1976	09-25-76	330	C	1986	10-10-86	65	C
1977	08-01-77	100	C	1987	01-31-86	277	C
1978	12-28-77	50	ES,C	1988	08-20-88	1,300	C
1979	08-12-79	450	C	1989	07-21-89	207	C
1980	07-26-80	190	C	1990	07-24-90	896	C

Discharge rating table developed January 1979

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.8	138	4.0	1,310
2.0	200	4.5	1,720
2.5	400	5.0	2,170
3.0	660	5.5	2,640
3.5	970	6.0	3,140

Magnitude and probability of instantaneous peak flow based on period of record 1971-86

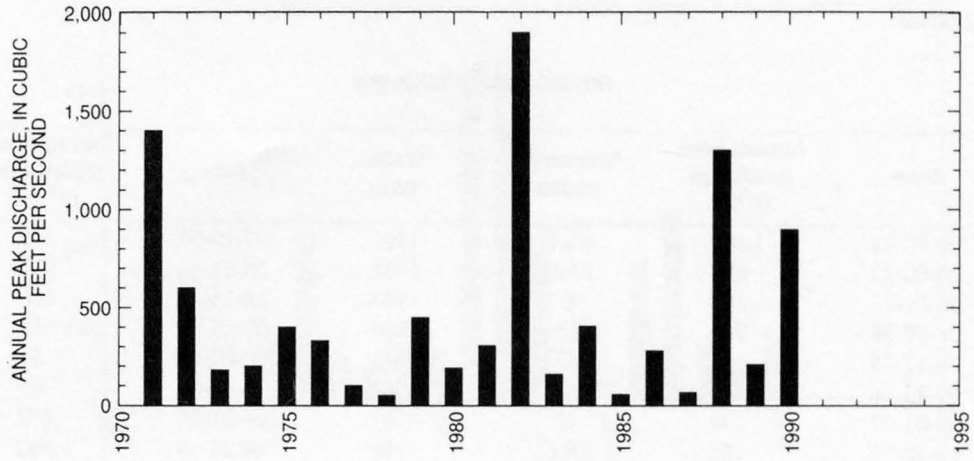
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
267	622	973	1,580	2,160	2,870
Weighted skew	(logs) =	0.06			
Mean	(logs) =	2.43			
Standard dev.	(logs) =	0.43			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
55.6	4.7	2,710	0.0	1.0	11.0	1.9	3.6

09483250 ROB WASH AT TUCSON, AZ--Continued



09484000 SABINO CREEK NEAR TUCSON, AZ

LOCATION.--Lat 32°19'00", long 110°48'35", in $SE^1/_4NE^1/_4$ sec.9, T.13 S., R.15 E., Pima County, Hydrologic Unit 15050302, on left bank, 30 ft upstream from Lower Sabino Dam, 0.5 mi north of Coronado National Forest boundary and 12 mi northeast of Tucson City Hall.

DRAINAGE AREA.--35.5 mi^2.

PERIOD OF RECORD.--July 1904 to June 1912 (monthly discharge only); June 1932 to September 1974 (continuous record station); October 1974 to September 1989 (crest-stage partial-record station); October 1989 to current year.

REVISED RECORDS.--WSP 1213: 1938, 1946. WSP 1283: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,720 ft above sea level, from topographic map. July 1904 to June 1912, water-stage recorder and sharp-crested weir at site 0.7 mi upstream at different datum. June 1932 to September 1974 (water-stage recorder) and October 1974 to August 1981 (crest-stage gage) at site 1,000 ft upstream at different datum.

REMARKS.--Records poor. No diversion above station except for domestic supply.

AVERAGE DISCHARGE.--56 years (water years 1905-11, 1933-74, 1990-96), 14.7 ft^3/s, 10,650 acre-ft/yr; median of yearly mean discharges 8.9 ft^3/s, 6,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft^3/s Jan. 8, 1993, gage height 7.60 ft from high water marks, from rating curve extended above 3,000 ft^3/s on basis of slope-area measurement at gage height 9.65 ft; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1932	07-15-32	706		1965	02-07-65	244	
1933	09-10-33	510		1966	08-10-66	6,400	
1934	09-22-34	472		1967	07-17-67	788	
1935	02-06-35	540		1968	12-19-67	2,340	
1936	01-29-36	500		1969	01-14-69	310	
1937	02-07-37	2,020		1970	09-06-70	7,730	
1938	03-03-38	3,200		1971	08-10-71	660	
1939	08-06-39	385		1972	10-01-71	1,710	
1940	02-23-40	904		1973	10-19-72	2,750	
1941	12-30-40	3,180		1974	07-20-74	117	
1942	09-10-42	449		1975	00-00-75	70	LT
1943	03-05-43	567		1976	09-26-76	580	
1944	07-08-44	175		1977	07-10-77	480	
1945	07-30-45	916		1978	03-02-78	3,160	
1946	08-23-46	2,000		1979	12-18-78	7,400	
1947	12-26-46	227		1980	02-14-80	2,290	
1948	08-06-48	380		1981	07-31-81	1,420	
1949	08-08-49	1,430		1982	08-13-82	2,000	
1950	07-07-50	2,260		1983	02-03-83	1,340	
1951	08-02-51	750		1984	10-01-83	6,500	
1952	01-13-52	1,640		1985	12-28-84	2,350	
1953	07-16-53	861		1986	02-16-86	910	
1954	03-23-54	5,110		1987	08-13-87	866	
1955	08-03-55	2,000		1988	08-20-88	350	
1956	08-11-56	55		1989	08-07-89	350	
1957	01-09-57	2,030		1990	07-20-90	1,290	
1958	03-22-58	1,500		1991	03-01-91	2,600	
1959	07-26-59	4,240		1992	02-13-92	2,000	
1960	12-24-59	1,600		1993	01-08-93	12,900	
1961	08-30-61	910		1994	09-03-94	564	
1962	09-26-62	1,010		1995	02-15-95	3,530	
1963	08-15-63	2,070		1996	07-27-96	2,900	
1964	09-13-64	1,310					

09484000 SABINO CREEK NEAR TUCSON, AZ--Continued

Discharge rating table developed October 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	413	7.0	10,820
3.0	1,250	8.0	14,420
4.0	2,470	9.0	18,490
5.0	4,320	10.0	23,020
6.0	7,680	11.0	28,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
482	13.0	6,300	85.0	1.0	22.6	2.1	4.3

09484000 SABINO CREEK NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1933-74, 1990-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	84	0.00	4.4	14	3.1	2.7
NOVEMBER	40	0.00	4.3	7.9	1.8	2.6
DECEMBER	217	0.00	20	39	2.0	11.9
JANUARY	441	0.03	27	66	2.4	16.5
FEBRUARY	211	0.02	29	41	1.5	17.4
MARCH	311	0.30	35	52	1.5	21.6
APRIL	97	0.03	13	18	1.4	7.7
MAY	17	0.00	2.2	3.7	1.7	1.3
JUNE	6.4	0.00	0.43	1.2	2.9	0.3
JULY	60	0.00	5.9	11	1.8	3.6
AUGUST	84	0.09	14	18	1.3	8.4
SEPTEMBER	105	0.01	9.8	22	2.2	6.0
ANNUAL	65	0.52	14	14	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1934-74, 1991-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.11	0.00	0.00	0.00	0.00	0.00
120	0.63	0.07	0.00	0.00	0.00	0.00
183	2.0	0.64	0.31	0.16	0.07	0.04

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1932-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,190	2,780	4,310	6,850	9,220	12,000

WEIGHTED SKEW (LOGS)= -0.06
MEAN (LOGS)= 3.07
STANDARD DEV. (LOGS)= 0.44

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1933-74, 1990-96

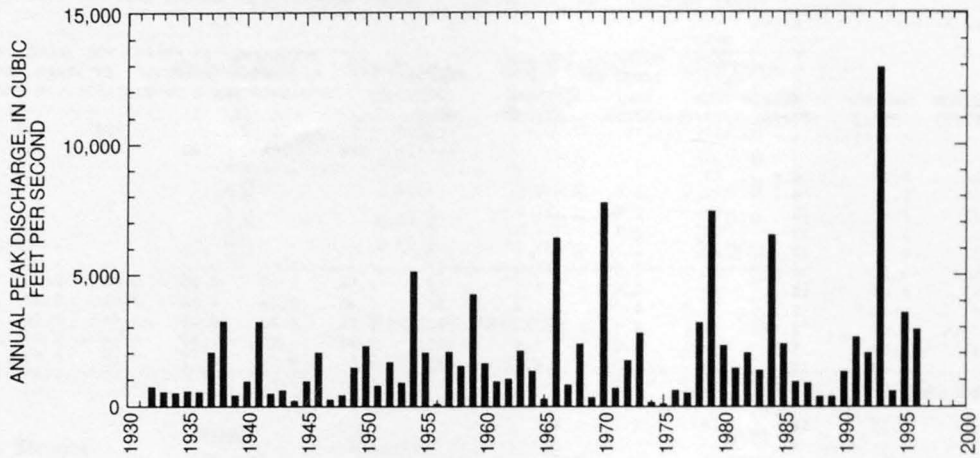
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	308	783	1,250	2,040	2,780	3,650
3	184	459	728	1,180	1,590	2,090
7	108	269	429	699	954	1,260
15	67	161	254	413	565	749
30	47	110	170	269	360	466
60	31	74	114	179	238	307
90	24	59	90	142	187	240

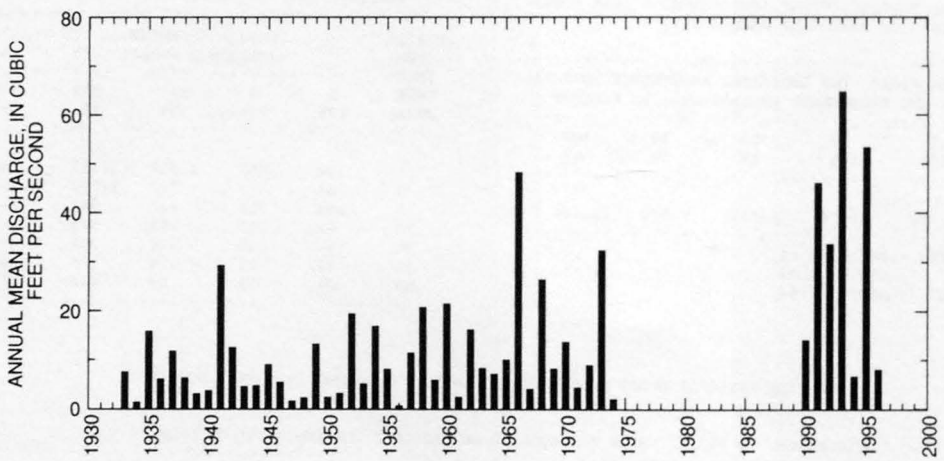
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1933-74, 1990-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
196	56	32	18	11	4.8	2.0	0.75	0.24	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00

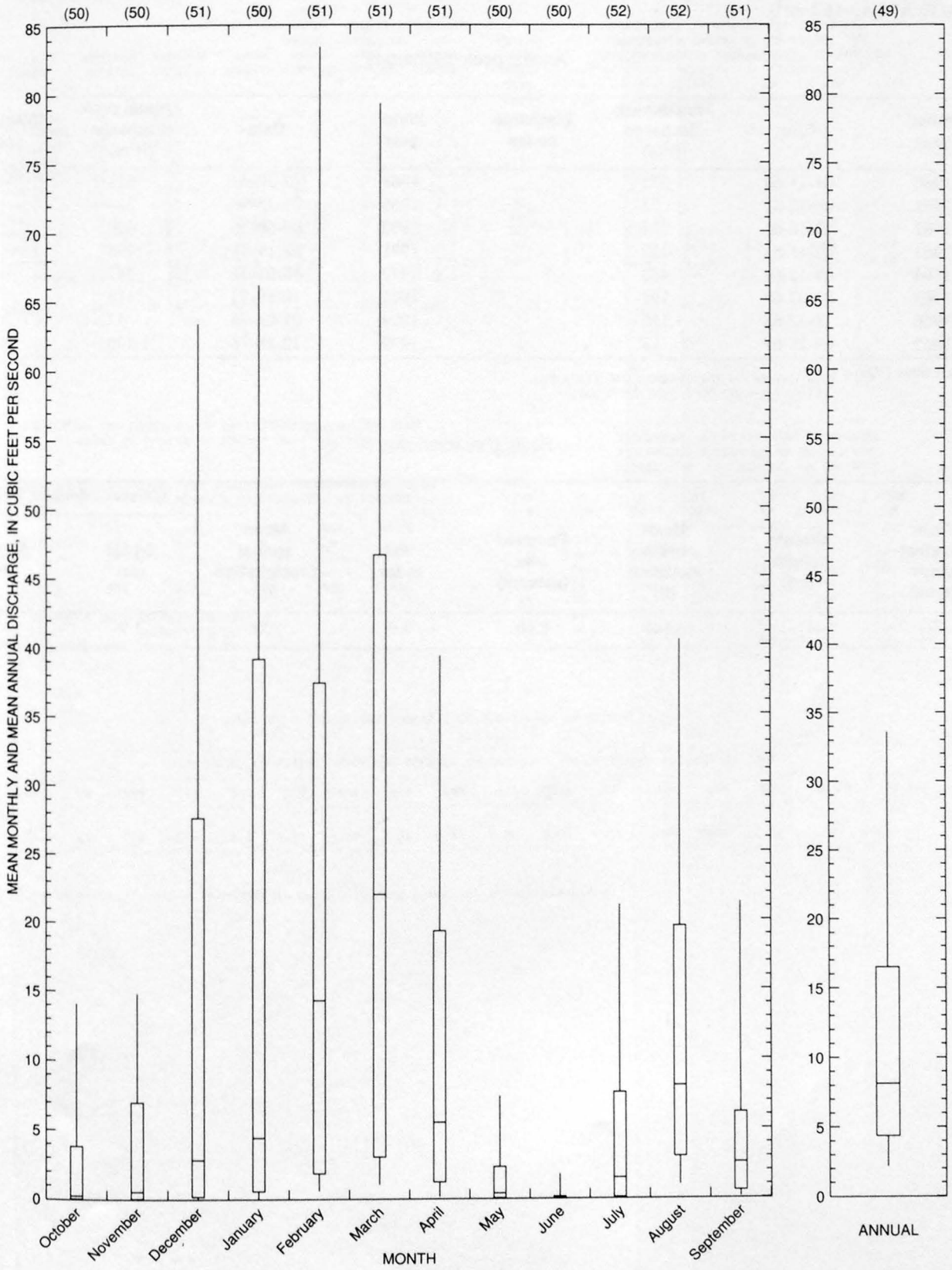
Reliability of values in column is uncertain, and potential errors are large.

09484000 SABINO CREEK NEAR TUCSON, AZ--Continued





09484000 SABINO CREEK NEAR TUCSON, AZ--Continued



09484200 BEAR CREEK NEAR TUCSON, AZ

LOCATION.--Lat 32°18'22", long 110°48'03", NW$^1/_4$ sec.15, T.13 S., R.15 E., Pima County, Hydrologic Unit 15050302, on left bank 0.8 mi upstream from mouth and 15 mi northeast of city hall in Tucson.

DRAINAGE AREA.--16.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	01-11-60	575		1968	12-20-67	621	
1961	09-12-61	53		1969	01-15-69	214	
1962	12-16-61	225		1970	09-06-70	670	
1963	02-11-63	357		1971	08-19-71	495	
1964	09-13-64	433		1972	10-01-71	247	
1965	02-07-65	192		1973	10-19-72	618	
1966	12-22-65	1,150		1974	01-09-74	57	
1967	09-25-67	13		1979	12-18-78	[1]1,400	HP

[1]Highest since 1959.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
502	11.0	5,860	82.0	1.0	20.6	1.9	4.0

09484200 BEAR CREEK NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1960-74

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	27	0.00	3.2	7.4	2.3	5.6
NOVEMBER	4.0	0.00	1.0	1.4	1.4	1.8
DECEMBER	89	0.00	13	23	1.8	22.4
JANUARY	57	0.00	10	15	1.5	18.0
FEBRUARY	42	0.00	12	15	1.2	21.8
MARCH	41	0.00	8.8	12	1.3	15.6
APRIL	13	0.00	2.1	3.5	1.7	3.7
MAY	2.6	0.00	0.22	0.67	3.1	0.4
JUNE	0.02	0.00	0.00	0.01	3.9	0.0
JULY	7.9	0.00	0.66	2.0	3.1	1.2
AUGUST	7.4	0.00	1.8	2.4	1.3	3.2
SEPTEMBER	20	0.00	3.6	6.7	1.8	6.4
ANNUAL	16	0.14	4.7	4.6	0.99	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1961-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.19	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1960-74, 1979

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
370	675	917	1,260	1,550	1,850

WEIGHTED SKEW (LOGS)= -0.12
MEAN (LOGS)= 2.56
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1960-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	116	292	429	605	731	849
3	71	183	273	392	480	565
7	43	108	160	227	274	319
15	27	71	107	154	190	223
30	17	47	75	114	146	178
60	11	33	53	84	110	136
90	8.5	26	43	69	90	112

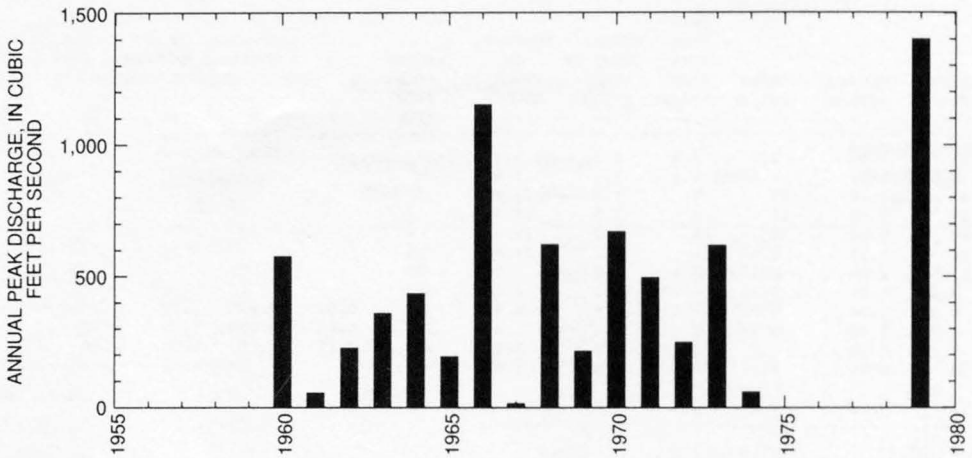
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-74

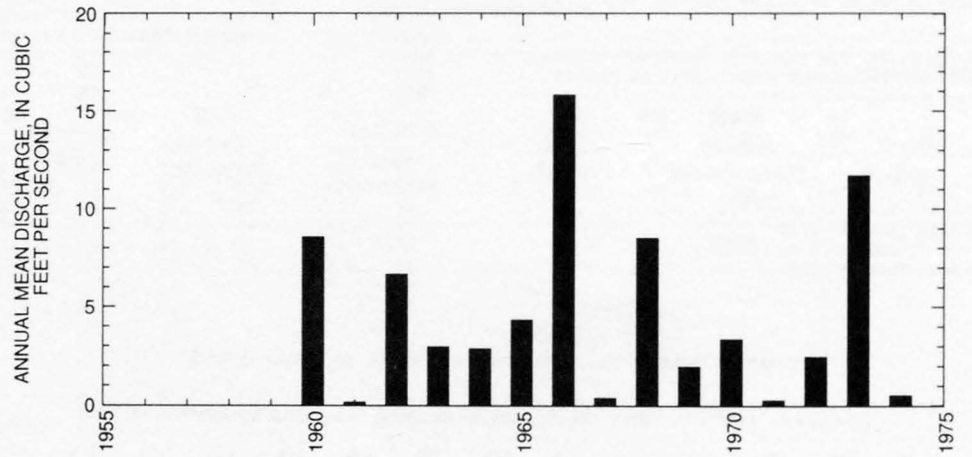
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
71	25	12	5.4	2.8	0.83	0.23	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

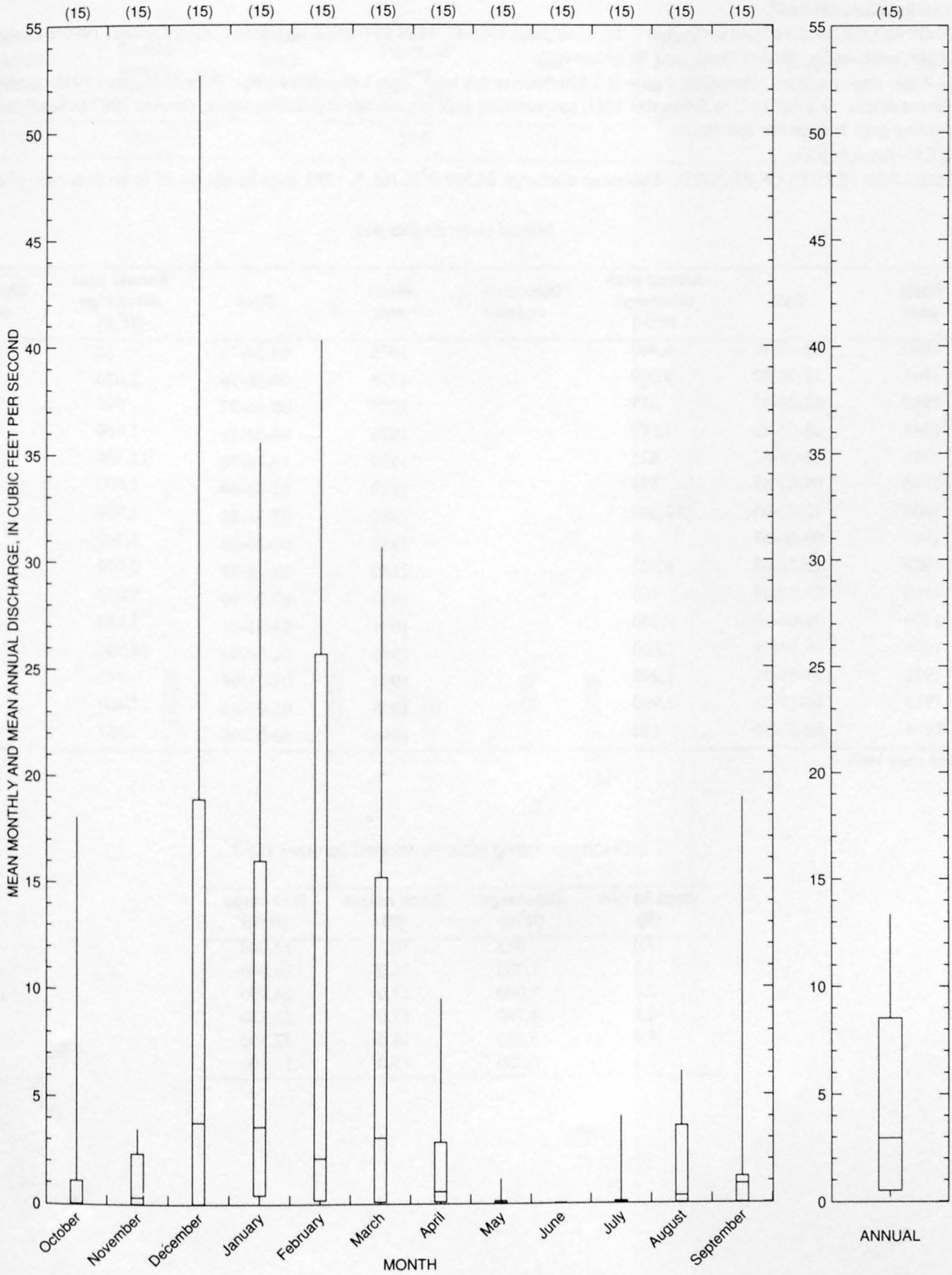
Reliability of values in column is uncertain, and potential errors are large.

09484200 BEAR CREEK NEAR TUCSON, AZ--Continued





09484200 BEAR CREEK NEAR TUCSON, AZ--Continued



09484500 TANQUE VERDE CREEK AT TUCSON, AZ

LOCATION.--Lat 32°15'57", long 110°50'27", in $SE^1/_4SE^1/_4$ sec.31, T.13 S., R.15 E., Pima County, Hydrologic Unit 15050302, at Sabino Canyon Road, 1 mi downstream from Sabino Creek, and 0.8 mi north of Tucson city limits.

DRAINAGE AREA.--219 mi^2.

PERIOD OF RECORD.--June 1940 to October 1945; water years 1966-81, 1988-90 (annual maximums only); October 1990 to current year. Prior to 1945, published as "Rillito Creek near Wrightstown."

GAGE.--Water-stage recorder. Elevation of gage is 2,470 ft above sea level, from topographic map. Prior to October 1945, at same location at different datum. October 1965 to September 1981, nonrecording gage at same site at different datum. October 1987 to September 1990, nonrecording gage at same site and datum.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft^3/s, Jan. 8, 1993, gage height, 11.85 ft; no flow most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-13-40	6,400		1975	04-24-75	10	ES
1941	12-30-40	9,000		1976	09-26-76	2,020	
1942	02-28-42	639		1977	00-00-77	600	
1943	03-05-43	1,090		1978	03-02-78	3,880	
1944	08-09-44	825		1979	12-18-78	[1]12,700	
1945	08-09-45	573		1980	02-14-80	1,600	
1966	12-22-65	12,200		1981	07-31-81	3,500	
1967	00-00-67	0		1988	08-20-88	3,700	
1968	12-20-67	6,300		1989	08-18-89	2,070	
1969	03-22-69	460		1990	07-24-90	5,030	
1970	09-06-70	7,340		1991	03-01-91	5,980	
1971	08-19-71	7,000		1993	01-08-93	24,500	
1972	10-01-71	1,240		1994	03-21-94	841	
1973	10-19-72	4,930		1995	01-05-95	7,400	
1974	09-21-74	420		1996	09-03-96	387	

[1]Highest since 1940.

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
7.0	855	10.0	12,000
7.5	1,780	11.0	18,040
8.0	3,080	12.0	24,990
8.5	4,760	13.0	33,130
9.0	6,820	14.0	42,500
9.5	9,220	15.0	53,100

09484500 TANQUE VERDE CREEK AT TUCSON, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
109	19.0	4,340	36.0	1.0	16.7	2.0	4.2

09484500 TANQUE VERDE CREEK AT TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1940-45, 1966-81, 1988-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1.1	0.00	0.10	0.31	3.0	0.03
NOVEMBER	36	0.00	3.8	10	2.7	1.0
DECEMBER	248	0.00	48	77	1.6	13
JANUARY	1,295	0.00	154	366	2.4	42
FEBRUARY	212	0.00	62	84	1.4	17
MARCH	277	0.00	78	89	1.1	21
APRIL	54	0.00	15	19	1.3	4.0
MAY	3.9	0.00	0.99	1.6	1.7	0.27
JUNE	0.00	0.00	0.00	0.00	---	0.0
JULY	11	0.00	1.4	3.2	2.4	0.37
AUGUST	13	0.00	2.9	4.0	1.4	0.78
SEPTEMBER	3.8	0.00	0.43	1.1	2.7	0.12
ANNUAL	147	0.48	33	44	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-45, 1966-81, 1988-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.03	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-45, 1966-81, 1988-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,360	6,580	11,000	18,800	26,400	35,500

WEIGHTED SKEW (LOGS)= -0.18
MEAN (LOGS)= 3.36
STANDARD DEV. (LOGS)= 0.54

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-45, 1966-81, 1988-96

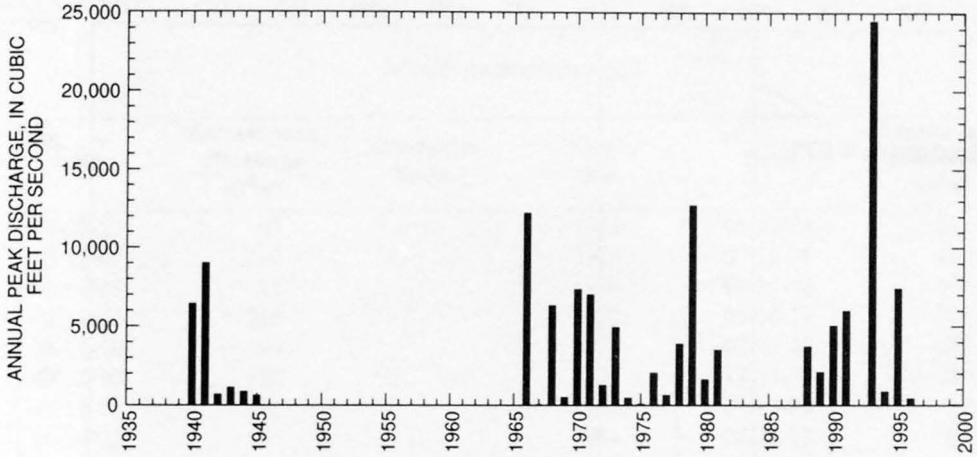
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	653	3,060	6,730	15,400	26,200	42,100
3	365	1,740	3,830	8,720	14,700	23,300
7	208	955	2,080	4,710	7,910	12,600
15	117	541	1,190	2,770	4,750	7,700
30	77	333	711	1,580	2,640	4,180
60	52	229	477	1,010	1,620	2,450
90	43	190	397	839	1,330	2,000

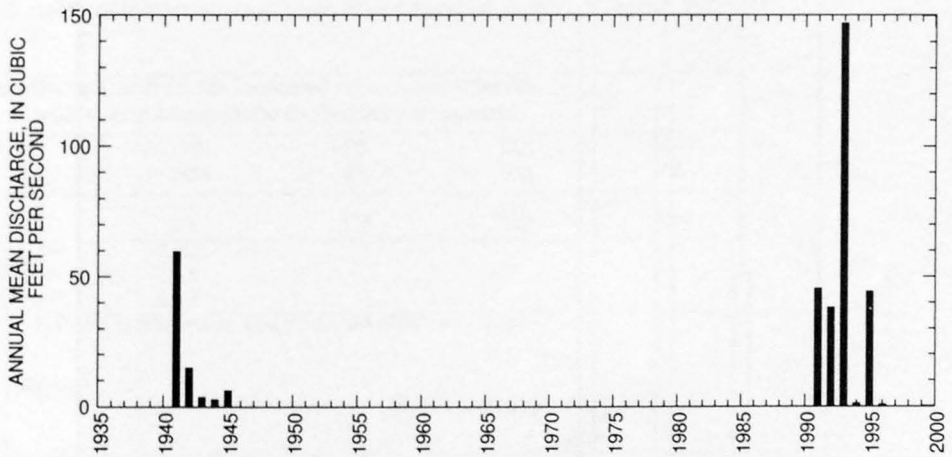
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-45, 1966-81, 1988-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
677	94	36	16	6.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

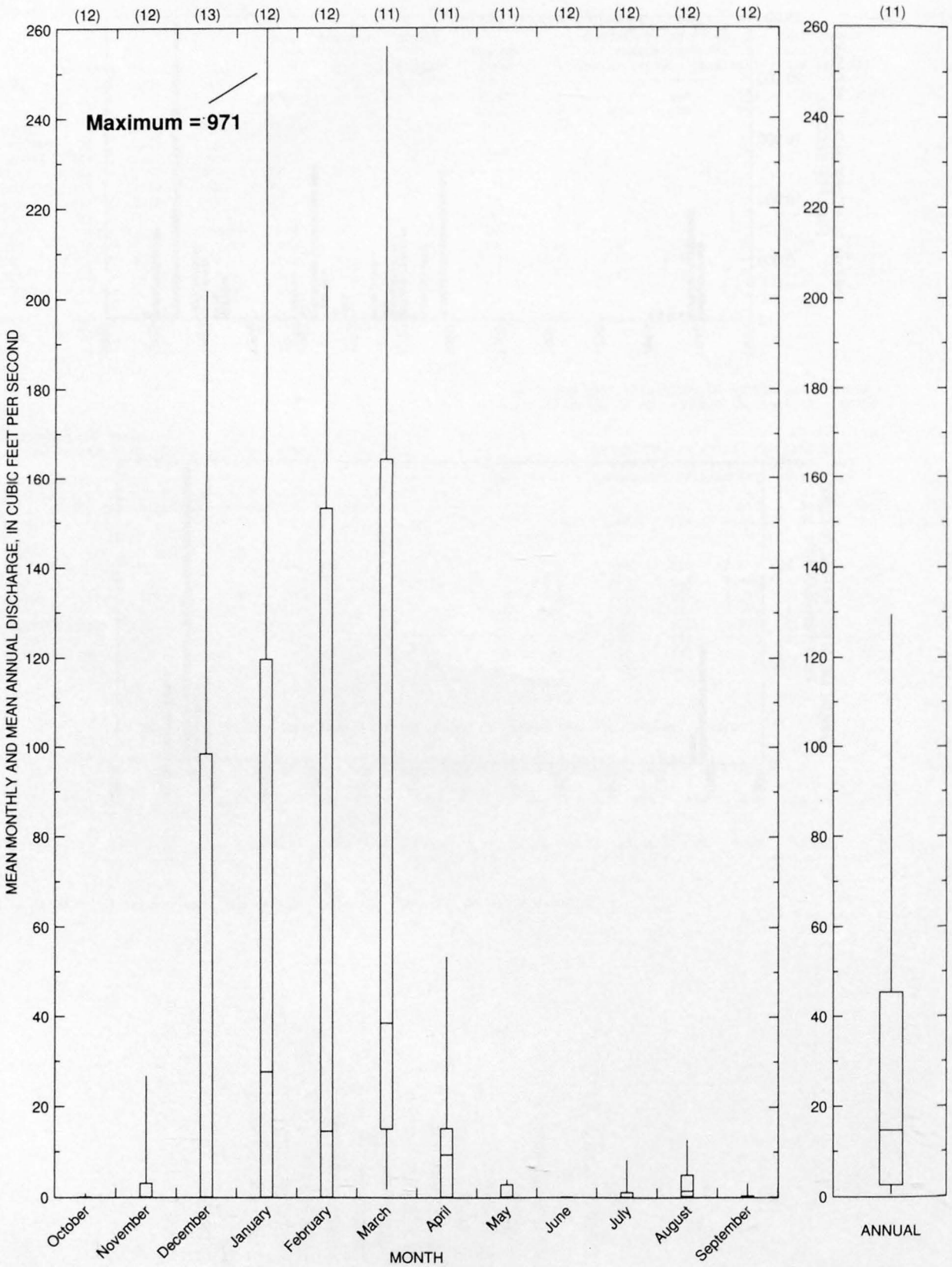
Reliability of values in column is uncertain, and potential errors are large.

09484500 TANQUE VERDE CREEK AT TUCSON, AZ--Continued





09484500 TANQUE VERDE CREEK AT TUCSON, AZ--Continued



09484510 VENTANA CANYON WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°18'35", long 110°50'20", $SW^1/_4SW^1/_4$ sec.8, T.13 S., R.15 E., Pima County, Hydrologic Unit 15050302, at Sunrise Drive (Sabino Canyon West Road), 0.5 mi above Esperero Wash, and 4 mi northeast of Tucson city limits.
DRAINAGE AREA.--6.46 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	09-08-65	93		1974	08-02-74	131	
1966	12-22-65	260		1975	07-25-75	120	
1967	10-04-66	21		1976	09-25-76	195	
1968	12-20-67	216		1977	00-00-77	145	
1969	08-01-69	95		1978	07-25-78	185	
1970	09-06-70	180		1979	12-18-78	234	
1971	08-19-71	195		1980	07-13-80	32	
1972	07-16-72	180		1981	07-31-81	86	
1973	10-19-72	125					

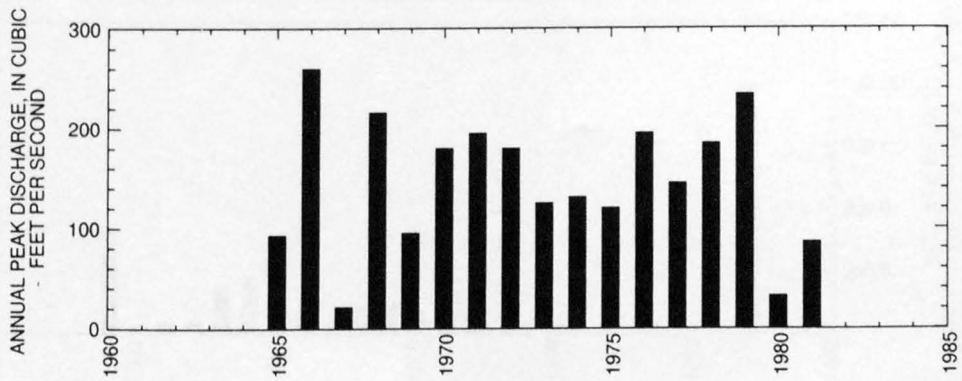
Magnitude and probability of instantaneous peak flow based on period of record 1965-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
147	202	235	275	303	329
Weighted skew	(logs) =	-0.32			
Mean	(logs) =	2.16			
Standard dev.	(logs) =	0.17			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
553	5.4	4,600	51.0	1.0	13.0	1.8	4.2



09484560 CIENEGA CREEK NEAR PANTANO, AZ

LOCATION.--Lat 31°59'08", long 110°33'57", NW$^1/_4$ sec.1, T.17 S., R.17 E., Pima County, Hydrologic Unit 15050302, on downstream end of first pier from right bank of bridge on Interstate Highway 10, and 1.2 mi southeast of Pantano.
DRAINAGE AREA.--289 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	08-11-58	20,000	ES,HP	1975	09-02-75	1,550	
1968	07-26-68	1,870		1976	08-10-76	4,650	
1969	07-22-69	990		1977	09-11-77	3,800	
1970	07-20-70	1,770		1978	10-06-77	900	
1971	08-03-71	2,240		1979	08-12-79	860	
1972	09-13-72	1,930		1980	09-07-80	630	
1973	02-22-73	878		1981	07-06-81	8,310	
1974	07-19-74	2,570					

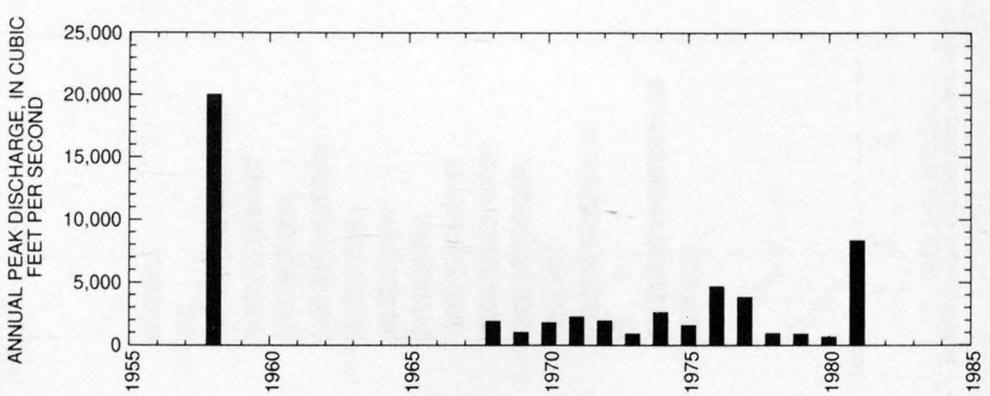
Magnitude and probability of instantaneous peak flow based on period of record 1958, 1968-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,880	4,020	6,150	9,930	13,700	18,500
Weighted skew	(logs) =	0.36			
Mean	(logs) =	2.30			
Standard dev.	(logs) =	0.37			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
59.8	31.2	4,890	13.0	2.5	16.6	1.9	4.1



09484570 MESCAL ARROYO NEAR PANTANO, AZ

LOCATION.--Lat 31°59'23", long 110°33'52", NE$^1/_4$NW$^1/_4$ sec.1, T.17 S., R.17 E., Pima County, Hydrologic Unit 15050302, at county road, 0.25 mi above mouth, and 1.1 mi southeast of Pantano.

DRAINAGE AREA.--38.4 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	08-11-58	[1]27,000	HP	1973	07-00-73	320	
1965	09-12-65	1,600		1974	08-19-74	620	
1966	08-13-66	1,610		1975	09-06-75	510	
1967	07-12-67	290		1976	07-29-76	385	
1968	08-03-68	430		1977	09-10-77	1,700	
1969	08-05-69	950		1978	10-06-77	2,100	
1970	07-21-70	680		1979	08-12-79	130	
1971	08-19-71	6,140		1980	09-07-80	15	
1972	09-00-72	520		1981	07-06-81	3,500	

[1]Highest since 1930.

Magnitude and probability of instantaneous peak flow based on period of record 1958, 1965-81

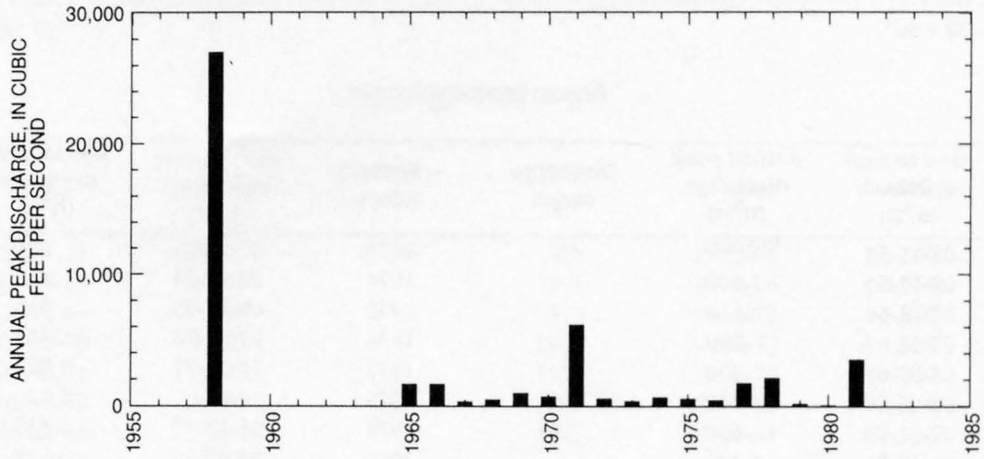
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2 50%	5 20%	10 10%	25 4%	50† 2%	100† 1%
753	2,060	3,620	6,800	10,400	15,400
Weighted skew	(logs) =	0.35			
Mean	(logs) =	2.91			
Standard dev.	(logs) =	0.50			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
82.9	11.9	4,260	0.0	1.0	15.0	1.9	4.0

09484570 MESCAL ARROYO NEAR PANTANO, AZ--Continued



09484580 BARREL CANYON NEAR SONOITA, AZ

LOCATION.--Lat 31°51'42", long 110°41'25", SE$^1/_4$SE$^1/_4$ sec.15, T.18 S., R.16 E., Pima County, Hydrologic Unit 15050302, at State Highway 83, 13 mi north of Sonoita.
DRAINAGE AREA.--14.1 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	140		1970	07-20-70	1,350	
1963	00-00-63	145		1971	08-00-71	1,900	
1964	09-10-64	879		1972	07-00-72	240	
1965	09-08-65	480		1973	00-00-73	10	LT
1966	00-00-66	260		1974	09-21-74	1,350	
1967	09-00-67	323		1975	09-13-75	980	
1968	07-26-68	1,600		1976	08-00-76	1,100	
1969	07-23-69	15	LT				

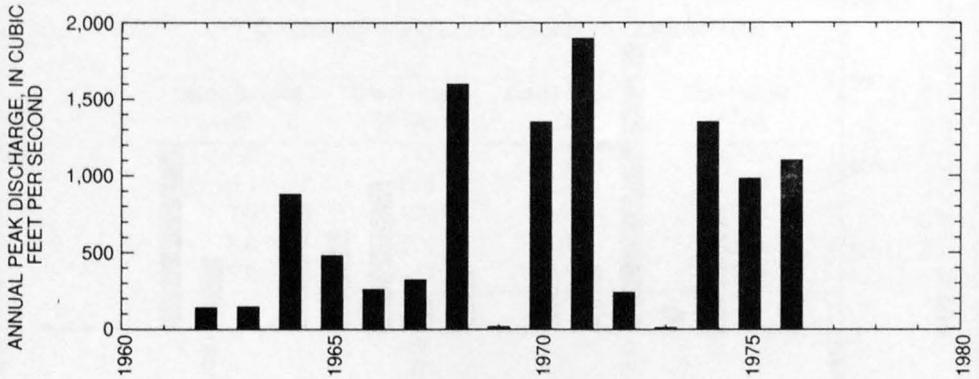
Magnitude and probability of instantaneous peak flow based on period of record 1962-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
504	1,190	1,810	2,760	3,580	4,480
Weighted skew	(logs) =	-0.34			
Mean	(logs) =	2.68			
Standard dev.	(logs) =	0.47			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
190	5.9	5,000	0.0	3.0	16.0	1.9	4.1



09484590 DAVIDSON CANYON WASH NEAR VAIL, AZ

LOCATION.--Lat 31°59'37", long 110°38'40", SW$^1/_4$SE$^1/_4$ sec.31, T.16 S., R.17 E., Hydrologic Unit 15050302, on right bank 0.3 mi upstream from Interstate Highway 10, 2.0 mi upstream from mouth, and 5.5 mi southeast of Vail.

DRAINAGE AREA.--50.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	07-26-68	3,040		1975	07-08-75	708	
1969	08-05-69	587		1976	07-12-76	3,550	
1970	07-20-70	6,860		1977	09-10-77	2,400	
1971	08-10-71	1,490		1978	10-06-77	3,040	
1972	09-07-72	1,320		1979	08-15-79	105	
1973	10-19-72	28		1980	09-07-80	1,740	
1974	09-21-74	1,460		1981	07-27-81	4,480	

Magnitude and probability of instantaneous peak flow based on period of record 1968-81

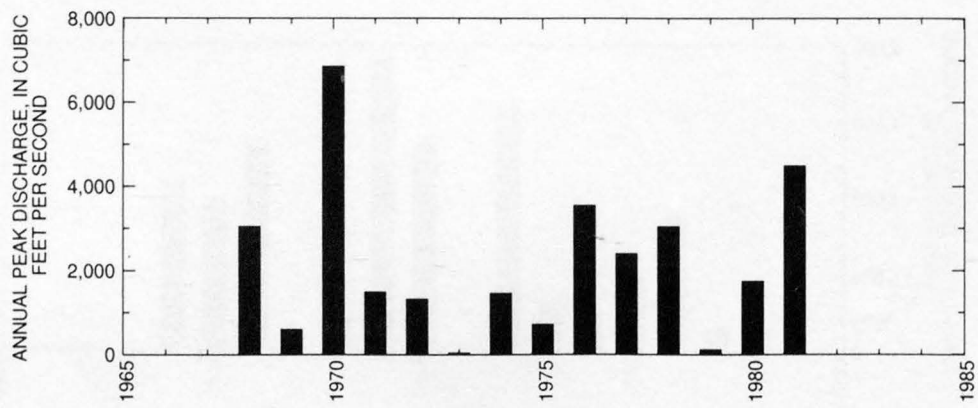
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,900	3,430	4,640	6,380	7,800	9,340

Weighted skew	(logs) =	-0.11
Mean	(logs) =	3.27
Standard dev.	(logs) =	0.31

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
86.2	13.6	4,340	0.0	1.0	14.9	1.9	4.1



09484600 PANTANO WASH NEAR VAIL, AZ

LOCATION.--Lat 32°02'09", long 110°40'37", in $SW^1/_4SE^1/_4$ sec.14, T.16 S., R.16 E., Pima County, Hydrologic Unit 15050302, on right bank 60 ft upstream from dam, 2.2 mi southeast of Vail, and 20 mi southeast of Tucson City Hall.

DRAINAGE AREA.--457 mi^2.

PERIOD OF RECORD.--January 1959 to September 1974, water years 1975-89 (annual maximums only), October 1989 to current year.

GAGE.--Water-stage recorder and concrete weir. Elevation of gage is 3,205 ft above sea level, from topographic map. January 1959 to September 1974 (water-stage recorder) and October 1974 to September 1989 (crest-stage gage) at same site and datum.

REMARKS.--Records poor. No known diversion above station. Records published herein represent flow by gage. Infiltration flow is not included. Base runoff past gage station consists of downvalley underflow that is brought to the surface by the concrete dam 60 ft downstream which extends to bedrock.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s Oct. 1 or 2, 1983, gage height, 15.25 ft, from inside high-water mark, from rating curve extended above 2,000 ft^3/s on basis of slope-area measurements at gage heights 10.9 and 24 ft; no flow June 26 to July 13, Aug. 7, 1971, result of work on infiltration gallery, June 27 to July 13, 1973, result of ponding during construction work on dam, and May 28 to June 12, July 12, 13, 17, 18, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1930, about 38,000 ft^3/s, Aug. 11, 1958, gage height, about 24 ft, from floodmark, from slope-area measurement.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	08-11-58	[1]38,000	ES,HP	1978	10-06-77	1,300	
1959	08-17-59	9,310		1979	12-18-78	790	
1960	08-09-60	7,300		1980	09-07-80	1,300	
1961	08-28-61	5,280		1981	09-22-81	13,000	
1962	09-26-62	1,500		1982	08-23-82	3,400	
1963	08-25-63	9,700		1983	08-03-83	1,840	
1964	09-10-64	9,960		1984	10-02-83	12,000	
1965	09-12-65	5,880		1985	08-20-85	363	
1966	08-13-66	7,410		1986	08-17-86	1,020	
1967	08-18-67	7,680		1987	09-24-87	1,370	
1968	12-20-67	2,640		1988	07-29-88	7,420	
1969	08-05-69	857		1989	07-21-89	803	
1970	07-20-70	6,850		1990	07-24-90	3,960	
1971	08-19-71	8,700		1991	03-02-91	129	
1972	09-07-72	1,460		1992	07-10-92	834	
1973	10-04-72	371		1993	07-11-93	1,840	
1974	07-20-74	1,780		1994	09-11-94	2,370	
1975	09-02-75	1,200		1995	01-05-95	650	
1976	07-25-76	5,200		1996	09-01-96	2,250	
1977	09-10-77	1,600					

[1]Highest since 1930.

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	558	10.0	3,520
6.5	818	11.0	4,600
7.0	1,100	12.0	5,790
8.0	1,770	13.0	7,110
9.0	2,580	13.7	8,100

09484600 PANTANO WASH NEAR VAIL, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
46.3	43.5	4,500	15.0	1.75	15.4	1.9	2.9

09484600 PANTANO WASH NEAR VAIL, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1960-74, 1990-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6.7	0.10	1.9	1.9	1.0	2.5
NOVEMBER	3.0	0.10	1.2	0.73	0.59	1.7
DECEMBER	50	0.10	6.4	14	2.1	8.7
JANUARY	111	0.10	8.4	24	2.8	11.3
FEBRUARY	36	0.10	4.7	7.9	1.7	6.4
MARCH	18	0.12	3.4	3.9	1.2	4.6
APRIL	5.2	0.32	2.1	1.3	0.62	2.8
MAY	2.0	0.19	1.3	0.48	0.37	1.7
JUNE	3.6	0.07	1.2	0.83	0.68	1.6
JULY	50	0.66	12	14	1.2	16.0
AUGUST	93	0.52	20	26	1.3	27.0
SEPTEMBER	105	0.16	12	21	1.8	15.7
ANNUAL	13	1.8	6.2	3.8	0.61	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1960-74, 1991-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.43	0.19	0.06	0.00	0.00	0.00
3	0.46	0.20	0.05	0.00	0.00	0.00
7	0.54	0.23	0.05	0.00	0.00	0.00
14	0.61	0.31	0.11	0.00	0.00	0.00
30	0.69	0.36	0.23	0.16	0.09	0.06
60	0.82	0.44	0.29	0.19	0.11	0.08
90	1.0	0.58	0.37	0.24	0.13	0.08
120	1.4	0.65	0.40	0.26	0.15	0.10
183	2.1	0.86	0.49	0.29	0.15	0.09

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,600	6,450	10,400	17,200	23,900	32,100

WEIGHTED SKEW (LOGS)= 0.00
MEAN (LOGS)= 3.41
STANDARD DEV. (LOGS)= 0.47

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1960-74, 1990-96

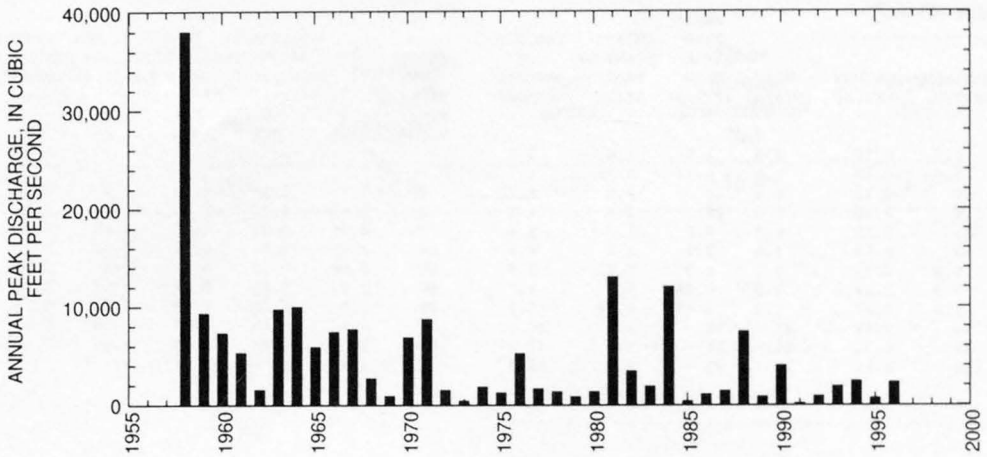
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	300	655	983	1,510	1,990	2,550
3	144	317	478	740	979	1,260
7	76	168	254	394	522	673
15	46	102	156	244	326	424
30	30	64	93	139	179	225
60	19	39	55	81	102	126
90	14	29	40	57	70	85

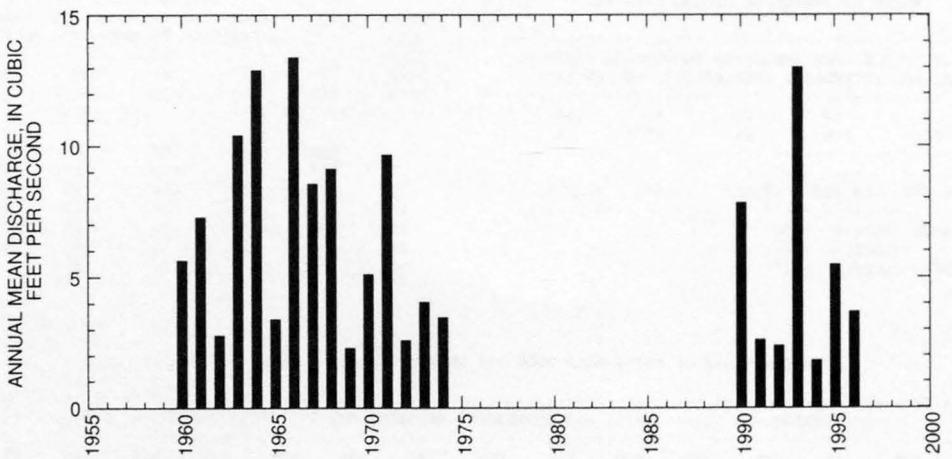
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-74, 1990-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
130	15	4.7	3.3	2.7	2.0	1.6	1.4	1.2	0.93	0.71	0.43	0.22	0.09	0.08	0.00	0.00

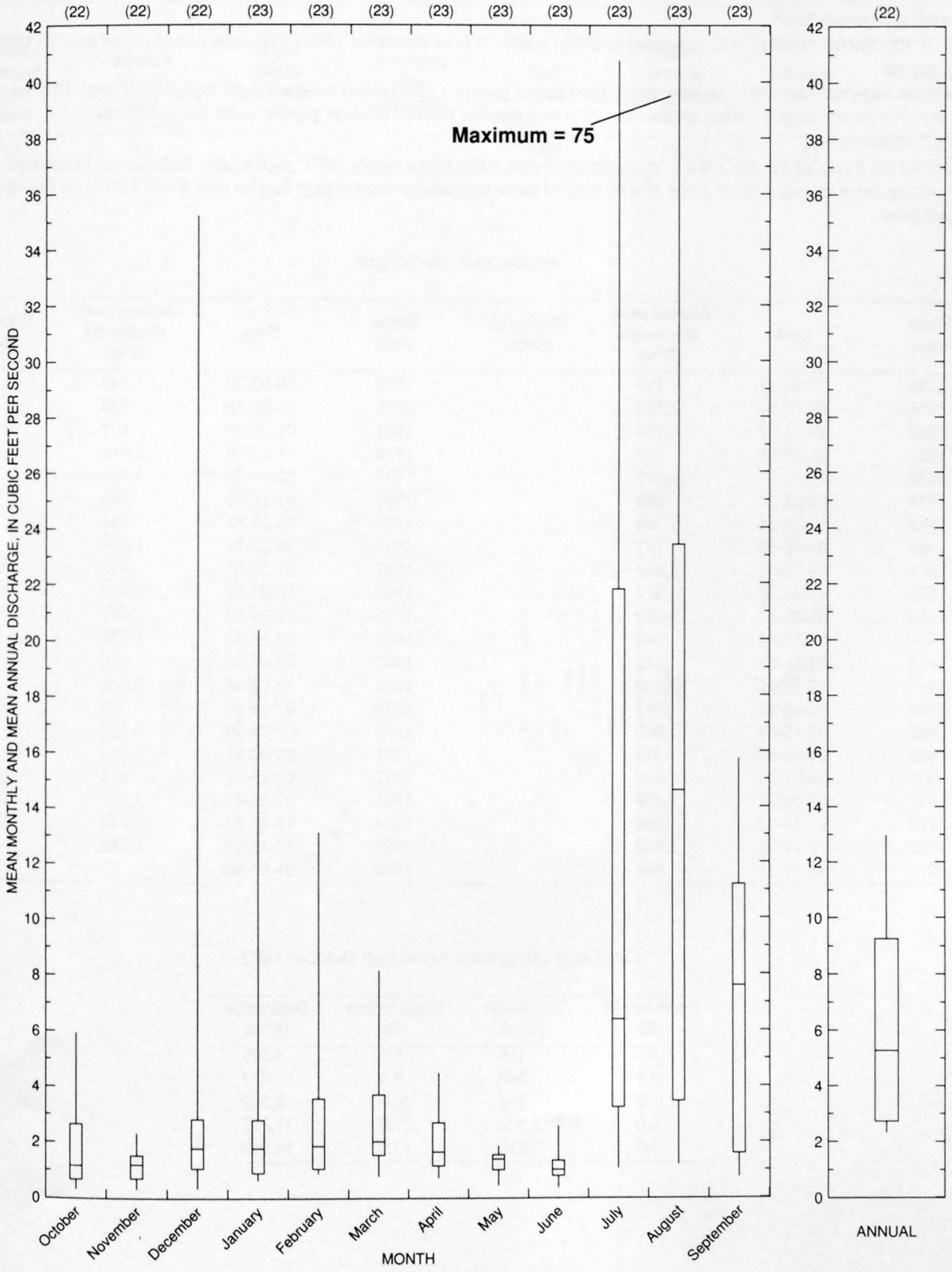
Reliability of values in column is uncertain, and potential errors are large.

09484600 PANTANO WASH NEAR VAIL, AZ--Continued





09484600 PANTANO WASH NEAR VAIL, AZ--Continued



09485000 RINCON CREEK NEAR TUCSON, AZ

LOCATION.--Lat 32°07'46", long 110°37'32", in NW$^1/_4$NE$^1/_4$ sec.17, T.15 S., R.17 E., Pima County, Hydrologic Unit 15050302, on left bank 0 mi north of Sentinel Butte, 9 mi upstream from mouth, and 22 mi southeast of Tucson City Hall.

DRAINAGE AREA.--44.8 mi^2.

PERIOD OF RECORD.--October 1952 to September 1974, October 1974 to September 1989, (crest-stage partial-record station); October 1989 current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,120 ft above sea level, from topographic map. October 1952 to Sep tember 1974 (water-stage recorder) and October 1974 to September 1989 (crest-stage gage) at same site and datum.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 ft^3/s Aug. 19, 1971, gage height, 10.5 ft, from inside high-water mar from rating curve extended above 1,800 ft^3/s on basis of slope-area measurement at gage heights 6.50 ft and 9.90 ft; no flow for many da in each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1953	07-30-53	194		1975	09-02-75	340	
1954	08-19-54	2,160		1976	00-00-76	230	
1955	08-03-55	8,250		1977	01-00-77	127	
1956	07-20-56	150		1978	01-15-78	2,440	
1957	01-09-57	3,570		1979	12-18-78	4,890	
1958	03-22-58	492		1980	02-14-80	586	
1959	10-21-58	5,220		1981	08-01-81	236	
1960	01-12-60	747		1982	08-23-82	1,800	
1961	08-22-61	2,600		1983	01-30-83	688	
1962	01-24-62	227		1984	10-02-83	5,640	
1963	08-25-63	3,420		1985	01-26-85	647	
1964	09-23-64	948		1986	07-15-86	1,170	
1965	08-18-65	311		1987	12-07-86	535	
1966	12-22-65	3,100		1988	08-02-88	2,640	
1967	08-13-67	157		1989	07-25-89	88	
1968	02-12-68	1,860		1990	07-24-90	6,320	
1969	09-06-69	548		1991	03-02-91	1,180	
1970	08-01-70	1,200		1992	02-13-92	871	
1971	08-19-71	9,660		1993	01-08-93	3,720	
1972	07-16-72	360		1994	03-20-94	237	
1973	10-19-72	1,440		1995	02-15-95	1,880	
1974	08-01-74	664		1996	09-04-96	27	

Discharge rating table developed October 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	266	8.0	4,340
4.5	540	9.0	6,250
5.0	846	10.0	8,560
6.0	1,670	11.0	11,310
7.0	2,820	12.0	14,500

09485000 RINCON CREEK NEAR TUCSON, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
612	9.0	4,850	57.0	1.09	19.2	2.1	4.2

09485000 RINCON CREEK NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1953-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	23	0.00	1.6	5.0	3.2	1.9
NOVEMBER	18	0.00	1.1	3.4	3.1	1.3
DECEMBER	130	0.00	11	26	2.4	12.7
JANUARY	247	0.00	20	49	2.4	23.9
FEBRUARY	75	0.00	15	25	1.6	18.2
MARCH	74	0.00	14	20	1.5	16.1
APRIL	18	0.00	3.1	5.3	1.7	3.7
MAY	2.0	0.00	0.17	0.38	2.2	0.2
JUNE	1.5	0.00	0.07	0.27	4.2	0.1
JULY	82	0.00	3.6	15	4.2	4.3
AUGUST	64	0.00	11	16	1.4	13.6
SEPTEMBER	19	0.00	3.4	5.6	1.7	4.0
ANNUAL	33	0.07	7.0	8.0	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1954-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.02	0.00	0.00	0.00	0.00	0.00
183	0.20	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1953-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
963	2,770	4,760	8,410	12,100	16,700

WEIGHTED SKEW (LOGS)= -0.09
MEAN (LOGS)= 2.98
STANDARD DEV. (LOGS)= 0.55

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1953-96

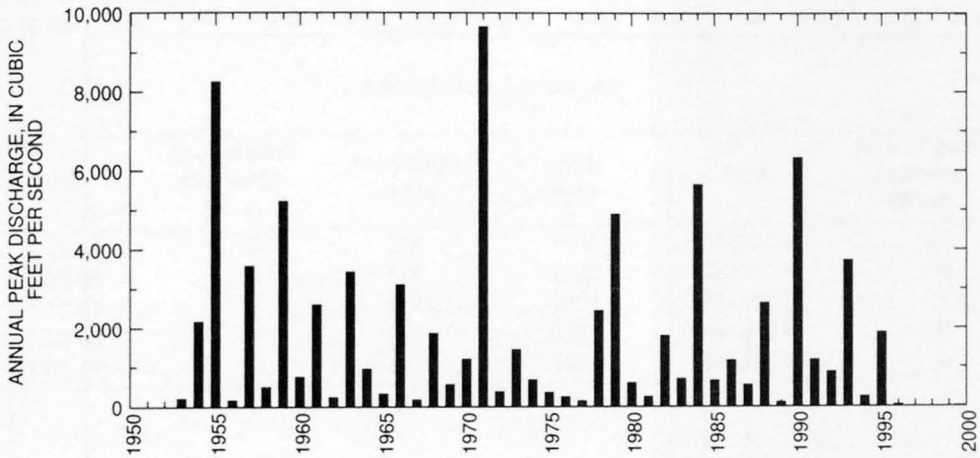
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	207	624	1,020	1,640	2,160	2,700
3	116	352	569	889	1,150	1,410
7	70	203	314	459	564	661
15	44	127	195	281	341	395
30	27	84	133	199	247	292
60	17	55	89	136	172	205
90	12	41	68	106	136	165

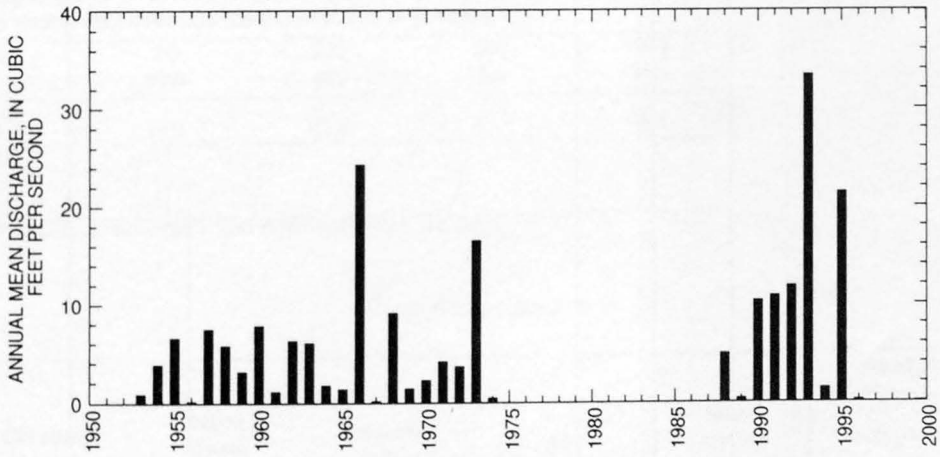
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1953-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
126	32	12	4.6	1.8	0.29	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

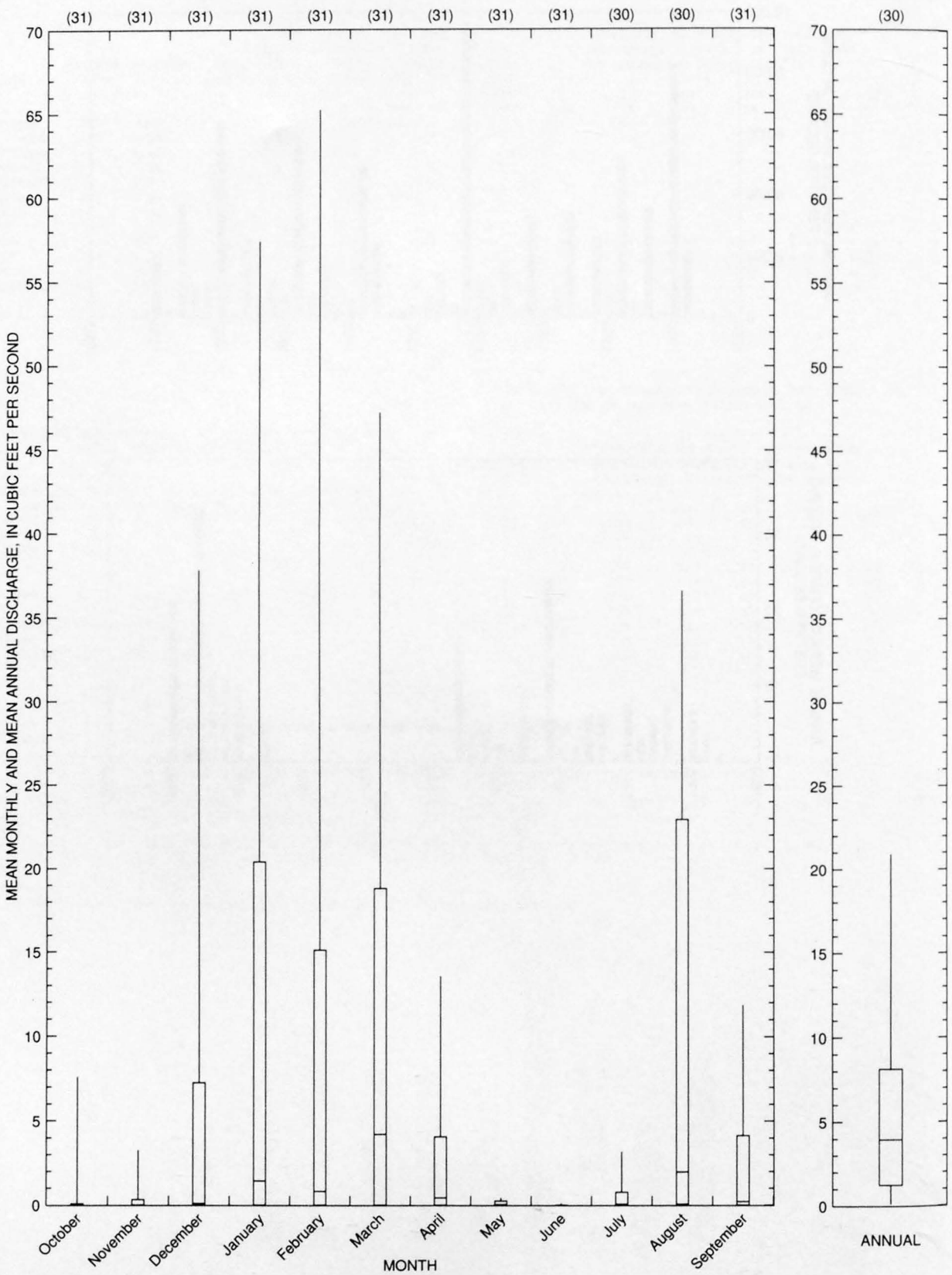
Reliability of values in column is uncertain, and potential errors are large.

09485000 RINCON CREEK NEAR TUCSON, AZ--Continued





09485000 RINCON CREEK NEAR TUCSON, AZ--Continued



09485100 SAGUARO CORNERS WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°10'11", long 110°44'15", $SW^1/_4NW^1/_4$ sec.32, T.14 S., R.16 E., Pima County, Hydrologic Unit 15050302, at Freeman Road, 0.9 mi south of Old Spanish Trail, and 4 mi southeast of Tucson city limits.
DRAINAGE AREA.--0.17 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	09-12-65	29	UR	1970	07-20-70	29	UR
1966	09-12-66	23	UR	1971	08-00-71	30	UR
1967	07-17-67	33	UR	1972	08-12-72	4.4	UR
1968	08-00-68	49	UR	1973	08-00-73	10	UR
1969	09-09-69	28	UR	1974	00-00-74	0	UR

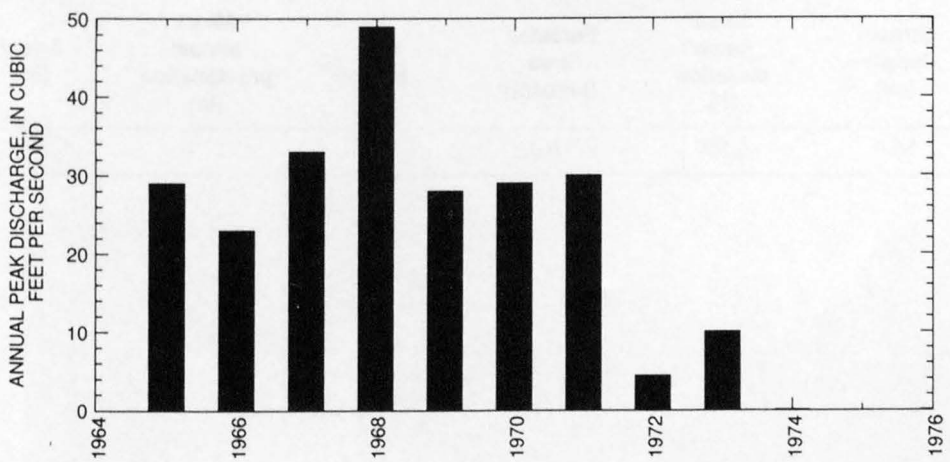
Magnitude and probability of instantaneous peak flow based on period of record 1965-74

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
27.4	34.4	39.1	44.8	49.1	53.4
Weighted skew	(logs) =	0.21			
Mean	(logs) =	1.44			
Standard dev.	(logs) =	0.11			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
117	0.4	3,040	0.0	1.0	12.0	1.8	4.0



09485500 PANTANO WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°14'57", long 110°50'53", NW$^1/_4$NE$^1/_4$ sec.6, T.14 S., R.15 E., Pima County, Hydrologic Unit 15050302, at Tanque Verde Road 0.7 mi northeast of Tucson city limits, and 1.75 mi above mouth.

DRAINAGE AREA.--602 mi^2.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-13-40	9,200	HP	1972	09-07-72	180	
1958	08-12-58	[1]20,000	HP	1973	10-19-72	500	ES
1965	08-18-65	250		1974	07-20-74	600	ES
1966	08-13-66	2,820		1975	07-16-75	3,490	
1967	07-12-67	4,120		1976	08-10-76	3,080	
1968	12-20-67	2,420		1979	00-00-79	1,530	
1969	08-05-69	1,250		1980	00-00-80	1,000	
1970	07-20-70	6,480		1981	00-00-81	9,700	
1971	08-20-71	[2]12,800		1984	10-01-83	11,000	HP

[1]Highest since 1930.

[2]Highest since 1958.

Magnitude and probability of instantaneous peak flow based on period of record 1940, 1958, 1965-76, 1979-81, 1984

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,720	4,620	7,540	12,500	17,100	22,600

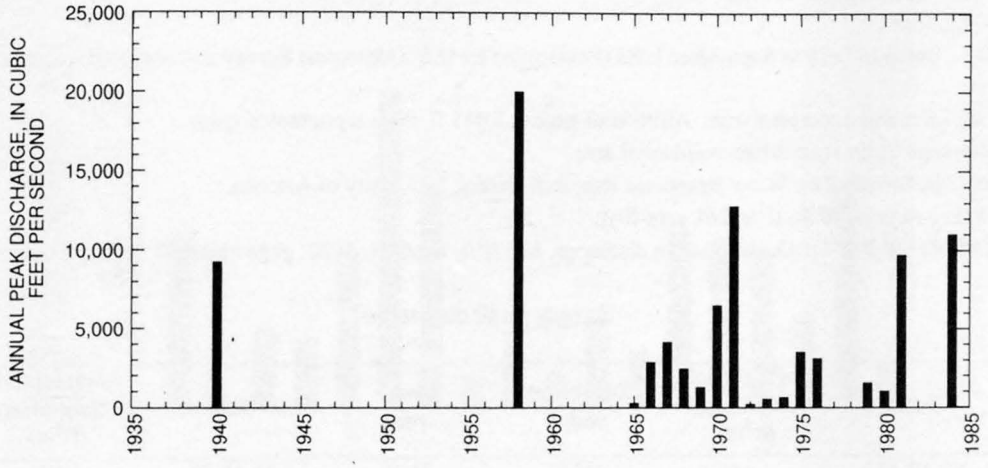
Weighted skew	(logs) =	-0.22
Mean	(logs) =	3.22
Standard dev.	(logs) =	0.53

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
56.4	54.4	4,560	16.0	1.1	17.1	1.9	4.1

09485500 PANTANO WASH NEAR TUCSON, AZ--Continued



09485550 ARCADIA WASH AT TUCSON, AZ

LOCATION.--Lat 32°14'37", long 110°53'05", in SE$^1/_4$NW$^1/_4$ sec.2, T.14 S., R.14 E., Pima County, Hydrologic Unit 15050302, on right bank 150 ft downstream from Pima Street in Tucson.

DRAINAGE AREA.--2.72 mi^2.

PERIOD OF RECORD.--October 1975 to September 1983 (Publication by U.S. Geological Survey discontinued; records available from cooperator listed below).

GAGE.--Water-stage recorder and concrete flume. Altitude of gage is 2,485 ft, from topographic map.

REMARKS.--Entire drainage basin is an urban, residential area.

COOPERATION.--Records furnished by Water Resources Research Center, University of Arizona.

AVERAGE DISCHARGE.--8 years, 0.36 ft^3/s, 261 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 836 ft^3/s, Sept. 11, 1982, gage height, 5.36 ft; no flow most of each year.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	07-19-66	658	HP,C	1976	09-25-76	342	C
1968	08-19-68	310	C	1977	09-10-77	220	C
1969	08-05-69	265	C	1978	09-21-78	661	C
1970	08-11-70	594	C	1979	08-12-79	647	C
1971	08-17-71	[1]1,210	C	1980	08-13-80	595	C
1972	08-12-72	940	C	1981	06-25-81	330	C
1973	07-07-73	121	C	1982	09-11-82	836	C
1974	07-18-74	264	C	1983	11-30-83	157	C
1975	07-16-75	134	C				

[1]Highest since 1963.

Magnitude and probability of instantaneous peak flow based on period of record 1966, 1968-83

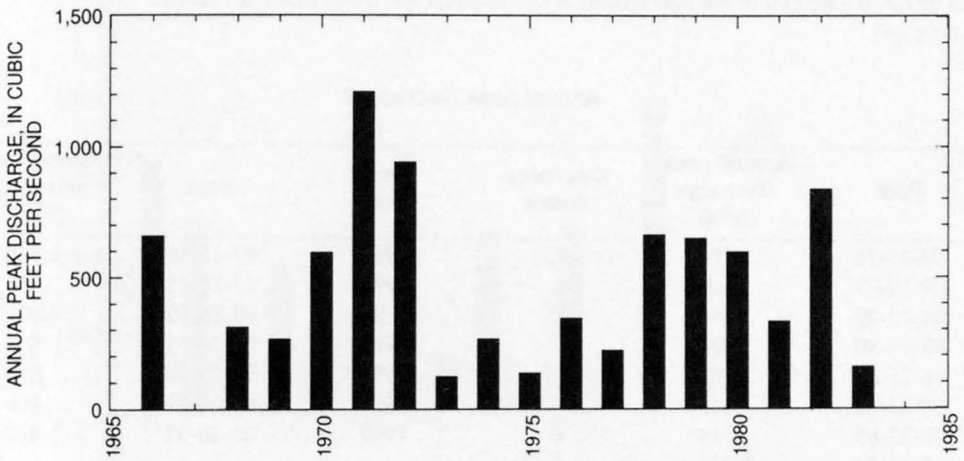
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
395	707	953	1,310	1,600	1,920
Weighted skew	(logs) =	-0.07			
Mean	(logs) =	2.59			
Standard dev.	(logs) =	0.30			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
0.77	5.54	2,560	0.0	1.0	11.0	1.7	4.2

09485550 ARCADIA WASH AT TUCSON, AZ--Continued



09485570 ALAMO WASH AT TUCSON, AZ

LOCATION.--Lat 32°15'31", long 110°53'01", $SE^1/_4SE^1/_4NW^1/_4$ sec.35, T.13 S., R.14 E., Pima County, Hydrologic Unit 15050302, 270 ft downstream from Glenn Street, 0.5 mi east of the intersection of Glenn Street and Swan Road in Tucson.
DRAINAGE AREA.--9.58 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1976	09-25-76	3,200	C	1986	07-21-86	2,340	C
1977	09-10-77	2,500	C	1987	07-26-87	432	C
1979	08-12-79	1,890	C	1988	08-20-88	4,000	C
1980	08-13-80	820	C	1989	07-26-89	853	C
1981	06-25-81	800	C	1990	07-24-90	870	C
1982	08-23-82	3,310	C	1991	01-05-91	466	C
1983	09-23-83	714	C	1992	05-10-92	420	C
1984	07-16-84	2,280	C				

Discharge rating table developed October 1986

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	249	5.0	2,530
2.5	534	5.5	3,020
3.0	911	6.0	3,540
3.5	1,280	6.5	4,100
4.0	1,660	7.0	4,680
4.5	2,080	7.1	4,800

Magnitude and probability of instantaneous peak flow based on period of record 1976-84, 1986-92

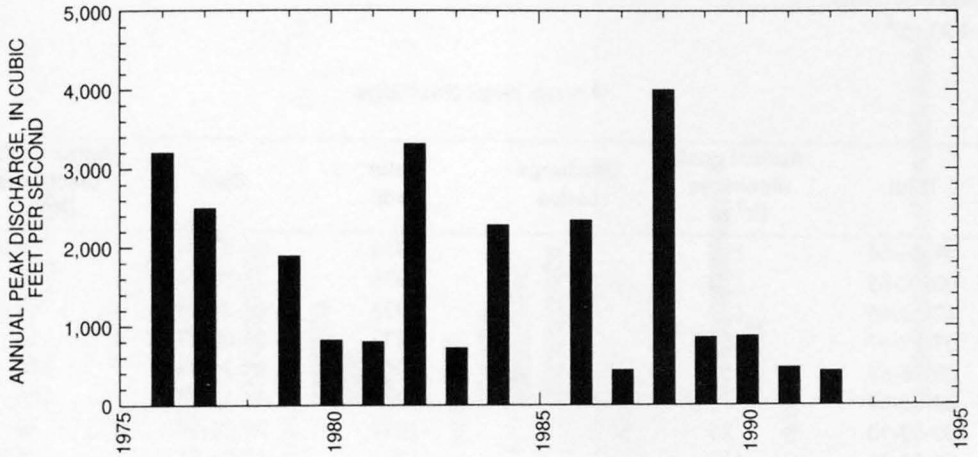
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,600	2,900	3,890	5,260	6,340	7,460
Weighted skew	(logs) =	-0.27			
Mean	(logs) =	3.18			
Standard dev.	(logs) =	0.32			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
46.2	6.4	2,590	0.0	1.0	11.0	3.8	1.6

09485570 ALAMO WASH AT TUCSON, AZ--Continued



09485900 PIMA WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°20'15", long 110°57'35", $SW^1/_4SW^1/_4$ sec.31, T.12 S., R.14 E., Pima County, Hydrologic Unit 15050302, at Ina Road, and 4 mi north of Tucson city limits.

DRAINAGE AREA.--4.93 mi^2.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-06-64	195		1974	09-07-74	5.0	LT
1965	00-00-65	120	LT	1975	10-30-74	10	LT
1966	12-22-65	125		1976	09-26-76	2.0	ES
1967	07-17-67	65		1977	01-00-77	10	ES
1968	08-06-68	50		1978	07-26-78	300	
1969	09-06-69	2.0	ES	1979	12-18-78	100	
1970	00-00-70	80		1980	09-26-80	30	
1971	08-12-71	117		1981	05-01-81	5.0	
1972	09-01-72	170		1984	10-01-83	[1]460	HP
1973	10-19-72	195					

[1]Highest since 1963.

Magnitude and probability of instantaneous peak flow based on period of record 1964-81, 1984

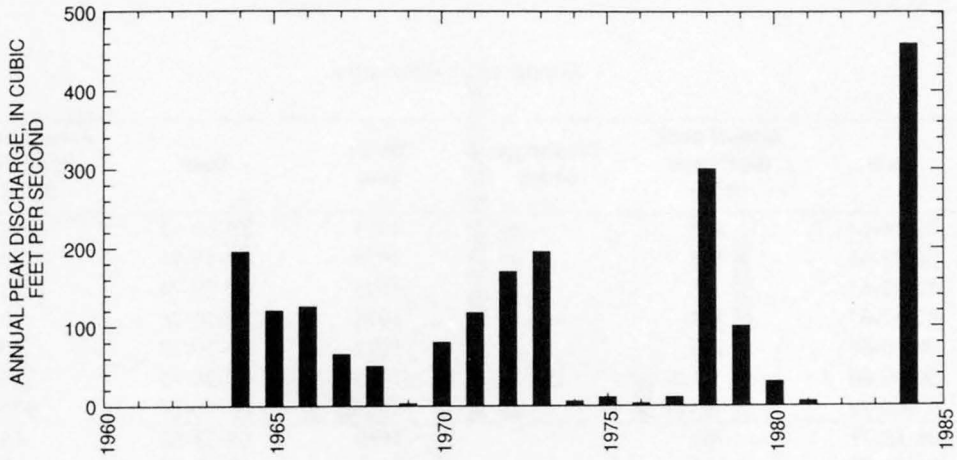
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
74.2	177	269	407	524	652
Weighted skew	(logs) =	-0.39			
Mean	(logs) =	1.84			
Standard dev.	(logs) =	0.48			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
533	5.5	4,430	18.0	1.0	16.0	1.9	4.5

09485900 PIMA WASH NEAR TUCSON, AZ--Continued



09485950 GERONIMO WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°19'56", long 110°56'37", SE$^1/_4$NE$^1/_4$ sec.6, T.13 S., R.14 E., Pima County, Hydrologic Unit 15050302, at Skyline Drive, 0.4 mi southeast of Ina Road, and 3.5 mi north of Tucson city limits.

DRAINAGE AREA.--2.15 mi^2.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-06-64	445		1973	10-00-72	195	
1965	08-02-65	135		1974	07-19-74	10	LT
1966	12-22-65	65		1975	10-29-74	35	
1967	07-17-67	139		1976	09-26-76	90	
1968	08-10-68	120		1977	09-10-77	80	
1969	09-06-69	2.0	ES	1978	07-26-78	225	
1970	09-00-70	95		1979	08-12-79	370	
1971	08-12-71	705		1980	08-13-80	65	
1972	09-01-72	385		1981	07-10-81	4.0	

Magnitude and probability of instantaneous peak flow based on period of record 1964-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
118	271	414	643	850	1,090

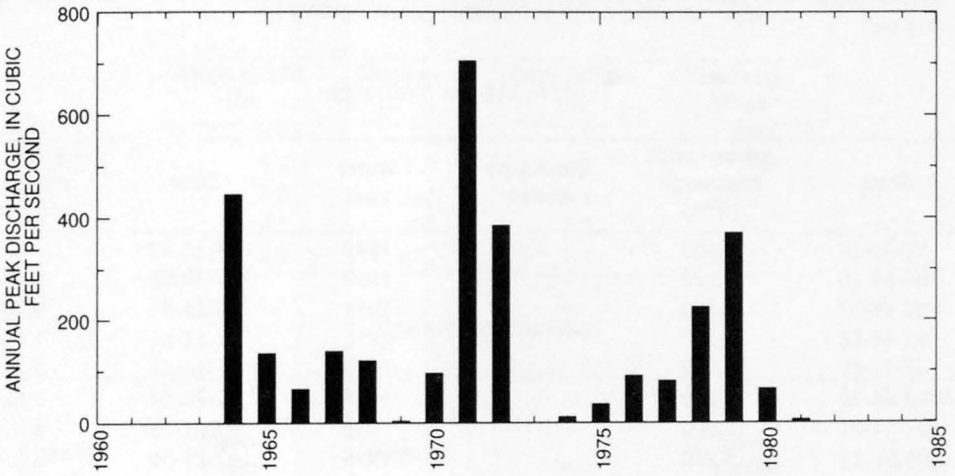
Weighted skew	(logs) =	-0.14
Mean	(logs) =	2.06
Standard dev.	(logs) =	0.44

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
699	3.6	3,600	0.0	1.0	15.0	1.9	4.4

09485950 GERONIMO WASH NEAR TUCSON, AZ--Continued



09486000 RILLITO CREEK NEAR TUCSON, AZ

LOCATION.--Lat 32°17'41", long 110°59'00", in $SW^1/_4SE^1/_4$ sec.14, T.13 S., R.13 E., Pima County, Hydrologic Unit 15050302, on right bank, 600 ft downstream from Pima Wash, 1,800 ft downstream from U.S. Highway 89, 5 mi above mouth, and 5.4 mi north of city hall in Tucson.
DRAINAGE AREA.--918 mi^2.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1915	12-23-14	17,000		1949	09-15-49	1,640	
1916	01-19-16	7,620		1950	07-30-50	9,490	
1917	08-11-17	10,000		1951	07-25-51	9,500	
1918	03-01-18	5,300		1952	11-11-51	1,630	
1919	07-27-19	9,250		1953	07-16-53	5,470	
1920	02-21-20	7,800		1954	07-24-54	7,680	
1921	07-31-21	16,000		1955	07-21-55	8,070	
1922	08-09-22	3,250		1956	07-29-56	2,050	
1923	08-26-23	4,000		1957	01-09-57	4,500	
1924	12-26-23	1,980		1958	08-12-58	8,930	
1925	09-17-25	3,500		1959	08-17-59	7,710	
1926	09-27-26	1,750		1960	01-12-60	3,610	
1927	09-12-27	2,200		1961	07-22-61	4,140	
1928	08-01-28	4,500		1962	09-26-62	2,690	
1929	09-23-29	24,000		1963	08-26-63	7,640	
1930	08-08-30	4,600		1964	09-10-64	9,420	
1931	08-10-31	7,200		1965	09-12-65	754	
1932	07-29-32	7,200		1966	12-22-65	12,400	
1933	09-10-33	4,400		1967	08-19-67	3,100	ES
1934	07-17-34	3,000		1968	02-12-68	7,740	
1935	08-31-35	13,400		1969	08-05-69	2,220	
1936	08-17-36	4,500		1970	09-06-70	7,000	
1937	08-17-37	2,980		1971	08-20-71	9,290	
1938	03-04-38	3,000		1972	08-12-72	1,820	
1939	08-03-39	9,710		1973	10-20-72	5,160	
1940	08-13-40	13,200		1974	08-02-74	1,440	
1941	12-31-40	9,900		1975	07-16-75	2,270	
1942	09-14-42	1,600		1976	09-25-76	9,400	
1943	08-15-43	3,850		1977	09-05-77	1,200	
1944	08-09-44	4,100		1978	03-02-78	7,500	
1945	08-10-45	7,000		1979	00-00-79	16,400	
1946	08-31-46	4,160		1980	00-00-80	2,300	
1947	08-15-47	7,660		1981	00-00-81	4,600	
1948	09-26-48	779		1984	10-02-83	[1]29,700	HP

[1]Highest since 1915.

09486000 RILLITO CREEK NEAR TUCSON, AZ--Continued

Discharge rating table developed October 1950

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	32	5.5	976
3.5	110	6.0	1,300
4.0	245	6.5	1,640
4.5	456	7.0	2,000
5.0	680	7.4	2,320

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
45.5	69.7	4,400	22.0	1.5	15.5	1.9	4.0

09486000 RILLITO CREEK NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1914, 1916-75

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	116	0.00	2.8	15	5.3	1.7
NOVEMBER	40	0.00	2.0	7.5	3.8	1.2
DECEMBER	556	0.00	18	77	4.2	11.2
JANUARY	603	0.00	18	80	4.5	10.9
FEBRUARY	203	0.00	21	46	2.2	12.6
MARCH	183	0.00	17	37	2.2	10.3
APRIL	13	0.00	0.89	2.8	3.1	0.5
MAY	69	0.00	1.1	8.8	7.8	0.7
JUNE	9.7	0.00	0.54	1.9	3.5	0.3
JULY	500	0.00	29	84	2.9	17.7
AUGUST	263	0.00	37	49	1.3	22.7
SEPTEMBER	302	0.00	17	44	2.7	10.1
ANNUAL	74	0.43	14	17	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1915, 1917-75

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.69	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1915-81, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
5,120	9,530	13,100	18,400	22,800	27,700

WEIGHTED SKEW (LOGS)= -0.07
MEAN (LOGS)= 3.70
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1914, 1916-75

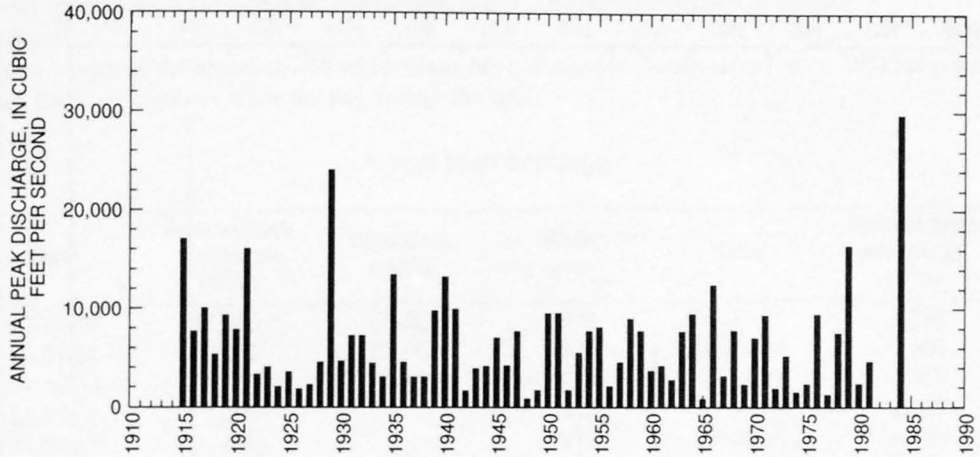
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	863	2,020	3,040	4,560	5,840	7,220
3	380	999	1,630	2,700	3,730	4,960
7	186	493	811	1,370	1,910	2,570
15	104	280	464	786	1,100	1,480
30	62	166	275	463	645	866
60	36	94	154	258	357	476
90	25	68	112	190	266	360

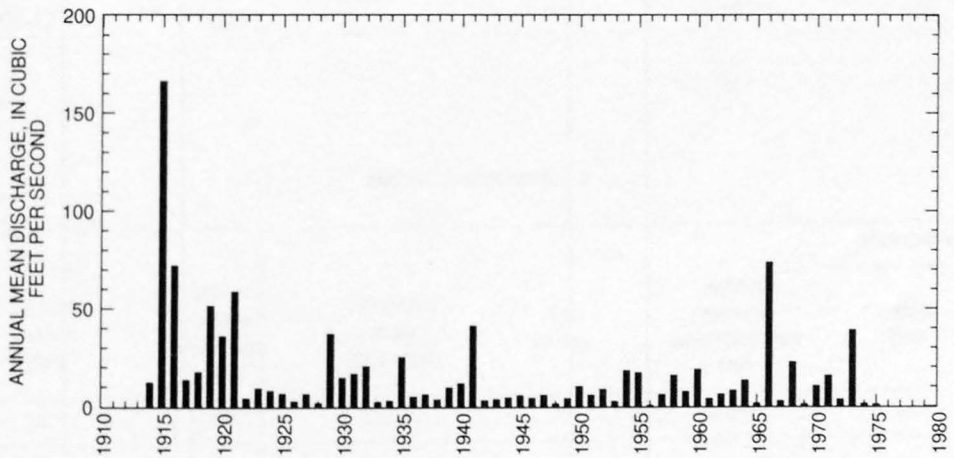
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-74, 1990-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
330	23	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

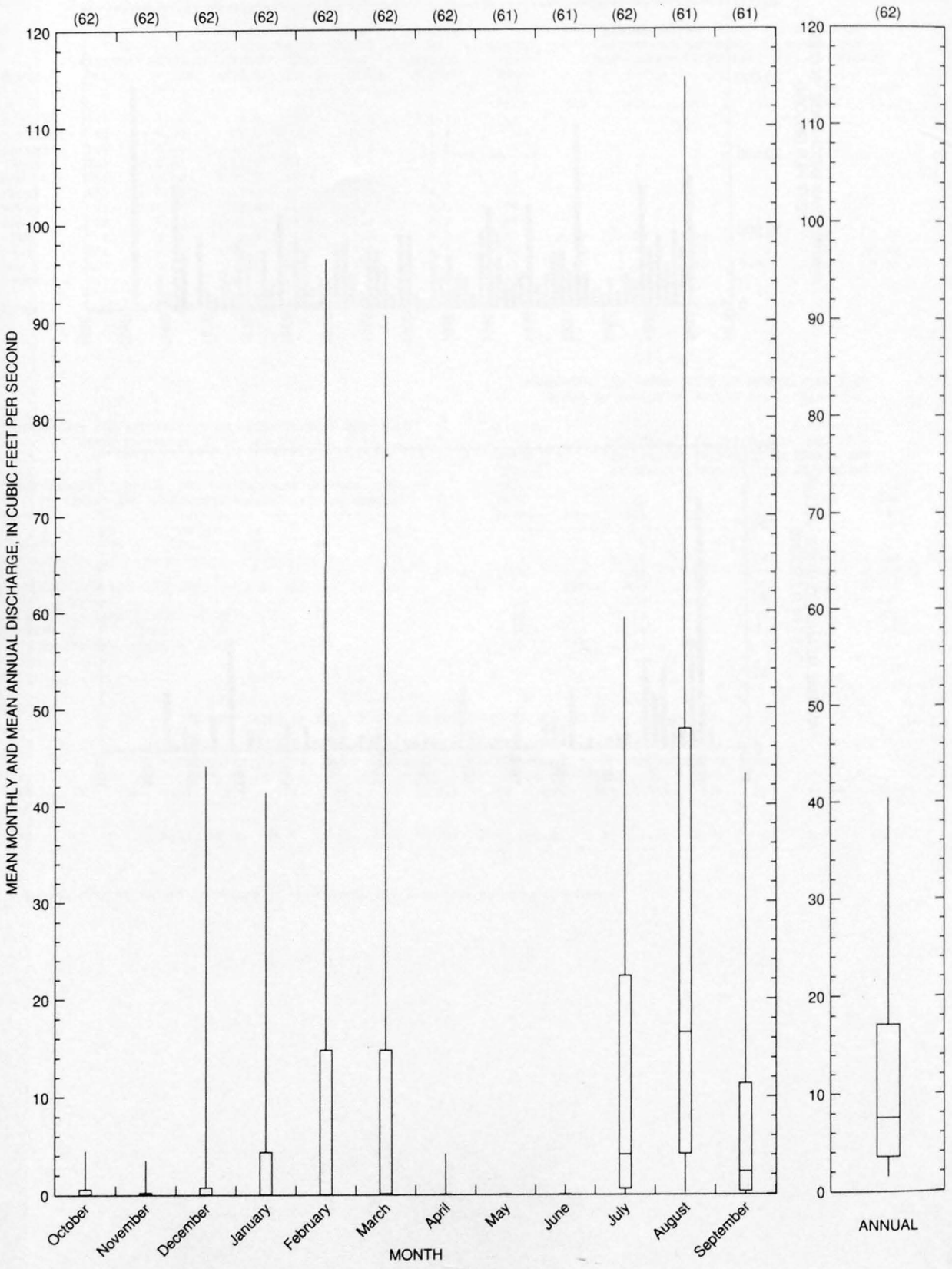
Reliability of values in column is uncertain, and potential errors are large.

09486000 RILLITO CREEK NEAR TUCSON, AZ--Continued





09486000 RILLITO CREEK NEAR TUCSON, AZ--Continued



09486300 CANADA DEL ORO NEAR TUCSON, AZ

LOCATION.--Lat 32°22'27", long 111°00'31", in $SW^1/_2NW^1/_2$ sec.22, T.12 S., R.13 E., Pima County, Hydrologic Unit 15050301, on right bank at upstream side of Overton Road, 4.7 mi upstream from mouth, and 10.5 mi north of city hall in Tucson.

DRAINAGE AREA.--250 mi^2.

REMARKS.--Lago del Oro—capacity 9,400 acre-ft—16 mi upstream, has contained no storage since May 4, 1971, as gates were opened by court order; however, peak flows are regulated while passing through the lake.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1959	07-21-59	[1]17,000	ES,HP	1973	10-19-72	3,750	
1961	09-01-61	12,000	ES,HP	1974	07-20-74	7,700	
1964	09-10-64	8,000	ES,HP	1975	09-04-75	454	
1966	12-22-65	2,290		1976	09-05-76	2,220	
1967	08-05-67	652		1977	08-09-77	4,500	
1968	12-20-67	[2]13,900		1978	01-16-78	2,070	
1969	07-22-69	454		1979	11-25-78	1,380	
1970	08-18-70	1,930		1980	07-19-80	4,240	
1971	08-17-71	4,200		1981	07-25-81	5,900	
1972	08-12-72	728		1984	10-01-83	6,600	

[1]Highest since 1950.

[2]Highest since 1959.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
108	28.4	4,000	21.0	2.0	16.4	2.0	4.7

09486300 CANADA DEL ORO NEAR TUCSON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	19	0.00	2.0	5.5	2.7	10.0
NOVEMBER	0.00	0.00	0.00	0.00		0.0
DECEMBER	88	0.00	9.8	26	2.6	49.1
JANUARY	6.2	0.00	0.48	1.7	3.6	2.4
FEBRUARY	2.5	0.00	0.34	0.79	2.3	1.7
MARCH	5.9	0.00	0.47	1.7	3.5	2.4
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.00	0.00	0.00	0.00		0.0
JUNE	0.00	0.00	0.00	0.00		0.0
JULY	13	0.00	1.2	3.6	2.9	6.2
AUGUST	30	0.00	3.5	8.3	2.4	17.4
SEPTEMBER	14	0.00	2.2	3.9	1.8	10.9
ANNUAL	7.5	0.06	1.7	2.0	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1959, 1961, 1966-81, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
2,650	6,150	9,340	14,400	18,800	23,900

WEIGHTED SKEW (LOGS)= -0.22
MEAN (LOGS)= 3.41
STANDARD DEV. (LOGS)= 0.45

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-78

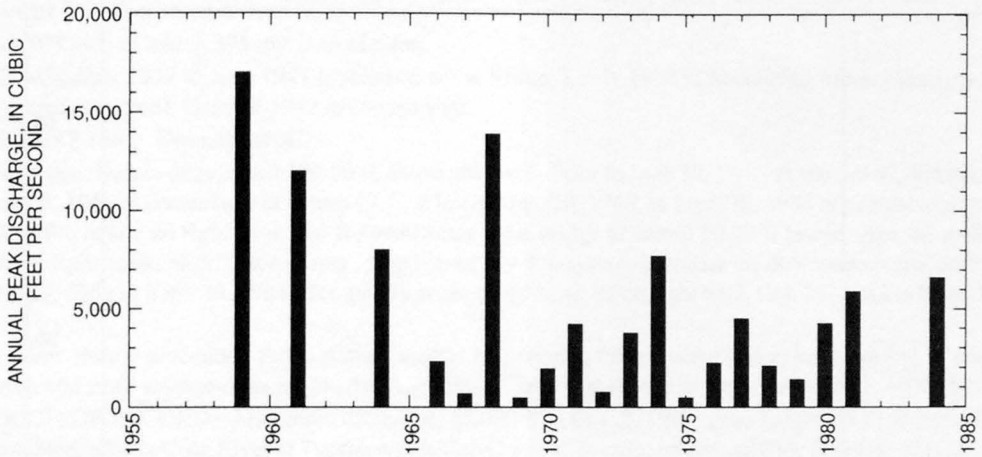
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	140	526	1,030	2,100	3,300	4,940
3	57	232	468	963	1,520	2,260
7	27	109	217	440	684	1,010
15	13	54	108	219	339	497
30	7.7	29	55	105	155	216
60	4.6	16	29	51	72	97
90	3.2	11	19	33	47	63

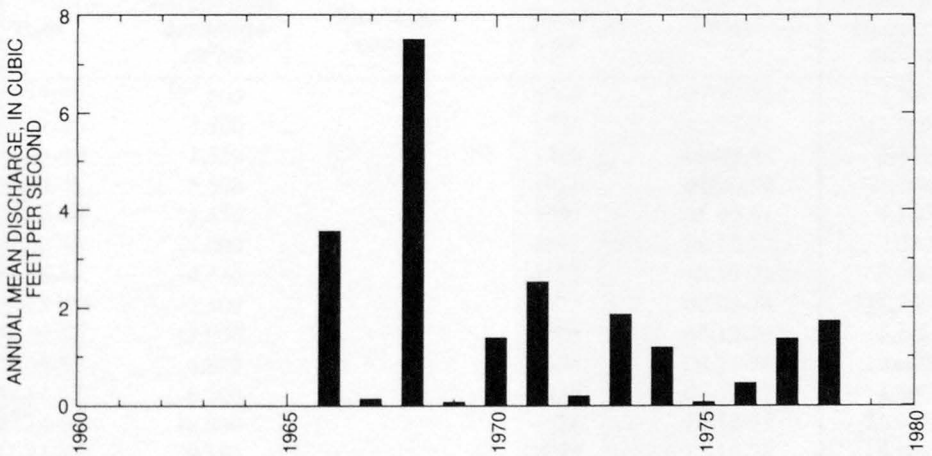
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

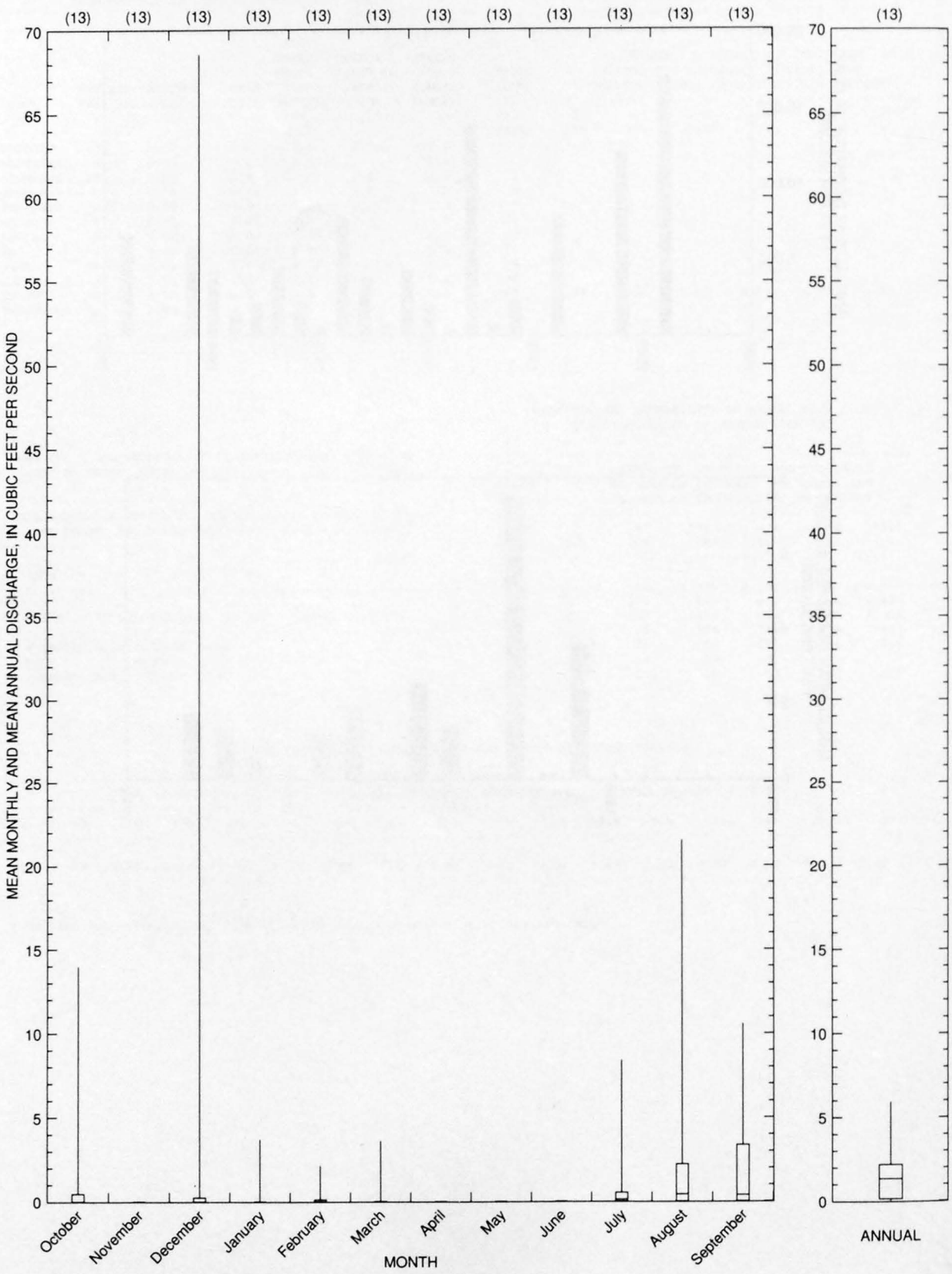
Reliability of values in column is uncertain, and potential errors are large.

09486300 CANADA DEL ORO NEAR TUCSON, AZ--Continued





09486300 CANADA DEL ORO NEAR TUCSON, AZ--Continued



09486500 SANTA CRUZ RIVER AT CORTARO, AZ

LOCATION.--Lat 32°21'04", long 111°05'38", in $NW^1/_4NW^1/_4NW^1/_4$ sec.35, T.12 S., R.12 E., Pima County, Hydrologic Unit 15050302, at center column of bridge pier on left bank, 0.5 mi southwest of Cortaro, 1.0 mi downstream from Ina Road treatment plant, 2.6 mi downstream from Canada del Oro, and 3.7 mi downstream from Rillito Creek.

DRAINAGE AREA.--3,503 mi^2, of which 395 mi^2 is in Mexico.

PERIOD OF RECORD.--October 1939 to June 1947 (published as "at Rillito"), July 1950 to September 1984, March to June 1990, July to September 1990 (fragmentary record), October 1990 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,100.00 ft, above sea level. Prior to June 30, 1947, at site 5.5 mi downstream at different datum. July 8, 1950 to Jan. 20, 1966 at present site at datum 19.11 ft lower. Jan. 20, 1966, to Sept. 30, 1984 at present site and datum 23.11 ft lower. Aug. 1 to Oct. 19, 1990, at site on right bank 600 ft downstream from bridge at datum 30.20 ft lower. Apr. 10 to May 17, 1991, at site on bridge, 200 ft toward right bank, at different datum. Supplementary water-stage recorder on downstream site on left bridge pier at datum 19.11 ft lower Aug. 29, 1969 to Sept. 30, 1984. Temporary water-stage recorder on right bank Oct. 27, 1983 to Sept. 30, 1984 at datum 20.80 ft lower.

REMARKS.--Records poor. Many diversions above station, mostly by pumping from ground water, for irrigation of about 34,000 acres. Waste water from irrigation and from sewage-disposal plants is included in flow past station in water years 1951, 1952, 1970-82, 1990-95.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft^3/s Oct. 2, 1983, gage height 16.57 ft from floodmark, computed by flood-routing method from Santa Cruz River at Tucson and Rillito Creek at Tucson; no natural flow for most of each year. (See REMARKS)

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-14-40	[1]17,000		1967	07-17-67	5,740	
1941	12-31-40	7,800		1968	12-21-67	15,800	
1942	08-09-42	1,550		1969	08-06-69	8,400	
1943	09-24-43	5,500		1970	07-20-70	11,200	
1944	08-16-44	5,650		1971	08-20-71	9,100	
1945	08-10-45	14,000		1972	08-12-72	7,050	
1946	08-04-46	4,440		1973	10-19-72	9,000	
1947	08-15-47	7,500		1974	07-08-74	11,700	
1950	07-30-50	12,900		1975	07-12-75	5,200	
1951	07-25-51	6,820		1976	09-25-76	10,600	
1952	08-14-52	6,100		1977	09-10-77	4,700	
1953	07-14-53	10,800		1978	10-10-77	23,000	
1954	07-24-54	9,150		1979	12-18-78	18,800	
1955	08-03-55	16,600		1980	07-19-80	2,650	
1956	07-29-56	3,150		1981	09-22-81	4,310	
1957	09-01-57	4,400		1982	08-23-82	13,300	
1958	08-12-58	7,890		1983	02-04-83	7,620	
1959	08-20-59	8,000		1984	10-02-83	[2]65,000	HP
1960	08-11-60	6,420		1985	12-28-84	13,000	
1961	08-23-61	14,700		1990	07-24-90	27,500	
1962	09-26-62	11,200		1991	03-01-91	11,600	
1963	08-26-63	7,240		1992	08-24-92	4,670	
1964	09-10-64	15,900		1995	02-15-95	6,170	
1965	07-16-65	2,710		1996	09-03-96	16,400	
1966	12-22-65	16,800					

[1]Highest since 1935.

[2]Highest since 1959.

09486500 SANTA CRUZ RIVER AT CORTARO, AZ--Continued

Discharge rating table developed October 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	1,700	9.5	9,410
6.5	2,290	10.0	11,400
7.0	3,020	10.5	13,700
7.5	3,900	11.0	16,200
8.0	4,960	11.5	19,200
8.5	6,220	12.0	22,500
9.0	7,690	12.5	26,100

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
20.3	140	4,000	18.0	1.8	16.3	2.0	4.2

09486500 SANTA CRUZ RIVER AT CORTARO, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1940-46, 1951-82, 1991-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	744	0.00	40	114	2.8	6.4
NOVEMBER	168	0.00	22	32	1.5	3.5
DECEMBER	1,040	0.00	86	217	2.5	13.5
JANUARY	2,490	0.00	105	383	3.6	16.7
FEBRUARY	252	0.00	43	60	1.4	6.8
MARCH	496	0.00	38	79	2.1	6.1
APRIL	60	0.00	15	20	1.3	2.4
MAY	53	0.00	14	19	1.3	2.2
JUNE	61	0.00	15	18	1.2	2.4
JULY	393	1.7	72	79	1.1	11.4
AUGUST	868	2.0	122	142	1.2	19.4
SEPTEMBER	358	0.00	59	70	1.2	9.3
ANNUAL	262	2.6	53	50	0.95	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-47, 1952-82, 1992-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.43	0.00	0.00	0.00	0.00	0.00
120	3.8	0.00	0.00	0.00	0.00	0.00
183	11	1.5	0.35	0.07	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-47, 1950-85, 1990-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
8,780	15,000	20,400	29,000	36,800	46,000

WEIGHTED SKEW (LOGS)= 0.46
MEAN (LOGS)= 3.96
STANDARD DEV. (LOGS)= 0.26

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-46, 1951-82, 1991-96

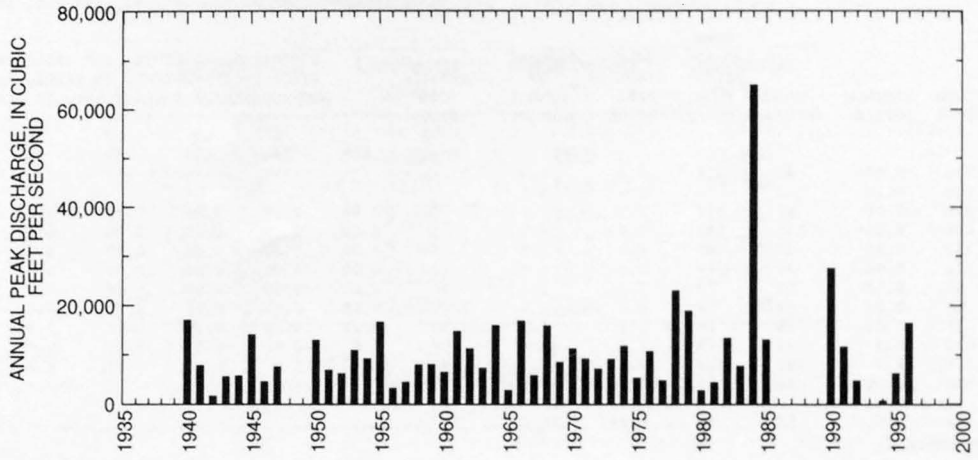
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	2,040	5,050	8,080	13,300	18,300	24,400
3	1,020	2,560	4,180	7,090	10,000	13,700
7	541	1,330	2,130	3,530	4,900	6,580
15	314	760	1,210	2,010	2,790	3,750
30	202	464	714	1,130	1,520	1,970
60	132	290	432	652	846	1,060
90	101	218	316	460	579	707

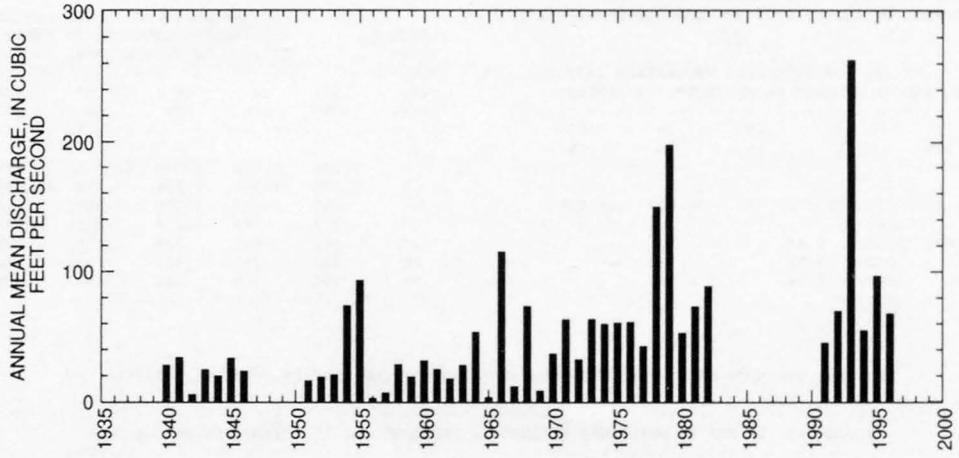
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-46, 1951-82, 1991-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
833	105	65	54	47	35	21	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

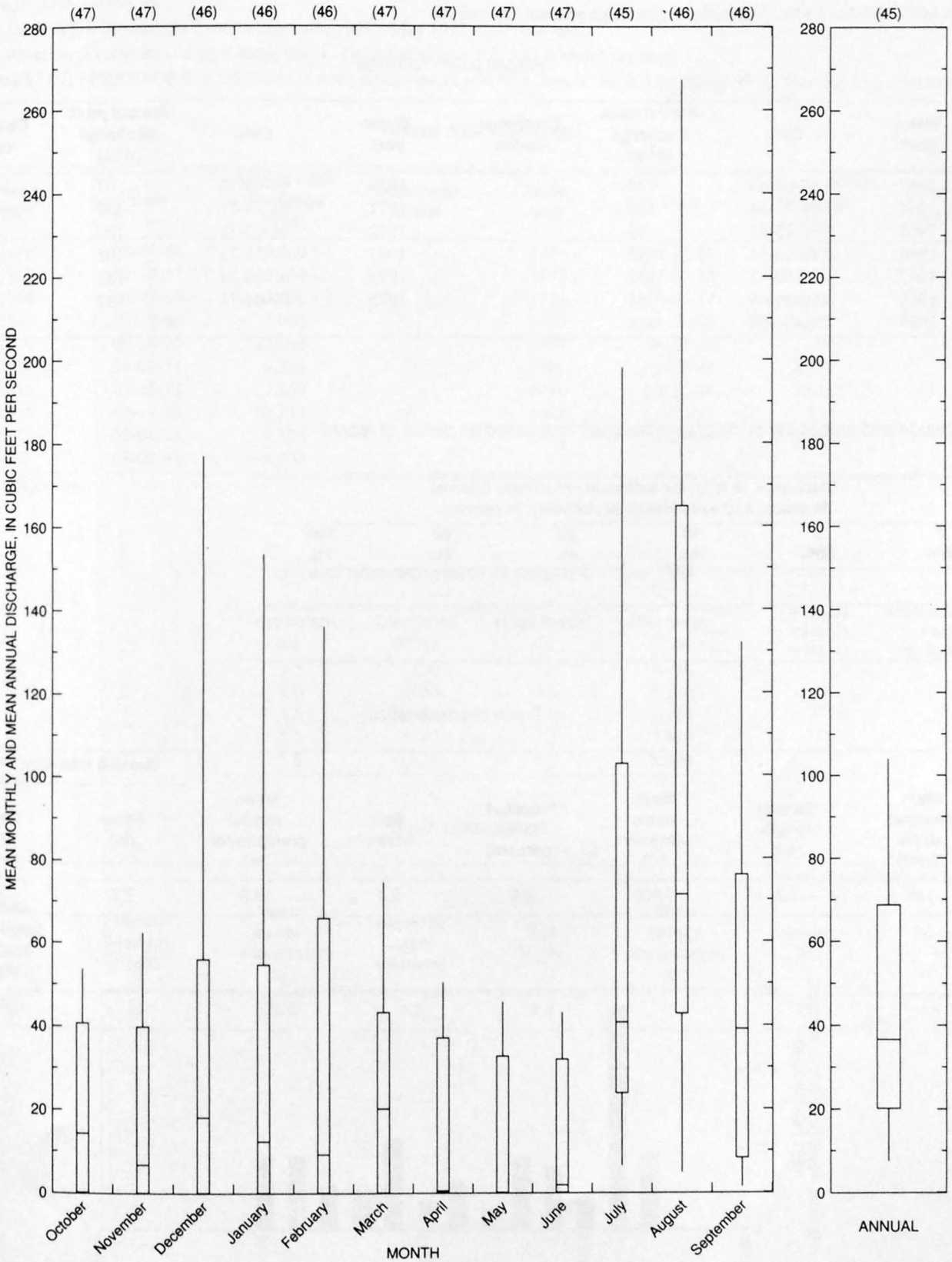
Reliability of values in column is uncertain, and potential errors are large.

09486500 SANTA CRUZ RIVER AT CORTARO, AZ--Continued





09486500 SANTA CRUZ RIVER AT CORTARO, AZ--Continued



09486700 CHILTEPINES WASH NEAR SASABE, AZ

LOCATION.--Lat 31°49'08", long 110°26'16", NE$^1/_4$SE$^1/_4$ sec.32, T.18 S., R.9 E., Pima County, Hydrologic Unit 15050304, at State Highway 286, 24 mi north of Sasabe.

DRAINAGE AREA.--7.13 mi^2, contributing drainage area not determined.

Annual peak discharge

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-05-63	189		1970	09-04-70	67	
1964	09-10-64	560		1971	08-03-71	230	
1965	09-15-65	85		1972	08-00-72	100	
1966	08-19-66	158		1973	07-15-73	108	
1967	00-00-67	182		1974	08-04-74	182	
1968	00-00-68	53		1975	09-04-75	182	
1969	00-00-69	118					

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
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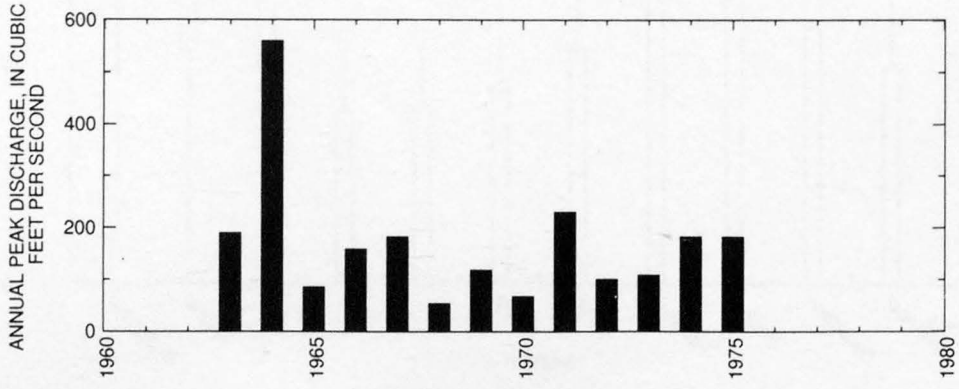
Weighted skew	(logs) =	---
Mean	(logs) =	---
Standard dev.	(logs) =	---

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
116	7.2	3,660	0.8	3.0	13.0	2.2	4.0



09486800 ALTAR WASH NEAR THREE POINTS, AZ

LOCATION.--Lat 31°50'20", long 111°24'13", in $SE^1/_4NE^1/_4NE^1/_4$ sec.27, T.18 S., R.9 E., Pima County, Hydrologic Unit 15050304, on right bank attached to downstream side of bridge on State Highway 286, 0.3 mi below mouth of Chiltipines Wash and 18 mi south of Three Points.

DRAINAGE AREA.--463 mi^2.

PERIOD OF RECORD.--January 1966 to September 1975, May 1992 to current year.

GAGE.--Water stage recorder and crest-stage gages. Datum of gage is 2,975.15 ft above sea level.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft^3/s Sept. 4, 1970, gage height 13.85 ft at site 2 mi upstream.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	08-10-66	10,700		1976	08-22-76	7,000	
1967	07-15-67	2,360		1977	07-00-77	4,500	
1968	08-02-68	3,430		1978	10-06-77	10,100	
1969	07-18-69	3,060		1979	11-25-78	1,480	
1970	09-04-70	[1]22,000		1980	08-13-80	1,400	
1971	08-03-71	4,220		1993	08-27-93	6,390	
1972	07-15-72	3,360		1994	08-21-94	7,660	
1973	07-14-73	2,130		1995	08-17-95	835	
1974	08-04-74	9,200		1996	07-07-96	4,600	
1975	08-08-75	9,700					

[1]Highest since 1940.

Discharge rating table developed October 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.5	1,170	6.0	4,440
4.0	1,660	6.5	5,340
4.5	2,230	7.0	6,310
5.0	2,890	7.5	7,410
5.5	3,630	8.0	8,600

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
74.1	32.4	3,920	6.5	2.0	15.6	2.2	5.0

09486800 ALTAR WASH NEAR THREE POINTS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-75, 1993-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6.7	0.00	0.87	2.0	2.3	1.2
NOVEMBER	0.62	0.00	0.05	0.17	3.3	0.1
DECEMBER	39	0.00	3.0	11	3.5	4.1
JANUARY	0.00	0.00	0.00	0.00		0.0
FEBRUARY	0.13	0.00	0.01	0.04	3.6	0.0
MARCH	15	0.00	1.3	4.2	3.2	1.8
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.05	0.00	0.00	0.01	3.6	0.0
JUNE	3.3	0.00	0.29	0.92	3.2	0.4
JULY	56	0.00	14	15	1.0	19.5
AUGUST	74	3.8	27	21	0.77	36.6
SEPTEMBER	210	0.00	27	57	2.2	36.3
ANNUAL	20	0.53	6.2	5.5	0.90	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-75, 1994-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-80, 1993-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
4,360	8,180	11,200	15,400	18,800	22,400

WEIGHTED SKEW (LOGS)= -0.25
MEAN (LOGS)= 3.63
STANDARD DEV. (LOGS)= 0.34

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-75, 1993-96

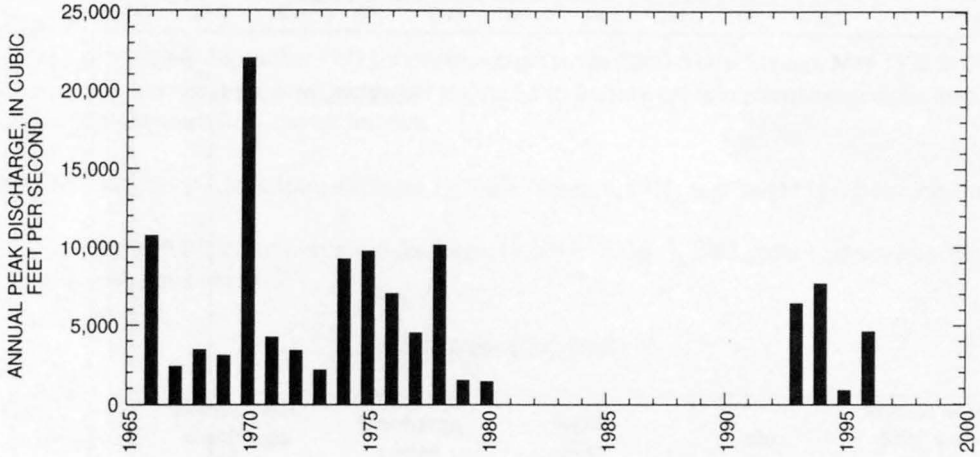
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	577	1,550	2,520	4,140	5,640	7,380
3	260	624	940	1,400	1,790	2,190
7	119	282	434	675	890	1,140
15	64	152	236	372	497	641
30	40	88	133	203	266	338
60	24	53	78	117	149	184
90	16	36	54	80	101	124

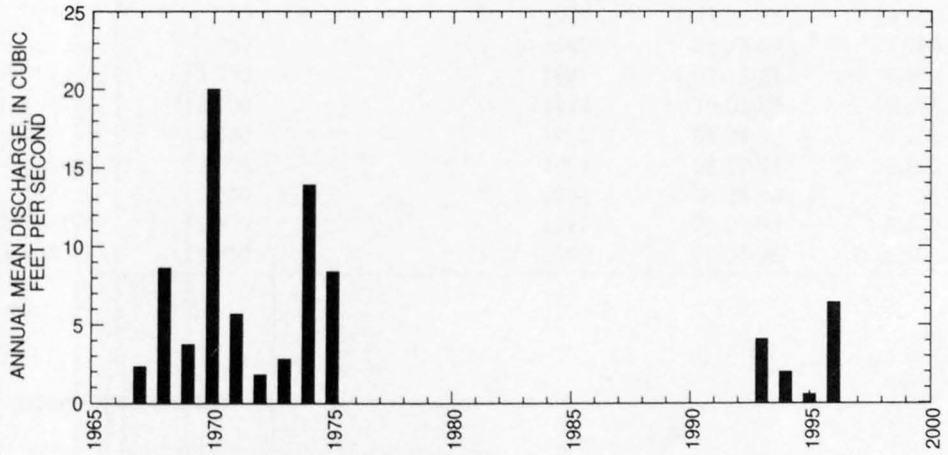
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-75, 1993-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
132	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

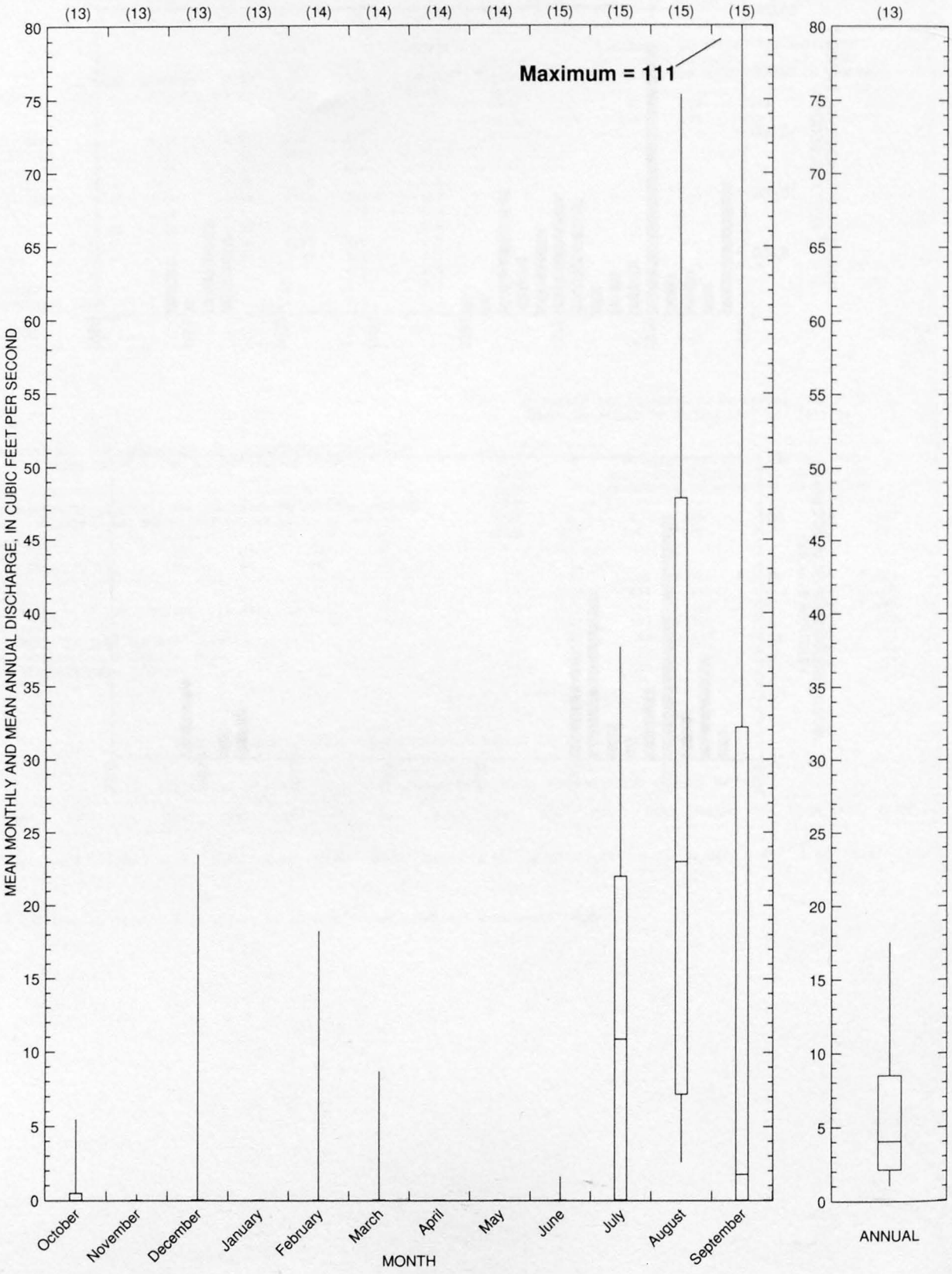
Reliability of values in column is uncertain, and potential errors are large.

09486800 ALTAR WASH NEAR THREE POINTS, AZ--Continued





09486800 ALTAR WASH NEAR THREE POINTS, AZ--Continued



09487000 BRAWLEY WASH NEAR THREE POINTS, AZ

LOCATION.--Lat 32°04'32", long 111°20'17", in $SE^1/_4NE^1/_4SW^1/_4$ sec. 32, T.15 S., R.10 E., Pima County, Hydrologic Unit 15050302, on right bank downstream side of State Highway 86 bridge, 1.6 mi west of Three Points, and 23 mi west of Tucson.

DRAINAGE AREA.--776 mi^2.

PERIOD OF RECORD.--October 1966 to September 1981 (crest-stage gage) at site 1,000 ft downstream, May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Elevation of gage is 2,540 ft above sea level, from topographic map. Prior to May 19, 1992 gage was located 1,000 ft downstream from current location.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 13,700 ft^3/s Sept. 4, 1970, gage height 15.8 ft site and datum then in use; no flow most of each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 19,100 ft^3/s Oct. 1, 1983, from contracted opening measurement of peak flow, gage height 12.07 ft from flood marks.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	08-14-40	13,000	ES,HP	1976	09-05-76	3,600	
1962	09-26-62	13,000	HP	1977	07-26-77	1,400	ES
1966	12-24-65	6,600	DF	1978	10-06-77	7,300	
1967	07-17-67	2,250		1979	11-25-78	3,600	
1968	12-21-67	1,950		1980	08-13-80	1,900	
1969	07-18-69	2,250		1981	07-13-81	4,400	
1970	09-04-70	[1]13,700		1984	10-01-83	19,100	HP
1971	08-03-71	4,830		1992	08-24-92	1,150	
1972	07-15-72	3,300		1993	08-27-93	10,800	
1973	07-14-73	3,060		1994	06-28-94	58	
1974	08-04-74	6,910		1995	01-01-95	2,560	
1975	08-00-75	5,750		1996	09-03-96	5,500	

[1]Highest since 1955.

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.0	1,160	12.0	8,970
8.5	1,760	13.0	11,950
9.0	2,470	14.0	15,320
10.0	4,220	15.0	19,070
11.0	6,390	16.0	23,200

09487000 BRAWLEY WASH NEAR THREE POINTS, AZ--Continued

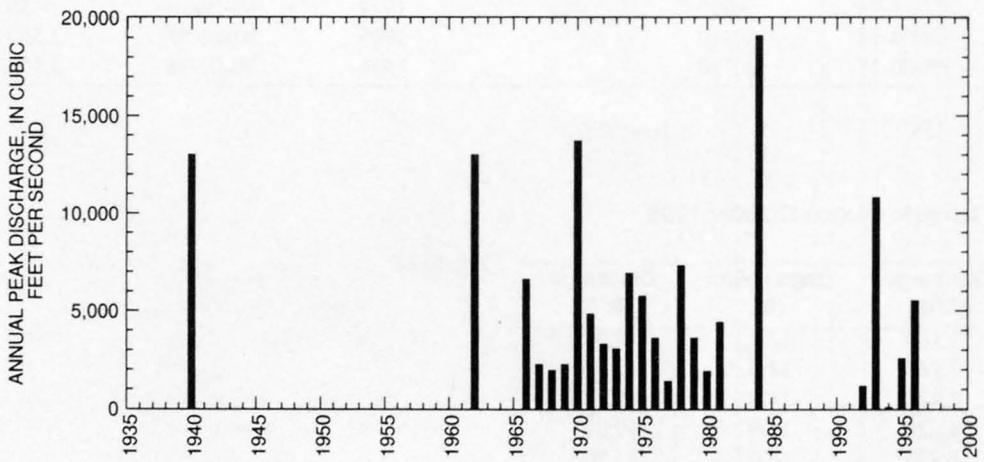
Magnitude and probability of instantaneous peak flow based on period of record 1940, 1962, 1966-81, 1984, 1992-96

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2 50%	5 20%	10 10%	25 4%	50† 2%	100† 1%
3,570	6,630	9,260	13,300	17,000	21,100
Weighted skew	(logs) =	0.16			
Mean	(logs) =	3.56			
Standard dev.	(logs) =	0.31			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
30.8	53.8	3,710	6.0	2.0	14.6	2.2	4.5



09487100 LITTLE BRAWLEY WASH NEAR THREE POINTS, AZ

LOCATION.--Lat 32°07'25", long 111°19'45", $SE^1/_4NW^1/_4$ sec.16, T.15 S., R.10 E., Pima County, Hydrologic Unit 15050304, 3.4 mi north of Three Points.

DRAINAGE AREA.--11.9 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	09-26-62	[1]13,800	HP	1975	08-00-75	1,150	
1968	08-00-68	450		1976	09-25-76	2,230	
1969	08-16-69	388		1977	00-00-77	0	
1970	00-00-70	700		1978	10-06-77	2,500	
1971	00-00-71	1,440		1979	08-15-79	566	
1972	00-00-72	310		1980	06-30-80	893	
1973	00-00-73	1,500		1981	09-05-81	1,150	
1974	00-00-74	335					

[1]Highest since 1462.

Magnitude and probability of instantaneous peak flow based on period of record 1962, 1968-81

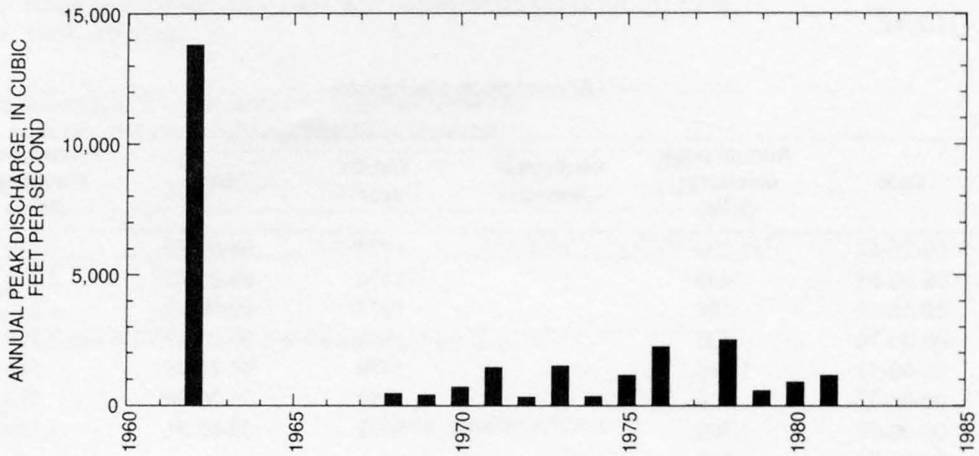
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
777	1,450	2,010	2,860	3,600	4,440
Weighted skew	(logs) =	0.05			
Mean	(logs) =	2.89			
Standard dev.	(logs) =	0.32			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
112	5.9	2,800	0.0	3.0	13.0	2.1	4.7

09487100 LITTLE BRAWLEY WASH NEAR THREE POINTS, AZ--Continued



09487140 SAN JOAQUIN WASH NEAR TUCSON, AZ

LOCATION.--Lat 32°10'07", long 111°07'58", NE$^1/_4$SE$^1/_4$ sec.32, T.14 S., R.12 E., Pima County, Hydrologic Unit 15050301, 1.1 mi northwest of the intersection of San Joaquin Road and the Tucson-Ajo Highway.
DRAINAGE AREA.--0.45 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	08-02-69	102		1976	09-25-76	480	
1970	07-19-70	487		1977	07-22-77	220	
1971	08-17-71	370		1978	01-15-78	127	
1972	10-17-71	190		1979	11-24-78	230	
1973	07-00-73	115		1980	00-00-80	0	
1974	07-00-74	135		1981	07-28-81	520	
1975	08-20-75	60					

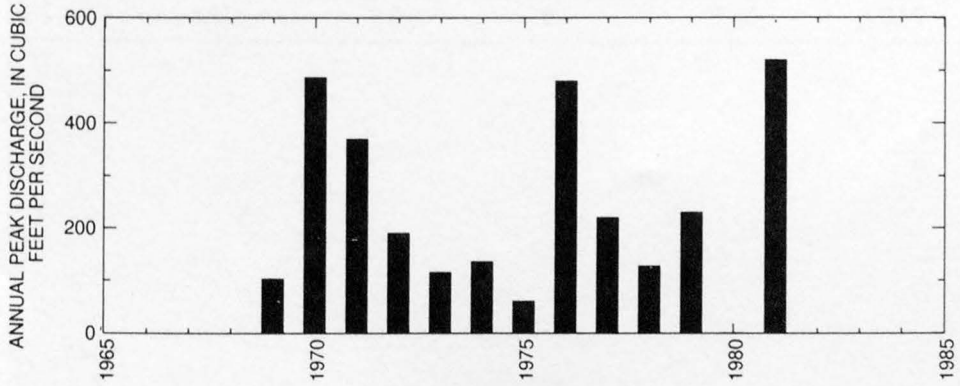
Magnitude and probability of instantaneous peak flow based on period of record 1969-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
191	356	486	672	824	987
Weighted skew	(logs) =	-0.17			
Mean	(logs) =	2.27			
Standard dev.	(logs) =	0.33			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
69.3	2.5	2,530	0.0	3.0	11.0	2.1	4.7



09487250 LOS ROBLES WASH NEAR MARANA, AZ

LOCATION.--Lat 32°26'16", long 111°18'13", SE$^1/_4$SE$^1/_4$ sec.27, T.11 S., R.10 E., Pima County, Hydrologic Unit 15050304, at Trico Road, 0.75 mi downstream from confluence of Brawley Wash and China Draw, 3 mi upstream Blanco Wash, and 5 mi southwest of Marana.
DRAINAGE AREA.--1,170 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	09-26-62	[1]32,000	HP	1973	10-19-72	1,910	
1966	00-00-66	2,500		1974	07-08-74	630	
1967	07-1-767	80		1975	08-09-75	260	
1968	12-20-67	1,000		1976	09-25-76	1,950	
1969	09-09-69	105		1977	00-00-77	900	
1970	09-05-70	4,490		1978	10-06-77	2,400	
1971	08-18-71	1,770		1984	10-02-83	[2]12,500	HP
1972	08-00-72	2,750					

[1]Highest since 1885.
[2]Highest since 1962.

Magnitude and probability of instantaneous peak flow based on period of record 1962, 1966-78, 1984

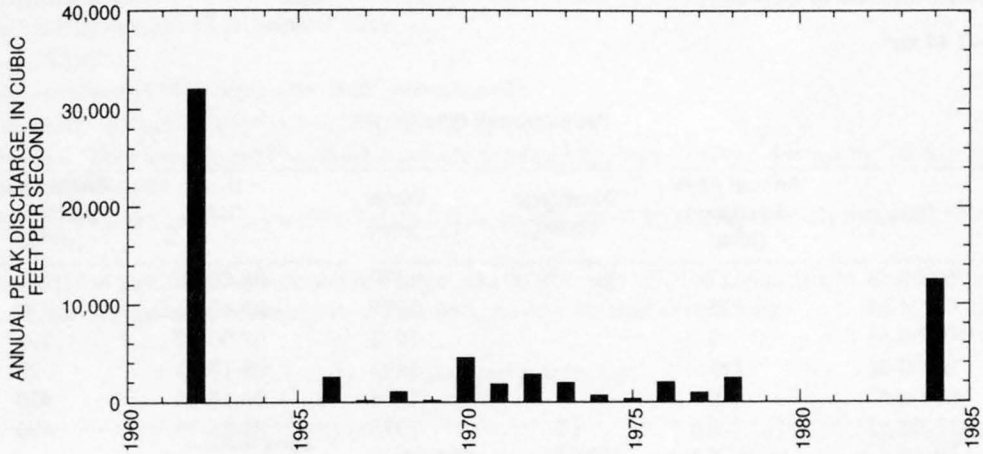
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,140	3,090	4,900	7,670	10,000	12,500
Weighted skew	(logs) =	-0.52			
Mean	(logs) =	3.01			
Standard dev.	(logs) =	0.56			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
25.9	77.2	3,350	4.0	2.0	11.8	2.2	4.5

09487250 LOS ROBLES WASH NEAR MARANA, AZ--Continued



09487400 QUIJOTOA WASH TRIBUTARY NEAR QUIJOTOA, AZ

LOCATION.--Lat 32°10'25", long 112°06'30", Pima County, Hydrologic Unit 15050306, on the Papago Indian Reservation, at the Quijotoa-Casa Grande Road, and 1.1 mi north of Quijotoa.

DRAINAGE AREA.--2.44 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	127		1970	08-00-70	200	
1964	07-24-64	715		1971	00-00-71	370	
1965	00-00-65	0		1972	07-00-72	190	
1966	08-00-66	225		1973	08-17-73	20	ES
1967	00-00-67	0		1974	09-26-74	420	
1968	12-00-67	5.0	LT	1975	08-26-75	470	
1969	08-05-69	5.0	LT				

Magnitude and probability of instantaneous peak flow based on period of record 1963-75

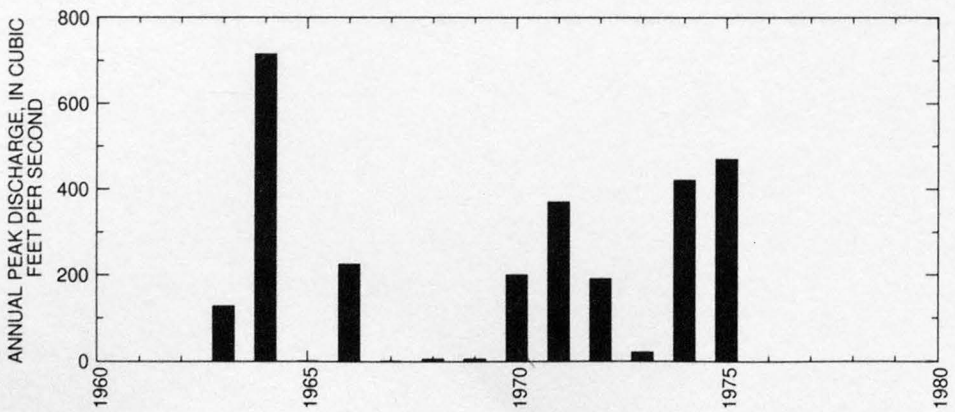
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
168	370	546	813	1,040	1,300

Weighted skew	(logs) =	-0.26
Mean	(logs) =	2.21
Standard dev.	(logs) =	0.42

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
88.9	3.6	2,800	0.0	1.0	10.1	2.1	4.9



09488500 SANTA ROSA WASH NEAR VAIVA VO, NEAR SELLS, AZ

LOCATION.--Lat 32°40'03", long 111°55'39", in $SW^1/_4SW^1/_4$ sec.2, T.9 S., R.4 E., Pinal County, Hydrologic Unit 15050306, in Papago Indian Reservation, on right bank about 1 mi downstream from Tat Momolikot Dam, 3.3 mi south of Vaiva Vo, 10 mi southwest of Chuichu, 12 mi downstream from Gu Komelik and 52 mi north of Sells.

DRAINAGE AREA.--1,782 mi^2.

PERIOD OF RECORD.--October 1954 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,470 ft, from topographic map.

REMARKS.--Records poor. Beginning July 1974, flood flows are regulated by Lake St. Clair, formed by Tat Momolikot Dam, about 1 mi upstream--total capacity, 384,000 acre-ft.

AVERAGE DISCHARGE.--20 years, (water years 1955-74), 14.0 ft^3/s, 10,140 acre-ft/yr; median of yearly mean discharges, 8.1 ft3/s, 5,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,100 ft^3/s Sept. 27, 1962, gage height, 16.9 ft, from rating curve extended above 840 ft^3/s on basis of slope-area measurement of peak flow; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1955	08-08-55	1,150		1969	08-08-69	514	
1956	07-24-56	740		1970	08-10-70	865	
1957	08-12-57	492		1971	08-04-71	6,110	
1958	11-01-57	10,000		1972	08-14-72	410	
1959	07-13-59	4,120		1973	10-21-72	762	
1960	07-30-60	805		1974	08-02-74	364	KR
1961	07-27-61	892		1975	07-17-75	580	KR
1962	09-27-62	[1]53,100		1976	09-25-76	390	KR
1963	09-14-63	4,180		1977	07-17-77	291	KR
1964	07-25-64	6,760		1978	02-13-78	66	KR
1965	09-04-65	433		1979	01-17-79	51	KR
1966	09-14-66	1,820		1980	08-24-80	105	KR
1967	06-26-67	302		1984	10-04-83	1,890	HP,KR
1968	07-28-68	840					

[1]Highest since 1885.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
25.5	55.0	2,340	0.3	2.0	10.2	1.9	4.3

09488500 SANTA ROSA WASH NEAR VAIVA VO, NEAR SELLS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1955-80

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	84	0.00	7.1	18	2.6	5.5
NOVEMBER	150	0.00	6.6	29	4.4	5.1
DECEMBER	89	0.00	7.5	22	3.0	5.8
JANUARY	8.5	0.00	0.74	2.3	3.1	0.6
FEBRUARY	92	0.00	5.9	21	3.5	4.6
MARCH	40	0.00	1.8	7.8	4.3	1.4
APRIL	1.9	0.00	0.07	0.37	4.9	0.1
MAY	0.81	0.00	0.03	0.16	4.8	0.0
JUNE	4.8	0.00	0.60	1.5	2.6	0.5
JULY	129	0.00	19	34	1.8	14.5
AUGUST	236	0.00	41	68	1.7	31.5
SEPTEMBER	838	0.00	39	163	4.1	30.5
ANNUAL	69	0.01	11	16	1.5	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1956-80

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90						
120	0.02	0.00	0.00	0.00	0.00	0.00
183	0.30	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1955-80, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
808	3,160	6,250	12,600	19,700	29,000

WEIGHTED SKEW (LOGS)= -0.20
MEAN (LOGS)= 2.88
STANDARD DEV. (LOGS)= 0.73

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1955-80

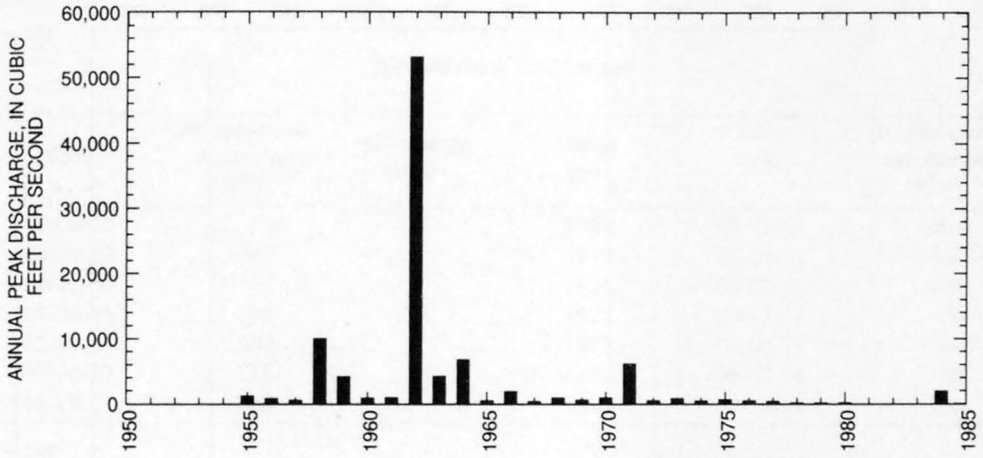
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	268	1,560	3,620	8,370	13,900	21,600
3	149	892	2,000	4,330	6,810	9,910
7	75	444	982	2,080	3,200	4,580
15	43	263	587	1,240	1,900	2,700
30	26	159	350	728	1,100	1,550
60	15	91	198	403	603	835
90	11	64	135	268	394	535

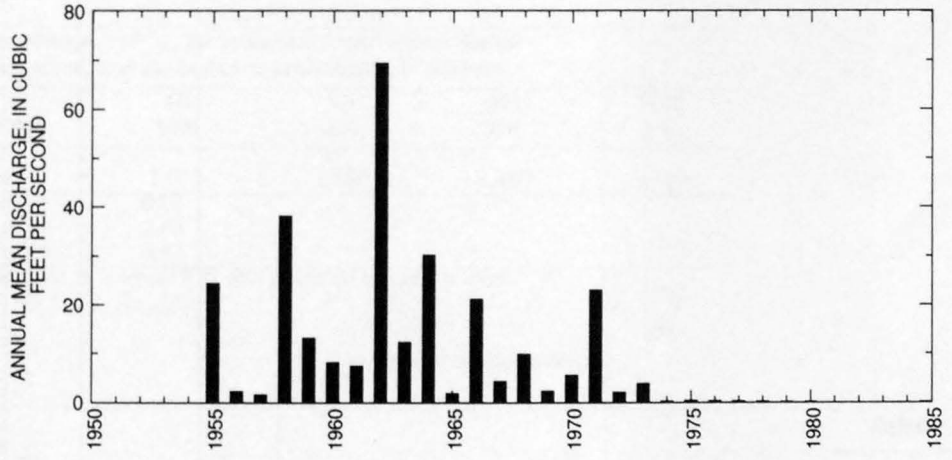
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1955-80

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
208	3.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

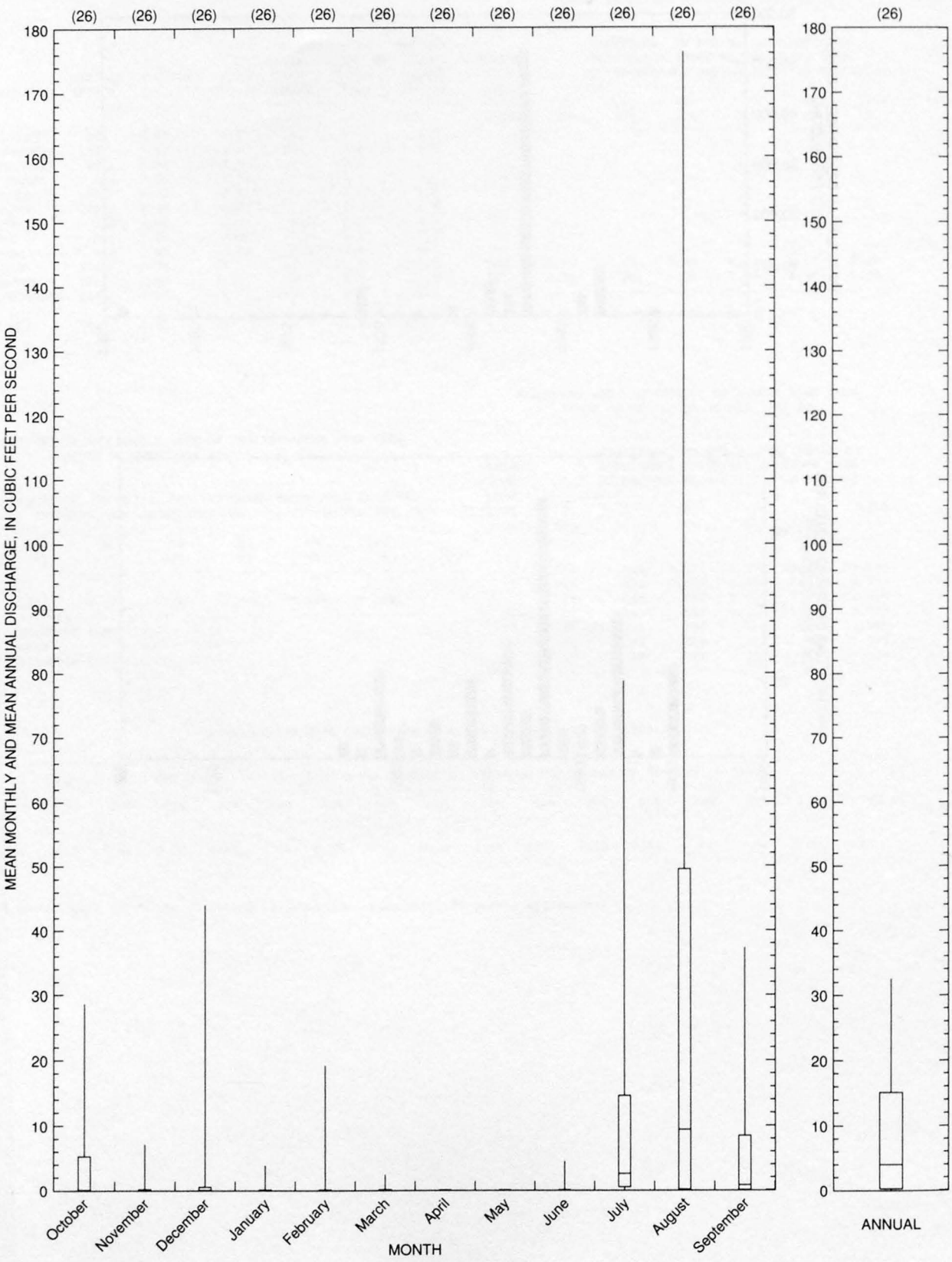
Reliability of values in column is uncertain, and potential errors are large.

09488500 SANTA ROSA WASH NEAR VAIVA VO, NEAR SELLS, AZ--Continued





09488500 SANTA ROSA WASH NEAR VAIVA VO, NEAR SELLS, AZ--Continued



09488600 SILVER REEF WASH NEAR CASA GRANDE, AZ

LOCATION.--Lat 32°40'56", long 111°50'03", SW$^1/_4$SE$^1/_4$ sec.34, T.8 S., R.5 E., Pinal County, Hydrologic Unit 15050306, at Quijotoa-Casa Grande Road, 14 mi southwest of Casa Grande.

DRAINAGE AREA.--12.8 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1950	00-00-50	([1])	HP	1969	08-11-69	165	
1963	08-21-63	662		1970	00-00-70	630	
1964	08-12-64	1,170		1971	08-03-71	1,400	
1965	09-00-65	100	ES	1972	08-12-72	90	
1966	12-00-65	600		1973	00-00-73	100	ES
1967	00-00-67	135		1974	09-00-74	60	
1968	12-19-67	490		1975	10-28-74	160	

[1]Discharge unknown.

Magnitude and probability of instantaneous peak flow based on period of record 1963-75

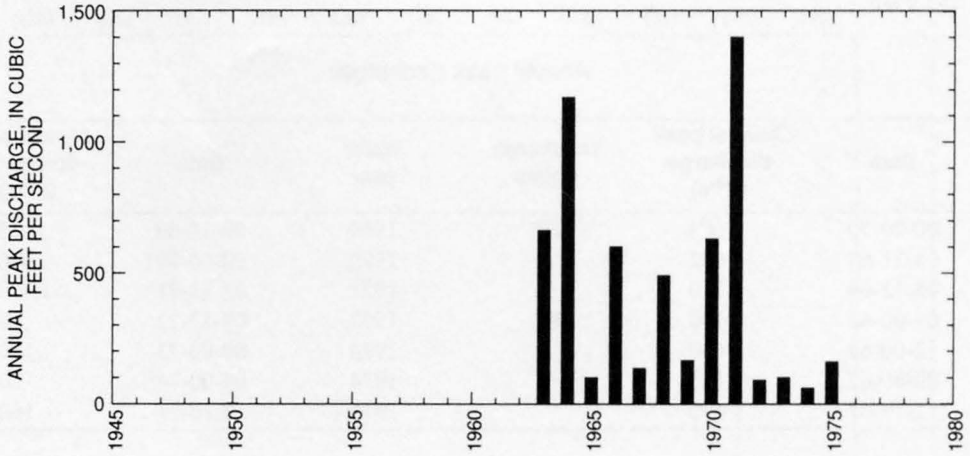
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
268	663	1,070	1,780	2,480	3,340
Weighted skew	(logs) =	0.03			
Mean	(logs) =	2.43			
Standard dev.	(logs) =	0.47			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
67.4	8.6	1,620	0.0	3.0	8.5	1.6	4.1

09488600 SILVER REEF WASH NEAR CASA GRANDE, AZ--Continued



09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ

LOCATION.--Lat 33°13'56", long 112°10'08", in NE$^1/_4$NE$^1/_4$ sec.29, T.2 S., R.2 E., Pinal County, Hydrologic Unit 15050303, in Gila River Indian Reservation, on downstream side of highway bridge, 3.4 mi upstream from mouth, 4.3 mi south of Komatke, and 9 mi south of Laveen.

DRAINAGE AREA.--8,581 mi^2.

PERIOD OF RECORD.--January 1940 to September 1946, December 1947 to current year.

REVISED RECORDS.--WSP 1283: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,020.86 ft above sea level.

REMARKS.--Many diversions above station, mostly by pumping from ground water, for municipal uses and for irrigation of about 240,000 acres, not including San Carlos Project. Much of the low flow passing this station is drainage and wasteway return from irrigated lands upstream and pumpage from ground water.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft^3/s Oct. 4, 1983, gage height, 19.74 ft, from flow-routing computation; no flow for most of time in recent years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	09-18-40	1,200	UR	1969	11-14-68	152	UR
1941	03-15-41	1,580	UR	1970	09-09-70	1,010	UR
1942	07-15-42	1,890	UR	1971	08-22-71	2,440	R
1943	09-28-43	1,200	UR	1972	08-07-72	112	UR
1944	02-25-44	217	UR	1973	10-22-72	1,650	UR
1945	08-11-45	1,200	UR	1974	07-20-74	144	KR
1946	09-21-46	5,020	UR	1975	07-14-75	203	KR
1948	08-07-48	1,200	UR	1976	09-25-76	583	KR
1949	09-17-49	1,780	UR	1977	10-23-76	472	KR
1950	08-11-50	685	UR	1978	10-13-77	2,010	KR
1951	08-28-51	5,060	UR	1979	12-22-78	4,120	KR
1952	08-15-52	1,860	UR	1980	02-20-80	115	KR
1953	07-17-53	555	UR	1981	07-16-81	368	KR
1954	08-09-54	726	UR	1982	09-15-82	751	KR
1955	08-10-55	2,180	UR	1983	03-08-83	1,910	KR
1956	01-30-56	90	UR	1984	10-04-83	33,000	KR
1957	08-20-57	1,040	UR	1985	12-31-84	2,030	KR
1958	11-03-57	3,360	UR	1986	07-21-86	456	KR
1959	08-12-59	3,010	UR	1987	02-25-87	110	KR
1960	01-15-60	707	UR	1988	08-27-88	310	KR
1961	08-15-61	547	UR	1989	10-15-88	688	KR
1962	09-29-62	9,200	UR	1990	07-16-90	1,910	KR
1963	08-17-63	608	UR	1991	03-05-91	257	KR
1964	08-14-64	2,520	UR	1992	07-24-92	360	KR
1965	06-23-65	309	UR	1993	01-21-93	11,000	KR
1966	12-26-65	2,940	UR	1994	11-15-93	850	KR
1967	09-06-67	448	UR	1995	02-18-95	726	KR
1968	12-23-67	3,820	UR	1996	07-27-96	176	KR

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
12.5	995	15.5	3,440
13.0	1,280	16.0	4,300
13.5	1,590	16.5	5,400
14.0	1,940	17.0	6,700
14.5	2,350	17.5	8,500
15.0	2,810	18.1	11,500

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
15.2	241	3,060	7.8	2.0	13.0	1.9	4.2

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1975-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,810	0.00	90	385	4.3	33
NOVEMBER	28.9	0.00	2.8	8.0	2.7	1.1
DECEMBER	248	0.00	20	56	2.8	7.2
JANUARY	1,180	0.00	85	264	3.1	31
FEBRUARY	187	0.00	19	42	2.2	6.8
MARCH	160	0.00	14	38	2.7	5.2
APRIL	13	0.00	1.8	3.1	1.7	0.65
MAY	12	0.00	1.7	3.1	1.8	0.62
JUNE	3.9	0.00	0.48	1.0	2.1	0.17
JULY	193	0.00	14	41	3.0	4.9
AUGUST	129	0.00	17	36	2.1	6.3
SEPTEMBER	53	0.00	9.7	15	1.6	3.5
ANNUAL	170	0.47	23	41	1.8	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1975-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.04	0.00	0.00	0.00	0.00	0.00
120	0.36	0.00	0.00	0.00	0.00	0.00
183	1.6	0.27	0.08	0.01	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
986	2,600	4,270	7,160	9,940	13,300

WEIGHTED SKEW (LOGS)= -0.13
MEAN (LOGS)= 2.98
STANDARD DEV. (LOGS)= 0.51

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1975-89

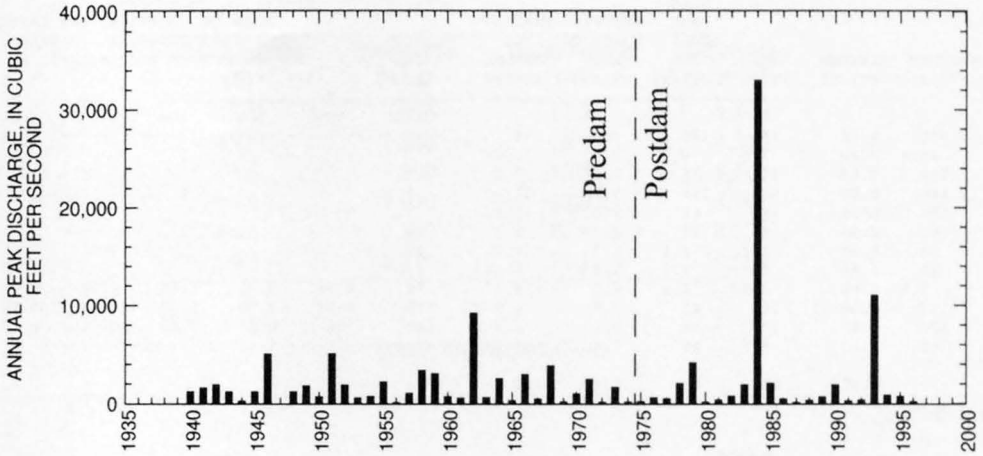
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	510	1,760	3,450	7,250	11,800	18,600
3	320	1,240	2,590	5,810	9,890	16,100
7	175	690	1,440	3,210	5,430	8,770
15	98	399	846	1,910	3,250	5,270
30	58	235	489	1,070	1,760	2,780
60	35	137	279	592	958	1,480
90	25	96	193	402	646	987

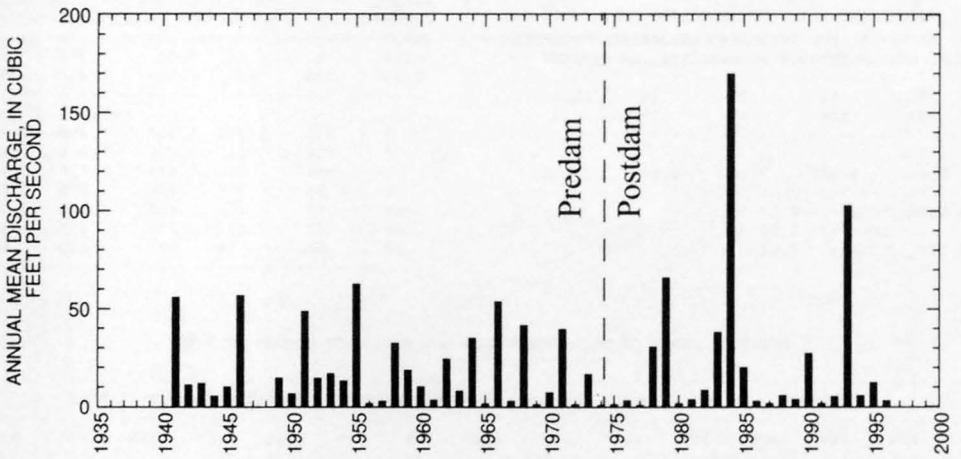
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1975-89

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
403	32	8.9	4.7	300	1.2	0.49	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

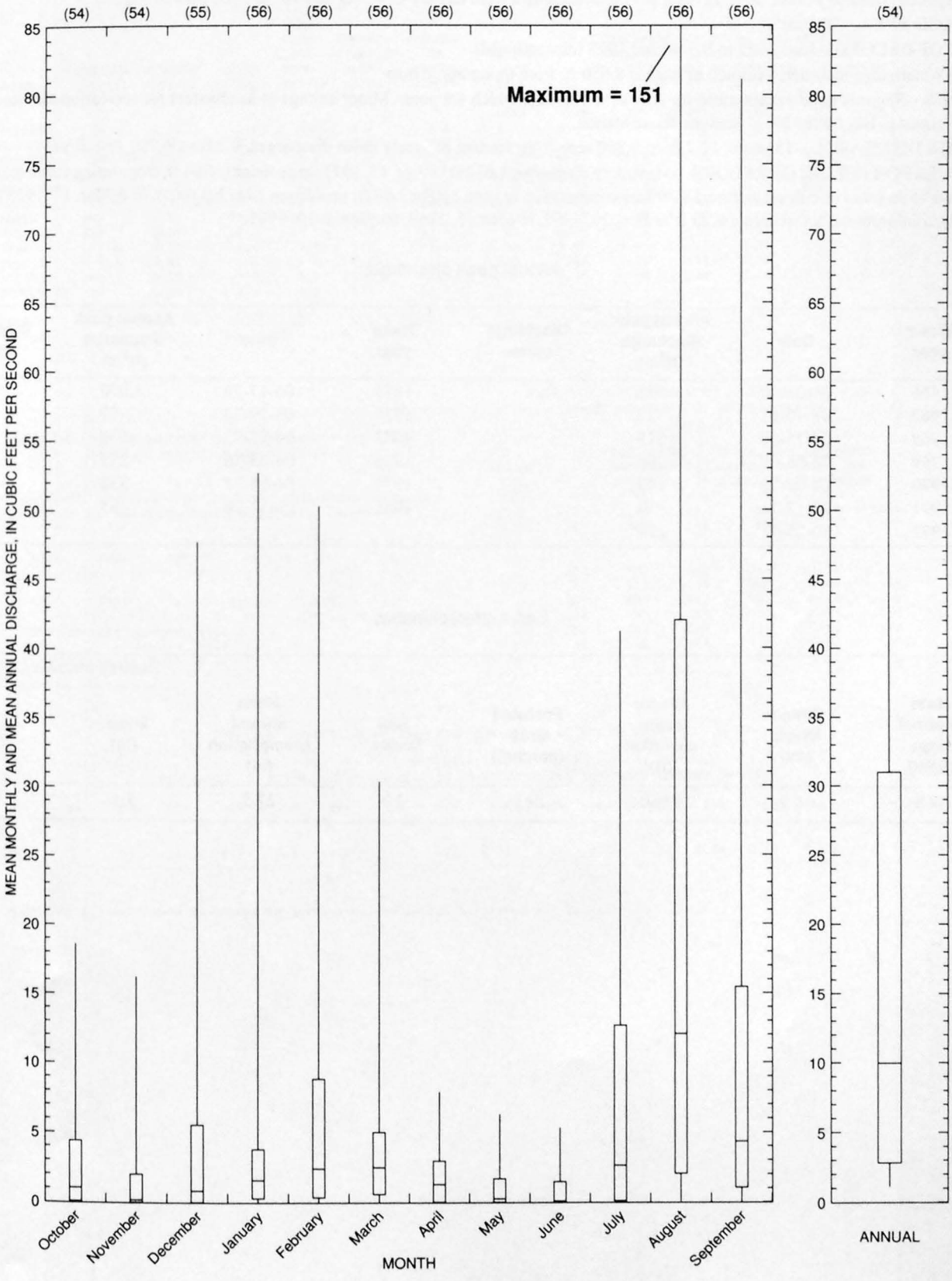
Reliability of values in column is uncertain, and potential errors are large.

09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued





09489000 SANTA CRUZ RIVER NEAR LAVEEN, AZ--Continued



09489070 NORTH FORK OF EAST FORK BLACK RIVER NEAR ALPINE, AZ

LOCATION.--Lat 33°54'11", long 109°19'20", in $SW^1/_4NE^1/_4$ sec.19, T.6 N., R.29 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Apache National Forest, on right bank 1.4 mi downstream from Crosby Crossing and 12 mi northwest of Alpine.

DRAINAGE AREA.--38.1 mi^2.

PERIOD OF RECORD.--June 1965 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 8,650 ft, from topographic map.

REMARKS.--Records good except those for Jan. 16 to Mar. 23, which are poor. Minor storage at headwaters for recreation and stock purposes; the largest is Big Lake. No diversions above station.

AVERAGE DISCHARGE.--13 years, 12.7 ft^3/s, 9,200 acre-ft/yr; median of yearly mean discharges, 9.2 ft3/s 6,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,070 ft^3/s Apr. 17, 1973, gage height, 4.64 ft, from rating curve extended above 260 ft^3/s on basis of culvert and road overflow computation at gage height 3.80 ft; maximum gage height, 4.75 ft Mar. 11, 1975 (result of ice jam); minimum daily discharge, 0.20 ft^3/s Dec. 20, 1968, to Mar. 15, 1969, and Jan. 6-10, 1971.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	04-03-66	556		1973	04-17-73	1,070	
1967	08-10-67	27		1974	03-29-74	77	
1968	04-15-68	515		1975	04-25-75	577	
1969	04-06-69	366		1976	04-05-76	283	
1970	04-06-70	142		1977	04-08-77	332	
1971	03-12-71	39		1978	03-31-78	383	
1972	10-25-71	218					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
48.8	10.1	9,060	24.0	3.0	27.5	2.4	4.4

09489070 NORTH FORK OF EAST FORK BLACK RIVER NEAR ALPINE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	33	0.83	5.8	9.9	1.7	3.8
NOVEMBER	8.7	0.67	3.0	2.9	0.97	1.9
DECEMBER	16	0.33	2.5	4.2	1.7	1.6
JANUARY	13	0.20	1.9	3.3	1.7	1.3
FEBRUARY	15	0.20	2.7	4.1	1.5	1.8
MARCH	103	2.4	23	29	1.2	15.1
APRIL	362	1.2	83	102	1.2	54.0
MAY	134	0.49	21	37	1.8	13.5
JUNE	9.8	0.29	2.0	2.5	1.2	1.3
JULY	4.7	0.41	1.8	1.2	0.69	1.1
AUGUST	13	0.56	3.9	3.9	1.0	2.5
SEPTEMBER	13	0.38	3.0	3.5	1.2	2.0
ANNUAL	50	1.2	13	13	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.37	0.24	0.20	0.17	0.14	0.13
3	0.39	0.25	0.21	0.17	0.14	0.13
7	0.40	0.27	0.22	0.19	0.16	0.15
14	0.42	0.29	0.24	0.21	0.18	0.16
30	0.47	0.31	0.25	0.22	0.18	0.16
60	0.55	0.36	0.28	0.23	0.19	0.16
90	0.63	0.40	0.31	0.25	0.20	0.18
120	0.66	0.46	0.41	0.38	0.36	0.35
183	0.96	0.75	0.70	0.68	0.66	0.66

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
306	553	741	1,000	1,210	1,420

WEIGHTED SKEW (LOGS)= -0.24
MEAN (LOGS)= 2.47
STANDARD DEV. (LOGS)= 0.32

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-78

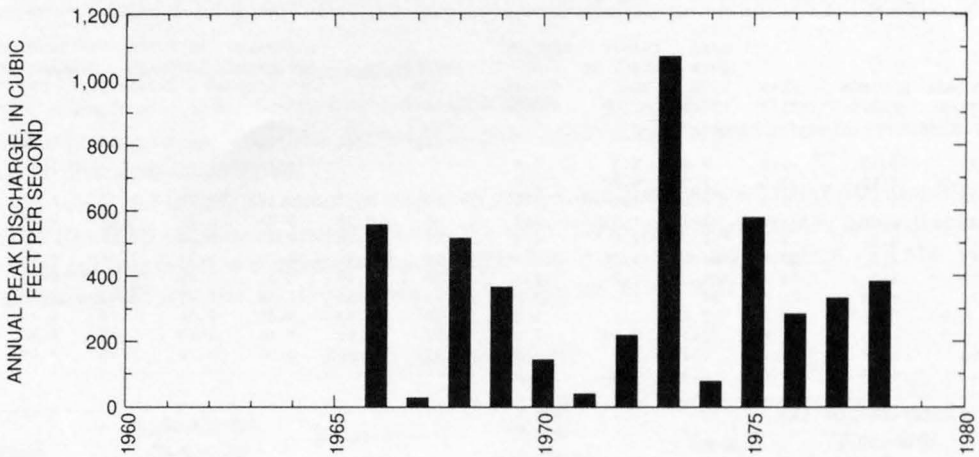
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	150	380	592	916	1,190	1,500
3	130	340	539	858	1,140	1,460
7	105	286	462	751	1,010	1,310
15	76	217	362	607	833	1,100
30	52	157	269	465	654	880
60	34	98	164	277	384	509
90	26	71	115	186	250	321

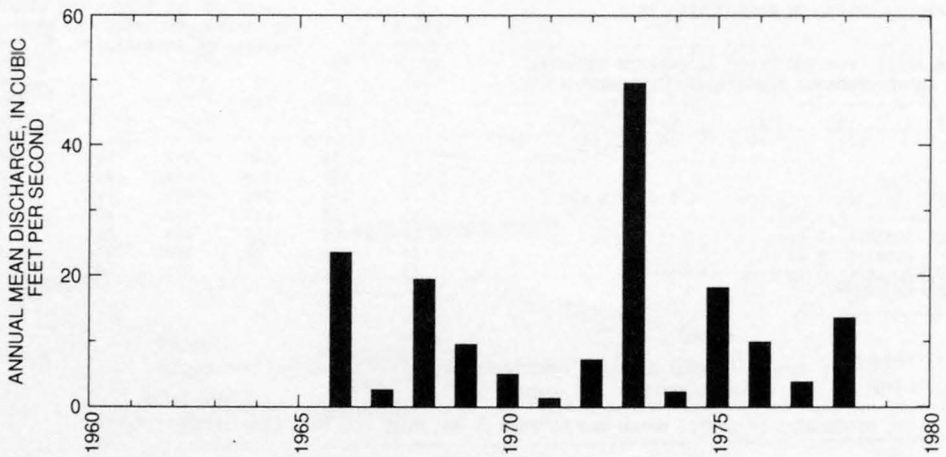
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
253	53	22	12	6.7	3.4	2.2	1.5	1.2	0.91	0.66	0.46	0.33	0.26	0.23	0.21	0.20

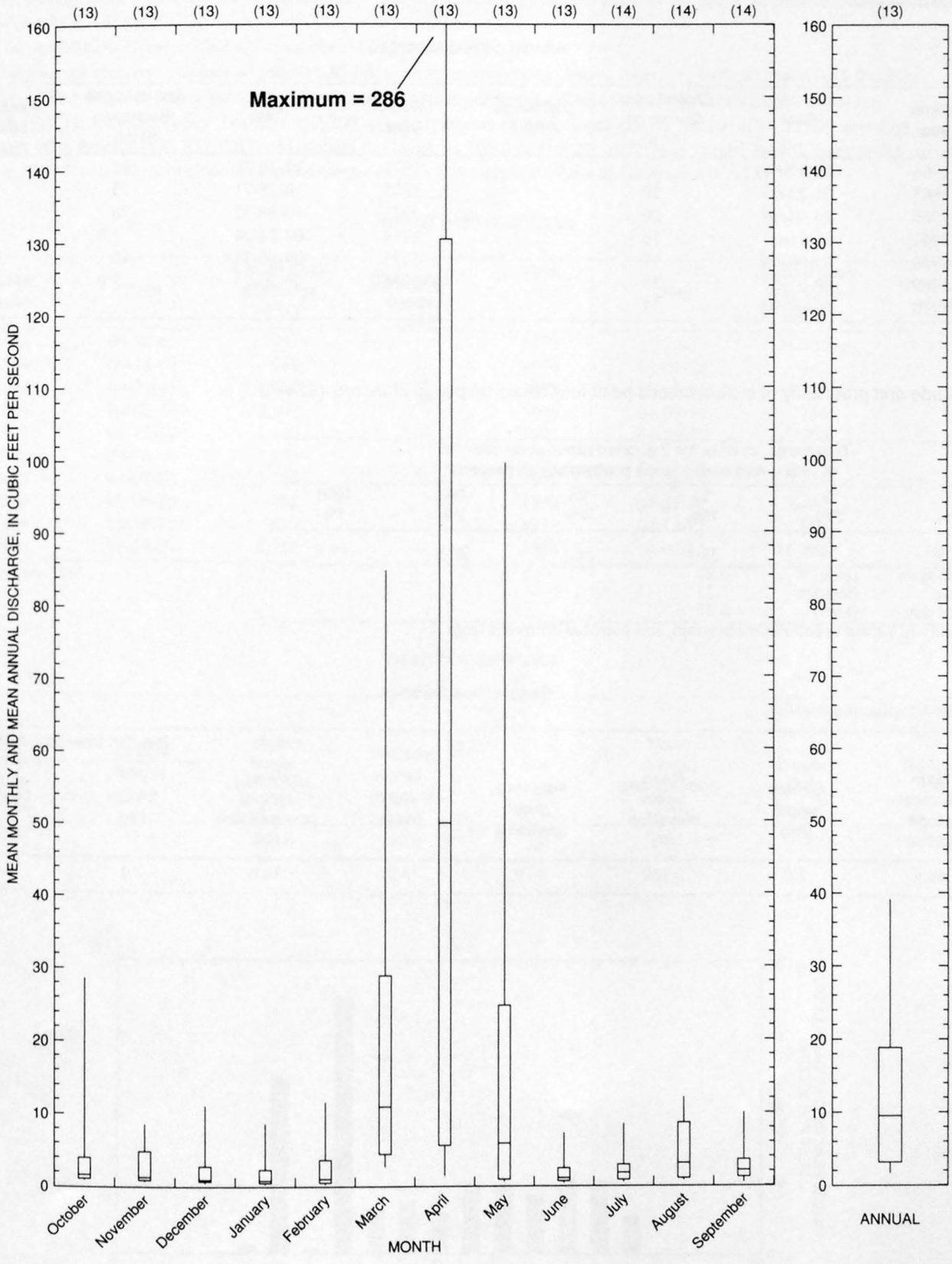
Reliability of values in column is uncertain, and potential errors are large.

09489070 NORTH FORK OF EAST FORK BLACK RIVER NEAR ALPINE, AZ--Continued





09489070 NORTH FORK OF EAST FORK BLACK RIVER NEAR ALPINE, AZ--Continued



09489080 HANNAGAN CREEK NEAR HANNAGAN MEADOW, AZ

LOCATION.--Lat 33°38'58", long 109°17'04", Greenlee County, at U.S. Highway 666, 2.7 mi northeast of Hannagan Meadow.
DRAINAGE AREA.--1.61 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-21-64	10		1971	09-30-71	14	
1965	04-22-65	20		1972	10-25-71	12	
1966	04-04-66	20		1973	10-19-72	70	
1967	08-11-67	16		1974	04-24-74	1.0	
1968	04-00-68	19		1975	09-00-75	48	
1969	09-03-69	19		1976	08-00-76	2.0	
1970	04-00-70	11					

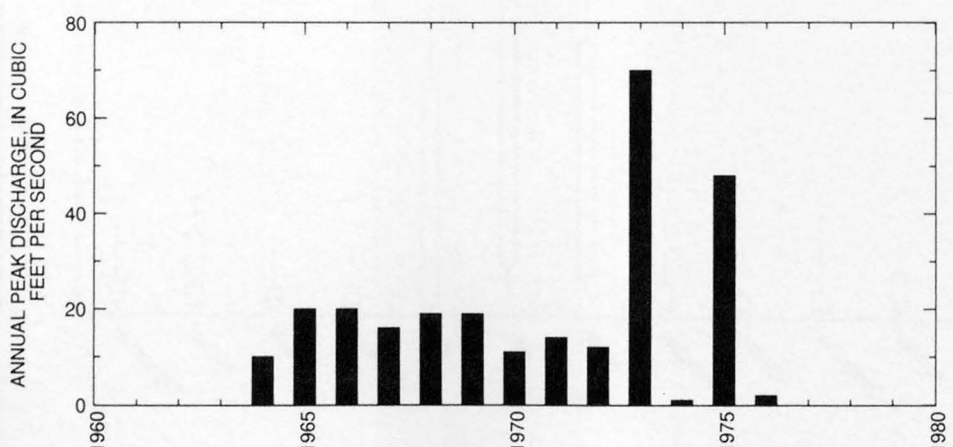
Magnitude and probability of instantaneous peak flow based on period of record 1964-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
16.5	29	39.7	56.1	70.6	87.3
Weighted skew	(logs) =	0.27			
Mean	(logs) =	1.23			
Standard dev.	(logs) =	0.28			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
68.6	2.0	9,160	90.0	3.0	30.0	2.4	4.0



09489100 BLACK RIVER NEAR MAVERICK, AZ

LOCATION.--Lat 33°42'27", long 109°26'48", in SW$^1/_4$ sec.30, T.4 N., R.28 E., Apache County, Hydrologic Unit 15060101, in Apache National Forest, on right bank 1.0 mi downstream from Fish Creek, 1.1 mi upstream from Conklin Creek, and 6 mi southeast of Maverick.

DRAINAGE AREA.--315 mi^2.

PERIOD OF RECORD.--October 1962 to September 1982 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 6,850 ft, from topographic map. Prior to Sept. 19, 1973, at datum 0.85 ft higher.

REMARKS.--Records good. Minor storage for recreational and stock purposes near headwaters. No diversion above station.

AVERAGE DISCHARGE.--20 years, 141 ft^3/s, 102,200 acre-ft/yr; median of yearly mean discharges, 107 ft3/s, 77,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft^3/s Oct. 20, 1972, gage height, 8.99 ft, from rating curve extended above 2,100 ft^3/s on basis of slope-area measurement of peak flow; minimum daily discharge, 9.6 ft^3/s Dec. 7, 1976.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-10-63	911		1973	10-20-72	11,100	
1964	09-15-64	946		1974	03-31-74	342	
1965	04-21-65	2,010		1975	03-08-75	2,360	
1966	04-02-66	2,300		1976	04-05-76	714	
1967	08-12-67	1,040		1977	04-10-77	700	
1968	04-16-68	1,890		1978	03-01-78	2,390	
1969	04-07-69	1,740		1979	12-18-78	10,300	
1970	09-06-70	402		1980	04-21-80	3,400	
1971	08-29-71	580		1982	04-13-82	1,550	
1972	10-24-71	2,910		1984	10-02-83	[1]14,000	HP

[1]Highest since 1954.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
69.4	38.4	8,700	82.0	3.0	27.2	2.4	4.8

09489100 BLACK RIVER NEAR MAVERICK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1963-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	726	20	91	173	1.9	5.4
NOVEMBER	219	18	60	62	1.0	3.6
DECEMBER	609	15	72	134	1.9	4.2
JANUARY	205	18	61	60	0.99	3.6
FEBRUARY	290	21	99	86	0.87	5.8
MARCH	934	44	307	262	0.85	18.1
APRIL	1,480	32	559	462	0.83	33.0
MAY	1,330	22	224	309	1.4	13.2
JUNE	147	17	45	37	0.82	2.6
JULY	107	21	38	22	0.58	2.2
AUGUST	224	24	66	44	0.68	3.9
SEPTEMBER	274	21	72	70	0.97	4.3
ANNUAL	392	37	141	98	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1964-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	14	12	11	10	9.3	8.8
3	15	13	12	12	11	11
7	16	14	13	12	11	11
14	17	15	14	14	13	13
30	19	17	16	15	14	14
60	21	19	18	17	16	16
90	23	20	19	18	17	16
120	25	21	20	19	18	18
183	35	27	24	21	20	18

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963-80, 1982, 1984

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1,620	3,860	6,220	10,500	14,900	20,500

WEIGHTED SKEW (LOGS)= 0.23
MEAN (LOGS)= 3.23
STANDARD DEV. (LOGS)= 0.43

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1963-82

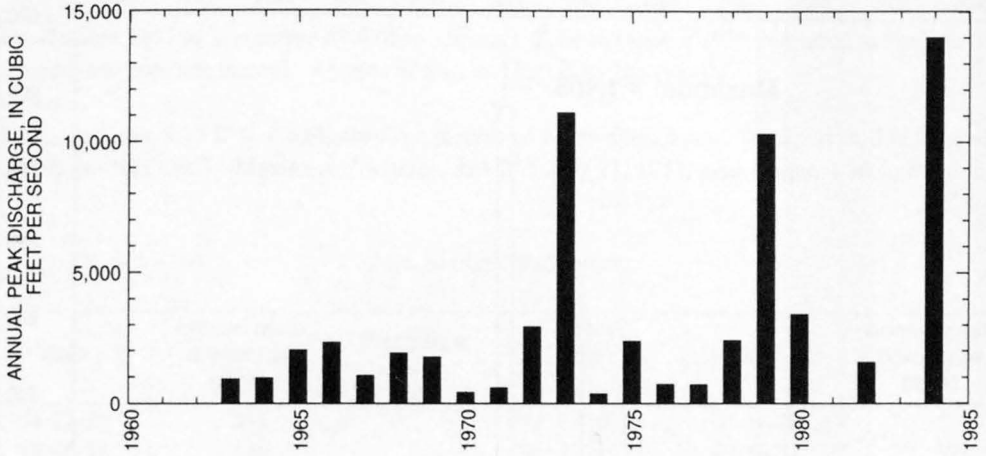
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	1,030	2,220	3,380	5,350	7,250	9,580
3	925	1,900	2,770	4,140	5,360	6,770
7	791	1,510	2,080	2,890	3,550	4,260
15	647	1,270	1,780	2,520	3,140	3,810
30	512	1,040	1,490	2,170	2,750	3,400
60	373	757	1,080	1,560	1,960	2,400
90	294	597	848	1,220	1,520	1,860

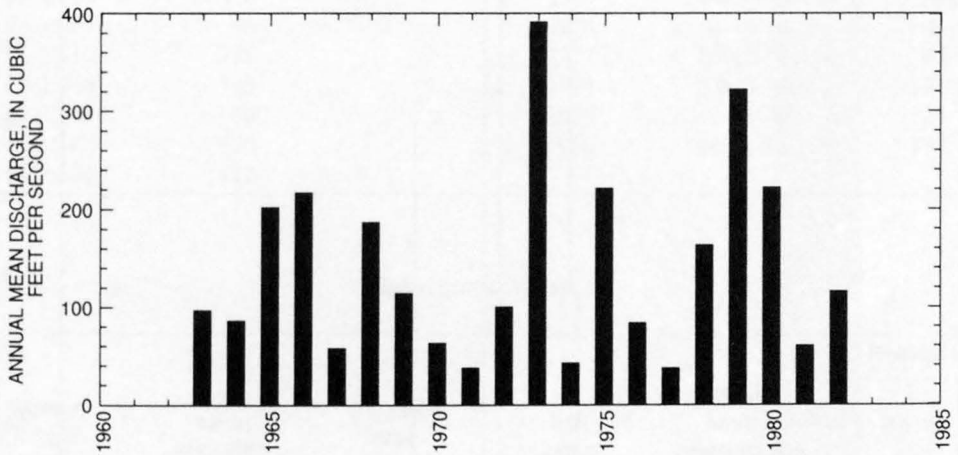
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1963-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,600	633	354	224	154	84	54	40	31	27	24	20	18	16	15	13	11

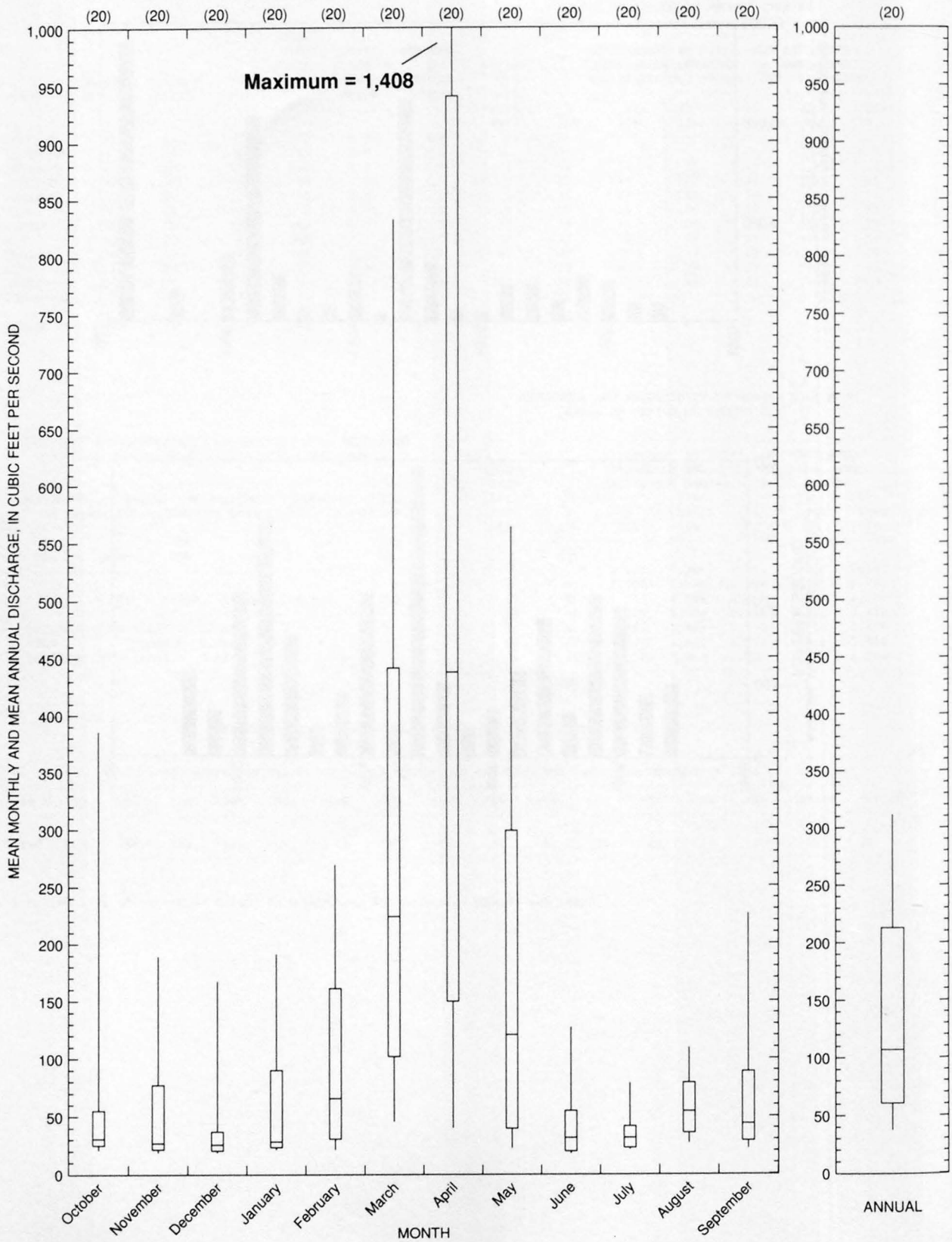
Reliability of values in column is uncertain, and potential errors are large.

09489100 BLACK RIVER NEAR MAVERICK, AZ--Continued





09489100 BLACK RIVER NEAR MAVERICK, AZ--Continued



09489200 PACHETA CREEK AT MAVERICK, AZ

LOCATION.--Lat 33°44'23", long 109°32'24", at corner of secs.28, 29, 32, 33, T.4 N., R.27 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Fort Apache Indian Reservation, on left bank 0.5 mi southeast of Maverick.

DRAINAGE AREA.--14.8 mi^2.

PERIOD OF RECORD.--October 1957 to September 1980 (discontinued). Prior to October 1970 published as Pachete Creek at Maverick.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 7,850 ft, by barometer.

REMARKS.--Records good.

AVERAGE DISCHARGE.--23 years, 9.15 ft^3/s, 6,630 acre-ft/yr; median of yearly mean discharges, 8.0 ft^3/s, 5,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 323 ft^3/s May 13, 1973, gage height, 4.36 ft; minimum daily, 0.2 ft^3/s many days in 1959-60.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	04-22-58	312		1970	04-11-70	71	
1959	10-06-58	140		1971	09-30-71	39	
1960	03-21-60	102		1972	10-24-71	69	
1961	08-08-61	18		1973	05-13-73	323	
1962	04-09-62	179		1974	08-05-74	39	
1963	08-19-63	118		1975	04-25-75	132	
1964	08-14-64	95		1976	04-10-76	47	
1965	04-23-65	128		1977	08-11-77	45	
1966	03-22-66	145		1978	03-30-78	173	
1967	08-27-67	60		1979	12-18-78	224	
1968	04-15-68	120		1980	04-21-80	158	
1969	04-06-69	122					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
160	14.2	8,810	88.0	3.0	30.3	2.2	5.2

09489200 PACHETA CREEK AT MAVERICK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-80

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	24	0.53	3.3	5.2	1.6	3.0
NOVEMBER	12	0.35	2.5	2.5	1.0	2.2
DECEMBER	27	0.68	3.3	5.7	1.7	3.0
JANUARY	15	0.59	3.3	4.3	1.3	3.0
FEBRUARY	14	0.59	4.2	4.0	0.94	3.8
MARCH	61	1.6	17	17	1.0	15.3
APRIL	102	1.5	44	36	0.82	39.8
MAY	131	0.50	21	30	1.4	19.5
JUNE	19	0.27	3.4	4.6	1.3	3.1
JULY	6.4	0.25	2.0	1.5	0.76	1.8
AUGUST	12	0.37	2.6	2.2	0.87	2.3
SEPTEMBER	15	0.33	3.3	3.7	1.1	3.0
ANNUAL	28	0.96	9.1	7.0	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-80

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.89	0.50	0.34	0.23	0.14	0.10
3	0.89	0.50	0.34	0.23	0.14	0.10
7	0.92	0.52	0.35	0.24	0.14	0.10
14	0.95	0.55	0.38	0.26	0.16	0.11
30	0.99	0.61	0.43	0.31	0.20	0.14
60	1.1	0.69	0.50	0.37	0.25	0.18
90	1.2	0.77	0.57	0.42	0.28	0.21
120	1.4	0.86	0.63	0.47	0.32	0.24
183	1.6	0.95	0.70	0.54	0.39	0.32

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-80

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
106	180	234	308	366	426

WEIGHTED SKEW (LOGS)= -0.18
MEAN (LOGS)= 2.02
STANDARD DEV. (LOGS)= 0.28

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-80

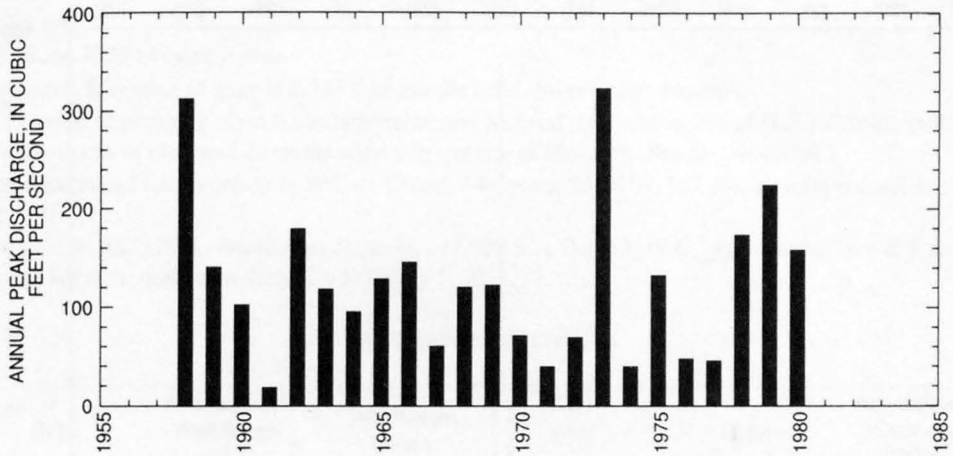
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	73	146	199	265	312	356
3	66	139	191	254	298	339
7	58	127	176	235	275	312
15	48	109	155	213	255	294
30	38	89	131	187	230	273
60	26	63	94	139	175	212
90	20	47	70	103	129	157

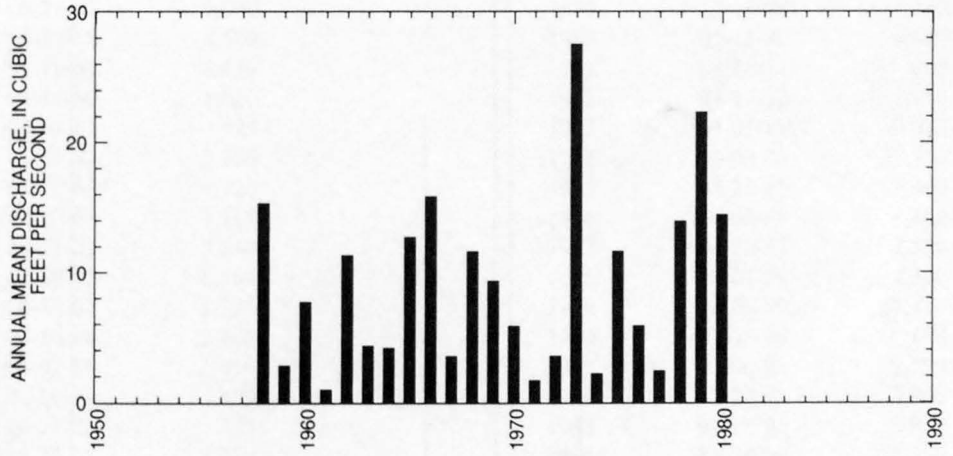
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1958-80

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
116	49	23	14	8.4	3.9	2.4	1.9	1.6	1.4	1.2	0.83	0.56	0.31	0.26	0.23	0.21

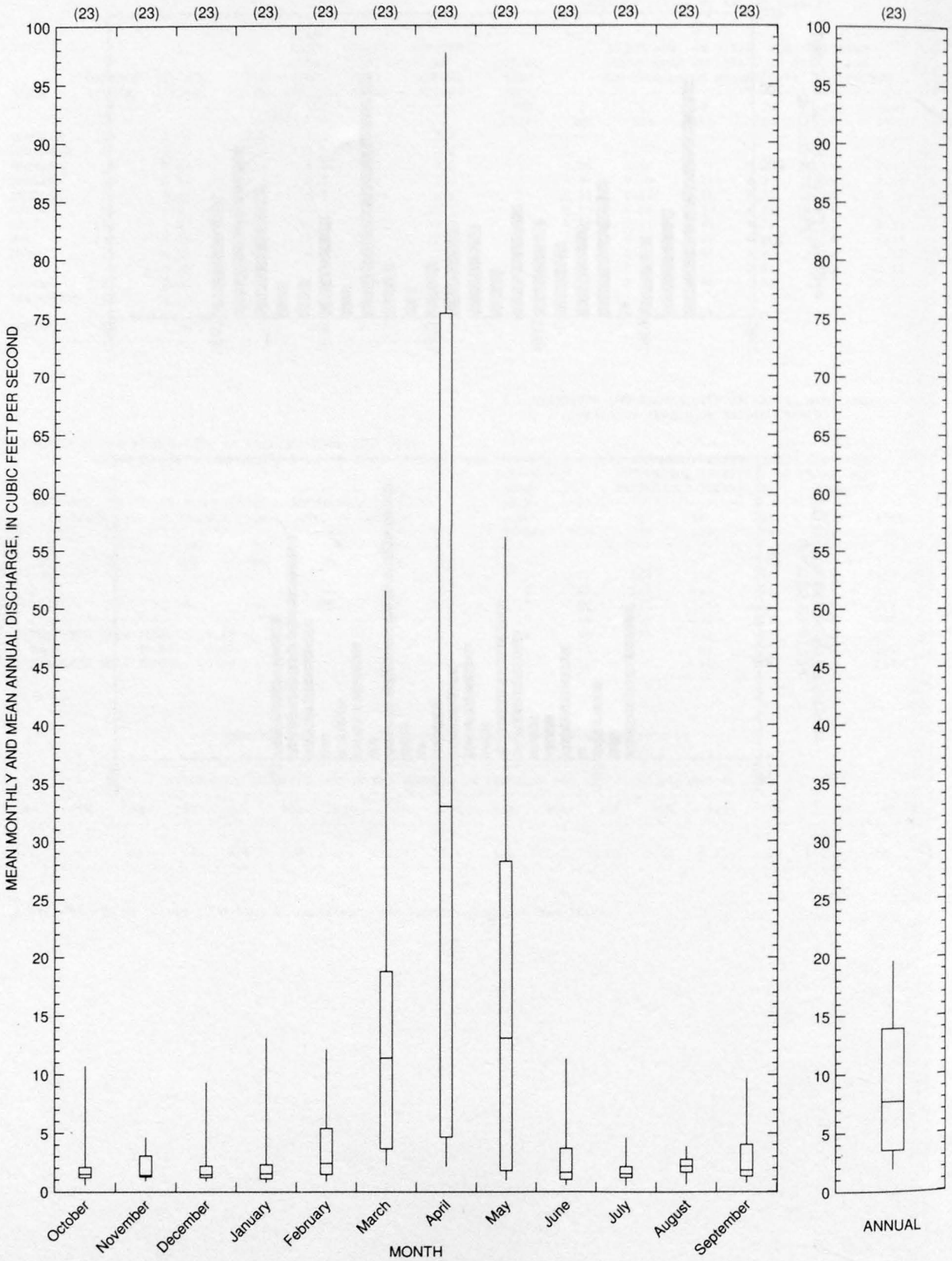
Reliability of values in column is uncertain, and potential errors are large.

09489200 PACHETA CREEK AT MAVERICK, AZ--Continued





09489200 PACHETA CREEK AT MAVERICK, AZ--Continued



09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ

LOCATION.--Lat 33°28'36", long 109°45'48", in W$^1/_2$ sec.32, T.2 N., R.25 E. (unsurveyed), Graham County, Hydrologic Unit 15060101, in San Carlos Indian Reservation, on left bank 0.9 mi downstream from Phelps Dodge Corp. pumping plant, 1.3 mi downstream from Freezeout Creek, 8 mi northwest of Point of Pines, and 63 mi upstream from confluence with White River.

DRAINAGE AREA.--560 mi^2.

PERIOD OF RECORD.--June 1953 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,725 ft above sea level, from topographic map.

REMARKS.--Water is diverted at pumping plant 0.9 mi upstream and pumped into headwaters of Willow Creek (tributary of Eagle Creek) for mining, metallurgical treatment of ores, and domestic supply in vicinity of Morenci. (See sta 09445000.)

AVERAGE DISCHARGE (adjusted for diversion to Willow Creek).--44 years, 231 ft^3/s, 167,400 acre-ft/yr; median of yearly mean discharges, 190 ft^3/s, 138,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,900 ft^3/s Oct. 19, 1972, gage height, 18.0 ft, from floodmarks, from rating curve extended above 5,000 ft^3/s; minimum daily, 2.6 ft^3/s July 5, 1974.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1954	03-23-54	5,000		1976	04-10-76	782	
1955	08-21-55	1,310		1977	04-10-77	610	
1956	03-20-56	642		1978	03-01-78	5,980	
1957	08-26-57	2,060		1979	12-19-78	12,400	
1958	04-23-58	4,590		1980	02-15-80	6,640	
1959	08-19-59	4,820		1981	04-14-81	820	
1960	03-14-60	1,820		1982	04-13-82	1,750	
1961	04-04-61	495		1983	04-01-83	3,020	
1962	04-11-62	2,950		1984	10-02-83	17,300	
1963	08-29-63	1,720		1985	03-12-85	7,440	
1964	10-20-63	1,110		1986	04-03-86	1,460	
1965	04-22-65	2,640		1987	04-18-87	2,530	
1966	12-30-65	6,380		1988	09-01-88	2,360	
1967	08-13-67	1,330		1989	08-05-89	1,140	
1968	04-16-68	2,440		1990	07-18-90	808	
1969	04-07-69	2,010		1991	03-06-91	2,790	
1970	04-12-70	479		1992	08-24-92	2,960	
1971	08-21-71	542		1993	01-08-93	8,940	
1972	10-25-71	3,210		1994	03-20-94	2,550	
1973	10-19-72	17,900		1995	02-15-95	5,450	
1974	08-02-74	404		1996	08-26-96	391	
1975	03-09-75	2,840					

09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ--Continued

Discharge rating table developed October 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.4	1,590	11.0	8,200
5.8	1,920	13.0	12,800
7.0	3,080	15.0	20,300
9.0	5,270	17.0	32,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
51.1	69.2	8,000	86.0	2.9	25.3	2.3	4.4

09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1954-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,210	14	114	228	2.0	4.3
NOVEMBER	505	23	92	101	1.1	3.5
DECEMBER	915	20	126	174	1.4	4.8
JANUARY	1,570	23	154	251	1.6	5.8
FEBRUARY	1,040	35	250	266	1.1	9.4
MARCH	1,860	30	568	475	0.84	21.4
APRIL	2,250	32	751	667	0.89	28.3
MAY	1,930	23	230	375	1.2	11.3
JUNE	244	14	63	63	1.0	2.4
JULY	122	14	43	21	0.50	1.6
AUGUST	378	18	101	93	0.92	3.8
SEPTEMBER	385	9.4	89	85	0.96	3.4
ANNUAL	617	38	221	161	0.73	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1955-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	12	7.0	5.2	4.0	3.0	2.5
3	13	7.9	5.9	4.7	3.6	3.0
7	15	9.9	7.9	6.7	5.5	4.8
14	18	12	9.7	8.1	6.6	5.8
30	22	15	13	11	9.1	8.1
60	27	20	17	15	13	12
90	33	25	21	19	17	16
120	38	28	24	22	19	18
183	50	35	30	26	23	22

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1954-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,230	5,190	8,090	13,000	17,700	23,400

WEIGHTED SKEW (LOGS)= 0.02
MEAN (LOGS)= 3.35
STANDARD DEV. (LOGS)= 0.44

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1954-96

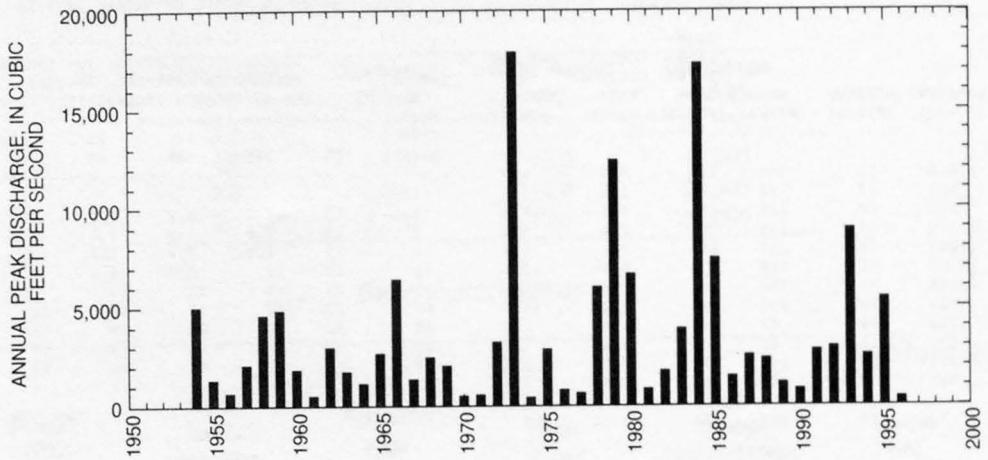
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	1,610	3,660	5,500	8,340	10,800	13,600
3	1,400	2,950	4,200	5,970	7,390	8,870
7	1,170	2,300	3,130	4,210	5,020	5,810
15	945	1,850	2,520	3,390	4,040	4,670
30	743	1,500	2,090	2,910	3,550	4,210
60	546	1,140	1,630	2,330	2,900	3,500
90	432	919	1,330	1,930	2,420	2,960

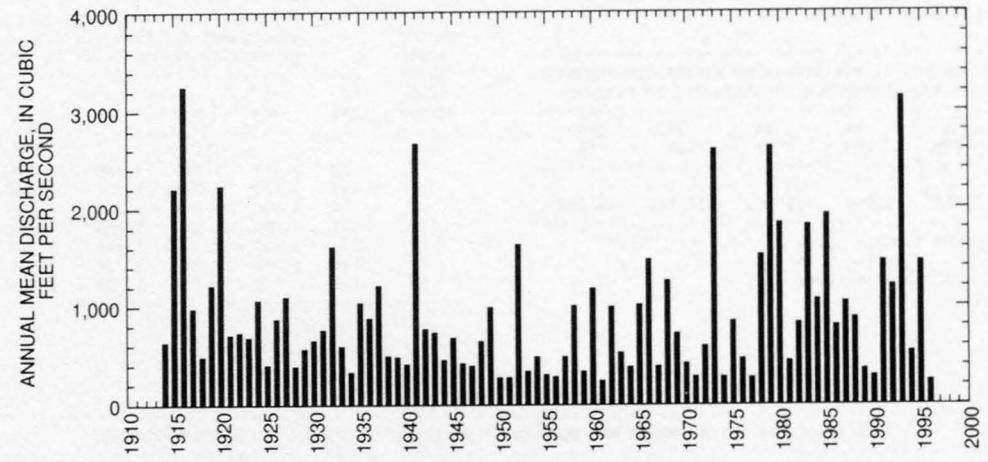
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME															
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,240	1,060	596	368	255	142	87	61	49	40	32	23	19	13	10	8.8	5.4

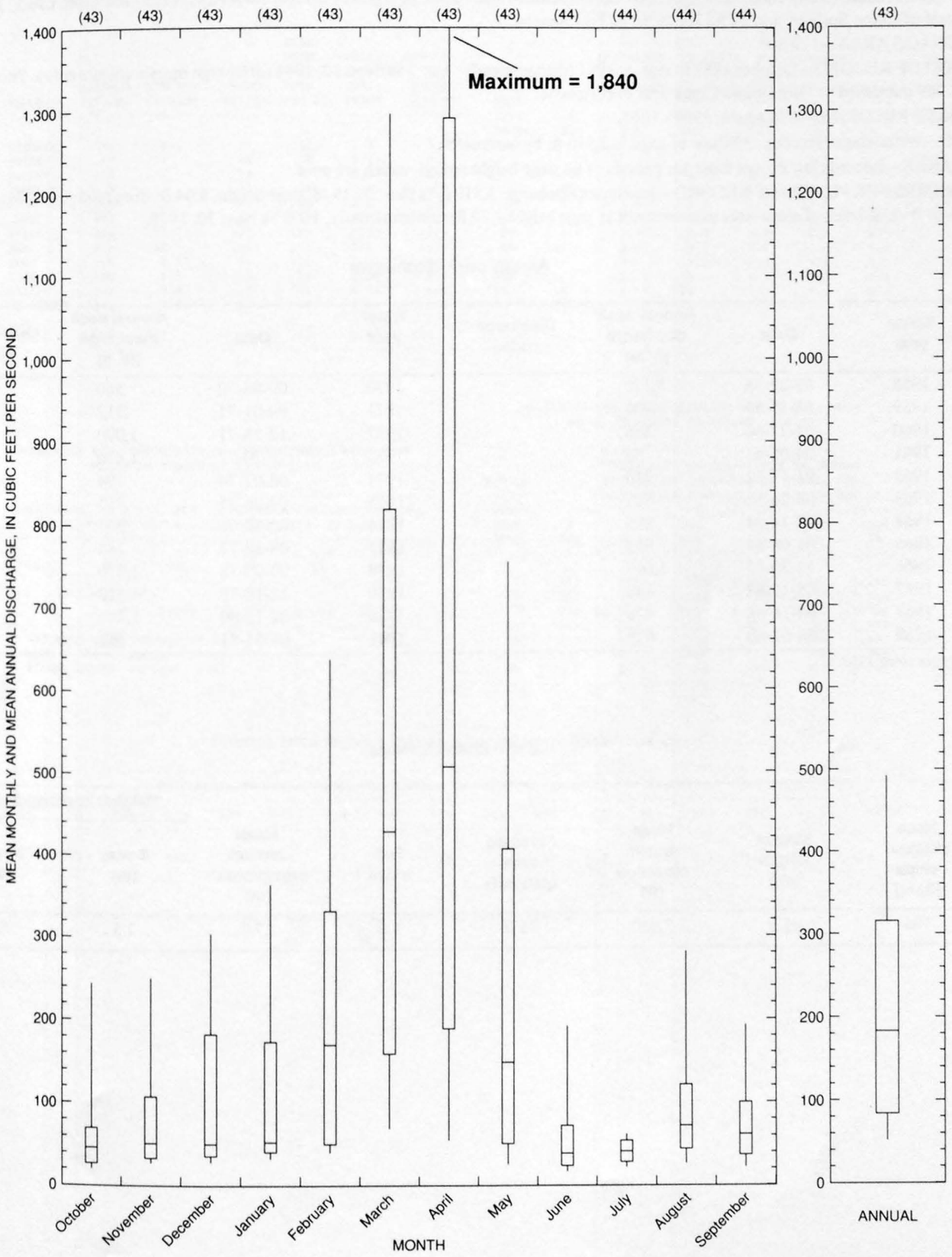
Reliability of values in column is uncertain, and potential errors are large.

09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ--Continued





09489500 BLACK RIVER BELOW PUMPING PLANT, NEAR POINT OF PINES, AZ--Continued



09489700 BIG BONITO CREEK NEAR FORT APACHE, AZ

LOCATION.--Lat 33°40'02", long 109°50'46", in NE$^1/_4$ sec.28, T.4 N., R.24 E. (unsurveyed), Apache County, Hydrologic Unit 15060101, in Fort Apache Indian Reservation, near right bank on downstream side of pier of highway bridge, 1.9 mi upstream from Tonto Creek, 3.7 mi southeast of Chino Springs, and 12 mi southeast of Fort Apache.

DRAINAGE AREA.--119 mi^2.

PERIOD OF RECORD.--October 1957 to Apr. 1, 1981 (discontinued). Apr. 2 to Sept. 30, 1981 (discharge measurements only). Prior to October 1969 published as "Big Bonita Creek near Fort Apache."

REVISED RECORDS.--WRD Ariz. 1969: 1967.

GAGE.--Water-stage recorder. Altitude of gage is 5,910 ft, by barometer.

REMARKS.--Records fair except those for periods of no gage-height record, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,510 ft^3/s Dec. 18, 1978, gage height, 9.04 ft; from rating curve extended above 640 ft^3/s on basis of slope-area measurement at gage height 7.77 ft; minimum daily, 4.2 ft^3/s Nov. 30, 1975.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	03-22-58	1,120		1970	09-06-70	560	
1959	08-15-59	1,200		1971	09-01-71	312	
1960	03-27-60	356		1972	12-26-71	1,090	
1961	04-06-61	83		1973	10-20-72	1,870	
1962	04-17-62	710		1974	08-02-74	194	
1963	08-26-63	557		1975	04-26-75	453	
1964	08-14-64	885		1976	02-10-76	194	
1965	01-08-65	973		1977	08-19-77	243	
1966	12-30-65	1,640		1978	03-03-78	[1]2,870	
1967	08-12-67	448		1979	12-18-78	[1]4,510	
1968	04-16-68	426		1980	02-15-80	3,440	
1969	04-01-69	678		1981	04-01-81	153	

[1]Highest since 1952.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
106	33.5	7,920	95.0	3.0	27.9	2.5	4.8

09489700 BIG BONITO CREEK NEAR FORT APACHE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-80

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	157	9.2	30	40	1.3	3.7
NOVEMBER	69	10	28	19	0.71	3.3
DECEMBER	251	11	39	57	1.5	4.8
JANUARY	115	11	40	35	0.86	4.9
FEBRUARY	316	10	65	68	1.0	7.9
MARCH	521	21	133	119	0.90	16.2
APRIL	540	23	224	168	0.75	27.2
MAY	610	11	138	149	1.1	16.8
JUNE	148	6.3	34	39	1.1	4.1
JULY	50	6.5	20	11	0.56	2.4
AUGUST	122	7.8	40	29	0.73	4.9
SEPTEMBER	112	7.0	31	26	0.83	3.8
ANNUAL	167	17	69	43	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-81

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	6.2	4.8	4.2	3.8	3.4	3.1
3	6.7	5.3	4.6	4.1	3.7	3.4
7	7.2	5.6	4.9	4.3	3.8	3.5
14	7.8	6.3	5.6	5.0	4.5	4.1
30	9.0	7.3	6.4	5.8	5.1	4.7
60	11	9.0	8.0	7.1	6.3	5.7
90	13	10	9.3	8.6	7.8	7.3
120	14	11	10	9.7	9.3	9.0
183	19	14	12	11	9.4	8.7

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-81

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
629	1,440	2,200	3,470	4,650	6,040

WEIGHTED SKEW (LOGS)= -0.04
MEAN (LOGS)= 2.80
STANDARD DEV. (LOGS)= 0.43

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-80

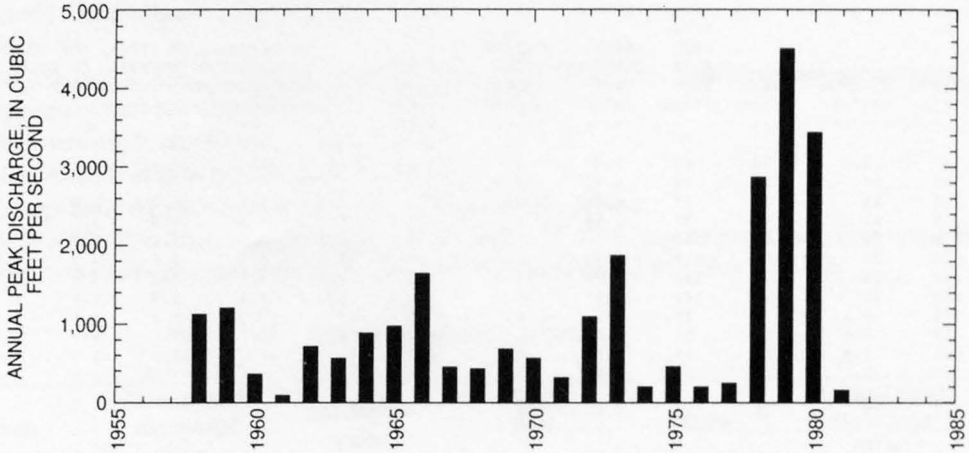
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	453	969	1,440	2,190	2,860	3,640
3	391	791	1,140	1,670	2,130	2,650
7	328	623	859	1,190	1,470	1,760
15	269	503	684	937	1,140	1,350
30	219	416	576	806	997	1,200
60	172	330	456	638	786	945
90	140	271	375	520	638	761

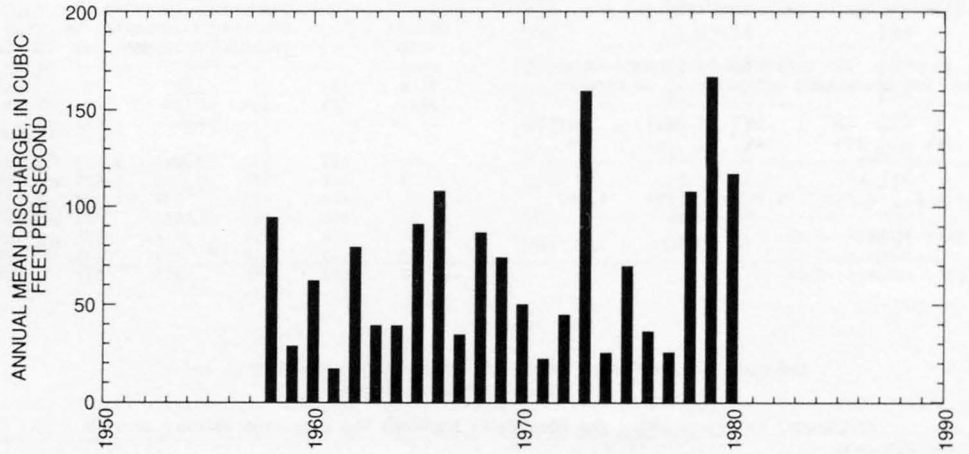
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1958-80

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
597	293	177	122	87	53	34	24	18	15	12	9.9	8.1	6.4	5.6	5.1	4.4

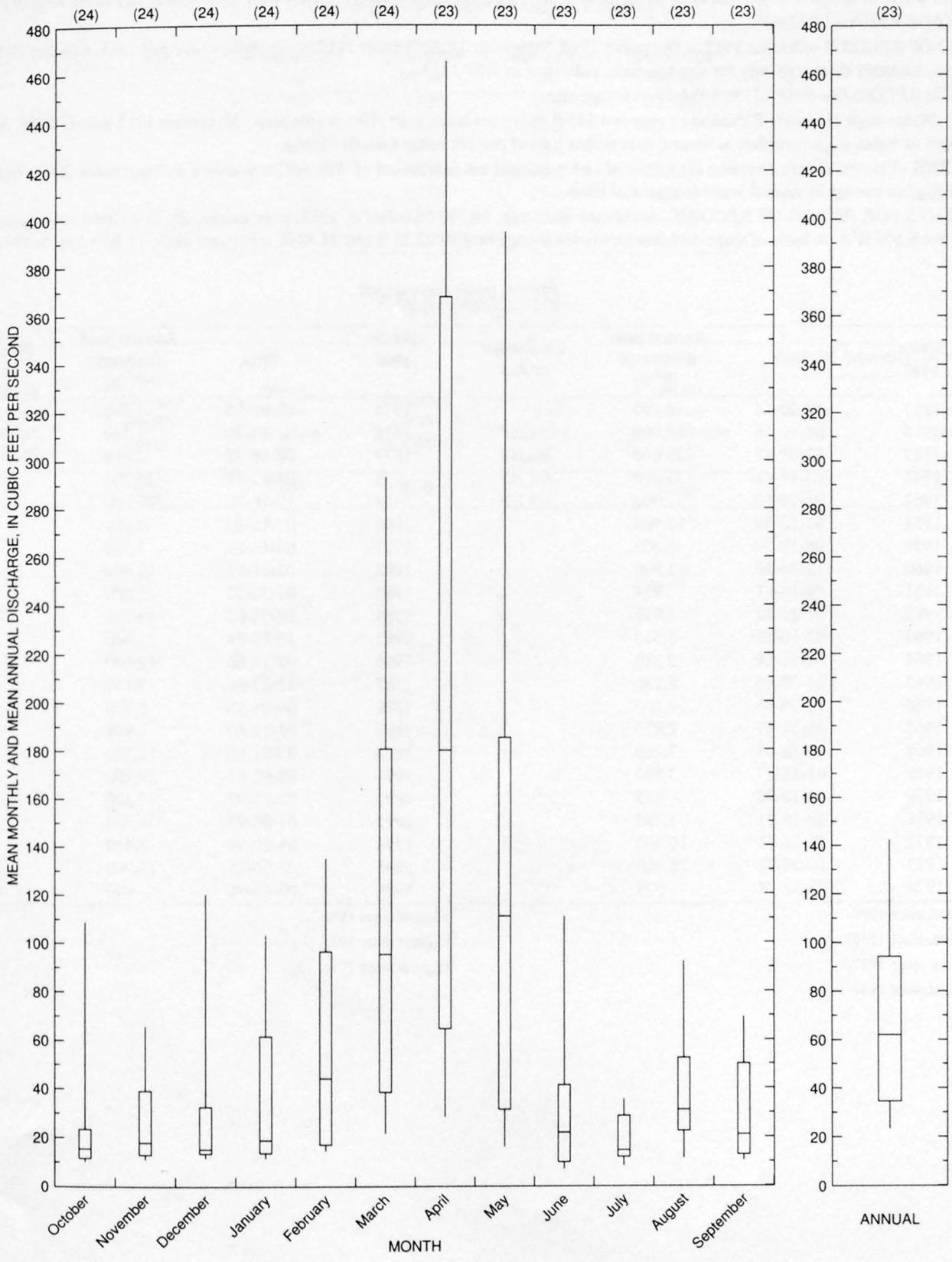
Reliability of values in column is uncertain, and potential errors are large.

09489700 BIG BONITO CREEK NEAR FORT APACHE, AZ--Continued





09489700 BIG BONITO CREEK NEAR FORT APACHE, AZ--Continued



09490500 BLACK RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°42'46", long 110°12'40", in NW$^1/_4$ sec.12, T.4 N., R.20 E. (unsurveyed), Gila County, Hydrologic Unit 15060101, on downstream side of first pier from right bank on highway bridge, 5 mi upstream from confluence with White River and 14 mi west of Fort Apache.

DRAINAGE AREA.--1,232 mi^2.

PERIOD OF RECORD.--October 1912 to December 1915, September 1916, October 1917 to January 1918, April 1918, October 1957 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WSP 1313: 1914-15, drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,345 ft above sea level, from river-profile map. November 1912 to July 1918, nonrecording gages or water-stage recorders at several sites within 1 mi of present site at various datums.

REMARKS.--One transbasin diversion for industrial and municipal use (see record of Willow Creek diversion from Black River, near Morenci). Negligible storage in several small recreational lakes.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 54,700 ft^3/s Jan. 8, 1993, gage height, 28.10 ft, from rating curve extended above 8,500 ft^3/s on basis of slope-area measurements at gage heights 22.33 ft and 24.80 ft; minimum daily, 11 ft^3/s July 6, 1974.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1915	12-20-14	18,000		1975	03-09-75	4,360	
1916	01-19-16	[1]50,000	ES,HP	1976	02-11-76	1,560	
1937	02-07-37	[2]35,000	ES,HP	1977	08-18-77	1,030	
1941	03-14-41	[3]35,000	ES,HP	1978	03-02-78	[5]33,200	
1952	01-14-52	[4]35,000	ES,HP	1979	12-18-78	[6]40,200	
1958	03-22-58	12,900		1980	02-15-80	40,000	
1959	08-18-59	8,300		1981	04-14-81	1,260	
1960	12-26-59	12,900		1982	02-11-82	10,800	
1961	09-14-61	914		1983	01-30-83	12,000	
1962	01-25-62	4,920		1984	10-02-83	44,200	
1963	02-10-63	5,580		1985	12-28-84	21,400	
1964	08-15-64	2,280		1986	02-16-86	12,600	
1965	01-08-65	8,180		1987	12-07-86	7,140	
1966	12-30-65	24,800		1988	09-01-88	8,790	
1967	08-11-67	2,870		1989	03-12-89	948	
1968	01-28-68	7,010		1990	07-21-90	12,500	
1969	01-22-69	3,860		1991	03-02-91	29,100	
1970	04-13-70	675		1992	02-13-92	17,300	
1971	08-19-71	1,780		1993	01-08-93	[7]54,700	
1972	12-26-71	10,500		1994	03-20-94	5,460	
1973	10-20-72	28,400		1995	03-06-95	15,000	
1974	03-22-74	574		1996	07-12-96	946	

[1]Highest since 1906.
[2]Highest since 1916.
[3]Highest since 1937.
[4]Highest since 1941.
[5]Highest since 1952.
[6]Highest since 1916.
[7]Highest since 1916.

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	1,490	18.0	21,780
6.0	2,240	20.0	27,170
8.0	4,040	22.0	33,200
10.0	6,370	24.0	39,650
12.0	9,290	26.0	46,670
14.0	12,840	28.0	54,290
16.0	17,000	28.4	55,880

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
36.2	120	7,200	81.0	3.0	23.4	2.2	4.2

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1915, 1958-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2,730	31	226	507	2.2	4.3
NOVEMBER	769	37	158	167	1.1	3.0
DECEMBER	2,450	38	400	594	1.5	7.6
JANUARY	4,900	37	462	796	1.7	8.8
FEBRUARY	3,150	57	640	684	1.1	12.2
MARCH	3,860	57	1,100	954	0.87	20.9
APRIL	4,420	48	1,220	1,050	0.86	23.2
MAY	3,110	29	517	608	1.2	9.8
JUNE	448	17	114	114	1.0	2.2
JULY	763	23	89	115	1.3	1.7
AUGUST	659	35	187	172	0.92	3.5
SEPTEMBER	650	31	150	138	0.92	2.9
ANNUAL	1,200	62	438	323	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1915, 1959-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	25	18	15	13	11	9.7
3	26	19	16	14	12	11
7	28	20	17	15	13	12
14	31	22	19	16	14	13
30	36	26	22	19	17	15
60	44	33	29	26	24	23
90	54	40	35	32	29	27
120	65	46	40	36	32	30
183	83	58	50	46	43	41

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
7,460	21,000	34,600	57,600	78,800	103,500

WEIGHTED SKEW (LOGS)= -0.32
MEAN (LOGS)= 3.84
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1915, 1958-96

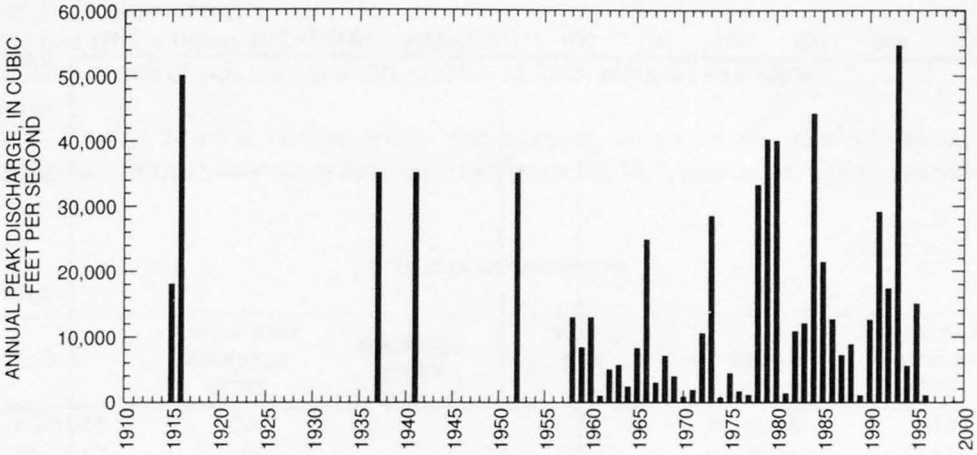
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	4,170	11,800	19,900	34,300	48,300	65,400
3	3,150	8,030	12,800	20,700	28,000	36,500
7	2,250	5,130	7,680	11,600	14,900	18,500
15	1,720	3,690	5,300	7,590	9,430	11,400
30	1,330	2,750	3,870	5,400	6,600	7,820
60	1,010	2,140	3,040	4,280	5,260	6,270
90	837	1,810	2,590	3,680	4,550	5,440

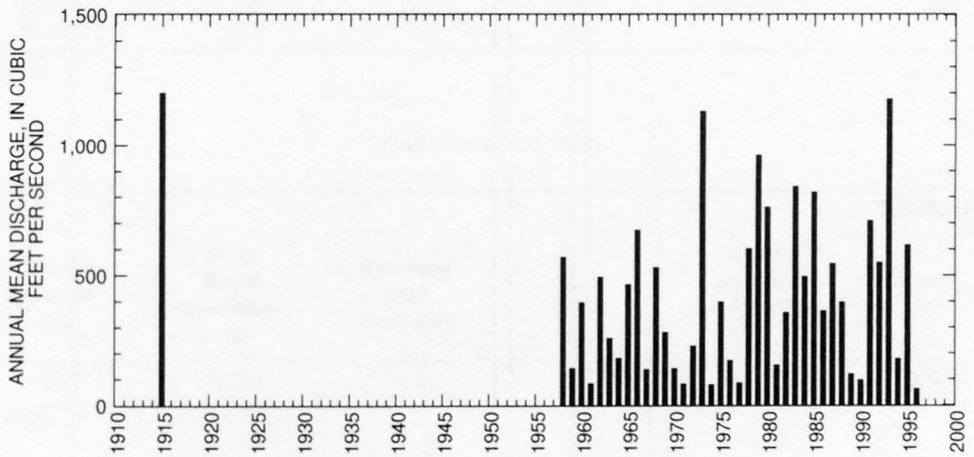
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1915, 1958-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4,160	1,970	1,230	775	505	266	161	109	82	65	52	39	31	24	21	18	13

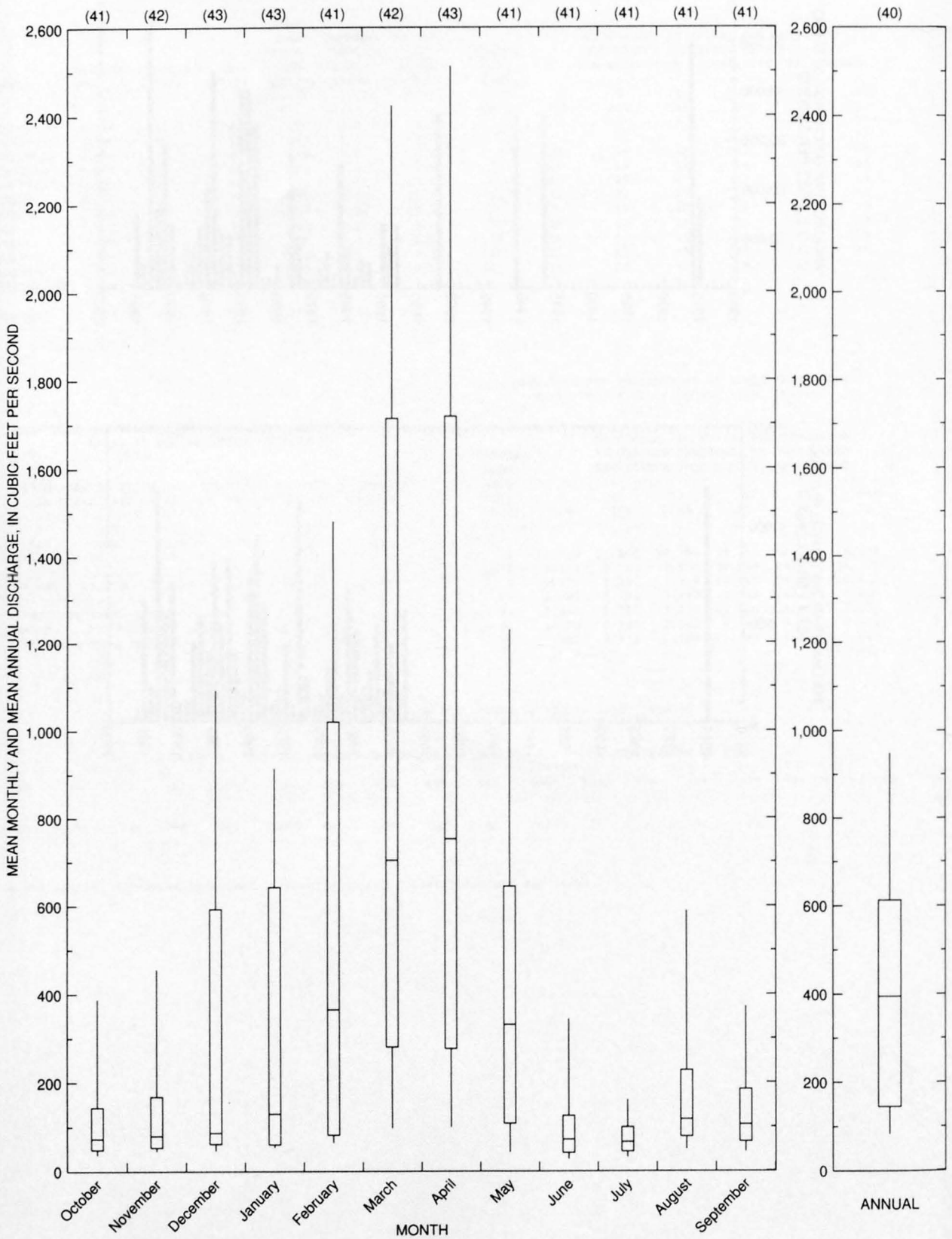
Reliability of values in column is uncertain, and potential errors are large.

09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued





09490500 BLACK RIVER NEAR FORT APACHE, AZ--Continued



09490800 NORTH FORK WHITE RIVER NEAR GREER, AZ

LOCATION.--Lat 34°00'55", long 109°38'37", in SW$^1/_4$ sec.7, T.7 N., R.26 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on right bank 300 ft upstream from Bear Cienega Creek and 11 mi west of Greer.

DRAINAGE AREA.--40.2 mi^2, approximately.

PERIOD OF RECORD.--June 1965 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 8,372 ft. Prior to Nov. 13, 1965, at datum 1.08 ft higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--13 years, 24.6 ft^3/s, 17,820 acre-ft/yr; median of yearly mean discharges, 22 ft^3/s 15,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 510 ft^3/s Apr. 28, 1973, gage height, 4.15 ft; minimum daily, 4.6 ft^3/s July 29, 1978.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	04-02-66	299		1973	04-28-73	510	
1967	03-09-67	194		1974	03-30-74	81	
1968	04-15-68	183		1975	05-15-75	157	
1969	04-06-69	177		1976	04-09-76	139	
1970	04-10-70	242		1977	04-09-77	205	
1971	09-30-71	150		1978	03-30-78	153	
1972	10-01-71	162					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
216	10.1	9,520	74.0	3.0	34.2	2.9	5.5

09490800 NORTH FORK WHITE RIVER NEAR GREER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	54	8.7	20	15	0.76	6.7
NOVEMBER	27	6.6	13	7.4	0.55	4.5
DECEMBER	25	6.1	11	5.3	0.49	3.7
JANUARY	19	6.0	9.6	3.3	0.35	3.3
FEBRUARY	21	6.0	10	3.7	0.35	3.5
MARCH	54	9.8	21	13	0.62	7.0
APRIL	97	17	52	28	0.53	17.6
MAY	233	14	63	57	0.90	21.4
JUNE	152	7.9	39	39	0.98	13.3
JULY	44	8.4	17	9.5	0.55	5.9
AUGUST	47	9.9	20	9.9	0.49	6.9
SEPTEMBER	43	9.0	18	10	0.57	6.2
ANNUAL	57	13	25	12	0.47	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	6.4	5.3	4.8	4.3	3.9	3.6
3	6.5	5.5	5.0	4.6	4.2	4.0
7	6.7	5.8	5.3	4.9	4.5	4.3
14	6.8	6.1	5.7	5.4	5.1	4.9
30	7.6	6.9	6.5	6.1	5.8	5.5
60	8.1	7.3	6.8	6.4	5.9	5.5
90	8.6	7.6	7.0	6.5	5.9	5.5
120	8.9	8.0	7.6	7.4	7.0	6.8
183	11	9.5	9.1	8.8	8.5	8.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
183	266	325	405	469	535

WEIGHTED SKEW (LOGS)= 0.17
MEAN (LOGS)= 2.27
STANDARD DEV. (LOGS)= 0.19

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-78

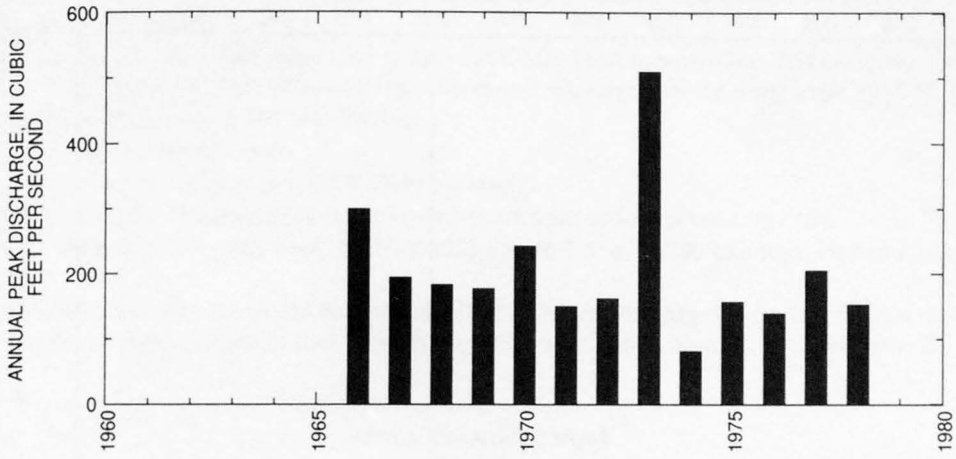
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	113	172	221	295	360	434
3	98	155	202	274	338	412
7	84	137	181	249	308	377
15	73	121	159	216	265	321
30	64	107	141	192	235	283
60	55	93	126	175	218	268
90	47	79	104	142	175	211

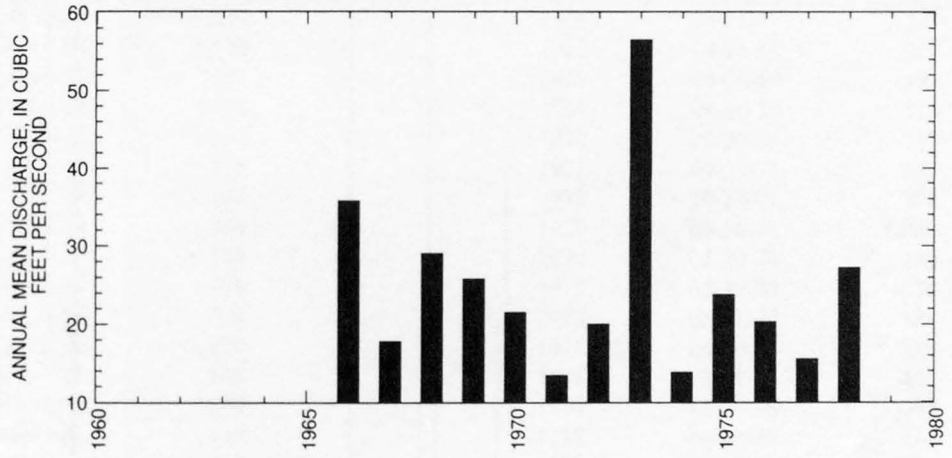
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
193	79	59	42	32	22	17	14	12	10	8.9	7.9	7.2	6.4	6.0	5.3	4.7

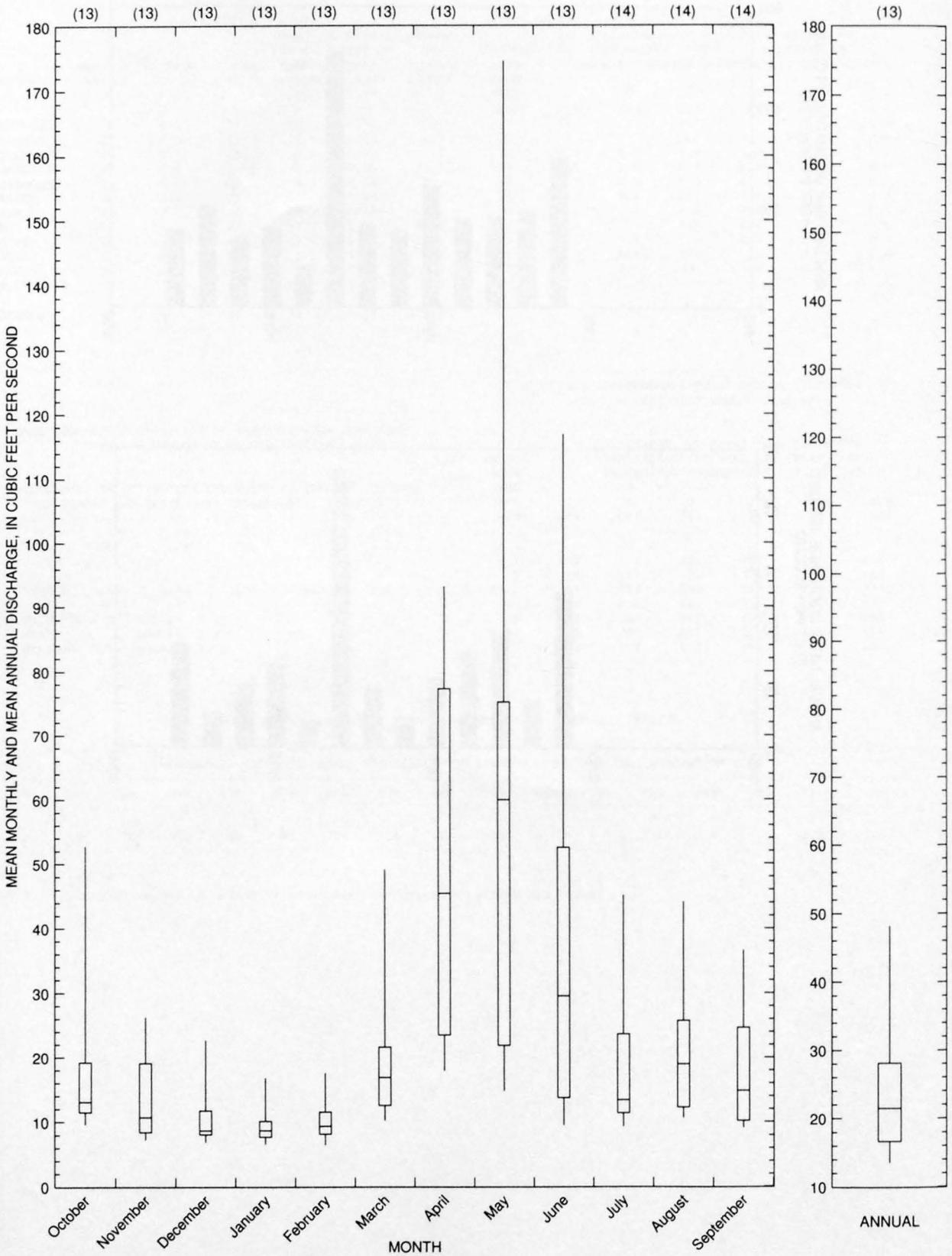
Reliability of values in column is uncertain, and potential errors are large.

09490800 NORTH FORK WHITE RIVER NEAR GREER, AZ--Continued





09490800 NORTH FORK WHITE RIVER NEAR GREER, AZ--Continued



09491000 NORTH FORK WHITE RIVER NEAR McNARY, AZ

LOCATION.--Lat 34°02'47", long 109°44'02", in E$^1/_2$ sec.31, T.8 N., R.25 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on left bank 1.9 mi downstream from Paradise Creek and 7 mi southeast of McNary.

DRAINAGE AREA.--66 mi^2, approximately.

PERIOD OF RECORD.--June 1945 to June 1947, May 1948 to June 1949, May 1950 to September 1954 (monthly discharge only, July to September 1954), June 1957 to September 1985 (discontinued). Maximum discharge only for water years 1955-56, published in WSP 1513. Prior to Oct. 1, 1963, published as White River near McNary.

REVISED RECORDS.--WSP 1243: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 7,723 ft above sea level.

REMARKS.--No storage above station. Water diverted about 5 mi upstream from station for use at McNary.

AVERAGE DISCHARGE.--33 years (water years 1946, 1951-53, 1958-85), 48.7 ft^3/s, 35,280 acre-ft/yr; median of yearly mean discharges, 46 ft^3/s, 33,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,310 ft^3/s Oct. 2, 1983, gage height, 6.78 ft, from rating curve extended above 470 ft^3/s on basis of slope-area measurement of peak flow; minimum recorded, 4 ft^3/s Nov. 19, 1948, and Nov. 29, 1950, caused by ice jam upstream.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1946	09-19-46	1,290		1966	08-11-67	271	
1947	04-16-48	1,120		1967	04-15-68	351	
1948	04-15-49	656		1968	04-06-69	393	
1949	03-00-50	188		1969	04-10-70	310	
1950	08-28-51	167		1970	09-30-71	257	
1951	04-06-52	748		1971	09-30-71	257	
1952	03-29-53	152		1972	10-24-71	352	
1953	03-23-54	304		1973	04-28-73	1,000	ES
1954	00-00-55	145		1974	03-30-74	140	
1955	00-00-56	170		1975	05-15-75	350	
1956	08-24-57	729		1976	05-21-76	184	
1957	04-22-58	1,230		1977	04-09-77	316	
1958	10-05-58	148		1978	03-31-78	455	
1959	03-26-60	390		1979	12-18-78	1,060	
1960	04-05-61	248		1980	06-09-80	273	
1961	04-16-62	680		1981	04-13-81	397	
1962	09-10-63	385		1982	04-12-82	505	
1963	04-12-64	444		1983	06-01-83	552	
1964	04-23-65	791		1984	10-02-83	2,310	
1965	04-03-66	512		1985	03-12-85	754	

Magnitude and probability of instantaneous peak flow based on period of record 1946, 1948-85

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100†
50%	20%	10%	4%	2%	1%
407	742	1,030	1,460	1,850	2,280

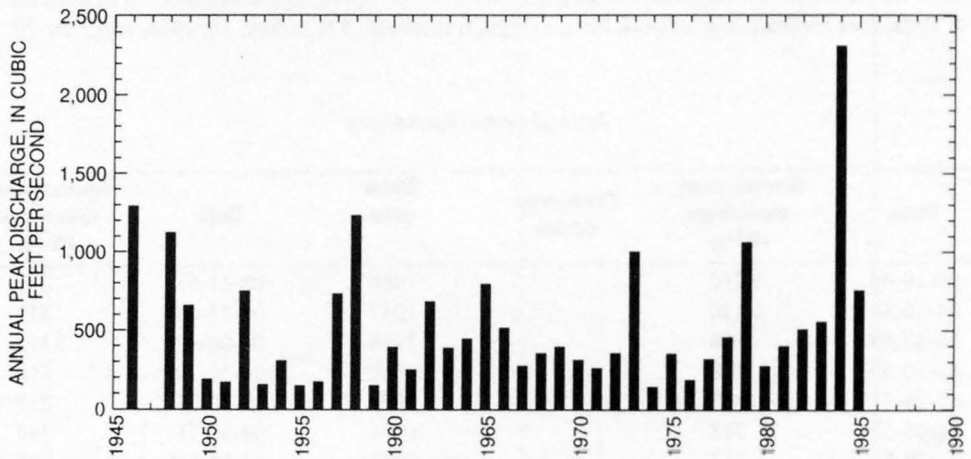
Weighted skew	(logs) =	0.16
Mean	(logs) =	2.62
Standard dev.	(logs) =	0.30

† Reliability of values in column is uncertain, and potential errors are large.

09491000 NORTH FORK WHITE RIVER NEAR McNARY, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
153	18.5	9,320	79.7	3.0	32.2	2.9	5.5



09491800 NORTH FORK WHITE RIVER TRIBUTARY NEAR WHITERIVER, AZ

LOCATION.--Lat 33°55'44", long 109°56'19", in $SE^1/_4$ sec.8, T.6 N., R.23 E. (unsurveyed), Navajo County, Hydrologic Unit 15060102, at State Highway 73, 6.5 mi north of Whiteriver.
DRAINAGE AREA.--2.27 mi^2.

Annual peak discharges

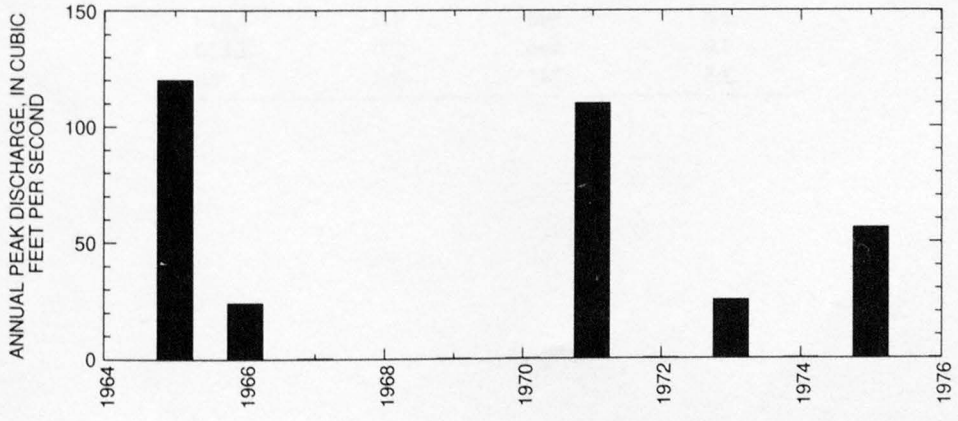
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	00-00-65	120	LT	1971	08-00-71	110	
1966	12-22-65	24		1972	00-00-72	0	
1967	00-00-67	0		1973	10-19-72	25	
1968	11-00-67	0.1	LT	1974	00-00-74	0	
1969	00-00-69	0		1975	07-00-75	56	
1970	00-00-70	0					

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
272	3.6	6,290	99.0	3.0	20.5	2.1	4.2



09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°49'20", long 109°48'50", in SE$^1/_4$ sec.16, T.5 N., R.24 E. (unsurveyed), Apache County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on left bank 600 ft downstream from highway bridge, 0.1 mi upstream from Rock Creek, and 10 mi east of Fort Apache.

DRAINAGE AREA.--38.8 mi^2.

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,050 ft above sea level. Prior to Dec. 29, 1960, at site 600 ft upstream at datum 12.78 ft higher. Dec. 29, 1960, to Sept. 28, 1962, at site 600 ft upstream at datum 12.92 ft higher.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,700 ft^3/s Oct. 1, 1983, gage height, 5.40 ft, from rating curve extended above 1,000 ft^3/s; minimum daily, 4.0 ft^3/s Nov. 29, 1975.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	04-22-58	411		1978	03-01-78	318	
1959	10-06-58	330		1979	12-18-78	751	
1960	05-13-60	207		1980	05-22-80	372	
1961	08-17-61	663		1981	05-03-81	167	
1962	05-12-62	300	ES	1982	05-02-82	283	
1963	08-30-63	116		1983	06-01-83	388	
1964	08-09-64	83		1984	10-01-83	2,700	
1965	05-02-65	204		1985	03-12-85	481	
1966	11-25-65	270		1986	07-16-86	154	
1967	08-03-67	758		1987	04-17-87	235	
1968	08-05-68	352		1988	04-28-88	211	
1969	05-21-69	194		1989	03-14-89	122	
1970	09-06-70	396		1990	04-29-90	81	
1971	09-01-71	205		1991	05-10-91	212	
1972	10-01-71	266		1992	08-24-92	776	
1973	10-20-72	732		1993	01-08-93	563	
1974	05-15-74	89		1994	09-03-94	326	
1975	05-16-75	270		1995	03-06-95	387	
1976	07-30-76	166		1996	09-14-96	155	
1977	08-16-77	122					

Discharge rating table developed October 1988

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	166	4.0	1,050
2.5	306	4.5	1,510
3.0	496	5.0	2,120
3.5	741	5.4	2,700

09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
239	17.9	8,580	96.0	3.0	31.2	2.8	5.6

09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	127	8.7	23	24	1.1	5.2
NOVEMBER	44	7.7	17	9.1	0.53	3.9
DECEMBER	57	7.8	17	10	0.62	3.8
JANUARY	34	7.1	17	13	0.79	3.8
FEBRUARY	66	7.7	22	14	0.63	4.9
MARCH	103	10	40	25	0.62	9.1
APRIL	192	15	84	46	0.55	19
MAY	284	8.4	104	69	0.67	23
JUNE	172	5.0	48	46	0.96	11
JULY	46	7.7	19	10	0.54	4.3
AUGUST	91	11	28	17	0.61	6.4
SEPTEMBER	66	6.9	25	13	0.53	5.5
ANNUAL	75	12	37	17	0.45	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	6.7	5.4	4.9	4.6	4.3	4.1
3	7.2	6.0	5.5	5.3	5.0	4.9
7	7.7	6.4	5.9	5.6	5.3	5.1
14	8.2	6.9	6.4	6.1	5.8	5.6
30	8.9	7.5	7.0	6.7	6.4	6.3
60	9.8	8.3	7.7	7.4	7.1	6.9
90	11	9.2	8.4	7.9	7.4	7.2
120	13	10	9.0	8.3	7.7	7.3
183	15	12	10	9.3	8.4	8.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
268	450	587	776	928	1,090

WEIGHTED SKEW (LOGS)= -0.08
MEAN (LOGS)= 2.42
STANDARD DEV. (LOGS)= 0.27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-96

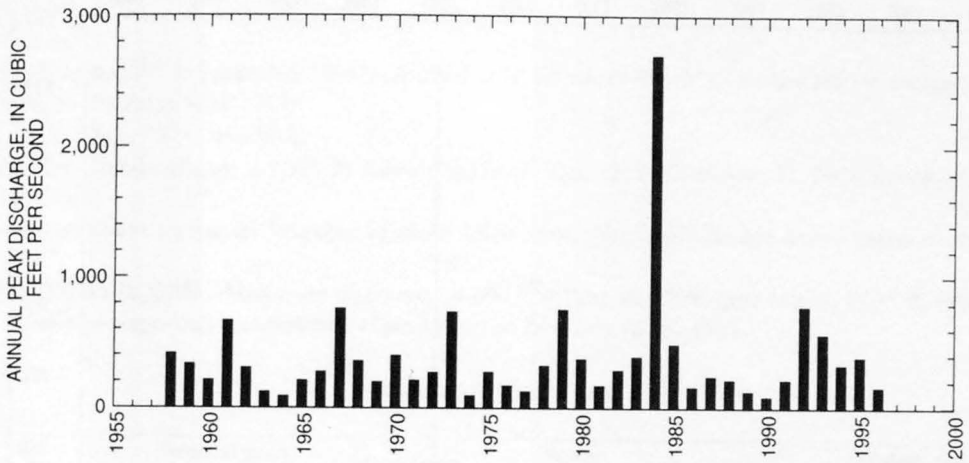
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	191	347	482	697	891	1,120
3	168	280	367	492	597	710
7	147	232	292	371	431	493
15	127	198	246	308	353	399
30	110	172	216	272	314	357
60	92	149	189	241	281	321
90	76	123	157	200	232	265

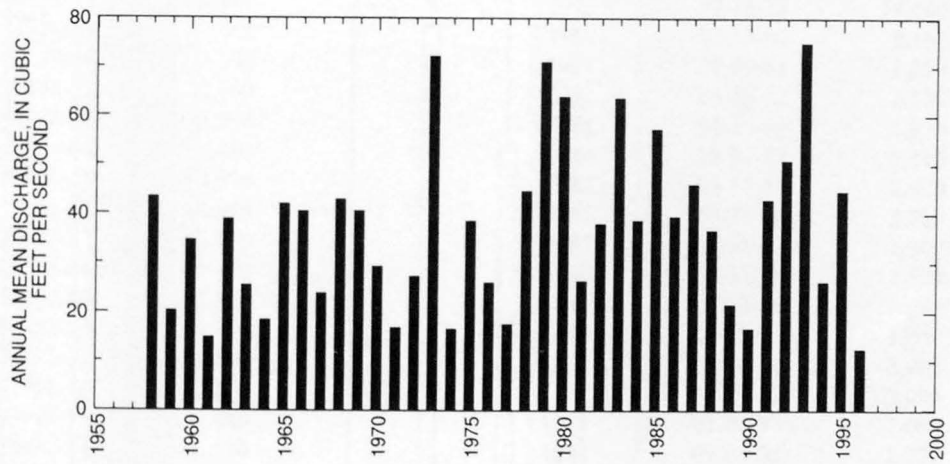
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1958-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
237	135	91	64	50	33	25	20	16	13	11	9.0	7.8	0.00	0.00	0.00	0.00

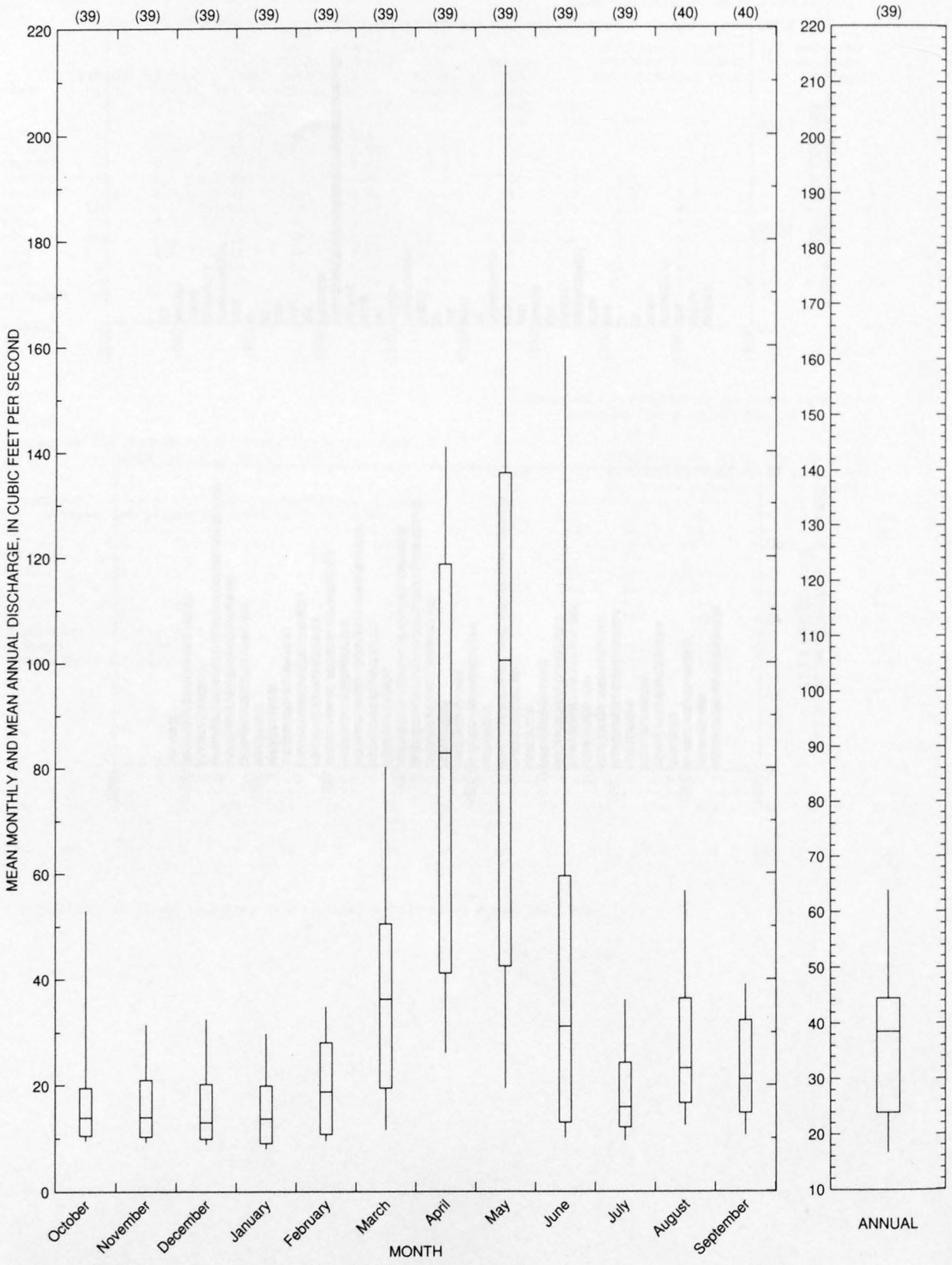
Reliability of values in column is uncertain, and potential errors are large.

09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ--Continued





09492400 EAST FORK WHITE RIVER NEAR FORT APACHE, AZ--Continued



09494000 WHITE RIVER NEAR FORT APACHE, AZ

LOCATION.--Lat 33°44'11", long 110°09'58", in SE$^1/_4$ sec.32, T.4 N., R.21 E. (unsurveyed), Gila County, Hydrologic Unit 15060102, in Fort Apache Indian Reservation, on right bank 2,200 ft downstream from highway bridge, 4.5 mi upstream from confluence with Black River, and 11 mi west of Fort Apache.

DRAINAGE AREA.--632 mi^2.

PERIOD OF RECORD.--October 1917 to September 1918 (published as "at Wanslee's Ranch"), October 1957 to current year. Monthly discharge only for some periods, published in WSP 1313.

REVISED RECORDS.--WRD Ariz. 1971: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 4,365.99 ft above sea level. Oct. 12, 1917, to Aug. 31, 1918, nonrecording gage at site 2,100 ft upstream at different datum.

REMARKS.--Small diversions above station for irrigation of about 1,460 acres. Negligible storage above station in several small recreational lakes.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft^3/s Dec. 18, 1978, gage height, 15.71 ft, from rating curve extended above 7,800 ft^3/s on basis of slope-area measurement of peak flow; no flow July 18-21, 1963.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	03-22-58	2,700		1978	03-01-78	6,590	
1959	07-28-59	4,900		1979	12-18-78	14,600	
1960	12-26-59	2,580		1980	02-15-80	8,160	
1961	08-29-61	3,590		1981	08-31-81	1,240	
1962	04-16-62	2,090		1982	03-13-82	2,130	
1963	08-26-63	1,970		1983	04-26-83	1,870	
1964	07-25-64	4,480		1984	10-02-83	9,410	
1965	07-28-65	2,870		1985	03-12-85	8,900	
1966	12-30-65	4,360		1986	08-27-86	3,780	
1967	07-22-67	8,180		1987	04-18-87	2,000	
1968	04-16-68	1,390		1988	08-31-88	1,590	
1969	04-07-69	1,190		1989	03-14-89	688	
1970	08-13-70	1,850		1990	07-07-90	1,640	
1971	08-12-71	8,670		1991	08-27-91	2,980	
1972	12-26-71	5,170		1992	08-24-92	3,020	
1973	04-29-73	4,680		1993	01-08-93	12,600	
1974	08-01-74	3,110		1994	09-03-94	1,770	
1975	04-27-75	1,930		1995	03-06-95	5,730	
1976	07-14-76	2,220		1996	09-03-96	1,770	
1977	07-24-77	1,980					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	1,480	11.0	7,230
6.0	2,140	12.0	8,590
7.0	2,930	13.0	10,060
8.0	3,830	14.0	11,650
9.0	4,850	15.0	13,350
10.0	5,980	15.7	14,600

09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
76.8	62.5	7,400	83.0	3.0	25.4	2.3	4.6

09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	774	31	110	150	1.4	4.3
NOVEMBER	218	35	87	55	0.63	3.4
DECEMBER	715	35	124	142	1.2	4.9
JANUARY	1,120	32	136	181	1.3	5.4
FEBRUARY	787	33	186	180	0.97	7.3
MARCH	1,160	49	377	290	0.77	15
APRIL	1,450	55	607	409	0.67	24
MAY	2,070	22	462	410	0.89	18
JUNE	602	6.9	162	161	0.99	6.4
JULY	187	3.9	72	44	0.62	2.8
AUGUST	388	26	122	84	0.69	4.8
SEPTEMBER	293	19	106	68	0.64	4.2
ANNUAL	487	50	212	124	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	22	9.9	5.9	3.4	0.00	0.00
3	23	11	6.8	4.2	0.00	0.00
7	29	12	6.2	3.2	1.4	0.73
14	31	14	8.2	4.9	2.5	1.6
30	34	18	12	8.2	5.1	3.7
60	42	26	20	16	12	9.8
90	47	34	29	26	23	21
120	54	39	34	30	27	25
183	68	48	41	37	33	31

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3,110	5,760	8,030	11,500	14,700	18,200

WEIGHTED SKEW (LOGS)= 0.16
MEAN (LOGS)= 3.50
STANDARD DEV. (LOGS)= 0.31

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-96

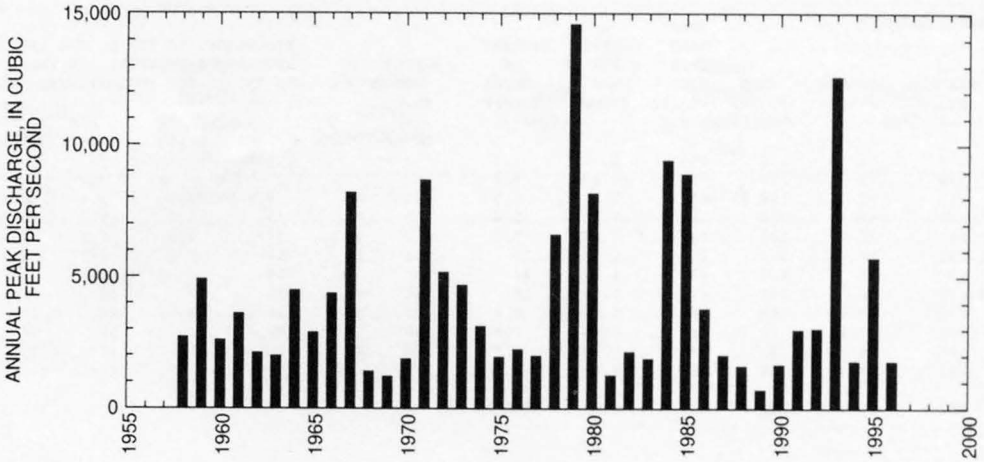
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	1,410	2,910	4,280	6,510	8,560	11,000
3	1,170	2,240	3,120	4,440	5,550	6,770
7	949	1,700	2,250	3,000	3,580	4,170
15	782	1,370	1,780	2,330	2,740	3,160
30	643	1,130	1,490	1,950	2,310	2,670
60	512	916	1,210	1,590	1,880	2,170
90	427	777	1,030	1,350	1,590	1,830

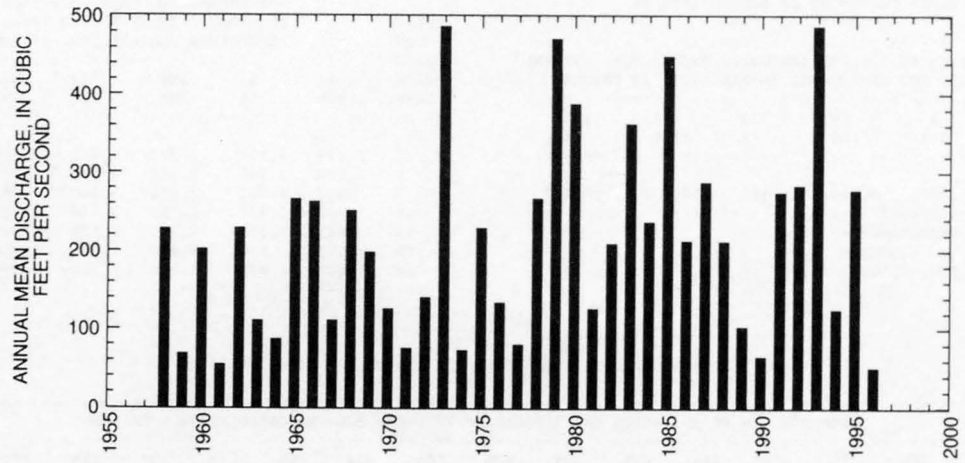
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 19584-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,580	856	567	407	297	172	122	90	70	56	46	35	25	0.00	0.00	0.00	0.00

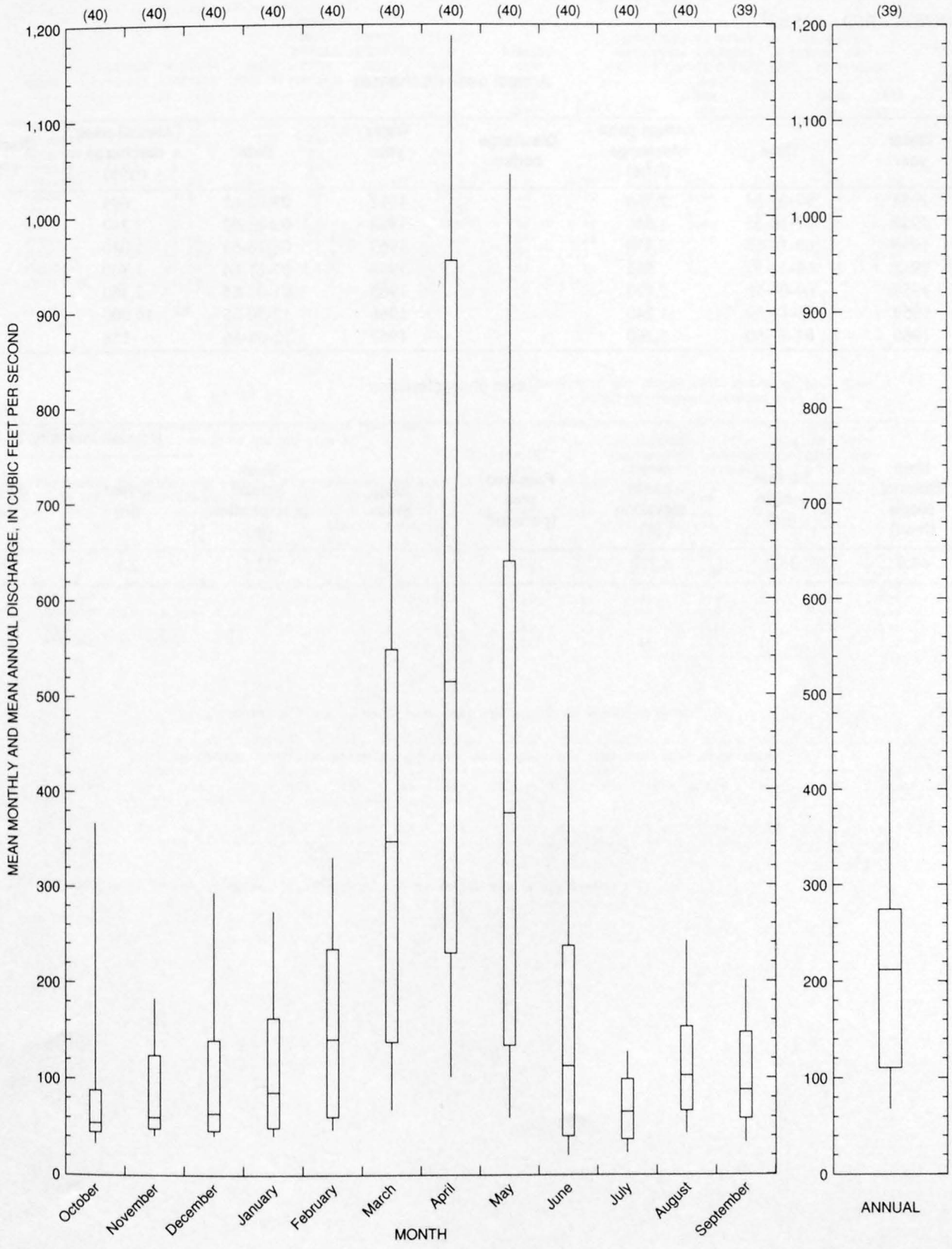
Reliability of values in column is uncertain, and potential errors are large.

09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued





09494000 WHITE RIVER NEAR FORT APACHE, AZ--Continued



09494300 CARRIZO CREEK ABOVE CORDUROY CREEK, NEAR SHOW LOW, AZ

LOCATION.--Lat 34°00'00", long 110°17'20", in sec.13, T.7 N., R.19 E., Navajo County, Hydrologic Unit 15060104 (unsurveyed), in Fort Apach Indian Reservation, on left bank 0.5 mi upstream from Corduroy Creek and 23 mi southwest of Show Low.

DRAINAGE AREA.--225 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1954	07-09-54	2,760		1961	09-06-61	694	
1955	08-18-55	1,850		1962	02-13-62	340	
1956	08-14-56	2,470		1963	08-26-63	3,040	
1957	08-31-57	935		1964	07-21-64	1,860	
1958	09-04-58	2,870		1965	01-07-65	2,360	
1959	08-19-59	1,240		1966	12-30-65	10,000	
1960	01-11-60	3,260		1967	12-08-66	158	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
64.9	35.0	6,370	97.0	3.0	22.5	2.3	4.8

09494300 CARRIZO CREEK ABOVE CORDUROY CREEK, NEAR SHOW LOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1954-66

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6.8	0.12	2.8	2.2	0.77	2.0
NOVEMBER	54	0.87	7.8	14	1.8	5.5
DECEMBER	301	2.0	35	85	2.4	24.6
JANUARY	135	3.5	25	39	1.6	17.5
FEBRUARY	46	3.5	15	14	0.94	10.3
MARCH	94	3.8	29	30	1.0	20.1
APRIL	44	3.2	12	12	1.0	8.2
MAY	8.8	1.3	4.1	2.7	0.65	2.9
JUNE	3.5	0.01	1.2	1.3	1.1	0.8
JULY	9.7	0.00	2.0	2.9	1.4	1.4
AUGUST	31	0.00	6.4	8.3	1.3	4.5
SEPTEMBER	10	0.00	3.1	3.4	1.1	2.2
ANNUAL	40	3.1	12	13	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1955-67

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20 5%	50# 2%	100# 1%
1						
3						
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.01	0.00	0.00	0.00	0.00	0.00
60	0.38	0.00	0.00	0.00	0.00	0.00
90	0.82	0.34	0.16	0.00	0.00	0.00
120	1.6	0.72	0.40	0.23	0.11	0.06
183	3.1	1.8	1.1	0.71	0.37	0.22

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1954-67

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1,870	3,580	5,020	7,220	9,140	11,300

WEIGHTED SKEW (LOGS)= 0.01
MEAN (LOGS)= 3.27
STANDARD DEV. (LOGS)= 0.33

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1954-66

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25 4%	50# 2%	100# 1%
1	269	918	1,800	3,760	6,140	9,620
3	144	511	1,020	2,160	3,540	5,570
7	83	267	503	1,010	1,590	2,430
15	51	153	279	538	834	1,250
30	33	97	179	359	574	889
60	21	61	109	213	334	507
90	16	46	85	169	271	421

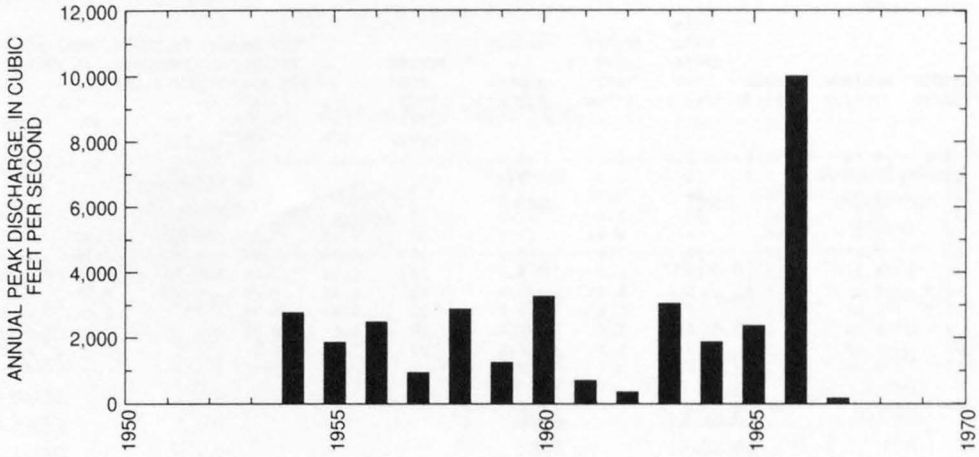
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-66

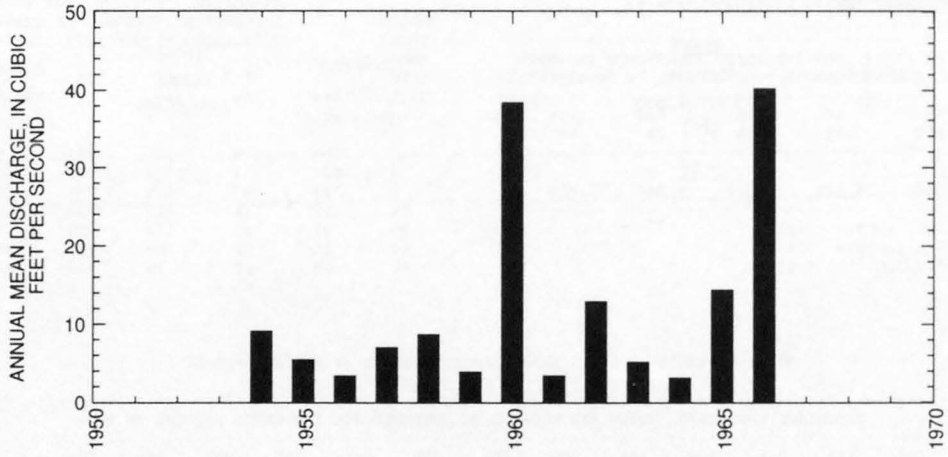
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
144	37	17	9.7	7.0	5.4	4.4	3.7	2.8	1.7	0.63	0.00	0.00	0.00	0.00	0.00	0.00

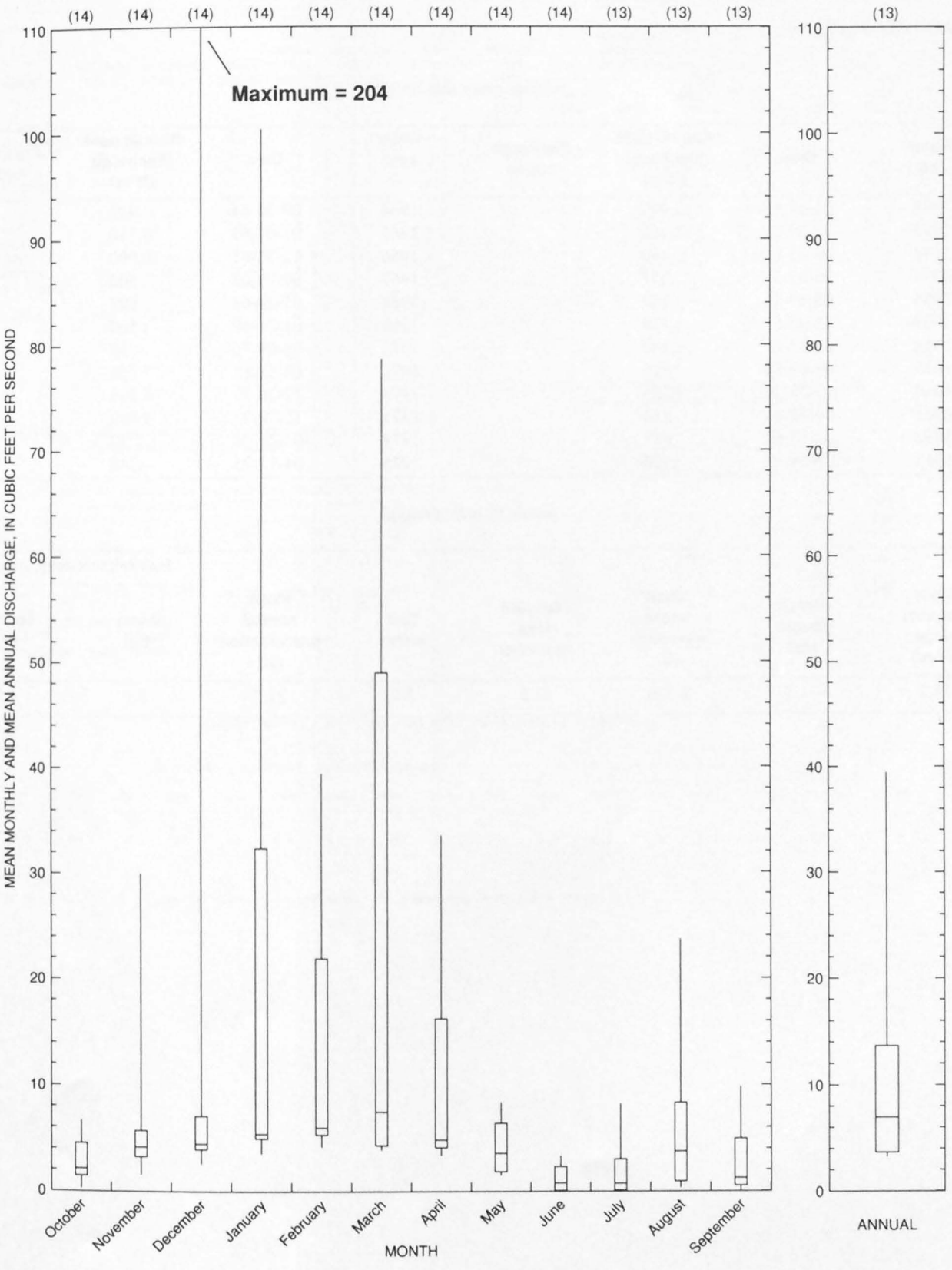
Reliability of values in column is uncertain, and potential errors are large.

09494300 CARRIZO CREEK ABOVE CORDUROY CREEK, NEAR SHOW LOW, AZ--Continued





09494300 CARRIZO CREEK ABOVE CORDUROY CREEK, NEAR SHOW LOW, AZ--Continued



09496000 CORDUROY CREEK NEAR MOUTH, NEAR SHOW LOW, AZ

LOCATION.--Lat 34°01'06", long 110°14'30", in sec.8, T.7 N., R.20 E. (unsurveyed), Navajo County, Hydrologic Unit 15060104, in Fort Apache Indian Reservation, on right bank 4 mi upstream from mouth and 20 mi southwest of Show Low.

DRAINAGE AREA.--203 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1952	01-18-52	10,900		1964	07-30-64	402	
1953	07-29-53	1,200		1965	01-07-65	4,510	
1954	03-23-54	2,450		1966	12-30-65	10,900	
1955	08-07-55	257		1967	07-29-67	505	
1956	08-17-56	149		1968	01-28-68	902	
1957	08-02-57	1,420		1969	01-27-69	504	
1958	03-22-58	1,140		1970	08-09-70	38	
1959	08-19-59	316		1971	08-13-71	366	
1960	12-25-59	3,500		1972	12-26-71	8,500	
1961	08-22-61	512		1973	10-20-72	7,600	
1962	02-13-62	841		1974	03-21-74	50	
1963	09-09-63	7,150		1975	04-12-75	348	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
71.2	31.5	6,370	93.0	3.0	21.7	2.1	4.5

09496000 CORDUROY CREEK NEAR MOUTH, NEAR SHOW LOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1952-75

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	161	1.6	13	36	2.8	4.6
NOVEMBER	94	1.8	11	24	2.2	4.0
DECEMBER	347	1.2	35	80	2.3	12.7
JANUARY	434	1.8	45	94	2.1	16.3
FEBRUARY	260	2.0	40	72	1.8	14.7
MARCH	429	2.0	65	91	1.4	23.9
APRIL	191	1.8	27	43	1.6	9.8
MAY	72	1.3	12	16	1.4	4.3
JUNE	28	1.3	7.8	9.2	1.2	2.8
JULY	31	1.4	7.8	8.8	1.1	2.8
AUGUST	24	1.6	7.5	6.4	0.85	2.7
SEPTEMBER	18	1.5	3.6	3.5	0.98	1.3
ANNUAL	115	2.3	23	27	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1953-75

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	1.3	1.0	0.90	0.80	0.70	0.63
3	1.3	1.0	0.91	0.81	0.69	0.62
7	1.3	1.1	0.95	0.85	0.74	0.67
14	1.4	1.2	1.0	0.94	0.84	0.77
30	1.6	1.3	1.2	1.1	0.98	0.90
60	1.7	1.5	1.4	1.3	1.2	1.1
90	1.9	1.7	1.6	1.5	1.5	1.4
120	2.1	1.8	1.7	1.7	1.6	1.5
183	2.4	2.0	1.9	1.8	1.8	1.8

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1952-75

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
1,070	3,650	6,980	14,000	22,000	33,200

WEIGHTED SKEW (LOGS)= 0.05
MEAN (LOGS)= 3.03
STANDARD DEV. (LOGS)= 0.63

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1952-75

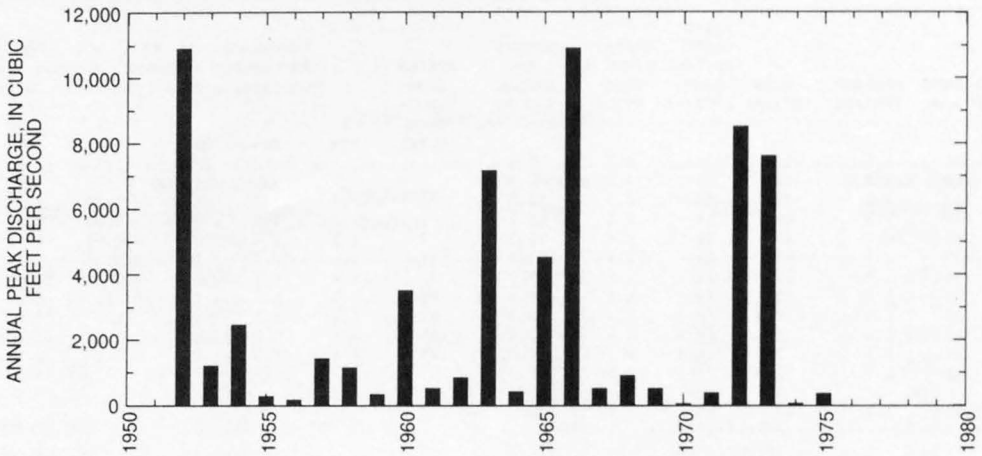
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	287	1,290	2,830	6,510	11,200	18,100
3	179	745	1,540	3,280	5,310	8,130
7	110	441	893	1,860	2,950	4,460
15	71	270	532	1,080	1,700	2,540
30	49	186	368	756	1,200	1,800
60	34	123	240	482	754	1,120
90	27	98	191	388	612	919

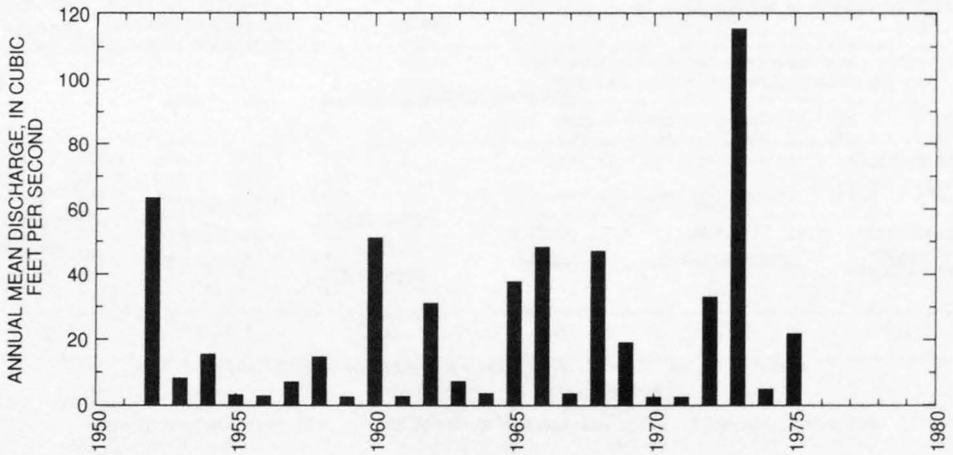
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1952-75

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
364	80	35	26	20	7.6	3.2	2.6	2.3	2.1	1.8	1.6	1.4	1.2	1.1	0.98	0.78

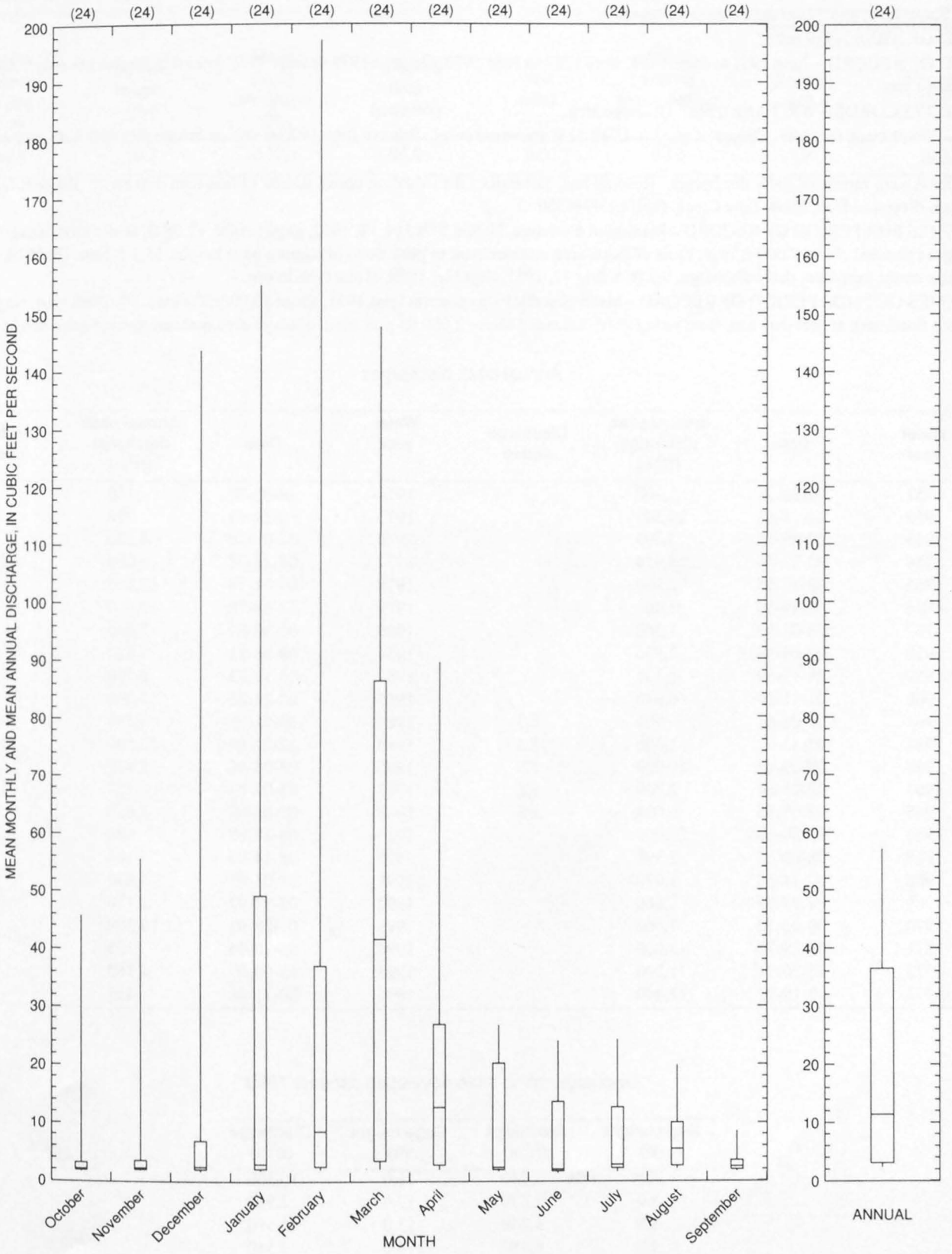
Reliability of values in column is uncertain, and potential errors are large.

09496000 CORDUROY CREEK NEAR MOUTH, NEAR SHOW LOW, AZ--Continued





09496000 CORDUROY CREEK NEAR MOUTH, NEAR SHOW LOW, AZ--Continued



09496500 CARRIZO CREEK NEAR SHOW LOW, AZ

LOCATION.--Lat 33°59'09", long 110°16'49", in sec.24, T.7 N., R.19 E. (unsurveyed), Gila County, Hydrologic Unit 15060104, in Fort Apach Indian Reservation, on right bank 500 ft upstream from bridge on U.S. Highway 60, 1 mi downstream from Corduroy Creek, 23 mi southwes of Show Low, and 24 mi upstream from mouth.

DRAINAGE AREA.--439 mi^2.

PERIOD OF RECORD.--June 1951 to June 1961, June 1967 to June 1976, October 1975 to June 1976 (monthly discharges only), April 1977 t current year.

REVISED RECORDS.--WRD Ariz. 1968: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,749.52 ft above sea level. Prior to June 1976 at site on bridge pier 400 ft downstream at sam datum.

REMARKS.--No estimated daily discharges. Records fair. Diversions for irrigation above station of less than 300 acres. Records include tran basin diversion from Show Low Creek. (See sta 09495000.)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft^3/s Jan. 18, 1952, gage height, 12.08 ft, at site then in use, from ratin curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 15.1 ft Dec. 18, 1978, from high water mark; minimum daily discharge, 0.2 ft^3/s July 12, 1951, Sept. 21, 1959, at site then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1951, about 23,000 ft^3/s Dec. 30, 1965, gage height, 13.0 f from floodmark at previous site, from rating curve extended above 2,000 ft^3/s on basis of slope-area measurement at gage height 12.08 ft.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1951	08-28-51	3,260		1974	08-03-74	160	
1952	01-18-52	20,500		1975	10-29-74	726	
1953	07-29-53	3,200		1976	02-09-76	4,220	
1954	03-23-54	3,910		1977	08-11-77	5,060	
1955	08-18-55	2,060		1978	03-01-78	12,700	
1956	08-14-56	2,400		1979	12-18-78	19,400	
1957	08-02-57	1,360		1980	01-30-80	2,880	
1958	09-04-58	2,920		1981	08-08-81	1,420	
1959	08-19-59	1,560		1982	08-11-82	2,250	
1960	01-11-60	6,980		1983	03-24-83	2,060	
1961	09-06-61	900	ES	1984	10-01-83	3,580	
1962	02-13-62	1,200	ES	1985	12-27-84	12,800	
1963	09-09-63	10,000	ES	1986	08-08-86	2,830	
1964	07-21-64	2,000	ES	1987	03-07-87	763	
1965	01-07-65	6,000	ES	1988	02-03-88	3,650	
1966	12-30-65	23,000		1989	08-18-89	600	
1967	08-09-67	2,590		1990	08-14-90	184	
1968	02-14-68	1,070		1991	03-01-91	4,490	
1969	01-27-69	1,060		1992	02-13-92	2,170	
1970	09-06-70	1,960		1993	01-08-93	19,300	
1971	09-29-71	2,000		1994	03-20-94	305	
1972	12-26-71	11,200		1995	03-06-95	4,160	
1973	10-19-72	12,400		1996	09-11-96	452	

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	2,340	11.0	10,500
7.0	3,470	12.0	12,910
8.0	4,850	13.0	15,590
9.0	6,480	14.0	18,540
10.0	8,360	14.4	19,800

09496500 CARRIZO CREEK NEAR SHOW LOW, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
61.8	36.7	6,320	95.0	3.0	22.0	2.2	4.6

09496500 CARRIZO CREEK NEAR SHOW LOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1952-60, 1968-75, 1978-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	397	1.6	30	75	2.5	4.7
NOVEMBER	147	2.5	23	33	1.5	3.5
DECEMBER	762	3.9	78	151	1.9	12.0
JANUARY	1,030	5.4	104	211	2.0	16.0
FEBRUARY	965	6.3	133	214	1.6	20.4
MARCH	698	6.1	157	176	1.1	24.2
APRIL	350	5.3	51	70	1.4	7.9
MAY	154	2.4	21	26	1.3	3.2
JUNE	41	0.87	13	11	0.88	1.9
JULY	41	1.3	13	11	0.86	2.0
AUGUST	42	3.2	17	10	0.61	2.6
SEPTEMBER	30	0.91	11	8.0	0.74	1.7
ANNUAL	201	5.8	54	54	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1953-61, 1969-75, 1979-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	1.9	0.78	0.48	0.31	0.20	0.14
3	2.0	0.85	0.54	0.37	0.24	0.18
7	2.2	0.98	0.64	0.45	0.30	0.23
14	2.5	1.1	0.76	0.54	0.36	0.28
30	3.2	1.5	1.0	0.70	0.47	0.35
60	4.7	2.4	1.6	1.2	0.79	0.61
90	5.9	3.3	2.4	1.8	1.3	1.0
120	6.9	4.1	3.1	2.4	1.8	1.5
183	8.9	5.8	4.8	4.1	3.4	3.1

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1951-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,850	7,020	11,400	19,200	27,000	36,900

WEIGHTED SKEW (LOGS)= 0.11
MEAN (LOGS)= 3.46
STANDARD DEV. (LOGS)= 0.46

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1952-60, 1968-75, 1978-96

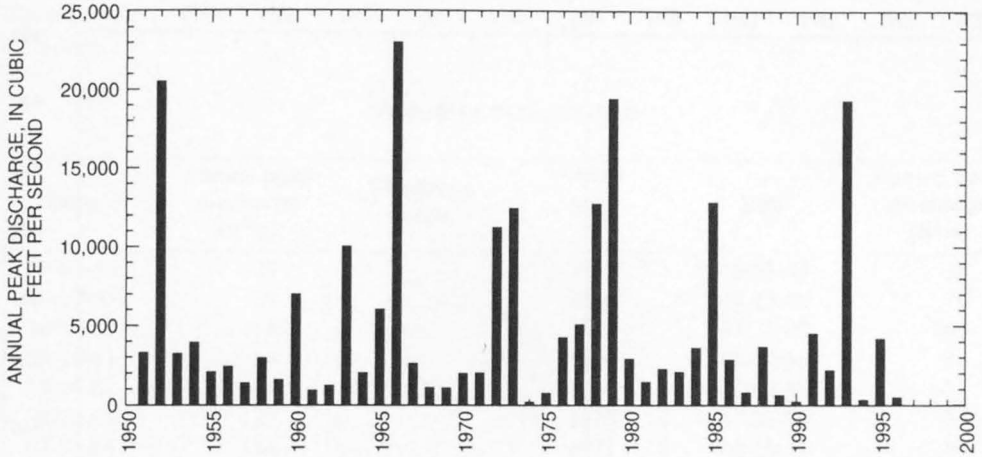
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	837	2,930	5,540	10,800	16,500	24,000
3	561	1,920	3,490	6,400	9,310	12,900
7	352	1,140	2,010	3,590	5,140	7,020
15	216	677	1,190	2,140	3,080	4,250
30	150	452	785	1,390	1,990	2,720
60	104	305	521	907	1,290	1,750
90	84	244	416	719	1,010	1,370

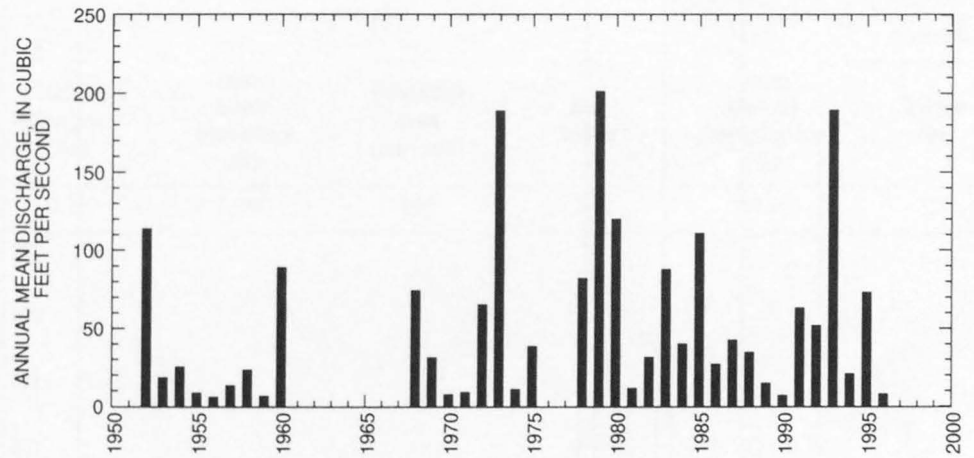
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1952-60, 1968-75, 1978-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
738	204	83	48	35	24	17	12	8.7	6.6	5.0	2.8	1.7	1.0	0.79	0.61	0.42

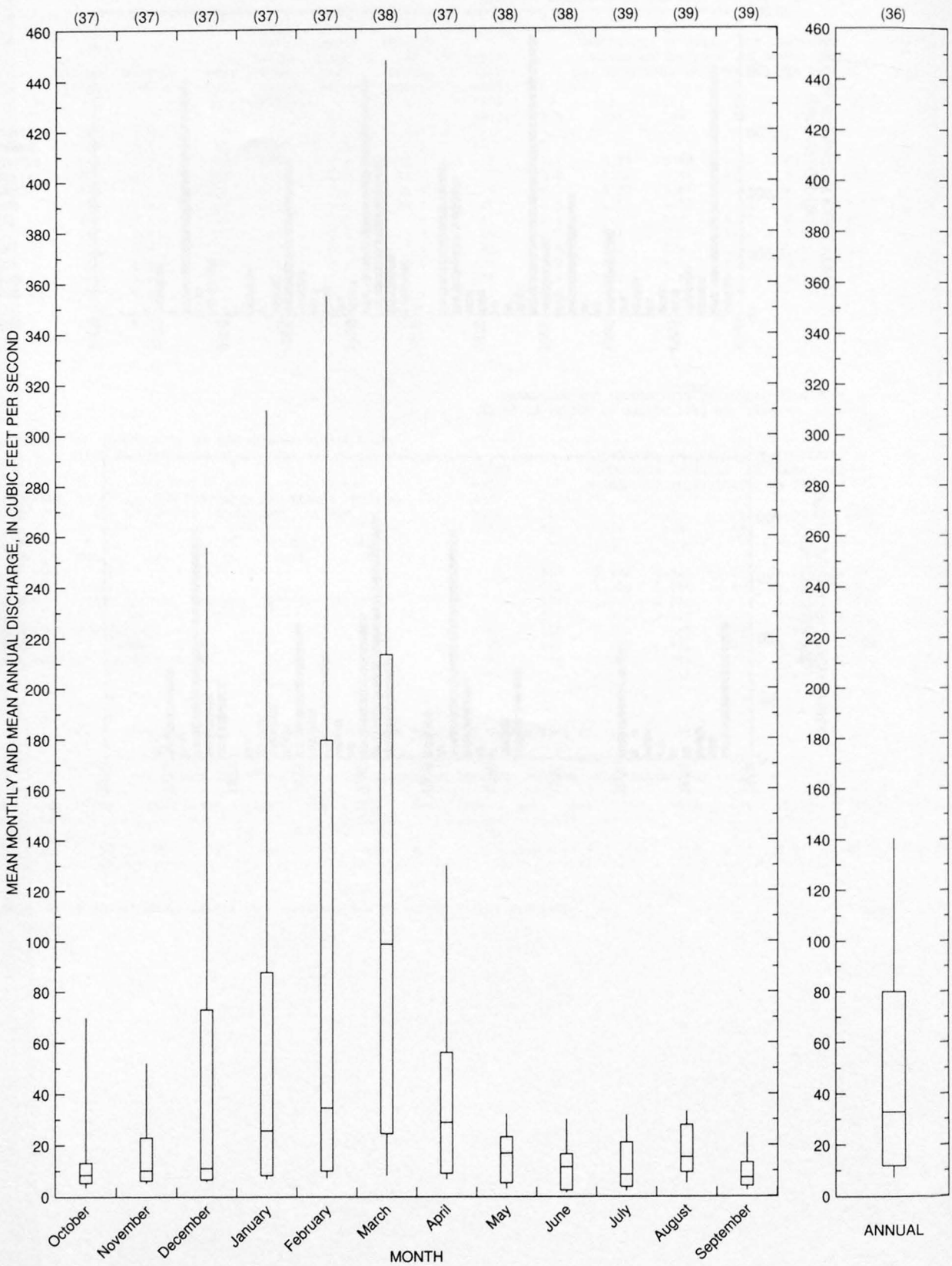
Reliability of values in column is uncertain, and potential errors are large.

09496500 CARRIZO CREEK NEAR SHOW LOW, AZ--Continued





09496500 CARRIZO CREEK NEAR SHOW LOW, AZ--Continued



09496600 CIBECUE NO. 1, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ

LOCATION.--Lat 33°59'28", long 110°19'27", in NW$^1/_4$ sec.22, T.7 N., R.19 E. (unsurveyed), Gila County, Hydrologic Unit 15060104, in Fort Apache Indian Reservation, on an unnamed tributary to Carrizo Creek, on Cibecue Ridge, 3.0 mi upstream from mouth of main stem, and 25 mi southwest of Show Low.

DRAINAGE AREA.--0.10 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	09-04-58	24		1965	09-03-65	38	
1959	08-17-59	39		1966	07-23-66	76	
1960	10-29-59	8.3		1967	07-27-67	165	
1961	08-18-61	16		1968	08-09-68	27	
1962	07-26-62	75	ES	1969	08-02-69	61	
1963	08-26-63	127		1970	07-23-70	16	
1964	07-31-64	134		1971	08-15-71	40	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
364	0.30	5,390	100	3.0	18.0	1.9	4.1

09496600 CIBECUE NO. 1, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1959-71

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.05	0.00	0.01	0.02	1.6	9.5
NOVEMBER	0.01	0.00	0.00	0.01	1.1	3.6
DECEMBER	0.07	0.00	0.01	0.02	2.4	6.5
JANUARY	0.00	0.00	0.00	0.00		0.0
FEBRUARY	0.00	0.00	0.00	0.00		0.0
MARCH	0.00	0.00	0.00	0.00		0.0
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.00	0.00	0.00	0.00		0.0
JUNE	0.00	0.00	0.00	0.00		0.0
JULY	0.27	0.00	0.04	0.08	1.8	34.5
AUGUST	0.13	0.00	0.04	0.04	1.0	32.1
SEPTEMBER	0.06	0.00	0.02	0.02	1.0	13.7
ANNUAL	0.03	0.00	0.01	0.01	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1960-71

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	1.9	1.1	0.61	0.45	0.36	0.23
3	0.75	0.41	0.22	0.16	0.12	0.07
7	0.41	0.22	0.12	0.09	0.07	0.04
14						
30						
60						
90						
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-71

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
44	92	133	195	248	307

WEIGHTED SKEW (LOGS)= -0.17
MEAN (LOGS)= 1.64
STANDARD DEV. (LOGS)= 0.40

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1959-71

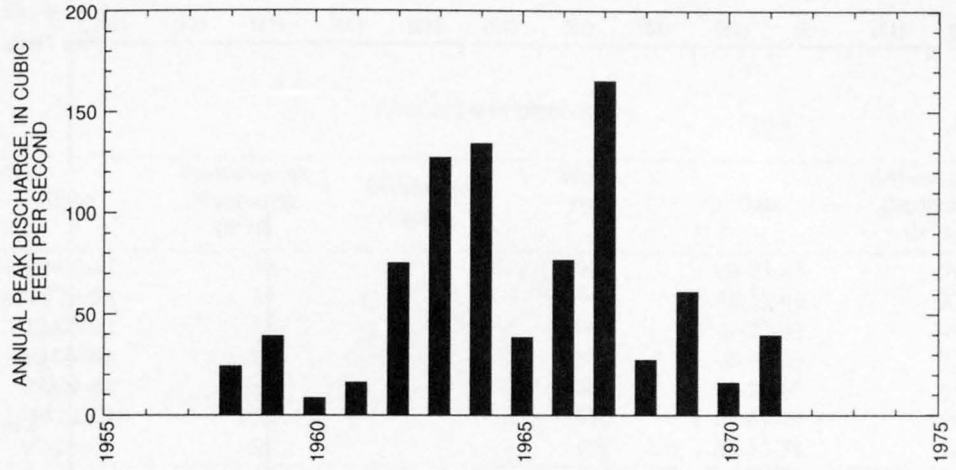
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1						
3						
7						
15	0.12	0.24	0.35	0.54	0.73	0.97
30	0.07	0.13	0.20	0.32	0.44	0.60
60	0.04	0.07	0.11	0.17	0.24	0.33
90	0.03	0.05	0.08	0.12	0.17	0.23

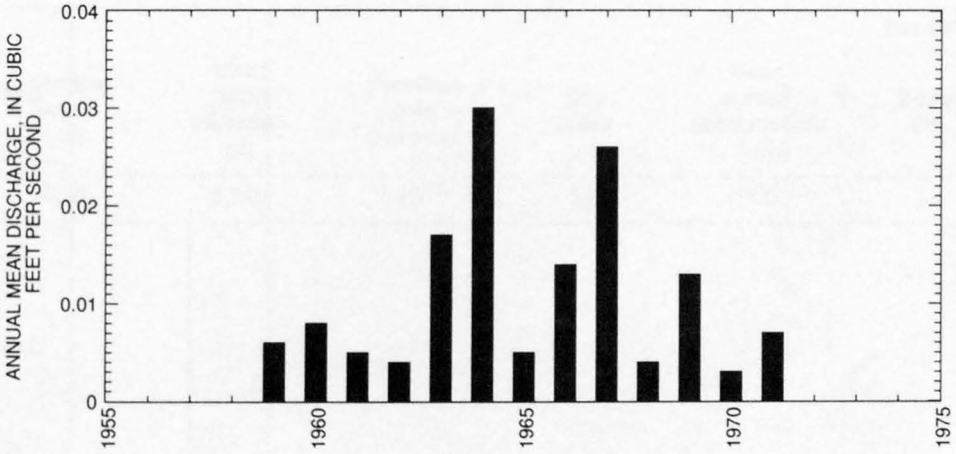
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1959-71

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

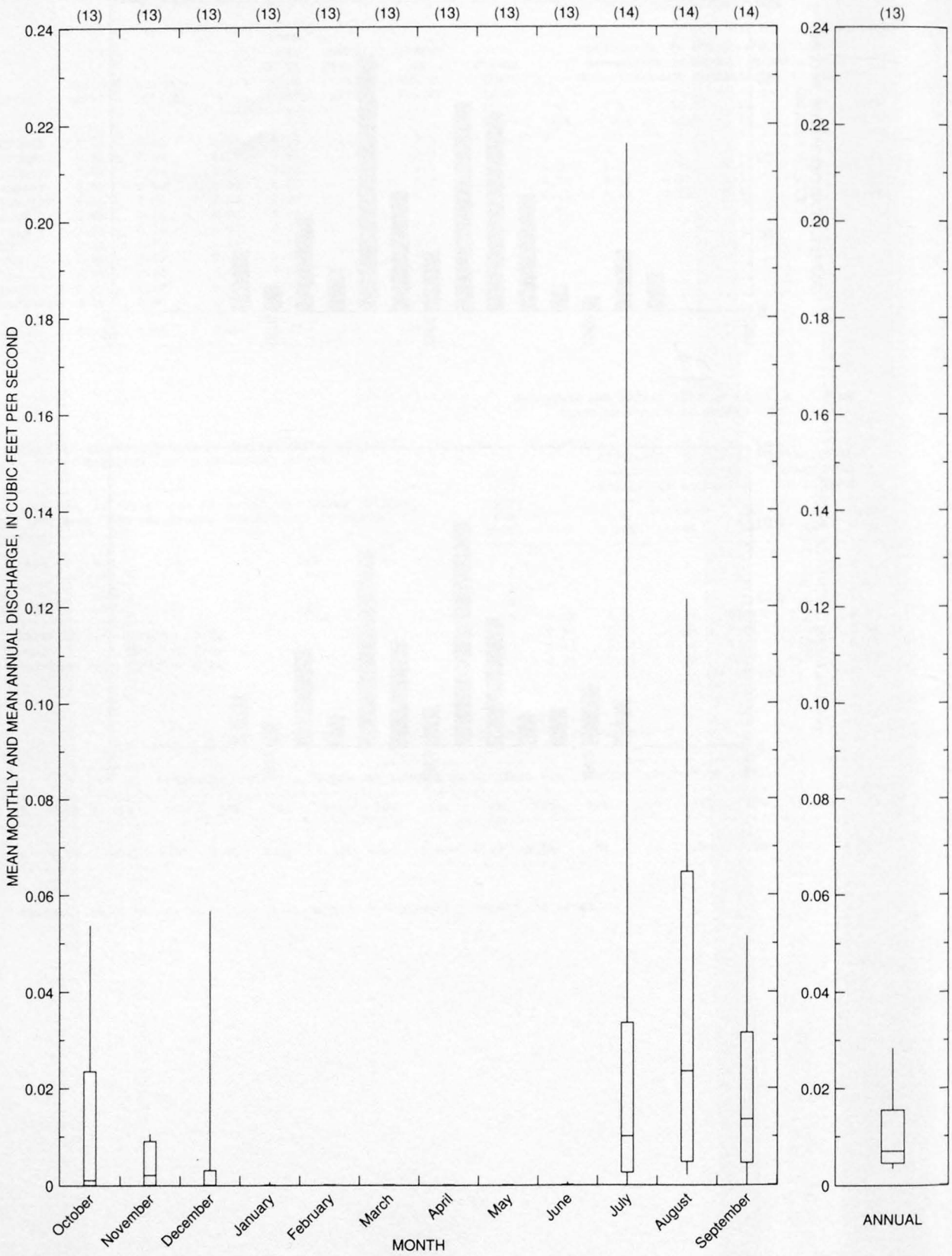
Reliability of values in column is uncertain, and potential errors are large.

09496600 CIBECUE NO. 1, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued





09496600 CIBECUE NO. 1, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued



09496700 CIBECUE NO. 2, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ

LOCATION.--Lat 33°59'17", long 110°18'38", in NE$^1/_4$ sec.22, T.7 N., R.19 E. (unsurveyed), Gila County, Hydrologic Unit 15060104, in Fort Apache Indian Reservation, on an unnamed tributary to Carrizo Creek, on Cibecue Ridge, 2.0 mi upstream from mouth of main stem, and 25 mi southwest of Show Low.

DRAINAGE AREA.--0.07 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	09-04-58	30		1965	09-03-65	96	
1959	08-19-59	34		1966	09-13-66	27	
1960	12-25-59	11		1967	07-27-67	49	
1961	09-06-61	25		1968	08-09-68	22	
1962	07-29-62	75		1969	07-28-69	45	
1963	08-20-63	120		1970	08-09-70	39	
1964	07-26-64	66		1971	08-12-71	51	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
200	0.40	5,240	100	3.0	18.0	2.0	4.1

09496700 CIBECUE NO. 2, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1959-71

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.05	0.00	0.01	0.01	1.6	9.0
NOVEMBER	0.01	0.00	0.00	0.00	1.6	3.0
DECEMBER	0.09	0.00	0.01	0.03	2.2	11.9
JANUARY	0.03	0.00	0.00	0.01	2.8	3.0
FEBRUARY	0.00	0.00	0.00	0.00		0.0
MARCH	0.01	0.00	0.00	0.00	3.6	0.7
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.00	0.00	0.00	0.00		0.0
JUNE	0.00	0.00	0.00	0.00		0.0
JULY	0.13	0.00	0.02	0.04	1.8	18.7
AUGUST	0.21	0.00	0.04	0.06	1.5	36.6
SEPTEMBER	0.06	0.00	0.02	0.02	1.1	17.2
ANNUAL	0.03	0.00	0.01	0.01	0.93	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1960-71

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	1.3	0.77	0.51	0.42	0.36	0.28
3	0.52	0.32	0.20	0.16	0.13	0.09
7	0.29	0.16	0.09	0.07	0.06	0.04
14						
30						
60						
90						
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-71

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
43	69	88	116	138	161

WEIGHTED SKEW (LOGS)= 0.05
MEAN (LOGS)= 1.63
STANDARD DEV. (LOGS)= 0.24

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1959-71

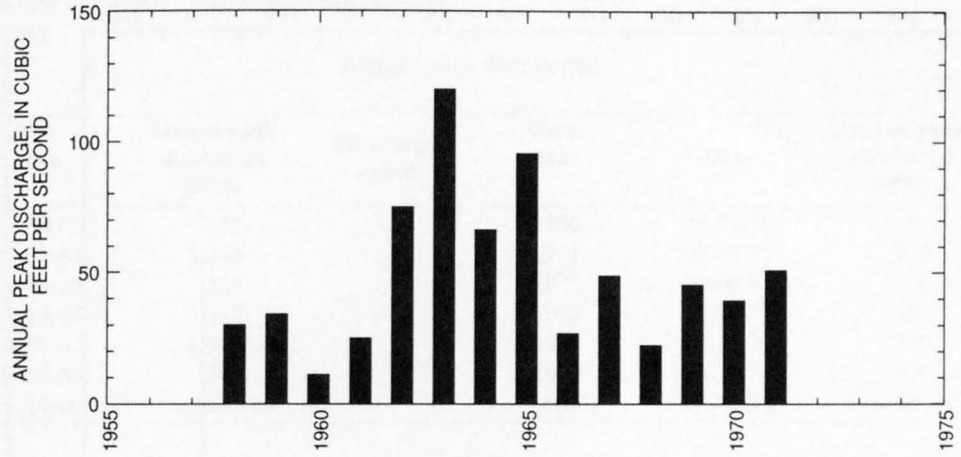
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1						
3						
7						
15	0.09	0.18	0.25	0.35	0.44	0.55
30	0.06	0.10	0.15	0.22	0.29	0.37
60	0.03	0.06	0.09	0.13	0.17	0.22
90	0.02	0.04	0.06	0.10	0.13	0.17

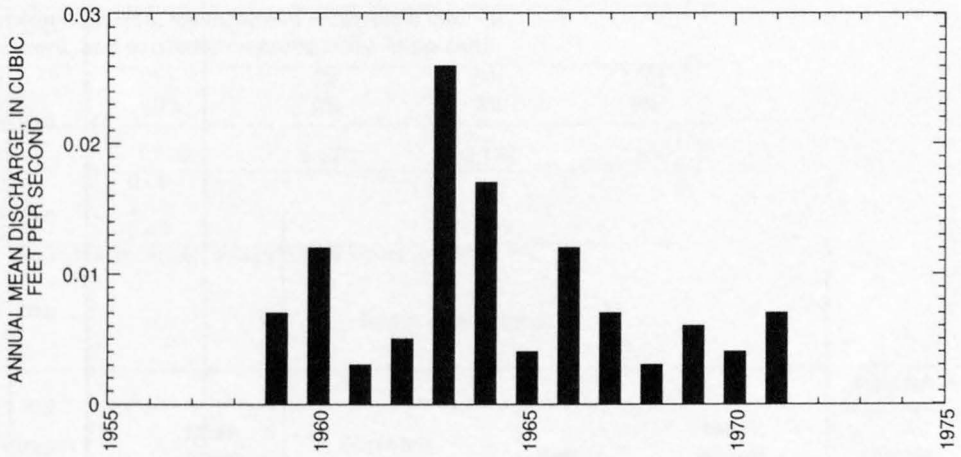
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1959-71

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

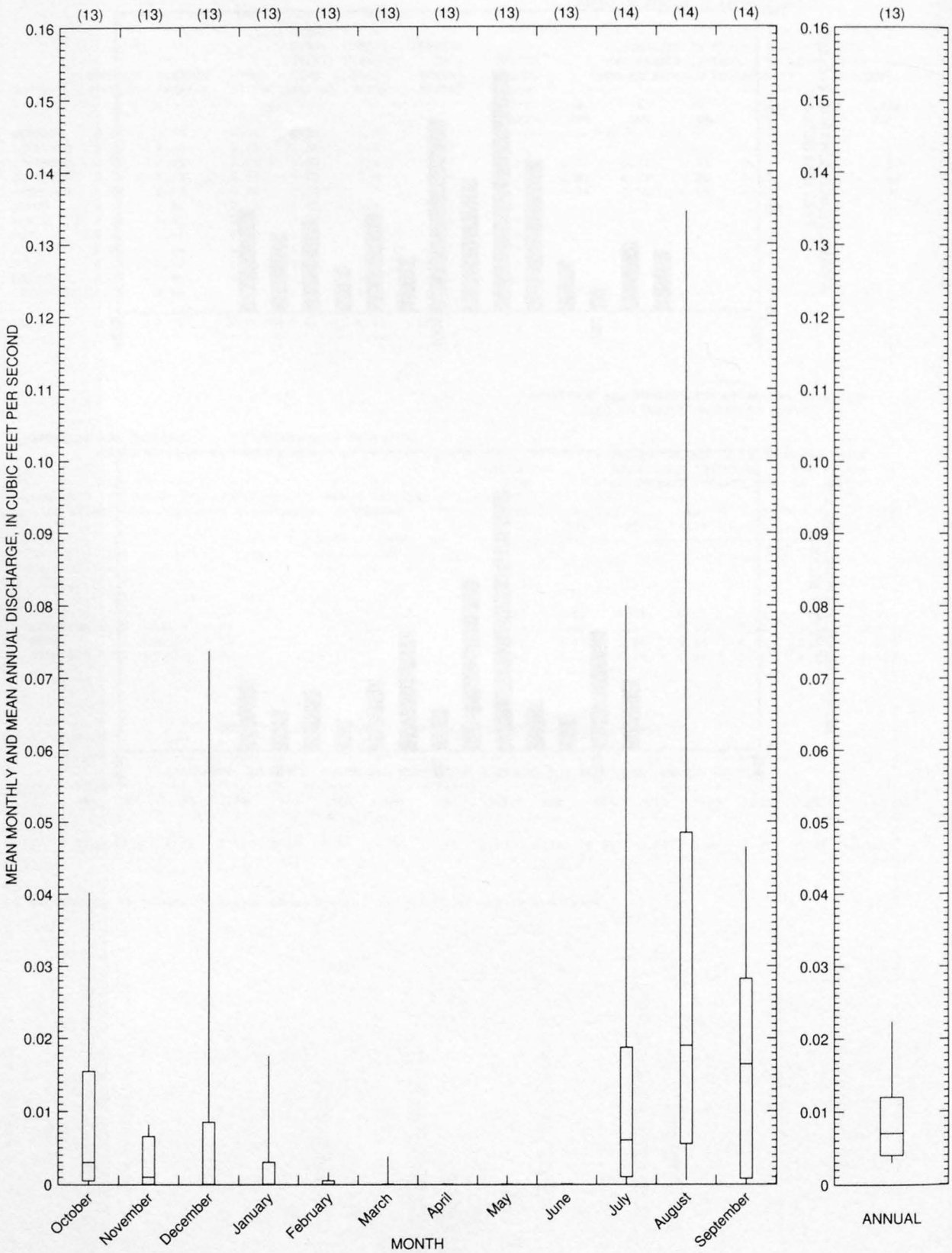
Reliability of values in column is uncertain, and potential errors are large.

09496700 CIBECUE NO. 2, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued





09496700 CIBECUE NO. 2, TRIBUTARY TO CARRIZO CREEK, NEAR SHOW LOW, AZ--Continued



09496800 CARRIZO CREEK TRIBUTARY NEAR SHOW LOW, AZ

LOCATION.--Lat 33°57'16", long 110°19'53", Gila County, Hydrologic Unit 15060104, at U.S. Highway 60, 28 mi southwest of Show Low.
DRAINAGE AREA.--4.63 mi^2, of which 2.08 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-09-63	655		1970	08-04-70	290	
1964	07-31-64	1,260		1971	08-00-71	930	
1965	09-03-65	286		1972	00-00-72	0	
1966	07-24-66	112		1973	10-19-72	150	
1967	07-27-67	1,090		1974	07-19-74	750	
1968	08-09-68	200		1975	10-29-74	130	
1969	11-14-68	150		1976	00-00-76	100	

Magnitude and probability of instantaneous peak flow based on period of record 1963-76

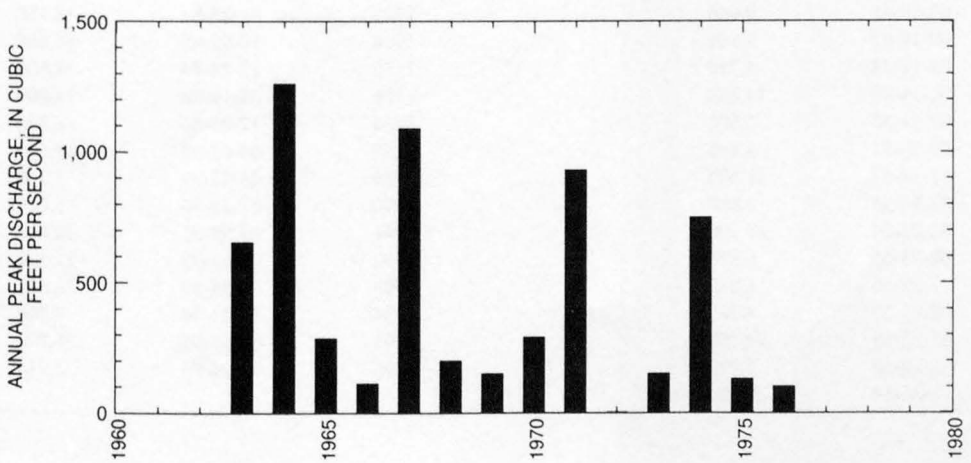
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
287	660	1,020	1,620	2,180	2,850

Weighted skew	(logs) =	0.00
Mean	(logs) =	2.46
Standard dev.	(logs) =	0.43

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
306	1.7	5,810	90.0	3.0	20.0	1.9	4.2



09497500 SALT RIVER NEAR CHRYSOTILE, AZ

LOCATION.--Lat 33°47'53", long 110°29'57", in sec.25, T.5 N., R.17 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in San Carlos Indian Reservation, on left bank 1,200 ft upstream from bridge on U.S. Highway 60, 5.7 mi northeast of Chrysotile, 8 mi upstream from Cibecue Creek, and 33 mi downstream from confluence of Black and White Rivers.

DRAINAGE AREA.--2,849 mi^2.

PERIOD OF RECORD.--September 1924 to current year (monthly discharge only July to December 1954).

REVISED RECORDS.--WSP 859: 1926-27, 1929-30, 1934, 1936. WSP 899: 1927, 1932, 1937, 1938(M). WSP 1313: 1925-26(M), 1929-30(M), 1935-36(M), 1944(M). WSP 1343: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,354.57 ft above sea level.

REMARKS.--No estimated daily discharages. Records fair. Several diversions for irrigation above station of about 3,100 acres, one diversion into the basin (see record of Forestdale Creek diversion from Show Low Creek, near Show Low), and one diversion out of the basin (see record of Willow Creek diversion from Black River, near Morenci).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,600 ft^3/s Jan. 8, 1993, gage height, 18.33 ft, from rating curve extended above 52,000 ft^3/s; minimum, 49 ft^3/s July 6, 7, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood peak of 74,000 ft^3/s occurred prior to 1924 and is believed to be the peak of the flood of Jan. 19, 1916, gage height, 18 ft, from floodmarks, from rating curve extended above 52,000 ft^3/s.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	16-01-19	[1]74,000	HP	1961	08-30-61	2,130	
1925	25-03-08	6,930		1962	01-25-62	5,630	
1926	26-04-06	13,600		1963	02-11-63	6,220	
1927	27-02-17	19,900		1964	07-26-64	2,780	
1928	28-07-21	1,670		1965	01-08-65	15,800	
1929	29-09-23	11,500		1966	12-30-65	41,100	
1930	30-08-11	11,700		1967	08-12-67	5,060	
1931	31-02-15	7,400		1968	01-28-68	8,730	
1932	32-02-10	40,000		1969	10-04-68	4,940	
1933	33-02-28	2,880		1970	09-06-70	5,000	
1934	34-08-20	3,850		1971	08-13-71	20,400	
1935	35-04-09	15,700		1972	12-26-71	23,300	
1936	36-02-17	13,200		1973	10-20-72	42,100	
1937	37-02-07	52,900		1974	08-06-74	1,680	
1938	38-03-04	19,000		1975	10-29-74	7,080	
1939	39-04-05	8,530		1976	02-10-76	6,070	
1940	40-08-15	6,300		1977	07-23-77	3,760	
1941	41-03-14	52,200		1978	03-02-78	46,700	
1942	42-01-13	5,380		1979	12-18-78	70,400	
1943	43-03-05	12,800		1980	02-15-80	58,300	
1944	43-10-19	2,380		1981	04-14-81	2,060	
1945	03-27-45	4,450		1982	02-11-82	13,200	
1946	09-19-46	9,600		1983	03-25-83	15,700	
1947	09-18-47	8,160		1984	10-02-83	56,600	
1948	04-12-48	5,730		1985	12-28-84	34,600	
1949	01-14-49	14,200		1986	02-16-86	14,000	
1950	07-21-50	2,500		1987	12-08-86	8,370	
1951	08-29-51	5,150		1988	09-02-88	10,600	
1952	01-14-52	51,500		1989	03-12-89	1,740	
1953	07-30-53	3,680		1990	07-22-90	8,610	
1954	03-23-54	28,700		1991	03-02-91	38,800	
1955	08-23-55	8,820		1992	02-14-92	21,300	
1956	01-29-56	1,640		1993	01-08-93	[2]76,600	
1957	08-02-57	3,760		1994	03-21-94	7,760	
1958	03-22-58	19,700		1995	03-06-95	25,700	
1959	08-20-59	7,290		1996	09-14-96	2,940	
1960	12-26-59	26,200					

[1]Highest since 1906.

[2]Highest since 1916.

09497500 SALT RIVER NEAR CHRYSOTILE, AZ--Continued

Discharge rating table developed September 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	2,020	17.0	64,270
5.0	3,500	19.0	83,250
7.0	7,700	21.0	105,000
9.0	14,060	23.0	129,500
11.0	22,990	25.0	156,800
13.0	34,220	27.0	187,100
15.0	47,960	27.8	200,000

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
31.9	155	6,730	81.0	3.0	22.8	2.2	4.4

09497500 SALT RIVER NEAR CHRYSOTILE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1925-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3,780	79	342	558	1.6	4.2
NOVEMBER	1,300	113	276	222	0.80	3.4
DECEMBER	3,980	113	506	757	1.5	6.2
JANUARY	7,940	130	659	1,110	1.7	8.1
FEBRUARY	6,180	145	917	1,110	1.2	11
MARCH	6,030	175	1,500	1,260	0.84	18
APRIL	4,850	170	1,740	1,300	0.75	21
MAY	5,070	106	923	909	0.98	11
JUNE	1,180	74	317	253	0.80	3.9
JULY	547	91	223	100	0.45	2.7
AUGUST	1,250	135	403	240	0.60	5.0
SEPTEMBER	1,180	68	344	246	0.71	4.2
ANNUAL	2,090	184	678	456	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1926-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1	103	78	68	60	53	49
3	105	80	69	61	54	49
7	109	83	72	64	56	52
14	117	89	77	69	60	55
30	130	99	86	77	69	63
60	148	115	101	92	83	78
90	167	132	118	109	101	96
120	182	144	131	122	113	109
183	218	166	149	139	130	125

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916, 1925-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
10,200	24,700	39,600	65,600	91,200	122,800

WEIGHTED SKEW (LOGS)= 0.07
MEAN (LOGS)= 4.01
STANDARD DEV. (LOGS)= 0.45

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1925-96

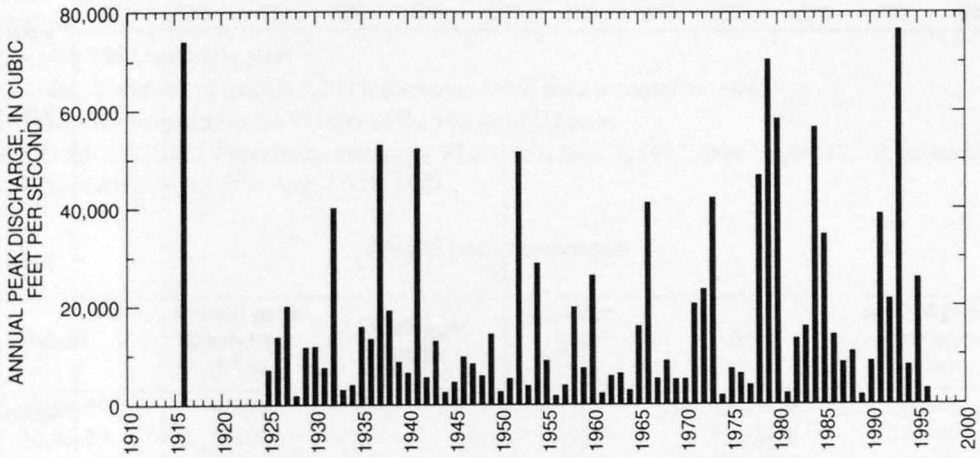
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	5,860	14,900	25,500	42,000	60,000	82,000
3	4,400	10,280	16,200	26,700	37,000	49,700
7	3,140	6,610	9,830	15,100	20,000	25,800
15	2,380	4,690	6,680	9,730	12,400	15,400
30	1,880	3,550	4,900	6,850	8,480	10,200
60	1,450	2,760	3,840	5,440	6,790	8,270
90	1,220	2,350	3,290	4,700	5,900	7,230

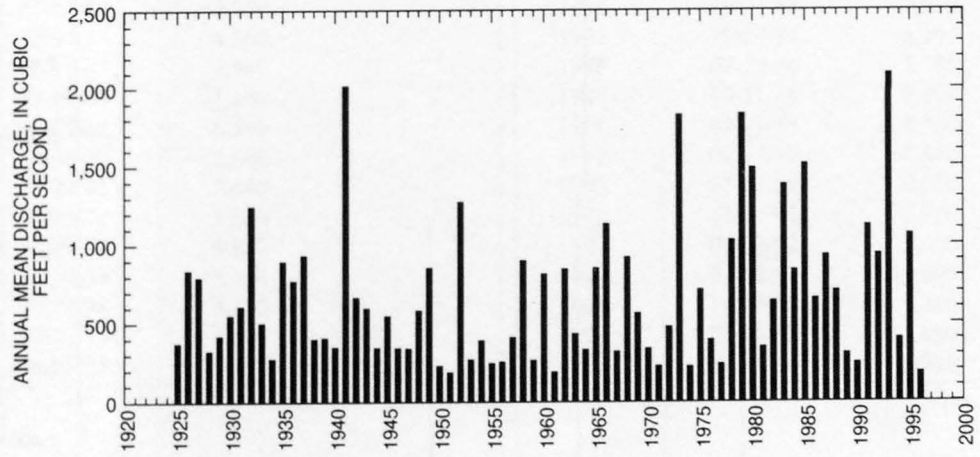
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1925-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
5,130	2,650	1,610	1,080	800	495	355	266	217	184	160	130	109	0.00	0.00	0.00	0.00

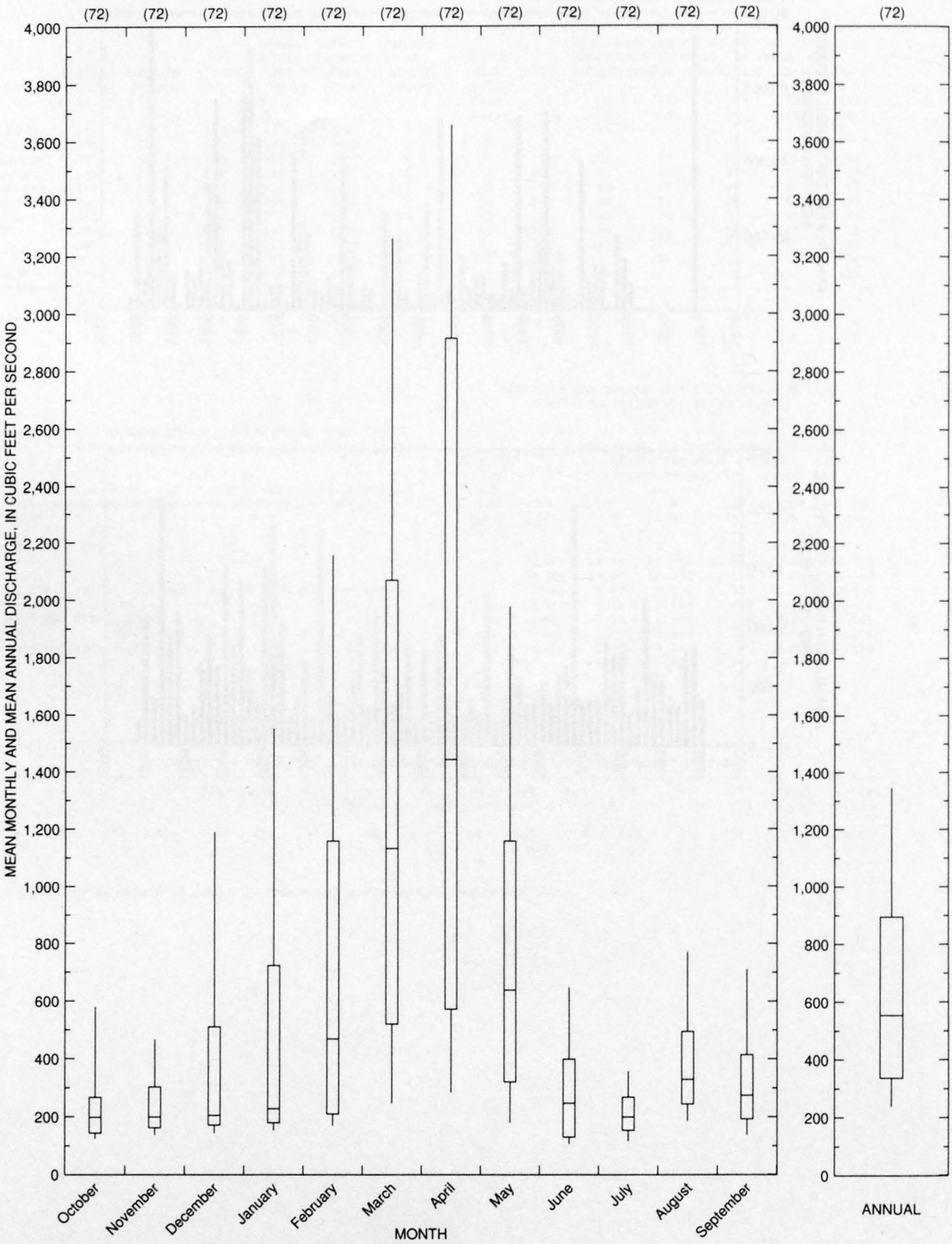
Reliability of values in column is uncertain, and potential errors are large.

09497500 SALT RIVER NEAR CHRYSOTILE, AZ--Continued





09497500 SALT RIVER NEAR CHRYSOTILE, AZ--Continued



09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ

LOCATION.--Lat 33°50'35", long 110°33'25", in E$^1/_2$ sec.8, T.5 N., R.17 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Fort Apache Indian Reservation, on right bank 0.5 mi upstream from mouth and 7 mi north of Chrysotile.

DRAINAGE AREA.--295 mi^2.

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,200 ft above sea level, from topographic map.

REMARKS.--Small diversions for irrigation in the vicinity of the village of Cibecue.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,200 ft^3/s Sept. 2, 1977, gage height, 17.3 ft, on basis of slope-area measurement of peak flow; minimum daily, 4.1 ft^3/s Aug. 17-19, 1968.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1959	07-29-59	4,600		1978	03-01-78	6,540	
1960	12-26-59	7,080		1979	12-18-78	7,740	
1961	07-21-61	1,440		1980	02-15-80	10,600	
1962	09-24-62	519		1981	08-09-81	1,800	
1963	08-31-63	8,180		1982	02-11-82	1,530	
1964	07-29-64	7,600		1983	10-30-82	5,150	
1965	01-07-65	2,950		1984	10-01-83	9,780	
1966	12-30-65	8,800		1985	12-27-84	6,190	
1967	07-27-67	2,960		1986	07-15-86	2,780	
1968	03-10-68	1,200		1987	10-11-86	2,680	
1969	08-12-69	6,580		1988	08-31-88	2,300	
1970	09-06-70	3,640		1989	07-17-89	1,340	
1971	09-01-71	5,440		1990	07-16-90	8,010	
1972	10-17-71	1,650		1991	03-01-91	6,750	
1973	10-19-72	6,880		1992	08-24-92	3,000	
1974	07-19-74	3,180		1993	01-08-93	10,600	
1975	10-29-74	3,180		1994	10-07-93	1,360	
1976	09-27-76	3,500		1995	03-06-95	3,990	
1977	09-02-77	22,200		1996	09-14-96	5,760	

Discharge rating table developed September 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	1,740	12.0	12,450
6.0	2,880	13.0	14,300
7.0	4,200	14.0	16,110
8.0	5,700	15.0	18,000
9.0	7,300	16.0	19,800
10.0	8,950	17.0	21,640
11.0	10,700	17.3	22,200

09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
79.6	38.5	5,700	78.0	3.0	20.7	2.2	4.2

09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1960-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	277	11	36	48	1.3	6.1
NOVEMBER	186	9.1	30	29	0.99	5.0
DECEMBER	368	11	58	77	1.3	9.9
JANUARY	209	11	69	142	2.1	12
FEBRUARY	550	11	91	141	1.6	15
MARCH	477	12	112	118	1.1	19
APRIL	274	11	59	57	0.97	10
MAY	131	5.6	26	23	0.89	4.4
JUNE	40	5.0	15	8.3	0.55	2.6
JULY	70	6.6	25	13	0.53	4.3
AUGUST	106	13	37	22	0.58	6.3
SEPTEMBER	93	13	33	20	0.61	5.6
ANNUAL	182	16	49	36	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1961-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	9.0	6.1	5.0	4.3	3.6	3.1
3	9.1	6.2	5.1	4.3	3.6	3.2
7	9.5	6.6	5.4	4.7	3.9	3.5
14	10	7.0	5.8	5.0	4.2	3.8
30	11	7.6	6.3	5.4	4.5	4.0
60	13	8.9	7.2	6.1	4.9	4.3
90	15	10	8.6	7.3	6.0	5.3
120	18	13	11	9.5	8.0	7.1
183	21	16	14	13	11	11

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1959-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4,200	7,620	10,300	14,200	17,300	20,800

WEIGHTED SKEW (LOGS)= -0.12
MEAN (LOGS)= 3.62
STANDARD DEV. (LOGS)= 0.31

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1960-96

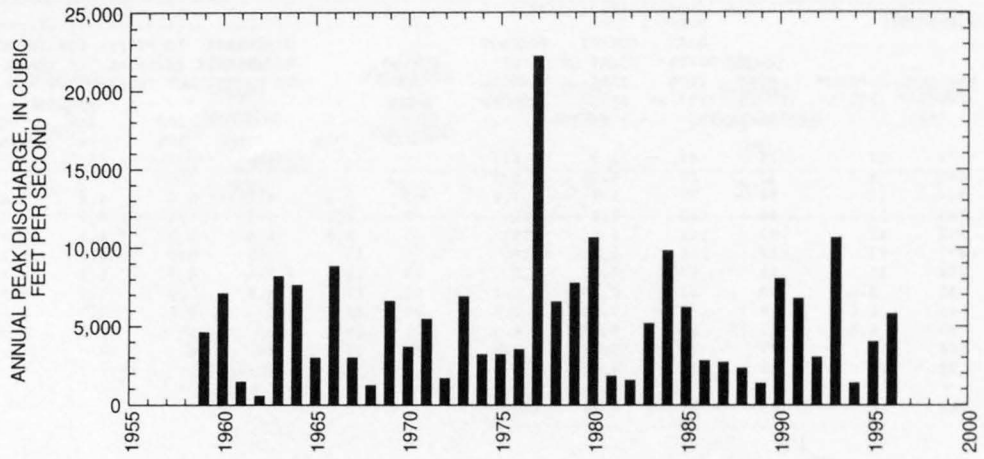
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	824	1,890	2,980	4,920	6,870	9,340
3	442	997	1,570	2,610	3,660	5,010
7	261	571	884	1,440	2,000	2,720
15	171	373	586	984	1,400	1,950
30	123	263	406	666	931	1,270
60	92	190	289	468	650	884
90	76	155	235	376	517	698

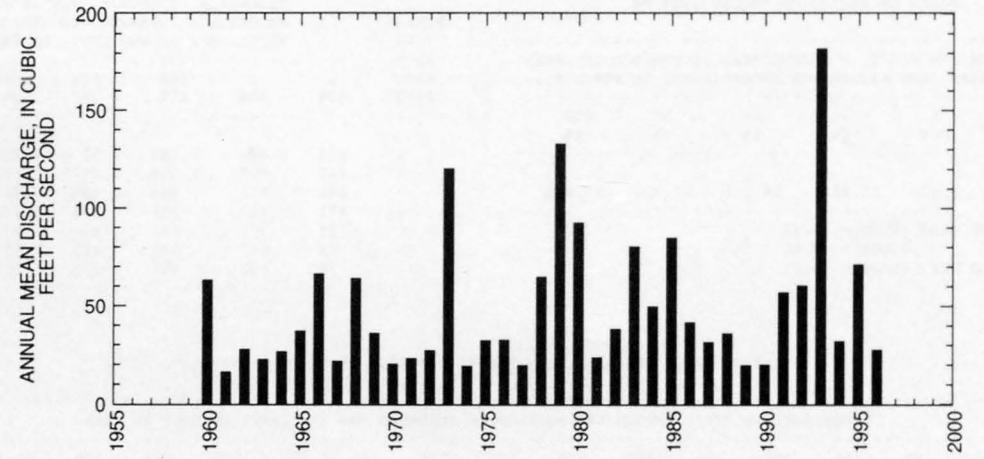
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
409	163	92	61	47	32	25	21	18	16	13	10	8.0	0.00	0.00	0.00	0.00

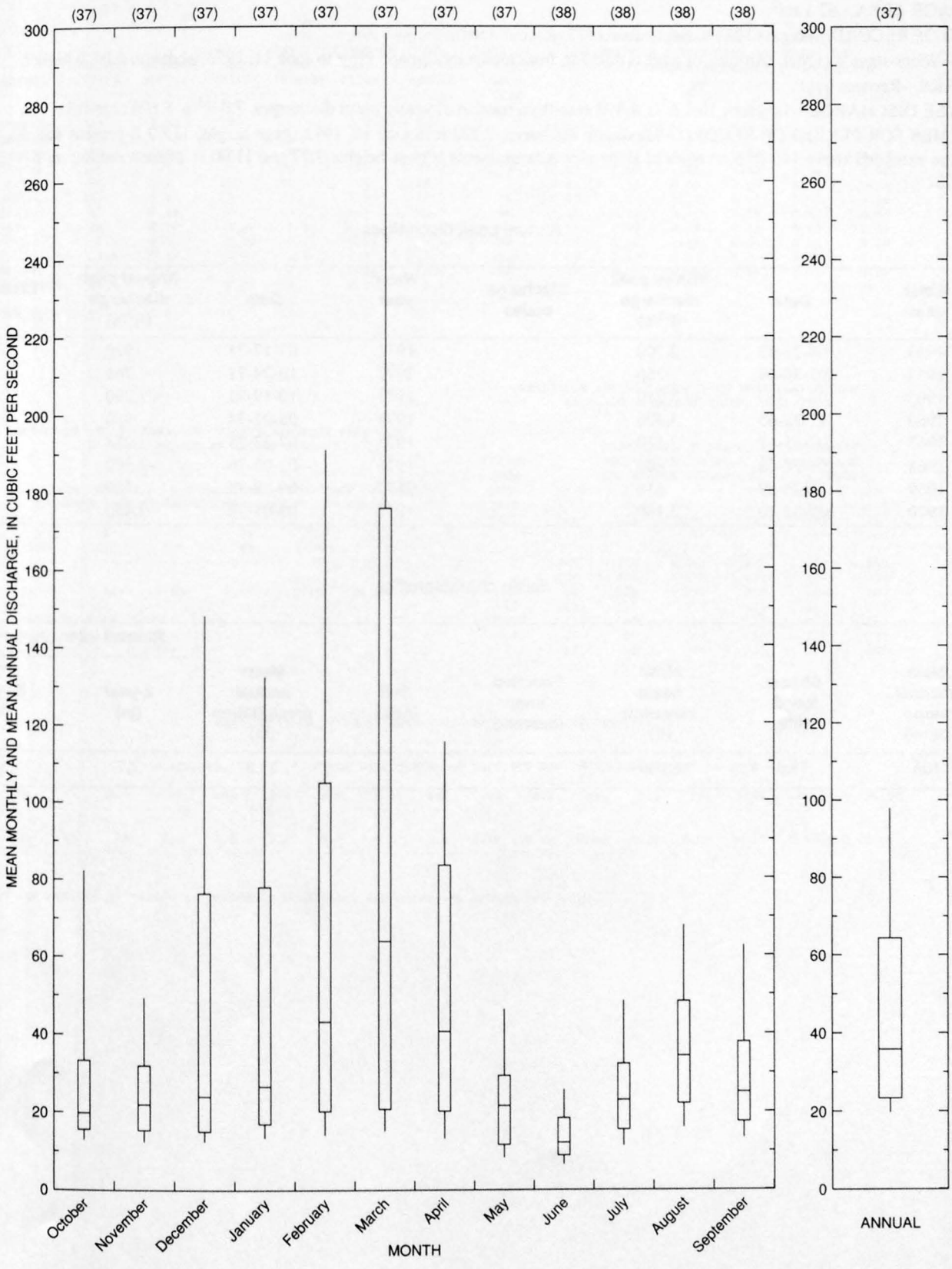
Reliability of values in column is uncertain, and potential errors are large.

09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ--Continued





09497800 CIBECUE CREEK NEAR CHRYSOTILE, AZ--Continued



09497900 CHERRY CREEK NEAR YOUNG, AZ

LOCATION.--Lat 34°04'58", long 110°55'25", in $SE^1/_4NE^1/_4$ sec.32, T.9 N., R.14 E., Gila County, Hydrologic Unit 15060103, on left bank 0.3 mi downstream from Deadman Canyon and 2 mi southeast of Young.

DRAINAGE AREA.--62.1 mi^2.

PERIOD OF RECORD.--August 1963 to September 1977 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,950 ft, from topographic map. Prior to June 11, 1973, at datum 2.07 ft higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--14 years, 10.2 ft^3/s, 7,390 acre-ft/yr; median of yearly mean discharges, 7.0 ft^3/s, 5,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,290 ft^3/s Oct. 19, 1972 (gage height, 11.00 ft present datum), from rating curve extended above 110 ft^3/s on basis of slope-area measurements at gage heights 7.97 and 11.00 ft, present datum; no flow July 18, 20, 1972.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-22-63	2,700		1971	07-17-71	920	
1964	07-30-64	266		1972	10-24-71	765	
1965	08-17-65	3,280		1973	10-19-72	7,290	
1966	12-22-65	3,400		1974	08-02-74	950	
1967	07-31-67	2,670		1975	07-22-75	258	
1968	01-28-68	800		1976	02-09-76	2,300	
1969	01-26-69	616		1977	09-02-77	530	
1970	09-05-70	3,100		1978	03-01-78	2,480	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
106	18.6	6,030	75.0	3.0	24.8	2.7	5.5

09497900 CHERRY CREEK NEAR YOUNG, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1964-77

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	108	0.33	12	31	2.4	10.2
NOVEMBER	39	0.58	4.9	10	2.1	4.0
DECEMBER	170	0.78	19	45	2.4	15.4
JANUARY	81	1.2	16	24	1.5	13.2
FEBRUARY	94	1.3	22	32	1.4	18.1
MARCH	123	1.8	22	32	1.5	18.3
APRIL	63	0.86	12	19	1.5	10.0
MAY	15	0.58	3.0	3.6	1.2	2.5
JUNE	2.0	0.41	0.82	0.42	0.51	0.7
JULY	9.4	0.39	2.1	2.6	1.3	1.7
AUGUST	9.5	0.46	2.7	2.7	1.0	2.2
SEPTEMBER	46	0.12	4.6	12	2.6	3.8
ANNUAL	40	1.8	10	10	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-77

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.17	0.08	0.04	0.00	0.00	0.00
3	0.17	0.09	0.06	0.00	0.00	0.00
7	0.19	0.11	0.08	0.06	0.05	0.04
14	0.25	0.17	0.14	0.12	0.09	0.08
30	0.39	0.28	0.22	0.16	0.11	0.08
60	0.53	0.35	0.28	0.22	0.18	0.15
90	0.66	0.47	0.40	0.35	0.31	0.29
120	0.88	0.58	0.49	0.42	0.37	0.34
183	1.2	0.79	0.66	0.59	0.52	0.49

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
1,390	3,120	4,660	7,080	9,200	11,600

WEIGHTED SKEW (LOGS)= -0.19
MEAN (LOGS)= 3.13
STANDARD DEV. (LOGS)= 0.43

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-77

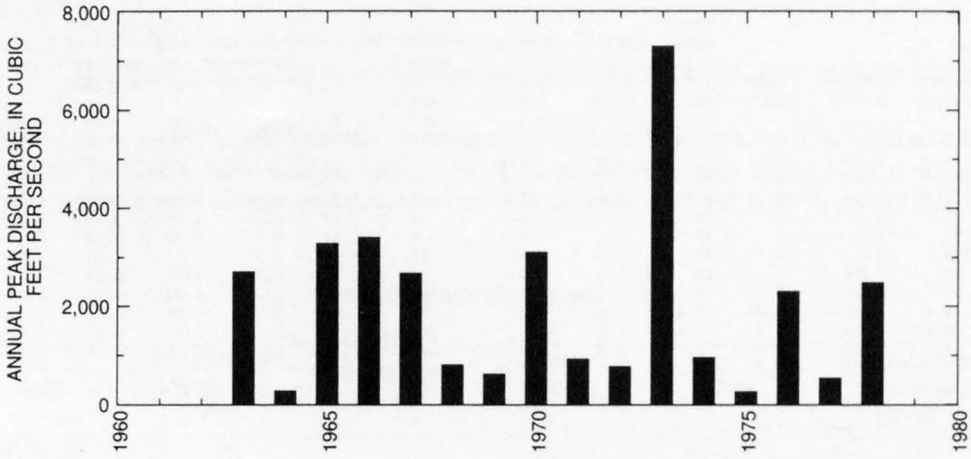
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	261	736	1,260	2,220	3,210	4,450
3	164	421	673	1,090	1,470	1,920
7	94	229	351	540	703	883
15	58	139	214	331	433	547
30	36	90	143	230	310	405
60	24	62	99	160	217	282
90	19	48	76	121	161	207

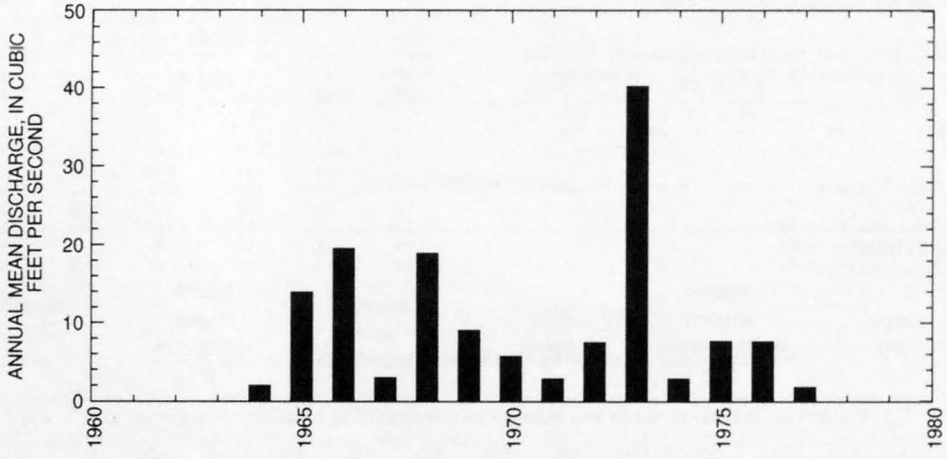
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-77

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
162	48	16	8.8	4.8	2.6	1.9	1.5	1.2	0.79	0.56	0.36	0.26	0.18	0.12	0.09	0.02

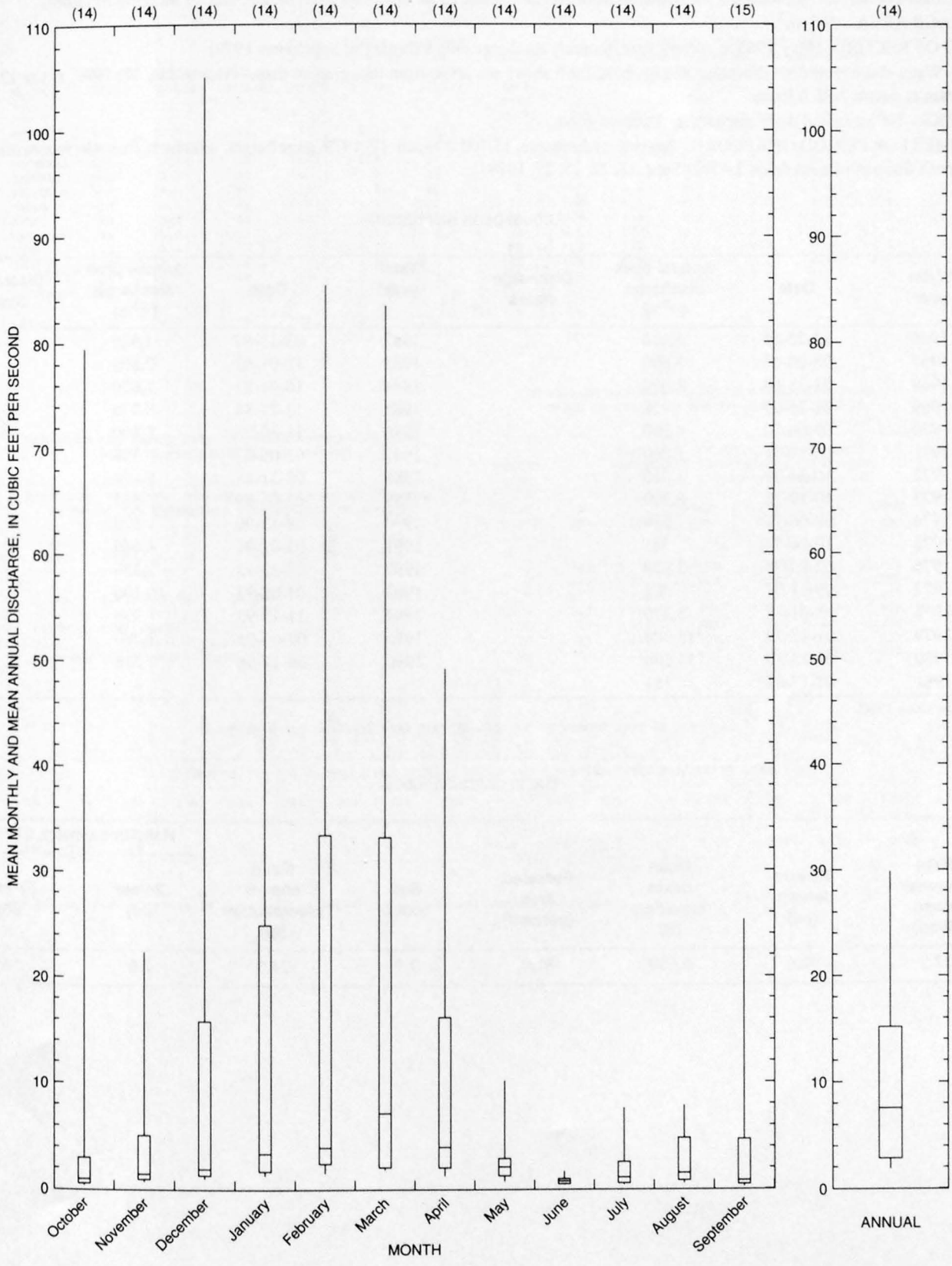
Reliability of values in column is uncertain, and potential errors are large.

09497900 CHERRY CREEK NEAR YOUNG, AZ--Continued





09497900 CHERRY CREEK NEAR YOUNG, AZ--Continued



09497980 CHERRY CREEK NEAR GLOBE, AZ

LOCATION.--Lat 33°49'40", long 110°51'20", in SW$^1/_4$ sec.30, T.6 N., R.15 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Tonto National Forest, on right bank 0.2 mi upstream from Devils Chasm, 13 mi upstream from mouth, and 30 mi north of Globe.

DRAINAGE AREA.--200 mi^2.

PERIOD OF RECORD.--May 1965 to current year (monthly discharge only February to September 1979).

GAGE.--Water-stage recorder. Elevation of gage is 3,200 ft above sea level, from topographic map. Prior to Jan. 17, 1979, at site 125 ft downstream at datum 2.95 ft lower.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,700 ft^3/s Jan. 17, 1979, gage height, unknown, from slope-area measurement of peak flow; minimum daily, 2.4 ft^3/s Sept. 17, 22, 25, 29, 1978.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	12-22-65	6,620		1982	03-13-82	1,920	
1967	08-06-67	3,600		1983	12-01-82	2,800	
1968	01-28-68	1,490		1984	10-01-83	1,620	
1969	01-26-69	928		1985	12-27-84	8,970	
1970	09-06-70	4,300		1986	11-30-85	1,690	
1971	08-19-71	1,260		1987	03-05-87	358	
1972	10-24-71	1,010		1988	08-31-88	5,170	
1973	10-19-72	8,300		1989	02-05-89	563	
1974	08-06-74	596		1990	08-13-90	125	
1975	10-24-74	715		1991	03-01-91	4,640	
1976	02-09-76	3,820		1992	08-23-92	2,250	
1977	09-11-77	408		1993	01-08-93	10,100	
1978	03-01-78	5,370		1994	11-15-93	936	
1979	01-17-79	[1]15,700		1995	03-06-95	2,780	
1980	02-15-80	13,500		1996	09-12-96	226	
1981	07-17-81	151					

[1]Highest since 1960.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
87.9	36.4	5,600	81.0	2.9	24.0	2.6	5.0

09497980 CHERRY CREEK NEAR GLOBE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-78, 1980-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	296	4.7	24	55	2.3	4.9
NOVEMBER	101	4.5	21	28	1.3	4.3
DECEMBER	537	4.8	68	124	1.8	14
JANUARY	652	6.7	81	146	1.8	17
FEBRUARY	586	6.0	97	128	1.3	20
MARCH	423	6.1	98	120	1.2	20
APRIL	195	5.3	30	38	1.3	6.2
MAY	66	4.9	13	11	0.90	2.6
JUNE	18	4.4	7.7	3.1	0.41	1.6
JULY	23	5.6	9.5	4.1	0.43	2.0
AUGUST	85	5.6	18	19	1.1	3.7
SEPTEMBER	151	3.6	16	26	1.7	3.2
ANNUAL	130	6.7	38	32	0.84	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-78, 1980-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	5.2	4.2	3.8	3.5	3.2	3.0
3	5.3	4.3	3.9	3.6	3.4	3.2
7	5.4	4.4	4.0	3.7	3.4	3.3
14	5.6	4.6	4.1	3.8	3.5	3.4
30	5.9	4.9	4.4	4.1	3.8	3.6
60	6.5	5.3	4.8	4.4	4.1	3.9
90	7.0	5.7	5.1	4.7	4.4	4.1
120	7.5	6.2	5.7	5.3	4.9	4.7
183	9.2	7.0	6.2	5.7	5.2	4.9

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,190	5,450	8,700	14,200	19,300	25,400

WEIGHTED SKEW (LOGS)= -0.14
MEAN (LOGS)= 3.33
STANDARD DEV. (LOGS)= 0.49

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-78, 1980-96

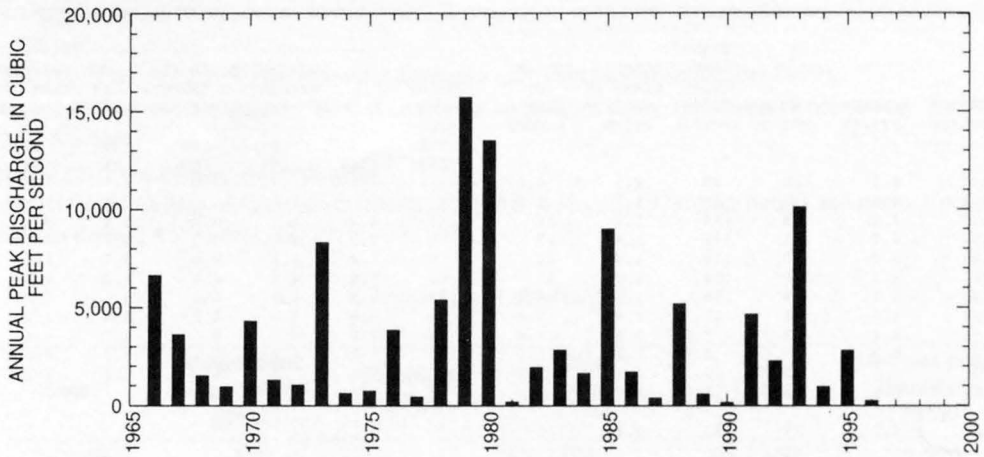
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	743	2,170	3,620	6,020	8,220	10,700
3	472	1,250	1,990	3,130	4,110	5,190
7	293	738	1,140	1,760	2,280	2,850
15	186	467	731	1,150	1,510	1,920
30	123	309	485	767	1,020	1,310
60	85	212	334	532	712	919
90	67	163	254	402	536	692

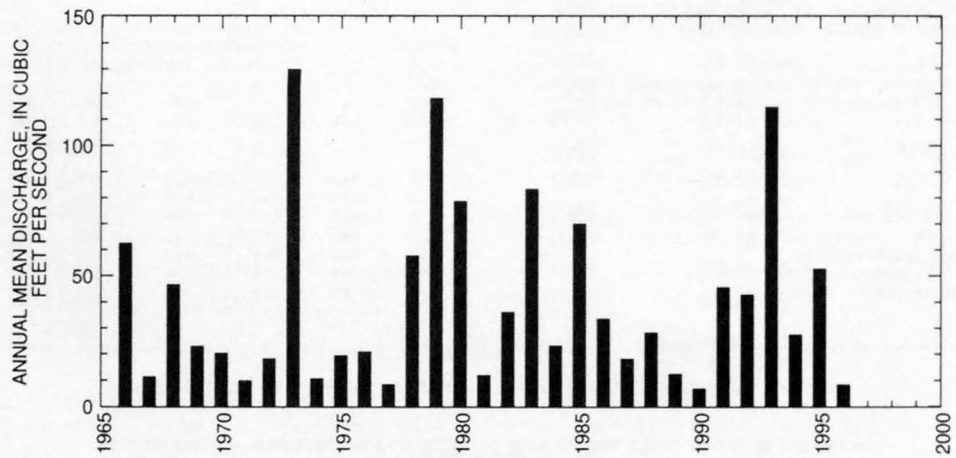
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-78, 1980-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
546	138	63	37	25	14	11	9.0	7.2	6.8	5.8	5.3	4.7	0.00	0.001	0.00	0.00

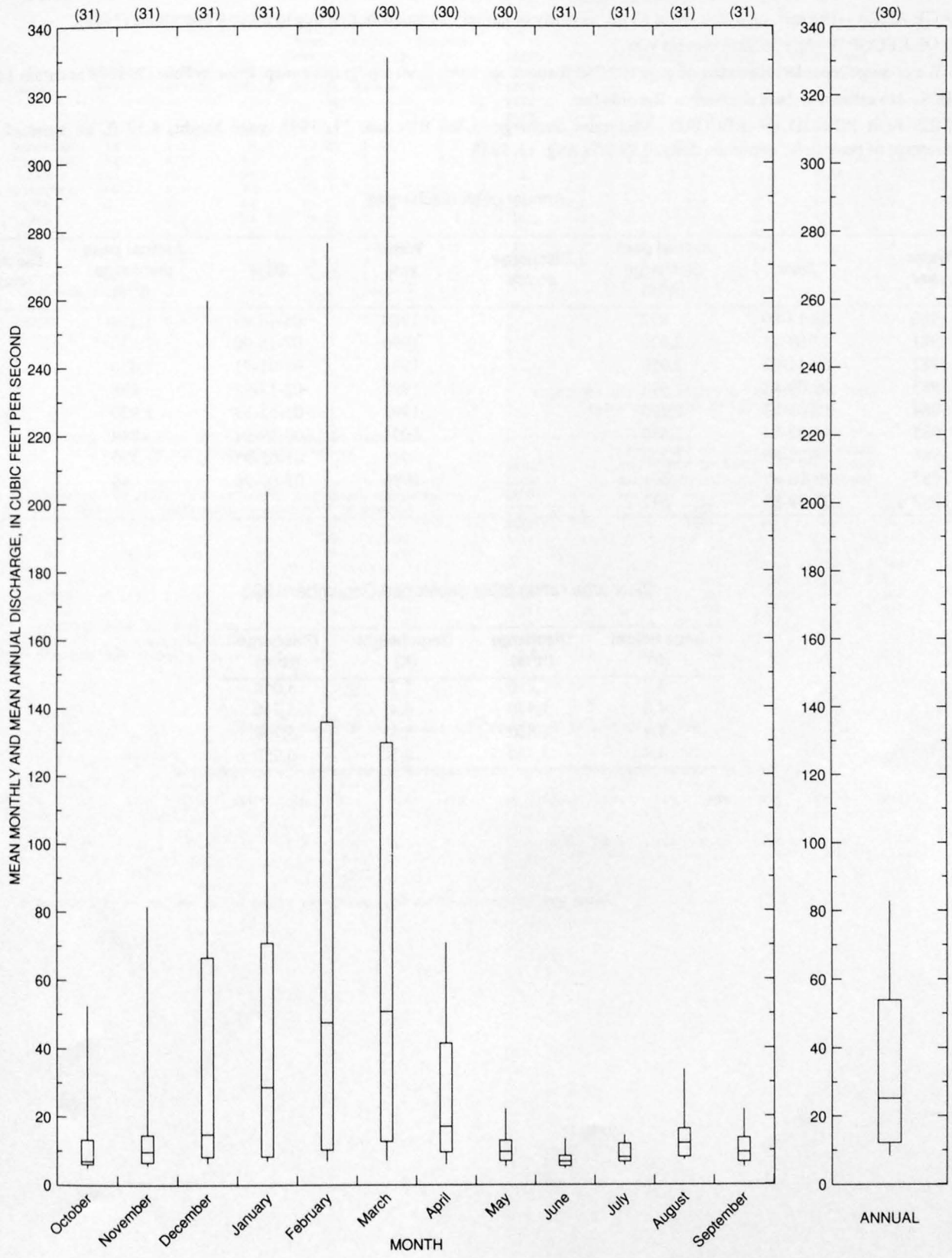
Reliability of values in column is uncertain, and potential errors are large.

09497980 CHERRY CREEK NEAR GLOBE, AZ--Continued





09497980 CHERRY CREEK NEAR GLOBE, AZ--Continued



09498400 PINAL CREEK AT INSPIRATION DAM, NEAR GLOBE, AZ

LOCATION.--Lat 33°34'23", long 110°54'02", in $NE^1/_4NW^1/_4SE^1/_4$ sec.26, T.3 N., R.14 E., Gila County, Hydrologic Unit 15060103, in Tonto National Forest, on right bank 7 ft upstream from Inspiration Dam, 3.8 mi upstream from mouth, and 14 mi northwest of Globe.

DRAINAGE AREA.--195 mi^2, of which about 33 mi^2 is partly or entirely noncontributing due to mining operations (1988).

PERIOD OF RECORD.--July 1980 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,740 ft above sea level, from topographic map. Prior to Feb. 12, 1991 at datum 1.0 ft higher.

REMARKS.--No estimated daily discharges. Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,700 ft^3/s Jan. 11, 1993, gage height, 8.50 ft, on basis of slope-area measurement of peak flow; minimum daily, 0.99 ft^3/s Aug. 13, 1988.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1980	08-13-80	872		1989	08-18-89	1,250	
1981	07-09-81	2,920		1990	07-15-90	1,930	
1982	09-11-82	2,050		1991	03-01-91	1,430	
1983	09-09-83	673		1992	02-13-92	406	
1984	10-01-83	2,290		1993	01-12-93	5,950	
1985	10-02-84	1,530		1994	08-19-94	849	
1986	08-25-86	1,220		1995	01-05-95	1,320	
1987	08-10-87	861		1996	07-03-96	46	
1988	07-09-88	547					

Discharge rating table developed December 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.7	1,210	5.7	3,050
4.0	1,470	6.4	3,710
4.4	1,850	8.5	5,700
4.9	2,320	8.8	6,050

09498400 PINAL CREEK AT INSPIRATION DAM, NEAR GLOBE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1980-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	39	4.3	11	9.0	0.82	6.0
NOVEMBER	13	5.2	8.2	2.2	0.26	4.5
DECEMBER	58	6.0	13	13	1.0	6.9
JANUARY	440	6.7	39	107	2.7	22
FEBRUARY	406	5.9	37	99	2.7	20
MARCH	67	6.1	19	17	0.90	10
APRIL	30	7.0	11	5.8	0.52	6.2
MAY	20	5.7	9.2	3.4	0.37	5.1
JUNE	16	4.5	7.3	2.8	0.38	4.0
JULY	17	5.3	8.9	3.7	0.42	4.9
AUGUST	28	5.1	9.7	5.4	0.56	5.3
SEPTEMBER	16	2.8	8.2	3.8	0.46	4.5
ANNUAL	84	6.9	15	19	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1980-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1	3.5	2.0	1.4	1.0	0.71	0.54
3	3.7	2.2	1.6	1.2	0.88	0.70
7	4.0	2.5	2.0	1.6	1.3	1.1
14	4.4	3.1	2.6	2.2	1.9	1.7
30	5.4	4.1	3.5	3.0	2.6	2.3
60	6.0	4.9	4.5	4.1	3.8	3.6
90	6.5	5.3	4.8	4.5	4.1	3.9
120	7.0	5.8	5.2	4.8	4.4	4.2
183	7.7	6.3	5.7	5.3	4.9	4.6

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1980-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,320	2,540	3,600	5,260	6,740	8,440

WEIGHTED SKEW (LOGS)= 0.11
MEAN (LOGS)= 3.13
STANDARD DEV. (LOGS)= 0.33

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1980-96

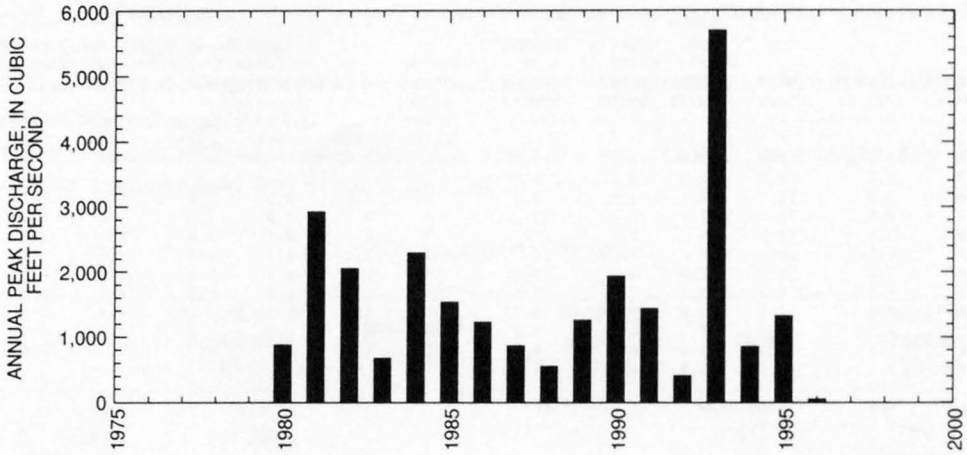
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	184	556	974	1,740	2,520	3,500
3	94	278	499	945	1,440	2,110
7	50	146	278	594	1,010	1,660
15	28	79	162	404	792	1,530
30	20	48	91	215	409	775
60	15	34	69	178	371	779
90	13	28	54	133	265	536

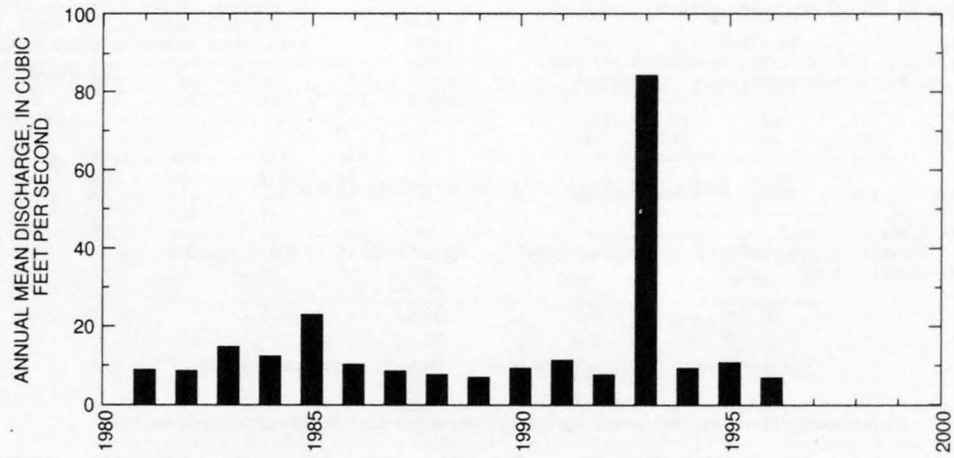
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1980-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
130	24	13	12	11	9.8	8.9	8.1	6.9	6.5	5.7	5.2	4.4	0.00	0.00	0.00	0.00

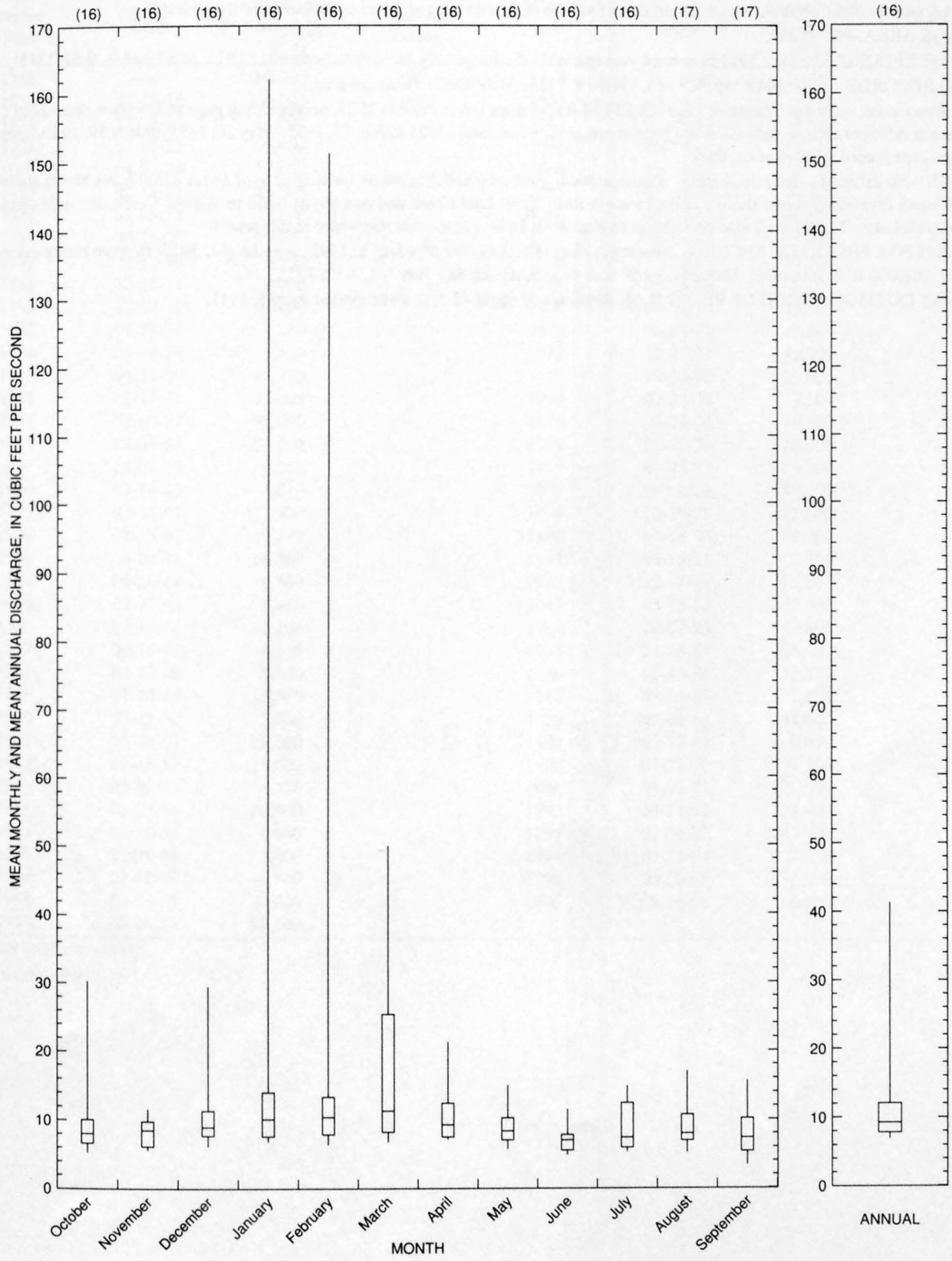
Reliability of values in column is uncertain, and potential errors are large.

09498400 PINAL CREEK AT INSPIRATION DAM, NEAR GLOBE, AZ--Continued





09498400 PINAL CREEK AT INSPIRATION DAM, NEAR GLOBE, AZ--Continued



09498500 SALT RIVER NEAR ROOSEVELT, AZ

LOCATION.--Lat 33°37'10", long 110°55'15", in $SE^1/_4NE^1/_4$ sec.9, T.3 N., R.14 E. (unsurveyed), Gila County, Hydrologic Unit 15060103, in Tonto National Forest on left bank 100 ft downstream from bridge on State Highway 288, 0.3 mi downstream from Pinal Creek, 1 mi upstream from diversion dam for power canal, 14 mi east of village of Roosevelt, and 17 mi upstream from Roosevelt Dam.

DRAINAGE AREA.--4,306 mi^2.

PERIOD OF RECORD.--January 1913 to current year (monthly discharge only January to September 1913, published in WSP 1313).

REVISED RECORDS.--WSP 1049: 1914, 1916, 1918-19, 1926. WSP 1343: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,177.14 ft above sea level. Prior to 1925, nonrecording gage at diversion dam about 1 mi downstream at different datum. Nonrecording gage at present site and datum 1925 to Jan. 17, 1935. May 20, 1955, to July 30, 1959, supplementary water-stage recorder at diversion dam.

REMARKS.--No estimated daily discharges. Records good. Several small diversions for irrigation of about 4,000 acres above station and two trans basin diversions above station, one into basin from Show Low Creek and one out of basin to Willow Creek. Records show inflow to Roosevelt Lake. Tonto Creek also contributes to Roosevelt Lake; see records elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 143,000 ft^3/s Jan. 8, 1993, gage height, 30.09 ft, from rating curve extended above 108,000 ft^3/s; minimum discharge, 59 ft^3/s all or part of each day, July 1-4, 7-12, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of about 42 ft^3/s was reported Aug. 5, 1911.

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1388	-------	[1]160,000	PF	1960	12-26-59	78,200	
1916	01-19-16	100,000	HP	1961	07-28-61	2,590	
1924	12-28-23	43,000		1962	01-25-62	8,540	
1925	03-09-25	9,000		1963	08-31-63	31,300	
1926	04-07-26	21,000		1964	09-15-64	3,620	
1927	02-18-27	40,000		1965	01-08-65	20,400	
1928	02-05-28	2,600		1966	12-23-65	68,800	
1929	09-23-29	15,000		1967	08-06-67	5,600	
1930	03-17-30	8,300		1968	12-20-67	17,200	
1931	02-15-31	22,000		1969	01-26-69	6,100	
1932	02-10-32	57,000		1970	09-06-70	17,300	
1933	02-28-33	4,200		1971	08-13-71	12,800	
1934	08-04-34	5,500		1972	12-27-71	30,200	
1935	04-09-35	15,200		1973	10-20-72	70,000	
1936	02-17-36	13,800		1974	07-20-74	1,500	
1937	02-07-37	88,000		1975	10-29-74	10,100	
1938	03-04-38	24,100		1976	02-10-76	16,000	
1939	04-05-39	9,050		1977	09-03-77	10,200	
1940	07-16-40	4,610		1978	03-02-78	89,400	
1941	03-14-41	117,000		1979	12-19-78	95,800	
1942	01-13-42	5,140		1980	02-15-80	99,000	
1943	03-05-43	16,500		1981	04-15-81	2,550	
1944	09-26-44	4,560		1982	02-12-82	15,200	
1945	03-27-45	5,450		1983	03-25-83	17,600	
1946	09-19-46	15,100		1984	10-02-83	59,800	
1947	09-19-47	6,170		1985	12-28-84	46,600	
1948	04-13-48	5,960		1986	02-16-86	13,300	
1949	01-14-49	15,500		1987	03-05-87	7,560	
1950	07-21-50	5,930		1988	09-01-88	11,000	
1951	08-28-51	27,600		1989	03-13-89	2,040	
1952	01-18-52	111,000		1990	07-22-90	6,710	
1953	03-09-53	4,320		1991	03-01-91	71,300	
1954	03-23-54	40,800		1992	02-14-92	24,600	
1955	08-24-55	8,640		1993	01-08-93	[2]143,000	
1956	01-29-56	1,460		1994	03-21-94	7,930	
1957	01-10-57	6,720		1995	03-06-95	38,000	
1958	03-23-58	24,000		1996	09-14-96	6,610	
1959	08-20-59	12,100					

[1]Partridge and Baker (1987).

[2]Highest since 1906.

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

Discharge rating table developed March 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.0	709	20.0	42,580
10.0	3,040	22.0	56,410
12.0	7,150	24.0	72,290
14.0	13,100	26.0	90,250
16.0	20,960	28.0	110,300
18.0	30,780	30.0	132,500

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
23.3	206	6,190	71.0	2.8	22.0	2.3	4.4

09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1914-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4,830	86	443	750	1.7	4.0
NOVEMBER	2,150	122	384	360	0.94	3.5
DECEMBER	6,330	127	789	1,220	1.6	7.1
JANUARY	16,000	161	1,130	2,380	2.1	10
FEBRUARY	9,070	168	1,440	1,860	1.3	13
MARCH	10,400	220	2,050	1,980	0.96	19
APRIL	6,280	198	2,040	1,560	0.77	18
MAY	5,930	127	1,050	1,020	0.97	9.5
JUNE	1,370	79	372	296	0.80	3.4
JULY	3,280	78	335	375	1.1	3.0
AUGUST	3,610	151	589	476	0.81	5.3
SEPTEMBER	1,850	78	459	377	0.73	4.1
ANNUAL	130	6.7	921	686	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1915-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1	128	94	80	69	59	53
3	131	96	81	71	60	54
7	136	99	84	73	62	56
14	145	105	89	77	66	59
30	161	117	99	86	73	66
60	189	139	118	104	90	82
90	215	163	142	128	114	106
120	237	179	159	146	134	127
183	289	211	185	169	154	147

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1388, 1924-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
14,400	38,000	63,800	112,300	162,600	227,900

WEIGHTED SKEW (LOGS)= 0.13
MEAN (LOGS)= 4.17
STANDARD DEV. (LOGS)= 0.49

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1914-96

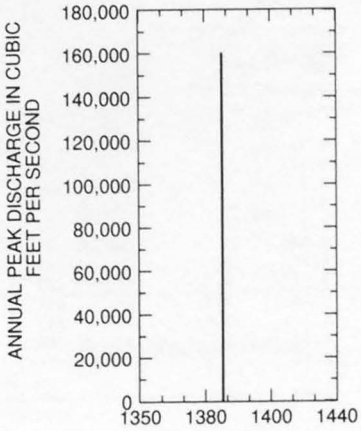
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	9,640	26,000	43,900	76,900	110,700	153,900
3	6,900	17,400	28,600	49,200	70,100	96,900
7	4,650	10,600	16,600	27,200	37,600	50,700
15	3,230	6,860	10,400	16,400	22,200	29,300
30	2,470	4,960	7,200	10,800	14,100	17,900
60	1,880	3,710	5,340	7,910	10,200	12,900
90	1,570	3,150	4,570	6,830	8,880	11,300

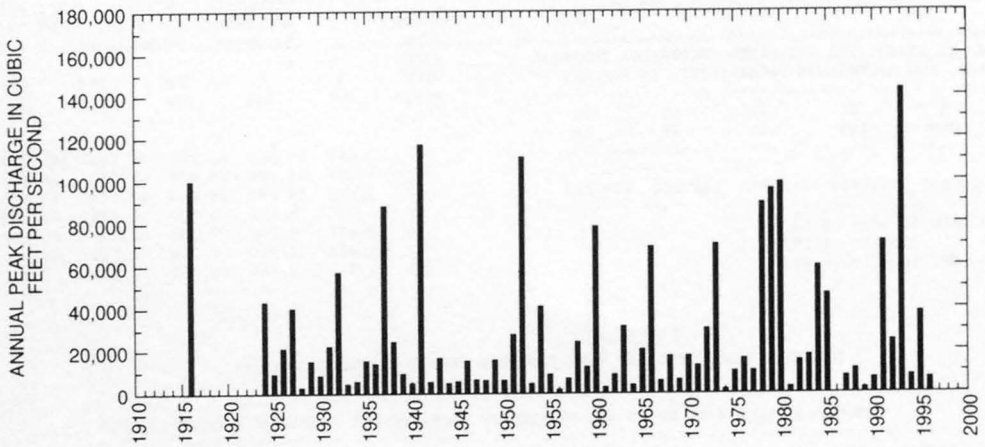
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1914-96

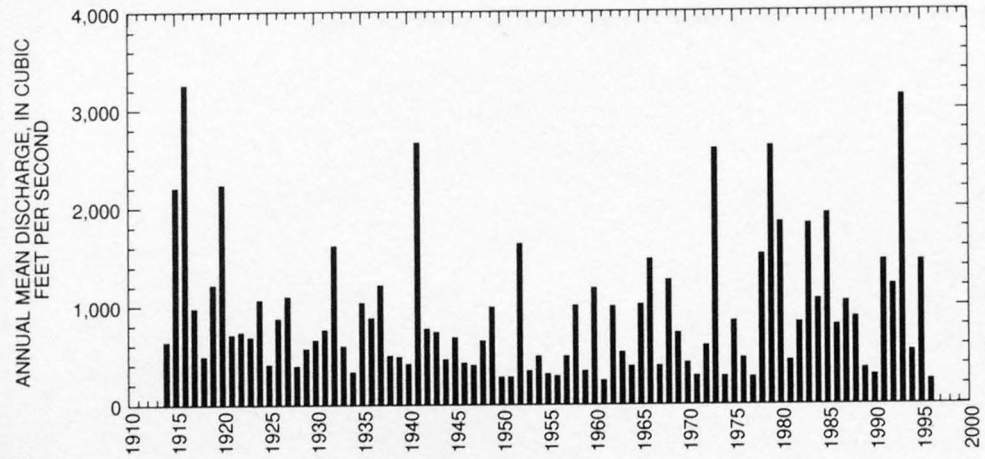
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7,100	3,510	2,120	1,420	1,040	646	453	341	275	234	198	159	130	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

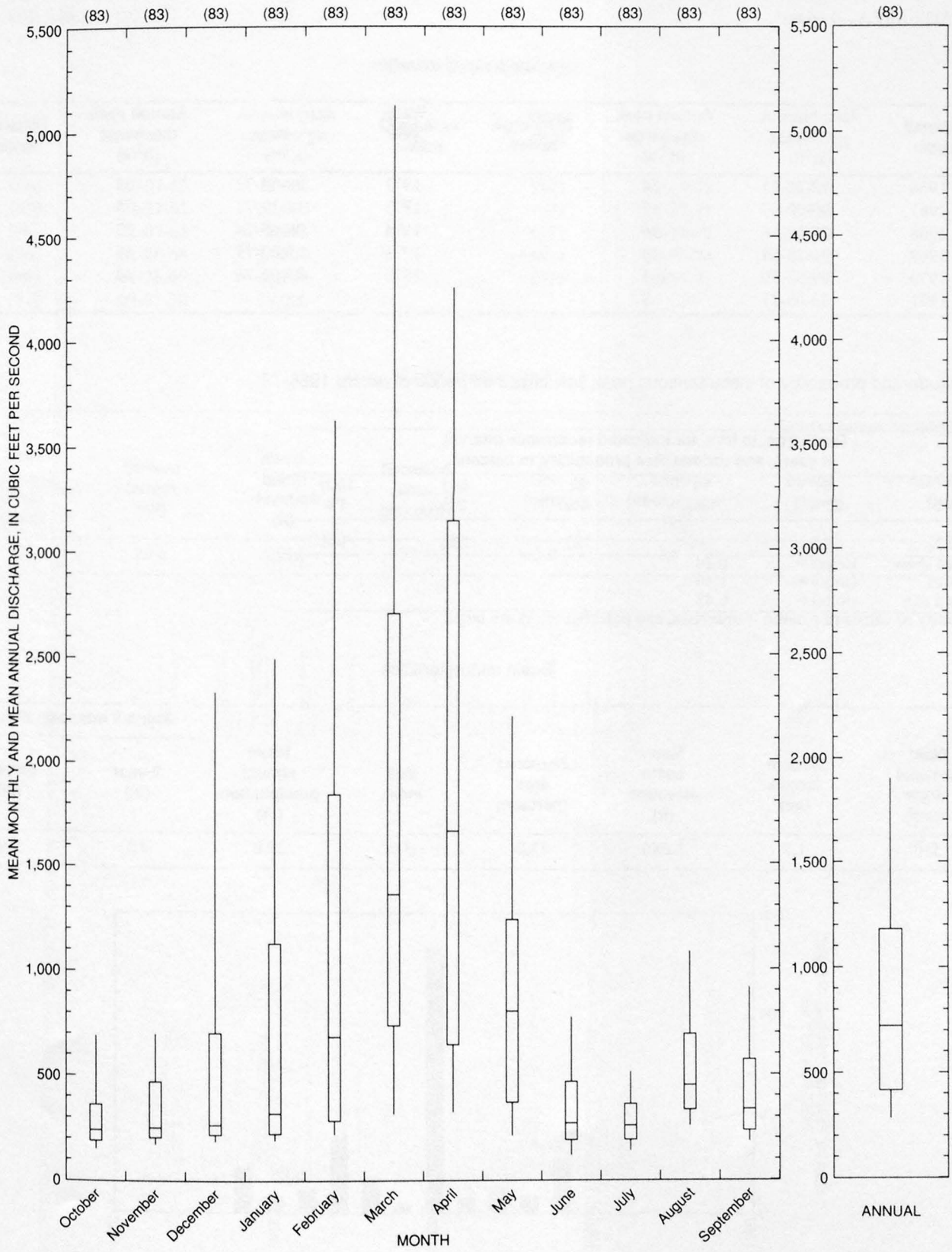
09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued







09498500 SALT RIVER NEAR ROOSEVELT, AZ--Continued



09498600 CHRISTOPHER CREEK TRIBUTARY NEAR KOHL'S RANCH, AZ

LOCATION.--Lat 34°19'20", long 111°04'00", in $NE^1/_4SE^1/_4$ sec.22, T.11 N., R.12 E., Gila County, Hydrologic Unit 15060105, at State Highway 160, 1.8 mi east of Kohl's Ranch, and 15.5 mi northeast of Payson.

DRAINAGE AREA.--0.66 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	12-22-65	54		1972	08-06-72	35	
1967	00-00-67	17		1973	10-19-72	75	
1968	08-10-68	26		1974	08-05-74	22	
1969	01-26-69	14		1975	07-00-75	16	
1970	09-05-70	265		1976	02-09-76	44	
1971	08-00-71	8					

Magnitude and probability of instantaneous peak flow based on period of record 1966-76

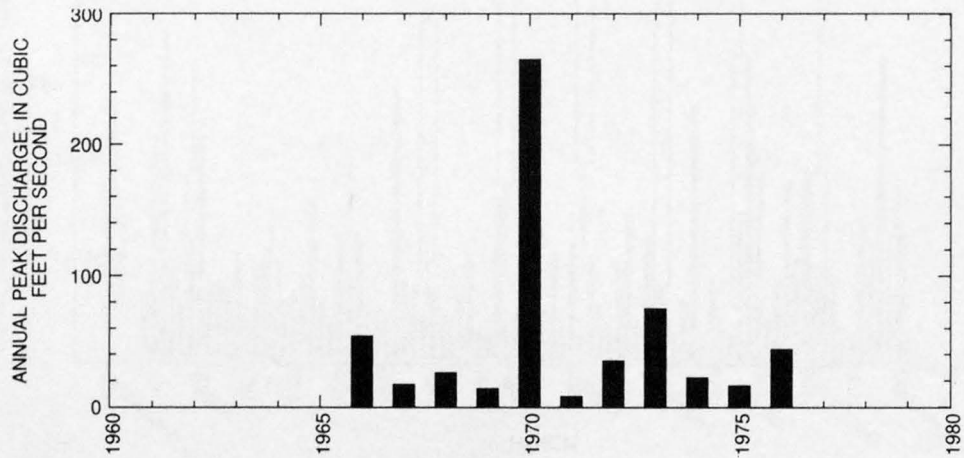
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
30.2	69.5	110	182	256	348

Weighted skew	(logs) =	0.24
Mean	(logs) =	1.50
Standard dev.	(logs) =	0.42

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
510	1.7	6,080	73.0	3.0	29.0	3.5	6.0



09498800 TONTO CREEK NEAR GISELA, AZ

LOCATION.--Lat 34°07'44", long 111°15'17", in NE$^1/_4$ sec.18, T.9 N., R.11 E., Gila County, Hydrologic Unit 15060105, in Tonto National Forest, on left bank 0.2 mi upstream from Houston Creek, and 1.5 mi northeast of Gisela.
DRAINAGE AREA.--430 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	01-07-65	12,600		1971	08-19-71	3,300	
1966	12-22-65	30,000		1972	10-17-71	2,750	
1967	12-07-66	8,280		1973	10-19-72	26,500	
1968	01-28-68	14,800		1974	08-06-74	2,400	
1969	01-26-69	10,100		1975	10-29-74	1,860	
1970	09-05-70	38,000					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
126	29.6	5,810	79.0	3.0	24.7	2.8	5.5

09498800 TONTO CREEK NEAR GISELA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-75

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	761	7.8	118	238	2.0	8.2
NOVEMBER	326	11	67	97	1.5	4.6
DECEMBER	1,970	16	344	603	1.8	23.9
JANUARY	602	15	182	227	1.2	12.7
FEBRUARY	753	15	168	248	1.5	11.7
MARCH	1,160	15	242	343	1.4	16.8
APRIL	568	11	132	186	1.4	9.2
MAY	235	6.8	46	68	1.5	3.2
JUNE	39	3.3	14	9.6	0.68	1.0
JULY	49	8.3	22	13	0.59	1.5
AUGUST	103	6.7	40	30	0.77	2.7
SEPTEMBER	481	8.1	64	147	2.3	4.5
ANNUAL	377	24	120	112	0.93	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-75

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	5.7	3.4	2.5	1.9	1.3	1.0
3	5.8	3.6	2.6	2.0	1.4	1.1
7	6.1	3.8	2.8	2.1	1.5	1.1
14	6.8	4.2	3.0	2.3	1.5	1.2
30	8.0	5.1	3.6	2.6	1.7	1.2
60	9.6	6.6	5.0	3.9	2.7	2.1
90	13	9.2	7.4	6.1	4.6	3.8
120	15	11	9.2	7.7	6.2	5.3
183	20	15	12	10	8.4	7.1

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1965-75

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
8,810	21,500	33,800	54,200	73,200	95,500

WEIGHTED SKEW (LOGS)= -0.14
MEAN (LOGS)= 3.93
STANDARD DEV. (LOGS)= 0.47

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-75

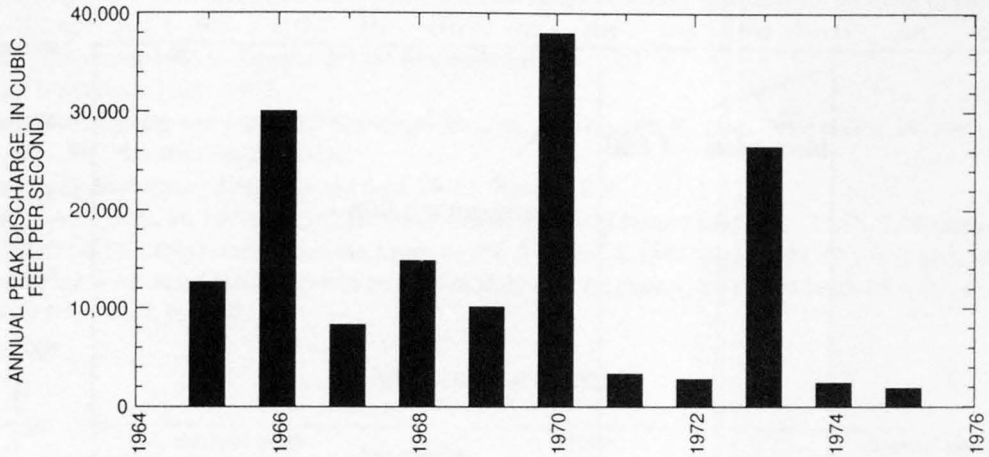
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	3,400	8,140	12,400	18,900	24,400	30,500
3	2,090	4,690	6,930	10,300	13,100	16,100
7	1,160	2,360	3,290	4,570	5,580	6,610
15	703	1,420	2,050	3,020	3,880	4,850
30	436	962	1,480	2,380	3,250	4,330
60	294	682	1,060	1,720	2,350	3,120
90	234	531	814	1,280	1,720	2,250

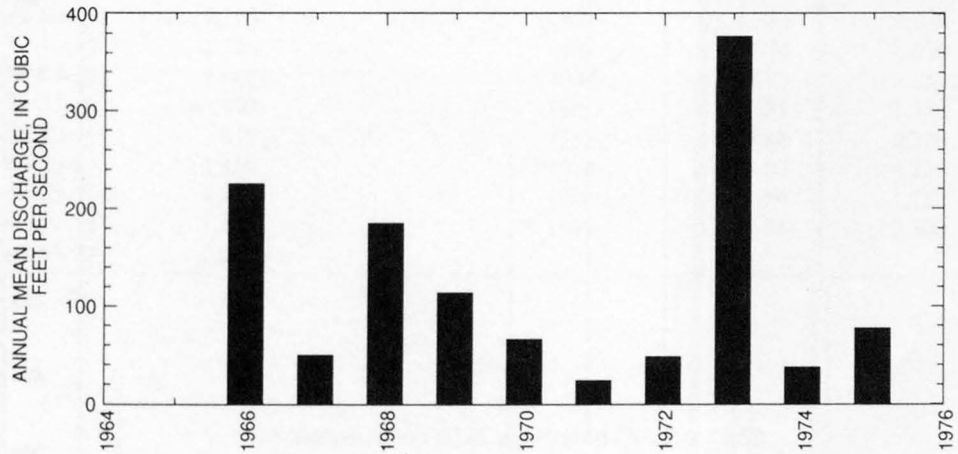
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-75

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,740	454	214	130	85	41	27	21	17	14	11	8.4	6.2	4.3	3.7	2.2	1.7

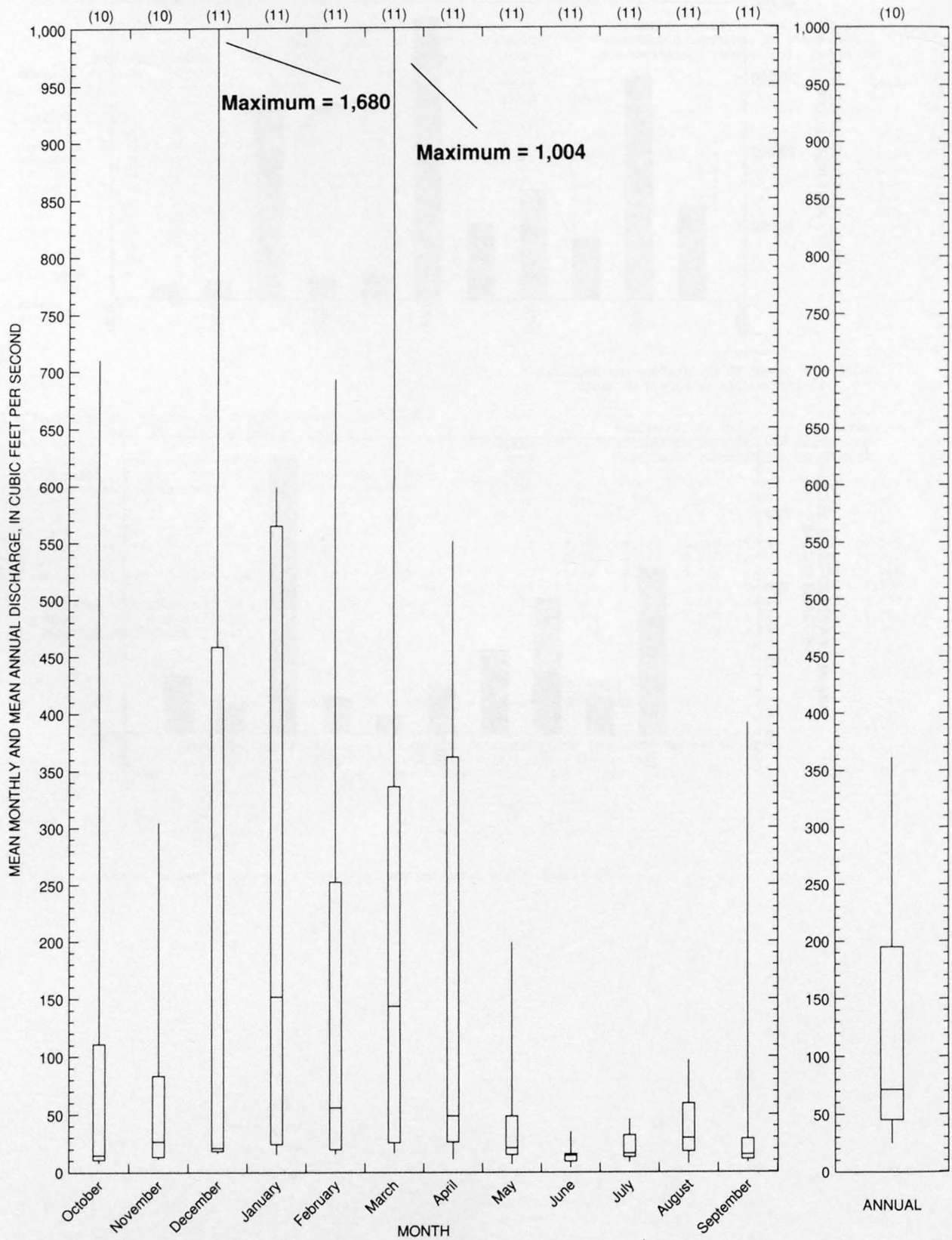
Reliability of values in column is uncertain, and potential errors are large.

09498800 TONTO CREEK NEAR GISELA, AZ--Continued





09498800 TONTO CREEK NEAR GISELA, AZ--Continued



09498870 RYE CREEK NEAR GISELA, AZ

LOCATION.--Lat 34°01'57", long 111°17'26", in SW$^1/_4$ sec.13, T.8 N., R.10 E., Gila County, Hydrologic Unit 15060105, in Tonto National Forest, on right bank, 0.5 mi upstream from mouth, 0.8 mi downstream from bridge on county road, and 4.8 mi south of Gisela.

DRAINAGE AREA.--122 mi^2.

PERIOD OF RECORD.--December 1965 to September 1985 (discontinued).

REVISED RECORDS.--WRD Ariz. 1969: 1967.

GAGE.--Water-stage recorder. Elevation of gage is 2,730 ft above sea level, from topographic map. Prior to Dec. 19, 1967, at datum 1.00 ft higher; Dec. 19, 1967 to Sept. 30, 1983 at datum 2.0 higher.

REMARKS.--Estimated daily discharges: Aug. 3-23 and Sept. 18-30. Records fair.

AVERAGE DISCHARGE.--19 years, 26.7 ft^3/s, 19,340 acre-ft/yr; median of yearly mean discharges, 13 ft^3/s, 9,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,400 ft^3/s Sept. 5, 1970, gage height, 14.1 ft, in gage well, 18.7 ft, from profile past gage, from rating curve extended above 850 ft^3/s on basis of slope-area measurements at gage heights 9.0 and 14.1 ft, datum then in use; minimum daily, 0.20 ft^3/s July 5, 6, 1970.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-22-63	10,000	ES,HP	1976	02-09-76	2,700	
1966	12-22-65	[1]8,130		1977	08-15-77	3,020	
1967	08-09-67	5,290		1978	03-02-78	8,220	
1968	12-19-67	2,520		1979	01-17-79	5,230	
1969	07-25-69	2,080		1980	02-19-80	4,550	
1970	09-05-70	[2]44,400		1981	08-01-81	1,530	
1971	08-19-71	810		1982	08-11-82	5,220	
1972	09-02-72	1,350		1983	09-30-83	4,280	
1973	10-07-72	4,250		1984	09-10-84	1,710	
1974	07-07-74	1,450		1985	12-27-84	2,300	
1975	07-08-75	1,020					

[1]Highest since 1963.

[2]Highest since 1952.

Discharge rating table developed October 1983

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	565	11.0	13,970
5.0	1,170	12.0	18,230
6.0	2,110	13.0	23,250
7.0	3,440	14.0	29,110
8.0	5,230	15.0	35,870
9.0	7,540	16.0	43,570
10.0	10,430	16.1	44,400

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
91.4	15.6	4,390	21.0	3.0	24.2	2.8	5.0

09498870 RYE CREEK NEAR GISELA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1967-85

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	89	0.74	10	21	2.0	3.2
NOVEMBER	71	0.69	11	21	1.9	3.4
DECEMBER	171	0.71	36	55	1.5	11.3
JANUARY	222	1.0	41	61	1.5	12.7
FEBRUARY	495	1.0	80	121	1.5	24.7
MARCH	608	1.2	90	148	1.7	27.9
APRIL	94	1.3	22	27	1.2	6.9
MAY	18	0.99	6.3	5.3	0.84	2.0
JUNE	6.5	0.81	3.2	1.8	0.56	1.0
JULY	12	0.63	4.5	2.7	0.60	1.4
AUGUST	22	1.0	7.1	5.6	0.78	2.2
SEPTEMBER	97	1.1	11	22	2.1	3.3
ANNUAL	77	1.6	27	27	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-85

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.96	0.53	0.37	0.27	0.18	0.14
3	0.98	0.56	0.41	0.31	0.22	0.18
7	1.0	0.62	0.47	0.38	0.29	0.24
14	1.1	0.72	0.57	0.48	0.38	0.33
30	1.2	0.82	0.66	0.55	0.45	0.40
60	1.5	1.0	0.82	0.70	0.58	0.51
90	1.7	1.2	0.97	0.81	0.66	0.57
120	2.1	1.3	1.1	0.89	0.72	0.63
183	2.8	1.8	1.5	1.3	1.1	1.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963, 1966-85

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
2,850	6,100	9,700	16,800	24,600	35,400

WEIGHTED SKEW (LOGS) = 0.79
MEAN (LOGS) = 3.50
STANDARD DEV. (LOGS) = 0.36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-85

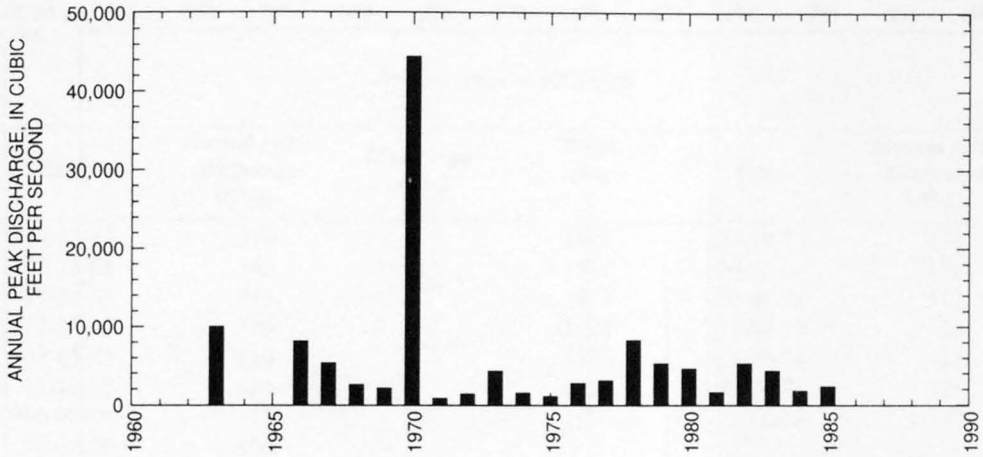
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	534	1,620	2,790	4,890	6,940	9,420
3	289	967	1,730	3,110	4,460	6,090
7	169	616	1,140	2,110	3,070	4,230
15	101	376	706	1,330	1,950	2,720
30	66	240	441	806	1,160	1,590
60	46	170	318	596	874	1,220
90	36	132	247	467	690	968

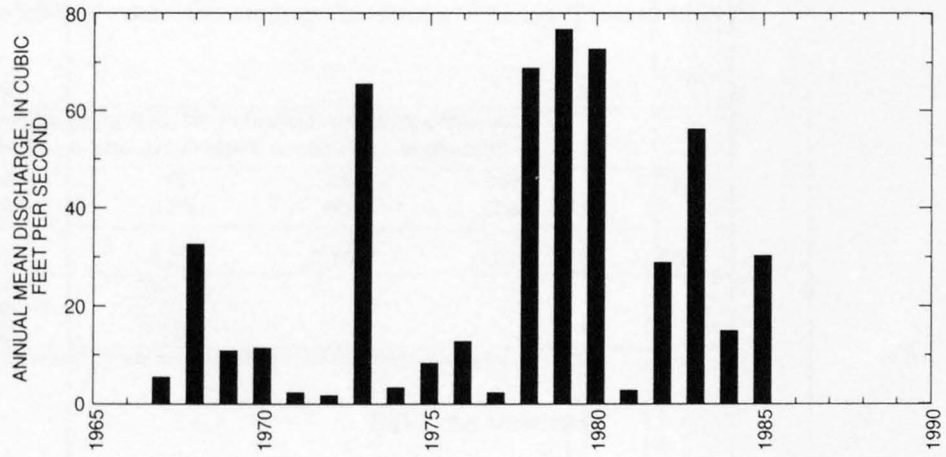
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-85

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
422	111	49	22	11	5.0	3.6	2.7	2.1	1.8	1.5	1.1	0.82	0.60	0.54	0.51	0.36

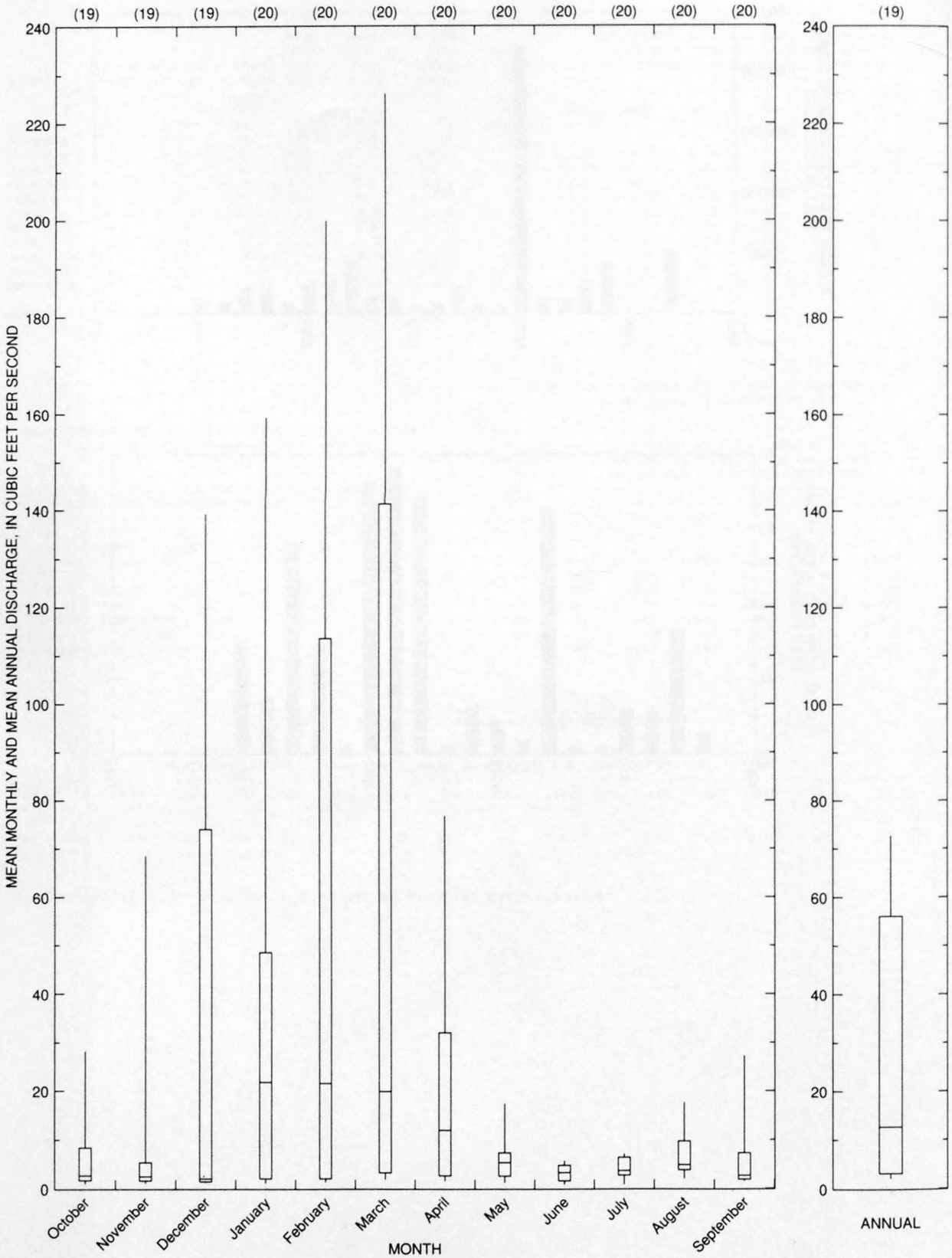
Reliability of values in column is uncertain, and potential errors are large.

09498870 RYE CREEK NEAR GISELA, AZ--Continued





09498870 RYE CREEK NEAR GISELA, AZ--Continued



09498900 GOLD CREEK NEAR PAYSON, AZ

LOCATION.--Lat 34°00'10", long 111°21'30", in SW$^1/_4$ sec.29, T.8 N., R.10 E., Gila County, Hydrologic Unit 15060105, at State Highway 87, 16 mi south of Payson.
DRAINAGE AREA.--6.44 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-22-63	1,370		1971	08-19-71	125	
1964	07-15-64	163		1972	06-22-72	160	
1965	01-07-65	215		1973	10-06-72	515	
1966	12-22-65	500		1974	01-08-74	50	ES
1967	08-05-67	510		1975	10-29-74	12	
1968	12-19-67	620		1976	02-09-76	375	
1969	00-00-69	15	LT	1979	12-18-78	[1]1,120	
1970	09-05-70	2,800					

[1]Highest since 1970.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1979

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
314	795	1,290	2,160	3,020	4,070

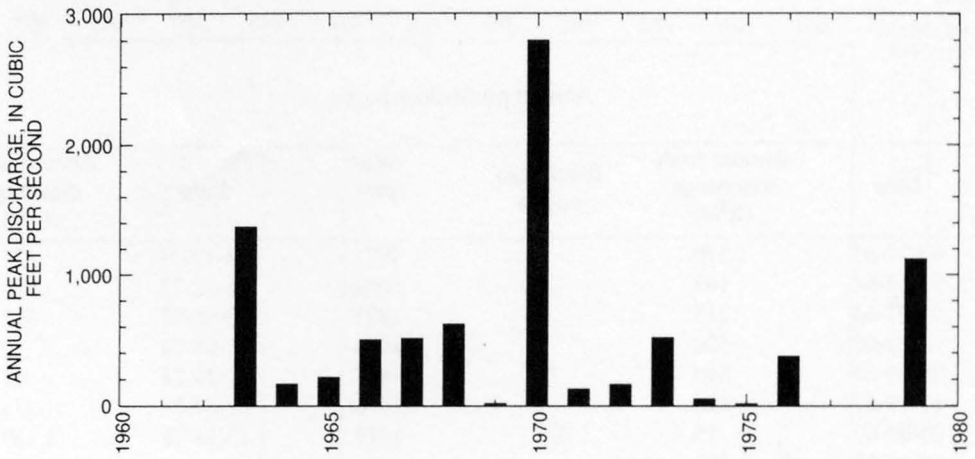
Weighted skew	(logs) =	-0.01
Mean	(logs) =	2.50
Standard dev.	(logs) =	0.48

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
295	4.4	4,590	6.5	3.0	21.0	2.9	5.5

09498900 GOLD CREEK NEAR PAYSON, AZ--Continued



09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ

LOCATION.--Lat 33°58'48", long 111°18'10", in SW$^1/_4$NE$^1/_4$ sec.2, T.7 N., R.10 E., Gila County, Hydrologic Unit 15060105, in Tonto National Forest, on left bank 600 ft upstream from Gun Creek, 25 mi upstream from Roosevelt Dam, and 24 mi northwest of Roosevelt.

DRAINAGE AREA.--675 mi^2.

PERIOD OF RECORD.--December 1940 to current year.

REVISED RECORDS.--WSP 1283: Drainage area. WDR AZ-80-1: 1978(M), WDR AZ-88-1: 1979(P).

GAGE.--Water-stage recorder. Datum of gage is 2,523.14 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Small diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,500 ft^3/s Jan. 8, 1993, gage height, 17.95 ft; maximum gage height, 18.2 ft Sept. 5, 1970; no flow at times.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1941	03-14-41	32,000		1969	01-26-69	10,600	
1942	41-12-11	1,250		1970	09-05-70	53,000	
1943	03-05-43	15,800		1971	09-09-71	5,280	
1944	02-24-44	2,990		1972	12-26-71	2,600	
1945	08-11-45	5320		1973	10-19-72	39,800	
1946	09-18-46	10,200		1974	08-06-74	3,800	
1947	12-28-46	7,130		1975	10-29-74	2,020	
1948	07-26-48	3,240		1976	02-09-76	34,900	
1949	01-13-49	9,890		1977	08-15-77	2,820	
1950	07-16-50	5,500		1978	03-02-78	57,200	
1951	08-28-51	31,100		1979	12-18-78	38,700	
1952	01-18-52	45,400		1980	02-15-80	61,400	
1953	07-30-53	2,620		1981	08-08-81	4,420	
1954	03-23-54	8,100		1982	02-11-82	18,000	
1955	08-06-55	15,200		1983	11-30-82	32,800	
1956	07-18-56	2,330		1984	10-01-83	24,400	
1957	01-09-57	15,000		1985	12-27-84	43,300	
1958	03-22-58	10,600		1986	11-30-85	10,900	
1959	08-19-59	11,100		1987	08-03-87	4,460	
1960	12-26-59	25,200		1988	02-03-88	23,900	
1961	09-08-61	12,900		1989	02-05-89	6,950	
1962	09-06-62	3,000		1990	08-15-90	1,730	
1963	08-22-63	19,700		1991	03-03-91	43,500	
1964	07-30-64	12,000		1992	08-23-92	22,500	
1965	01-07-65	12,900		1993	01-08-93	[1]72,500	
1966	12-22-65	44,700		1994	11-15-93	3,150	
1967	12-07-66	7,550		1995	02-15-95	43,300	
1968	12-19-67	19,700		1996	09-12-96	713	

[1]Highest since 1708, O'Conner and others (1986).

09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ--Continued

Discharge rating table developed February 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	1,620	12.0	25,080
6.0	3,120	13.0	31,140
7.0	5,180	14.0	37,960
8.0	7,850	15.0	45,540
9.0	11,140	16.0	53,900
10.0	15,100	17.0	63,050
11.0	19,730	17.9	71,980

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
88.4	48.3	5,020	65.0	3.0	23.9	2.8	5.4

09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1942-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,050	1.5	61	161	2.6	3.1
NOVEMBER	438	6.5	72	112	1.5	3.7
DECEMBER	2,330	9.9	249	480	1.9	12.7
JANUARY	4,270	16	356	665	1.9	18.2
FEBRUARY	4,190	13	368	663	1.8	18.8
MARCH	4,160	12	480	708	1.5	24.5
APRIL	709	9.0	150	172	1.2	7.7
MAY	285	3.3	41	47	1.1	2.1
JUNE	95	0.00	14	16	1.1	0.7
JULY	207	0.35	22	29	1.3	1.1
AUGUST	1,090	4.5	98	191	1.9	5.0
SEPTEMBER	626	0.78	45	97	2.2	2.3
ANNUAL	652	15	163	161	0.99	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1942-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	1.3	0.00	0.00	0.00	0.00	0.00
3	1.3	0.00	0.00	0.00	0.00	0.00
7	1.8	0.00	0.00	0.00	0.00	0.00
14	2.6	0.07	0.00	0.00	0.00	0.00
30	4.2	0.91	0.26	0.00	0.00	0.00
60	7.4	3.2	1.9	1.2	0.65	0.43
90	11	6.5	4.9	3.8	2.8	2.3
120	14	9.3	7.4	6.1	5.0	4.3
183	21	13	11	9.8	8.8	8.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1941-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11,100	27,000	41,700	64,800	85,100	107,900

WEIGHTED SKEW (LOGS)= -0.30
MEAN (LOGS)= 4.02
STANDARD DEV. (LOGS)= 0.48

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1942-96

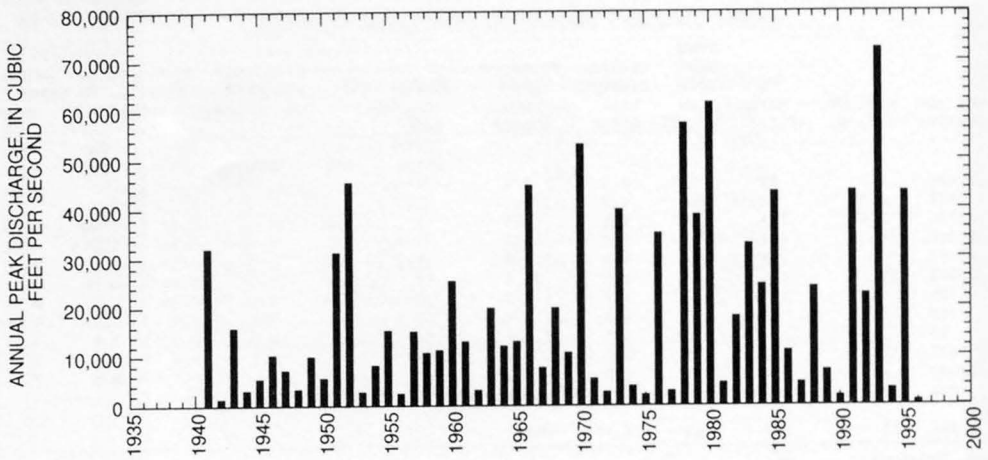
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	4,110	12,300	20,800	35,200	48,600	64,300
3	2,430	6,850	11,300	18,800	25,700	33,700
7	1,420	3,710	5,910	9,470	12,700	16,300
15	860	2,160	3,390	5,370	7,130	9,130
30	582	1,470	2,330	3,720	4,980	6,420
60	386	984	1,570	2,520	3,400	4,420
90	295	750	1,200	1,940	2,620	3,430

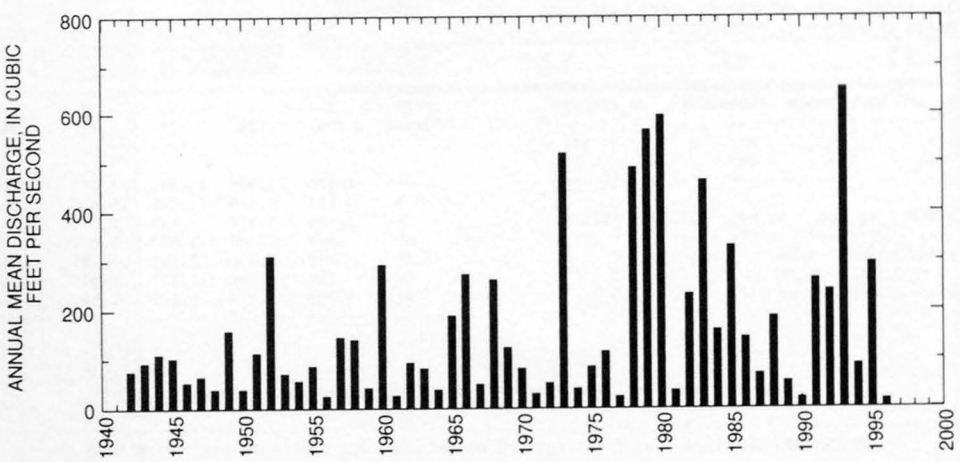
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1942-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,630	586	261	151	98	49	32	24	18	14	9.3	4.8	2.1	0.00	0.00	0.00	0.00

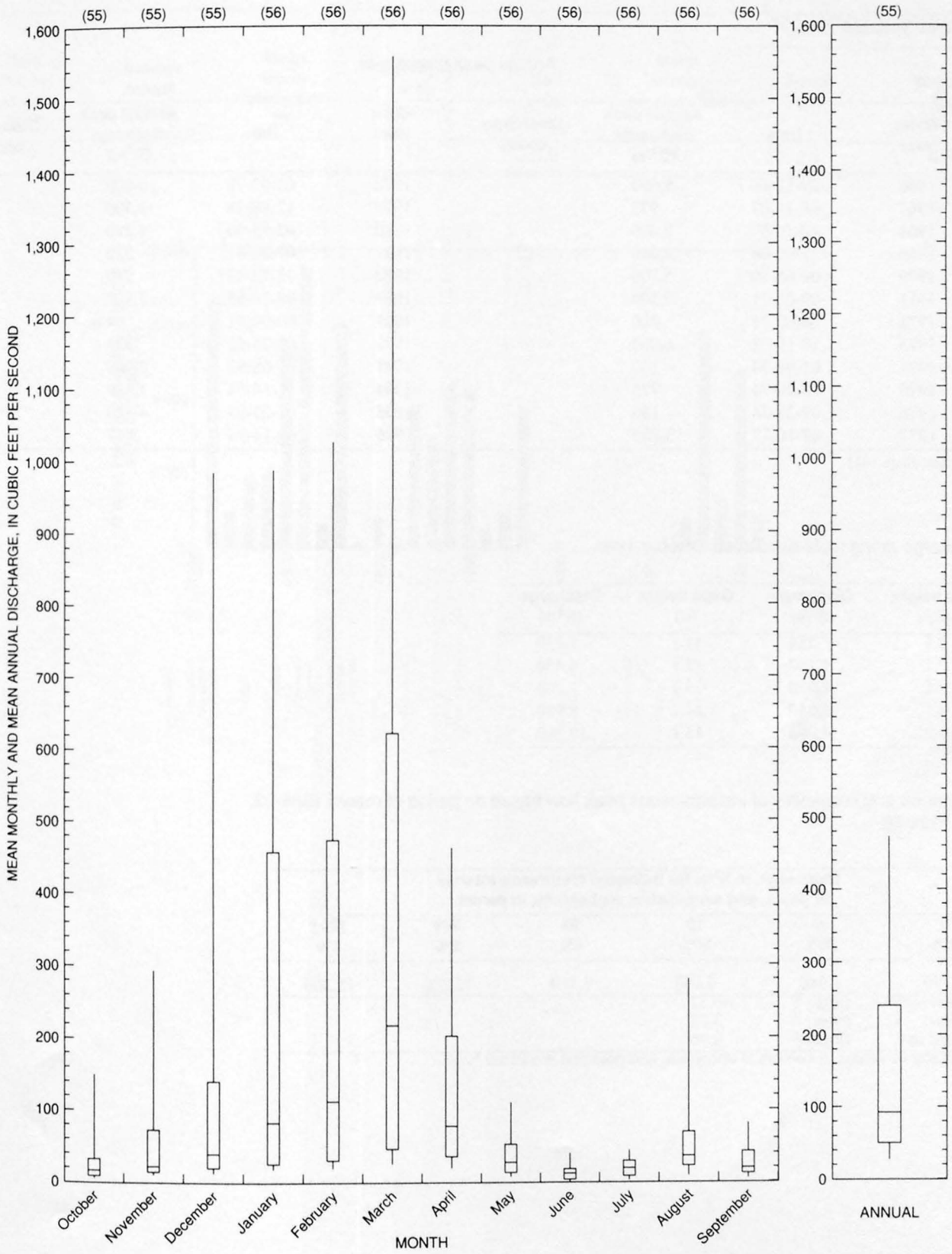
Reliability of values in column is uncertain, and potential errors are large.

09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ--Continued





09499000 TONTO CREEK ABOVE GUN CREEK, NEAR ROOSEVELT, AZ--Continued



09501300 TORTILLA CREEK AT TORTILLA FLAT, AZ

LOCATION.--Lat 33°31'38", long 111°23'13", in NW$^1/_4$ sec.13, T.2 N., R.9 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060106, 600 f upstream from State Highway 88 and Tortilla Flat Store, and 3.7 mi southeast of Mormon Flat Dam.
DRAINAGE AREA.--24.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	09-13-66	6,660		1978	03-02-78	3,000	
1967	08-18-67	975		1979	12-18-78	4,400	
1968	12-19-67	2,000		1980	02-15-80	4,250	
1969	11-00-68	2,000	LT	1981	07-28-81	520	
1970	09-05-70	5,700		1982	03-13-82	910	
1971	09-01-71	[1]7,500		1983	09-30-83	3,800	
1972	08-00-72	600		1991	00-00-91	4.0	
1973	10-19-72	6,000		1992	03-26-92	823	
1974	01-08-74	150		1993	01-08-93	5,900	
1975	10-29-74	775		1994	11-14-93	1,320	
1976	09-25-76	160		1995	01-05-95	4,840	
1977	08-16-77	3,800		1996	09-14-96	847	

[1]Highest since 1941.

Discharge rating table developed October 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.1	584	11.1	5,230
7.1	1,180	12.1	6,450
8.1	2,050	13.1	7,700
9.1	3,050	14.1	8,950
10.1	4,080	15.1	10,300

Magnitude and probability of instantaneous peak flow based on period of record 1966-83, 1991-96

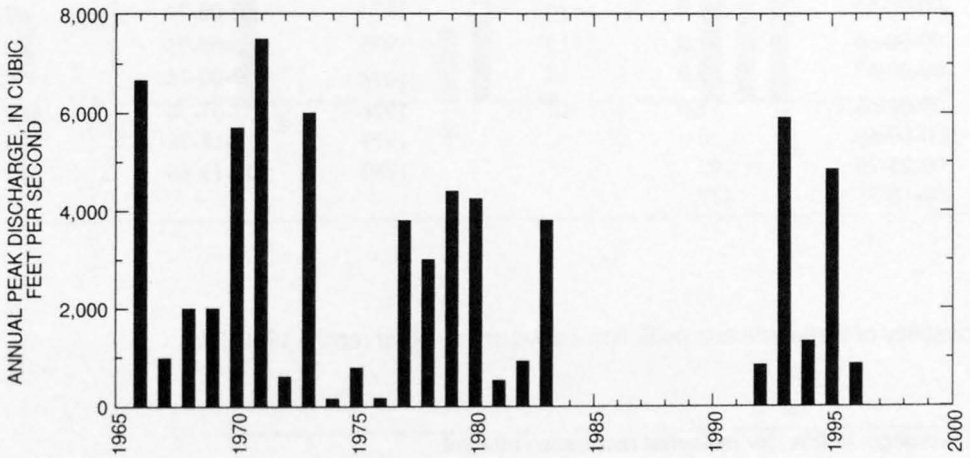
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,740	4,080	6,180	9,410	12,200	15,300
Weighted skew	(logs) =	-0.32			
Mean	(logs) =	3.22			
Standard dev.	(logs) =	0.46			

† Reliability of values in column is uncertain, and potential errors are large.

09501300 TORTILLA CREEK AT TORTILLA FLAT, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
179	13.1	2,690	1.0	1.0	15.0	2.3	4.5



09502700 CROOKTON WASH SELIGMAN, AZ

LOCATION.--Lat 35°17'15", long 112°43'55", in SE$^1/_4$ sec.17, T.22 N., R.4 W., Yavapai County, Hydrologic Unit 15060201, at U.S. Highway 66, 9 mi east of Seligman, and 15 mi west of Ashfork.

DRAINAGE AREA.--6.01 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	1.0	LT	1972	00-00-72	2.0	ES
1964	08-01-64	168		1973	00-00-73	10	
1965	00-00-65	1.0	LT	1974	00-00-74	0	
1966	00-00-66	1.0	LT	1975	00-00-75	0	
1967	09-00-67	3.0	LT	1976	00-00-76	6.5	
1968	00-00-68	1.0	LT	1978	03-01-78	[1]480	
1969	00-00-69	0		1979	12-18-78	125	
1970	09-05-70	92		1980	02-19-80	240	
1971	08-18-71	477					

[1]Highest since 1964.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1978-80

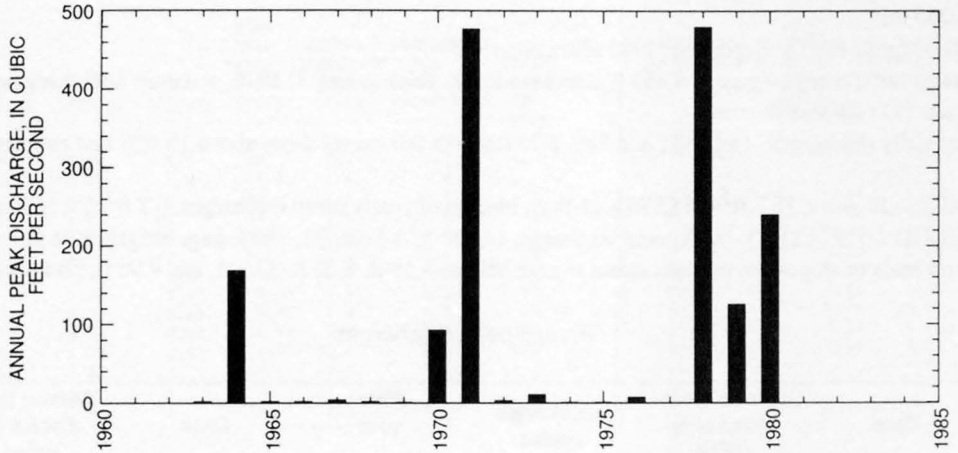
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
7.2	86.2	310	1,200	2,870	6,250
Weighted skew	(logs) =	-0.05			
Mean	(logs) =	0.85			
Standard dev.	(logs) =	1.29			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
111	4.8	5,970	27.0	3.0	15.5	1.7	3.5

09502700 CROOKTON WASH SELIGMAN, AZ--Continued



09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ

LOCATION.--Lat 34°52'00", long 112°36'45", in $SE^1/_4SE^1/_4$ sec.7, T.17 N., R.3 W., Yavapai County, Hydrologic Unit 15060201, on left bank 3.6 mi north of Simmons and 8.5 mi west of Paulden.

DRAINAGE AREA.--255 mi^2.

PERIOD OF RECORD.--March 1965 to September 1985 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 4,455 ft above sea level. Prior to Oct. 1, 1970, at datum 1.00 ft higher. Datum of 4,447 ft published in WRD Ariz. 1971-76 was in error.

REMARKS.--Estimated daily discharges: Oct. 9-31 and Feb. 1-7. Records fair except those above 15 ft^3/s and estimated daily dicharges, which are poor.

AVERAGE DISCHARGE.--20 years, 15.7 ft^3/s, 11,370 acre-ft/yr; median of yearly mean discharges, 6.2 ft^3/s, 4,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft^3/s Sept. 23, 1983, gage height, 9.96 ft from rating curve extended above 2,200 ft^3/s on basis of slope-area measurements at gage heights 6.38 ft, 8.22 ft, 8.93 ft, and 9.96 ft; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	04-10-65	820		1976	02-09-76	3,910	
1966	12-30-65	3,630		1977	09-12-77	1,300	
1967	12-07-66	1,710		1978	03-01-78	7,490	
1968	01-28-68	2,120		1979	12-18-78	4,890	
1969	02-26-69	400		1980	02-20-80	10,100	
1970	08-19-70	445		1981	08-08-81	137	
1971	08-23-71	465		1982	02-11-82	572	
1972	08-12-72	254		1983	09-23-83	14,800	
1973	10-19-72	1,940		1984	10-05-83	1,280	
1974	09-27-74	570		1985	12-27-84	2,780	
1975	11-02-74	112					

[1]Highest since 1964.

Discharge rating table developed October 1982

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	640	7.5	5,690
5.0	1,670	8.0	7,100
5.5	2,280	8.5	8,760
6.0	2,950	9.0	10,620
6.5	3,700	9.5	12,690
7.0	4,590	9.9	14,510

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
48.6	19.2	5,120	42.0	2.0	17.3	2.1	4.0

09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-85

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	77	0.00	6.7	18	2.7	3.5
NOVEMBER	28	0.49	5.0	6.9	1.4	2.6
DECEMBER	185	0.93	26	49	1.9	13.8
JANUARY	175	1.8	21	41	2.0	10.9
FEBRUARY	513	1.6	58	116	2.0	30.4
MARCH	381	1.3	48	94	2.0	25.2
APRIL	40	0.99	5.6	9.7	1.7	3.0
MAY	3.7	0.00	1.5	0.99	0.66	0.8
JUNE	2.1	0.00	0.66	0.68	1.0	0.3
JULY	3.7	0.02	0.88	0.92	1.0	0.5
AUGUST	15	0.32	3.4	4.7	1.4	1.8
SEPTEMBER	233	0.03	14	52	3.8	7.2
ANNUAL	63	1.6	16	18	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-85

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.15	0.00	0.00	0.00	0.00	0.00
60	0.33	0.04	0.00	0.00	0.00	0.00
90	0.56	0.20	0.09	0.00	0.00	0.00
120	0.73	0.34	0.22	0.14	0.08	0.06
183	1.3	0.52	0.31	0.20	0.12	0.08

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1965-85

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1,310	4,080	7,360	13,700	20,400	29,200

WEIGHTED SKEW (LOGS)= -0.05
MEAN (LOGS)= 3.11
STANDARD DEV. (LOGS)= 0.59

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-85

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	487	1,950	3,690	6,870	9,950	13,600
3	251	1,020	1,950	3,680	5,360	7,370
7	130	538	1,070	2,160	3,320	4,810
15	73	293	580	1,170	1,800	2,630
30	44	171	341	696	1,090	1,640
60	28	102	200	409	650	986
90	20	71	137	279	446	681

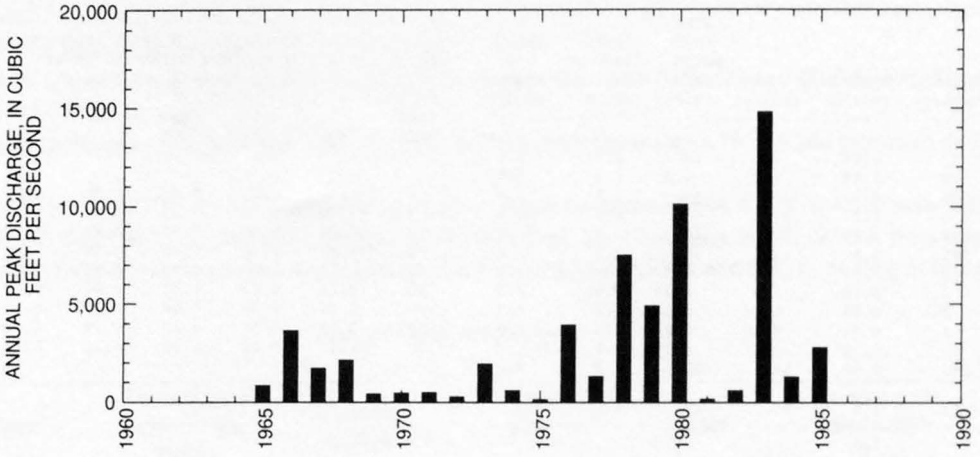
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-85

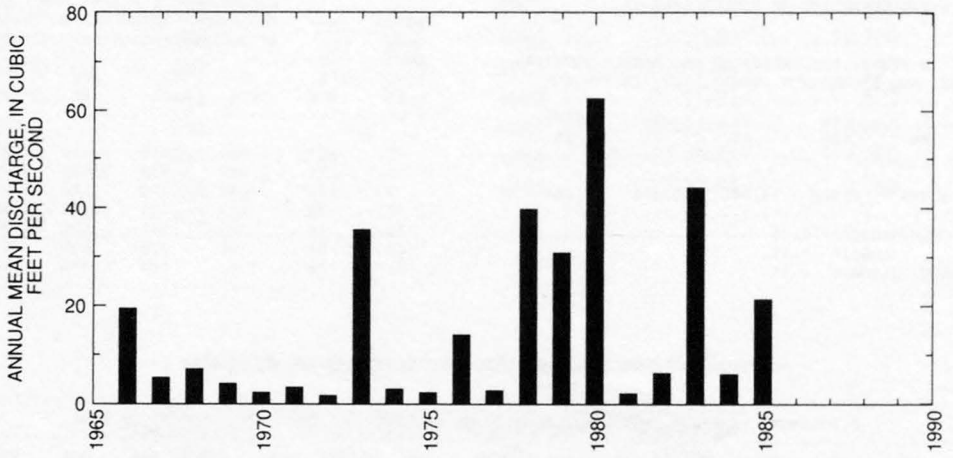
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
257	34	7.7	4.9	4.0	3.0	2.3	1.9	1.5	1.0	0.54	0.13	0.00	0.00	0.00	0.00	0.00

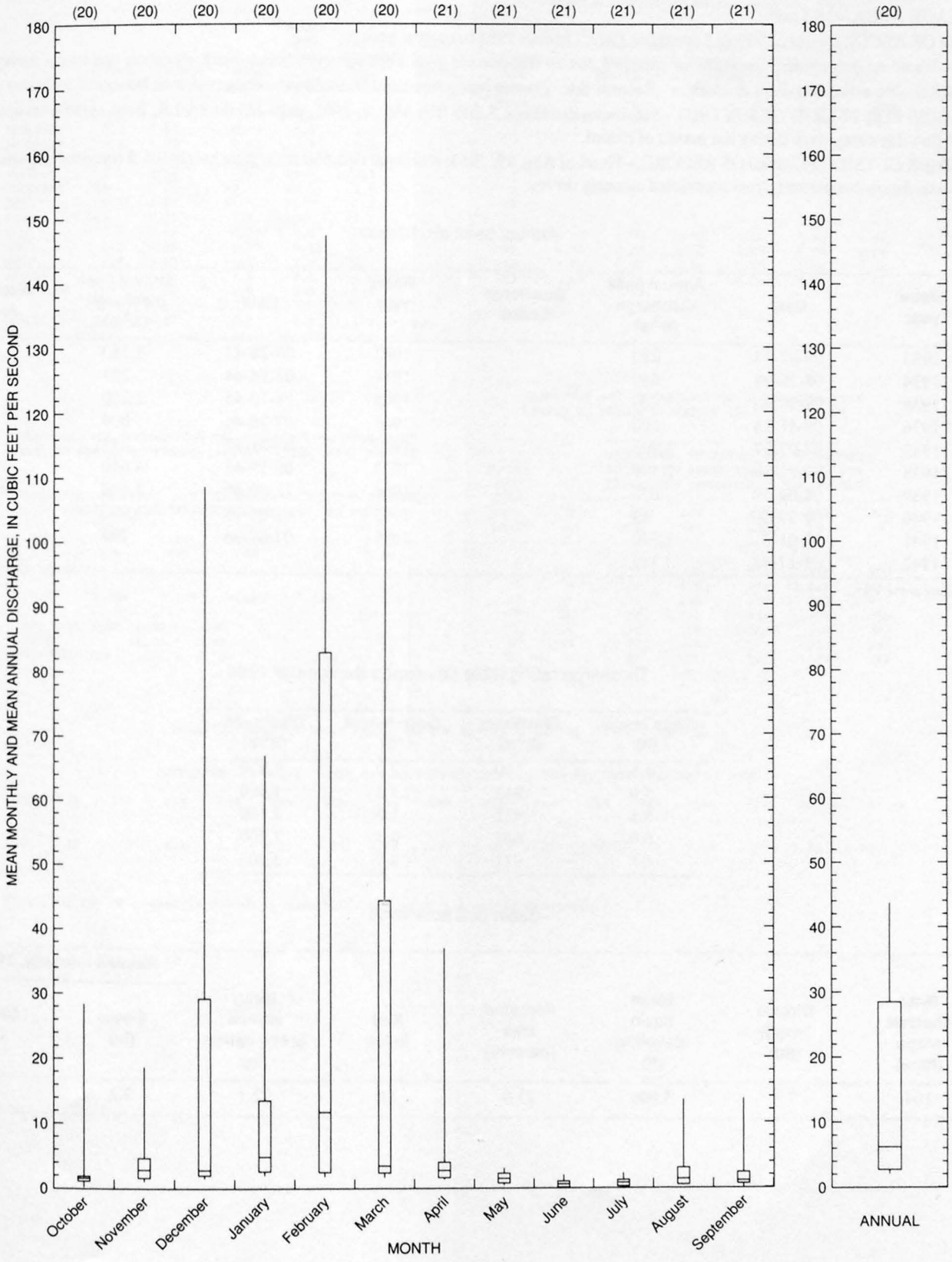
Reliability of values in column is uncertain, and potential errors are large.

09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ--Continued





09502800 WILLIAMSON VALLEY WASH NEAR PAULDEN, AZ--Continued



09503000 GRANITE CREEK NEAR PRESCOTT, AZ

LOCATION.--Lat 34°34', long 112°27', in SW$^1/_4$ sec.26, T.14 N., R.2 W., (unsurveyed), Yavapai County, Hydrologic Unit 15060202, at bridge on U.S. Highway 89, 2 mi north of Prescott and 4.5 mi upstream from Willow Creek.

DRAINAGE AREA.--36.3 mi^2.

PERIOD OF RECORD.--July 1932 to September 1947, October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,204.29 ft above sea level from surveyed bench-mark elevation and levels survey.

REMARKS.--No estimated daily discharges. Records fair. Flow is partly regulated by Goldwater Reservoirs on Bannon Creek.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,200 ft^3/s Mar. 6, 1995, gage-height 8.90 ft, from slope-conveyance survey. No flow for many days during the period of record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 19, 1963, discharge of 6,660 ft^3/s, gage height 9.4 ft (original gage height of 12.4 ft with datum correction), from contracted opening survey.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1933	09-07-33	230		1943	08-28-43	1,780	
1934	08-30-34	450		1944	03-14-44	297	
1935	08-30-35	600		1945	08-10-45	2,200	
1936	09-11-36	500		1946	07-20-46	899	
1937	02-07-37	2,900		1947	07-21-47	251	
1938	03-03-38	2,400		1963	08-19-63	[1]6,660	HP
1939	08-04-39	638		1966	12-00-65	1,500	HP
1940	09-29-40	83		1995	03-06-95	3,200	
1941	03-01-41	1,530		1996	07-09-96	795	
1942	08-17-42	1,110					

[1]Highest since 1932.

Discharge rating table developed September 1994

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.5	140	7.0	1,270
5.0	262	7.5	1,680
5.5	431	8.0	2,160
6.0	652	8.5	2,700
6.5	931	8.9	3,200

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
104	7.3	5,900	73.0	1.0	22.1	2.2	4.5

09503000 GRANITE CREEK NEAR PRESCOTT, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1933-47, 1995-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7.3	0.00	0.73	1.8	2.4	1.0
NOVEMBER	2.8	0.00	0.46	0.86	1.8	0.6
DECEMBER	33	0.00	3.0	7.9	2.7	4.1
JANUARY	35	0.00	5.1	11	2.1	7.0
FEBRUARY	159	0.00	22	42	1.9	30.5
MARCH	79	0.00	27	32	1.2	36.9
APRIL	67	0.00	7.8	16	2.1	10.7
MAY	7.0	0.00	0.95	1.8	1.8	1.3
JUNE	1.2	0.00	0.19	0.32	1.6	0.3
JULY	7.8	0.00	1.2	1.8	1.6	1.6
AUGUST	8.3	0.00	2.5	2.6	1.0	3.5
SEPTEMBER	12	0.00	1.8	3.2	1.7	2.5
ANNUAL	24	0.37	6.0	7.2	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1934-47, 1996

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.02	0.00	0.00	0.00	0.00	0.00
120	0.09	0.00	0.00	0.00	0.00	0.00
183	0.58	0.18	0.06	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1933-47, 1963, 1966, 1995-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
916	2,000	2,990	4,580	6,030	7,710

WEIGHTED SKEW (LOGS)= -0.04
MEAN (LOGS)= 2.96
STANDARD DEV. (LOGS)= 0.40

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1933-47, 1995-96

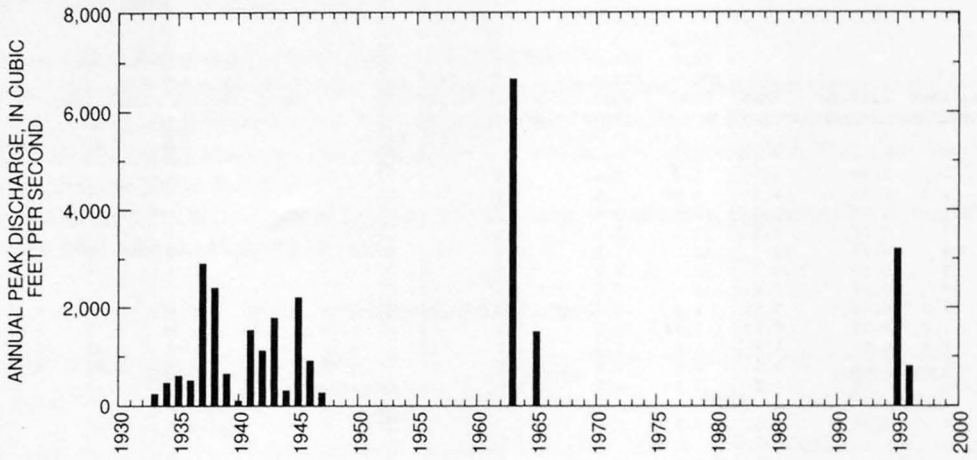
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	117	375	748	1,660	2,880	4,850
3	69	221	426	898	1,490	2,380
7	45	130	235	459	721	1,090
15	29	84	155	309	492	759
30	19	58	109	222	359	563
60	12	37	69	141	229	362
90	9.1	27	51	104	167	262

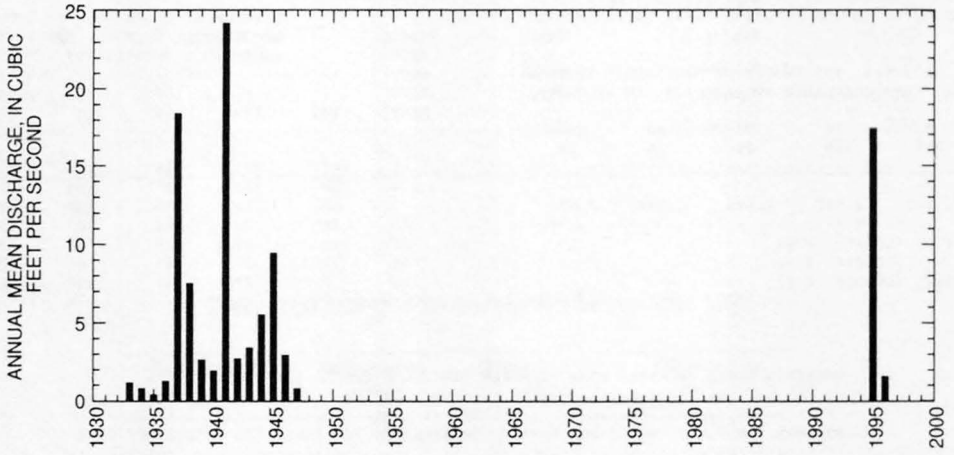
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1933-47, 1995-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
99	26	10	4.8	2.6	0.80	0.31	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

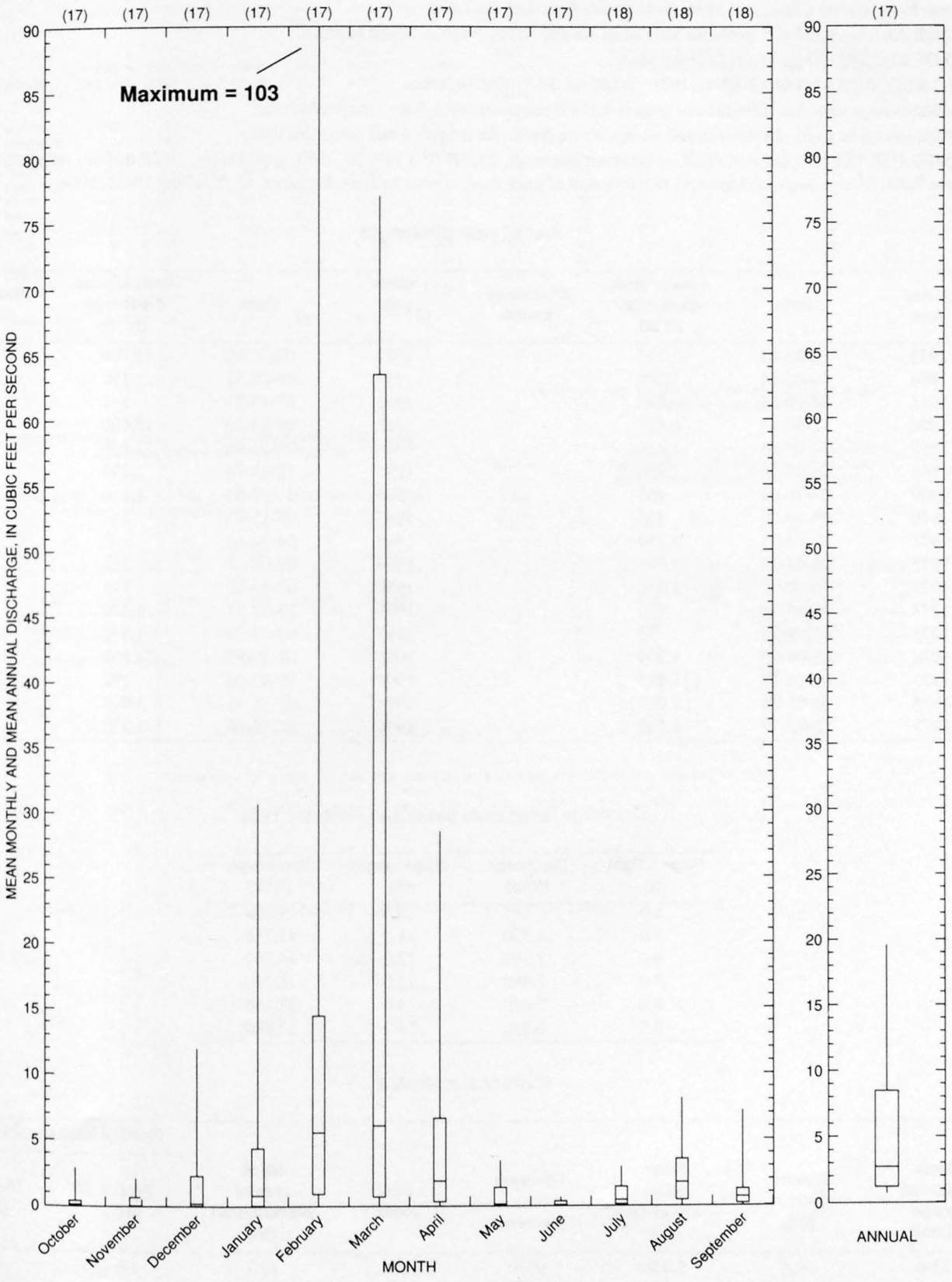
Reliability of values in column is uncertain, and potential errors are large.

09503000 GRANITE CREEK NEAR PRESCOTT, AZ--Continued





09503000 GRANITE CREEK NEAR PRESCOTT, AZ--Continued



09503700 VERDE RIVER NEAR PAULDEN, AZ

LOCATION.--Lat 34°53'40", long 112°20'32", in $SW^1/_4SE^1/_4$ sec.39, T.18 N., R.1 W., Yavapai County, Hydrologic Unit 15060202, in Prescott National Forest, on right bank 0.3 mi upstream from Verde Valley Ranch, 7 mi east of Paulden, 8 mi upstream from Hell Canyon, 8 mi downstream from Granite Creek, and 10 mi downstream from Sullivan Lake.

DRAINAGE AREA.--2,507 mi^2 (includes 357 mi^2 in Aubrey Valley Playa, a closed basin).

PERIOD OF RECORD.--July 1963 to current year.

REVISED RECORDS.--WDR AZ-83-1: 1981. WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,117 ft above sea level, from topographic map.

REMARKS.--Records good. Diversions and storage above station for irrigation and municipal use.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft^3/s Feb. 20, 1993, gage height, 14.25 ft, from rating curve extended above 7,600 ft^3/s on basis of slope-area measurement of peak flow; minimum daily discharge, 15 ft^3/s May 13-23, 1964.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-25-63	710		1980	02-20-80	15,700	
1964	08-05-64	1,270		1981	08-09-81	195	
1965	04-10-65	685		1982	03-16-82	541	
1966	12-30-65	6,130		1983	09-24-83	15,600	
1967	12-07-66	1,250		1984	09-01-84	3,650	
1968	01-28-68	1,800		1985	12-28-84	2,390	
1969	07-26-69	465		1986	11-30-85	1,460	
1970	08-19-70	705		1987	08-12-87	217	
1971	08-13-71	2,270		1988	04-26-88	342	
1972	08-08-72	1,620		1989	07-08-89	263	
1973	10-20-72	3,040		1990	07-15-90	123	
1974	09-05-74	270		1991	03-02-91	6,320	
1975	07-09-75	73		1992	02-14-92	1,590	
1976	02-09-76	4,340		1993	02-20-93	23,200	
1977	09-12-77	1,290		1994	09-02-94	192	
1978	03-01-78	8,080		1995	02-15-95	3,960	
1979	12-19-78	5,700		1996	07-15-96	1,030	

Discharge rating table developed February 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	717	10.0	9,120
5.0	1,370	11.0	11,750
6.0	2,280	12.0	14,780
7.0	3,490	13.0	18,250
8.0	5,020	14.0	22,150
9.0	6,890	14.2	22,990

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
23.8	78.4	5,410	60.0	2.8	16.3	1.9	3.8

09503700 VERDE RIVER NEAR PAULDEN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1964-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	200	19	32	33	1.0	5.8
NOVEMBER	44	20	27	5.2	0.19	4.9
DECEMBER	295	22	44	57	1.3	7.9
JANUARY	861	22	63	149	2.4	11.4
FEBRUARY	1,440	20	127	325	2.6	23.1
MARCH	669	19	80	128	1.6	14.5
APRIL	155	21	33	25	0.76	6.0
MAY	31	16	25	2.8	0.11	4.6
JUNE	28	20	24	2.1	0.08	4.4
JULY	36	21	26	3.6	0.14	4.8
AUGUST	81	23	31	12	0.39	5.6
SEPTEMBER	440	20	39	72	1.9	7.0
ANNUAL	215	24	45	40	0.87	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	22	20	18	17	16	15
3	22	20	19	17	16	15
7	22	20	19	18	16	15
14	23	20	19	18	16	15
30	23	21	20	19	17	16
60	23	21	20	20	19	18
90	24	22	21	20	20	19
120	24	23	22	21	20	20
183	25	23	23	22	22	22

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
1,380	4,550	8,540	16,700	25,900	38,400

WEIGHTED SKEW (LOGS)= 0.03
MEAN (LOGS)= 3.14
STANDARD DEV. (LOGS)= 0.61

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-96

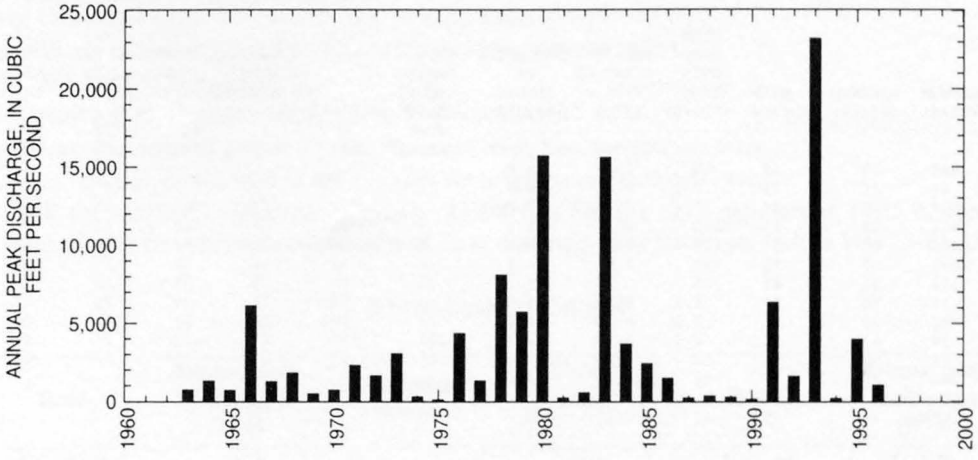
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	513	2,040	4,340	9,930	17,200	28,300
3	318	1,200	2,500	5,660	9,750	16,100
7	184	634	1,300	2,930	5,110	8,610
15	115	365	738	1,700	3,040	5,300
30	81	231	447	990	1,740	3,000
60	57	145	270	580	1,010	1,740
90	48	110	193	394	663	1,110

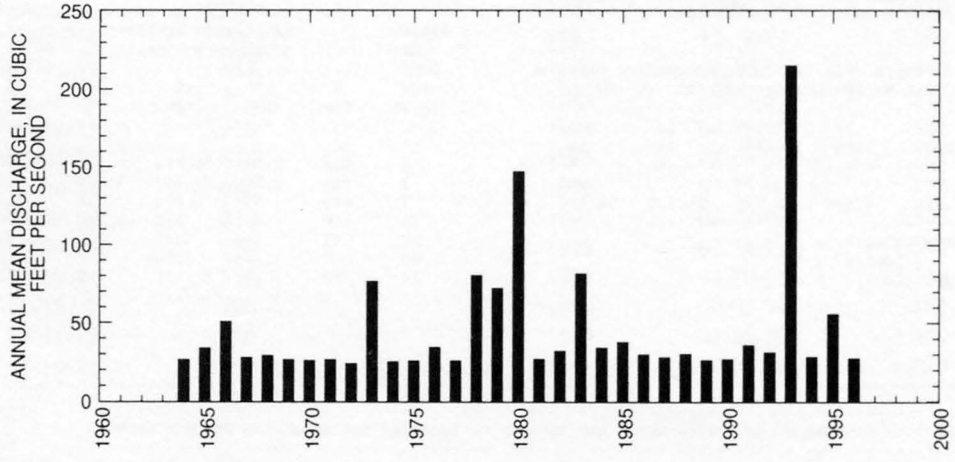
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
431	46	32	31	30	28	27	26	25	24	23	22	21	19	18	18	16

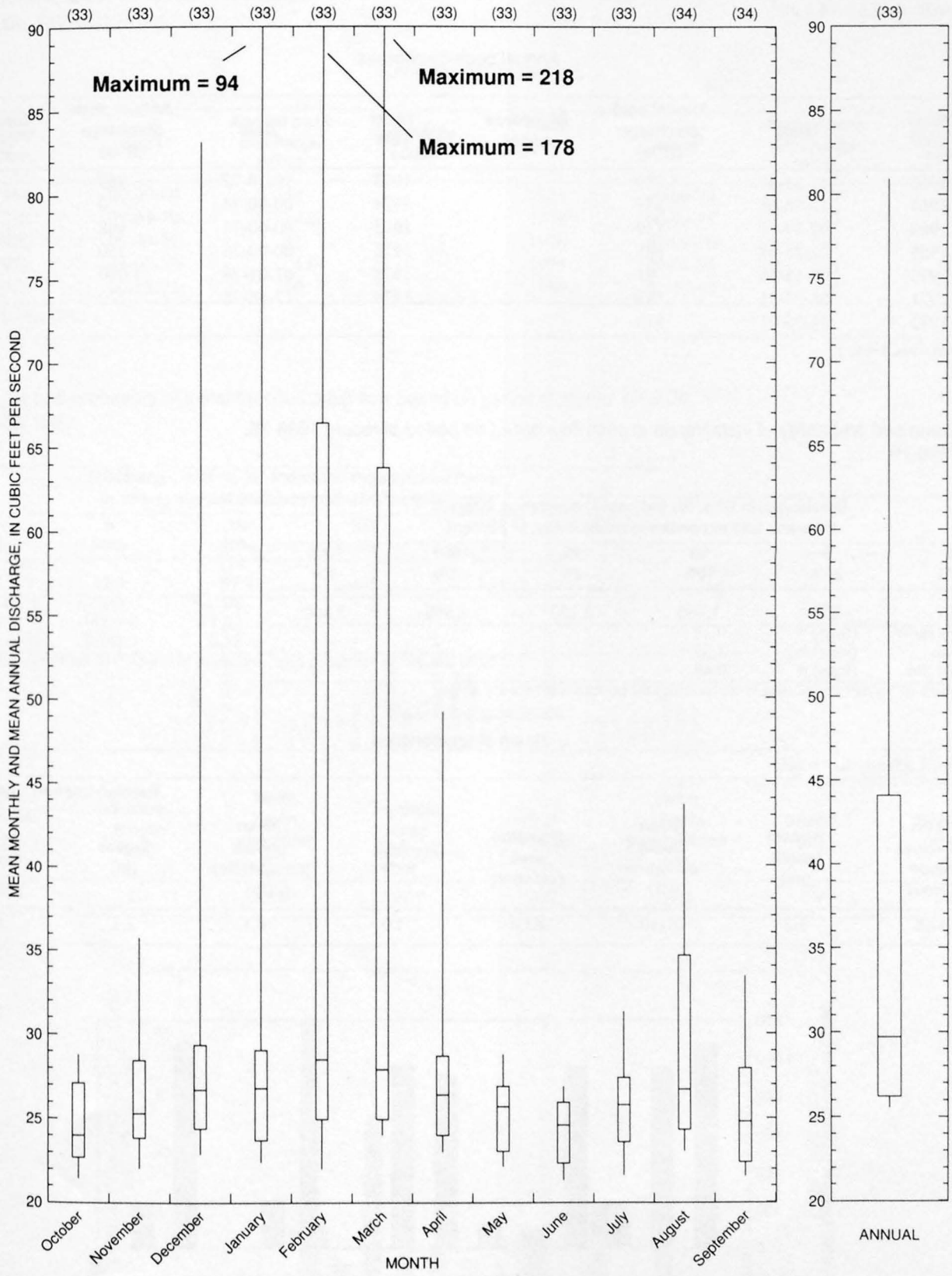
Reliability of values in column is uncertain, and potential errors are large.

09503700 VERDE RIVER NEAR PAULDEN, AZ--Continued





09503700 VERDE RIVER NEAR PAULDEN, AZ--Continued



09503720 HELL CANYON NEAR WILLIAMS, AZ

LOCATION.--Lat 35°09'37", long 112°12'35", in $NW^1/_4NW^1/_4$ sec.32, T.21 N., R.2 E., Coconino County, Hydrologic Unit 15060202, in Kaibab National Forest, on right bank 6 mi south of Williams.

DRAINAGE AREA.--14.9 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	11-25-65	1,080		1973	10-19-72	960	
1967	12-06-66	955		1974	00-00-74	0	
1968	02-24-68	139		1975	00-00-75	108	
1969	01-25-69	955		1976	00-00-76	250	
1970	03-15-70	91		1978	03-01-78	[1]1,080	
1971	08-04-71	133		1979	12-18-78	220	
1972	12-26-71	910					

[1]Highest since 1966.

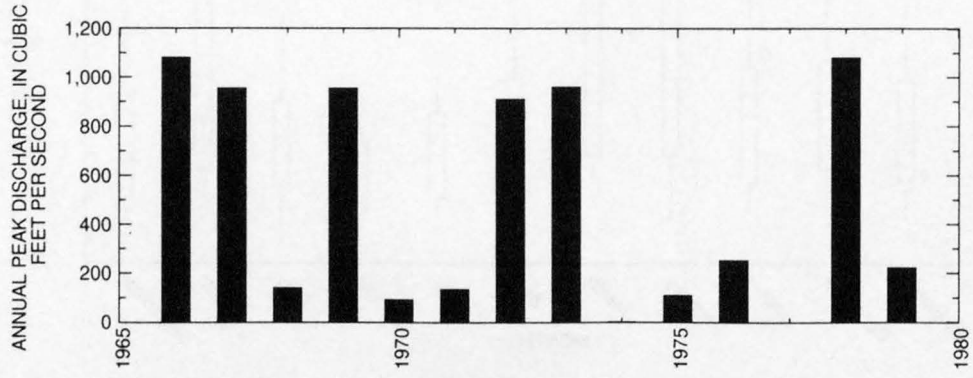
Magnitude and probability of instantaneous peak flow based on period of record 1966-76, 1978-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
346	862	1,360	2,190	2,960	3,860
Weighted skew	(logs) =	-0.18			
Mean	(logs) =	2.53			
Standard dev.	(logs) =	0.48			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
47.8	5.3	7,110	88.0	3.0	24.1	2.3	4.2



09503740 HELL CANYON TRIBUTARY NEAR ASHFORK, AZ

LOCATION.--Lat 35°05'02", long 112°24'28", in SW$^1/_4$ sec.30, T.20 N., R.1 W., Yavapai County, Hydrologic Unit 15060202, 0.5 mi upstream from mouth, and 11 mi southeast of Ashfork.

DRAINAGE AREA.--0.75 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	00-00-69	84		1974	00-00-74	0	
1970	09-04-70	4.0		1975	00-00-75	0	
1971	00-00-71	52		1976	02-09-76	10	
1972	04-00-72	4.0		1978	03-01-78	[1]24	HP
1973	10-19-72	10		1980	02-19-80	20	HP

[1]Highest since 1971.

Magnitude and probability of instantaneous peak flow based on period of record 1969-76, 1978, 1980

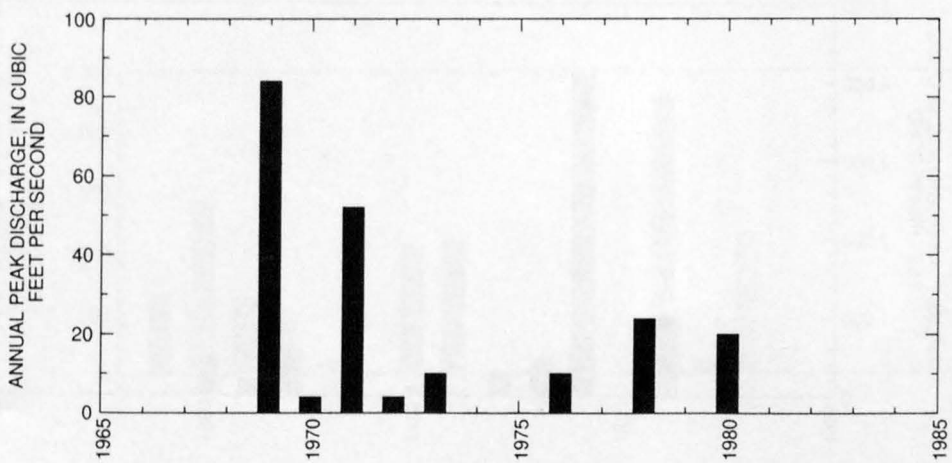
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
10.5	32.3	57.4	105	156	220

Weighted skew (logs) = -0.08
Mean (logs) = 1.02
Standard dev. (logs) = 0.58

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
78.4	1.7	5,180	91.0	3.0	17.2	1.7	3.8



09503750 LIMESTONE CANYON NEAR PAULDEN, AZ

LOCATION.--Lat 34°58'48", long 112°24'05", in S$^1/_2$ sec.31, T.19 N., R.1 W., Yavapai County, Hydrologic Unit 15060202, 1.3 mi upstream from mouth, 1.5 mi west of drake, and 7.5 mi northeast of Paulden.

DRAINAGE AREA.--14.5 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1969	00-00-69	1,100		1975	11-02-74	125	
1970	09-04-70	10	ES	1976	00-00-76	1.0	ES
1971	08-12-71	4,100		1978	03-01-78	[1]580	
1972	08-12-72	470		1979	12-18-78	200	
1973	10-07-72	275		1980	02-14-80	500	

[1]Highest since 1971.

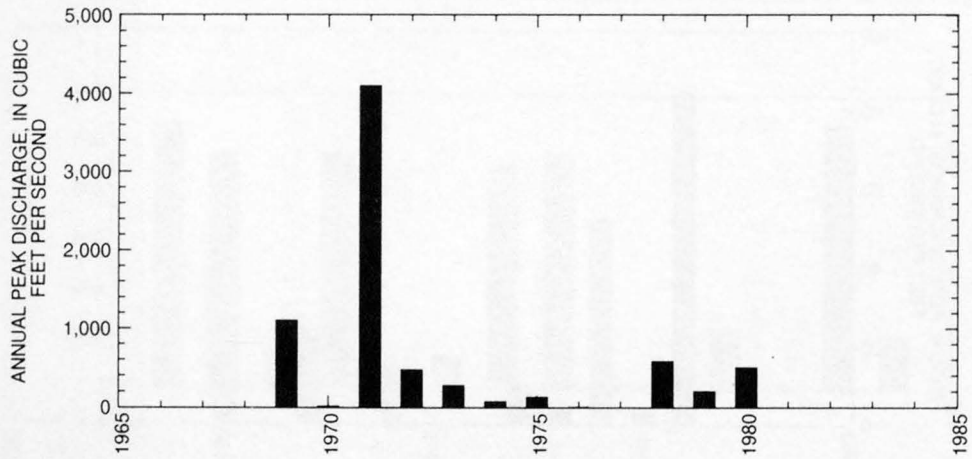
Magnitude and probability of instantaneous peak flow based on period of record 1969-76, 1978-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
239	1,020	2,080	4,270	6,670	9,820
Weighted skew	(logs) =	-0.30			
Mean	(logs) =	2.34			
Standard dev.	(logs) =	0.78			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
87.3	8.4	5,310	100	3.0	15.5	1.8	3.8



09503800 VOLUNTEER WASH NEAR BELLEMONT, AZ

LOCATION.--Lat 35°09'02", long 111°53'54", in $SE^1/_4SE^1/_4$ sec.31, T.21 N., R.5 E., Coconino County, Hydrologic Unit 15060202, in Kaibab National Forest, in Navajo Army Depot military reservation, on right bank 7 mi southwest of Bellemont, and 14 mi west of Flagstaff.
DRAINAGE AREA.--131 mi^2, of which 6.93 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	03-12-66	660		1973	10-19-72	1,100	
1967	12-07-66	1,430		1974	00-00-74	0	
1968	02-24-68	632		1975	00-00-75	49	
1969	01-26-69	447		1976	00-00-76	180	
1970	04-04-70	96		1978	03-01-78	[1]2,300	
1971	00-00-71	0		1979	12-18-78	100	
1972	12-26-71	1,050		1980	02-19-80	1,160	

[1]Highest since 1965.

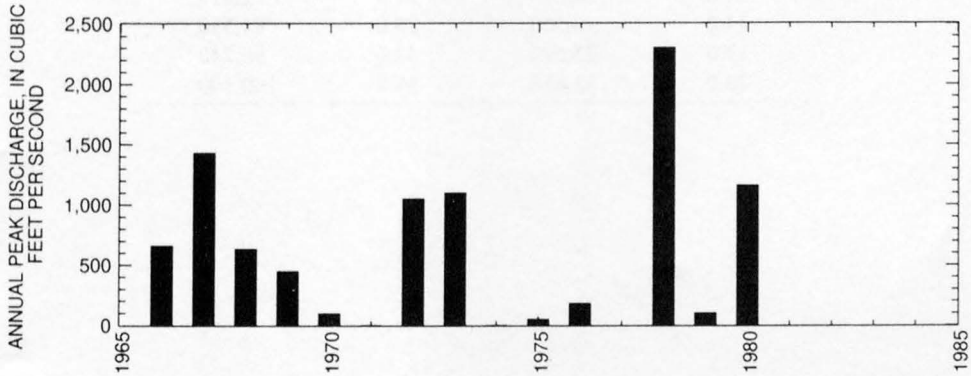
Magnitude and probability of instantaneous peak flow based on period of record 1966-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
357	1,160	2,040	3,610	5,110	6,890
Weighted skew	(logs) =	-0.37			
Mean	(logs) =	2.51			
Standard dev.	(logs) =	0.65			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
56.6	20.0	7,620	76.0	3.0	25.7	2.3	4.2



09504000 VERDE RIVER NEAR CLARKDALE, AZ

LOCATION.--Lat 34°51'08", long 112°03'55", in $SE^1/_4NW^1/_4SE^1/_4$ sec.17, T.17 N., R.3 E., Yavapai County, Hydrologic Unit 15060202, in Prescott National Forest, on left bank 1.7 mi downstream from Sycamore Creek and 5.6 mi north of Clarkdale.

DRAINAGE AREA.--3,503 mi^2, of which 364 mi^2 is noncontributing including 357 mi^2 in Aubrey Valley Playa, a closed basin.

PERIOD OF RECORD.--June 1915 to October 1916, May 1917 to July 1921, April 1965 to current year.

REVISED RECORDS.--WSP 1213: 1917, 1920. WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,500 ft above sea level, from topographic map. June 1915 to June 1921, at site 2.5 mi downstream at different datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,200 ft^3/s Feb. 20, 1993, gage height, 26.39 ft, from rating curve extended above 20,000 ft^3/s on basis of slope-area measurement at 53,200 ft^3/s; minimum daily, 55 ft^3/s Aug. 31, Sept. 1, 1920.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	01-18-16	6,860	HP	1980	02-15-80	30,100	
1918	03-08-18	35,500	HP	1981	09-23-81	1,150	
1920	02-21-20	50,600	HP	1982	03-12-82	15,720	
1966	12-10-65	12,900		1983	09-24-83	14,400	
1967	12-06-66	22,500		1984	09-02-84	4,010	
1968	01-28-68	1,630		1985	12-28-84	4,760	
1969	01-25-69	14,800		1986	11-30-85	5,880	
1970	09-06-70	717		1987	03-08-87	1,620	
1971	07-31-71	3,930		1988	11-01-87	8,810	
1972	12-26-71	7,540		1989	10-14-88	461	
1973	10-19-72	14,000		1990	08-16-90	1,980	
1974	09-26-74	3,960		1991	03-02-91	6,490	
1975	03-20-75	1,560		1992	02-13-92	7,580	
1976	02-09-76	18,000		1993	02-20-93	[1]53,200	
1977	08-10-77	2,660		1994	09-02-94	1,860	
1978	03-01-78	25,000		1995	03-06-95	21,400	
1979	12-18-78	19,900		1996	09-06-96	3,490	

[1]Highest since 1906.

Discharge rating table developed February 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	1,140	23.0	42,420
5.0	3,070	26.0	51,920
8.0	7,120	29.0	62,130
11.0	12,330	32.0	73,010
14.0	18,550	35.0	84,550
17.0	25,690	38.0	96,740
20.0	33,660	38.8	100,100

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
22.9	115	5,490	73.0	2.9	19.1	2.0	4.0

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1916, 1918-20, 1966-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1,080	68	119	173	1.5	5.0
NOVEMBER	736	70	131	130	0.99	5.5
DECEMBER	1,030	75	206	258	1.3	8.7
JANUARY	2,800	73	222	467	2.1	9.4
FEBRUARY	3,490	74	510	860	1.7	21.5
MARCH	2,760	73	516	561	1.1	21.7
APRIL	1,520	69	189	256	1.4	8.0
MAY	355	69	90	47	0.52	3.8
JUNE	91	62	77	6.8	0.09	3.2
JULY	670	64	105	99	0.94	4.4
AUGUST	201	74	103	29	0.28	4.3
SEPTEMBER	670	66	106	100	0.94	4.5
ANNUAL	645	82	197	131	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1919-21, 1967-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	71	65	62	59	56	54
3	71	66	63	60	57	55
7	72	66	64	61	58	57
14	73	68	65	62	60	58
30	74	69	66	64	61	59
60	77	72	69	67	64	62
90	78	73	71	69	66	65
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916, 1918, 1920, 1966-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
6,340	16,100	25,500	40,700	54,400	70,200

WEIGHTED SKEW (LOGS)= -0.27
MEAN (LOGS)= 3.78
STANDARD DEV. (LOGS)= 0.50

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1916, 1918-20, 1966-96

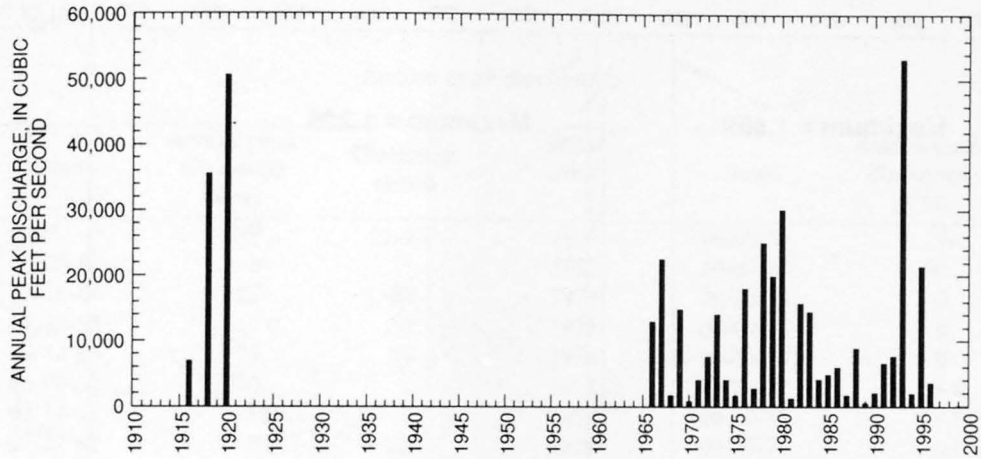
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	3,140	9,930	17,500	31,200	44,700	61,300
3	1,940	5,850	10,100	17,600	25,000	33,900
7	1,220	3,580	6,080	10,500	14,700	19,800
15	799	2,140	3,520	5,860	8,070	10,700
30	555	1,390	2,220	3,610	4,920	6,490
60	389	923	1,460	2,390	3,290	4,400
90	313	693	1,060	1,690	2,300	3,030

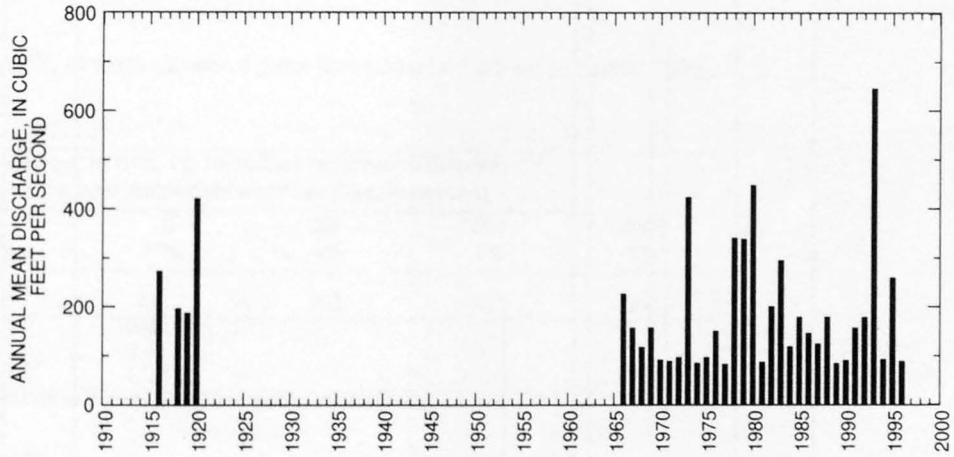
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1916, 1918-20, 1966-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2,120	596	226	127	100	92	89	86	83	80	75	70	68	66	64	59	56

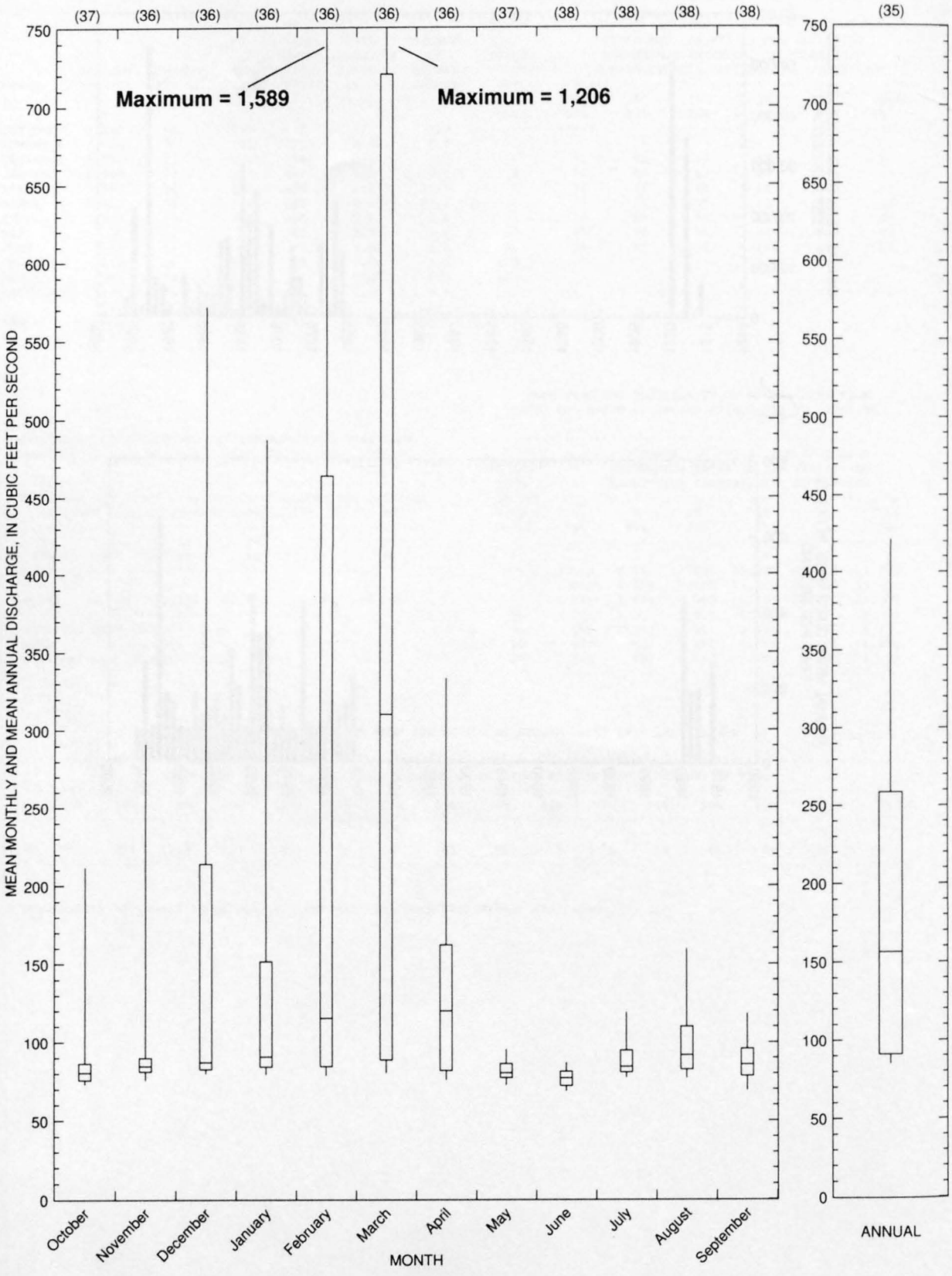
Reliability of values in column is uncertain, and potential errors are large.

09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued





09504000 VERDE RIVER NEAR CLARKDALE, AZ--Continued



09504100 HULL CANYON NEAR JEROME, AZ

LOCATION.--Lat 34°44'20", long 112°08'35", in NW$^1/_4$ sec.28, T.16 N., R.2 E., Yavapai County, Hydrologic Unit 15060202, at U.S. Highway Alt. 89, 2 mi west of Jerome.
DRAINAGE AREA.--0.85 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
----	----------	[1]500	ES,HP	1972	00-00-72	0	
1963	00-00-63	0		1973	10-07-72	90	
1964	08-10-64	25	ES	1974	00-00-74	0	
1965	04-19-65	7.0	ES	1975	00-00-75	0	
1966	09-14-66	25	ES	1976	00-00-76	0	
1967	00-00-67	0		1977	00-00-77	9.0	LT
1968	02-14-68	1.0		1978	00-00-78	9.0	LT
1969	07-27-69	0.5	ES	1979	00-00-79	9.0	LT
1970	09-05-70	100	ES	1980	02-00-80	10	
1971	00-00-71	0					

[1]Highest since 1935, year of occurrence unknown.

Magnitude and probability of instantaneous peak flow based on period of record 1935, 1963-80

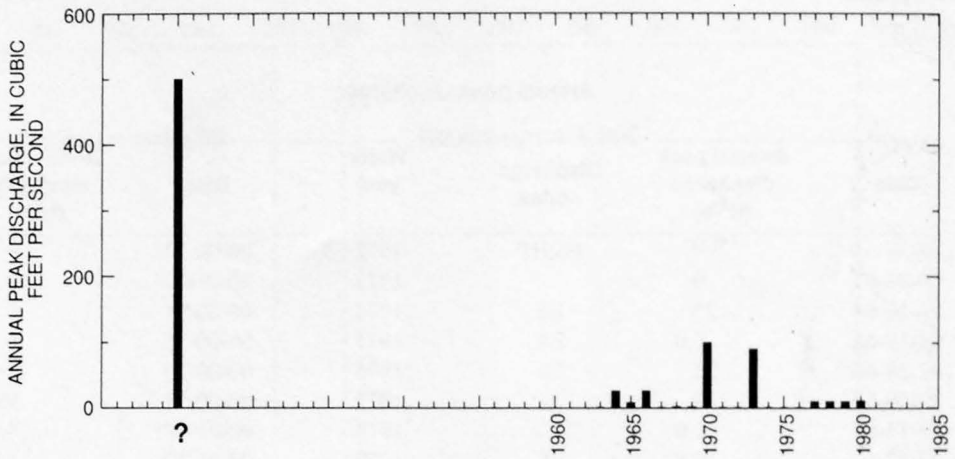
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
2.6	23.5	66.3	183	335	561
Weighted skew	(logs) =	-0.49			
Mean	(logs) =	0.31			
Standard dev.	(logs) =	1.24			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
1,270	1.6	7,050	97.0	3.0	22.0	2.3	4.2

09504100 HULL CANYON NEAR JEROME, AZ--Continued



09504400 MUNDS CANYON TRIBUTARY NEAR SEDONA, AZ

LOCATION.--Lat 34°55'20", long 111°38'40", in SW$^1/_4$ sec.22, T.18 N., R.7 E., Coconino County, Hydrologic Unit 15060202, at State Highway 79, 7 mi northeast of Sedona.
DRAINAGE AREA.--1.15 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	07-00-64	1.0	ES	1972	06-05-72	44	
1965	09-03-65	222		1973	10-07-72	90	
1966	11-25-65	222		1974	04-02-74	20	
1967	12-06-66	192		1975	04-00-75	19	
1968	02-00-68	14		1976	00-00-76	114	
1969	01-25-69	181		1977	00-00-77	18	
1970	09-05-70	705		1979	12-18-78	[1]275	
1971	00-00-71	1.0	LT	1980	02-00-80	180	

[1]Highest since 1970.

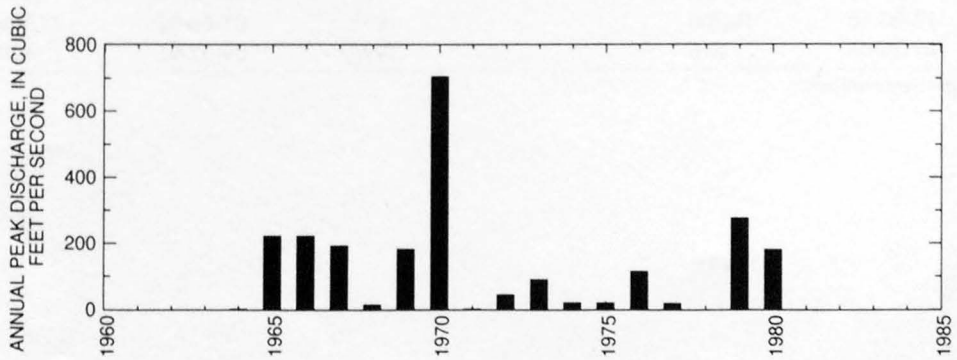
Magnitude and probability of instantaneous peak flow based on period of record 1964-77, 1979-80

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
73.9	232	409	729	1,040	1,430
Weighted skew	(logs) =	-0.26			
Mean	(logs) =	1.84			
Standard dev.	(logs) =	0.61			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
269	2.2	6,880	98.0	3.0	26.0	2.8	5.5



09504500 OAK CREEK NEAR CORNVILLE, AZ

LOCATION.--Lat 34°45'52", long 111°53'25", in NW$^1/_4$SW$^1/_4$ sec.23, T.16 N., R.4 E., Yavapai County, Hydrologic Unit 15060202, on right bank 250 ft downstream from county highway bridge, 0.2 mi upstream from Page Springs, 4 mi northeast of Cornville, and 15 mi upstream from mouth.

DRAINAGE AREA.--355 mi^2.

PERIOD OF RECORD.--July 1940 to September 1945, April 1948 to current year.

REVISED RECORDS.--WSP 1149: 1948(M). WRD Ariz. 1974: 1973. WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,470 ft above sea level, from topographic map. Prior to March 10, 1981, at site 250 ft upstream at same datum.

REMARKS.--Records fair. Numerous diversions above and below station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft^3/s Feb. 19, 1980, gage height, 16.30 ft; maximum gage height, 19.15 ft, Feb. 20, 1993; minimum discharge, 6 ft^3/s July 27, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1885, 23 ft in March 1938, from floodmarks (upstream side of bridge).

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1938	03-03-38	([1])	HP	1969	01-25-69	15,800	
1941	03-14-41	5,280		1970	09-05-70	[1]24,700	
1942	10-13-41	2,580		1971	08-27-71	4,050	
1943	03-10-43	3,640		1972	12-26-71	4,020	
1944	04-06-44	2,180		1973	10-19-72	8,790	
1945	07-30-45	6,020		1974	07-07-74	3,220	
1946	00-00-46	1,200		1975	07-14-75	4,820	
1948	07-26-48	605		1976	02-09-76	12,500	
1949	09-09-49	2,260		1977	07-18-77	415	
1950	10-19-49	6,400		1978	03-01-78	17,400	
1951	08-29-51	3,440		1979	12-19-78	25,100	
1952	12-30-51	17,200		1980	02-19-80	[2]26,400	
1953	07-14-53	858		1981	08-12-81	830	
1954	03-23-54	7,850		1982	03-12-82	13,000	
1955	08-23-55	6,400		1983	11-30-82	14,100	
1956	08-17-56	675		1984	12-27-83	5,730	
1957	01-10-57	5,150		1985	12-27-84	3,070	
1958	11-03-57	9,620		1986	11-30-85	6,480	
1959	08-05-59	3,750		1987	10-11-86	3,300	
1960	12-25-59	4,340		1988	11-01-87	7,640	
1961	07-31-61	4,340		1989	07-09-89	1,470	
1962	02-12-62	7,280		1990	03-19-90	554	
1963	08-17-63	990		1991	03-01-91	6,970	
1964	08-14-64	10,300		1992	02-13-92	8,800	
1965	04-04-65	3,090		1993	02-20-93	26,000	
1966	11-25-65	17,600		1994	09-02-94	1,200	
1967	12-06-66	19,200		1995	03-06-95	23,000	
1968	02-26-68	816		1996	09-02-96	810	

[1]Highest since 1885; discharge unknown.

[2]Highest since 1938.

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued

Discharge rating table developed October 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
7.0	2,330	14.0	12,980
8.0	3,310	15.0	15,150
9.0	4,480	16.0	17,480
10.0	5,860	17.0	19,990
11.0	7,440	18.0	22,680
12.0	9,140	19.0	25,540
13.0	10,990	19.6	27,340

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
85.0	40.8	6,200	66.0	2.7	22.6	2.4	4.7

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	571	20	48	78	1.6	4.4
NOVEMBER	450	23	64	81	1.3	6.0
DECEMBER	881	30	116	175	1.5	11
JANUARY	1,300	32	103	190	1.8	9.5
FEBRUARY	1,390	32	190	270	1.4	17
MARCH	1,320	29	250	241	0.96	23
APRIL	1,100	25	167	204	1.2	15
MAY	216	17	33	27	0.84	3.0
JUNE	58	14	20	6.7	0.33	1.9
JULY	41	14	24	7.4	0.31	2.2
AUGUST	91	13	34	16	0.47	3.1
SEPTEMBER	373	15	39	49	1.3	3.6
ANNUAL	256	26	90	58	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	14	12	11	9.9	8.9	8.1
3	15	13	11	10	9.3	8.6
7	15	13	12	12	11	10
14	16	14	13	12	12	11
30	17	15	14	13	13	12
60	19	17	16	15	14	13
90	21	18	17	16	15	14
120	24	20	19	18	17	16
183	27	23	22	20	19	18

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1938, 1941-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4,810	12,000	18,700	29,500	39,200	50,100

WEIGHTED SKEW (LOGS)= -0.28
MEAN (LOGS)= 3.66
STANDARD DEV. (LOGS)= 0.49

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-96

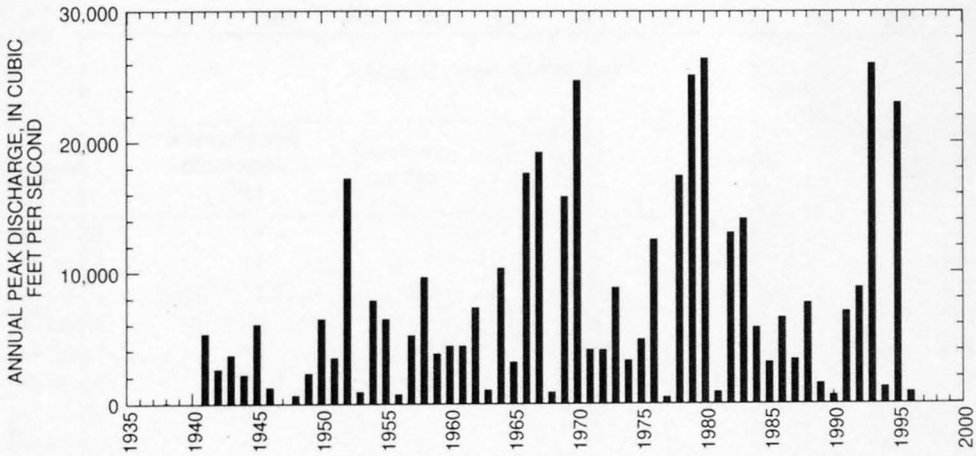
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	1,660	4,920	8,430	14,700	20,700	28,100
3	1,080	2,940	4,720	7,590	10,100	12,900
7	691	1,720	2,640	4,010	5,140	6,360
15	449	1,040	1,530	2,240	2,820	3,420
30	310	700	1,030	1,500	1,900	2,310
60	213	470	694	1,030	1,330	1,650
90	170	357	518	762	972	1,200

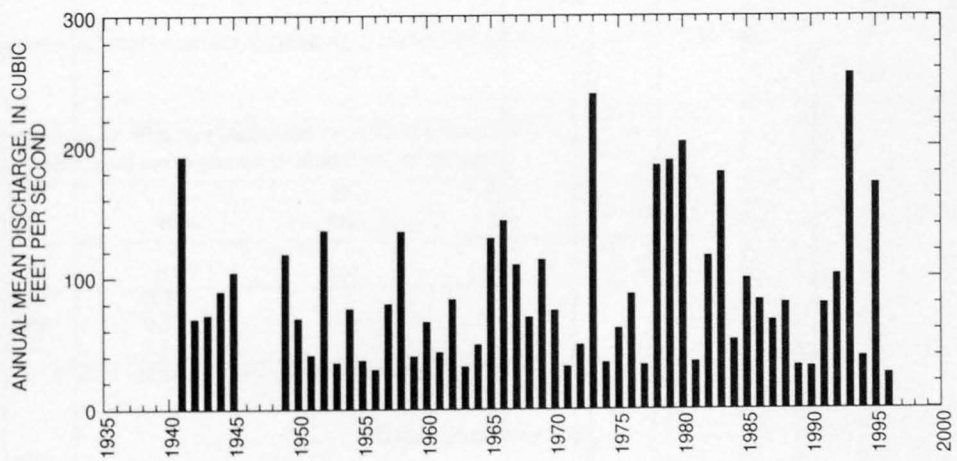
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,060	332	145	80	59	41	36	32	29	25	22	18	17	0.00	0.00	0.00	0.00

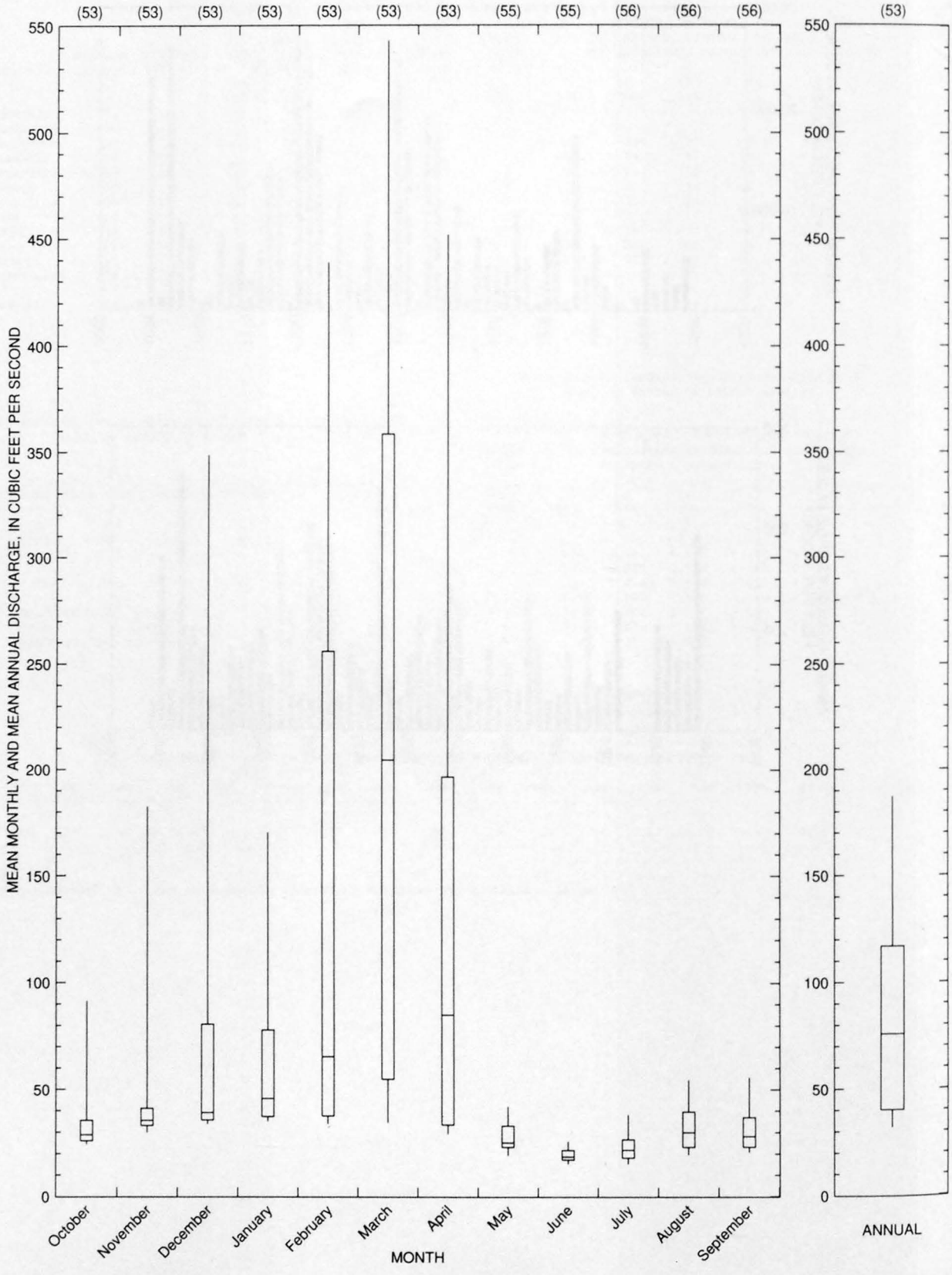
Reliability of values in column is uncertain, and potential errors are large.

09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued





09504500 OAK CREEK NEAR CORNVILLE, AZ--Continued



09504800 OAK CREEK TRIBUTARY NEAR CORNVILLE, AZ

LOCATION.--Lat 34°42'45", long 111°52'50", in NW$^1/_4$ sec.12, T.15 N., R.4 E., Yavapai County, Hydrologic Unit 15060202, at county road, 2.5 mi east of Cornville.

DRAINAGE AREA.--0.048 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-09-63	19		1971	09-29-71	1.0	LT
1964	07-26-64	47		1972	00-00-72	0.6	LT
1965	08-00-65	3.0	ES	1973	10-07-72	5.0	
1966	00-00-66	0		1974	08-00-74	1.0	LT
1967	08-00-67	18		1975	11-02-74	1.0	ES
1968	00-00-68	1.0	LT	1976	00-00-76	3.7	
1969	08-08-69	53		1980	02-14-80	[1]24	HP
1970	09-05-70	47					

[1]Highest since 1970.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1980

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
4.1	25.9	61.7	144	240	369

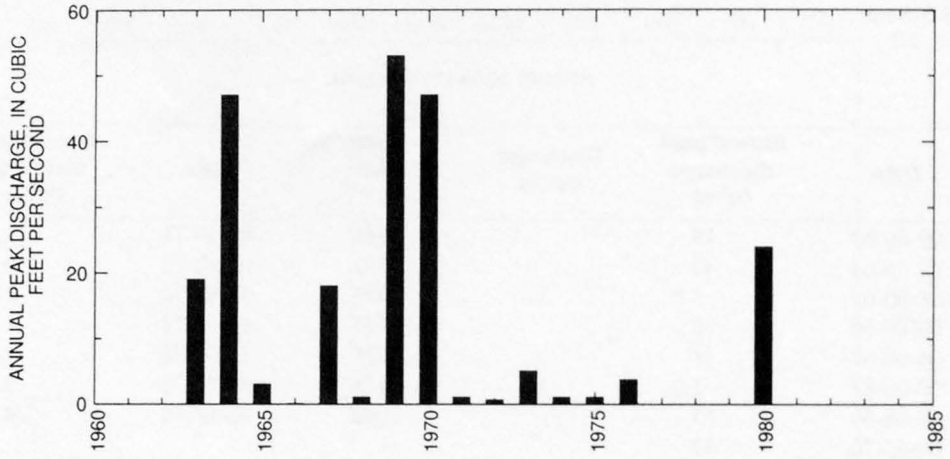
Weighted skew	(logs) =	-0.48
Mean	(logs) =	0.52
Standard dev.	(logs) =	1.04

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
65.0	0.41	3,570	0.0	1.0	12.4	1.7	4.0

09504800 OAK CREEK TRIBUTARY NEAR CORNVILLE, AZ--Continued



09505200 WET BEAVER CREEK NEAR RIMROCK, AZ

LOCATION.--Lat 34°40'29", long 111°40'17", in $NW^1/_4SW^1/_4$ sec.24, T.15 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on right bank 4.5 mi northeast of Rimrock and 5.7 mi upstream from Red Tank Draw.

DRAINAGE AREA.--111 mi^2.

PERIOD OF RECORD.--October 1961 to September 1982 (continuous-record), October 1982 to September 1991 (annual maximums only), October 1991 to current year.

REVISED RECORDS.--WRD Ariz. 1969: Drainage area. WRD AZ-93-1, 1993.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,020 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. No known diversion or regulation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft^3/s Jan. 8, 1993, gage height, 17.21 ft from rating curve extended above 5,400 ft^3/s on basis of slope-area measurement of peak flow; minimum, 5.4 ft^3/s Aug. 14, 1962, July 1, 2, 5, 8, 9, 12, 21, 1967, June 2-5, 10-12, 28, July 5, 6, 1993.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	02-12-62	1,870		1980	02-19-80	10,900	
1963	08-27-63	748		1981	04-05-81	368	
1964	08-06-64	2,030		1982	03-12-82	6,880	
1965	01-06-65	6,100		1983	11-30-82	5,480	
1966	11-25-65	6,150		1984	12-27-83	2,740	
1967	07-31-67	4,340		1985	12-27-84	3,960	
1968	03-10-68	982		1986	02-18-86	710	
1969	01-25-69	3,500		1987	03-18-87	1,180	
1970	09-05-70	7,670		1988	02-03-88	3,900	
1971	09-01-71	2,890		1989	03-29-89	285	
1972	07-16-72	4,020		1990	09-05-90	922	
1973	10-19-72	5,490		1991	03-01-91	3,030	
1974	03-18-74	119		1992	08-23-92	5,280	
1975	04-13-75	1,060		1993	01-08-93	16,000	
1976	02-09-76	6,880		1994	03-20-94	405	
1977	04-07-77	155		1995	02-14-95	7,330	
1978	03-01-78	4,360		1996	08-02-96	1,050	
1979	12-18-78	7,560					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
7.0	1,060	13.0	8,110
8.0	1,760	14.0	9,770
9.0	2,640	15.0	11,510
10.0	3,720	16.0	13,440
11.0	5,010	17.0	15,540
12.0	6,480	17.2	16,000

09505200 WET BEAVER CREEK NEAR RIMROCK, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
131	30.1	6,410	35.0	3.0	24.8	2.5	5.1

09505200 WET BEAVER CREEK NEAR RIMROCK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-82, 1991-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	231	5.7	16	43	2.7	3.7
NOVEMBER	128	6.2	15	26	1.7	3.6
DECEMBER	253	6.0	37	68	1.8	8.4
JANUARY	601	6.0	52	117	2.3	11.9
FEBRUARY	438	7.1	81	106	1.3	18.6
MARCH	500	7.3	112	109	0.97	25.8
APRIL	433	6.8	72	95	1.3	16.6
MAY	109	5.8	12	20	1.7	2.7
JUNE	9.9	4.5	6.9	0.98	0.14	1.6
JULY	21	5.3	8.3	4.0	0.49	1.9
AUGUST	75	6.1	11	14	1.2	2.6
SEPTEMBER	82	5.8	11	15	1.3	2.6
ANNUAL	103	7.7	36	26	0.73	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-82, 1992-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	6.3	5.7	5.3	5.0	4.5	4.2
3	6.4	5.8	5.4	5.0	4.5	4.2
7	6.4	5.8	5.4	5.1	4.6	4.3
14	6.4	5.9	5.5	5.1	4.7	4.4
30	6.6	6.0	5.6	5.2	4.8	4.5
60	6.7	6.1	5.8	5.4	5.0	4.8
90	6.6	6.1	5.9	5.8	5.6	5.6
120	6.7	6.3	6.1	6.1	6.0	6.0
183	7.3	6.4	6.2	6.1	5.9	6.0

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1962-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,520	6,130	8,140	11,000	13,300	15,800

WEIGHTED SKEW (LOGS)= -0.09
MEAN (LOGS)= 3.54
STANDARD DEV. (LOGS)= 0.29

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-82, 1991-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	941	2,520	4,000	6,300	8,270	10,400
3	585	1,430	2,150	3,180	4,000	4,860
7	356	816	1,180	1,680	2,050	2,420
15	227	509	726	1,010	1,220	1,420
30	149	340	492	698	855	1,010
60	98	229	336	486	603	724
90	76	175	259	378	474	574

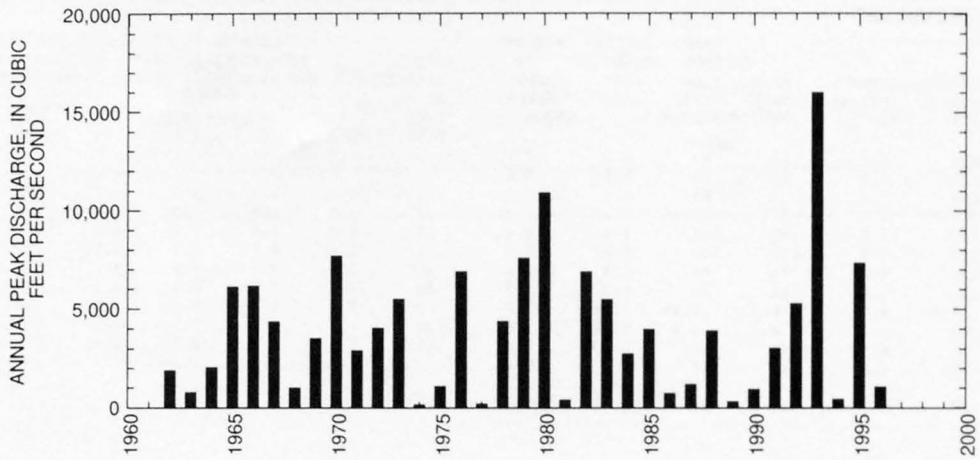
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-82, 1991-96

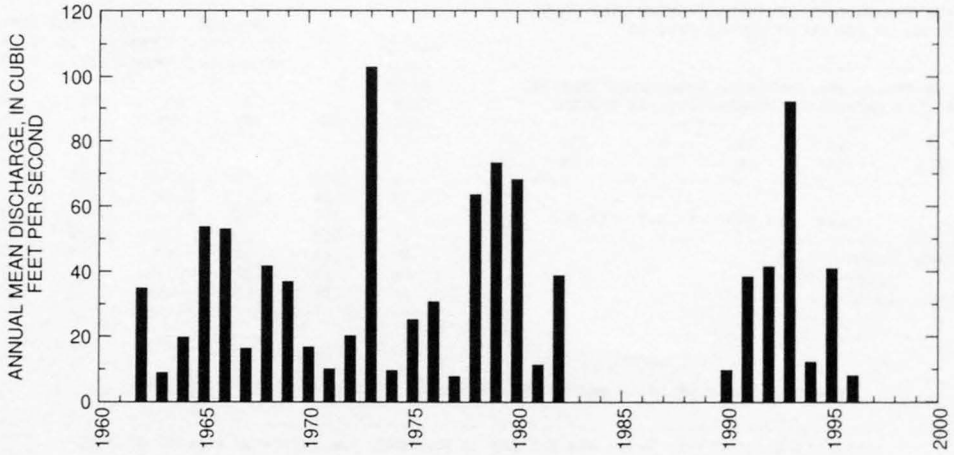
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
473	156	67	26	12	8.3	7.8	7.5	7.2	6.9	6.6	6.2	5.7	5.4	5.3	5.2	4.4

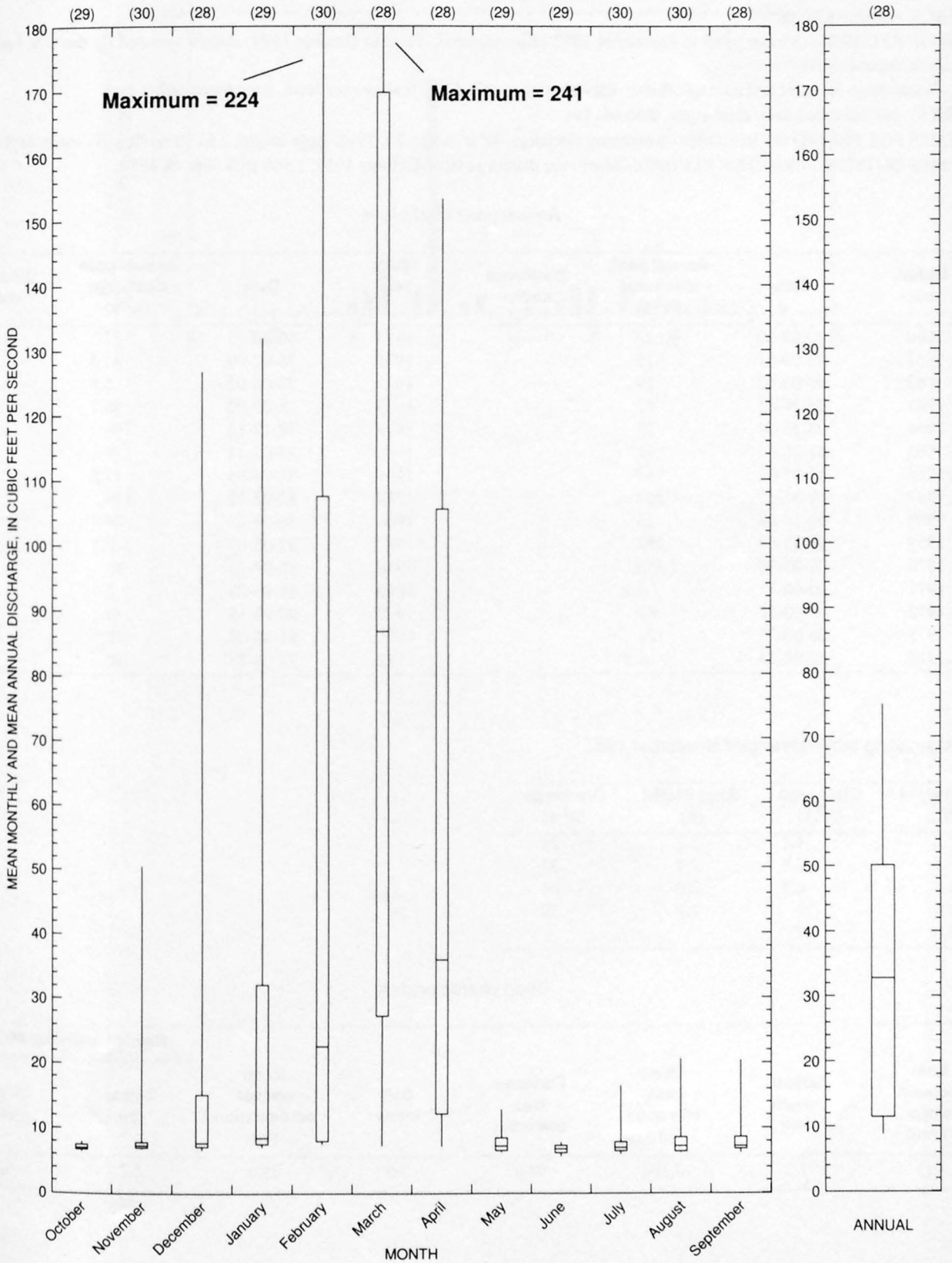
Reliability of values in column is uncertain, and potential errors are large.

09505200 WET BEAVER CREEK NEAR RIMROCK, AZ--Continued





09505200 WET BEAVER CREEK NEAR RIMROCK, AZ--Continued



09505220 ROCKY GULCH NEAR RIMROCK, AZ

LOCATION.--Lat 34°44'49, long 111°29'38", in $SE^1/_4NW^1/_4$ sec.27, T.16 N., R.8 E., Coconino County, Hydrologic Unit 15060202, in Coconino National Forest, on right bank, on headwaters of Rocky Gulch, and 7 mi northwest of Rimrock.

DRAINAGE AREA.--1.40 mi^2.

PERIOD OF RECORD.--October 1985 to September 1992 (discontinued). Prior to October 1985, station operated by the U.S. Forest Service (records unpublished).

GAGE.--Water-stage recorder and concrete flume. Elevation of gage is 6,750 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48 ft^3/s Apr. 25, 1988, gage height, 2.67 ft; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since October 1959, 1,550 ft^3/s Sept. 5, 1970.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	00-00-60	22		1975	00-00-75	27	
1961	00-00-61	19		1976	76-02-09	45.5	
1962	00-00-62	19		1977	77-04-05	5.8	
1963	08-11-63	12		1978	78-03-02	98.2	
1964	03-31-64	28		1979	78-12-18	166	
1965	01-06-65	82		1980	80-02-14	179	
1966	11-25-65	147		1981	81-04-05	15.8	
1967	07-31-67	363		1982	82-03-12	154	
1968	02-24-68	13		1986	86-04-02	24	
1969	01-25-69	162		1987	87-03-09	7.9	
1970	09-05-70	1,550		1988	88-04-25	48	
1971	00-00-71	8.1		1989	89-03-28	6.5	
1972	00-00-72	69		1990	90-03-19	14	
1973	00-00-73	121		1991	91-04-06	30	
1974	00-00-74	8.1		1992	92-08-23	50	

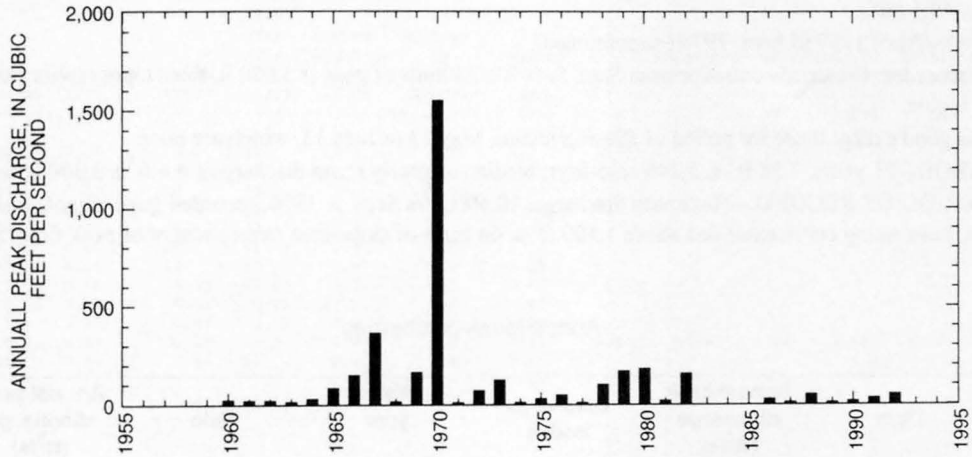
Discharge rating table developed November 1987

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.2	1.1	2.2	24
1.4	3.4	2.4	33
1.6	6.7	2.6	44
1.8	11	2.7	50
2.0	17		

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
421	1.5	7,190	98.0	3.0	25.0	2.7	4.8

09505220 ROCKY GULCH NEAR RIMROCK, AZ--Continued



09505250 RED TANK DRAW NEAR RIMROCK, AZ

LOCATION.--Lat 34°41'43", long 111°42'49", in $SE^1/_4NE^1/_4$ sec.16, T.15 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left bank 2.5 mi downstream from confluence of Rarick and Mullican Canyons, and 3.5 mi northeast of Rimrock.

DRAINAGE AREA.--49.4 mi^2.

PERIOD OF RECORD.--April 1957 to Sept. 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control prior to Sept. 5, 1970. Altitude of gage is 3,920 ft, from topographic map. Prior to Sept. 5, 1970, at datum 0.29 ft higher.

REMARKS.--Records good except those for period of missing record, May 13 to June 13, which are poor.

AVERAGE DISCHARGE.--21 years, 7.24 ft^3/s, 5,240 acre-ft/yr; median of yearly mean discharges, 4.6 ft^3/s 3,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft^3/s Sept. 5, 1970, recorded gage height, 12.69 ft, about 13.3 ft, from profile past gage, from rating curve extended above 1,100 ft^3/s, on basis of slope-area measurement of peak flow; no flow for many days in each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	03-22-58	1,280		1969	01-25-69	1,650	
1959	02-17-59	113		1970	09-05-70	10,500	
1960	12-25-59	1,230		1971	10-03-70	12	
1961	03-31-61	457		1972	12-26-71	745	
1962	02-08-62	620		1973	10-19-72	2,720	
1963	03-22-63	12		1974	01-21-74	34	
1964	08-02-64	1,970		1975	04-13-75	407	
1965	04-04-65	1,440		1976	02-09-76	1,800	
1966	11-25-65	2,010		1977	04-06-77	16	
1967	12-07-66	425		1978	02-23-78	441	
1968	02-14-68	327					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
183	19.3	5,910	23.0	3.0	21.6	2.4	4.8

09505250 RED TANK DRAW NEAR RIMROCK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	80	0.00	4.2	17	4.1	4.9
NOVEMBER	41	0.00	4.4	12	2.6	5.1
DECEMBER	104	0.00	10	25	2.4	11.8
JANUARY	46	0.00	7.0	13	1.9	8.0
FEBRUARY	79	0.00	16	23	1.4	18.5
MARCH	161	0.02	27	42	1.6	31.0
APRIL	110	0.00	14	30	2.2	16.0
MAY	3.7	0.00	0.25	0.82	3.3	0.3
JUNE	0.05	0.00	0.01	0.01	2.7	0.0
JULY	1.5	0.00	0.07	0.32	4.6	0.1
AUGUST	8.8	0.00	0.50	1.9	3.9	0.6
SEPTEMBER	62	0.00	3.4	14	4.0	3.8
ANNUAL	37	0.04	7.2	9.1	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-78

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
724	1,860	3,090	5,410	7,810	10,900

WEIGHTED SKEW (LOGS)= 0.18
MEAN (LOGS)= 2.87
STANDARD DEV. (LOGS)= 0.48

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-78

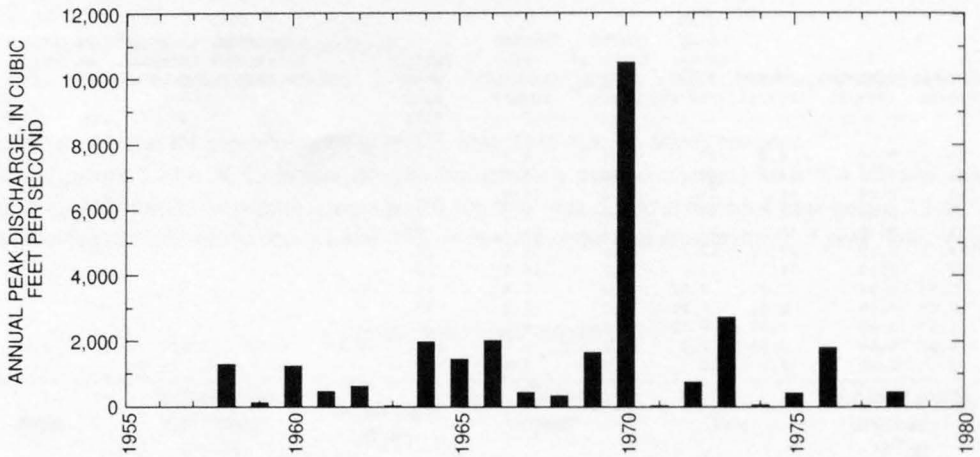
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	208	755	1,310	2,170	2,880	3,620
3	129	424	691	1,060	1,330	1,590
7	75	247	400	606	755	894
15	45	151	247	378	474	564
30	26	96	164	267	349	430
60	16	61	109	184	248	314
90	12	46	82	140	189	240

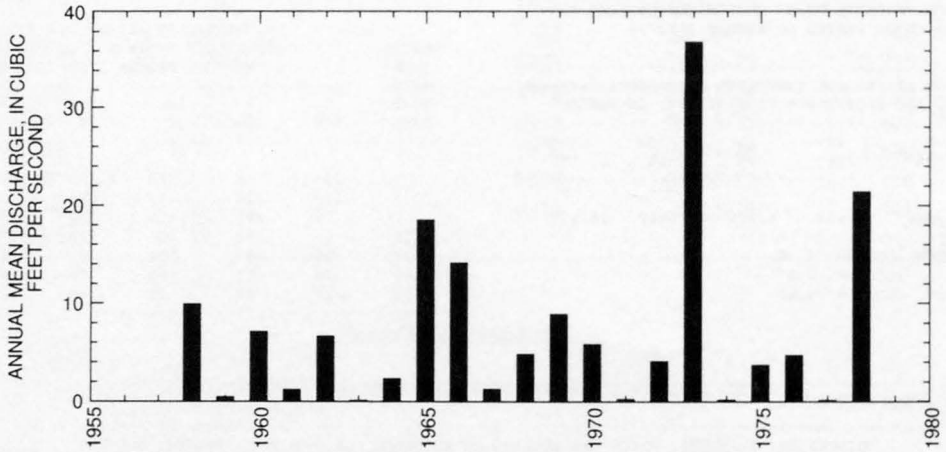
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1958-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
174	30	4.7	0.84	0.25	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

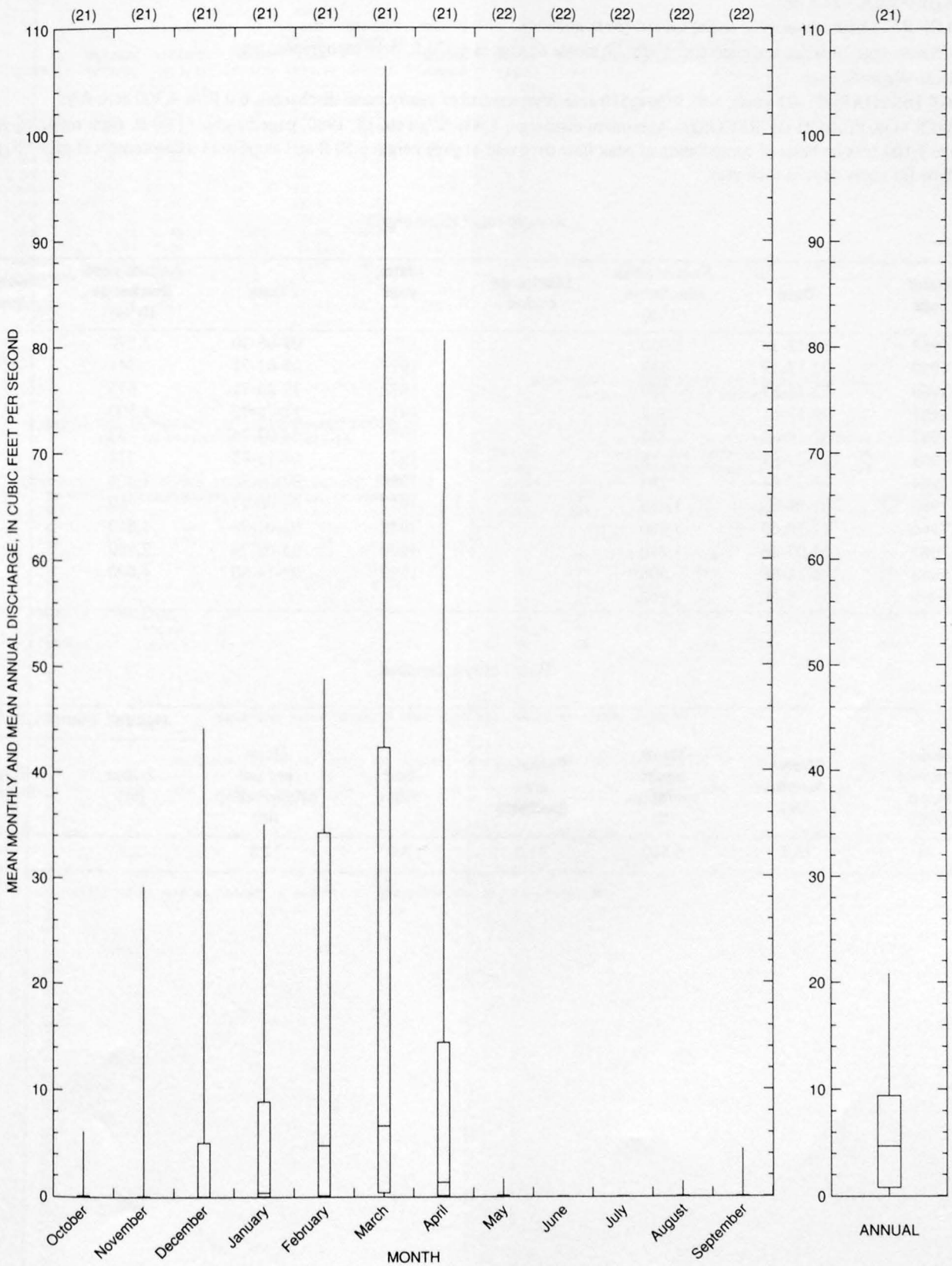
Reliability of values in column is uncertain, and potential errors are large.

09505250 RED TANK DRAW NEAR RIMROCK, AZ--Continued





09505250 RED TANK DRAW NEAR RIMROCK, AZ--Continued



09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ

LOCATION.--Lat 34°46'01", long 111°40'23", in $NW^1/_4SW^1/_4$ sec.24, T.16 N., R.6 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left bank 2.6 mi upstream from mouth, 7 mi northeast of Beaver Creek Ranger Station, and 9 mi northeast of Rimrock.

DRAINAGE AREA.--24.6 mi^2.

PERIOD OF RECORD.--June 1957 to Sept. 1980 (discontinued).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,870 ft, from topographic map.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--23 years, 8.98 ft^3/s, 6,510 acre-ft/yr; median of yearly mean discharges, 6.0 ft^3/s, 4,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft^3/s Feb. 14, 1980, gage height, 11.90 ft, from rating curve extended above 1,100 ft^3/s on basis of computation of peak flow over weir at gage height 8.50 ft and slope-area measurement at gage height 11.50 ft; no flow for many days in each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	09-12-58	1,050		1970	09-05-70	3,590	
1959	02-17-59	119		1971	09-01-71	741	
1960	12-25-59	590		1972	12-26-71	675	
1961	09-17-61	384		1973	12-28-72	1,500	
1962	02-12-62	775		1974	04-03-74	52	
1963	03-23-63	18		1975	04-13-75	311	
1964	03-30-64	288		1976	02-09-76	1,200	
1965	01-06-65	1,430		1977	04-06-77	69	
1966	12-30-65	1,880		1978	03-01-78	1,610	
1967	12-07-66	1,240		1979	03-08-79	2,850	
1968	01-28-68	306		1980	02-14-80	4,000	
1969	01-25-69	2,160					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
174	15.5	6,560	33.0	3.0	22.8	2.5	5.1

09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1958-80

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	60	0.00	2.8	12	4.5	2.5
NOVEMBER	42	0.00	4.2	10	2.5	3.9
DECEMBER	86	0.00	12	25	2.1	10.8
JANUARY	78	0.00	12	23	1.9	10.7
FEBRUARY	165	0.00	21	36	1.7	19.6
MARCH	135	0.00	31	32	1.0	28.6
APRIL	116	0.00	22	33	1.5	20.2
MAY	37	0.00	2.1	7.7	3.7	1.9
JUNE	0.01	0.00	0.00	0.00	3.3	0.0
JULY	0.28	0.00	0.02	0.06	3.3	0.0
AUGUST	0.88	0.00	0.10	0.24	2.3	0.1
SEPTEMBER	29	0.00	1.7	6.1	3.6	1.6
ANNUAL	30	0.14	9.0	9.3	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-80

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1958-80

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
872	1,880	2,750	4,030	5,110	6,290

WEIGHTED SKEW (LOGS)= -0.29
MEAN (LOGS)= 2.92
STANDARD DEV. (LOGS)= 0.42

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1958-80

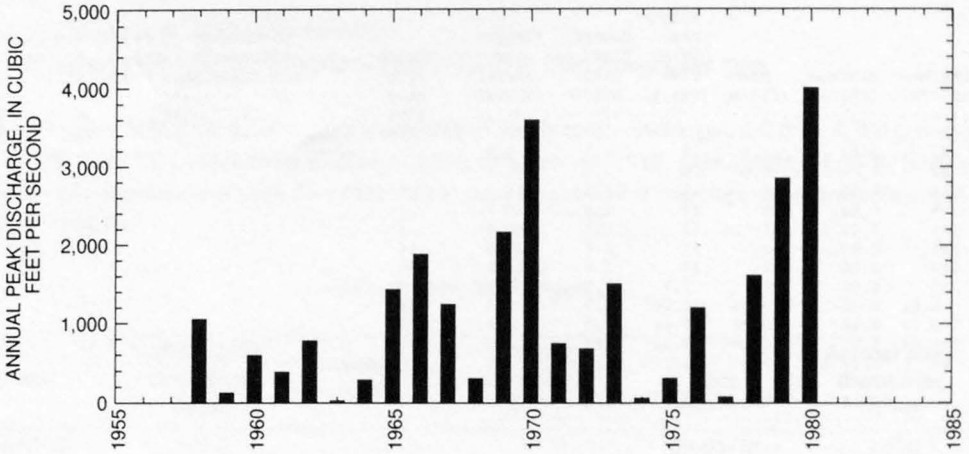
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	264	731	1,160	1,790	2,320	2,870
3	155	403	622	944	1,210	1,480
7	98	240	355	510	628	743
15	61	144	206	284	339	391
30	39	95	140	197	238	278
60	24	66	102	153	192	230
90	18	53	84	129	165	200

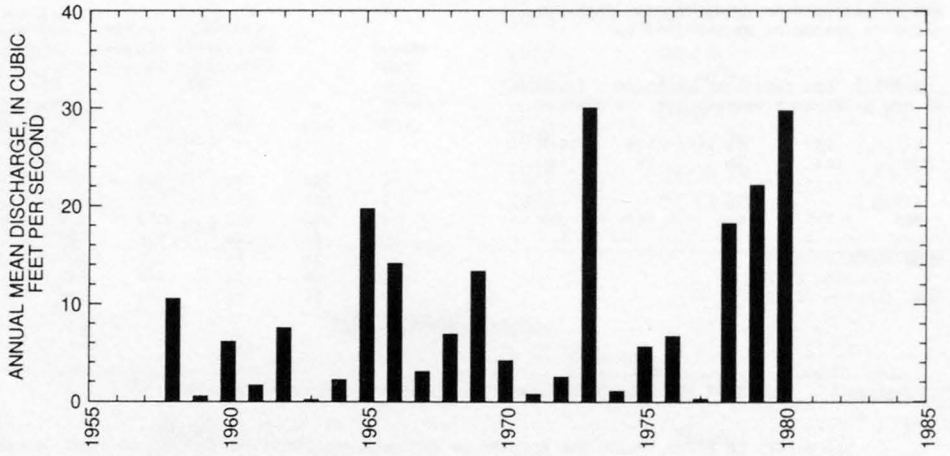
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1958-80

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
155	51	21	6.7	0.91	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

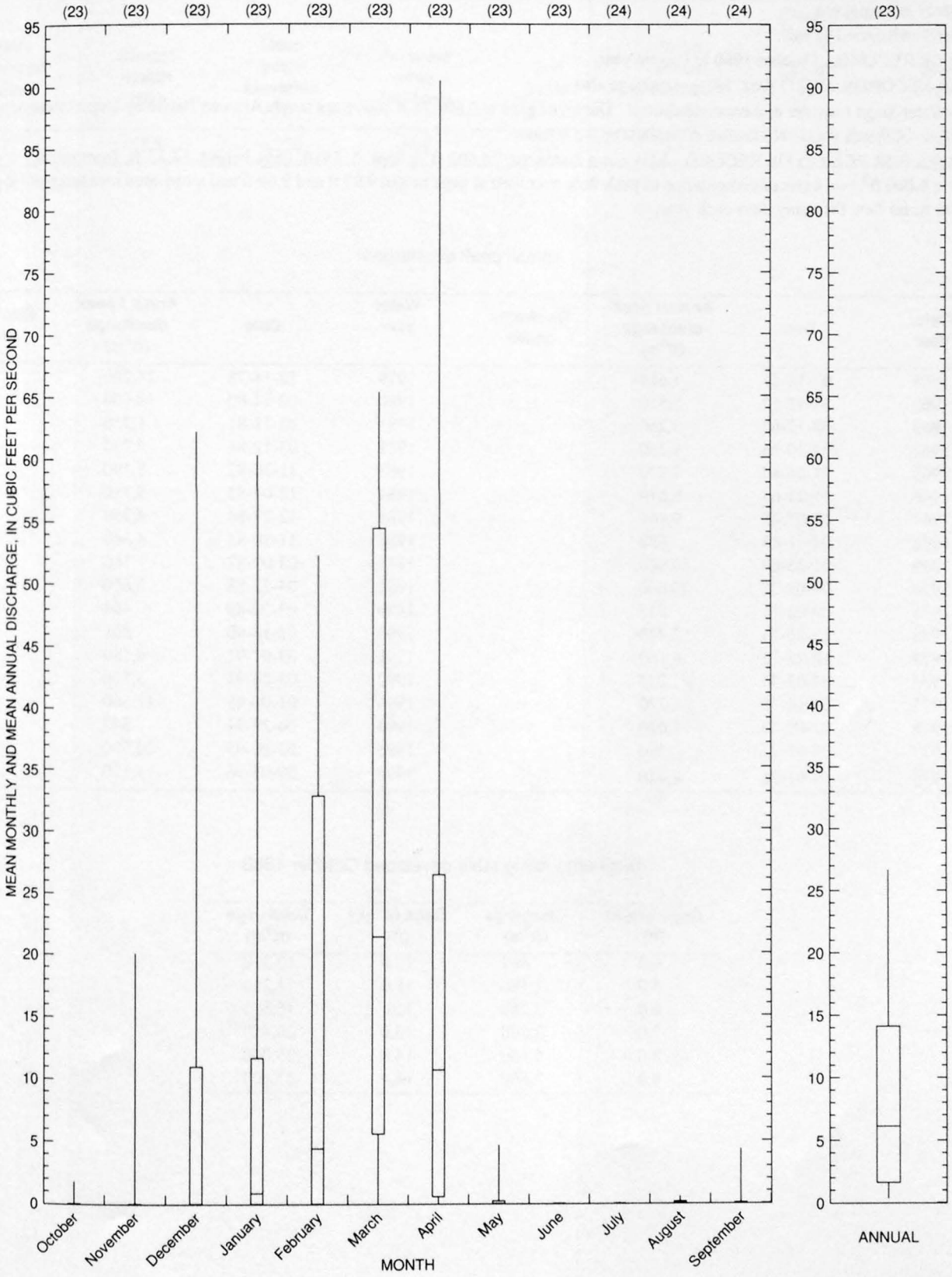
Reliability of values in column is uncertain, and potential errors are large.

09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ--Continued





09505300 RATTLESNAKE CANYON NEAR RIMROCK, AZ--Continued



09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ

LOCATION.--Lat 34°43'43", long 111°46'30", in NE$^1/_4$NW$^1/_4$ sec.1, T.15 N., R.5 E., Yavapai County, Hydrologic Unit 15060202, in Coconino National Forest, on left upstream abutment of abandoned highway bridge, 1,000 ft upstream from present State Highway 179, and 5.5 mi north of Rimrock.

DRAINAGE AREA.--142 mi^2.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WRD Ariz. 1969: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3,694.38 ft above sea level (Arizona Highway Department bench mark).

REMARKS.--Records good. No known diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft^3/s Sept. 5, 1970, gage height, 14.35 ft, from rating curve extended above 6,000 ft^3/s on basis of computation of peak flow over weir at gage height 9.07 ft and 9.69 ft and slope-area measurement at gage height 14.35 ft; no flow for many days each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	07-14-61	1,610		1979	12-18-78	24,200	
1962	02-12-62	2,510		1980	02-14-80	18,600	
1963	08-17-63	3,260		1981	08-11-81	1,250	
1964	03-30-64	1,160		1982	03-12-82	7,790	
1965	01-06-65	7,970		1983	11-30-82	8,190	
1966	11-23-65	9,670		1984	12-04-83	5,780	
1967	12-07-66	9,460		1985	12-27-84	4,250	
1968	02-11-68	652		1986	11-30-85	4,340	
1969	01-25-69	10,600		1987	03-09-87	1,160	
1970	09-05-70	26,600		1988	04-25-88	2,650	
1971	09-01-71	537		1989	03-29-89	404	
1972	12-26-71	2,740		1990	03-18-90	801	
1973	12-28-72	6,160		1991	03-01-91	6,180	
1974	04-03-74	253		1992	03-04-92	3,770	
1975	04-14-75	1,220		1993	01-08-93	11,600	
1976	02-09-76	7,020		1994	04-29-94	842	
1977	04-07-77	304		1995	03-06-95	20,600	
1978	03-01-78	8,410		1996	09-05-96	1,170	

Discharge rating table developed October 1988

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	409	10.0	10,350
5.0	1,180	11.0	13,240
6.0	2,280	12.0	16,580
7.0	3,800	13.0	20,450
8.0	5,680	14.0	25,060
9.0	7,860	14.4	27,100

09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
137	32.5	6,220	56.0	2.8	23.1	2.5	5.1

09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	246	0.00	9.4	41	4.4	1.7
NOVEMBER	251	0.00	19	51	2.7	3.4
DECEMBER	602	0.00	66	134	2.0	11.6
JANUARY	814	0.00	63	154	2.4	11.1
FEBRUARY	850	0.00	120	184	1.5	21.1
MARCH	678	0.00	162	159	0.98	28.6
APRIL	598	0.00	106	135	1.3	18.7
MAY	208	0.00	8.6	35	4.1	1.5
JUNE	0.17	0.00	0.01	0.03	4.9	0.0
JULY	2.5	0.00	0.19	0.46	2.5	0.0
AUGUST	35	0.00	2.0	6.1	3.1	0.3
SEPTEMBER	224	0.00	12	46	3.9	2.1
ANNUAL	144	0.35	47	43	0.92	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.09	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,380	9,590	16,100	27,400	38,400	51,400

WEIGHTED SKEW (LOGS)= -0.22
MEAN (LOGS)= 3.51
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-96

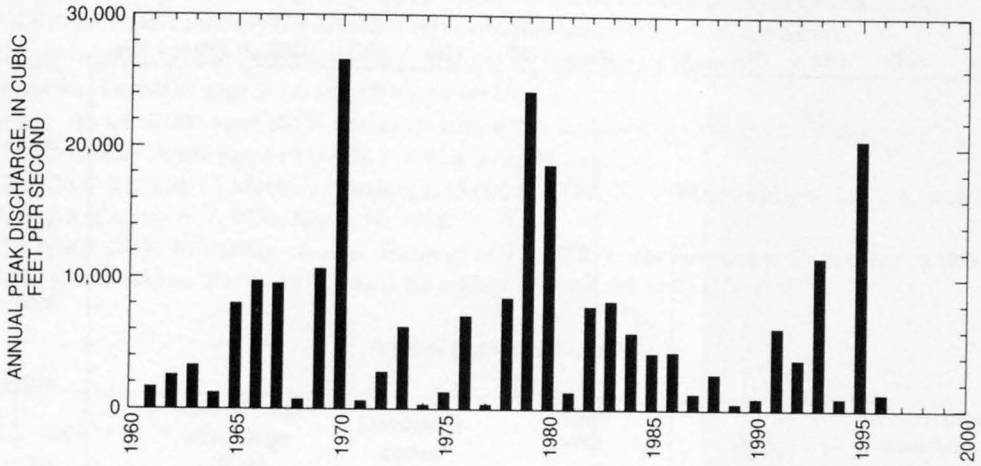
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	1,290	3,760	6,310	10,600	14,600	19,200
3	873	2,280	3,510	5,290	6,730	8,210
7	561	1,320	1,860	2,530	2,980	3,380
15	364	790	1,060	1,340	1,500	1,630
30	242	538	720	904	1,010	1,090
60	154	372	517	672	765	839
90	115	288	405	534	612	675

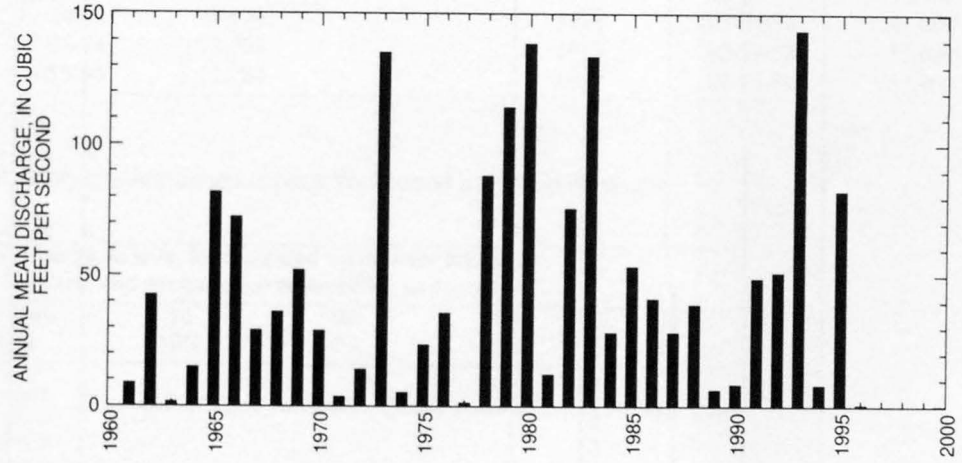
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
750	244	102	35	8.3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

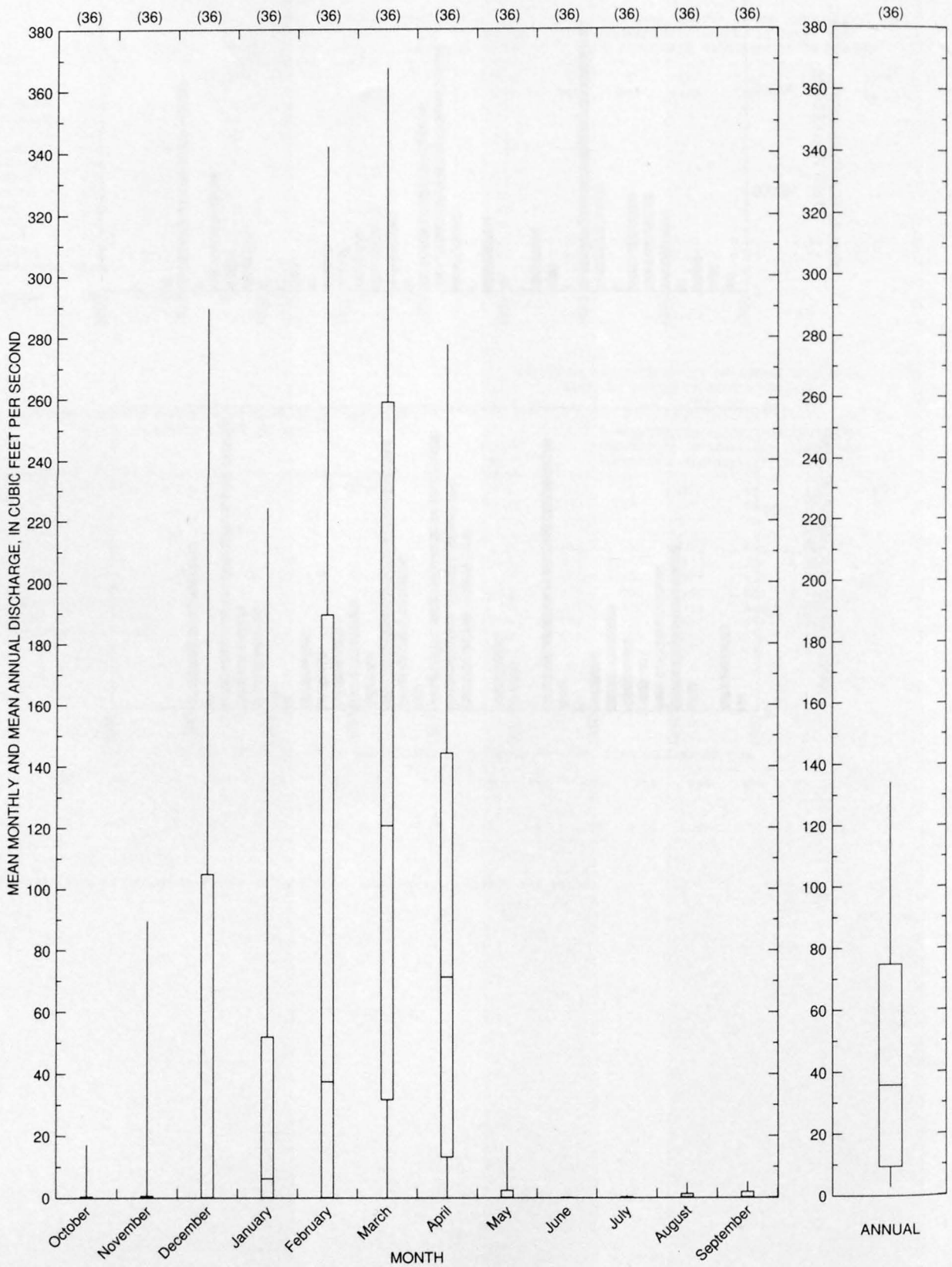
Reliability of values in column is uncertain, and potential errors are large.

09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ--Continued





09505350 DRY BEAVER CREEK NEAR RIMROCK, AZ--Continued



09505550 VERDE RIVER BELOW CAMP VERDE, AZ

LOCATION.--Lat 34°33'02", long 111°51'02", in $SW^1/_4NW^1/_4$ sec.5, T.13 N., R.5 E., Yavapai County, Hydrologic Unit 15060203, on downstream side of bridge on county highway, 0.5 mi southeast of Camp Verde, and 2.2 mi downstream from Beaver Creek.

DRAINAGE AREA.--4,670 mi^2, approximately (includes 373 mi^2 in Aubrey Valley Playa, a closed basin).

PERIOD OF RECORD.--November 1971 to December 1978 (converted to partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 3,045.10 ft above sea level.

REMARKS.--Records fair. About 10,000 acres above station are irrigated by surface water and ground water.

AVERAGE DISCHARGE.--6 years (water years 1973-78), 378 ft^3/s, 273,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,000 ft^3/s Dec. 19, 1978, gage height, 21.27 ft, from high-water mark in gage well; minimum daily, 13 ft^3/s July 6, 7, 1976, July 9, 10, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--A peak discharge of 97,000 ft^3/s was recorded at former gaging station at site 8.5 mi downstream (below West Clear Creek) on Mar. 3, 1938, and is the highest near this site since at least 1924.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	09-05-70	43,000	HP	1976	02-09-76	30,100	
1972	12-26-71	15,800		1977	08-23-77	3,490	
1973	10-20-72	40,600		1978	03-01-78	41,000	
1974	07-08-74	2,200		1979	12-19-78	55,000	
1975	04-15-75	3,280		1980	02-15-80	50,900	

Magnitude and probability of instantaneous peak flow based on period of record

	Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100	
50%	20%	10%	4%	2%	1%	
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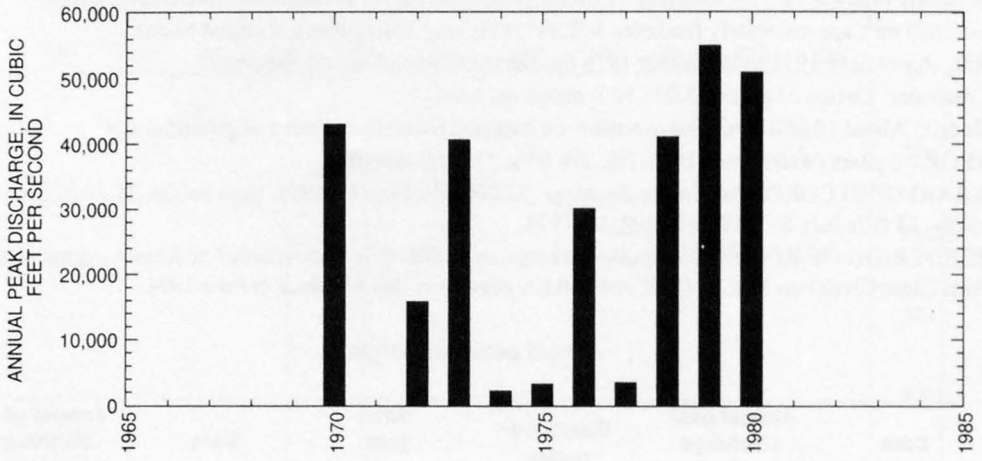
Weighted skew	(logs) =	---				
Mean	(logs) =	---				
Standard dev.	(logs) =	---				

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
17.9	153	5,544	70.0	2.5	17.6	2.1	4.1

09505550 VERDE RIVER BELOW CAMP VERDE, AZ--Continued



09505600 DIRTY NECK CANYON NEAR CLINTS WELL, AZ

LOCATION.--Lat 34°30'45", long 111°21'30", in N$^1/_2$ sec.23, T.13 N., R.9 E., Coconino County, Hydrologic Unit 15060203, at State Highway 87, 4 mi southwest of Clints Well, and 18 mi south of Payson.

DRAINAGE AREA.--3.42 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	01-06-65	85		1971	00-00-71	1.0	LT
1966	12-30-65	115		1972	12-26-71	84	
1967	12-06-66	45		1973	10-19-72	210	
1968	00-00-68	18		1974	00-00-74	0	
1969	01-25-69	68		1975	00-00-75	20	
1970	09-05-70	210		1979	12-18-78	[1]200	HP

Magnitude and probability of instantaneous peak flow based on period of record 1965-75, 1979

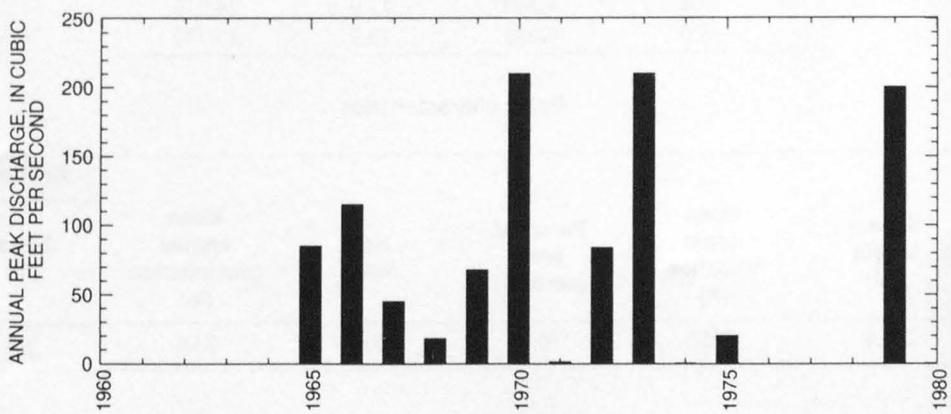
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
62.7	151	231	353	458	573

Weighted skew	(logs) =	-0.37
Mean	(logs) =	1.77
Standard dev.	(logs) =	0.48

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
190	3.4	7,140	99.0	3.0	26.0	2.7	4.7



09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ

LOCATION.--Lat 34°32'19", long 111°41'36", in $NW^1/_4NW^1/_4$ sec.11, T.13 N., R.6 E., Yavapai County, Hydrologic Unit 15060203, in Coconino National Forest, on left bank at Bull Pen Ranch, 9 mi east of Camp Verde, and 11 mi upstream from mouth.

DRAINAGE AREA.--241 mi^2.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,630 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft^3/s Jan. 8, 1993, gage height, 13.22 ft, from floodmarks and rating curve extended above 2,700 ft^3/s on basis of slope-area measurements at gage heights 8.3 ft, 10.15 ft, and 13.22 ft; minimum daily, 11 ft^3/s Aug. 1, 22, 1986.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1965	01-06-65	6,510		1981	08-12-81	801	
1966	12-30-65	6,330		1982	03-12-82	9,890	
1967	12-07-66	2,670		1983	11-30-82	6,700	
1968	02-26-68	1,300		1984	12-27-83	3,630	
1969	01-26-69	3,870		1985	12-27-84	5,140	
1970	09-05-70	1,050		1986	03-12-86	885	
1971	09-02-71	1,550		1987	03-18-87	2,110	
1972	12-26-71	6,660		1988	08-29-88	6,540	
1973	10-19-72	11,300		1989	03-08-89	446	
1974	01-21-74	308		1990	09-05-90	249	
1975	04-15-75	2,730		1991	03-01-91	6,070	
1976	02-09-76	8,130		1992	08-23-92	6,290	
1977	07-26-77	101		1993	01-08-93	24,800	
1978	03-01-78	13,800		1994	11-24-93	806	
1979	12-18-78	22,400		1995	02-15-95	10,900	
1980	02-19-80	15,100		1996	09-03-96	750	

Discharge rating table developed February 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	1,250	9.0	10,990
4.0	2,180	10.0	13,800
5.0	3,340	11.0	16,900
6.0	4,820	12.0	20,410
7.0	6,580	13.0	24,010
8.0	8,650	13.2	24,730

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
112	34.4	6,680	78.0	3.0	23.4	2.6	4.8

09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	458	14	34	79	2.3	4.2
NOVEMBER	110	15	29	25	0.85	3.6
DECEMBER	758	16	92	155	1.7	11.3
JANUARY	1,140	16	84	203	2.4	10.3
FEBRUARY	956	15	155	208	1.3	19.0
MARCH	886	15	210	208	0.99	25.8
APRIL	923	15	106	170	1.6	13.1
MAY	157	15	26	25	0.97	3.2
JUNE	25	13	16	2.6	0.16	2.0
JULY	33	14	18	3.9	0.22	2.2
AUGUST	102	14	22	17	0.75	2.7
SEPTEMBER	113	14	22	18	0.80	2.7
ANNUAL	199	16	67	51	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	13	12	12	11	11	11
3	13	12	12	11	11	11
7	14	13	12	12	11	11
14	14	13	12	12	11	11
30	15	13	13	13	12	12
60	15	14	14	13	13	13
90	16	15	14	14	14	13
120	16	15	15	15	15	14
183	17	16	15	15	15	15

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1965-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4,510	9,690	14,200	20,800	26,500	32,700

WEIGHTED SKEW (LOGS)= -0.25
MEAN (LOGS)= 3.64
STANDARD DEV. (LOGS)= 0.41

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-96

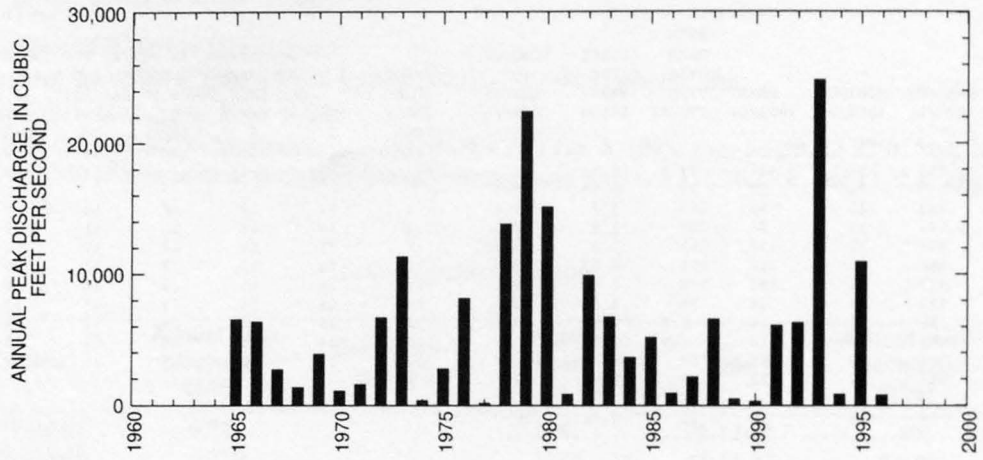
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	1,430	4,600	7,860	13,200	18,000	23,300
3	870	2,610	4,340	7,160	9,640	12,400
7	537	1,530	2,490	3,980	5,260	6,660
15	338	918	1,460	2,310	3,030	3,820
30	230	604	947	1,470	1,920	2,410
60	157	395	613	947	1,230	1,550
90	126	307	470	719	932	1,170

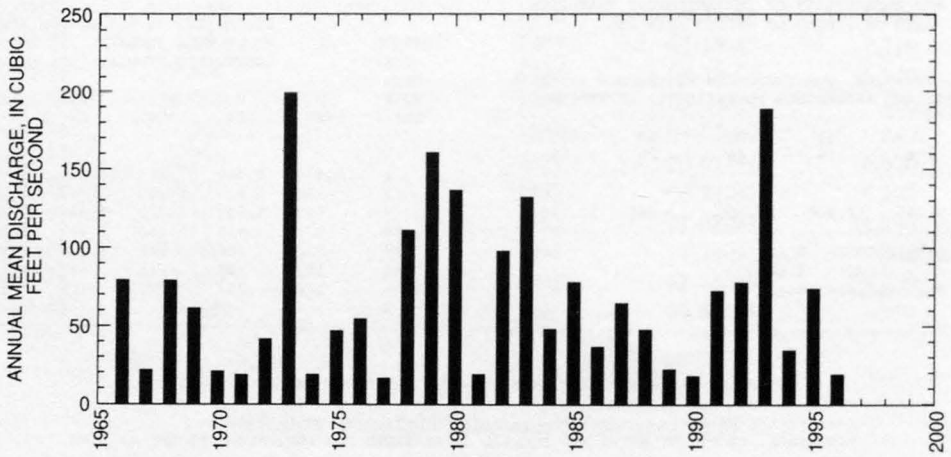
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
880	251	106	49	31	23	20	19	18	17	16	15	14	13	12	11	11

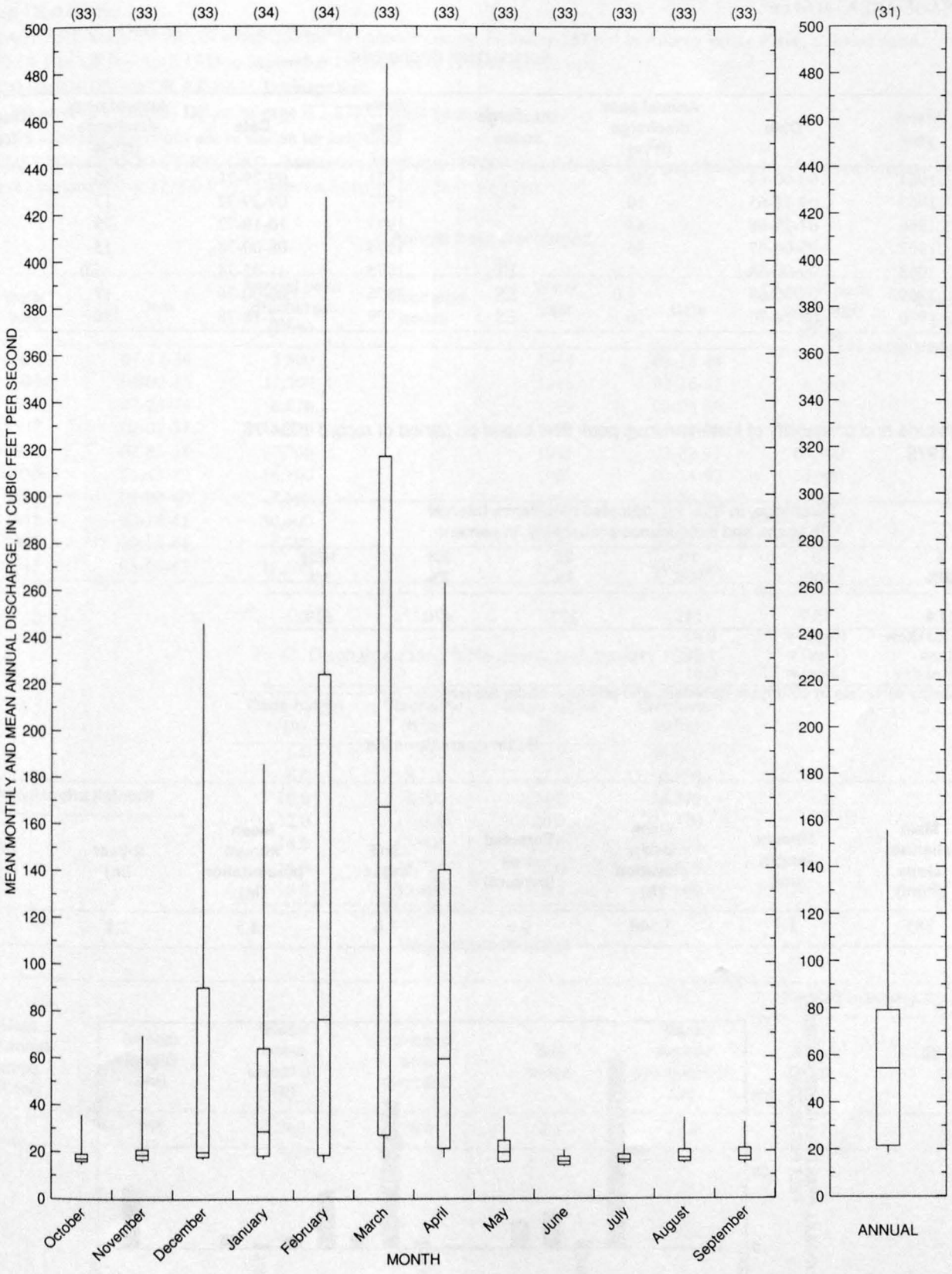
Reliability of values in column is uncertain, and potential errors are large.

09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ--Continued





09505800 WEST CLEAR CREEK NEAR CAMP VERDE, AZ--Continued



09505900 COTTONWOOD WASH NEAR CAMP VERDE, AZ

LOCATION.--Lat 34°30'20", long 111°45'10", in NE$^1/_4$ sec.19, T.13 N., R.6 E., Yavapai County, Hydrologic Unit 15060203, at Camp Verde-Pine road, 7 mi southeast of Camp Verde.
DRAINAGE AREA.--0.64 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	00-00-64	250		1971	09-29-71	195	
1965	09-18-65	10	ES	1972	09-29-72	17	
1966	07-29-66	48		1973	10-19-72	75	
1967	09-00-67	36		1974	08-00-74	15	
1968	00-00-68	1.0	LT	1975	11-02-74	5.0	ES
1969	08-00-69	4.0	ES	1976	00-00-76	17	
1970	08-14-70	10	ES	1979	12-18-78	[1]80	HP

[1]Highest since 1972.

Magnitude and probability of instantaneous peak flow based on period of record 1964-76, 1979

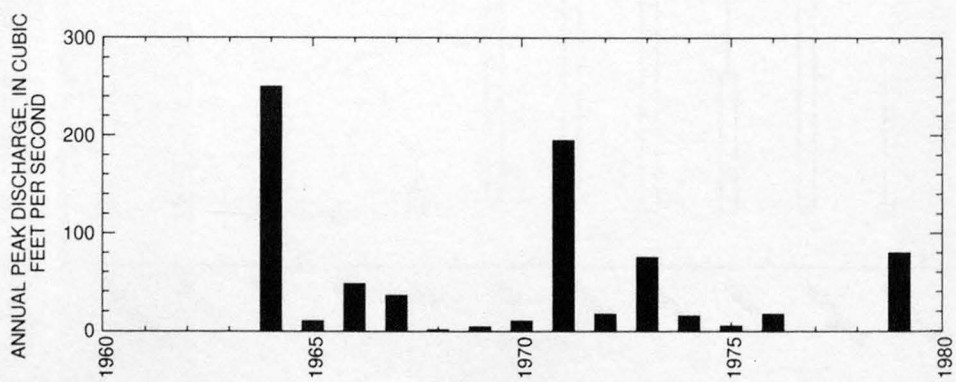
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
23.4	75.9	141	273	420	619

Weighted skew	(logs) =	0.03
Mean	(logs) =	1.37
Standard dev.	(logs) =	0.61

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
385	1.1	3,540	0.0	1.0	14.5	2.1	4.1



09506000 VERDE RIVER NEAR CAMP VERDE, AZ

LOCATION.--Lat 34°26'54", long 111°47'21", in NW$^1/_4$ sec. 11, T.12 N., R.5 E. (unsurveyed), Yavapai County, Hydrologic Unit 15060303, in Prescott National Forest, on right bank 600 ft upstream from Chasm Creek, 9.0 mi southeast of Camp Verde, and 9.7 mi downstream from West Clear Creek.

DRAINAGE AREA.--5,009 mi^2, of which 365 mi^2 is noncontributing, including 357 mi^2 in Aubrey Valley Playa, a closed basin.

PERIOD OF RECORD.--April 1934 to September 1945, October 1988 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,874.11 ft above sea level.

REMARKS.--Several diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 119,000 ft^3/s Feb. 20, 1993, gage-height, 28.36 ft from floodmarks from rating curve extended above 17,000 ft^3/s; minimum daily, 40 ft^3/s June 30, 1990.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1934	07-17-34	5,500		1944	03-14-44	5,160	
1935	04-09-35	11,500		1945	03-16-45	8,380	
1936	02-24-36	6,820		1989	03-08-89	777	
1937	02-07-37	41,700		1990	07-22-90	5,060	
1938	03-03-38	97,000		1991	03-02-91	14,300	
1939	09-13-39	16,100		1992	02-14-92	14,000	
1940	08-04-40	7,560		1993	02-20-93	119,000	
1941	03-14-41	30,000		1994	09-03-94	2,860	
1942	10-13-41	6,080		1995	03-06-95	75,500	
1943	03-05-43	11,600		1996	09-06-96	2,110	

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	1,380	20.0	46,970
8.0	3,720	22.0	60,580
10.0	6,900	24.0	76,340
12.0	11,620	26.0	94,370
14.0	17,900	28.0	114,800
16.0	25,750	30.0	137,500
18.0	35,400	30.3	141,100

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
17.9	168	5,560	70.0	2.5	17.6	2.1	4.1

09506000 VERDE RIVER NEAR CAMP VERDE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1935-45, 1989-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	551	106	193	114	0.59	3.4
NOVEMBER	339	169	208	45	0.21	3.7
DECEMBER	1,350	199	315	281	0.89	5.6
JANUARY	7,160	198	683	1,580	2.3	12.1
FEBRUARY	6,160	180	1,280	1,700	1.3	22.6
MARCH	4,030	171	1,500	1,090	0.73	26.5
APRIL	3,050	118	679	736	1.1	12.0
MAY	337	85	136	62	0.45	2.4
JUNE	123	61	86	17	0.20	1.5
JULY	209	65	111	44	0.39	2.0
AUGUST	616	103	214	129	0.60	3.8
SEPTEMBER	1,150	83	243	233	0.96	4.3
ANNUAL	1,400	159	465	325	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1935-45, 1990-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	56	47	43	41	38	36
3	59	49	45	42	39	37
7	62	53	49	46	43	41
14	66	57	53	51	48	46
30	72	63	59	56	54	52
60	82	73	69	66	64	62
90	93	82	77	74	72	70
120	111	97	90	86	81	78
183	148	118	106	98	90	85

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1934-45, 1989-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
9,900	27,000	45,900	81,500	118,500	166,300

WEIGHTED SKEW (LOGS)= 0.08
MEAN (LOGS)= 4.00
STANDARD DEV. (LOGS)= 0.51

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1935-45, 1989-96

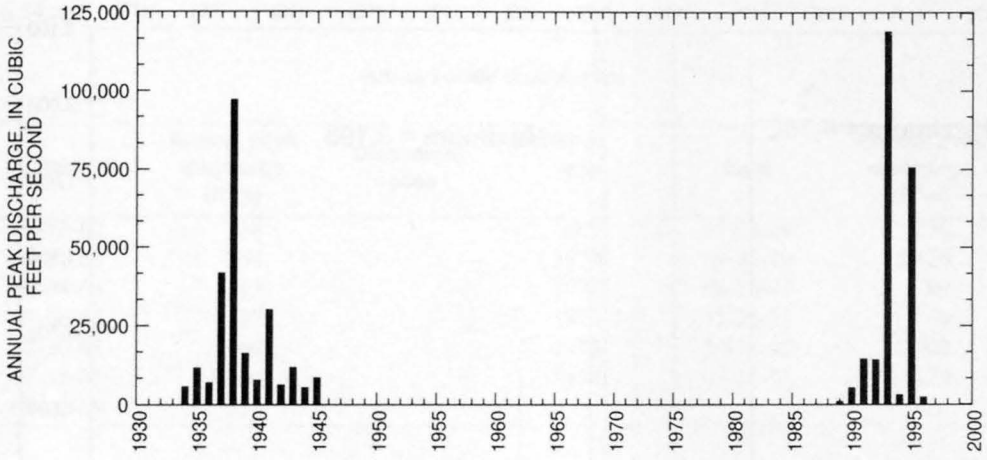
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	6,200	18,900	34,000	63,800	95,900	139,000
3	4,230	11,900	20,600	36,800	53,700	75,500
7	2,900	7,300	11,700	19,000	25,900	34,100
15	2,020	4,850	7,670	12,500	17,100	22,800
30	1,560	3,510	5,300	8,150	10,700	13,700
60	1,140	2,570	3,910	6,100	8,120	10,500
90	873	1,890	2,860	4,470	5,990	7,810

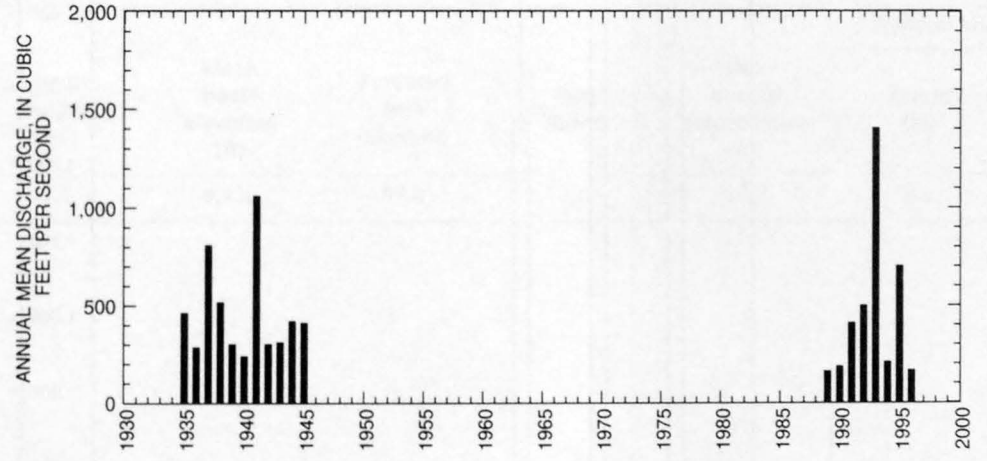
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1935-45, 1989-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
5,140	1,610	794	444	309	234	211	188	157	127	103	82	70	60	54	51	43

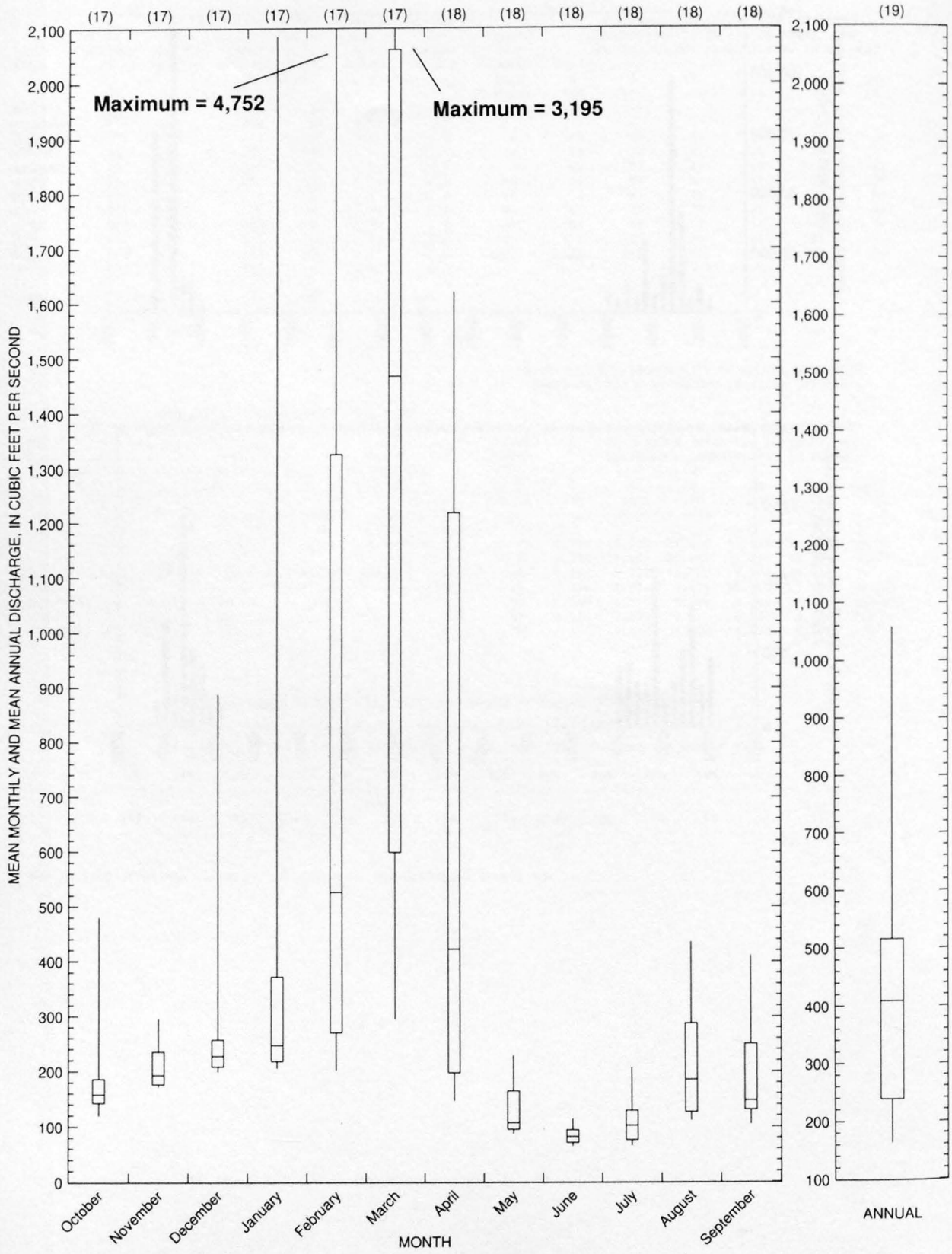
Reliability of values in column is uncertain, and potential errors are large.

09506000 VERDE RIVER NEAR CAMP VERDE, AZ--Continued





09506000 VERDE RIVER NEAR CAMP VERDE, AZ--Continued



09507600 EAST VERDE RIVER NEAR PINE, AZ

LOCATION.--Lat 34°23'30", long 111°16'05", in $SE^1/_4SW^1/_4$ sec.26, T.12 N., R.10 E., Gila County, Hydrologic Unit 15060203, at right bank 0.8 mi upstream from Dude Creek, 2.7 mi south of Washington Park, and 10 mi east of Pine.
DRAINAGE AREA.--6.34 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	02-13-62	38		1969	01-25-69	298	
1963	09-11-63	264		1970	09-05-70	2,820	
1964	08-04-64	143		1971	08-28-71	99	
1965	01-06-65	127		1972	12-26-71	60	ES
1966	12-30-65	960		1973	10-19-72	2,700	
1967	07-31-67	1,350		1974	07-21-74	120	
1968	08-02-68	330					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
303	4.4	6,430	99.0	3.0	30.0	2.6	5.0

09507600 EAST VERDE RIVER NEAR PINE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-71

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	29	0.49	8.8	13	1.4	6.1
NOVEMBER	29	0.69	9.2	12	1.3	6.4
DECEMBER	28	0.59	8.8	12	1.4	6.1
JANUARY	28	0.60	10	11	1.1	7.0
FEBRUARY	33	0.62	12	12	0.98	8.7
MARCH	36	1.3	15	13	0.85	10.3
APRIL	38	0.84	18	13	0.76	12.3
MAY	33	0.29	16	14	0.86	11.3
JUNE	29	0.10	12	13	1.1	8.1
JULY	29	0.11	11	13	1.2	7.6
AUGUST	30	0.04	11	12	1.1	7.6
SEPTEMBER	28	0.24	12	12	0.99	8.3
ANNUAL	26	0.73	12	9.3	0.78	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-71

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1	0.55	0.00	0.00	0.00	0.00	0.00
3	0.56	0.00	0.00	0.00	0.00	0.00
7	0.48	0.00	0.00	0.00	0.00	0.00
14	0.42	0.08	0.00	0.00	0.00	0.00
30	0.55	0.12	0.05	0.03	0.02	0.01
60	0.84	0.17	0.08	0.04	0.02	0.01
90	1.2	0.25	0.12	0.07	0.04	0.02
120	1.6	0.37	0.18	0.11	0.06	0.04
183	3.1	0.71	0.33	0.17	0.08	0.05

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1962-74

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
288	954	1,810	3,620	5,700	8,600

WEIGHTED SKEW (LOGS)= 0.10
MEAN (LOGS)= 2.47
STANDARD DEV. (LOGS)= 0.61

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-71

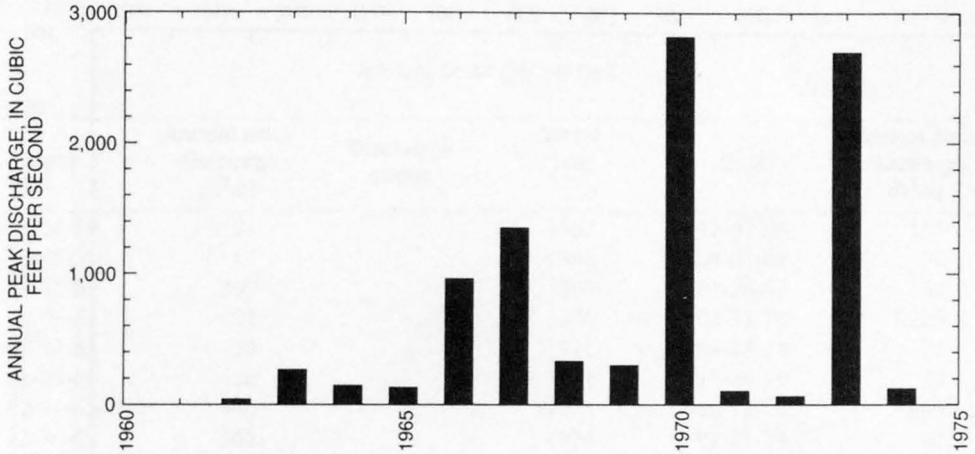
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	57	145	224	346	450	563
3	41	95	134	180	211	239
7	28	57	73	88	96	102
15	23	46	58	70	76	80
30	20	41	53	65	71	77
60	17	37	50	64	72	78
90	15	36	51	68	79	88

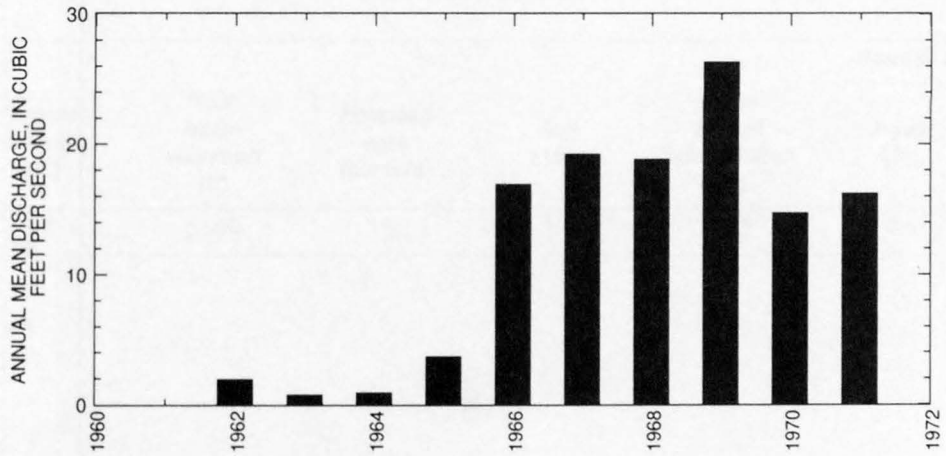
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-71

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
42	35	32	29	28	25	9.5	2.8	1.2	0.78	0.64	0.47	0.22	0.11	0.10	0.00	0.00

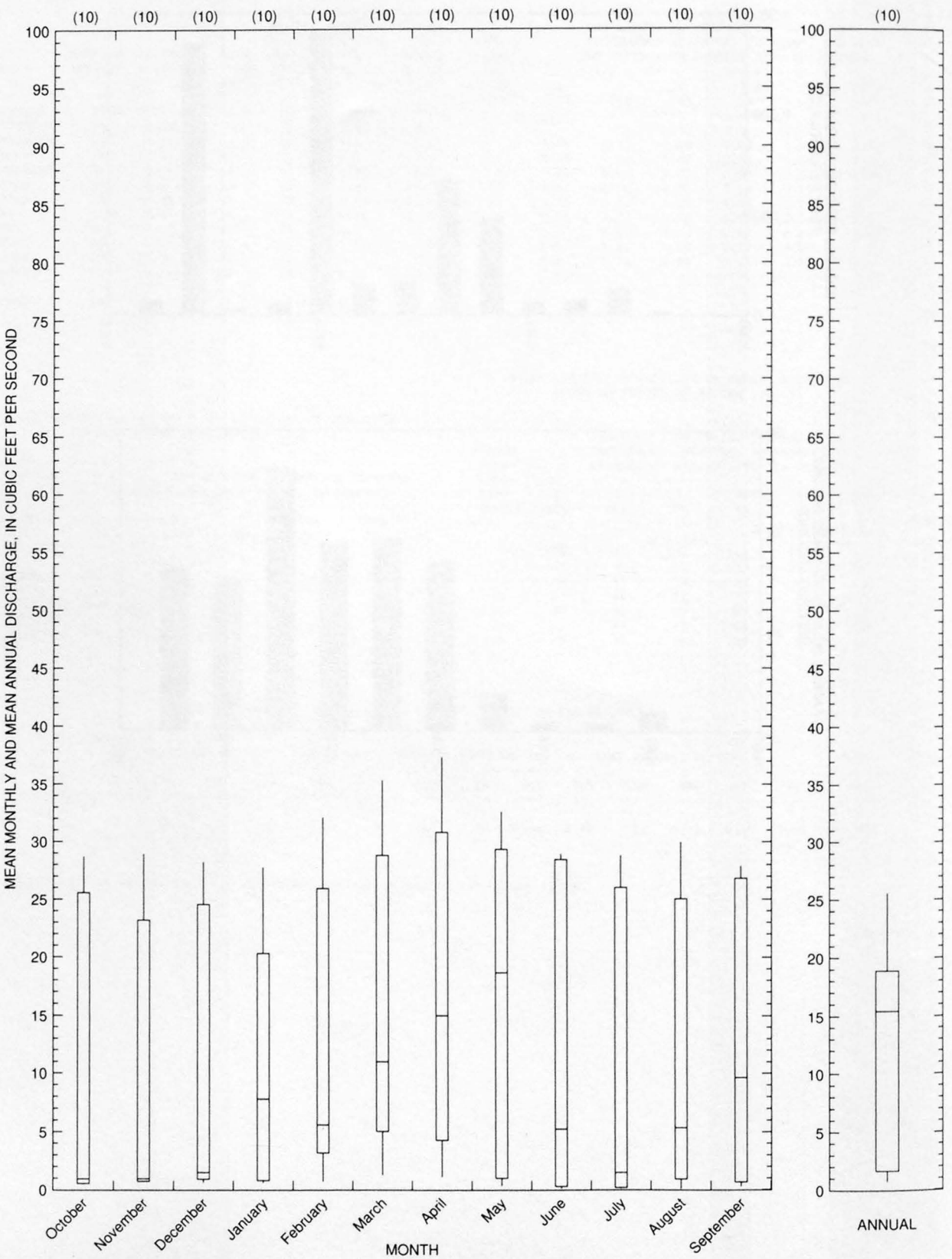
Reliability of values in column is uncertain, and potential errors are large.

09507600 EAST VERDE RIVER NEAR PINE, AZ--Continued





09507600 EAST VERDE RIVER NEAR PINE, AZ--Continued



09507700 WEBBER CREEK ABOVE WEST FORK WEBBER CREEK, NEAR PINE, AZ

LOCATION.--Lat 34°24'40", long 111°22'20", in SW$^1/_4$ sec.23, T.12 N., R.9 E. (unsurveyed), Gila County, Hydrologic Unit 15060203, in Tonto National Forest, on left bank 0.2 mi upstream from West Fork, and 4.9 mi northeast of Pine.

DRAINAGE AREA.--4.79 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1959	08-24-59	21		1967	12-07-66	153	
1960	12-25-59	84		1968	04-01-68	32	
1961	09-13-61	399		1969	01-26-69	134	
1962	04-08-62	32		1970	09-05-70	1,220	
1963	08-22-63	19		1971	08-25-71	26	
1964	08-08-64	126		1972	12-26-71	50	
1965	01-07-65	148		1973	10-19-72	686	
1966	12-30-65	366		1974	01-21-74	12	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
634	3.8	6,980	100	3.0	27.5	2.8	5.2

09507700 WEBBER CREEK ABOVE WEST FORK WEBBER CREEK, NEAR PINE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1960-74

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	26	0.25	2.2	6.7	3.0	7.4
NOVEMBER	4.6	0.31	1.1	1.3	1.2	3.7
DECEMBER	16	0.32	2.8	4.1	1.5	9.2
JANUARY	11	0.51	3.0	3.4	1.1	10.0
FEBRUARY	8.4	0.48	2.6	2.5	0.99	8.5
MARCH	15	0.52	5.4	5.1	0.95	17.9
APRIL	29	0.50	7.7	9.2	1.2	25.6
MAY	21	0.43	2.7	5.2	2.0	8.9
JUNE	1.3	0.18	0.53	0.35	0.65	1.8
JULY	0.53	0.16	0.33	0.11	0.33	1.1
AUGUST	1.2	0.31	0.62	0.34	0.56	2.1
SEPTEMBER	8.8	0.24	1.1	2.2	1.9	3.8
ANNUAL	9.1	0.61	2.5	2.3	0.92	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1961-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.19	0.15	0.13	0.12	0.10	0.09
3	0.20	0.16	0.13	0.12	0.10	0.09
7	0.21	0.16	0.14	0.12	0.10	0.09
14	0.22	0.18	0.15	0.14	0.12	0.11
30	0.25	0.21	0.19	0.17	0.16	0.15
60	0.30	0.25	0.23	0.21	0.20	0.19
90	0.34	0.29	0.26	0.24	0.22	0.21
120	0.39	0.32	0.29	0.26	0.24	0.22
183	0.50	0.39	0.35	0.31	0.28	0.25

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1959-74

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
90	291	544	1,070	1,660	2,480

WEIGHTED SKEW (LOGS)= 0.09
MEAN (LOGS)= 1.96
STANDARD DEV. (LOGS)= 0.60

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1960-74

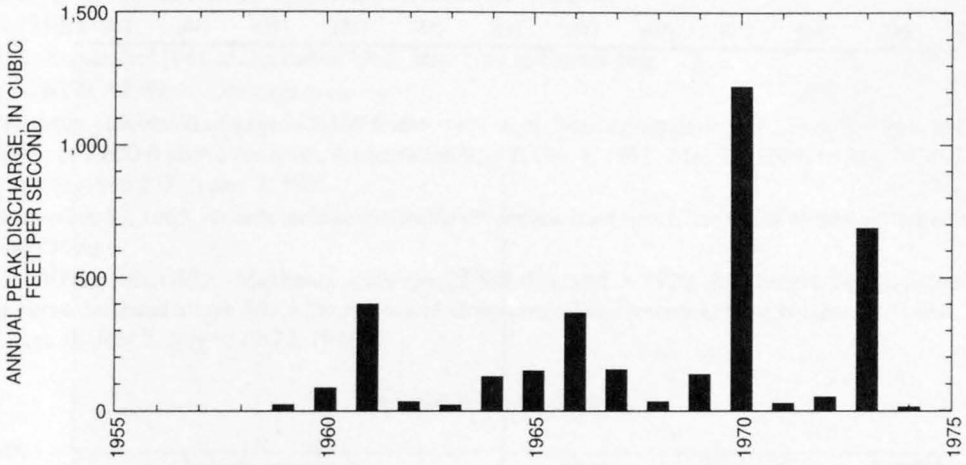
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	39	117	200	343	479	640
3	27	70	110	171	224	282
7	18	43	61	85	103	120
15	12	27	38	51	61	71
30	8.2	19	28	42	53	66
60	5.1	12	19	30	40	52
90	4.1	9.8	15	25	33	44

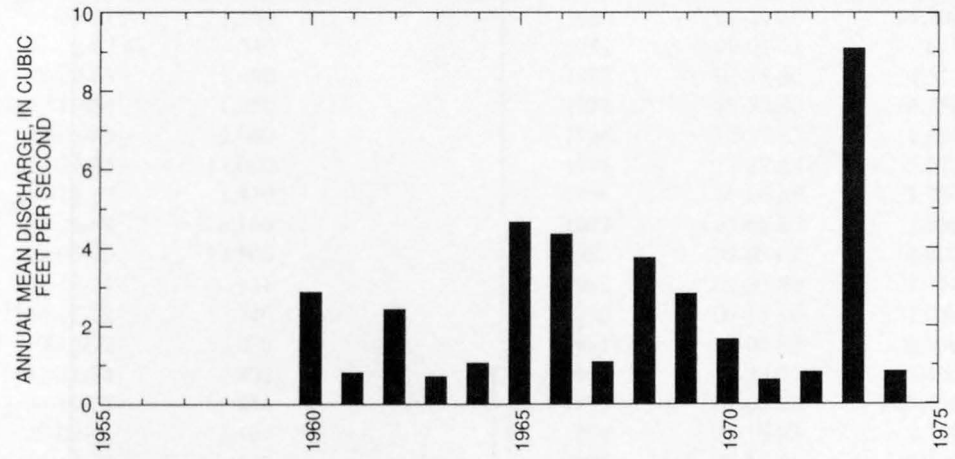
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-74

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
31	11	4.8	3.2	2.4	1.1	0.77	0.60	0.53	0.46	0.36	0.27	0.23	0.20	0.17	0.14	0.11

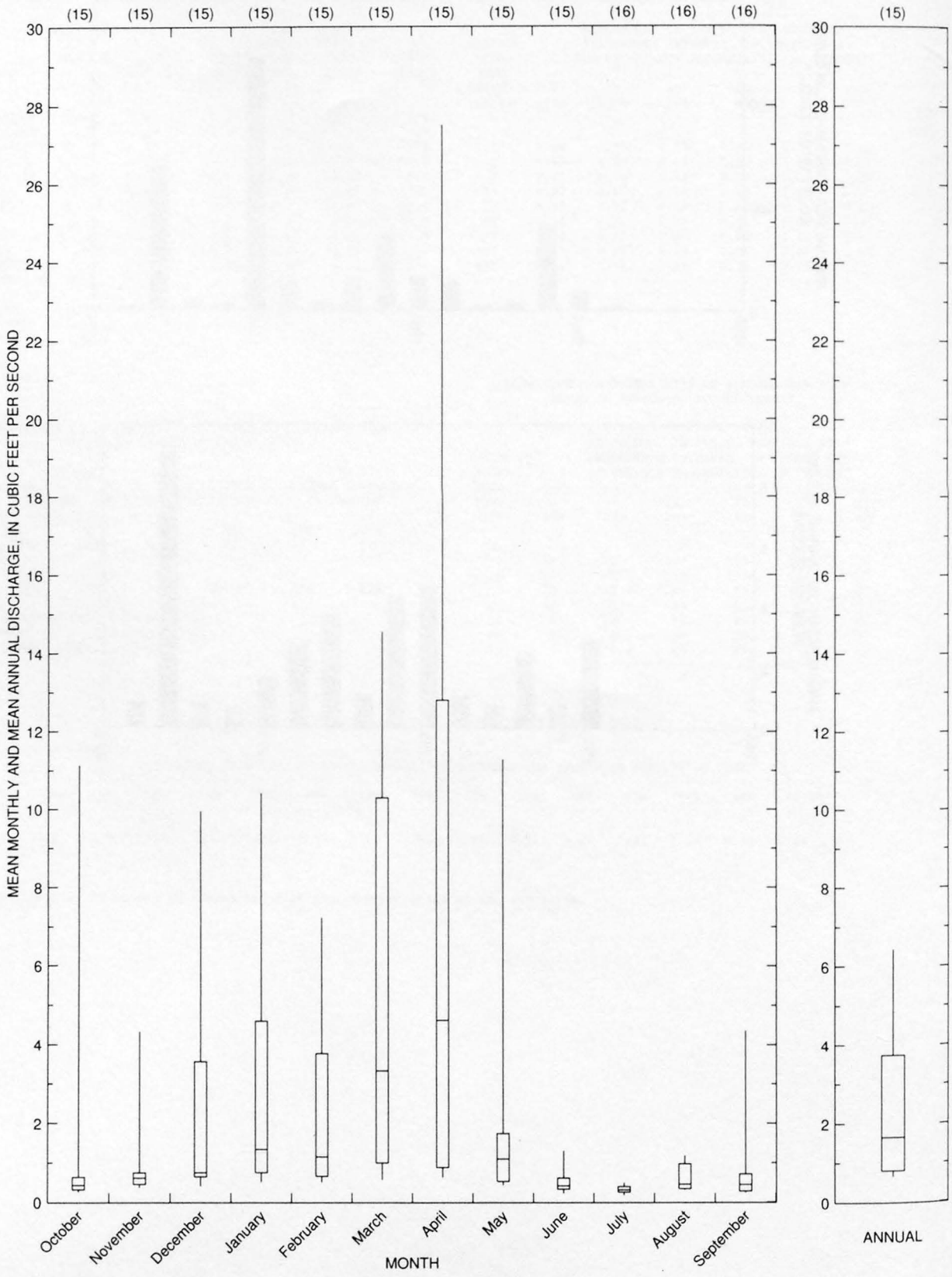
Reliability of values in column is uncertain, and potential errors are large.

09507700 WEBBER CREEK ABOVE WEST FORK WEBBER CREEK, NEAR PINE, AZ--Continued





09507700 WEBBER CREEK ABOVE WEST FORK WEBBER CREEK, NEAR PINE, AZ--Continued



09507980 EAST VERDE RIVER NEAR CHILDS, AZ

LOCATION.--Lat 34°16'35", long 111°38'17", in sec.21, T.11 N., R.7 E. (unsurveyed), Gila County Hydrologic Unit 15060203, in Tonto National Forest, on left bank 1.6 mi upstream from mouth and 6 mi southeast of Childs.

DRAINAGE AREA.--331 mi^2.

PERIOD OF RECORD.--September 1961 to December 1965, May 1967 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,500 ft above sea level, from topographic map. Sept. 1, 1961, to Dec. 15, 1965, at site 1 mi upstream at elevation of 2,600 ft above sea level, datum raised 0.38 ft Oct. 4, 1963. May 25, 1967, to July 20, 1972, at present site at datum 3.29 ft higher, datum lowered 2.00 ft Jan. 7, 1993.

REMARKS.--Since September 30, 1965, records include transbasin diversions from East Clear Creek to headwaters of East Verde River. (See sta 09507580 and 09398300.)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft^3/s Sept. 5, 1970, gage height, 22.5 ft, present datum, from profile past gage, from rating curve extended above 960 ft^3/s on basis of slope-area measurements at gage heights 12.11 and 22.5 ft, present datum; no flow June 11-13, June 18-July 7, July 9, 19-27, 1996.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	09-09-61	1,340		1980	02-20-80	14,100	
1962	03-22-62	540		1981	09-01-81	617	
1963	08-22-63	11,400		1982	02-11-82	4,510	
1964	09-13-64	1,280		1983	11-30-82	6,250	
1965	01-06-65	5,980		1984	12-27-83	1,690	
1966	12-22-65	17,000		1985	12-27-84	5,570	
1968	12-19-67	1,410		1986	11-26-85	1,760	
1969	01-26-69	6,100		1987	03-05-87	1,030	
1970	09-05-70	23,500		1988	02-03-88	4,000	
1971	08-11-71	931		1989	02-05-89	1,750	
1972	08-11-72	740		1990	07-17-90	1,020	
1973	10-19-72	10,000		1991	03-01-91	8,790	
1974	01-21-74	802		1992	08-23-92	11,000	
1975	04-11-75	814		1993	01-08-93	20,100	
1976	02-09-76	11,400		1994	11-15-93	2,110	
1977	08-17-77	502		1995	02-15-95	11,900	
1978	03-01-78	15,000		1996	09-14-96	519	
1979	01-17-79	11,600					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	891	13.0	11,960
4.0	1,890	15.0	14,340
5.0	2,930	17.0	16,740
7.0	5,090	19.0	19,170
9.0	7,330	21.0	21,620
11.0	9,630	23.0	24,100

09507980 EAST VERDE RIVER NEAR CHILDS, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
91.6	32.0	5,140	50.0	2.8	24.7	2.7	5.0

09507980 EAST VERDE RIVER NEAR CHILDS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-65, 1968-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	308	0.73	30	52	1.8	3.5
NOVEMBER	157	0.83	34	38	1.1	4.0
DECEMBER	443	1.4	64	102	1.6	7.5
JANUARY	1,820	2.3	142	321	2.3	16.6
FEBRUARY	1,150	3.7	176	259	1.5	20.6
MARCH	968	6.3	184	220	1.2	21.6
APRIL	371	4.3	85	92	1.1	9.9
MAY	115	1.8	31	22	0.73	3.6
JUNE	49	0.43	19	14	0.74	2.2
JULY	51	0.35	20	15	0.75	2.4
AUGUST	203	1.2	37	44	1.2	4.3
SEPTEMBER	282	0.73	32	47	1.5	3.7
ANNUAL	290	11	71	64	0.91	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-65, 1969-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100# 1%
1	3.6	0.96	0.42	0.20	0.08	0.04
3	3.8	1.0	0.46	0.22	0.09	0.05
7	4.3	1.2	0.51	0.24	0.09	0.05
14	5.2	1.5	0.65	0.31	0.12	0.06
30	6.8	1.9	0.88	0.42	0.17	0.09
60	8.9	2.8	1.3	0.68	0.30	0.16
90	12	4.3	2.3	1.3	0.61	0.36
120	15	6.0	3.2	1.8	0.87	0.51
183	21	9.3	5.3	3.1	1.6	0.93

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-66, 1968-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3,270	9,300	16,000	28,300	40,800	56,700

WEIGHTED SKEW (LOGS)= -0.05
MEAN (LOGS)= 3.51
STANDARD DEV. (LOGS)= 0.54

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-65, 1968-96

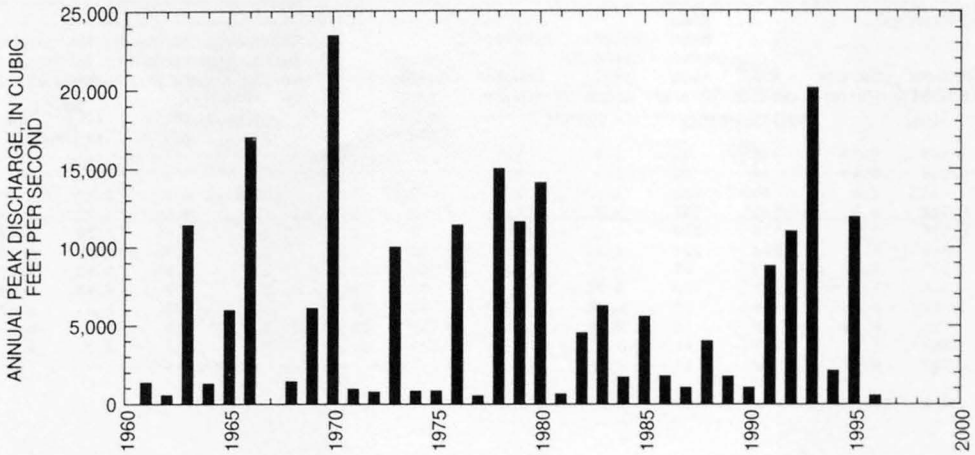
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100# 1%
1	1,350	4,080	7,050	12,400	17,500	23,800
3	790	2,310	3,910	6,710	9,380	12,600
7	463	1,320	2,210	3,740	5,170	6,870
15	283	786	1,320	2,280	3,230	4,390
30	197	528	875	1,490	2,090	2,830
60	138	358	595	1,030	1,470	2,030
90	112	278	453	768	1,090	1,480

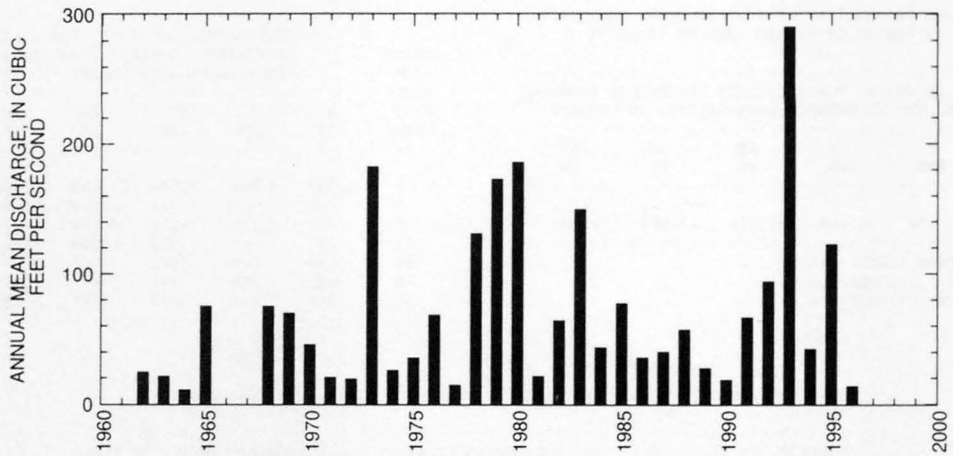
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-65, 1968-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
932	244	115	66	50	38	30	25	19	13	7.0	2.5	1.2	0.62	0.41	0.19	0.00

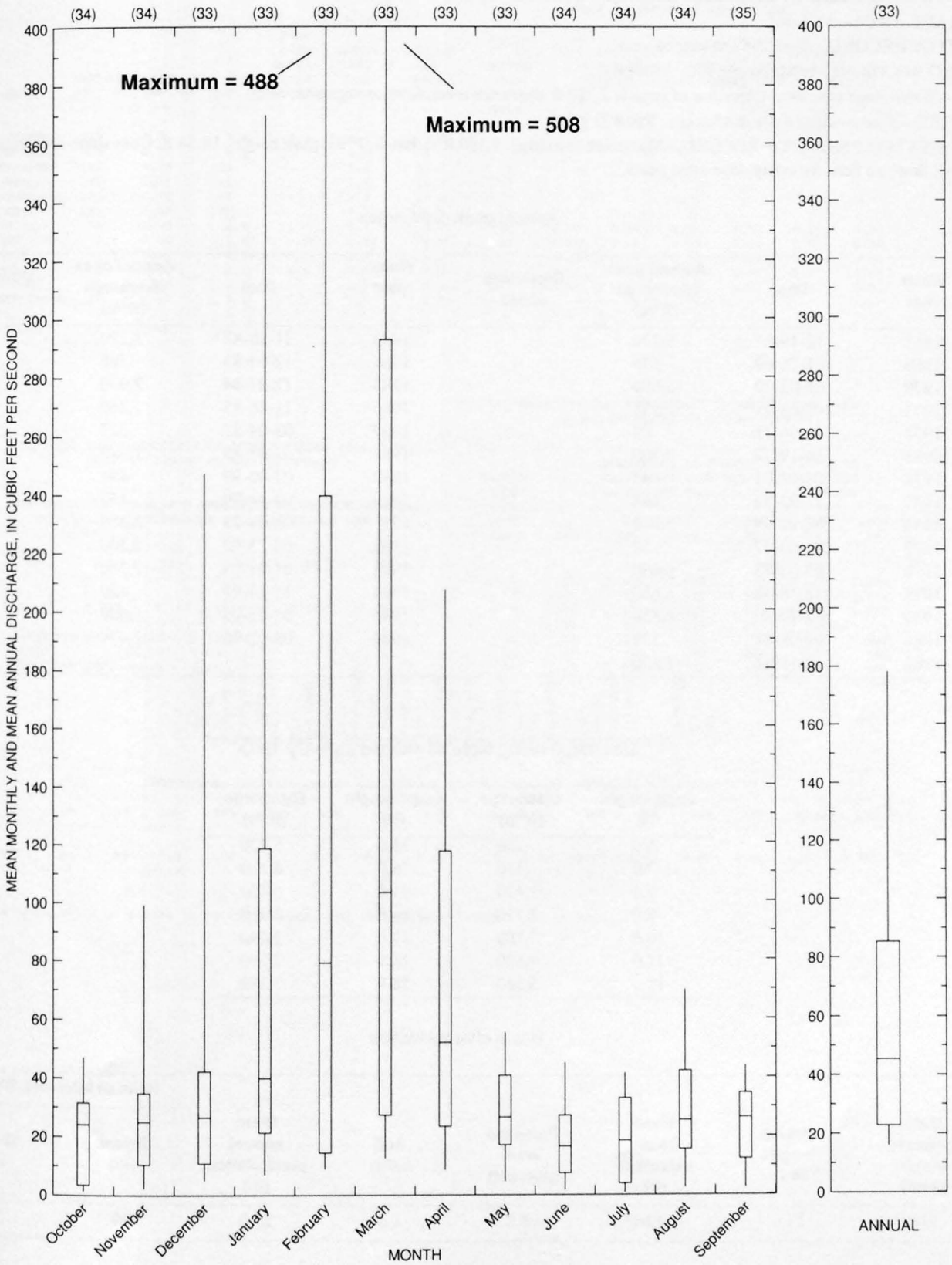
Reliability of values in column is uncertain, and potential errors are large.

09507980 EAST VERDE RIVER NEAR CHILDS, AZ--Continued





09507980 EAST VERDE RIVER NEAR CHILDS, AZ--Continued



09508300 WET BOTTOM CREEK NEAR CHILDS, AZ

LOCATION.--Lat 34°09'39", long 111°41'32", in sec.36, T.9 N., R.6 E. (unsurveyed), Gila County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.4 mi upstream from mouth and 13 mi south of Childs.

DRAINAGE AREA.--36.4 mi^2.

PERIOD OF RECORD.--June 1967 to current year.

REVISED RECORDS.--WRD Ariz. 1970: 1968(M).

GAGE.--Water-stage recorder. Elevation of gage is 2,320 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft^3/s Jan. 8, 1993, gage height, 18.36 ft, from slope-area measurement of peak flow; no flow for many days most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1968	12-19-67	5,220		1983	11-30-82	3,220	
1969	01-26-69	535		1984	12-04-83	768	
1970	09-05-70	5,600		1985	12-27-84	2,090	
1971	08-03-71	158		1986	11-26-85	1,260	
1972	12-26-71	89		1987	03-04-87	522	
1973	10-19-72	3,700		1988	02-03-88	1,840	
1974	01-09-74	744		1989	02-05-89	851	
1975	11-02-74	684		1990	03-30-90	157	
1976	02-09-76	5,940		1991	03-01-91	3,550	
1977	01-03-77	52		1992	08-23-92	2,200	
1978	03-02-78	6,660		1993	01-08-93	7,380	
1979	12-18-78	6,680		1994	11-15-93	420	
1980	02-19-80	6,830		1995	02-15-95	6,000	
1981	03-08-81	122		1996	08-02-96	2,470	
1982	02-11-82	1,650					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	286	13.0	5,720
7.0	730	14.0	6,110
8.0	1,470	15.0	6,460
9.0	2,570	16.0	6,760
10.0	3,880	17.0	7,040
11.0	4,680	18.0	7,290
12.0	5,260	18.4	7,390

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
210	17.6	4,810	68.0	1.0	25.0	2.7	5.5

09508300 WET BOTTOM CREEK NEAR CHILDS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	103	0.01	5.4	19	3.6	2.8
NOVEMBER	52	0.17	8.3	13	1.6	4.3
DECEMBER	111	0.28	22	35	1.6	11.6
JANUARY	373	0.26	43	73	1.7	22.4
FEBRUARY	345	0.56	46	70	1.5	23.8
MARCH	321	0.29	49	71	1.5	25.3
APRIL	38	0.09	8.8	11	1.2	4.6
MAY	2.1	0.00	0.63	0.59	0.94	0.3
JUNE	0.55	0.00	0.09	0.14	1.5	0.0
JULY	12	0.00	1.0	2.6	2.6	0.5
AUGUST	48	0.00	4.8	11	2.2	2.5
SEPTEMBER	27	0.00	3.3	6.1	1.8	1.7
ANNUAL	47	0.45	16	14	0.87	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.02	0.00	0.00	0.00	0.00	0.00
90	0.06	0.01	0.00	0.00	0.00	0.00
120	0.15	0.05	0.00	0.00	0.00	0.00
183	0.56	0.13	0.06	0.03	0.01	0.01

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1968-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,740	4,340	6,760	10,600	13,900	17,600

WEIGHTED SKEW (LOGS)= -0.33
MEAN (LOGS)= 3.21
STANDARD DEV. (LOGS)= 0.50

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-96

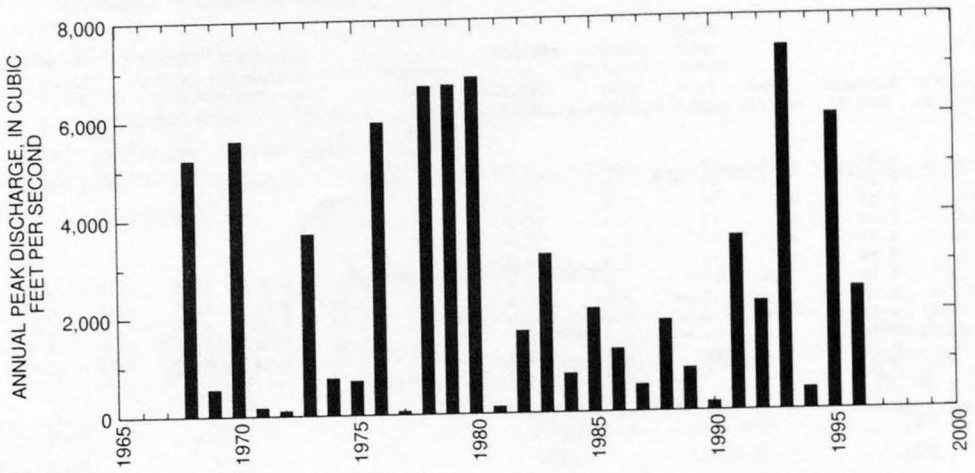
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	555	1,650	2,630	4,030	5,120	6,200
3	327	880	1,310	1,850	2,220	2,560
7	194	498	719	979	1,150	1,290
15	109	281	414	583	701	811
30	67	173	261	379	467	553
60	45	118	178	260	321	381
90	33	88	134	198	247	296

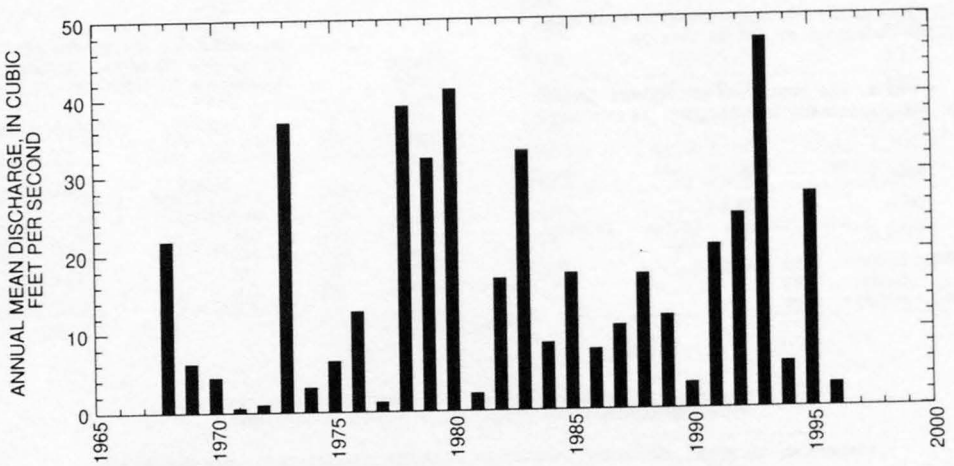
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
277	61	24	12	6.6	2.1	0.90	0.56	0.36	0.19	0.05	0.00	0.00	0.00	0.00	0.00	0.00

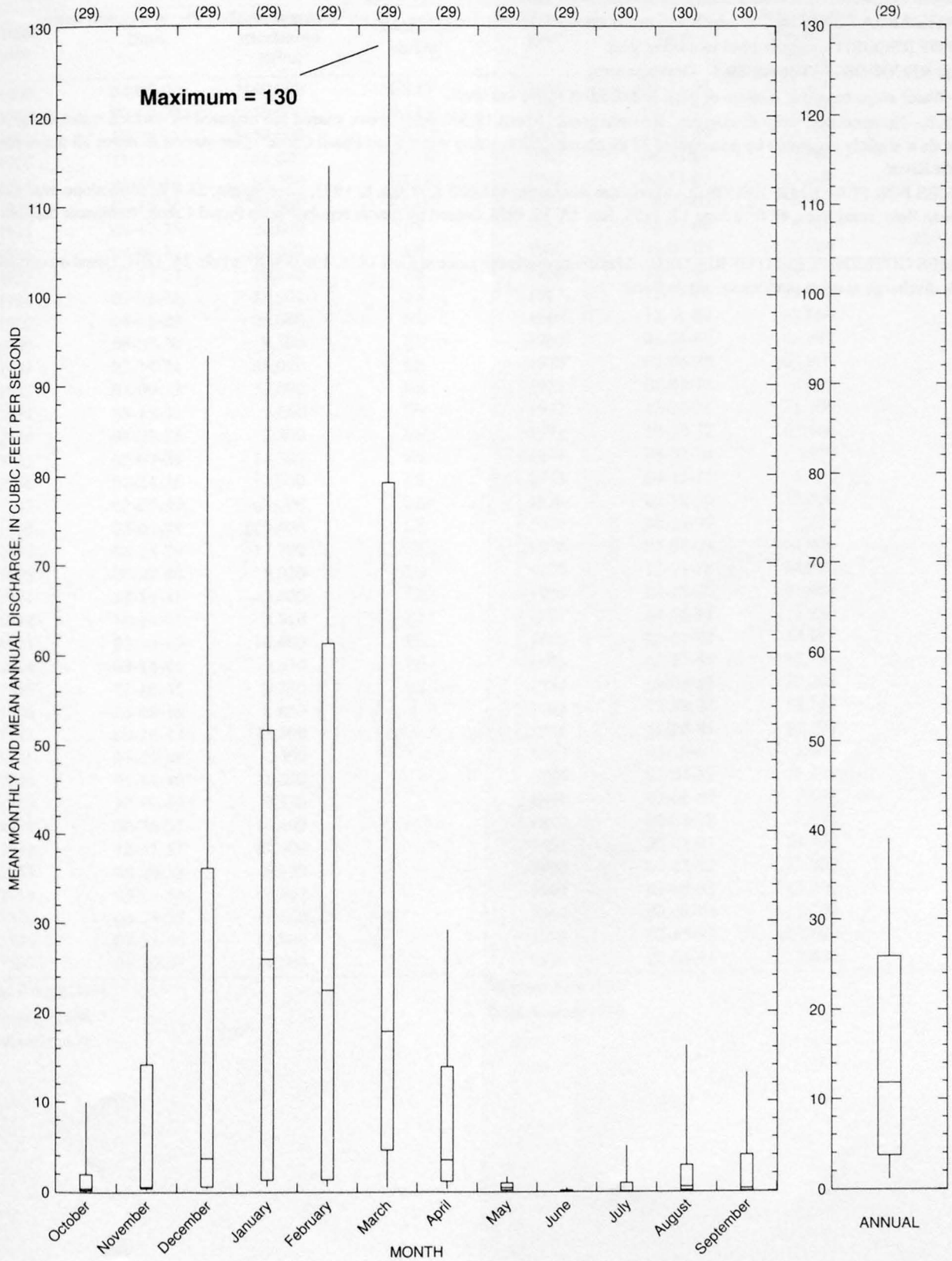
Reliability of values in column is uncertain, and potential errors are large.

09508300 WET BOTTOM CREEK NEAR CHILDS, AZ--Continued





09508300 WET BOTTOM CREEK NEAR CHILDS, AZ--Continued



09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ

LOCATION.--Lat 34°04'23", long 111°42'56", in sec.35, T.9 N., R.6 E. (unsurveyed), Yavapai County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.3 mi downstream from Tangle Creek and 9 mi upstream from Horseshoe Dam.

DRAINAGE AREA.--5,858 mi^2, of which 365 mi^2 is noncontributing, including 357 mi^2 in Aubrey Valley Playa, a closed basin.

PERIOD OF RECORD.--August 1945 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,029.0 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. About 12,500 acres above station are irrigated by surface water and ground water. Low flow slightly regulated by powerplant 32 mi above station, using water from Fossil Creek. This station is above all major reservoirs on Verde River.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 145,000 ft^3/s Jan. 8, 1993, gage height, 23.4 ft, from slope-area measurement of peak flow; minimum, 48 ft^3/s June 17, 1956, July 18, 19, 1958, caused by power regulation on Fossil Creek; minimum daily, 61 ft^3/s July 18, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1888, 150,000 ft^3/s Feb. 24, 1891, based on comparison with peak discharge at other stations on Verde River.

09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1000	00-00-00	[1]180,000	ES,PF	1958	03-23-58	21,100	
1760	00-00-00	[1]130,000	ES,PF	1959	08-17-59	6,060	
1891	02-24 91	[2]150,000	ES,HP	1960	12-26-59	23,400	
1906	11-27-05	[3]96,000	ES,HP	1961	08-23-61	2,800	
1916	01-20-16	68,900	ES,HP	1962	02-13-62	13,300	
1920	02-22-20	[4]95,000	ES,HP	1963	08-22-63	18,900	
1925	09-17-25	20,000	ES	1964	08-27-64	6,910	
1926	04-06-26	32,000	ES	1965	01-07-65	25,700	
1927	02-17-27	70,000	ES	1966	12-22-65	39,300	
1928	02-05-28	14,000	ES	1967	12-07-66	53,000	
1929	04-05-29	26,000	ES	1968	12-19-67	32,600	
1930	08-09-30	8,100	ES	1969	01-26-69	45,800	
1931	02-14-31	34,000	ES	1970	09-06-70	61,900	
1932	02-09-32	53,000	ES	1971	08-03-71	3,030	
1933	03-13-33	1,660	ES	1972	12-27-71	21,100	
1934	08-25-34	3,300	ES	1973	10-20-72	63,400	
1935	02-07-35	14,300	ES	1974	08-02-74	1500	
1936	02-24-36	12,000	ES	1975	04-15-75	5,420	
1937	02-07-37	63,000	ES	1976	02-10-76	39,900	
1938	03-04-38	100,000	ES	1977	08-24-77	1,620	
1939	09-14-39	17,700	ES	1978	03-01-78	91,400	
1940	02-27-40	5,020	ES	1979	12-19-78	94,000	
1941	03-14-41	43,800	ES	1980	02-15-80	94,800	
1942	10-14-41	3,510	ES	1981	04-06-81	2,030	
1943	08-14-43	16,600	ES	1982	03-12-82	42,100	
1944	03-14-44	7,530	ES	1983	12-23-82	22,400	
1945	03-16-45	9,710	ES	1984	10-01-83	27,200	
1946	04-08-46	8,660		1985	12-28-84	19,300	
1947	09-19-47	11,500		1986	11-30-85	10,300	
1948	03-25-48	2,560		1987	03-10-87	5,000	
1949	01-13-49	11,000		1988	02-03-88	19,800	
1950	10-19-49	9,330		1989	02-05-89	2,670	
1951	08-30-51	16,400		1990	09-03-90	2,790	
1952	12-31-51	81,600		1991	03-02-91	34,300	
1953	08-29-53	6,390		1992	08-23-92	27,200	
1954	03-23-54	19,700		1993	01-08-93	145,000	
1955	08-23-55	11,600		1994	02-08-94	4,770	
1956	07-31-56	12,800		1995	02-15-95	[5]108,000	
1957	01-10-57	14,500		1996	08-03-96	2,450	

[1]Ely and Baker (1985).

[2]Highest since 1888.

[3]Highest since 1891.

[4]Highest since 1906.

[5]Highest since 1920.

09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ--Continued

Discharge rating table developed February 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.0	2,000	17.0	40,750
9.0	3,260	19.0	63,390
11.0	7,230	21.0	94,340
13.0	14,040	23.0	135,400
15.0	24,780	23.5	147,500

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
16.2	209	5,470	67.0	2.4	18.4	2.1	4.2

09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1946-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4,190	155	333	579	1.7	4.7
NOVEMBER	1,380	192	370	297	0.80	5.2
DECEMBER	4,640	227	754	1,010	1.3	10.6
JANUARY	12,400	224	879	1,760	2.0	12.3
FEBRUARY	11,000	220	1,250	2,000	1.6	17.5
MARCH	10,400	194	1,560	1,810	1.2	21.8
APRIL	5,640	155	849	1,030	1.2	11.9
MAY	1,320	113	218	173	0.80	3.1
JUNE	316	83	135	42	0.31	1.9
JULY	430	76	179	71	0.40	2.5
AUGUST	1,180	127	334	232	0.70	4.7
SEPTEMBER	1,460	99	273	211	0.77	3.8
ANNUAL	2,230	189	591	437	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1947-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	91	76	70	65	61	58
3	94	79	72	68	63	60
7	98	82	75	70	65	62
14	103	86	79	73	68	65
30	111	93	85	79	72	68
60	128	107	98	91	83	79
90	146	123	112	104	96	90
120	173	147	133	122	109	101
183	198	171	163	158	154	152

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1000, 1925-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
16,000	41,600	67,300	110,800	151,700	200,300

WEIGHTED SKEW (LOGS)= -0.18
MEAN (LOGS)= 4.19
STANDARD DEV. (LOGS)= 0.51

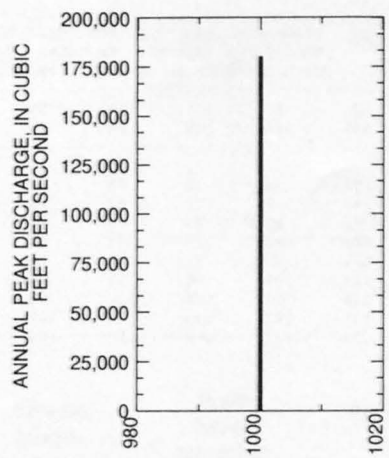
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1946-96

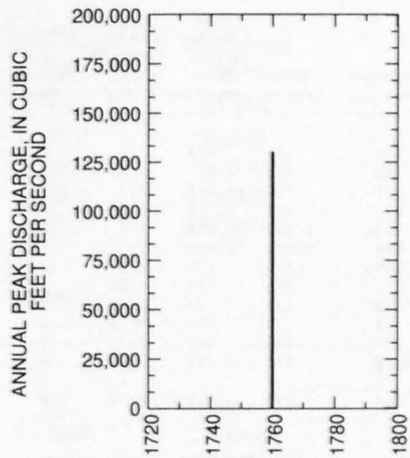
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	8,220	25,200	44,600	81,600	120,000	169,000
3	5,660	16,000	27,000	46,900	66,400	90,600
7	3,640	9,510	15,500	25,600	35,300	47,000
15	2,430	5,890	9,320	15,100	20,700	27,300
30	1,710	3,950	6,130	9,830	13,400	17,600
60	1,190	2,690	4,200	6,840	9,460	12,700
90	976	2,130	3,260	5,230	7,150	9,540

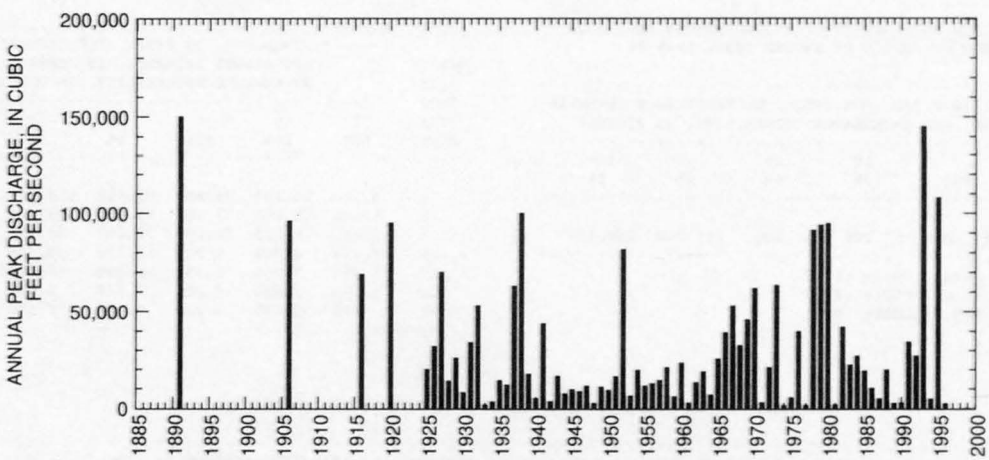
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1946-96

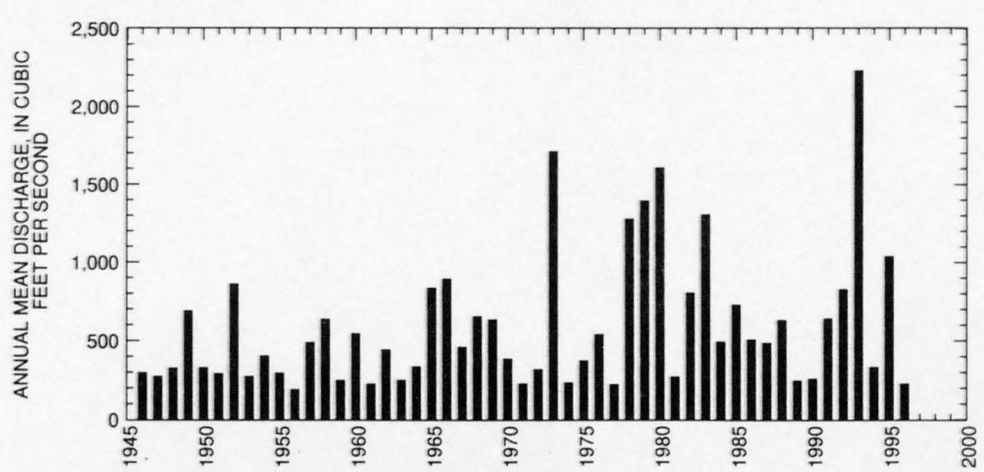
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6,330	2,130	942	561	412	310	267	240	212	182	153	123	104	89	81	76	64

09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ--Continued

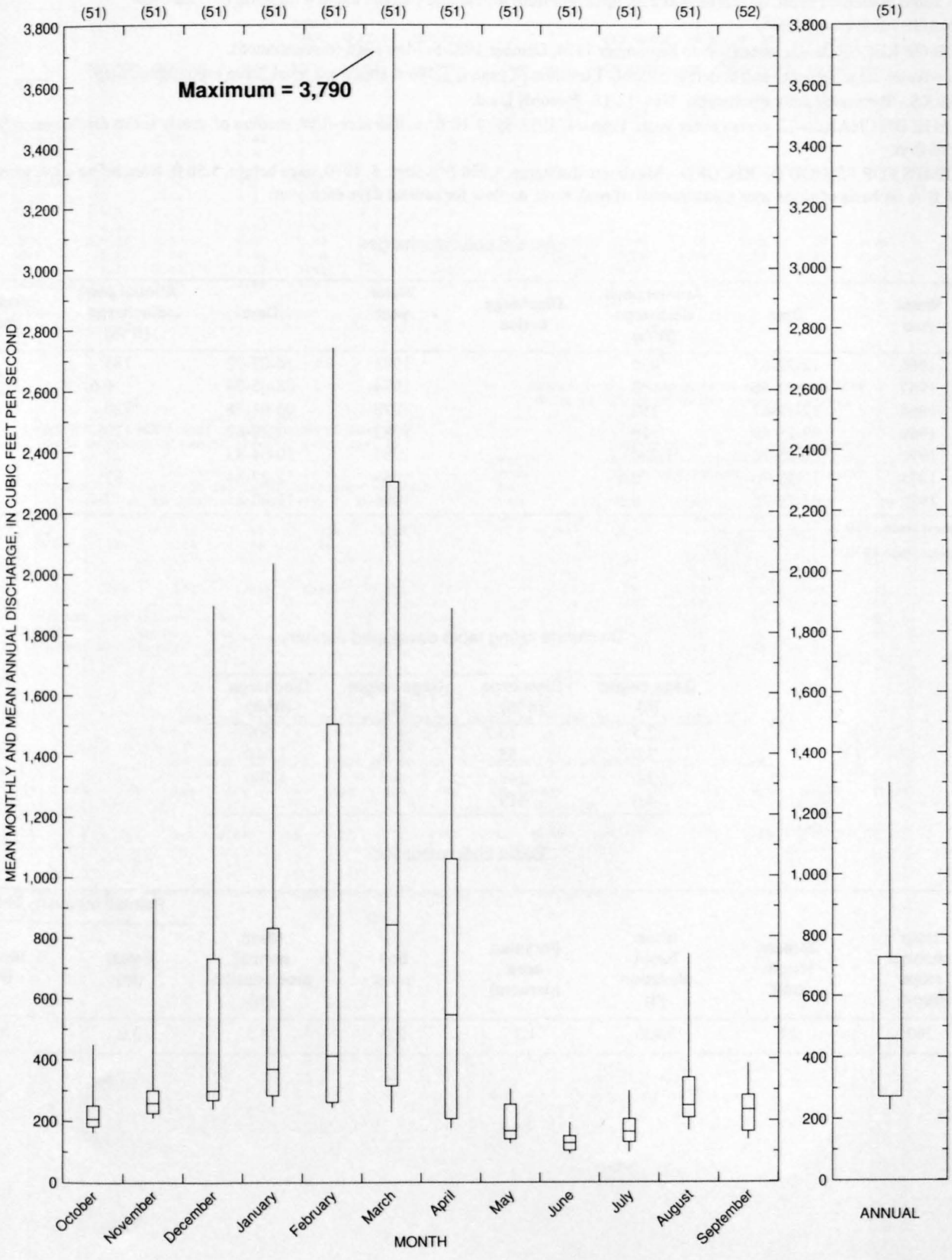








09508500 VERDE RIVER BELOW TANGLE CREEK, ABOVE HORSESHOE DAM, AZ--Continued



09510070 WEST FORK SYCAMORE CREEK ABOVE MCFARLAND CANYON, NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°57'38", long 111°29'12", in $SE^1/_4SW^1/_4$ sec.12, T.7 N., R.8 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on left bank 0.2 mi upstream from McFarland Canyon and 6.8 mi north of Sunflower.

DRAINAGE AREA.--4.58 mi^2.

PERIOD OF RECORD.--October 1965 to September 1974, October 1982 to May 1986 (discontinued).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,380 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 12-18. Records good.

AVERAGE DISCHARE.--13 years (water years 1966-74, 1983-86) 1.18 ft^3/s, 855 acre-ft/yr; median of yearly mean discharges, 0.54 ft^3/s, 390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,700 ft^3/s Sept. 5, 1970, gage height, 5.50 ft, from rating curve extended above 68 ft^3/s on basis of slope-area measurement of peak flow; no flow for several days each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	12-22-65	[1]430		1973	10-07-72	185	
1967	12-07-66	13		1974	08-05-74	6.6	
1968	12-19-67	152		1978	03-01-78	[2]720	
1969	02-25-69	10		1983	11-30-82	178	
1970	09-05-70	[1]1,700		1984	10-01-83	21	
1971	11-30-70	0.3		1985	12-27-84	97	
1972	06-22-72	0.3		1986	11-30-85	12	

[1]Highest since 1959.

[2]Highest since 1970.

Discharge rating table developed January ---

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.5	13.7	4.5	600
3.0	55	5.0	1,040
3.5	148	5.5	1,700
4.0	319		

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
260	3.8	5,430	1.3	3.0	24.5	3.0	5.5

09510070 WEST FORK SYCAMORE CREEK ABOVE MCFARLAND CANYON, NEAR SUNFLOWER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-74, 1983-85

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4.3	0.00	0.53	1.2	2.4	3.7
NOVEMBER	2.7	0.00	0.44	0.84	1.9	3.1
DECEMBER	17	0.00	3.4	4.9	1.5	23.7
JANUARY	7.1	0.01	1.9	2.1	1.1	13.4
FEBRUARY	13	0.04	3.2	4.4	1.4	22.4
MARCH	12	0.04	2.8	4.3	1.5	19.6
APRIL	6.6	0.03	1.1	1.9	1.7	7.6
MAY	1.3	0.01	0.32	0.44	1.4	2.3
JUNE	0.39	0.00	0.07	0.12	1.5	0.5
JULY	0.12	0.00	0.02	0.04	1.9	0.1
AUGUST	0.10	0.00	0.02	0.03	1.5	0.1
SEPTEMBER	5.5	0.00	0.48	1.6	3.3	3.4
ANNUAL	3.6	0.02	1.2	1.3	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-74, 1984-86

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.01	0.00	0.00	0.00	0.00	0.00
183	0.02	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1966-74, 1978, 1983-86

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
36	268	702	1,840	3,330	5,530

WEIGHTED SKEW (LOGS)= -0.37
MEAN (LOGS)= 1.49
STANDARD DEV. (LOGS)= 1.10

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-74, 1983-85

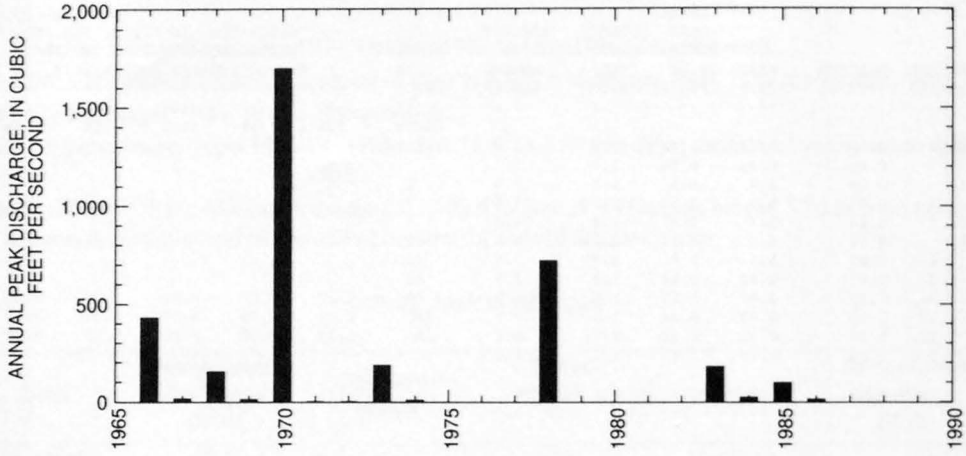
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	17	85	160	270	352	429
3	11	51	91	145	183	217
7	7.2	29	49	76	94	111
15	4.6	18	32	51	66	80
30	3.3	12	21	35	45	55
60	2.3	8.8	16	28	38	49
90	1.8	6.7	12	20	27	35

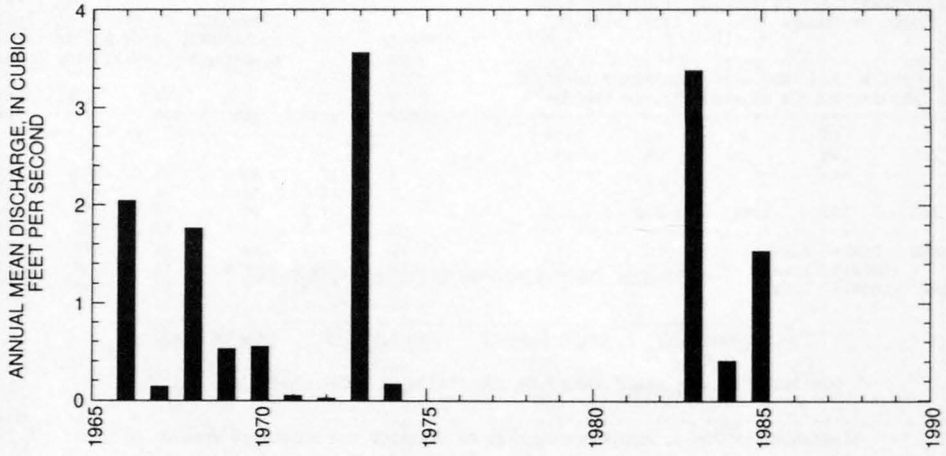
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-74, 1983-85

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
21	5.3	2.4	1.5	0.93	0.25	0.12	0.07	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00

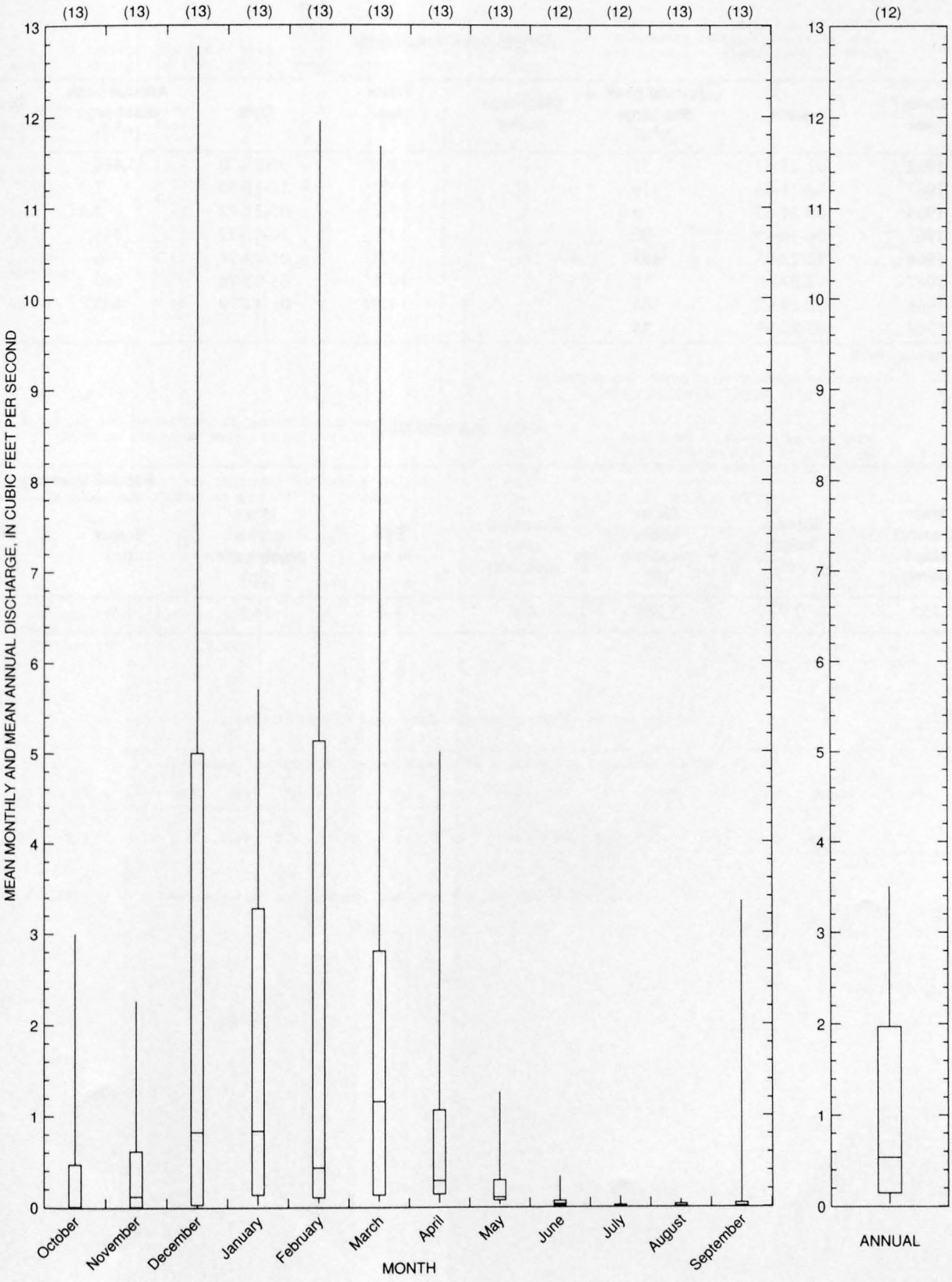
Reliability of values in column is uncertain, and potential errors are large.

09510070 WEST FORK SYCAMORE CREEK ABOVE MCFARLAND CANYON, NEAR SUNFLOWER, AZ--Continued





09510070 WEST FORK SYCAMORE CREEK ABOVE MCFARLAND CANYON, NEAR SUNFLOWER, AZ--Continued



09510080 WEST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°56'45", long 111°29'05", in SE$^1/_4$ sec.13, T.7 N., R.8 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.2 mi upstream from confluence with East Fork, and 5.7 mi north of Sunflower.
DRAINAGE AREA.--9.8 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	01-25-62	52		1970	09-05-70	[1]3,480	
1963	02-11-63	116		1971	12-22-70	1.2	
1964	03-24-64	5.6		1972	06-22-72	4.4	
1965	04-10-65	90		1973	10-07-72	448	
1966	12-22-65	[1]698		1974	01-09-74	30	
1967	12-07-66	18		1978	03-02-78	660	HP
1968	12-19-67	364		1979	01-17-79	463	HP
1969	02-25-69	25					

[1]Highest since 1959.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
353	3.9	5,260	0.8	3.0	24.5	2.9	5.5

09510080 WEST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-74

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	14	0.00	1.1	3.8	3.5	4.4
NOVEMBER	8.0	0.00	0.70	2.2	3.2	2.8
DECEMBER	33	0.01	4.7	9.7	2.1	19.1
JANUARY	21	0.03	3.4	5.8	1.7	13.7
FEBRUARY	21	0.05	4.6	7.0	1.5	18.5
MARCH	32	0.08	5.4	8.8	1.6	22.0
APRIL	16	0.04	2.8	5.5	2.0	11.4
MAY	2.1	0.02	0.36	0.55	1.5	1.5
JUNE	0.55	0.01	0.07	0.15	2.0	0.3
JULY	0.15	0.00	0.02	0.04	2.3	0.1
AUGUST	5.5	0.00	0.44	1.5	3.4	1.8
SEPTEMBER	11	0.00	1.1	3.1	2.9	4.3
ANNUAL	8.9	0.04	2.0	2.6	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-74

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.02	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1962-74, 1978-79

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
101	519	1,190	2,840	4,920	8,030

WEIGHTED SKEW (LOGS)= -0.13
MEAN (LOGS)= 1.99
STANDARD DEV. (LOGS)= 0.86

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-74

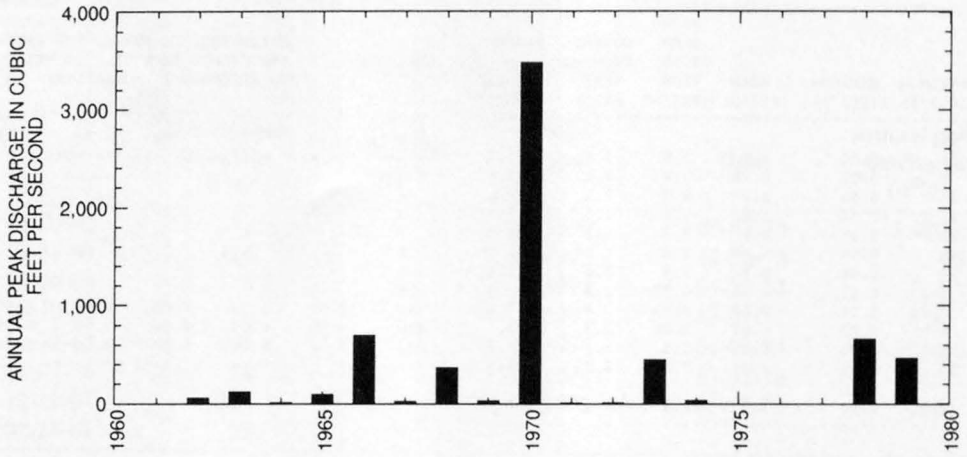
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	29	140	270	489	677	877
3	19	82	149	251	332	412
7	12	50	89	148	194	239
15	8.0	32	59	100	135	171
30	5.6	23	43	78	110	145
60	3.6	15	29	56	82	114
90	2.7	11	21	40	59	83

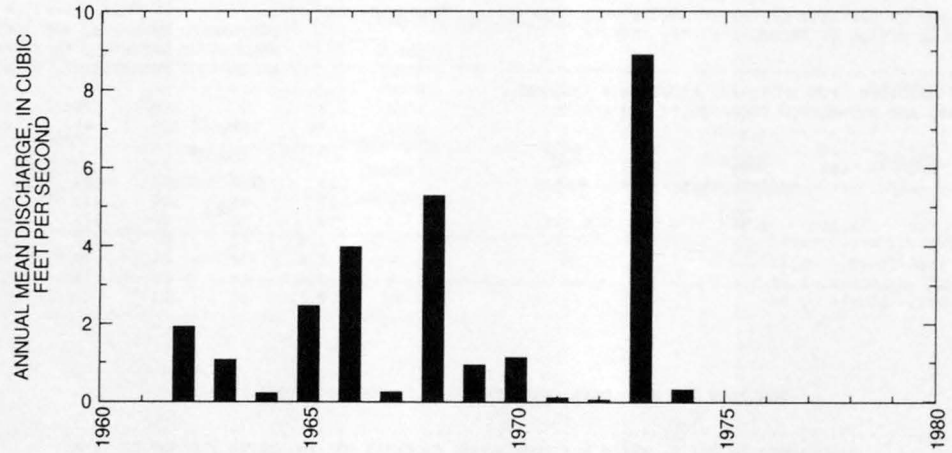
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-74

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
39	9.3	3.1	1.7	0.79	0.31	0.15	0.07	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00

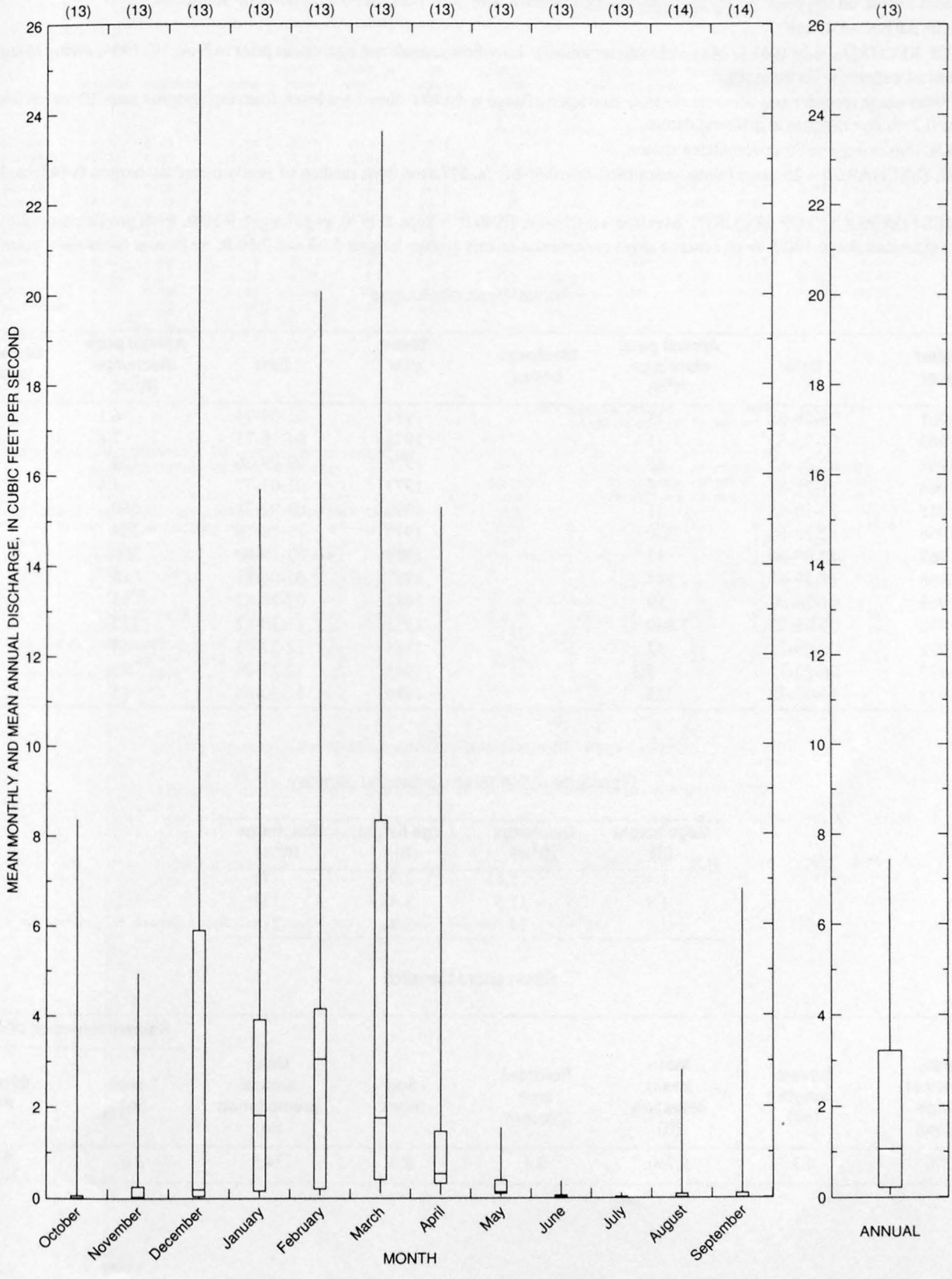
Reliability of values in column is uncertain, and potential errors are large.

09510080 WEST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued





09510080 WEST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued



09510100 EAST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°56'58", long 111°27'39", in $NE^1/_4SE^1/_4$ sec. 18, T.7 N., R.9 E., Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on left bank 1.7 mi upstream from confluence with West Fork and 6.0 mi north of Sunflower.

DRAINAGE AREA.--4.49 mi^2.

PERIOD OF RECORD.--July 1961 to May 1986 (discontinued). Low-flow records not equivalent prior to Nov. 10, 1964, owing to undetermined amount of underflow between sites.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,140 ft above sea level, from topographic map. Prior to Nov. 10, 1964, at site 0.2 mi downstream at different datum.

REMARKS.--No storage or diversion above station.

AVERAGE DISCHARGE.--25 years (water years 1962-86), 0.962 ft^3/s, 697 acre-ft/yr; median of yearly mean discharges, 0.44 ft^3/s, 320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,940 ft^3/s Sept. 5, 1970, gage height, 9.50 ft, from profile past gage, from rating curve extended above 130 ft^3/s on basis of slope-area measurements at gage heights 5.07 and 9.50 ft; no flow at times most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	09-08-61	15		1974	01-09-74	6.1	
1962	01-25-62	11		1975	04-10-75	7.6	
1963	09-01-63	30		1976	02-09-76	150	
1964	11-21-63	0.8		1977	01-03-77	4.8	
1965	04-10-65	31		1978	03-02-78	550	
1966	12-22-65	330		1979	12-18-78	298	
1967	12-07-66	12		1980	02-19-80	300	
1968	12-19-67	244		1981	05-01-81	16	
1969	01-26-69	19		1982	07-28-82	93	
1970	09-05-70	1,940		1983	11-30-82	157	C
1971	08-03-71	32		1984	12-27-83	64	C
1972	06-22-72	3.8		1985	12-27-84	78	C
1973	10-07-72	125		1986	11-30-85	15	C

Discharge rating table developed January ---

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.4	1.85	2.9	73
1.9	11.5	3.4	131
2.4	34	3.9	216

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
370	4.3	5,760	0.4	3.0	24.5	3.0	5.5

09510100 EAST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-85

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3.7	0.00	0.21	0.78	3.7	1.8
NOVEMBER	1.7	0.00	0.19	0.46	2.4	1.7
DECEMBER	16	0.00	1.8	3.7	2.1	15.5
JANUARY	11	0.00	1.6	2.7	1.7	14.1
FEBRUARY	24	0.00	3.0	5.4	1.8	25.6
MARCH	20	0.01	3.0	5.1	1.7	26.0
APRIL	5.5	0.00	1.1	1.5	1.4	9.1
MAY	1.3	0.00	0.29	0.40	1.4	2.5
JUNE	0.40	0.00	0.07	0.13	1.8	0.6
JULY	0.30	0.00	0.04	0.07	1.9	0.3
AUGUST	0.47	0.00	0.06	0.11	1.9	0.5
SEPTEMBER	5.3	0.00	0.26	1.1	4.1	2.3
ANNUAL	3.3	0.01	0.96	1.2	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-86

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.01	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-86

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50#	100#
50%	20%	10%	4%	2%	1%
43	196	428	978	1,660	2,670

WEIGHTED SKEW (LOGS)= -0.05
MEAN (LOGS)= 1.63
STANDARD DEV. (LOGS)= 0.79

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-85

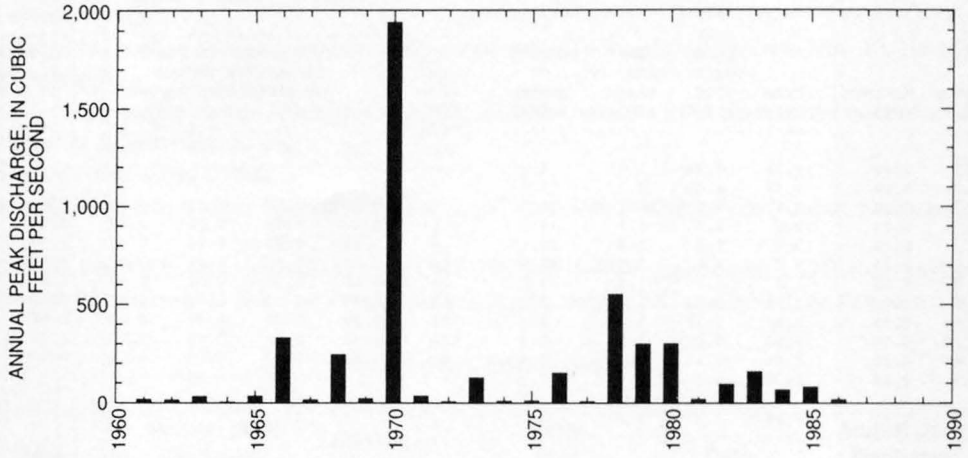
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	15	68	136	265	394	549
3	8.9	43	86	170	253	353
7	5.4	26	52	102	150	208
15	3.4	16	33	62	90	122
30	2.3	11	21	39	55	73
60	1.5	7.4	15	28	40	54
90	1.2	5.5	11	20	29	39

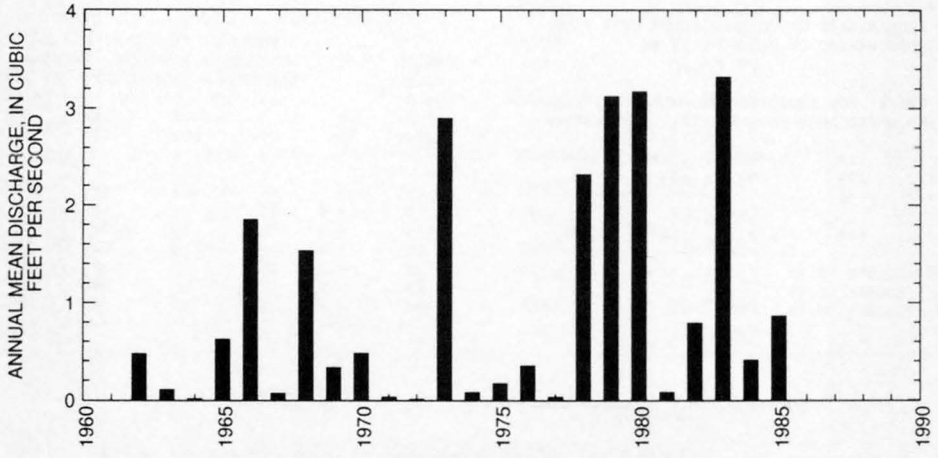
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-85

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
17	3.8	1.6	0.79	0.45	0.14	0.06	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

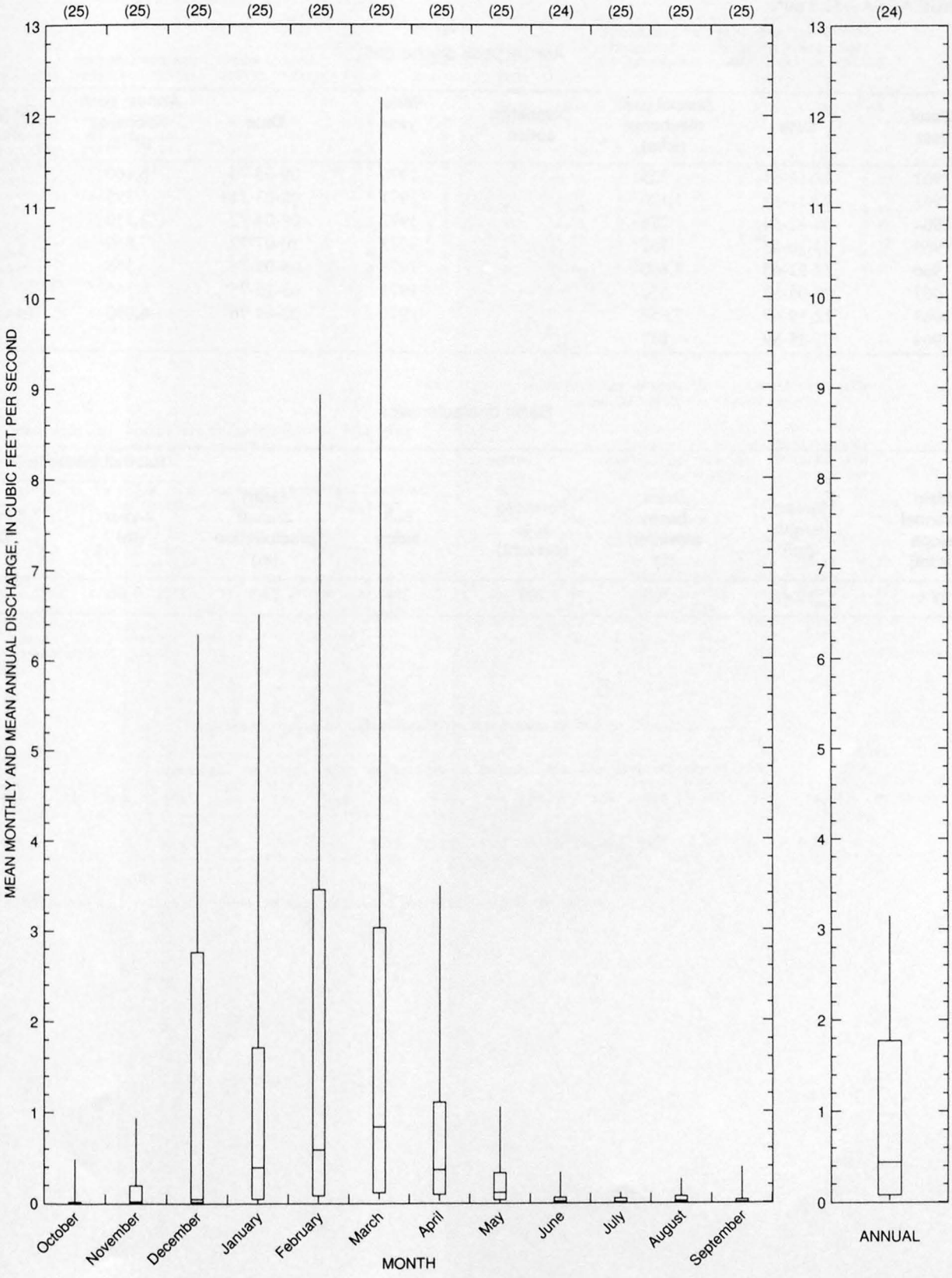
Reliability of values in column is uncertain, and potential errors are large.

09510100 EAST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued





09510100 EAST FORK SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued



09510150 SYCAMORE CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°51'05", long 111°27'09", in NE$^1/_4$ sec.20, T.6 N., R.9 E., Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 1.1 mi upstream from Boulder Creek, 1.2 mi north of Crabtree Butte, and 1.2 mi southeast of Sunflower.
DRAINAGE AREA.--52.3 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	12-16-61	325		1970	09-05-70	16,100	
1963	02-11-63	1,120		1971	08-03-71	395	
1964	08-12-64	286		1972	08-04-72	2,350	
1965	04-10-65	762		1973	10-07-72	3,810	
1966	12-22-65	4,800		1974	08-05-74	355	
1967	09-06-67	550		1975	03-15-75	69	
1968	12-19-67	7,650		1976	02-09-76	6,000	
1969	01-25-69	142					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
58.6	12.4	4,260	0.6	3.0	23.5	3.0	5.5

09510150 SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1962-76

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	62	0.00	4.4	16	3.6	4.7
NOVEMBER	22	0.10	2.7	6.1	2.3	2.9
DECEMBER	175	0.25	24	52	2.2	26.0
JANUARY	39	0.32	8.5	11	1.3	9.2
FEBRUARY	86	0.38	19	27	1.5	20.1
MARCH	124	0.29	16	32	2.0	17.5
APRIL	55	0.28	9.6	17	1.7	10.4
MAY	14	0.21	2.1	3.3	1.6	2.3
JUNE	3.7	0.13	0.89	1.1	1.3	1.0
JULY	3.5	0.01	0.57	0.91	1.6	0.6
AUGUST	11	0.04	1.7	3.0	1.8	1.8
SEPTEMBER	42	0.00	3.4	11	3.1	3.7
ANNUAL	34	0.52	7.7	9.5	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-76

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.04	0.00	0.00	0.00	0.00	0.00
3	0.05	0.00	0.00	0.00	0.00	0.00
7	0.05	0.00	0.00	0.00	0.00	0.00
14	0.07	0.00	0.00	0.00	0.00	0.00
30	0.08	0.00	0.00	0.00	0.00	0.00
60	0.12	0.06	0.04	0.02	0.02	0.01
90	0.19	0.10	0.07	0.06	0.05	0.04
120	0.26	0.14	0.11	0.08	0.07	0.06
183	0.40	0.26	0.22	0.19	0.17	0.16

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1962-76

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1,050	4,050	8,160	17,200	27,800	42,700

WEIGHTED SKEW (LOGS)= -0.02
MEAN (LOGS)= 3.02
STANDARD DEV. (LOGS)= 0.70

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-76

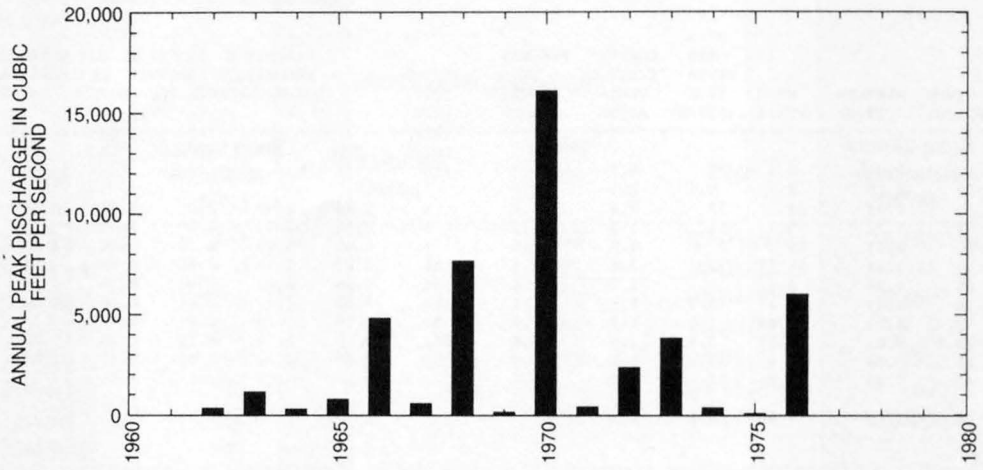
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	195	755	1,550	3,390	5,630	8,930
3	100	377	736	1,480	2,290	3,390
7	59	212	392	730	1,070	1,480
15	34	126	234	435	635	880
30	23	82	151	280	408	565
60	15	52	96	180	266	374
90	11	38	71	132	196	276

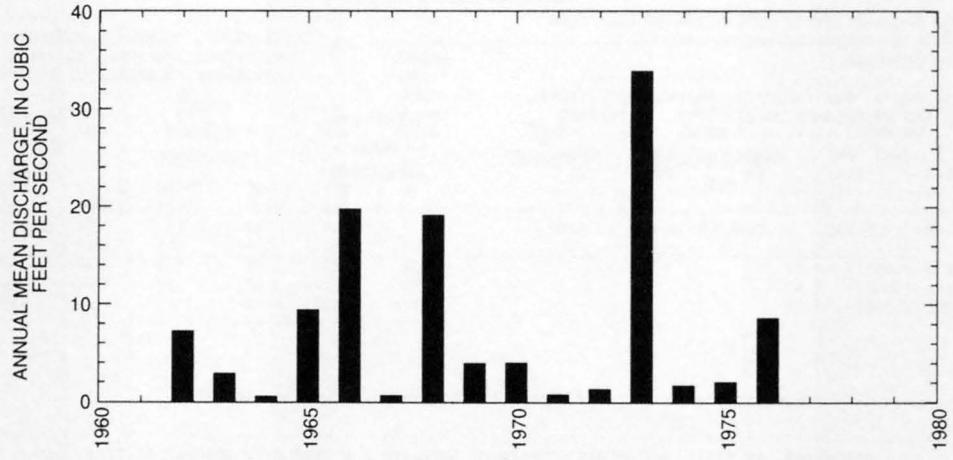
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-76

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
139	29	9.4	4.8	2.9	1.3	0.74	0.52	0.37	0.22	0.16	0.09	0.05	0.00	0.00	0.00	0.00

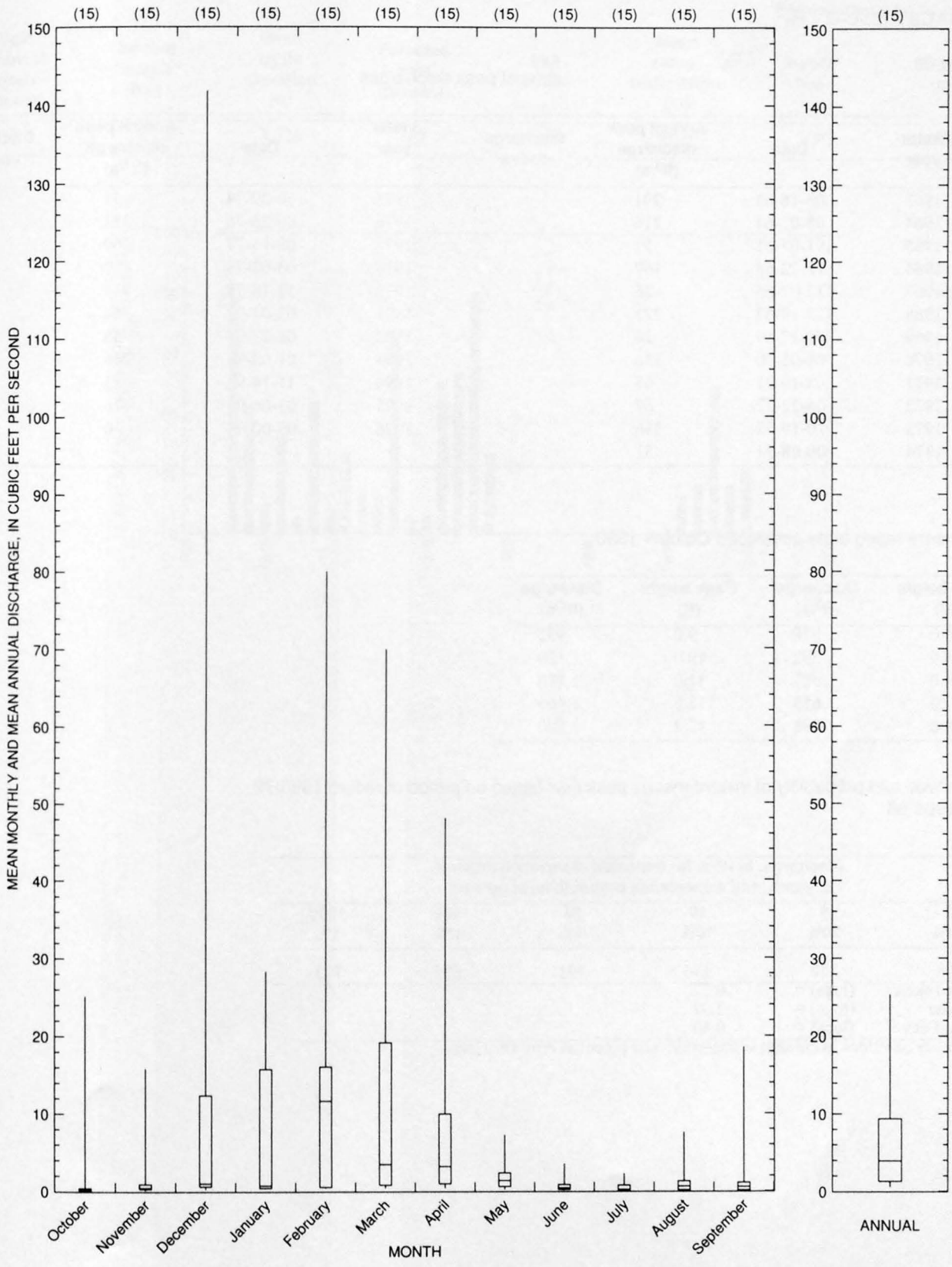
Reliability of values in column is uncertain, and potential errors are large.

09510150 SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued





09510150 SYCAMORE CREEK NEAR SUNFLOWER, AZ--Continued



09510170 CAMP CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°45'35", long 111°29'44", in SW$^1/_4$ sec.24, T.5 N., R.8 E., Maricopa County, Hydrologic Unit 15060203, on right bank at upstream side of culvert of State Highway 87, 0.5 mi upstream from mouth, and 7 mi south of Sunflower.

DRAINAGE AREA.--2.6 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	391		1975	10-29-74	31	
1964	08-02-64	216		1976	09-26-76	252	
1965	01-07-65	51		1977	08-16-77	269	
1966	12-22-65	167		1978	03-02-78	402	
1967	12-07-66	26		1979	12-18-78	134	
1968	12-18-67	221		1991	03-01-91	64	
1969	01-27-69	26		1992	08-23-92	83	
1970	09-05-70	136		1993	01-08-93	246	
1971	08-19-71	68		1994	11-14-93	83	
1972	06-22-72	67		1995	03-06-95	116	
1973	10-19-72	336		1996	00-00-96	0	
1974	08-08-74	31					

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	278	9.0	952
5.0	392	10.0	1,120
6.0	517	11.0	1,280
7.0	653	12.0	1,460
8.0	798	12.2	1,500

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1991-96

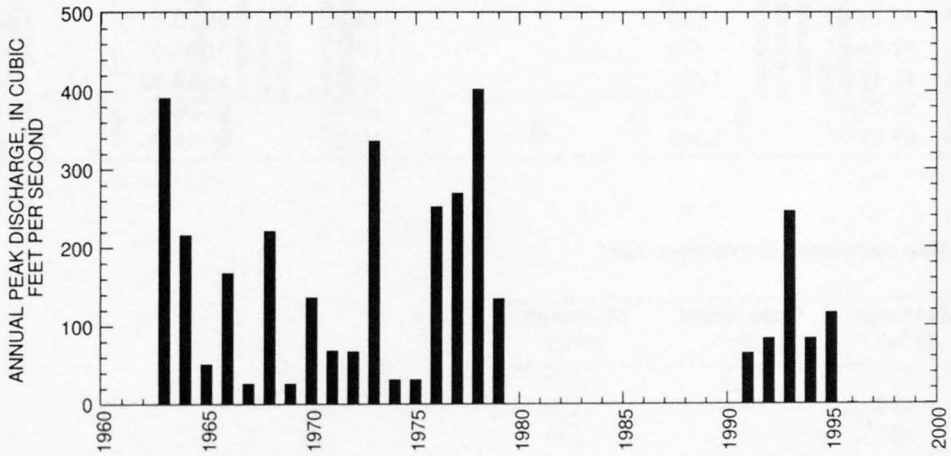
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
108	230	334	491	625	773
Weighted skew	(logs) =	-0.22			
Mean	(logs) =	2.02			
Standard dev.	(logs) =	0.40			

† Reliability of values in column is uncertain, and potential errors are large.

09510170 CAMP CREEK NEAR SUNFLOWER, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
498	4.7	3,520	0.0	3.0	20.0	2.5	5.0



09510180 ROCK CREEK NEAR SUNFLOWER, AZ

LOCATION.--Lat 33°43'49", long 111°30'28", in SE$^1/_4$ sec.35, T.5 N., R.8 E., Maricopa County, Hydrologic Unit 15060203, on left bank 300 ft upstream from culvert on State Highway 87, 0.3 mi upstream from mouth, and 10 mi south of Sunflower.
DRAINAGE AREA.--15.2 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	262		1971	08-19-71	924	
1964	08-01-64	916		1972	06-22-72	151	
1965	01-07-65	175		1991	03-01-91	1,140	
1966	12-22-65	1,900		1992	08-23-92	1,140	
1967	07-16-67	570		1993	01-08-93	2,550	
1968	12-19-67	1,230		1994	11-14-93	242	
1969	01-27-69	43		1995	03-06-95	1,240	
1970	09-05-70	1,540		1996	09-11-96	65	

Discharge rating table developed September 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	126	6.5	1,570
4.5	258	7.0	2,150
5.0	458	7.5	2,850
5.5	735	8.0	3,700
6.0	1,100	8.5	4,700

Magnitude and probability of instantaneous peak flow based on period of record 1963-72, 1991-96

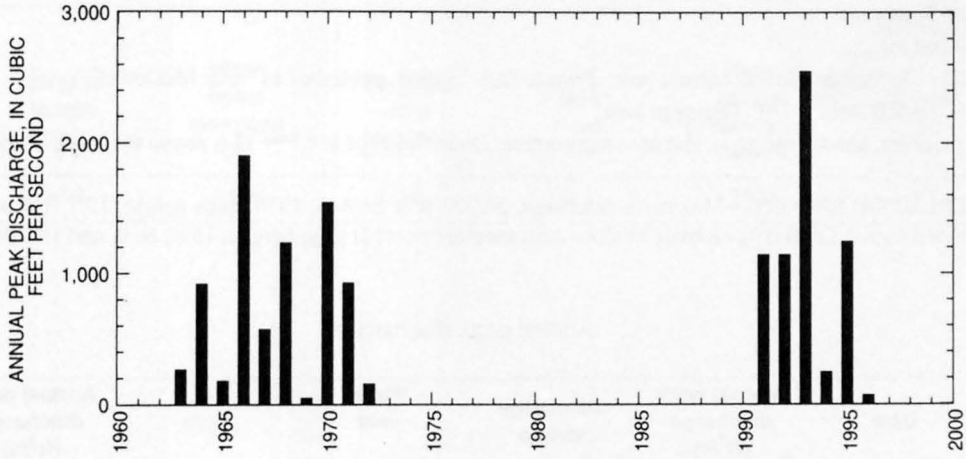
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
573	1,520	2,410	3,810	5,030	6,390
Weighted skew	(logs) =	-0.42			
Mean	(logs) =	2.72			
Standard dev.	(logs) =	0.54			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
412	7.3	3,680	0.2	3.0	16.0	2.3	5.0

09510180 ROCK CREEK NEAR SUNFLOWER, AZ--Continued



09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ

LOCATION.--Lat 33°41'39", long 111°32'28", in sec.16, T.4 N., R.8 E. (unsurveyed), Maricopa County, Hydrologic Unit 15060203, in Tonto National Forest, on right bank 0.7 mi southwest of Sugarloaf Mountain, 9 mi northeast of Fort McDowell, 10 mi upstream from mouth, and 25 mi northeast of Scottsdale.

DRAINAGE AREA.--164 mi^2.

PERIOD OF RECORD.--December 1960 to current year. Prior to Oct. 1, 1963, published as "near McDowell."

REVISED RECORDS.--WRD Ariz. 1970: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 1,759.33 ft above sea level. Prior to Oct. 1, 1970, at datum 0.16 ft lower.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,200 ft^3/s Sept. 5, 1970, gage height, 19.7 ft, from profile past gage, from rating curve extended above 3,600 ft^3/s on basis of slope-area measurements at gage heights 15.0, 16.0, and 19.7 ft; no flow at times in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	12-25-59	15,800		1979	12-18-78	9,520	
1961	07-03-61	248		1980	02-15-80	10,400	
1962	12-16-61	674		1981	09-23-81	170	
1963	08-16-63	2,860		1982	03-14-82	1,290	
1964	08-01-64	1,060		1983	11-30-82	7,440	
1965	01-07-65	1,170		1984	09-02-84	2,600	
1966	12-14-65	668		1985	12-27-84	2,960	
1967	07-16-67	1,060		1986	03-17-86	3,000	
1968	12-19-67	9,880		1987	10-11-86	319	
1969	01-27-69	216		1988	01-18-88	1,410	
1970	09-05-70	[1]24,200		1989	02-05-89	893	
1971	08-19-71	876		1990	08-14-90	1,740	
1972	06-22-72	1,810		1991	03-01-91	9,030	
1973	10-19-72	8,540		1992	08-22-92	3,990	
1974	08-05-74	1,030		1993	01-08-93	14,100	
1975	04-11-75	188		1994	07-18-94	3,410	
1976	02-09-76	5,470		1995	01-05-95	6,630	
1977	08-16-77	6,150		1996	03-15-96	22	
1978	03-02-78	17,900					

[1]Highest since 1959.

Discharge rating table developed September 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	2,030	14.0	14,040
6.0	2,890	15.0	15,920
7.0	3,880	16.0	17,900
8.0	4,990	17.0	19,940
9.0	6,220	18.0	22,080
10.0	7,570	19.0	24,300
11.0	9,020	20.0	26,610
12.0	10,590	21.0	29,010
13.0	12,260	21.4	30,000

09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
116	30.0	3,820	0.6	2.3	21.2	2.7	5.4

09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	194	0.00	6.5	32	5.0	1.8
NOVEMBER	72	0.00	7.3	16	2.2	2.0
DECEMBER	426	0.00	48	105	2.2	13.3
JANUARY	1,070	0.00	70	186	2.7	19.2
FEBRUARY	852	0.00	85	162	1.9	23.5
MARCH	881	0.19	97	171	1.8	26.8
APRIL	120	0.07	26	36	1.4	7.3
MAY	52	0.00	7.7	13	1.7	2.1
JUNE	21	0.00	2.6	4.9	1.9	0.7
JULY	15	0.00	2.1	3.2	1.5	0.6
AUGUST	52	0.00	4.8	9.9	2.1	1.3
SEPTEMBER	93	0.00	4.6	16	3.4	1.3
ANNUAL	155	0.23	30	40	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.01	0.00	0.00	0.00	0.00	0.00
30	0.03	0.00	0.00	0.00	0.00	0.00
60	0.08	0.00	0.00	0.00	0.00	0.00
90	0.18	0.02	0.00	0.00	0.00	0.00
120	0.34	0.07	0.02	0.00	0.00	0.00
183	1.0	0.27	0.11	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1960-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
2,330	7,320	12,900	23,200	33,600	46,300

WEIGHTED SKEW (LOGS)= -0.23
MEAN (LOGS)= 3.34
STANDARD DEV. (LOGS)= 0.61

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-96

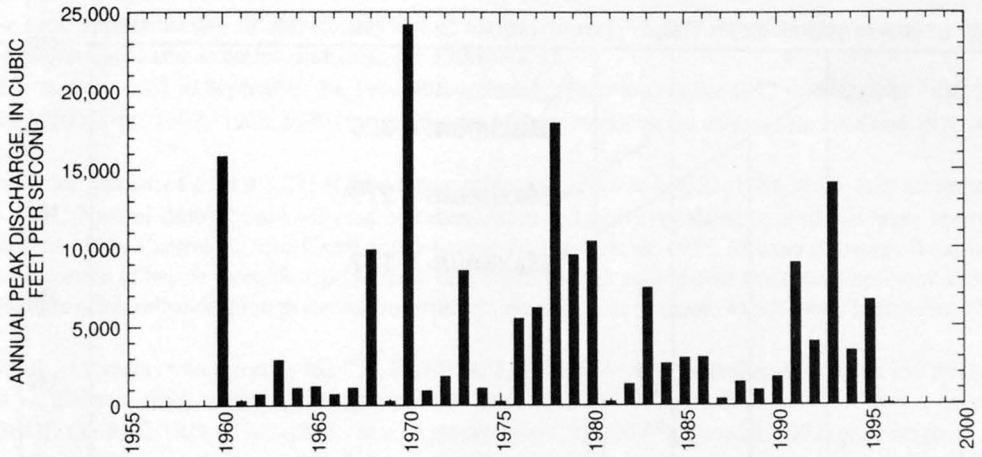
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	631	2,350	4,380	8,170	11,900	16,500
3	354	1,320	2,470	4,650	6,840	9,540
7	199	766	1,460	2,770	4,100	5,740
15	117	464	892	1,700	2,520	3,530
30	76	305	579	1,080	1,560	2,130
60	49	207	400	757	1,100	1,510
90	36	153	301	584	869	1,220

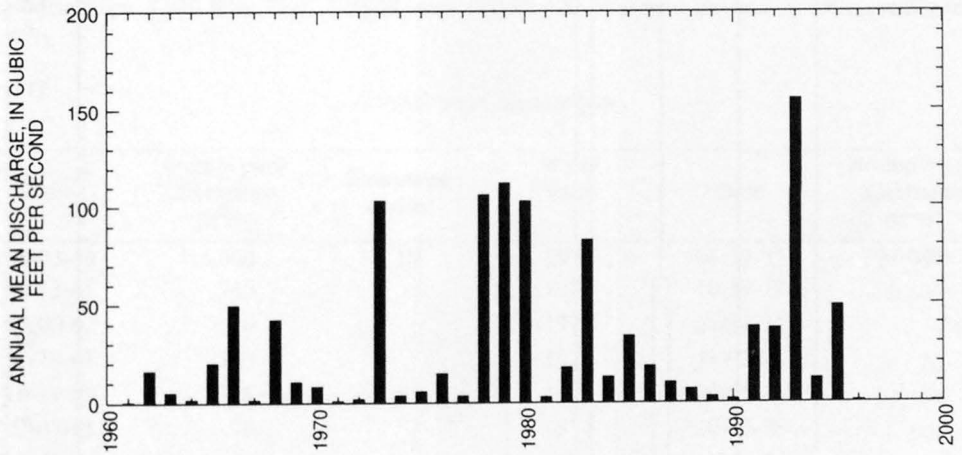
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
515	112	47	25	12	3.7	1.6	0.76	0.33	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00

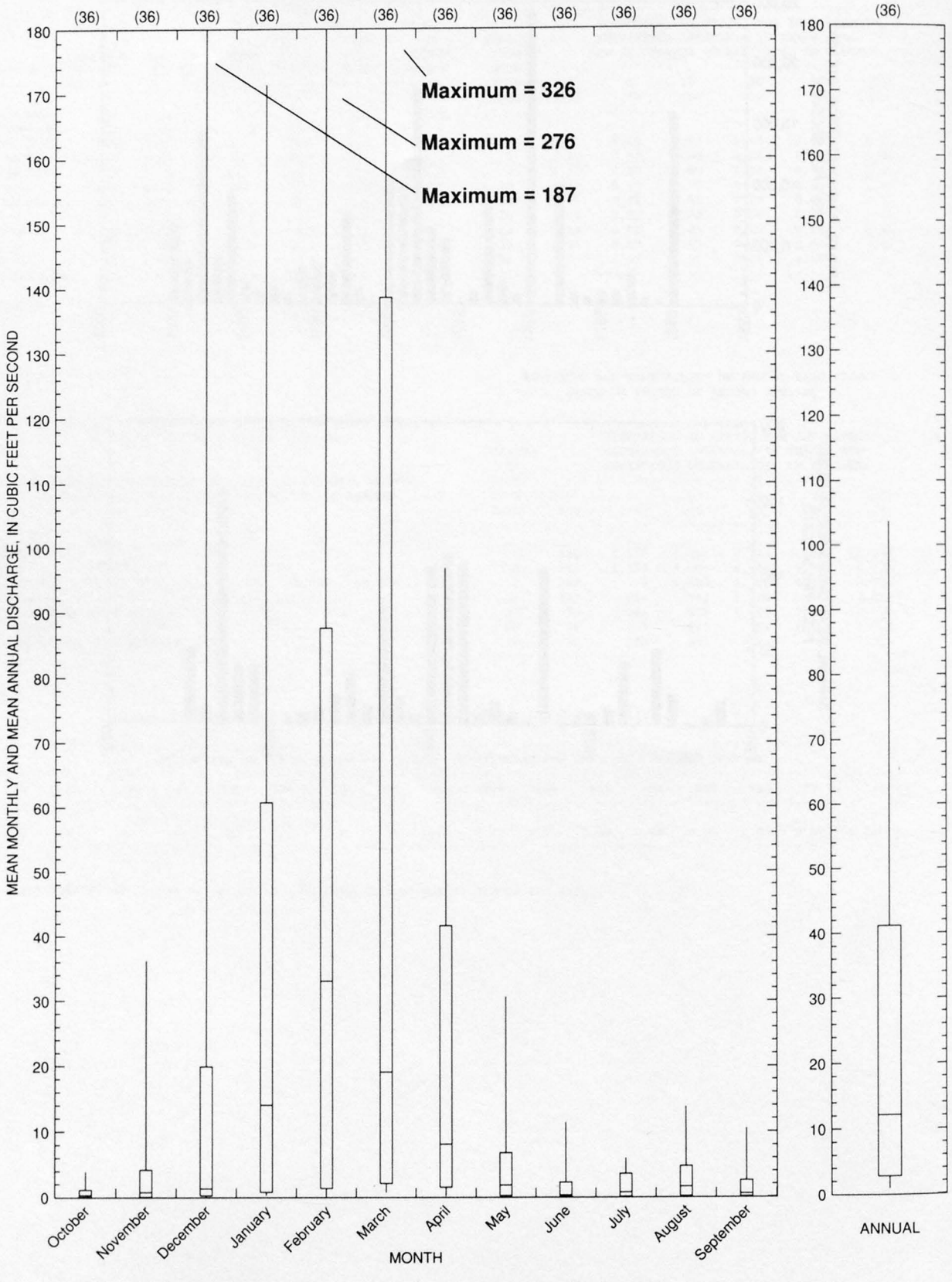
Reliability of values in column is uncertain, and potential errors are large.

09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ--Continued





09510200 SYCAMORE CREEK NEAR FORT MCDOWELL, AZ--Continued



09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ

LOCATION.--Lat 33°32'08", long 111°54'50", in NW$^1/_4$NE$^1/_4$ sec.11, T.2 N., R.4 E., Maricopa County, Hydrologic Unit 15060106, on right bank 100 ft downstream from Arizona Canal.

DRAINAGE AREA.--62 mi^2 approximately, since October 1975. Prior to October 1975, 139 mi^2; reduction caused by cutoff of upper portion of basin by Central Arizona Canal and detention dike (also see REMARKS).

PERIOD OF RECORD.--January 1961 to September 30, 1984 (discontinued). Prior to October 1972 published as "near Scottsdale."

REVISED RECORDS.--WRD Ariz., 1972: 1968, 1970 (revised figures of daily discharge for water years 1968 and 1970 were inadvertently omitted from WSP 2126).

GAGE.--Water-stage recorder. Datum of gage is 1,275 ft from topographic map. Prior to July 31, 1981, at site 0.25 mi upstream at different datum.

REMARKS.--Records poor. Natural flow of wash affected by urbanization and partly regulated by artificial lakes upstream. Upper portion of basin (about 77 mi) cut off by Central Arizona Canal and detention dike in October 1975. Release of excess flood waters may occasionally pass canal into lower portion of basin. Records at present site may include water spilled over emergency spillway along north side of Arizona Canal but do not include water released through the control structure on south side of canal, which enters Indian Bend Wash downstream from the gage.

AVERAGE DISCHARGE.--15 years (water years 1962-75), 2.67 ft^3/s, 1,930 acre-ft/yr, representing flow from 139 mi^2; median of yearly mean discharges, 0.30 ft^3/s, 220 acre-ft/yr. 9 years (water years 1976-84), 2.54 ft^3/s, 1,840 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--1962-1975: Maximum discharge, 21,000 ft^3/s June 22, 1972, gage height, 4.90 ft, at site and datum then in use, from rating curve extended above 7,000 ft^3/s on basis of partial discharge measurement at gage height, 4.2 ft and slope-conveyence method at gage height, 4.90 ft; no flow for most of time each year. Flood of June 22, 1972, which originated mainly downstream from the Central Arizona Canal is the largest known since at least 1922.

1976-84: Maximum discharge, 5,000 ft^3/s, Sept. 2, 1984, gage height, 4.35 ft at new site and datum currently in use, from rating curve extended above 96 ft^3/s.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1943	08-03-43	[1]15,000	HP	1972	06-22-72	[1]21,000	C
1961	09-13-61	745		1973	10-19-72	9,600	C
1962	00-00-62	0		1974	07-31-74	9.4	C
1963	07-19-63	350		1975	11-03-74	20	ES,C
1964	10-19-63	328		1976	09-25-76	3,500	C
1965	02-07-65	76		1977	10-23-76	140	C
1966	09-13-66	596		1978	03-02-78	3,180	C
1967	07-17-67	248		1979	01-17-79	252	C
1968	12-19-67	5,620		1980	02-15-80	125	C
1969	00-00-69	0		1981	07-30-81	450	C
1970	09-05-70	2,150	C	1983	00-00-82	150	C
1971	08-10-71	85	C	1984	08-16-83	3,830	C

[1]Highest since 1922.

Discharge rating table developed October 1982

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.8	110	3.0	1,310
2.0	205	3.2	1,670
2.2	336	3.4	2,100
2.4	509	3.6	2,590
2.6	726	3.8	3,130
2.8	990	4.0	3,740

09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
60.0	23.3	1,780	0.0	2.4	10.9	1.7	3.7

09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-84

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	192	0.00	8.2	39	4.8	27.1
NOVEMBER	7.0	0.00	0.69	1.8	2.7	2.3
DECEMBER	49	0.00	2.7	9.9	3.7	8.7
JANUARY	4.3	0.00	0.38	1.0	2.7	1.3
FEBRUARY	9.2	0.00	0.92	2.4	2.6	3.0
MARCH	45	0.00	2.9	9.7	3.3	9.6
APRIL	0.26	0.00	0.01	0.05	4.9	0.0
MAY	1.4	0.00	0.10	0.35	3.4	0.3
JUNE	150	0.00	6.3	31	4.9	20.6
JULY	6.1	0.00	0.87	1.8	2.1	2.9
AUGUST	24	0.00	1.3	4.9	3.9	4.1
SEPTEMBER	71	0.00	6.1	16	2.6	20.0
ANNUAL	17	0.00	2.5	4.2	1.7	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1943, 1961-70

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
378	1,440	2,950	6,400	10,600	16,800

WEIGHTED SKEW (LOGS)= 0.10
MEAN (LOGS)= 2.59
STANDARD DEV. (LOGS)= 0.68

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84

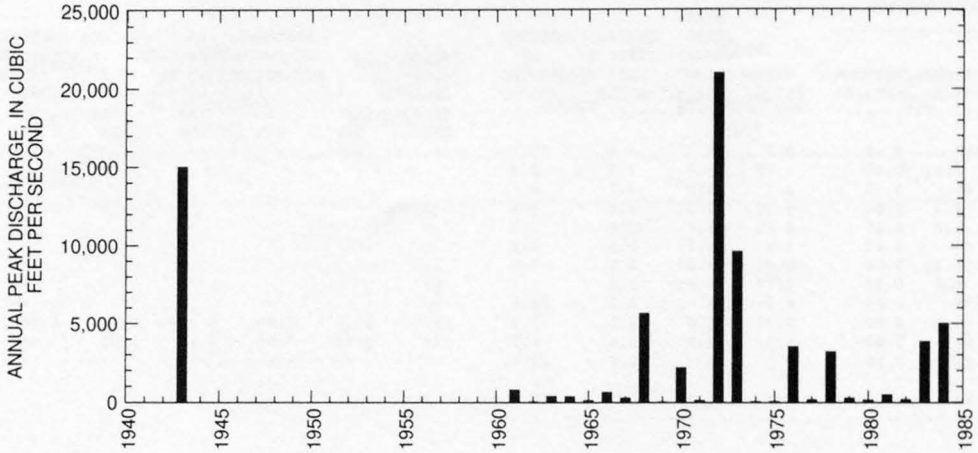
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	100	618	1,490	3,560	6,170	10,100
3	44	262	610	1,390	2,320	3,650
7	21	121	275	605	982	1,500
15	11	65	150	335	549	843
30	5.5	34	78	176	290	448
60	3.1	18	42	95	156	243
90	2.1	13	29	64	106	164

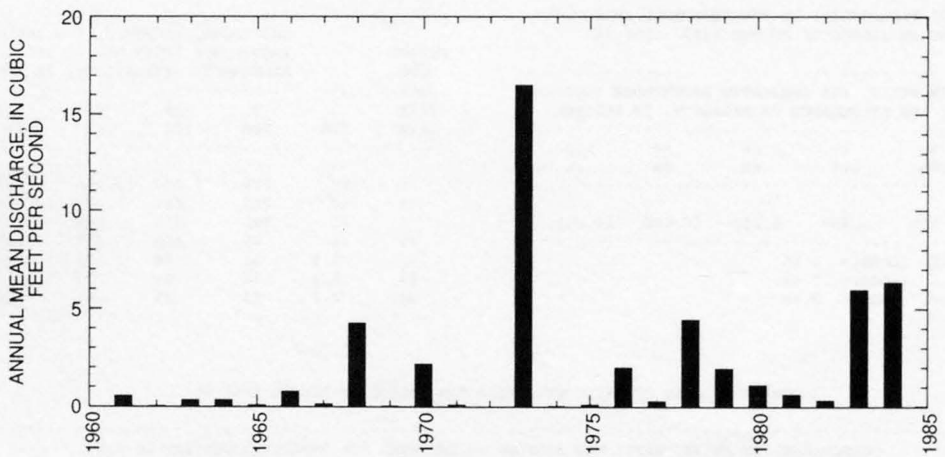
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

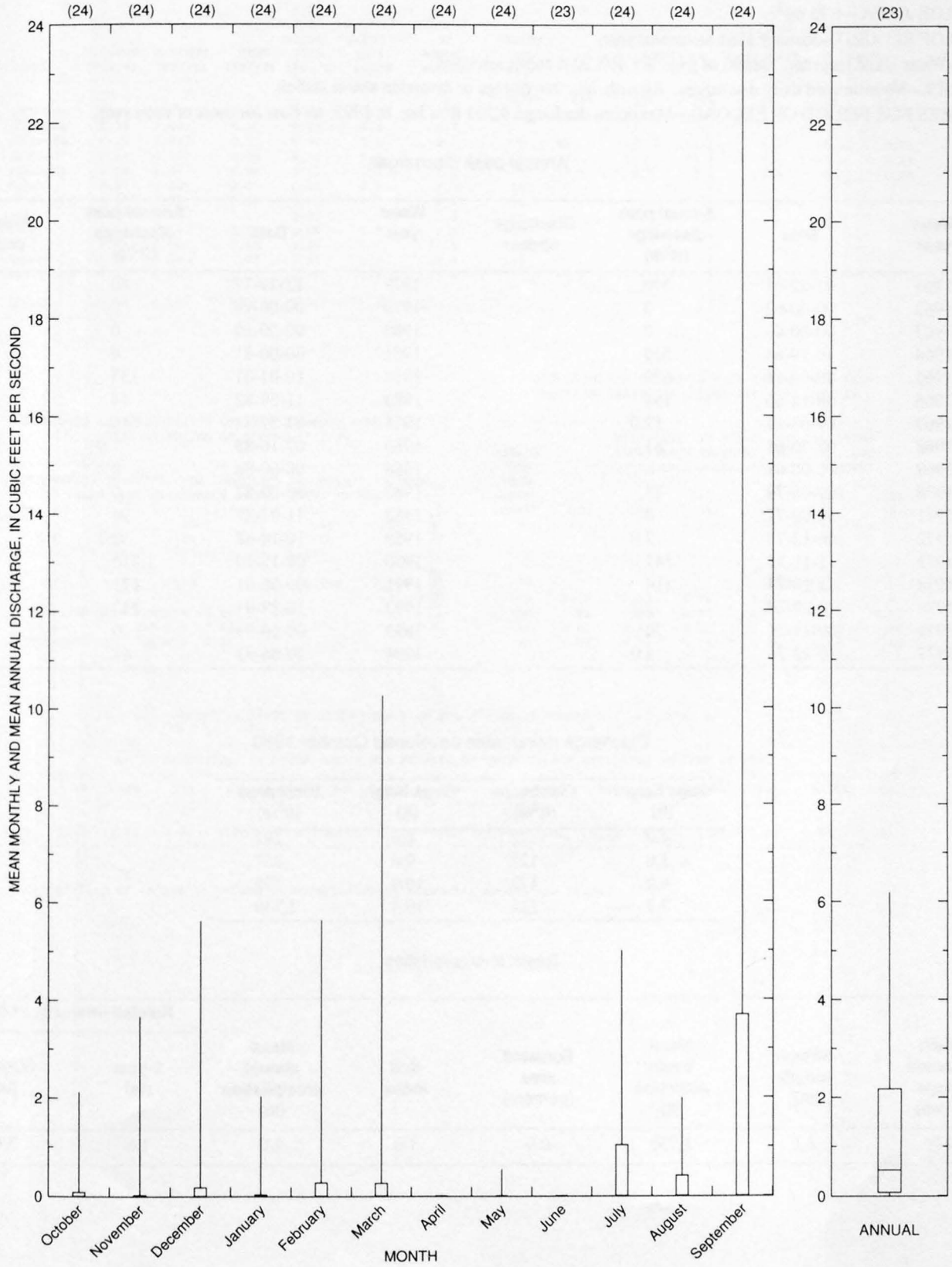
Reliability of values in column is uncertain, and potential errors are large.

09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ--Continued





09512100 INDIAN BEND WASH AT SCOTTSDALE, AZ--Continued



09512200 SALT RIVER TRIBUTARY IN SOUTH MOUNTAIN PARK, AT PHOENIX, AZ

LOCATION.--Lat 33°20'49", long 112°05'03", in $NE^1/_4NE^1/_4$ sec.18, T.1 S., R.3 E., Maricopa County, Hydrologic Unit 15060106, in South Mountain Park, on left bank 7.4 mi south of Phoenix main post office.

DRAINAGE AREA.--1.75 mi^2.

PERIOD OF RECORD.--January 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,405.20 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. No storage or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft^3/s Jan. 8, 1993; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	07-22-61	370		1978	12-29-77	86	
1962	00-00-62	0		1979	00-00-79	0	
1963	00-00-63	0		1980	00-00-80	0	
1964	10-19-63	530		1981	00-00-81	0	
1965	09-04-65	670		1982	10-01-81	133	
1966	08-18-66	194		1983	11-30-82	44	
1967	09-03-67	12.0		1984	07-27-84	644	
1968	07-30-68	81		1985	07-16-85	7.0	ES
1969	00-00-69	0		1986	00-00-86	0	
1970	09-05-70	77		1987	00-00-87	0	
1971	00-00-71	0		1988	11-01-87	94	
1972	08-12-72	2.0		1989	10-14-88	9.2	
1973	11-11-72	147		1990	08-15-90	1,210	
1974	03-20-74	114		1991	09-05-91	171	
1975	10-29-74	3.5		1992	10-27-91	232	
1976	09-23-76	70		1993	00-00-93	0	
1977	10-23-76	5.0		1994	10-06-93	44	

Discharge rating table developed October 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	72	8.0	262
5.0	122	9.0	357
6.0	172	10.0	792
7.0	222	10.4	1,340

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
244	2.1	1,730	0.0	1.0	9.0	1.6	3.6

09512200 SALT RIVER TRIBUTARY IN SOUTH MOUNTAIN PARK, AT PHOENIX, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-92, 1994-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.26	0.00	0.02	0.06	3.0	13.1
NOVEMBER	0.22	0.00	0.01	0.05	3.4	8.7
DECEMBER	0.12	0.00	0.01	0.02	4.0	3.3
JANUARY	0.14	0.00	0.00	0.02	5.5	2.8
FEBRUARY	0.08	0.00	0.00	0.01	5.9	1.5
MARCH	0.07	0.00	0.00	0.01	4.6	1.7
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.00	0.00	0.00	0.00		0.0
JUNE	0.01	0.00	0.00	0.00	5.9	0.2
JULY	0.84	0.00	0.03	0.15	4.4	21.5
AUGUST	1.2	0.00	0.05	0.21	4.2	32.2
SEPTEMBER	0.27	0.00	0.02	0.06	2.8	15.0
ANNUAL	0.10	0.00	0.01	0.02	1.8	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-92, 1995-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	49	32	21	9.9	4.5	0.75
3	17	11	7.1	3.4	1.6	0.27
7	7.1	4.7	3.0	1.5	0.68	0.12
14						
30						
60						
90						
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-94

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
37	191	420	925	1,500	2,260

WEIGHTED SKEW (LOGS)= -0.39
MEAN (LOGS)= 1.50
STANDARD DEV. (LOGS)= 0.91

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-92, 1994-96

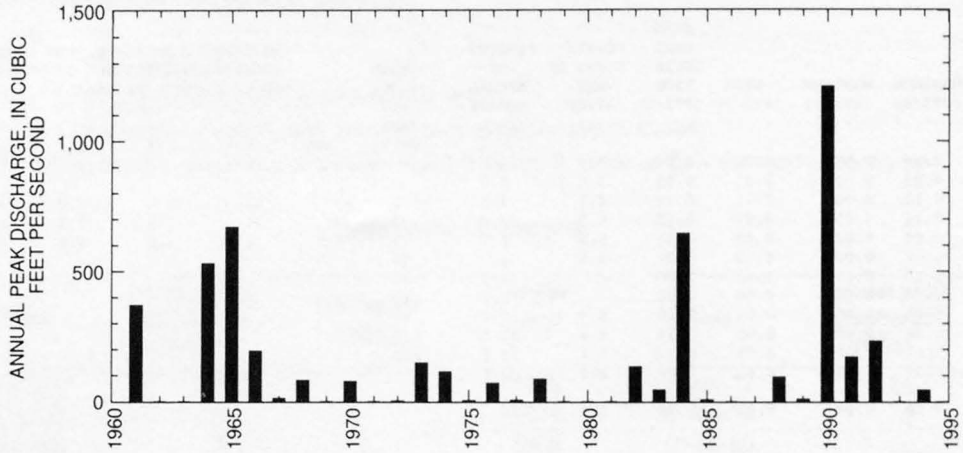
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1						
3						
7						
15	0.06	0.33	0.70	1.4	2.3	3.4
30	0.03	0.18	0.37	0.75	1.2	1.7
60	0.01	0.10	0.21	0.43	0.66	0.99
90	0.00	0.07	0.14	0.28	0.41	0.60

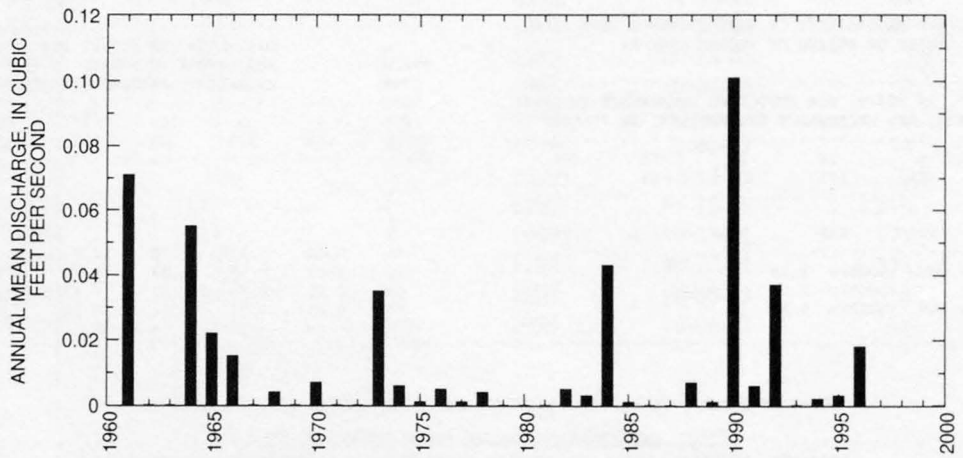
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-92, 1994-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

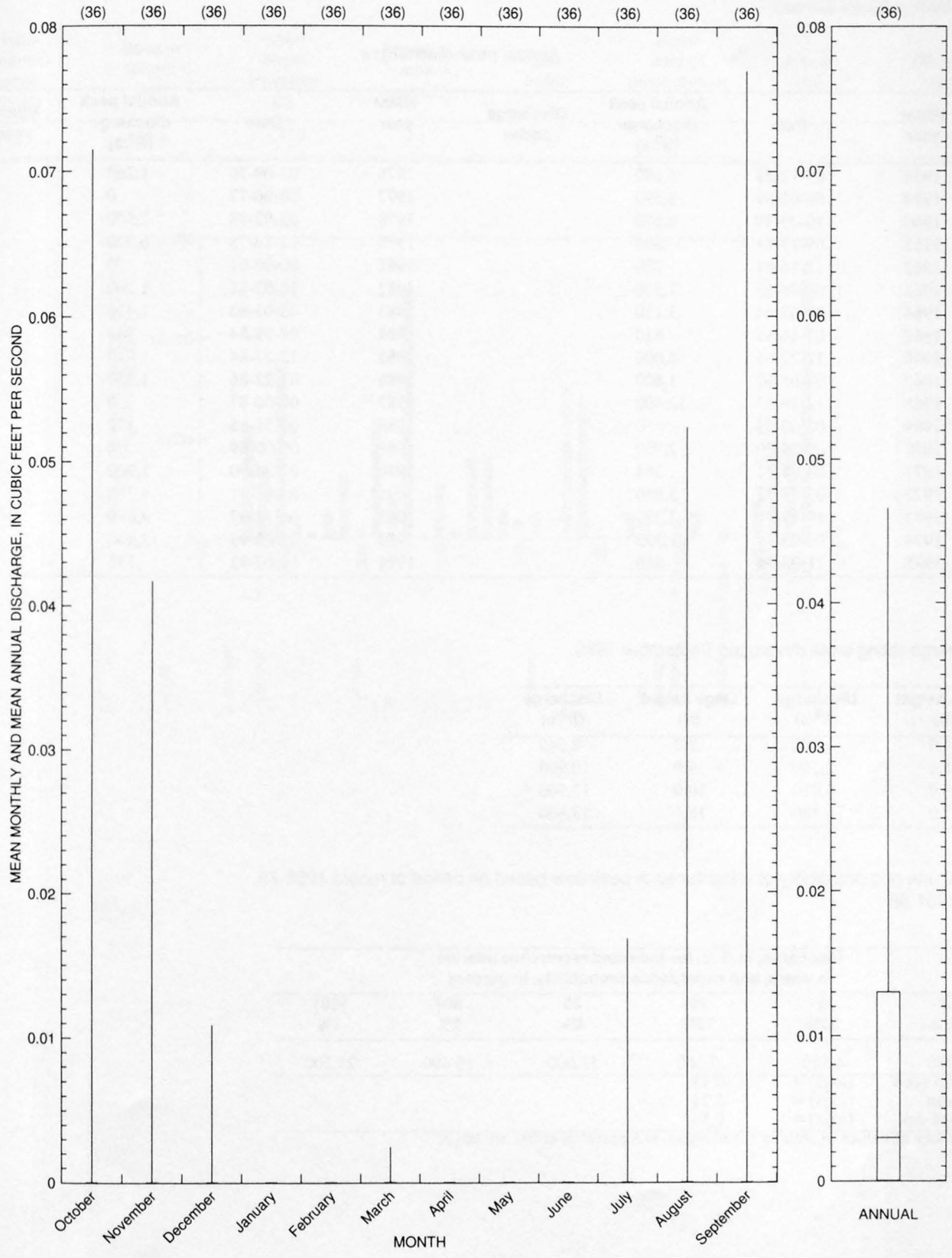
Reliability of values in column is uncertain, and potential errors are large.

09512200 SALT RIVER TRIBUTARY IN SOUTH MOUNTAIN PARK, AT PHOENIX, AZ--Continued





09512200 SALT RIVER TRIBUTARY IN SOUTH MOUNTAIN PARK, AT PHOENIX, AZ--Continued



09512300 CAVE CREEK NEAR CAVE CREEK, AZ

LOCATION.--Lat 33°47'00", long 112°00'24", in SW$^1/_4$ sec.12, T.5 N., R.3 E., Maricopa County, Hydrologic Unit 15060106, on left bank, 200 ft upstream from Prescott-to-Mesa transmission line, 5 mi southwest of town of Cave Creek, and 5.0 mi upstream from Cave Creek Dam.
DRAINAGE AREA.--121 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1958	09-12-58	5,680		1976	02-09-76	1,260	
1959	08-05-59	3,590		1977	00-00-77	0	
1960	10-29-59	8,570		1978	03-02-78	7,500	
1961	09-17-61	696		1979	12-18-78	6,900	
1962	12-16-61	280		1981	00-00-81	0	
1963	08-06-63	1,510		1982	10-02-81	1,200	
1964	08-02-64	3,120		1983	03-03-83	1,420	
1965	07-16-65	610		1984	08-09-84	148	
1966	12-22-65	6,000		1985	12-27-84	910	
1967	09-06-67	1,800		1986	07-22-86	1,350	
1968	12-19-67	12,400		1987	00-00-87	0	
1969	00-00-69	0		1988	08-21-88	170	
1970	09-05-70	2,700		1989	00-00-89	0	
1971	08-04-71	364		1990	07-24-90	1,900	
1972	07-17-72	3,950		1991	03-01-91	4,780	
1973	10-19-72	3,950		1992	08-22-92	4,680	
1974	08-05-74	1,390		1993	01-08-93	13,800	
1975	11-02-74	856		1994	10-07-93	132	

Discharge rating table developed September 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	1,180	8.0	8,540
5.0	2,360	9.0	10,900
6.0	4,010	10.0	13,500
7.0	6,180	10.1	13,800

Magnitude and probability of instantaneous peak flow based on period of record 1958-79, 1981-86

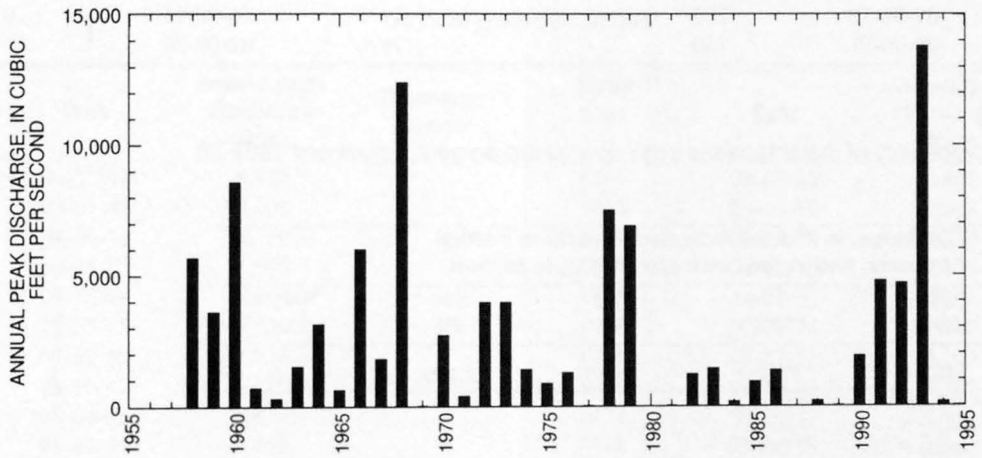
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,780	4,580	7,360	12,000	16,400	21,500
Weighted skew	(logs) =	-0.18			
Mean	(logs) =	3.24			
Standard dev.	(logs) =	0.50			

† Reliability of values in column is uncertain, and potential errors are large.

09512300 CAVE CREEK NEAR CAVE CREEK, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
123	18.4	3,470	0.1	1.17	15.7	2.3	4.4



09512420 LYNX CREEK TRIBUTARY NEAR PRESCOTT, AZ

LOCATION.--Lat 34°32'51", long 112°23'58", in SE$^1/_4$ sec.31, T.14 N., R.1 W., Yavapai County, Hydrologic Unit 15060202, on Walker Road, 400 ft south of State Highway 69, and 4 mi east of Prescott.

DRAINAGE AREA.--0.95 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	00-00-67	820		1972	00-80-72	320	
1968	00-00-68	300	ES	1973	10-07-72	130	
1969	09-13-69	10	ES	1974	07-20-74	155	
1970	09-04-70	205		1975	00-00-75	0	
1971	08-00-71	160		1976	02-09-76	12	

Magnitude and probability of instantaneous peak flow based on period of record 1967-76

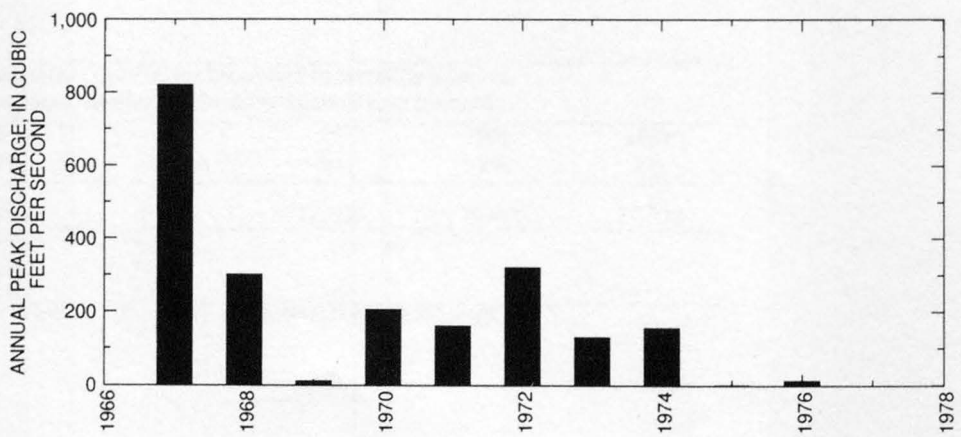
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
106	403	761	1,430	2,100	2,910

Weighted skew	(logs) =	-0.41
Mean	(logs) =	1.97
Standard dev.	(logs) =	0.74

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
101	2.2	5,900	26.0	1.0	16.0	2.1	4.4



09512500 AGUA FRIA RIVER NEAR MAYER, AZ

LOCATION.--Lat 34°18'55", long 112°03'48", in NW$^1/_4$SE$^1/_4$ sec.20, T.11 N., R.3 E., Yavapai County, Hydrologic Unit 15070102, on left bank at Sycamore damsite, 700 ft downstream from Big Bug Creek and 12 mi southeast of Mayer.

DRAINAGE AREA.--585 mi^2.

PERIOD OF RECORD.--January 1940 to current year.

REVISED RECORDS.--WDR AZ-88-1: 1987. WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,434 ft above sea level.

REMARKS.--Diversions above station for mining and irrigation of about 600 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft^3/s Feb. 19, 1980, from rating curve extended above 3,400 ft^3/s on basis of slope-area measurement of peak flow, gage height, 15.76 ft, from mean of surge, inside high-water mark 16.03 ft, floodmark 18.97 ft; negligible flow at times during the summer months in most previous years when entire flow was diverted to Perry Canal above station and flow past gage was seepage only.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1940	06-26-40	5,920		1969	08-07-69	2,490	
1941	03-01-41	13,000		1970	09-05-70	19,800	
1942	08-06-42	6,280		1971	08-25-71	7,280	
1943	09-25-43	3,500		1972	08-12-72	6,800	
1944	09-16-44	3,810		1973	10-07-72	10,700	
1945	07-27-45	2,620		1974	07-20-74	740	
1946	07-22-46	4,930		1975	07-27-75	2,190	
1947	08-16-47	1,610		1976	02-09-76	9,700	
1948	08-04-48	6,830		1977	08-23-77	5,480	
1949	01-13-49	2,460		1978	03-01-78	9,900	
1950	07-17-50	2,170		1979	12-18-78	18,300	
1951	08-28-51	8,180		1980	02-19-80	33,100	
1952	01-18-52	7,500		1981	09-23-81	2,850	
1953	07-08-53	5,510		1982	09-10-82	3,040	
1954	09-03-54	4,570		1983	09-23-83	9,940	
1955	08-03-55	12,800		1984	08-14-84	3,620	
1956	07-25-56	6,880		1985	12-27-84	2,880	
1957	08-13-57	2,710		1986	11-26-85	3,970	
1958	06-21-58	4,620		1987	10-11-86	6,070	
1959	08-04-59	9,700		1988	08-29-88	25,500	
1960	08-08-60	4,820		1989	08-18-89	1,280	
1961	07-22-61	10,200		1990	09-15-90	3,600	
1962	09-13-62	2,470		1991	03-01-91	19,200	
1963	08-19-63	12,800		1992	08-23-92	5,410	
1964	07-24-64	9,000		1993	01-08-93	27,400	
1965	04-04-65	7,470		1994	10-06-93	688	
1966	12-22-65	12,100		1995	02-15-95	12,500	
1967	08-19-67	6,960		1996	07-25-96	5,370	
1968	12-19-67	3,850					

09512500 AGUA FRIA RIVER NEAR MAYER, AZ--Continued

Discharge rating table developed July 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	1,100	11.0	13,480
6.0	2,320	12.0	16,820
7.0	3,930	13.0	20,580
8.0	5,800	14.0	24,740
9.0	7,980	15.0	29,330
10.0	10,530	15.7	32,790

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
56.9	37.5	5,000	3.4	1.3	16.7	2.1	4.3

09512500 AGUA FRIA RIVER NEAR MAYER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1941-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	223	0.14	9.2	31	3.3	3.2
NOVEMBER	146	0.10	9.7	24	2.4	3.3
DECEMBER	453	0.08	31	82	2.6	10.6
JANUARY	718	0.07	35	105	3.0	12.0
FEBRUARY	1,180	0.02	67	191	2.9	22.9
MARCH	389	0.01	52	91	1.7	18.0
APRIL	314	0.00	21	55	2.6	7.1
MAY	20	0.03	3.3	5.0	1.5	1.1
JUNE	23	0.01	2.2	3.5	1.6	0.8
JULY	48	0.15	11	12	1.1	3.9
AUGUST	244	0.31	34	49	1.4	11.7
SEPTEMBER	187	0.20	16	34	2.1	5.5
ANNUAL	143	1.5	24	29	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
1	0.24	0.10	0.06	0.00	0.00	0.00
3	0.25	0.10	0.06	0.00	0.00	0.00
7	0.27	0.11	0.06	0.00	0.00	0.00
14	0.32	0.12	0.07	0.00	0.00	0.00
30	0.42	0.17	0.10	0.00	0.00	0.00
60	0.65	0.22	0.12	0.07	0.04	0.02
90	1.0	0.34	0.18	0.10	0.05	0.03
120	2.0	0.74	0.39	0.22	0.10	0.06
183	4.5	1.7	0.92	0.53	0.27	0.17

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1940-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5,920	11,000	15,500	22,400	28,700	35,900

WEIGHTED SKEW (LOGS)= 0.19
MEAN (LOGS)= 3.78
STANDARD DEV. (LOGS)= 0.31

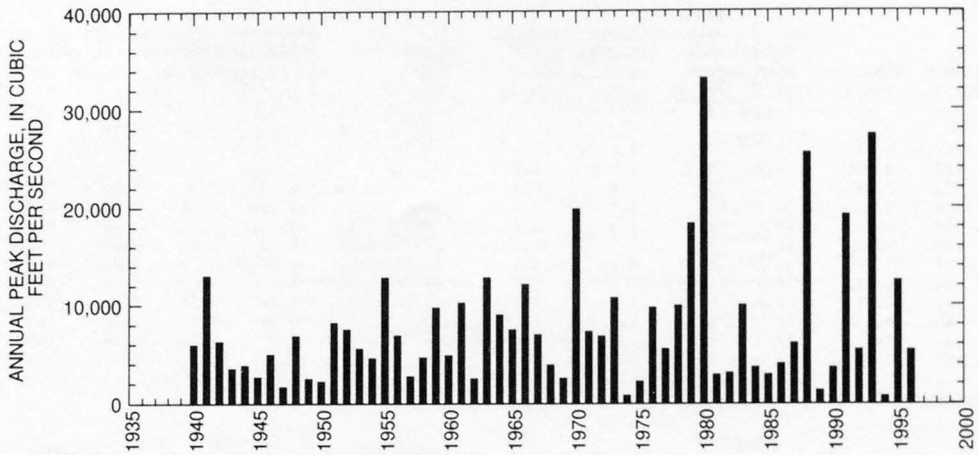
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1941-96

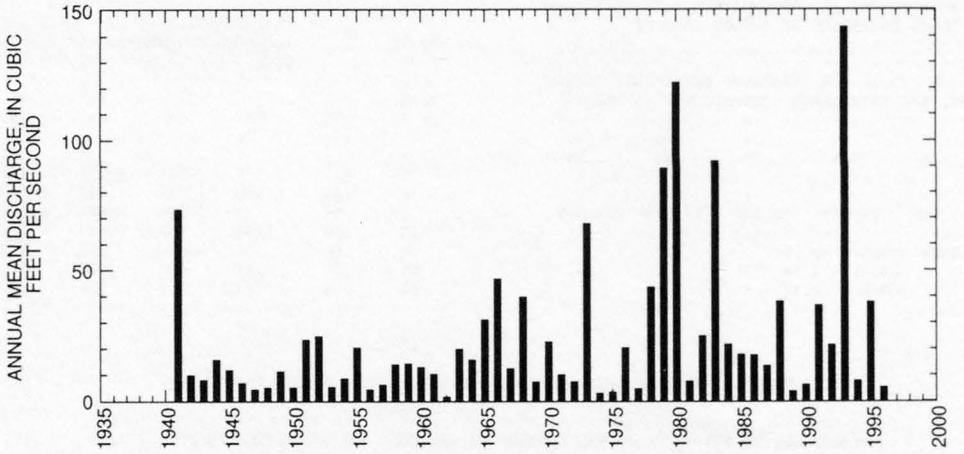
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	817	2,220	3,830	6,970	10,300	14,800
3	399	1,090	1,880	3,460	5,170	7,490
7	219	603	1,040	1,880	2,770	3,940
15	130	353	603	1,080	1,580	2,250
30	84	224	375	652	932	1,290
60	53	144	243	425	611	847
90	38	103	174	306	443	619

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-96

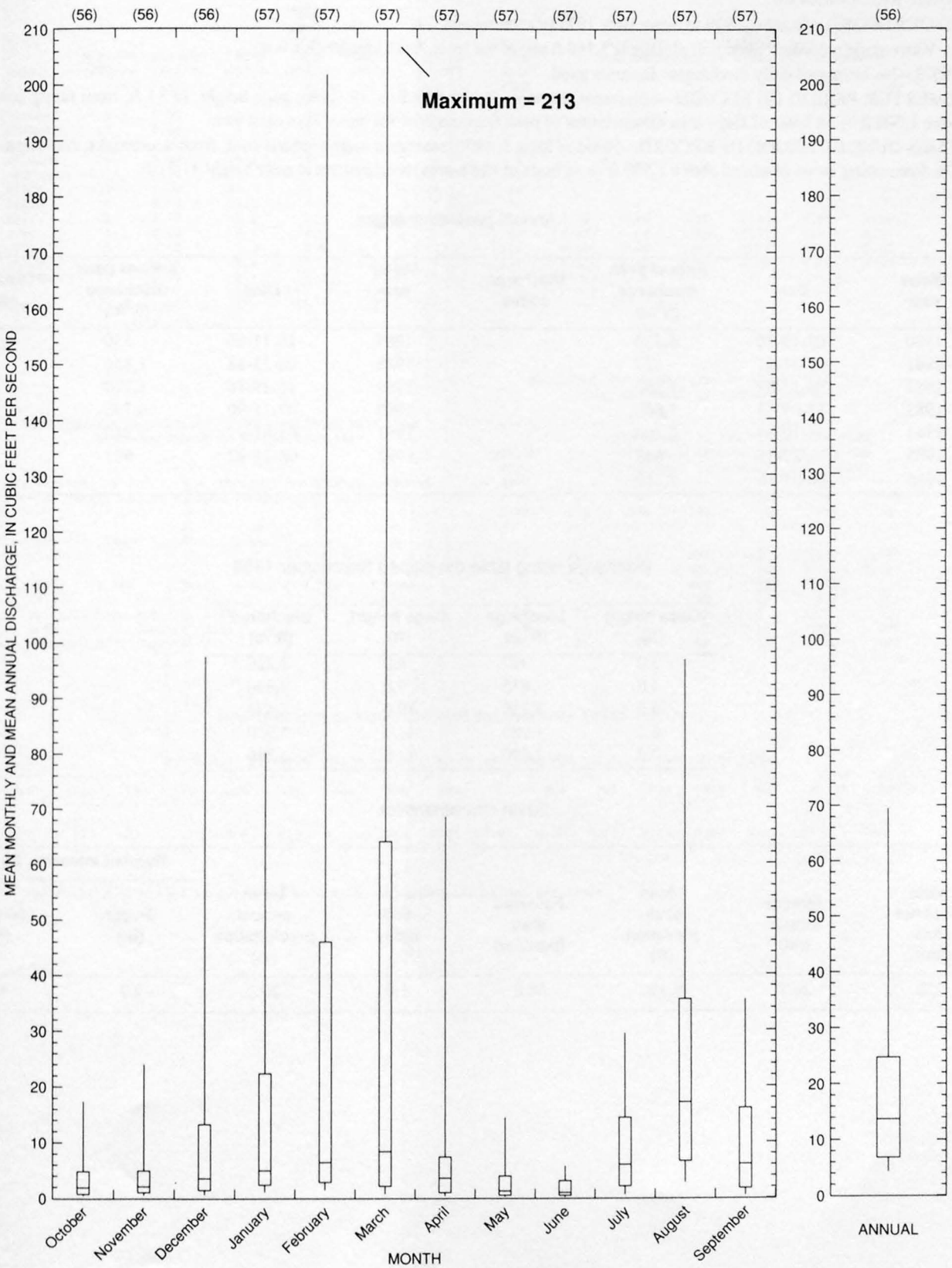
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
408	73	21	11	7.4	4.5	3.1	2.2	1.5	0.92	0.56	0.32	0.15	0.10	0.09	0.00	0.00

09512500 AGUA FRIA RIVER NEAR MAYER, AZ--Continued





09512500 AGUA FRIA RIVER NEAR MAYER, AZ--Continued



09512600 TURKEY CREEK NEAR CLEATOR, AZ

LOCATION.--Lat 34°16'56", long 112°12'25", in $SW^1/_4SW^1/_4SE^1/_4$ sec.36, T.11 N., R.1 E. (unsurveyed), Yavapai County, Hydrologic Unit 15070102, in Prescott National Forest, on right bank 0.7 mi upstream from Forest Route 259, 1.5 mi east of Cleator, and 9.3 mi south of Mayer.

DRAINAGE AREA.--89.4 mi^2.

PERIOD OF RECORD.--October 1979 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 3,140 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,230 ft^3/s Feb. 19, 1980, gage height, 11.51 ft, from rating curve extended above 1,500 ft^3/s on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 5, 1970, reached a stage of about 16 ft, from floodmarks, discharge, about 9,000 ft^3/s, from rating curve extended above 1,500 ft^3/s on basis of slope-area measurement at gage height 11.51 ft.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1980	02-19-80	5,230		1987	10-11-86	530	
1981	07-31-81	127		1988	08-23-88	1,850	
1982	08-23-82	1,260		1989	12-29-88	1,720	
1983	12-09-83	1,840		1990	07-15-90	4,750	
1984	09-10-84	2,260		1991	03-01-91	2,810	
1985	12-27-85	648		1992	08-23-92	603	
1986	06-01-86	4,110					

Discharge rating table developed September 1988

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	397	8.0	3,220
4.0	835	9.0	3,830
5.0	1,380	10.0	4,430
6.0	1,980	11.0	4,950
7.0	2,620	11.5	5,230

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
122	26.7	5,360	54.0	1.0	20.2	2.2	4.4

09512600 TURKEY CREEK NEAR CLEATOR, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1980-92

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7.9	0.00	1.0	2.3	2.3	0.8
NOVEMBER	15	0.00	2.0	4.1	2.1	1.4
DECEMBER	106	0.00	14	29	2.2	10.0
JANUARY	52	0.00	9.1	14	1.6	6.7
FEBRUARY	420	0.00	50	115	2.3	37.0
MARCH	120	0.00	33	38	1.2	24.5
APRIL	39	0.00	9.9	12	1.2	7.3
MAY	14	0.00	3.1	4.5	1.5	2.3
JUNE	3.5	0.00	0.87	1.2	1.4	0.6
JULY	35	0.00	3.7	9.8	2.6	2.7
AUGUST	47	0.00	6.8	13	1.9	5.0
SEPTEMBER	12	0.00	2.1	3.7	1.8	1.5
ANNUAL	47	0.26	11	14	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1981-92

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.03	0.00	0.00	0.00	0.00	0.00
120	0.19	0.00	0.00	0.00	0.00	0.00
183	0.57	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1980-1992

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,700	3,360	4,700	6,600	8,160	9,810

WEIGHTED SKEW (LOGS)= -0.28
MEAN (LOGS)= 3.21
STANDARD DEV. (LOGS)= 0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1980-92

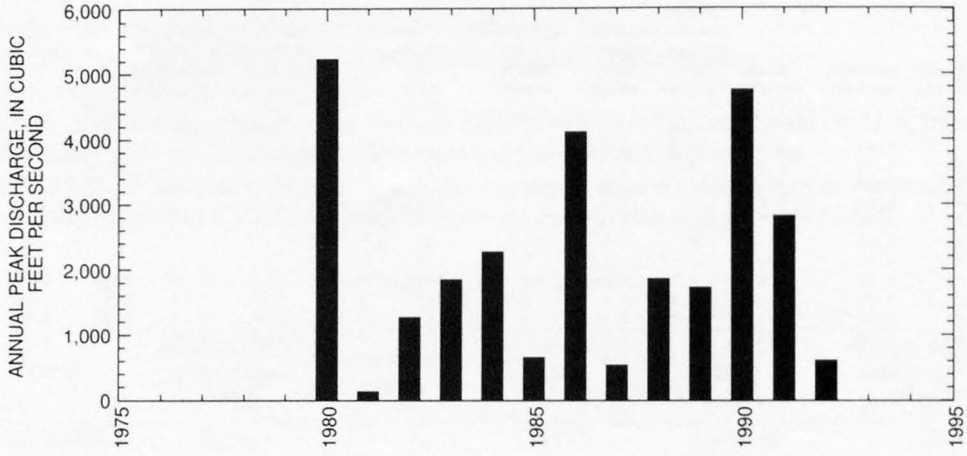
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	348	744	998	1,280	1,450	1,590
3	188	463	681	970	1,180	1,390
7	101	281	448	701	913	1,140
15	62	176	283	444	578	719
30	41	117	183	278	353	427
60	27	77	122	188	241	296
90	20	57	90	136	172	208

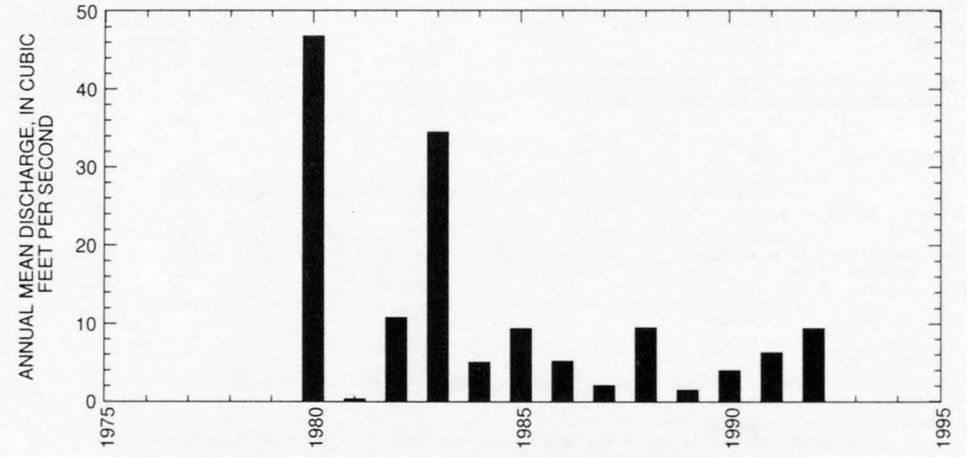
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1980-92

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
188	45	21	11	6.4	2.1	0.71	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

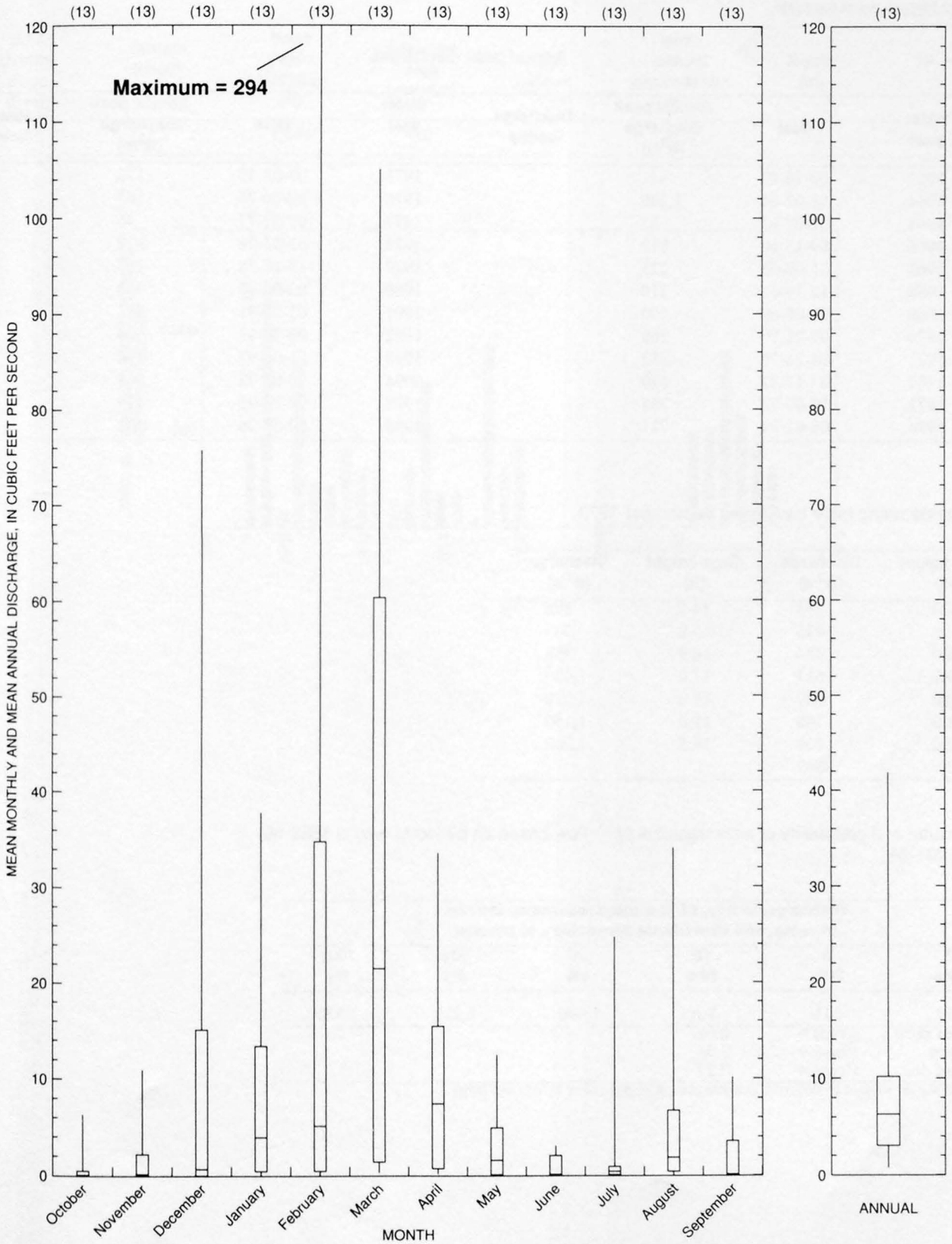
Reliability of values in column is uncertain, and potential errors are large.

09512600 TURKEY CREEK NEAR CLEATOR, AZ--Continued





09512600 TURKEY CREEK NEAR CLEATOR, AZ--Continued



09512700 AGUA FRIA RIVER TRIBUTARY NO. 2 NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 34°02'00", long 112°08'42", in SW$^1/_4$ sec.15, T.8 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, at State Highway 69, 1 mi south of Rock Springs.
DRAINAGE AREA.--1.07 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	411		1975	07-08-75	175	
1964	08-02-64	1,200		1976	09-26-76	165	
1965	01-07-65	87		1977	09-27-77	46	
1966	09-13-66	812		1978	03-02-78	920	
1967	11-08-66	225		1979	12-18-78	265	
1968	12-19-67	210		1980	02-00-80	405	
1969	09-05-69	400		1991	03-01-91	491	
1970	07-21-70	300		1992	08-22-92	504	
1971	08-21-71	285		1993	01-08-93	898	
1972	07-17-72	140		1994	10-06-93	568	
1973	10-07-72	285		1995	09-28-95	419	
1974	08-02-74	721		1996	09-07-96	305	

Discharge rating table developed September 1973

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	348	14.0	898
7.0	433	15.0	945
8.0	524	16.0	988
9.0	613	17.0	1,030
10.0	680	18.0	1,070
11.0	740	19.0	1,150
12.0	800	19.5	1,200
13.0	849		

Magnitude and probability of instantaneous peak flow based on period of record 1963-80, 1991-96

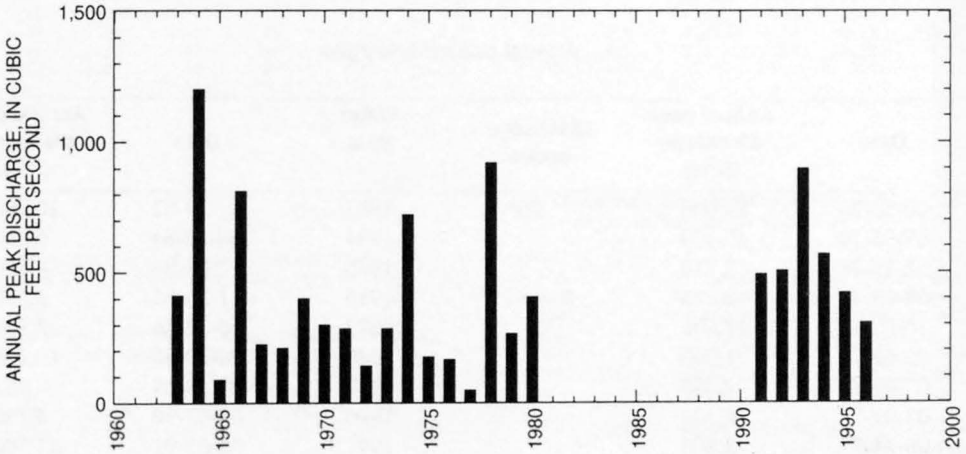
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
359	611	808	1,090	1,320	1,570
Weighted skew	(logs) =	0.01			
Mean	(logs) =	2.56			
Standard dev.	(logs) =	0.27			

† Reliability of values in column is uncertain, and potential errors are large.

09512700 AGUA FRIA RIVER TRIBUTARY NO. 2 NEAR ROCK SPRINGS, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
173	2.1	2,140	0.0	1.0	16.2	2.2	4.3



09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 34°00'56", long 112°10'02", in $NW^1/_4NW^1/_4$ sec.28, T.8 N., R.2 E., Yavapai County, Hydrologic Unit 15070102, on right bank 2.5 mi southwest of Rock Springs and 10 mi upstream from Lake Pleasant.

DRAINAGE AREA.--1,111 mi^2.

PERIOD OF RECORD.--January 1970 to current year (monthly discharge only, October 1973 to September 1974). Low-flow records not equivalent prior to Oct. 1, 1974, due to spring flow in streambed between sites in use.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,800 ft above sea level, from topographic map. Prior to Oct. 1, 1974, at site 600 ft upstream at datum 10.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft^3/s Feb. 19, 1980, gage height, 21.08 ft recorded, 28.15 ft from flood-mark, from rating curve extended above 21,000 ft^3/s on basis of slope-area measurement at gage height 27.2 ft; no flow at times each year prior to October 1974; since October 1974, no flow May 27 to July 12, 1977, and for many days in 1990.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1920	00-00-20	[1]85,000	HP	1983	11-30-82	10,200	
1970	09-05-70	40,100		1984	08-17-84	6,860	
1971	08-25-71	3,750		1985	12-28-84	4,560	
1972	08-13-72	2,620		1986	11-26-85	3,220	
1973	10-07-72	17,600		1987	10-12-86	2,160	
1974	08-02-74	1,900		1988	08-29-88	19,200	
1975	07-08-75	2,490		1989	08-18-89	562	
1976	02-09-76	24,700		1990	07-07-90	4,150	
1977	08-24-77	2,390		1991	03-01-91	53,500	
1978	03-02-78	39,500		1992	08-22-92	8,460	
1979	12-18-78	52,800		1993	01-08-93	52,500	
1980	02-19-80	59,500		1994	10-06-93	1,700	
1981	09-23-81	1,020		1995	02-15-95	35,700	
1982	03-13-82	4,190		1996	08-03-96	965	

[1]Highest since 1891.

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
7.0	1,120	17.0	18,500
8.0	1,840	19.0	25,000
9.0	2,770	21.0	32,500
11.0	5,280	23.0	41,200
13.0	8,710	25.0	51,000
15.0	13,100	25.3	52,600

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
61.2	47.4	4,770	3.6	1.0	16.6	2.3	4.4

09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1971-73, 1975-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	381	0.12	23	76	3.3	1.9
NOVEMBER	176	0.11	24	44	1.9	2.0
DECEMBER	943	0.10	89	218	2.4	7.5
JANUARY	3,300	0.22	228	666	2.9	19.1
FEBRUARY	3,320	0.66	382	774	2.0	32.1
MARCH	1,970	0.19	305	490	1.6	25.6
APRIL	338	0.00	62	79	1.3	5.2
MAY	71	0.00	14	19	1.4	1.2
JUNE	46	0.00	5.0	9.3	1.9	0.4
JULY	36	0.00	11	11	1.0	0.9
AUGUST	164	0.35	33	49	1.5	2.8
SEPTEMBER	160	0.17	16	32	2.0	1.3
ANNUAL	499	2.6	98	126	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-73, 1976-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.60	0.00	0.00	0.00	0.00	0.00
3	0.63	0.00	0.00	0.00	0.00	0.00
7	0.68	0.00	0.00	0.00	0.00	0.00
14	0.74	0.00	0.00	0.00	0.00	0.00
30	0.97	0.00	0.00	0.00	0.00	0.00
60	1.3	0.14	0.00	0.00	0.00	0.00
90	1.7	0.40	0.13	0.02	0.00	0.00
120	3.0	0.87	0.37	0.17	0.06	0.03
183	5.1	1.8	0.95	0.55	0.29	0.19

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1920, 1970-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7,000	23,300	44,300	88,900	140,100	211,800

WEIGHTED SKEW (LOGS)= 0.10
MEAN (LOGS)= 3.86
STANDARD DEV. (LOGS)= 0.61

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1971-73, 1975-96

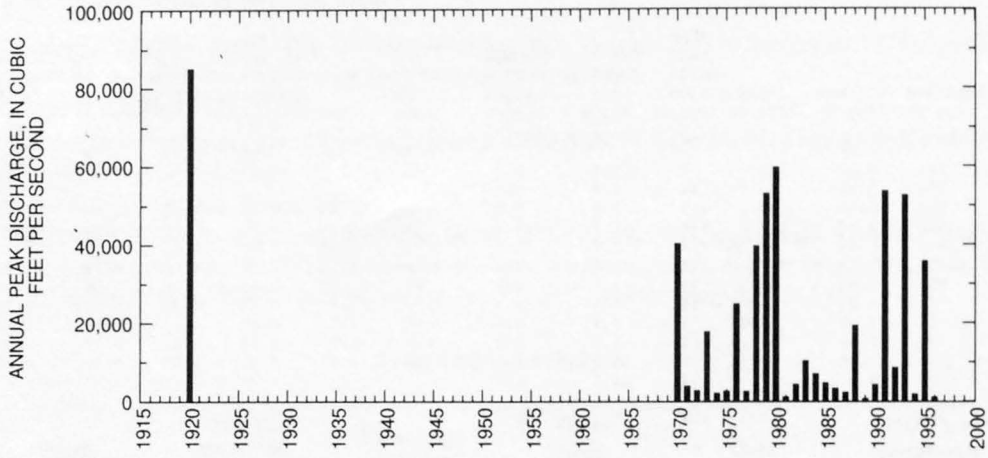
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	1,860	8,200	18,100	42,900	75,400	126,000
3	957	4,390	9,760	22,900	39,900	65,600
7	594	2,610	5,590	12,400	20,800	32,800
15	347	1,540	3,300	7,410	12,400	19,700
30	219	943	2,000	4,450	7,410	11,700
60	145	623	1,330	2,980	5,020	8,020
90	108	456	959	2,110	3,510	5,530

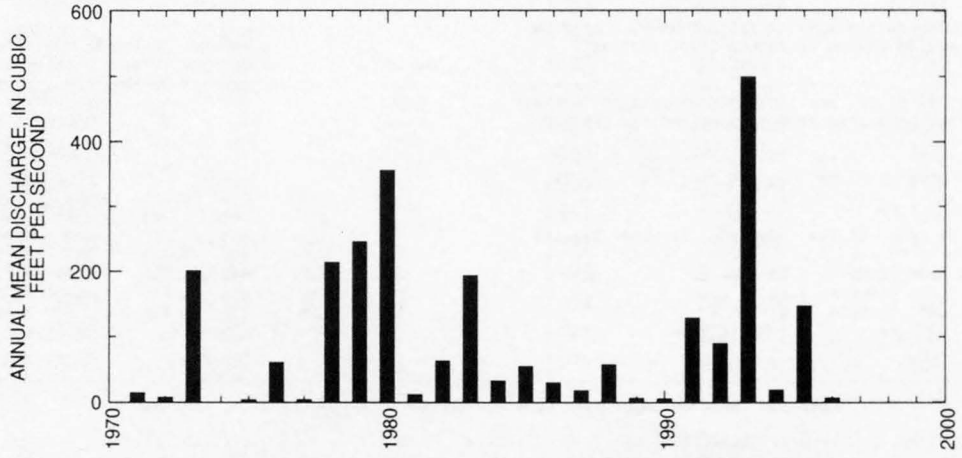
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1971-73, 1975-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1,680	309	127	61	34	13	6.3	3.5	2.3	1.5	0.80	0.32	0.08	0.00	0.00	0.00	0.00

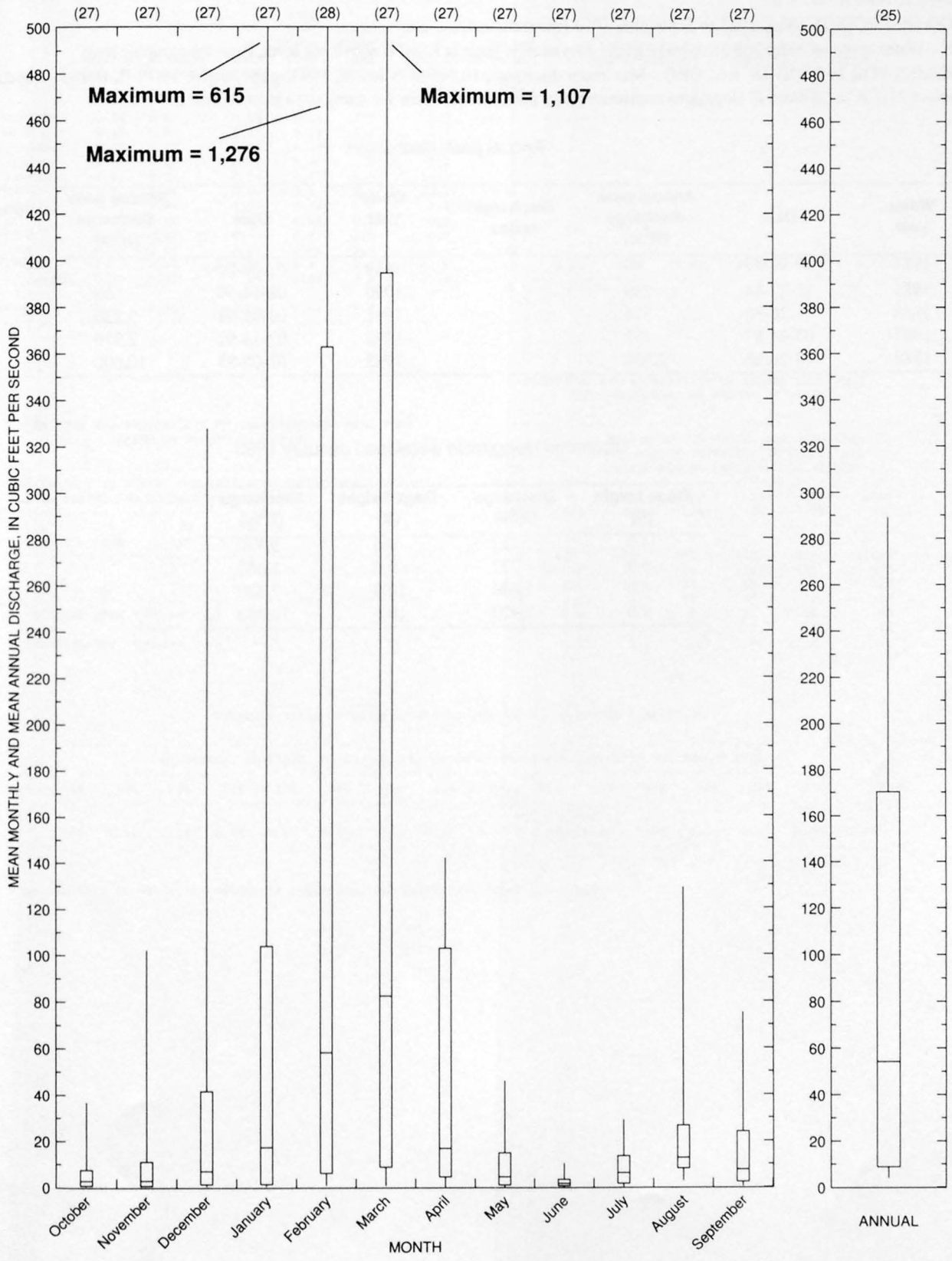
Reliability of values in column is uncertain, and potential errors are large.

09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ--Continued





09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ--Continued



09512830 BOULDER CREEK NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 33°59'55", long 112°12'57", in $SE^1/_4NW^1/_4NW^1/_4$ sec.36, T.8 N., R.1 E., Yavapai County, Hydrologic Unit 15070102, on left bank 2.2 mi upstream from Agua Fria River, 1.5 mi southwest of Rock Springs, and 7.1 mi northwest of New River.

DRAINAGE AREA.--37.8 mi^2.

PERIOD OF RECORD.--May 1983 to September 1993 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,890 ft above sea level, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft^3/s Jan. 8, 1993, gage height, 10.79 ft, from rating curve extended above 31.1 ft^3/s on basis of slope-area measurement of peak flow; no flow for many days in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1984	10-02-83	40		1989	02-06-89	21	
1985	12-27-84	239		1990	08-14-90	58	
1986	11-26-85	376		1991	03-01-91	3,230	
1987	03-04-87	32		1992	02-13-92	2,970	
1988	08-29-88	2,350		1993	01-08-93	10,000	

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	352	8.0	3,770
5.0	772	9.0	5,550
6.0	1,440	10.0	7,820
7.0	2,420	10.8	10,040

09512830 BOULDER CREEK NEAR ROCK SPRINGS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1984-92

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.38	0.00	0.08	0.14	1.7	1.9
NOVEMBER	0.37	0.00	0.11	0.14	1.2	2.7
DECEMBER	0.70	0.00	0.23	0.23	1.0	5.4
JANUARY	2.1	0.01	0.38	0.65	1.7	9.2
FEBRUARY	2.8	0.01	0.64	0.97	1.5	15.3
MARCH	6.3	0.01	0.84	2.1	2.4	20.1
APRIL	0.21	0.01	0.06	0.08	1.2	1.5
MAY	0.10	0.00	0.03	0.03	0.98	0.8
JUNE	0.02	0.00	0.00	0.01	2.1	0.1
JULY	0.11	0.00	0.01	0.04	2.7	0.3
AUGUST	13	0.00	1.7	4.3	2.5	41.5
SEPTEMBER	0.29	0.00	0.05	0.09	2.0	1.1
ANNUAL	1.6	0.02	0.35	0.51	1.4	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1985-92

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.01	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1984-92

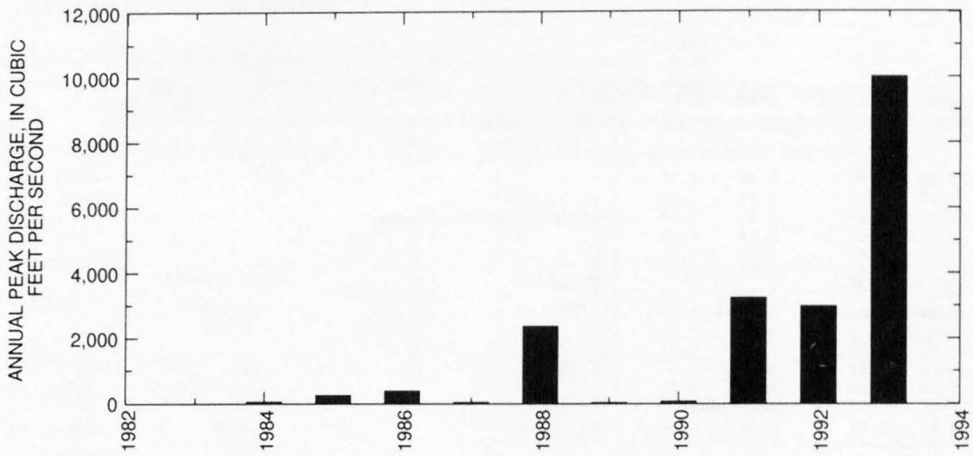
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	12	65	161	432	826	1,490
3	5.5	30	76	216	436	835
7	2.6	13	33	89	176	327
15	1.4	6.5	15	39	74	133
30	0.91	3.8	8.5	21	39	68
60	0.59	2.2	4.4	9.5	16	26
90	0.47	1.6	3.0	6.1	9.7	15

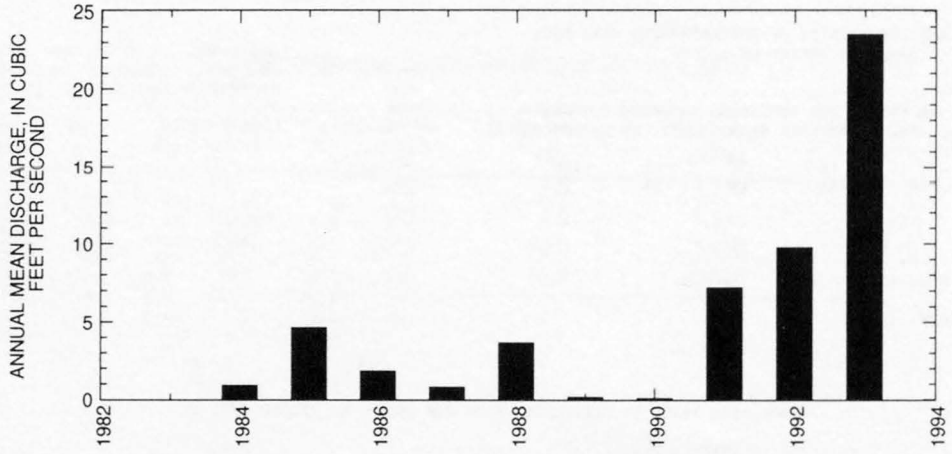
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1984-92

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1.9	0.45	0.30	0.18	0.12	0.04	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

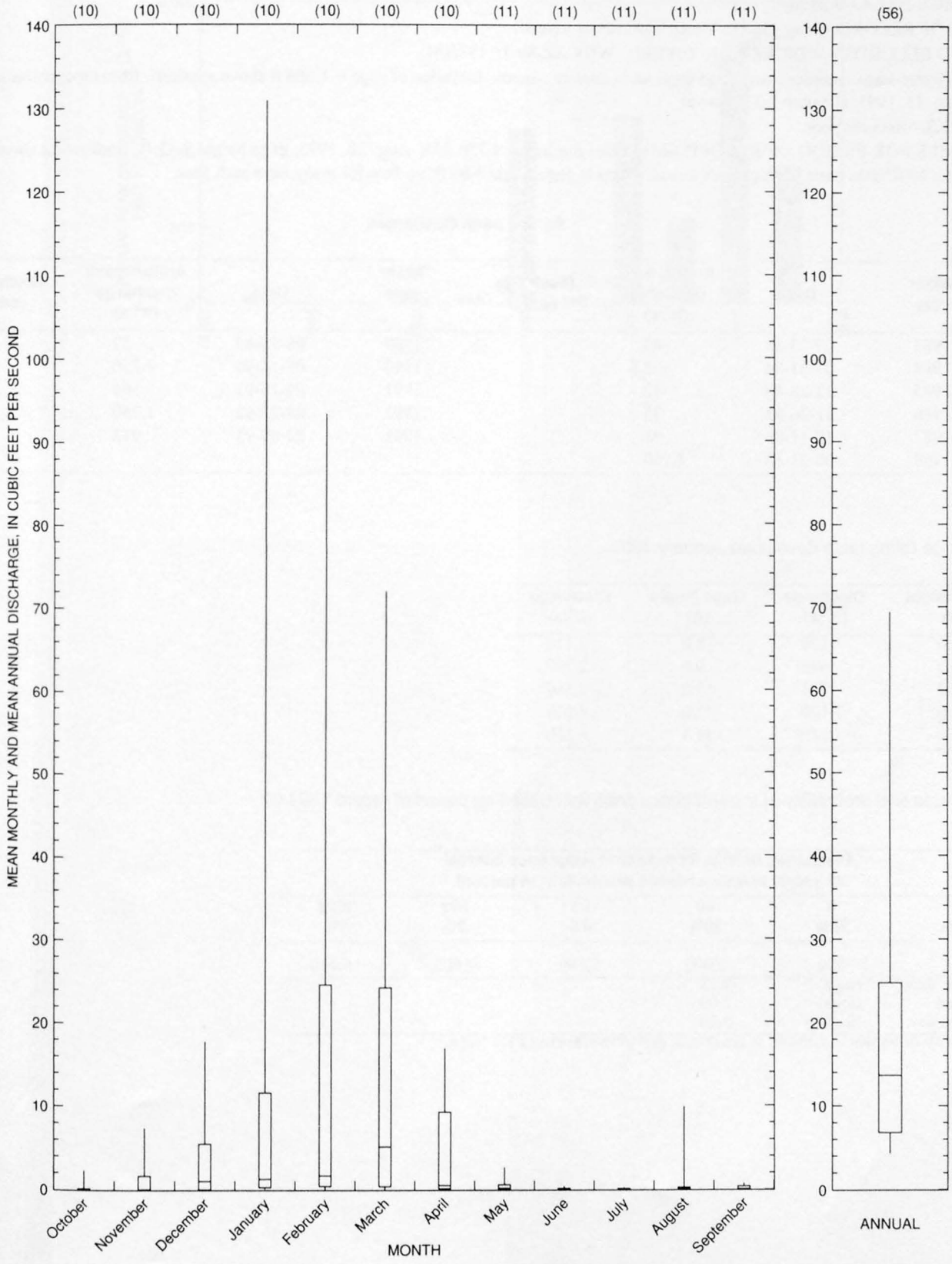
Reliability of values in column is uncertain, and potential errors are large.

09512830 BOULDER CREEK NEAR ROCK SPRINGS, AZ--Continued





09512830 BOULDER CREEK NEAR ROCK SPRINGS, AZ--Continued



09512970 COTTONWOOD CREEK NEAR WADDELL DAM, AZ

LOCATION.--Lat 33°53'55", long 112°18'39", in $SW^1/_4SW^1/_4SE^1/_4$ sec.36, T.7 N., R.1 W., Yavapai County, Hydrologic Unit 15070102, on left bank 4 mi northwest of Waddell Dam and 1 mi upstream from the mouth at Lake Pleasant.

DRAINAGE AREA.--9.28 mi^2.

PERIOD OF RECORD.--May 1983 to March 1993 (discontinued).

REVISED RECORDS.--WDR AZ-86-1: 1983(M). WDR AZ-89-1: 1985(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 1,660 ft above sea level, from topographic map. Prior to Jan. 11, 1991, at datum 0.33 ft lower.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,750 ft^3/s, Aug. 22, 1992, gage height 7.33 ft, from rating curve extended above 40 ft^3/s on basis of slope-area measurement at gage height 5.80 ft; no flow for many days each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1983	09-23-83	43		1989	08-15-89	37	
1984	07-21-84	2.8		1990	08-14-90	1,250	
1985	12-28-84	12		1991	02-28-91	564	
1986	11-26-85	35		1992	08-22-92	1,750	
1987	10-11-86	41		1993	02-09-93	912	
1988	08-21-88	1,160					

Discharge rating table developed January 1991

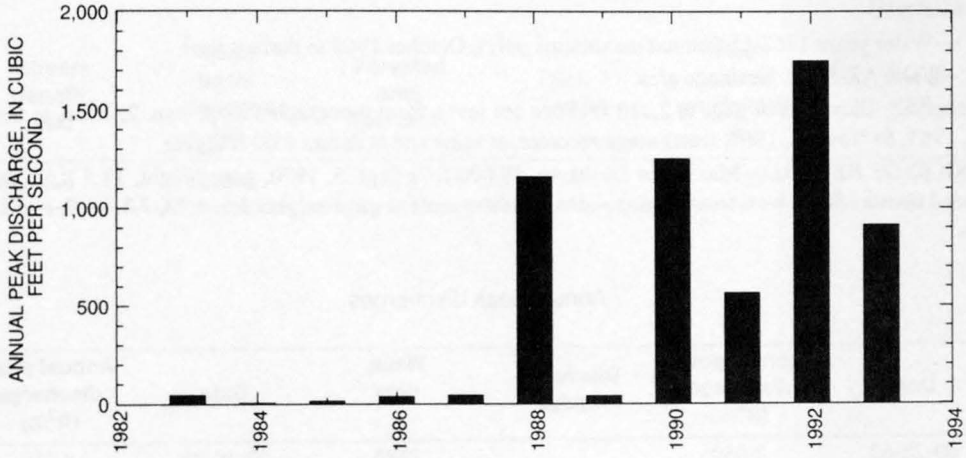
Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	179	8.0	2,110
4.0	416	9.0	2,700
5.0	731	10.0	3,360
6.0	1,120	11.0	4,070
7.0	1,580	11.4	4,380

Magnitude and probability of instantaneous peak flow based on period of record 1984-92

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
131	804	2,020	5,240	9,600	16,400
Weighted skew	(logs) =	-0.15			
Mean	(logs) =	2.09			
Standard dev.	(logs) =	0.96			

† Reliability of values in column is uncertain, and potential errors are large.

09512970 COTTONWOOD CREEK NEAR WADDELL DAM, AZ--Continued



09513780 NEW RIVER NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 33°58'27", long 112°05'54", in $SW^1/_4SW^1/_4$ sec.6, T.7 N., R.3 E., Maricopa County, Hydrologic Unit 15070102, on right bank 180 ft upstream from road crossing and 6 mi southeast of Rock Springs.

DRAINAGE AREA.--68.3 mi^2.

PERIOD OF RECORD.--Water years 1962-65 (annual maximums only), October 1965 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,310 ft above sea level, from topographic map. Jan. 2, 1964, to Sept. 30, 1965, crest-stage gage, and Oct. 28, 1965, to Nov. 16, 1967, water-stage recorder, at same site at datum 1.00 ft higher.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,600 ft^3/s Sept. 5, 1970, gage height, 13.5 ft, from profile past gage, from rating curve extended above 380 ft^3/s on basis of slope-area measurements at gage heights 3.6, 4.73, 7.3, 10.7, and 13.5 ft; no flow for many days in most years.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	09-28-62	1,050		1980	02-19-80	9,350	
1963	08-16-63	765		1981	03-06-81	35	
1964	08-02-64	4,900		1982	03-15-82	1,760	
1965	04-04-65	1,510		1983	11-30-82	12,500	
1966	12-22-65	4,020		1984	12-27-83	692	
1967	09-06-67	245		1985	12-27-84	2,310	
1968	12-19-67	10,600		1986	11-26-85	3,700	
1969	09-05-69	1,530		1987	03-03-87	545	
1970	09-05-70	18,600		1988	11-01-87	4,980	
1971	08-03-71	6,320		1989	01-05-89	428	
1972	08-12-72	231		1990	07-07-90	1,670	
1973	12-28-72	1,550		1991	03-01-91	9,810	
1974	08-05-74	68		1992	02-13-92	5,510	
1975	11-01-74	1,570		1993	01-08-93	12,600	
1976	02-09-76	3,230		1994	11-15-93	604	
1977	08-16-77	4.0		1995	02-15-95	9,710	
1978	03-02-78	13,600		1996	07-16-96	77	
1979	03-28-79	6,530					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.5	128	7.0	3,800
3.0	259	8.0	5,540
4.0	697	9.0	7,670
5.0	1,410	10.0	10,230
6.0	2,430	11.0	13,240

09513780 NEW RIVER NEAR ROCK SPRINGS, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
140	18.6	3,970	0.2	1.0	20.0	2.4	4.6

09513780 NEW RIVER NEAR ROCK SPRINGS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1966-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	32	0.00	1.3	5.7	4.3	0.8
NOVEMBER	52	0.00	5.9	12	2.1	3.3
DECEMBER	218	0.00	27	57	2.1	15.3
JANUARY	573	0.00	41	109	2.7	23.2
FEBRUARY	348	0.00	43	76	1.8	24.7
MARCH	444	0.00	45	90	2.0	25.5
APRIL	30	0.00	5.0	7.8	1.6	2.8
MAY	11	0.00	1.3	2.4	1.9	0.7
JUNE	2.2	0.00	0.29	0.64	2.2	0.2
JULY	8.5	0.00	0.71	1.9	2.7	0.4
AUGUST	15	0.00	1.5	3.6	2.4	0.8
SEPTEMBER	104	0.00	4.0	19	4.6	2.3
ANNUAL	72	0.00	15	19	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.10	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1962-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2,440	6,880	11,400	19,200	26,400	35,000

WEIGHTED SKEW (LOGS)= -0.29
MEAN (LOGS)= 3.36
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-96

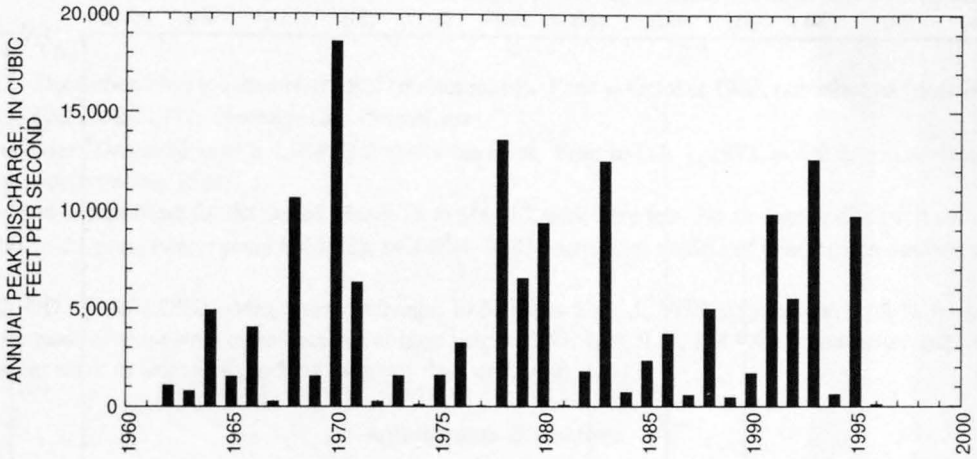
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	480	2,190	4,000	6,650	8,670	10,600
3	235	1,080	1,950	3,220	4,160	5,030
7	127	585	1,050	1,690	2,140	2,560
15	71	330	587	939	1,190	1,400
30	43	199	354	566	715	848
60	25	116	225	417	594	795
90	19	85	163	298	421	559

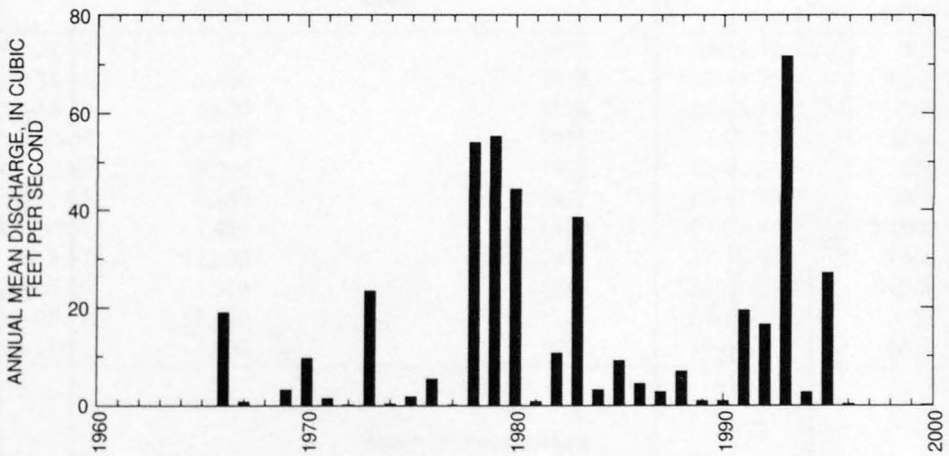
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
265	30	11	5.2	2.8	0.82	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

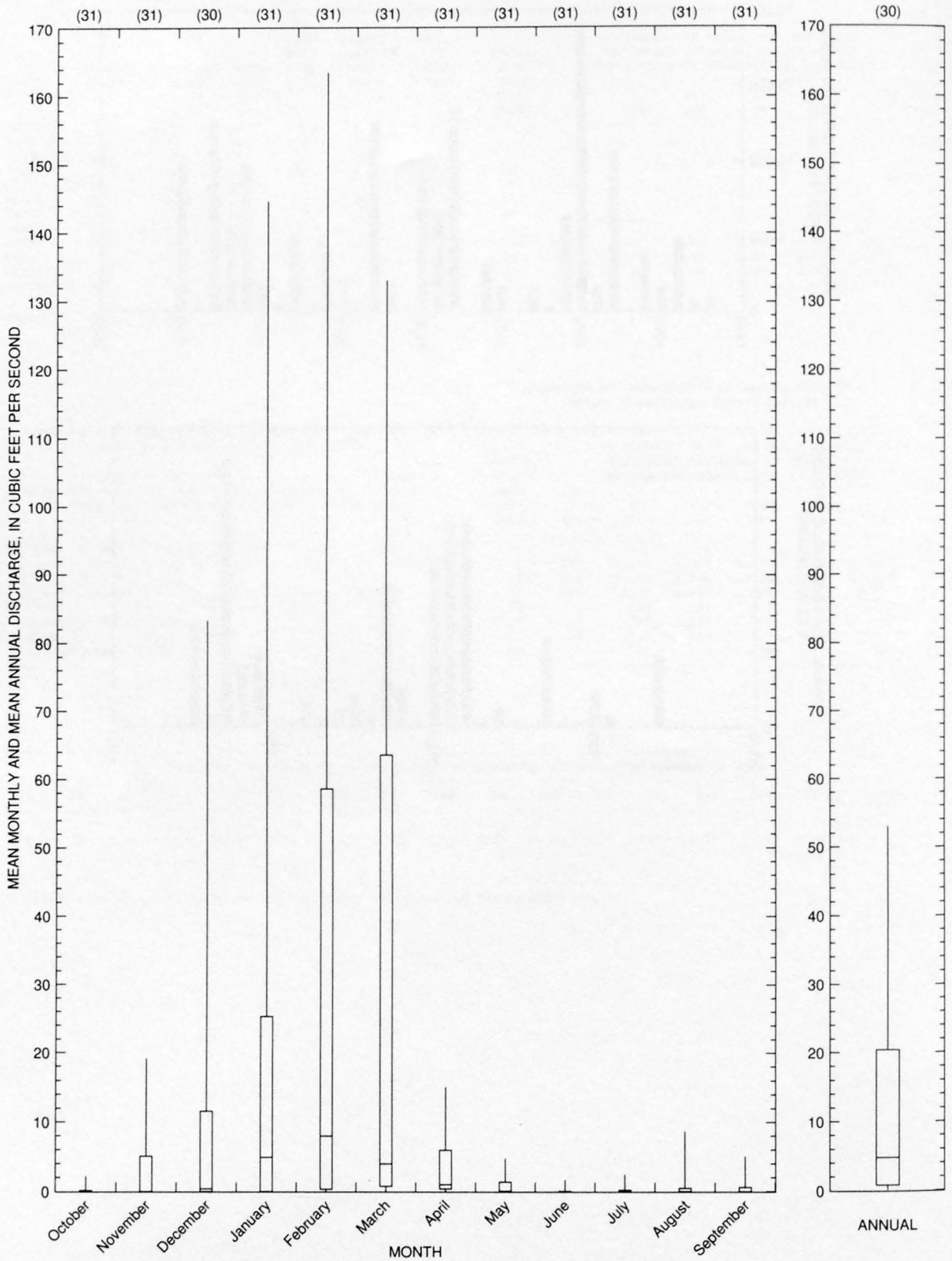
Reliability of values in column is uncertain, and potential errors are large.

09513780 NEW RIVER NEAR ROCK SPRINGS, AZ--Continued





09513780 NEW RIVER NEAR ROCK SPRINGS, AZ--Continued



09513800 NEW RIVER AT NEW RIVER, AZ

LOCATION.--Lat 33°54'41", long 112°08'26", in $NW^1/_4NE^1/_4$ sec.34, T.7 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, near center of downstream side of bridge on east frontage road of Interstate Highway 17, 0.5 mi southwest of village of New River, and 10 mi south of Rock Springs.

DRAINAGE AREA.--83.3 mi^2.

PERIOD OF RECORD.--December 1960 to September 1982 (discontinued). Prior to October 1965, published as "near Black Canyon."

REVISED RECORDS.--WRD Ariz. 1972: Drainage area (former site).

GAGE.--Water-stage recorder. Datum of gage is 1,984.02 ft above sea level. Prior to Feb. 1, 1972, at site 0.3 mi downstream at datum 10.86 ft lower (now used as supplementary gage).

REMARKS.--Records good except those for the period March 28 to May 13, which are fair. No storage or diversion above station.

AVERAGE DISCHARGE.--21 years (water years 1962-82), 14.4 ft^3/s, 10,430 acre-ft/yr; median of yearly mean discharges, 3.1 ft^3/s, 2,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft^3/s Sept. 5, 1970, gage height, 9.98 ft, from rating curve extended above 1,300 ft^3/s on basis of slope-area measurements at gage heights 5.57, 7.33, 9.12, and 9.98 ft; maximum gage height, 12.34 ft Mar. 2, 1978, from high-water mark in gage well; no flow for many days each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	07-22-61	325		1972	08-12-72	525	
1962	09-28-62	1,430		1973	02-11-73	4,250	
1963	08-16-63	4,620		1974	08-05-74	49	
1964	08-02-64	4,380		1975	11-02-74	2,280	
1965	04-04-65	1,990		1976	02-09-76	7,050	
1966	12-22-65	4,180		1977	08-17-77	805	
1967	08-10-67	1,420		1978	03-02-78	18,000	
1968	12-19-67	12,600		1979	12-18-78	5,560	
1969	09-05-69	1,310		1980	02-19-80	14,900	
1970	09-05-70	19,500		1981	09-23-81	20	
1971	08-21-71	5,090		1982	10-01-81	2,510	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
105	25.9	3,600	0.2	1.0	19.5	2.3	4.6

09513800 NEW RIVER AT NEW RIVER, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	35	0.00	2.1	7.5	3.5	1.3
NOVEMBER	44	0.00	4.4	11	2.4	2.6
DECEMBER	207	0.00	28	65	2.3	16.6
JANUARY	310	0.00	28	73	2.6	16.8
FEBRUARY	523	0.00	46	114	2.5	27.4
MARCH	443	0.00	40	99	2.5	24.1
APRIL	74	0.00	6.7	16	2.4	4.0
MAY	20	0.00	1.6	4.9	3.1	0.9
JUNE	0.90	0.00	0.11	0.25	2.2	0.1
JULY	2.9	0.00	0.40	0.77	1.9	0.2
AUGUST	25	0.00	3.8	6.8	1.8	2.3
SEPTEMBER	115	0.00	6.3	24	3.8	3.8
ANNUAL	74	0.01	14	21	1.5	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.18	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-82

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
3,150	7,880	12,600	20,600	28,300	37,500

WEIGHTED SKEW (LOGS)= -0.09
MEAN (LOGS)= 3.49
STANDARD DEV. (LOGS)= 0.48

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-82

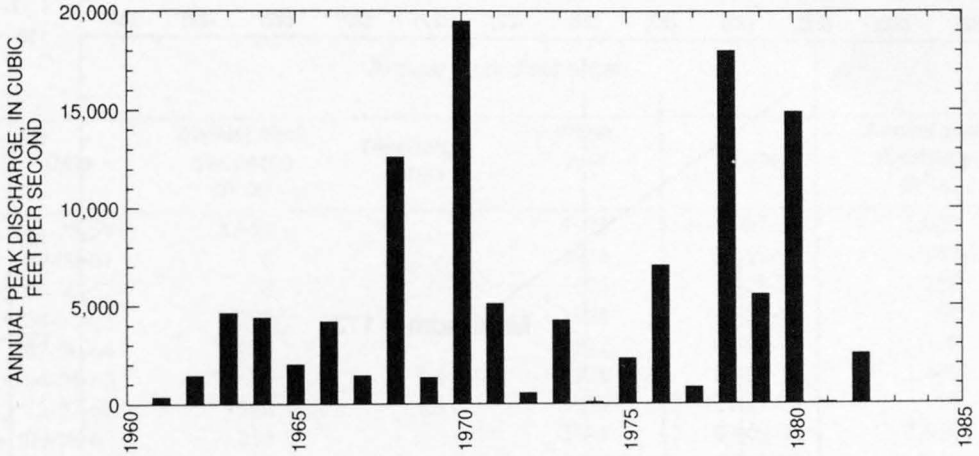
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	410	1,980	3,800	6,790	9,310	11,900
3	179	969	1,970	3,730	5,310	7,020
7	93	544	1,150	2,240	3,250	4,360
15	50	304	648	1,280	1,860	2,500
30	28	174	377	754	1,100	1,490
60	16	109	243	499	742	1,020
90	12	79	174	355	524	712

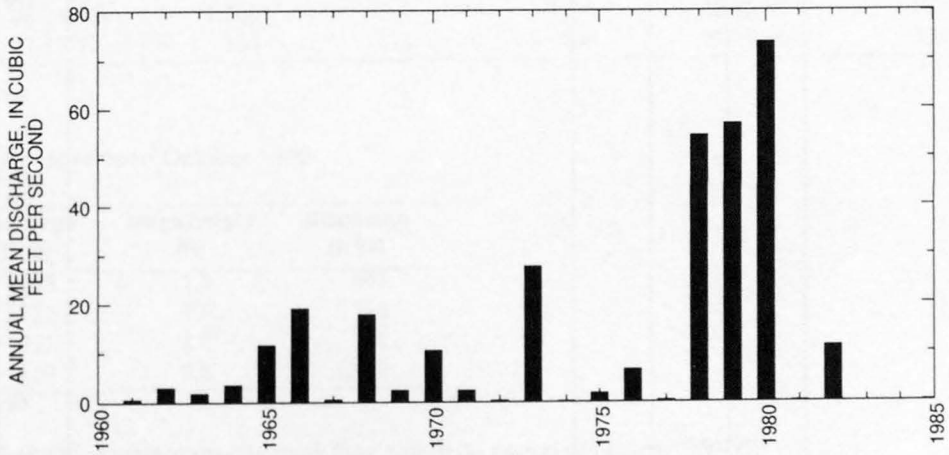
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
298	30	7.4	1.9	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

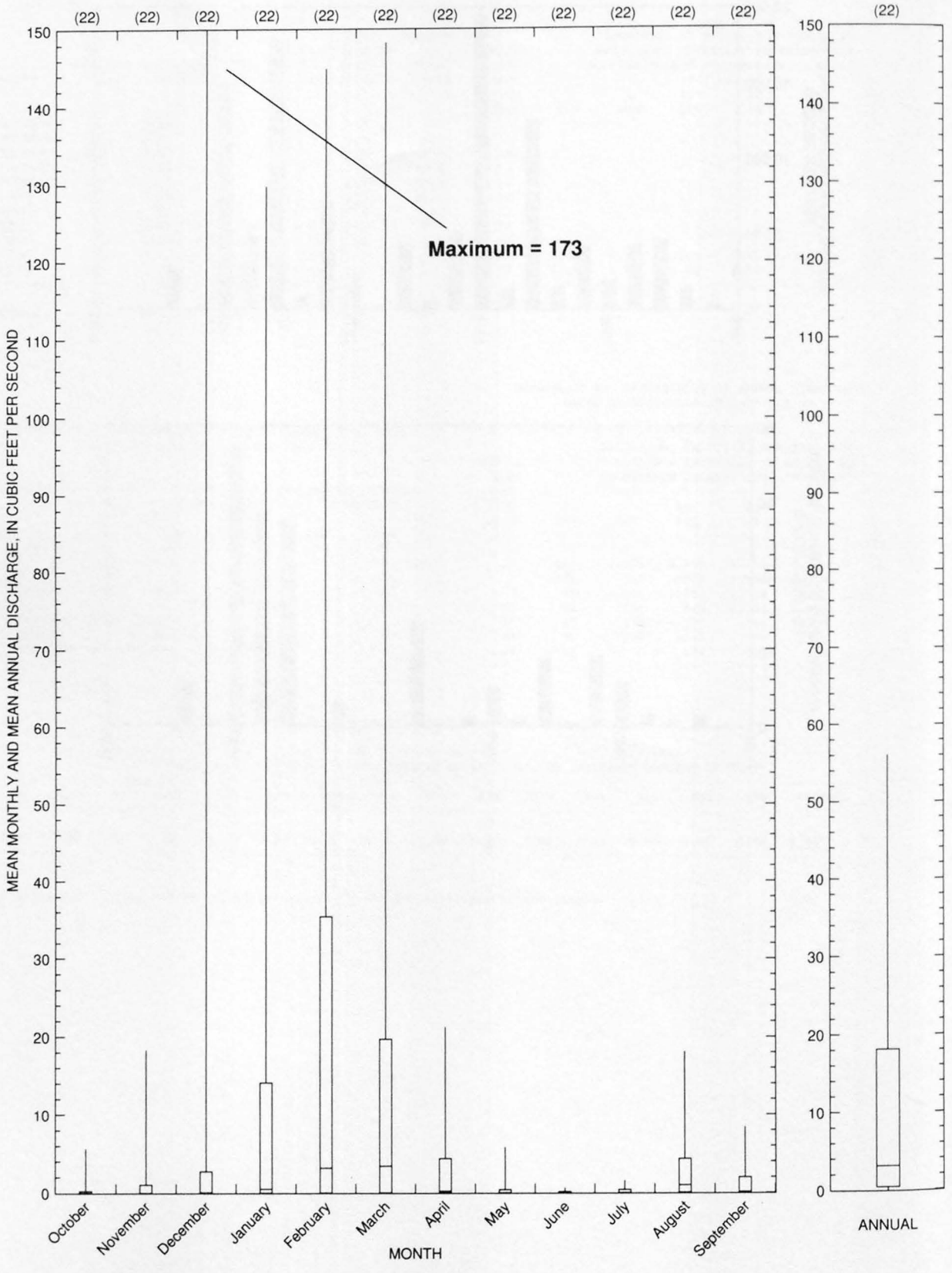
Reliability of values in column is uncertain, and potential errors are large.

09513800 NEW RIVER AT NEW RIVER, AZ--Continued





09513800 NEW RIVER AT NEW RIVER, AZ--Continued



09513820 DEADMAN WASH NEAR NEW RIVER, AZ

LOCATION.--Lat 33°50'30", long 112°08'40", in NW$^1/_4$ sec.27, T.6 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, at State Highway 69, 4.5 mi south of New River.

DRAINAGE AREA.--11.1 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	12-25-59	1,850		1973	10-07-72	1,000	ES
1961	00-00-61	0		1974	09-19-74	150	
1962	00-00-62	0		1975	10-28-74	250	ES
1963	08-00-63	270		1976	08-31-76	64	
1964	07-30-64	1,140		1977	00-00-77	0	
1965	04-04-65	70	ES	1978	03-02-78	1,400	
1966	12-22-65	200	ES	1979	11-11-78	88	
1967	09-00-67	230		1991	03-01-91	1,030	
1968	12-19-67	950		1992	08-22-92	730	
1969	00-00-69	0		1993	01-08-93	729	
1970	09-05-70	1,630		1994	10-06-93	1,110	
1971	08-21-71	1,300		1995	02-15-95	177	
1972	07-17-72	135		1996	09-05-96	700	

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	138	7.0	561
5.5	222	7.5	718
6.0	311	8.0	941
6.5	419	8.8	1,420

Magnitude and probability of instantaneous peak flow based on period of record 1960-79, 1991-96

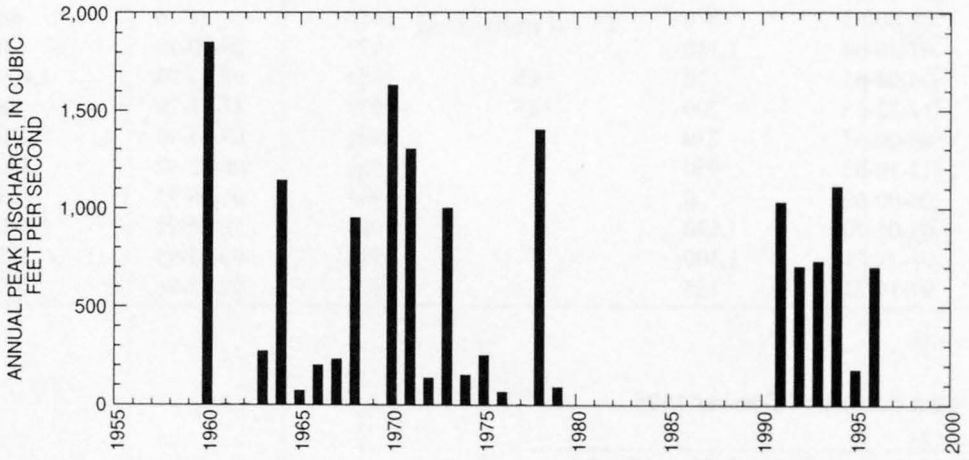
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
348	969	1,590	2,610	3,550	4,630
Weighted skew	(logs) =	-0.34			
Mean	(logs) =	2.51			
Standard dev.	(logs) =	0.56			

† Reliability of values in column is uncertain, and potential errors are large.

09513820 DEADMAN WASH NEAR NEW RIVER, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
124	4.2	1,980	0.0	1.0	11.0	1.8	4.0



09513835 NEW RIVER AT BELL ROAD, NEAR PEORIA, AZ

LOCATION.--Lat 33°38'18", long 112°14'22", in $NE^1/_4NE^1/_4$ sec.3, T.3 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, on downstream side of bridge at Bell Road, 1.6 mi upstream from Skunk Creek, 3.1 mi north of Peoria, and 9 mi upstream from mouth.

DRAINAGE AREA.--185 mi^2.

PERIOD OF RECORD.--Water years 1963, 1965-67 (annual maximums only), October 1967 to September 1984, June 1990 to September 1993 (discontinued).

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,190.00 ft, sea level (Arizona State Highway Department bench mark). Oct. 1, 1965, to Sept. 30, 1967, crest-stage gage at present site and at site 50 ft upstream, at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated to some extent since 1990 by flood control dike.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft^3/s Dec. 19, 1967, gage height, 13.5 ft, from rating curve extended above 680 ft^3/s on basis of slope-area measurement of peak flow; no flow for most of time each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-17-63	1,550		1977	00-00-77	0	
1965	04-05-65	1,020		1978	03-02-78	12,500	
1966	12-22-65	4,060		1979	12-19-78	8,410	
1967	06-18-67	100		1980	02-20-80	12,100	
1968	12-19-67	14,600		1981	09-05-81	21	
1969	00-00-69	0		1982	03-15-82	876	
1970	09-05-70	11,900		1983	12-01-82	4,240	
1971	08-21-71	4,800		1984	00-00-84	0	
1972	07-17-72	1,520		1990	09-03-90	2,340	
1973	10-07-72	2,590		1991	03-01-91	1,280	
1974	00-00-74	0		1992	03-10-92	384	
1975	11-03-74	257		1993	01-08-93	2,760	
1976	02-09-76	2,280					

Discharge rating table developed January 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.8	233	4.2	1,410
3.0	331	4.4	1,680
3.2	449	4.6	1,980
3.4	590	4.8	2,320
3.6	756	5.0	2,680
3.8	946	5.2	3,080
4.0	1,160	5.4	3,510

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
64.5	38.2	2,700	0.1	1.0	15.6	1.9	4.0

09513835 NEW RIVER AT BELL ROAD, NEAR PEORIA, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-84, 1990-93

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	33	0.00	1.9	7.4	4.0	1.1
NOVEMBER	7.9	0.00	1.0	2.6	2.5	0.60
DECEMBER	230	0.00	25	62	2.5	15
JANUARY	609	0.00	42	136	3.9	25
FEBRUARY	491	0.00	54	116	2.2	32
MARCH	446	0.00	39	101	2.6	23
APRIL	10	0.00	0.70	2.3	3.2	0.41
MAY	0.76	0.00	0.04	0.17	4.5	0.02
JUNE	0.00	0.00	0.00	0.00	---	0.00
JULY	2.7	0.00	0.13	0.60	4.9	0.08
AUGUST	13	0.00	1.0	3.1	3.1	0.59
SEPTEMBER	99	0.00	6.0	22	3.7	3.5
ANNUAL	65	0.00	14	19	1.4	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-84, 1990-93

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1963, 1965-84, 1990-93

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,900	5,510	9,410	16,400	23,300	31,700

WEIGHTED SKEW (LOGS)= -0.18
MEAN (LOGS)= 3.26
STANDARD DEV. (LOGS)= 0.56

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-84, 1990-93

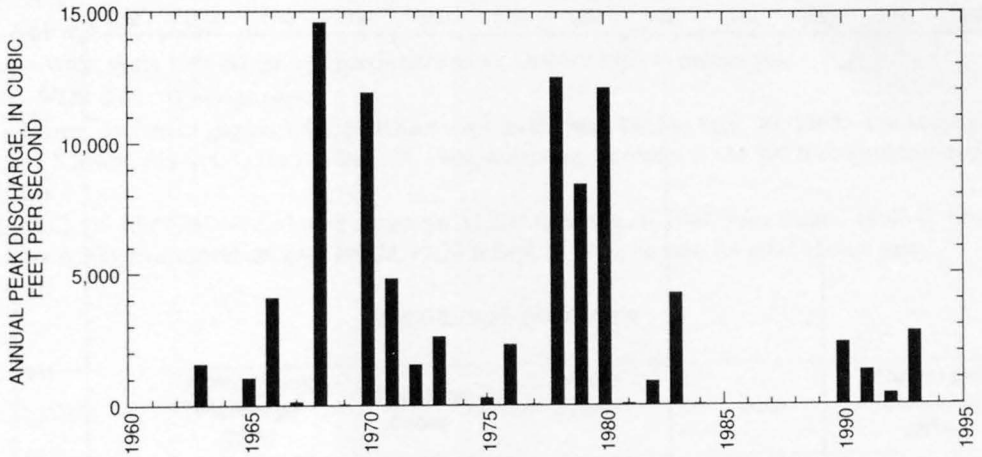
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	531	2,550	3,480	4,070	4,260	4,340
3	253	1,520	2,300	2,890	3,120	3,240
7	134	919	1,460	1,900	2,090	2,190
15	65	491	815	1,110	1,240	1,320
30	36	275	461	629	706	754
60	20	163	279	389	440	473
90	14	112	193	268	304	326

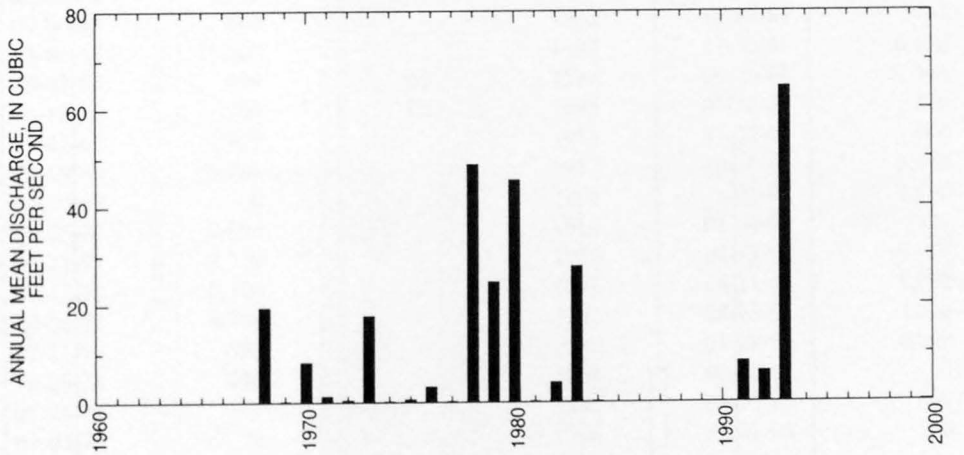
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-84, 1990-93

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
213	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

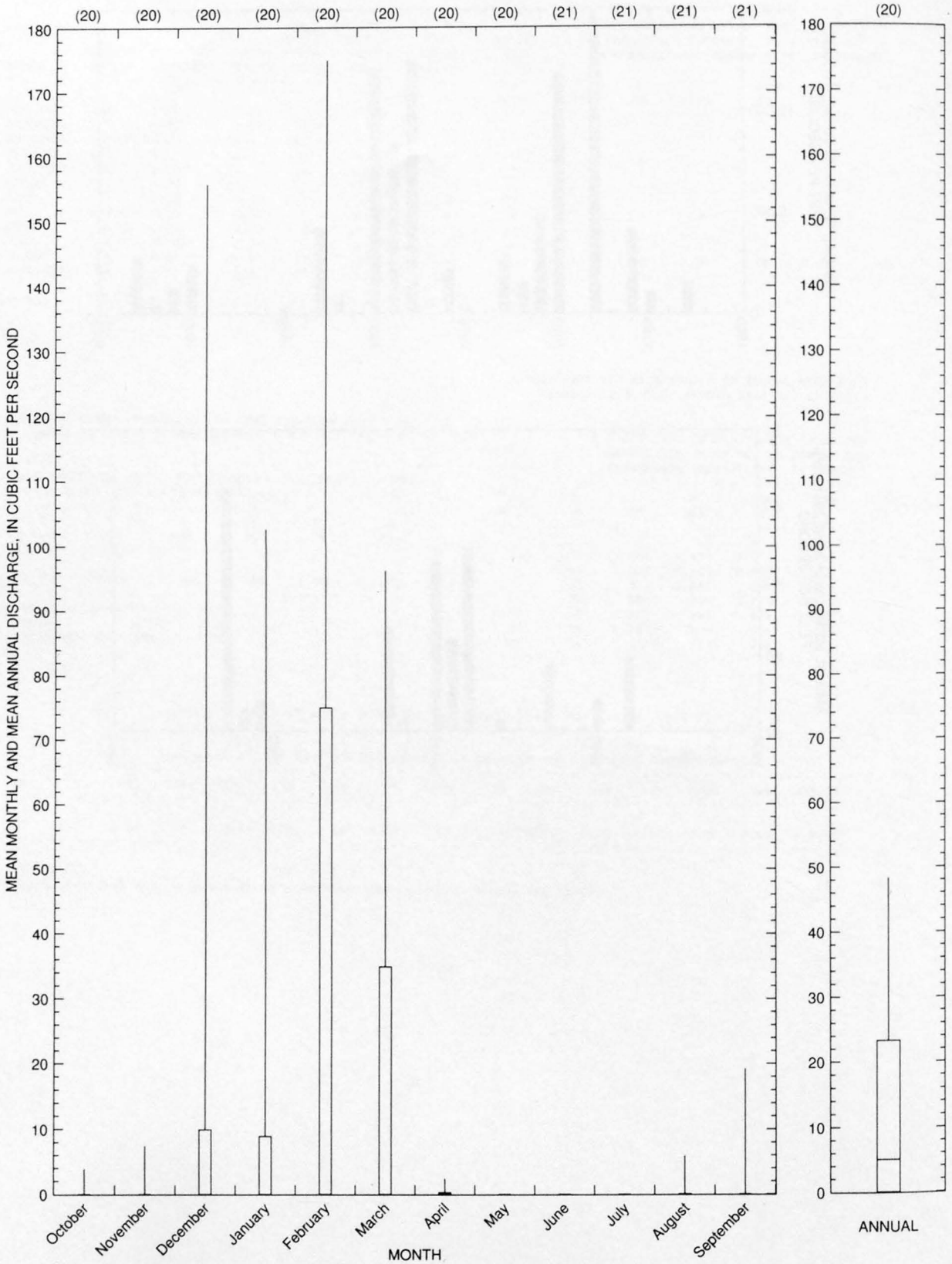
Reliability of values in column is uncertain, and potential errors are large.

09513835 NEW RIVER AT BELL ROAD, NEAR PEORIA, AZ--Continued





09513835 NEW RIVER AT BELL ROAD, NEAR PEORIA, AZ--Continued



09513860 SKUNK CREEK NEAR PHOENIX, AZ

LOCATION.--Lat 33°43'45", long 112°07'09", in NW$^1/_4$SE$^1/_4$SE$^1/_4$ sec.35, T.5 N., R.2 E., Maricopa County, Hydrologic Unit 15070102, on right bank dike of Skunk Creek flood control channel, 300 ft east of frontage road of Interstate Highway 17, 3 mi north of Adobe and 20 mi north of City Hall in Phoenix.

DRAINAGE AREA.--64.9 mi^2.

PERIOD OF RECORD.--Water years 1960-67 (annual maximums only), October 1967 to current year.

REVISED RECORDS.--WDR-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,472.60 ft above sea level. May 1961 to Sept. 30, 1967, crest-stage gage at site 400 ft downstream at datum 6.67 ft lower, and Oct. 1, 1967 to Dec. 29, 1984, water-stage recorder at site 300 ft downstream at datum 12.66 ft lower.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft^3/s Aug. 1, 1964, gage height, 10.48 ft, present datum, from rating curve extended above 6,200 ft^3/s; maximum gage height, 12.24 ft Sept. 5, 1970; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	12-25-59	9,400		1979	01-18-79	600	
1961	00-00-61	0		1980	02-20-80	1,210	
1962	00-00-62	175		1981	07-16-81	311	
1963	00-00-63	480		1982	10-02-81	281	
1964	08-01-64	11,500		1983	11-30-82	6,170	
1965	02-07-65	400	ES	1984	09-26-84	565	
1966	08-18-66	700	ES	1985	01-26-85	1,320	C
1967	09-02-67	950		1986	07-22-86	906	C
1968	12-19-67	5,900		1987	10-10-86	3,440	C
1969	00-00-69	0		1988	11-01-87	2,250	C
1970	09-05-70	9,650		1989	01-04-89	111	C
1971	08-21-71	4,770		1990	08-12-90	8,160	
1972	07-17-72	2,380		1991	08-11-91	1,250	
1973	10-06-72	4,700		1992	08-23-92	7,020	
1974	07-21-74	300		1993	01-08-93	4,990	
1975	10-29-74	240		1994	00-00-94	0	
1976	07-28-76	13		1995	09-28-95	822	
1977	01-03-77	70		1996	11-01-95	500	
1978	03-01-78	3,590					

Discharge rating table developed September 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	331	4.5	5,100
2.5	874	5.0	6,620
3.0	1,640	5.5	8,320
3.5	2,600	6.0	10,190
4.0	3,760	6.4	11,800

09513860 SKUNK CREEK NEAR PHOENIX, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
49.2	19.7	2,180	0.0	1.0	12.2	1.9	4.2

09513860 SKUNK CREEK NEAR PHOENIX, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	26	0.00	1.6	5.2	3.2	7.6
NOVEMBER	41	0.00	2.0	7.8	4.0	9.4
DECEMBER	60	0.00	3.5	12	3.5	16.8
JANUARY	56	0.00	3.2	11	3.3	15.1
FEBRUARY	24	0.00	1.9	5.3	2.8	8.9
MARCH	46	0.00	2.1	8.7	4.2	9.9
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.03	0.00	0.00	0.01	4.2	0.0
JUNE	0.26	0.00	0.01	0.05	5.4	0.0
JULY	18	0.00	1.2	3.6	3.0	5.8
AUGUST	38	0.00	3.6	9.2	2.6	17.1
SEPTEMBER	43	0.00	2.0	7.9	4.0	9.4
ANNUAL	8.6	0.00	1.8	2.3	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1960-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
940	3,230	6,120	12,100	18,700	27,600

WEIGHTED SKEW (LOGS)= -0.03
MEAN (LOGS)= 2.97
STANDARD DEV. (LOGS)= 0.64

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-96

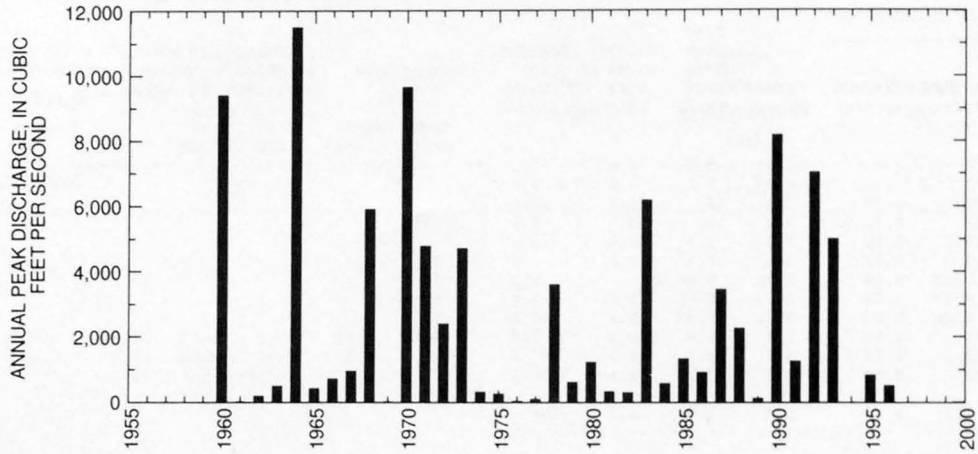
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	138	518	880	1,390	1,790	2,170
3	55	227	404	672	892	1,120
7	25	105	191	323	434	549
15	12	53	97	168	229	294
30	6.7	29	54	91	122	155
60	3.5	16	30	52	73	95
90	2.4	11	20	36	50	67

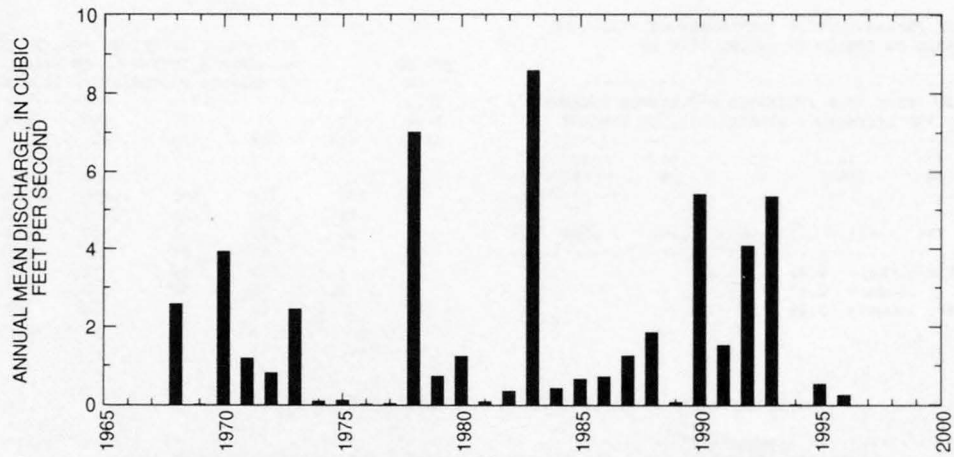
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

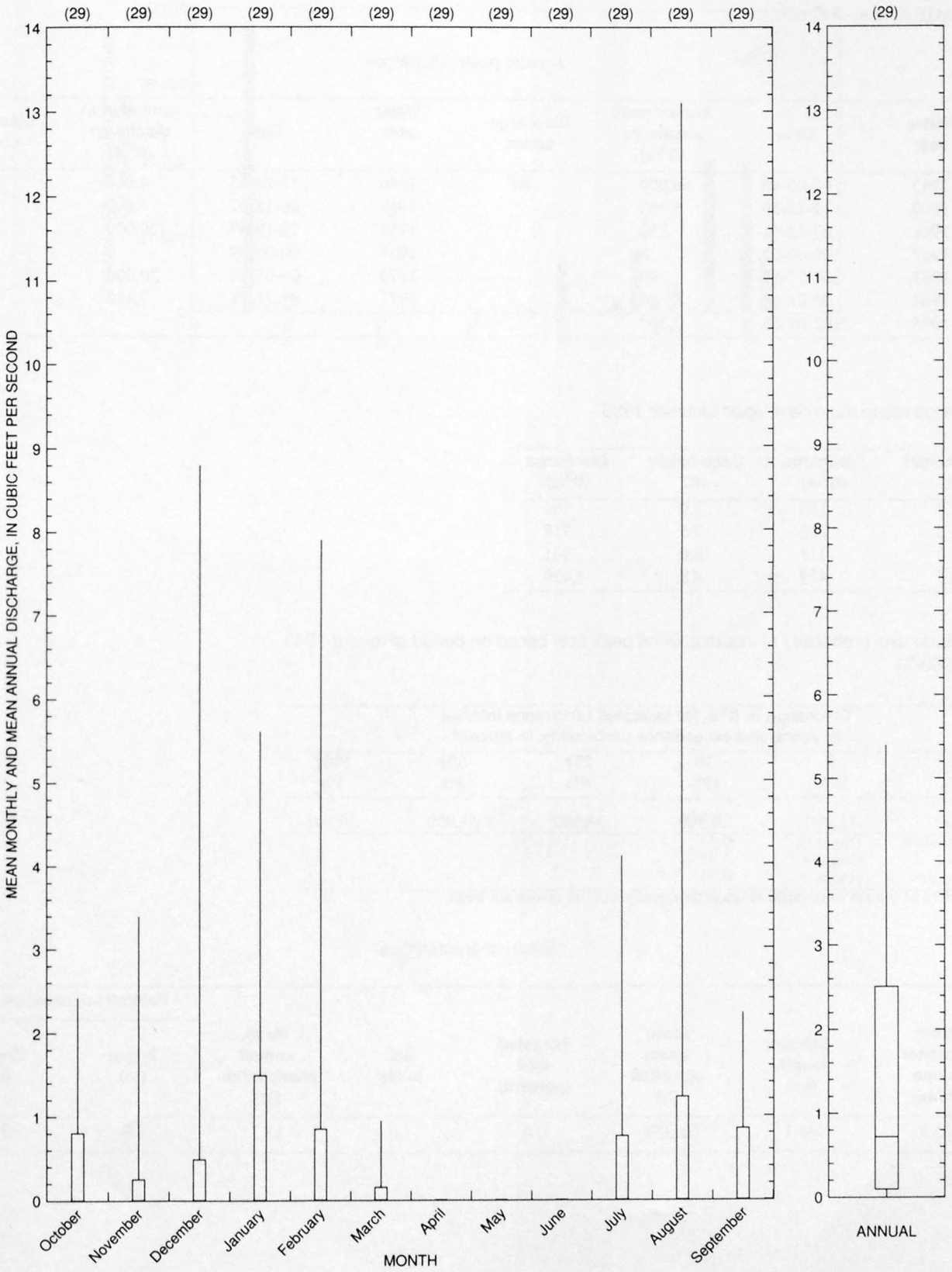
Reliability of values in column is uncertain, and potential errors are large.

09513860 SKUNK CREEK NEAR PHOENIX, AZ--Continued





09513860 SKUNK CREEK NEAR PHOENIX, AZ--Continued



09513890 NEW RIVER AT PEORIA, AZ

LOCATION.--Lat 33°35'43", long 112°15'45", in SE$^1/_4$ sec.16, T.3 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, at Grand Avenue, 1.75 mi northwest of Peoria.

DRAINAGE AREA.--317 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1943	00-00-43	38,000	HP	1966	12-23-65	4,000	
1960	12-25-59	6,400		1967	06-18-67	600	
1961	07-22-61	250		1968	12-19-67	20,000	ES
1962	00-00-62	0		1969	00-00-69	0	
1963	08-17-63	1,390		1970	09-05-70	20,000	
1964	08-01-64	8,300		1971	08-21-71	7,430	
1965	02-07-65	2,300					

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
5.0	138	7.0	561
5.5	222	7.5	718
6.0	311	8.0	941
6.5	419	8.8	1,420

Magnitude and probability of instantaneous peak flow based on period of record 1943, 1960-71

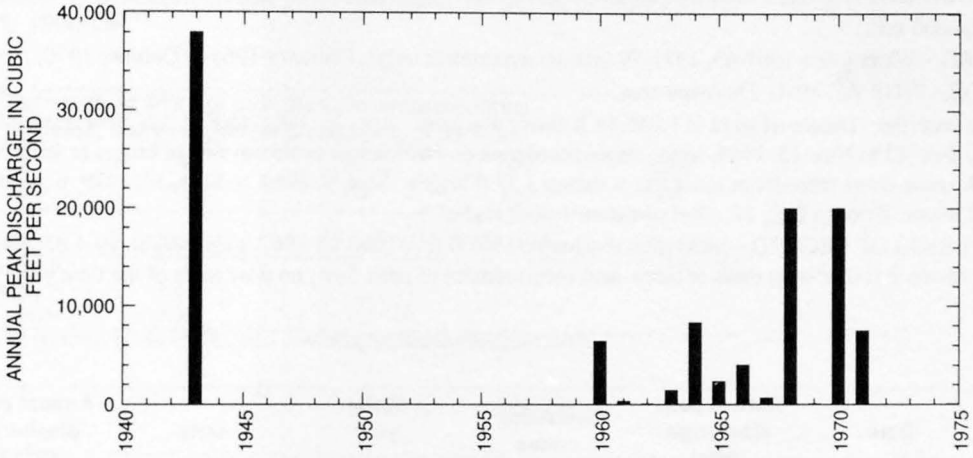
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25†	50†	100†
50%	20%	10%	4%	2%	1%
3,160	11,300	20,800	38,000	54,900	75,100
Weighted skew	(logs) =	-0.41			
Mean	(logs) =	3.45			
Standard dev.	(logs) =	0.71			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
65.3	44.1	2,320	0.0	1.0	13.3	1.8	3.8

09513890 NEW RIVER AT PEORIA, AZ--Continued



09513910 NEW RIVER NEAR GLENDALE, AZ

LOCATION.--Lat 33°32'12", long 112°16'52", in $NE^1/_4NW^1/_4$ sec.8, T.2 N., R.1 E., Maricopa County, Hydrologic Unit 15070102, on downstream side of bridge at Glendale Avenue, 2 mi upstream from mouth, 4 mi southwest of Peoria and 1.5 mi west of Glendale.

DRAINAGE AREA.--600 mi^2.

PERIOD OF RECORD.--Water years 1961-63, 1971-79 (annual maximums only); February 1964 to October 1970, April 1990 to current year.

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,046.44 ft above sea level. Apr. 26, 1961, to Feb. 12, 1964, crest-stage gage at same site and different datum. Feb. 13 to Nov. 12, 1964, water-stage recorder on downstream or upstream side of bridge at different datums. Nov. 13, 1964, to Sept. 8, 1969, water-stage recorder at same site at datum 3.47 ft higher. Sept. 9, 1969, to Sept. 30, 1979, water-stage recorder at same site at datum 0.24 ft lower. Prior to Dec. 31, 1991 at datum 1.00 ft higher.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 ft^3/s Dec. 19, 1967, gage height, 10.4 ft, datum then in use, from rating curve extended above 2,100 ft^3/s on basis of slope-area measurement of peak flow; no flow most of the time each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1943	08-00-43	38,000	ES,HP	1973	10-07-72	8,650	
1955	07-00-55	12,000	ES,HP	1974	08-05-74	775	
1960	12-25-59	5,500	ES	1975	10-29-74	490	
1961	00-00-61	0		1976	09-25-76	1,550	
1962	00-00-62	0		1977	10-23-76	168	
1963	08-30-63	690		1978	03-02-78	12,300	
1964	08-01-64	7,000		1979	12-19-78	3,620	
1965	01-08-65	1,100		1990	09-03-90	10,000	
1966	12-23-65	3,000		1991	03-02-91	1,400	
1967	00-00-67	0		1992	07-24-92	2,110	
1968	12-19-67	19,800		1993	01-11-93	5,450	
1969	00-00-69	0		1994	10-06-93	1,770	
1970	09-05-70	19,200		1995	09-28-95	1,690	
1971	08-21-71	7,000	ES	1996	11-02-95	2,540	
1972	07-17-72	6,300					

Discharge rating table developed November 1993

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.1	50	1.6	2,020
1.2	209	1.7	2,780
1.3	483	1.8	3,660
1.4	874	1.9	4,670
1.5	1,390	2.0	5,800

09513910 NEW RIVER NEAR GLENDALE, AZ--Continued

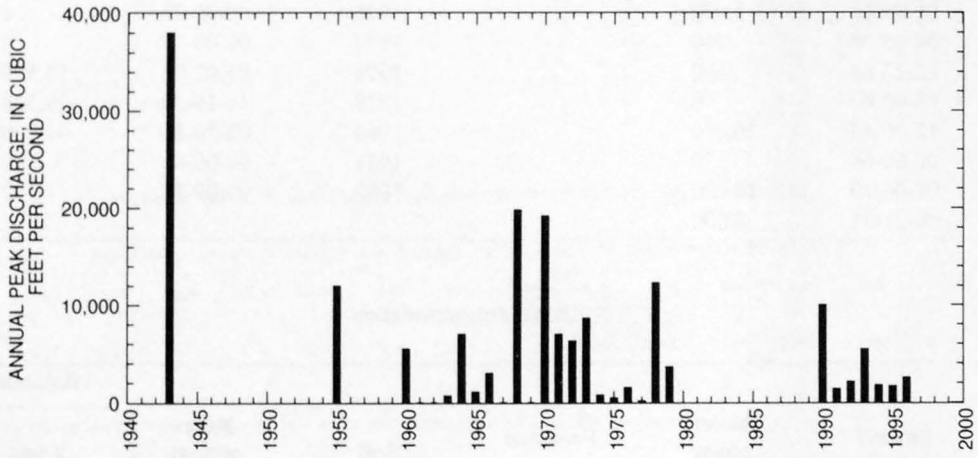
Magnitude and probability of instantaneous peak flow based on period of record 1943, 1955, 1960-79, 1990-96

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2 50%	5 20%	10 10%	25 4%	50† 2%	100† 1%
2,890	8,410	14,400	25,400	36,300	49,800
Weighted skew	(logs) =	-0.14			
Mean	(logs) =	3.45			
Standard dev.	(logs) =	0.56			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
66.9	49.6	2,130	0.0	1.5	13.8	1.8	4.0



09513970 AGUA FRIA RIVER AT AVONDALE, AZ

LOCATION.--Lat 33°26'06", long 112°19'59", in NW$^1/_4$ sec.14, T.1 N., R.1 W., Maricopa County, Hydrologic Unit 15070102, on downstream side of bridge on U.S. Highway 80, 0.5 mi east of Avondale, and 3 mi upstream from mouth.

DRAINAGE AREA.--2,013 mi^2, of which 1,459 mi^2 above Lake Pleasant is noncontributing except during periods of spill from Waddell Dam. Flood water from drainage area of 247 mi^2 above McMicken Dam may be diverted into Agua Fria River basin above station.

PERIOD OF RECORD.--Water years 1960-67, 1973 (annual maximums only), October 1967 to September 1972, October 1973 to current year.

GAGE.--Water-stage recorder since Jan. 7, 1974, with supplementary crest-stage gage. Datum of gage is 952.92 ft above sea level (Arizona Highway Department bench mark). Apr. 26, 1961, to Sept. 30, 1967, crest-stage gage; Oct. 1, 1967, to July 21, 1972, water-stage recorder (with supplementary crest-stage gage from Mar. 10 to July 22, 1972) at present site at datum 2.92 ft lower. July 22, 1972, to Jan. 6, 1974, crest-stage gage only, at railroad bridge upstream at datum 2.92 ft lower.

REMARKS.--No flow during the year. Flow partly regulated by Lake Pleasant, 35 mi upstream. (See elsewhere in this report.) Records at times may include waste water from the Arizona Canal of the Salt River Project. Excess flood water released from McMicken Dam on Trilby Wash may enter Agua Fria River basin above station; this amount generally is negligible.

AVERAGE DISCHARGE.--14 years (water years 1968-72, 1974-82), 31.7 ft^3/s, 22,970 acre-ft/yr; median of yearly mean discharges, 0.7 ft^3/s, 510 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,200 ft^3/s Feb. 20, 1980, gage height, 6.77 ft; maximum gage height, 12.70 ft Dec. 20, 1967, datum then in use; no flow for most of time each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	12-25-59	4,700		1972	07-17-72	5,180	
1961	00-00-61	0		1973	10-07-72	5,000	
1962	00-00-62	0		1974	00-00-74	0	
1963	08-00-63	63		1975	00-00-75	0	
1964	08-01-64	3,000		1976	00-00-76	0	
1965	04-05-65	460		1977	00-00-77	0	
1966	12-23-65	800		1978	03-02-78	13,100	
1967	00-00-67	0		1979	12-19-78	29,300	UR
1968	12-20-67	20,000		1980	02-20-80	44,200	UR
1969	00-00-69	0		1981	00-00-81	0	C,UR
1970	08-06-70	20,600		1982	00-00-82	0	C,UR
1971	08-21-71	8,200					

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
38.7	96.4	3,010	0.0	1.0	16.3	1.7	4.2

09513970 AGUA FRIA RIVER AT AVONDALE, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-72, 1974-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	0.00	0.00	0.00	0.00		0.0
NOVEMBER	0.00	0.00	0.00	0.00		0.0
DECEMBER	520	0.00	54	148	2.8	13.9
JANUARY	518	0.00	42	138	3.3	10.9
FEBRUARY	2,900	0.00	212	773	3.6	54.6
MARCH	810	0.00	68	217	3.2	17.4
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	0.00	0.00	0.00	0.00		0.0
JUNE	1.1	0.00	0.08	0.30	3.7	0.0
JULY	15	0.00	1.0	3.9	3.7	0.3
AUGUST	24	0.00	1.7	6.4	3.7	0.4
SEPTEMBER	133	0.00	9.5	36	3.7	2.4
ANNUAL	232	0.00	32	66	2.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-72, 1975-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183						

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
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WEIGHTED SKEW (LOGS)= ----
MEAN (LOGS)= ----
STANDARD DEV. (LOGS)= ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-72, 1974-82

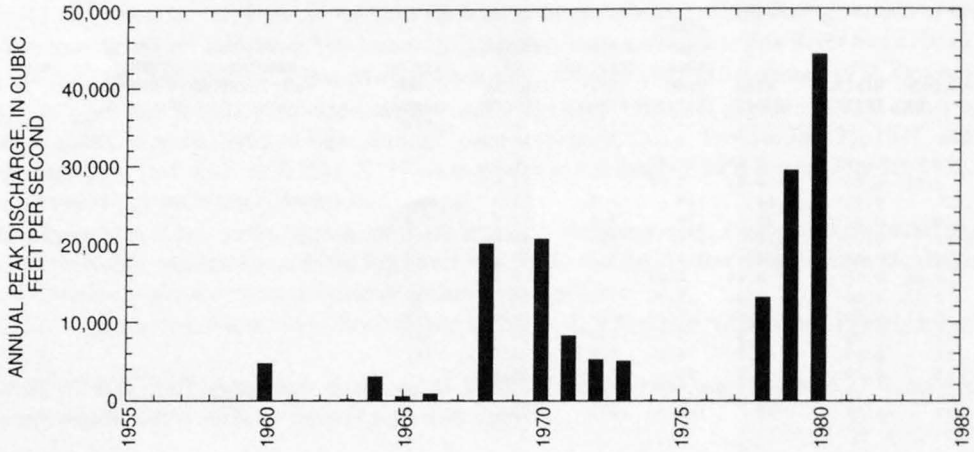
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	0.00	5,630	12,100	23,400	32,900	44,100
3	0.00	2,820	6,890	15,400	23,500	34,000
7	0.00	1,460	3,970	10,100	16,400	25,500
15	0.00	698	2,030	5,600	9,700	16,000
30	0.00	367	1,070	2,970	5,130	8,500
60	0.00	206	620	1,730	3,000	4,930
90	0.00	138	412	1,150	1,990	3,260

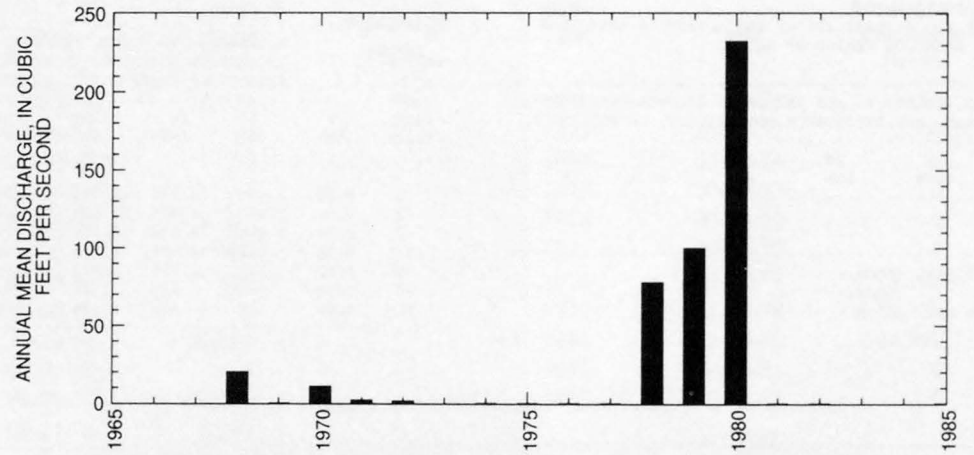
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-72, 1974-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
98	4.6	4.4	4.1	3.9	3.4	2.9	2.4	1.9	1.5	0.97	0.49	0.24	0.10	0.05	0.02	0.00

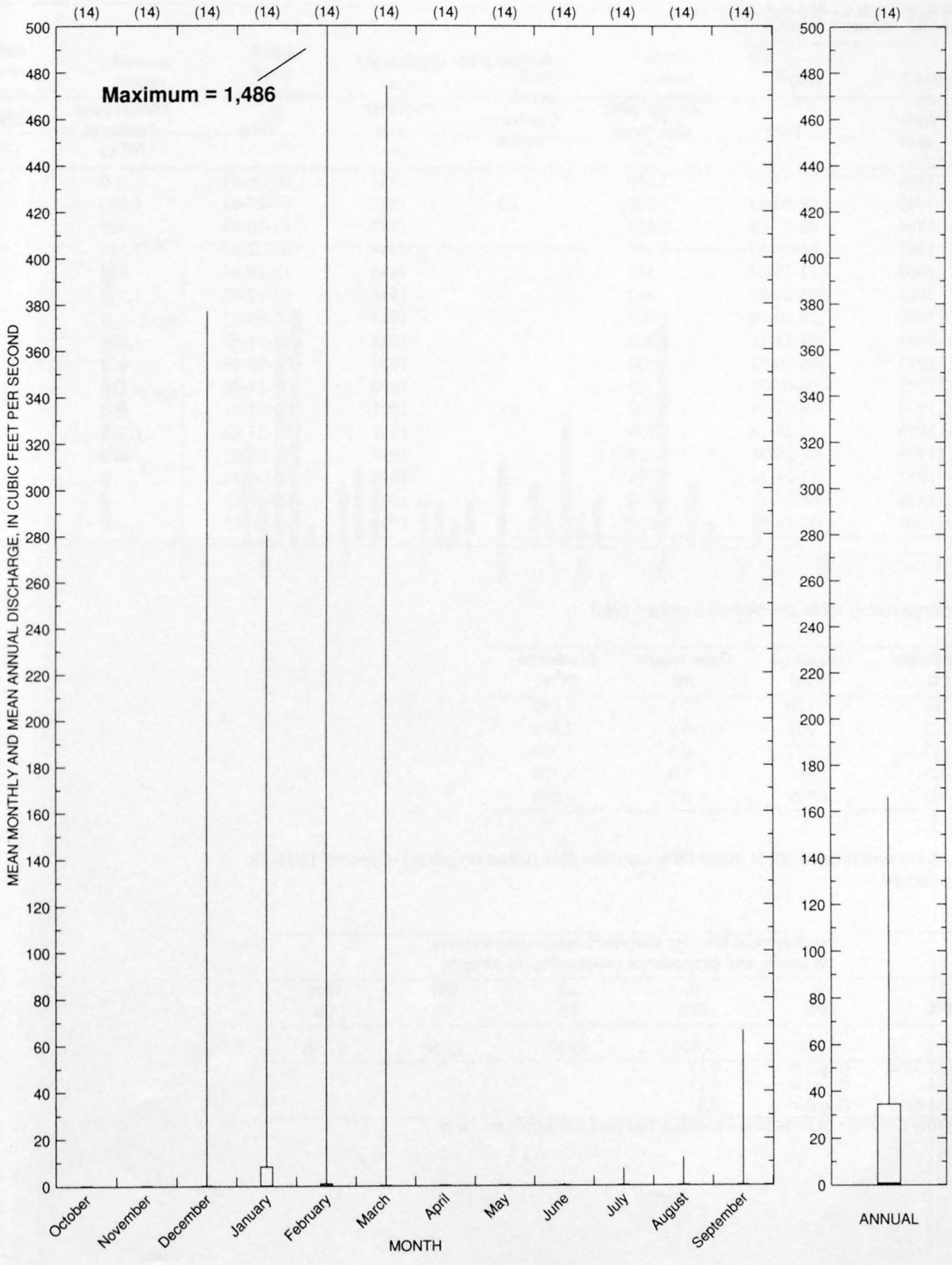
Reliability of values in column is uncertain, and potential errors are large.

09513970 AGUA FRIA RIVER AT AVONDALE, AZ--Continued





09513970 AGUA FRIA RIVER AT AVONDALE, AZ--Continued



09514200 WATERMAN WASH NEAR BUCKEYE, AZ

LOCATION.--Lat 33°19'49", long 112°30'33", in SW$^1/_4$NE$^1/_4$ sec.24, T.1 S., R.3 W., Maricopa County, Hydrologic Unit 15070101, 2.4 mi above mouth, 5.2 mi southeast of Buckeye.
DRAINAGE AREA.--420 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	09-13-64	2,680		1981	00-00-81	0	
1965	08-00-65	1,200	ES	1982	09-27-82	1,660	
1966	09-13-66	5,560		1983	12-10-82	985	
1967	09-03-67	6,300		1984	09-02-84	3,520	
1968	12-15-67	560		1985	12-28-84	950	
1969	08-29-69	400		1986	07-22-86	1,500	
1970	08-09-70	1,600		1987	00-00-87	0	
1971	08-11-71	2,080		1988	12-17-87	1,430	
1972	08-00-72	2,000		1989	00-00-89	402	
1973	00-00-73	0		1990	08-14-90	6,310	
1974	09-03-74	100	ES	1991	09-05-91	413	
1975	10-28-74	1,200		1992	09-23-92	1,770	
1976	09-26-76	1,180		1993	01-08-93	670	
1977	10-23-76	740		1994	00-00-94	0	
1978	08-04-78	1,150		1995	00-00-95	0	
1980	02-15-80	2,220		1996	11-06-95	1,470	

Discharge rating table developed October 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	120	5.5	2,040
3.5	300	6.0	2,880
4.0	572	6.5	3,900
4.5	943	7.0	5,100
5.0	1,420	7.5	6,600

Magnitude and probability of instantaneous peak flow based on period of record 1964-78, 1980-96

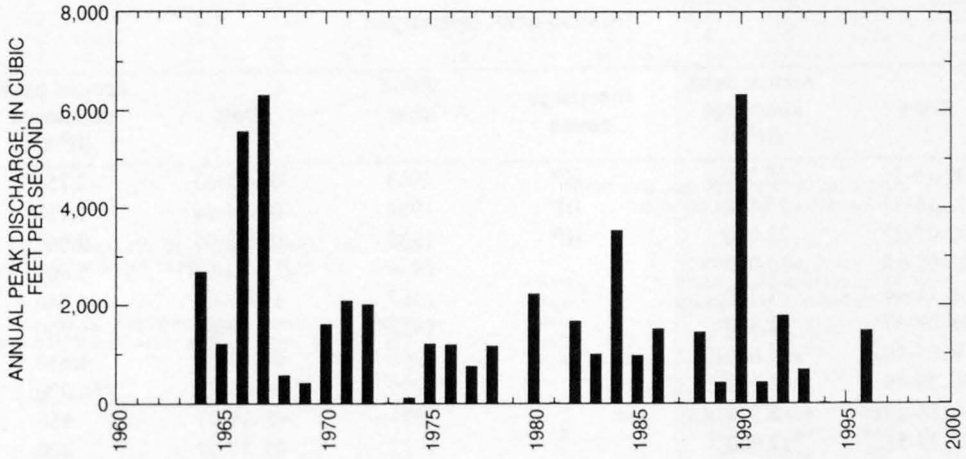
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
1,250	2,390	3,420	5,090	6,630	8,470
Weighted skew	(logs) =	0.28			
Mean	(logs) =	3.11			
Standard dev.	(logs) =	0.32			

† Reliability of values in column is uncertain, and potential errors are large.

09514200 WATERMAN WASH NEAR BUCKEYE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
21.2	37.7	1,570	0.0	2.5	9.2	1.7	3.8



09515500 HASSAYAMPA RIVER AT BOX DAMSITE, NEAR WICKENBURG, AZ

LOCATION.--Lat 34°02'42", long 112°42'33", in SW$^1/_4$SE$^1/_4$ sec.7, T.8 N., R.4 W., Yavapai County, Hydrologic Unit 15070103, on right bank at Box damsite, 5.5 mi northeast of Wickenburg.

DRAINAGE AREA.--417 mi^2.

PERIOD OF RECORD.--January to June 1938, May 1946 to September 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 2,236.12 ft above sea level. January to June 1938 at site 1 mi downstream at datum 23.76 ft lower. May 1, 1946, to Nov. 17, 1949, at present site at datum 2.16 ft higher.

REMARKS.--Records poor. Small diversions for irrigation and mining above station.

AVERAGE DISCHARGE.--36 years (water years 1947-82), 24.4 ft^3/s, 17,680 acre-ft/yr; median of yearly mean discharges, 8.5 ft^3/s, 6,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 ft^3/s Sept. 5, 1970, gage height, 34.6 ft, from profile past gage, by slope-area measurement of peak flow; no flow for many days in 1964 and 1965.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1925	09-19-25	25,500	HP	1963	08-17-63	2,150	
1927	02-16-27	27,100	HP	1964	07-14-64	1,230	
1937	02-07-37	22,000	HP	1965	09-02-65	9,060	
1938	03-03-38	10,000		1966	12-10-65	5,560	
1946	08-11-46	1,710		1967	12-07-66	1,740	
1947	08-08-47	2,300		1968	12-19-67	11,200	
1948	08-05-48	5,600		1969	09-13-69	4,630	
1949	09-26-49	2,910		1970	09-05-70	[2]58,000	
1950	10-18-49	5,500		1971	08-25-71	556	
1951	08-29-51	[1]27,000		1972	08-27-72	800	
1952	12-30-51	1,590		1973	10-07-72	2,600	
1953	07-18-53	865		1974	07-20-74	5,560	
1954	03-23-54	3,090		1975	07-28-75	154	
1955	07-23-55	8,840		1976	02-09-76	4,560	
1956	08-18-56	1,210		1977	08-15-77	315	
1957	08-10-57	1,980		1978	03-02-78	16,000	
1958	09-05-58	10,600		1979	03-28-79	9,640	
1959	08-24-59	5,110		1980	02-19-80	24,900	
1960	12-26-59	3,210		1981	07-10-81	698	
1961	08-19-61	1,150		1982	03-15-82	2,940	
1962	09-21-62	1,510					

[1]Highest since 1927.

[2]Highest since 1890.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
71.0	45.0	4,750	9.6	1.0	19.3	2.4	4.7

09515500 HASSAYAMPA RIVER AT BOX DAMSITE, NEAR WICKENBURG, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1947-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	50	0.25	4.0	9.4	2.3	1.4
NOVEMBER	104	0.21	7.2	20	2.7	2.4
DECEMBER	298	0.22	20	56	2.7	7.0
JANUARY	365	0.41	28	74	2.6	9.5
FEBRUARY	1,280	0.26	63	214	3.4	21.5
MARCH	1,170	0.44	84	211	2.5	28.5
APRIL	247	0.34	34	68	2.0	11.5
MAY	77	0.03	8.1	16	2.0	2.7
JUNE	27	0.00	3.5	5.8	1.7	1.2
JULY	42	0.19	5.9	8.1	1.4	2.0
AUGUST	372	0.33	22	62	2.8	7.5
SEPTEMBER	178	0.71	14	34	2.4	4.9
ANNUAL	169	1.2	24	39	1.6	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1948-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50	100#
	50%	20%	10%	5%	2%	1%
1	0.63	0.28	0.16	0.08	0.00	0.00
3	0.69	0.32	0.19	0.10	0.00	0.00
7	0.76	0.36	0.21	0.11	0.00	0.00
14	0.88	0.42	0.25	0.13	0.00	0.00
30	1.1	0.55	0.35	0.20	0.00	0.00
60	1.3	0.76	0.52	0.33	0.00	0.00
90	1.6	0.81	0.48	0.29	0.15	0.09
120	1.8	0.97	0.67	0.49	0.32	0.25
183	2.5	1.4	1.0	0.84	0.67	0.58

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1925, 1927, 1937-38, 1946-82

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100#
50%	20%	10%	4%	2%	1%
3,180	8,480	13,900	23,300	32,300	43,000

WEIGHTED SKEW (LOGS)= -0.16
MEAN (LOGS)= 3.49
STANDARD DEV. (LOGS)= 0.52

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1947-82

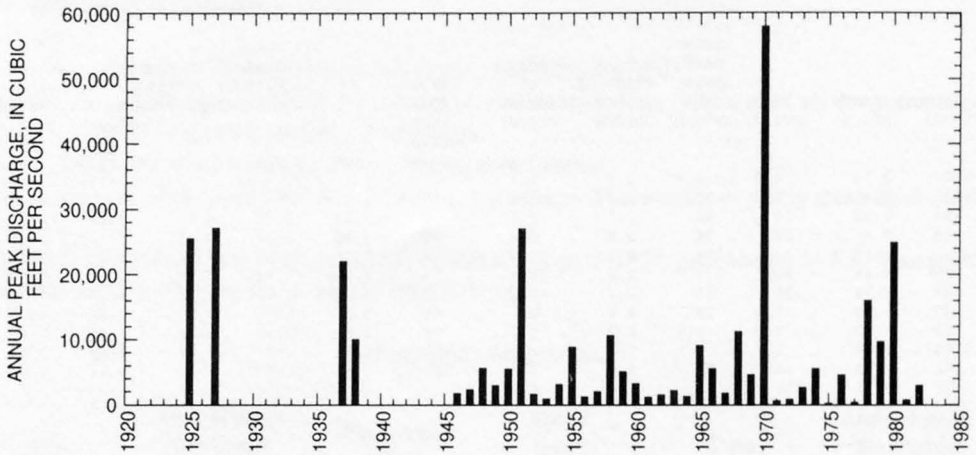
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50	100#
	50%	20%	10%	4%	2%	1%
1	598	2,010	3,680	6,880	10,200	14,400
3	271	975	1,900	3,850	6,070	9,130
7	142	540	1,090	2,330	3,810	5,940
15	83	335	704	1,580	2,680	4,320
30	52	208	441	1,010	1,740	2,860
60	32	124	262	602	1,050	1,740
90	24	93	199	462	808	1,350

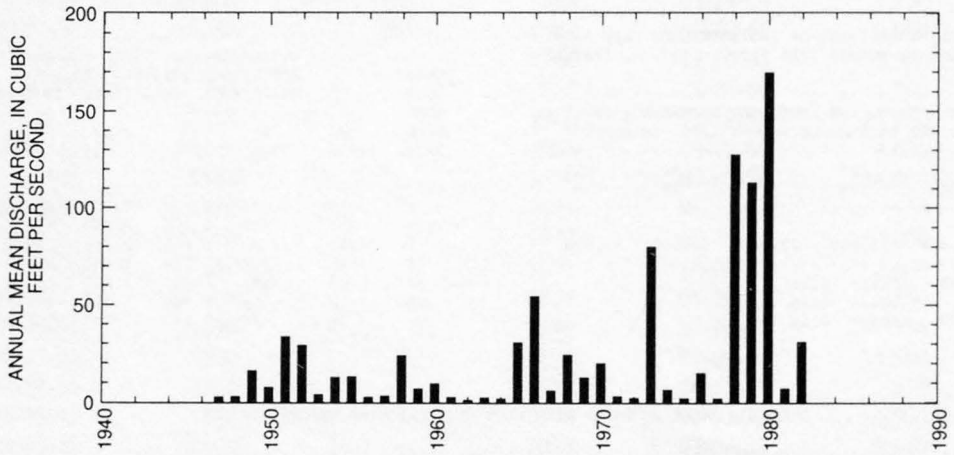
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1947-82

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
404	83	27	12	5.6	3.1	2.3	1.9	1.7	1.5	1.2	0.67	0.41	0.24	0.12	0.00	0.00

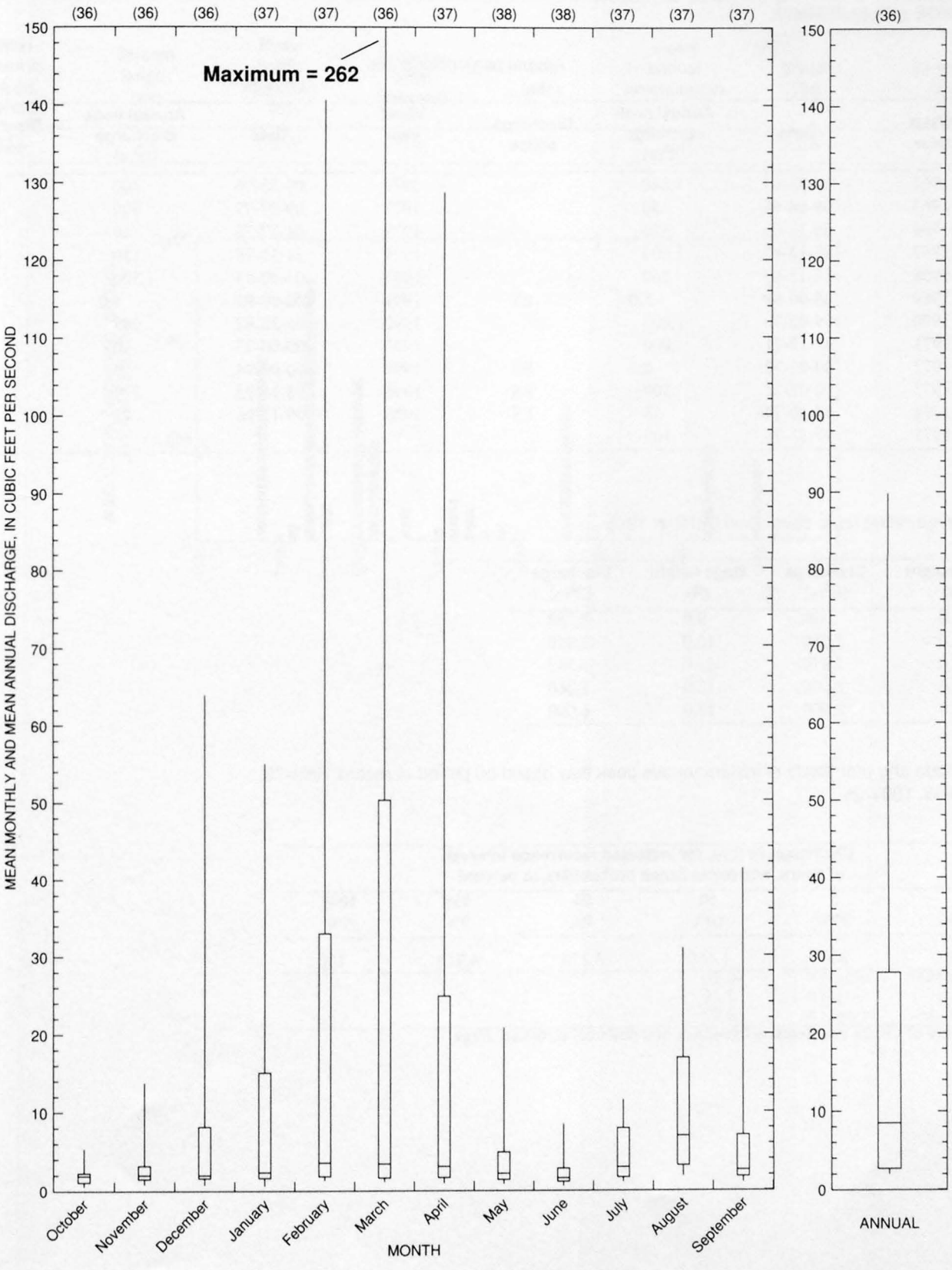
Reliability of values in column is uncertain, and potential errors are large.

09515500 HASSAYAMPA RIVER AT BOX DAMSITE, NEAR WICKENBURG, AZ--Continued





09515500 HASSAYAMPA RIVER AT BOX DAMSITE, NEAR WICKENBURG, AZ--Continued



09515800 HARTMAN WASH NEAR WICKENBURG, AZ

LOCATION.--Lat 33°57'46", long 112°49'40", in SE$^1/_4$ sec.12, T.7 N., R.6 W., Maricopa County, Hydrologic Unit 15070103, at U.S. Highway 60, 5.7 mi west of Wickenburg.
DRAINAGE AREA.--5.57 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-23-64	1,840		1976	09-25-76	400	ES
1965	09-04-65	50		1977	09-27-77	320	ES
1966	09-13-66	150		1978	01-17-78	60	ES
1967	08-14-67	2,600		1979	11-11-78	150	ES
1968	12-19-67	360		1983	03-00-83	1,300	
1969	08-00-69	5.0	ES	1991	00-00-91	4.0	
1970	09-05-70	1,600		1992	05-28-92	943	
1971	08-19-71	1,000		1993	00-00-93	0	
1972	09-03-72	0.5	ES	1994	00-00-94	0	
1973	10-07-72	300	ES	1995	08-14-95	779	
1974	07-30-74	35	ES	1996	09-11-96	45	
1975	07-13-75	100					

Discharge rating table developed October 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	599	9.0	3,190
5.0	1,050	10.0	3,850
6.0	1,510	11.0	4,540
7.0	2,040	12.0	5,260
8.0	2,600	13.0	6,000

Magnitude and probability of instantaneous peak flow based on period of record 1964-79, 1983, 1991-96

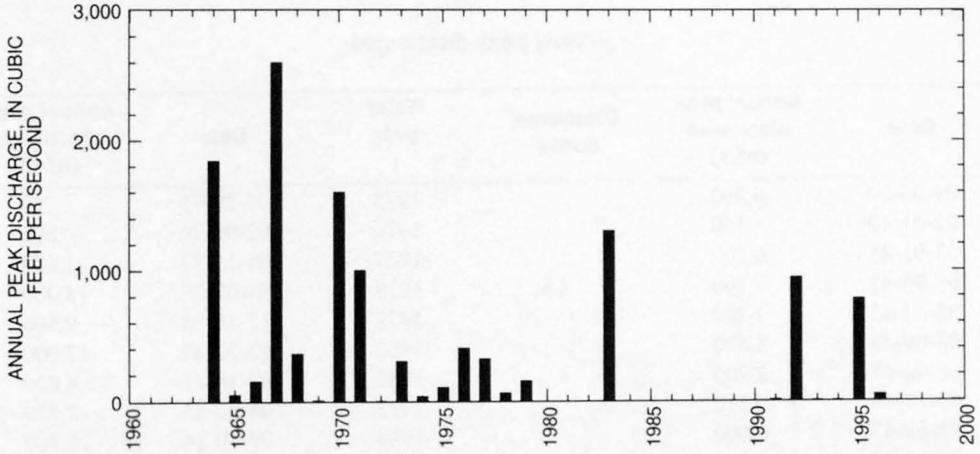
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
239	869	1,660	3,230	4,910	7,100
Weighted skew	(logs) =	-0.20			
Mean	(logs) =	2.36			
Standard dev.	(logs) =	0.69			

† Reliability of values in column is uncertain, and potential errors are large.

09515800 HARTMAN WASH NEAR WICKENBURG, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
71.6	5.4	2,690	0.0	3.0	11.0	1.6	3.8



09516500 HASSAYAMPA RIVER NEAR MORRISTOWN, AZ

LOCATION.--Lat 33°53'06", long 112°39'41", in SW$^1/_4$SE$^1/_4$ sec.3, T.6 N., R.4 W., Maricopa County, Hydrologic Unit 15070103, on left bank 600 ft downstream from mouth of San Domingo Wash, 3.0 mi northwest of Morristown, and 7 mi southeast of Wickenburg.

DRAINAGE AREA.--796 mi^2.

PERIOD OF RECORD.--October 1938 to June 1947 (continuous-record), water years 1954, 1956, 1964-81 (annual maximums only), October 1981 to September 1991 (discharge above 500 ft3/s only), October 1991 to current year (continuous-record).

REVISED RECORDS.--WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,831.16 ft above sea level. Crest-stage gage at same site and datum water years 1954, 1956, and 1964-81.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,500 ft^3/s Sept. 5, 1970, gage height, 19.0 ft, from high-water profile past gage and on basis of slope-area measurement of peak flow; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1939	09-06-39	6,200		1975	07-29-75	50	LT
1940	02-01-40	160		1976	02-09-76	800	
1941	03-02-41	6,100		1977	08-15-77	1,600	ES
1942	08-05-42	100	ES	1978	03-02-78	18,000	
1943	08-03-43	7,700		1979	12-18-78	9,600	
1944	08-09-44	3,520		1980	02-20-80	17,000	
1945	08-02-45	2,200		1981	07-10-81	4,800	
1946	09-17-46	2,310		1983	03-03-83	2,520	
1947	08-08-47	6,000		1984	09-10-84	26,700	
1954	00-00-54	0		1985	12-28-84	848	
1956	00-00-56	0		1986	11-26-85	2,740	
1964	07-12-64	4,000	ES	1987	11-18-86	714	
1965	09-02-65	9,280		1988	08-27-88	6,820	
1966	09-13-66	3,210		1989	01-04-89	1,210	
1967	09-00-67	1,150		1990	09-05-90	6,280	
1968	12-19-67	4,800		1991	03-02-91	13,700	
1969	09-13-69	650		1992	02-13-92	3,380	
1970	09-05-70	[1]47,500		1993	01-08-93	26,300	
1971	08-18-71	2,000		1994	08-19-94	25	
1972	08-27-72	700		1995	02-15-95	20,000	
1973	10-07-72	2,000		1996	07-26-96	1,970	
1974	07-20-74	650	ES				

[1]Highest since 1916.

Discharge rating table developed February 1995

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
9.0	1,180	15.0	20,960
10.0	2,730	16.0	26,750
11.0	4,980	17.0	33,290
12.0	7,900	18.0	40,560
13.0	11,540	19.0	48,580
14.0	15,890	19.4	52,000

09516500 HASSAYAMPA RIVER NEAR MORRISTOWN, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
84.9	58.4	3,190	5.2	1.72	16.9	2.2	4.3

09516500 HASSAYAMPA RIVER NEAR MORRISTOWN, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1939-46, 1992-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	13	0.00	2.0	4.2	2.1	0.4
NOVEMBER	1.9	0.00	0.70	0.59	0.84	0.2
DECEMBER	28	0.00	5.3	9.5	1.8	1.2
JANUARY	1,080	0.00	91	299	3.3	20.4
FEBRUARY	1,290	0.00	163	370	2.3	36.7
MARCH	445	0.00	107	160	1.5	24.1
APRIL	424	0.00	52	115	2.2	11.7
MAY	44	0.00	6.1	12	2.0	1.4
JUNE	1.6	0.00	0.33	0.63	1.9	0.1
JULY	10	0.00	1.5	3.2	2.1	0.3
AUGUST	39	0.00	8.5	11	1.3	1.9
SEPTEMBER	71	0.00	7.4	19	2.6	1.7
ANNUAL	220	0.22	36	64	1.8	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-47, 1993-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	20#	50#	100#
	50%	20%	10%	5%	2%	1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.19	0.00	0.00	0.00	0.00	0.00
183	0.62	0.13	0.05	0.02	0.01	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1939-47, 1964-81, 1983-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
3,030	8,540	14,300	24,400	34,000	45,600

WEIGHTED SKEW (LOGS)= -0.22
MEAN (LOGS)= 3.46
STANDARD DEV. (LOGS)= 0.55

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-46, 1992-96

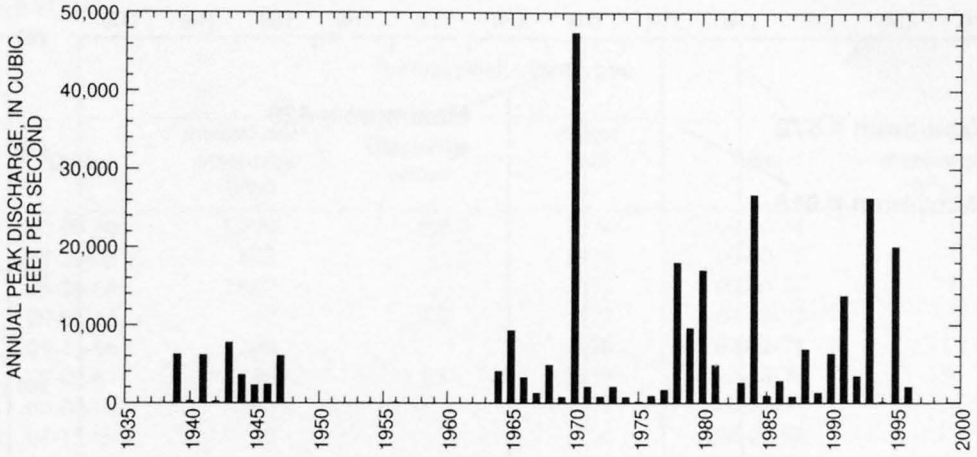
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10#	25#	50#	100#
	50%	20%	10%	4%	2%	1%
1	380	2,290	5,520	13,600	23,700	38,600
3	211	1,220	2,850	6,700	11,300	17,800
7	116	688	1,650	4,060	7,120	11,600
15	72	434	1,090	2,840	5,220	8,980
30	50	309	784	2,090	3,890	6,780
60	35	220	577	1,620	3,170	5,790
90	26	155	401	1,120	2,180	3,990

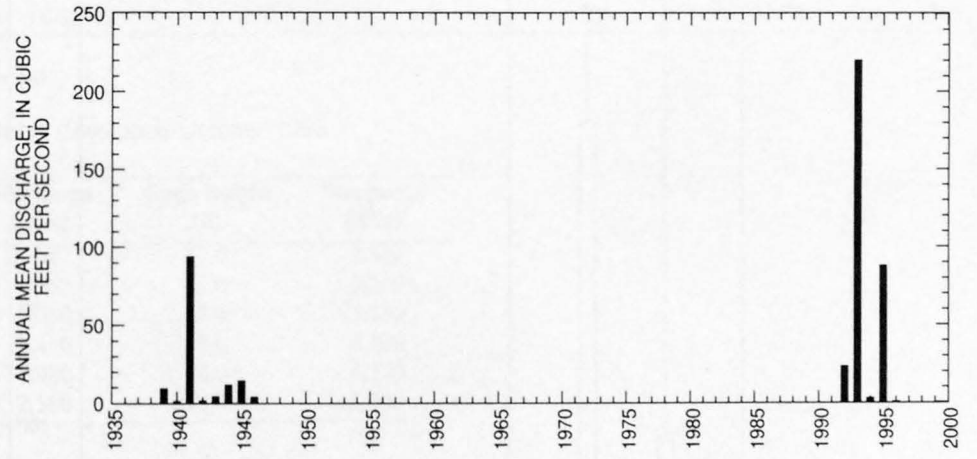
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-46, 1992-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
815	135	29	8.0	3.0	1.6	1.1	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

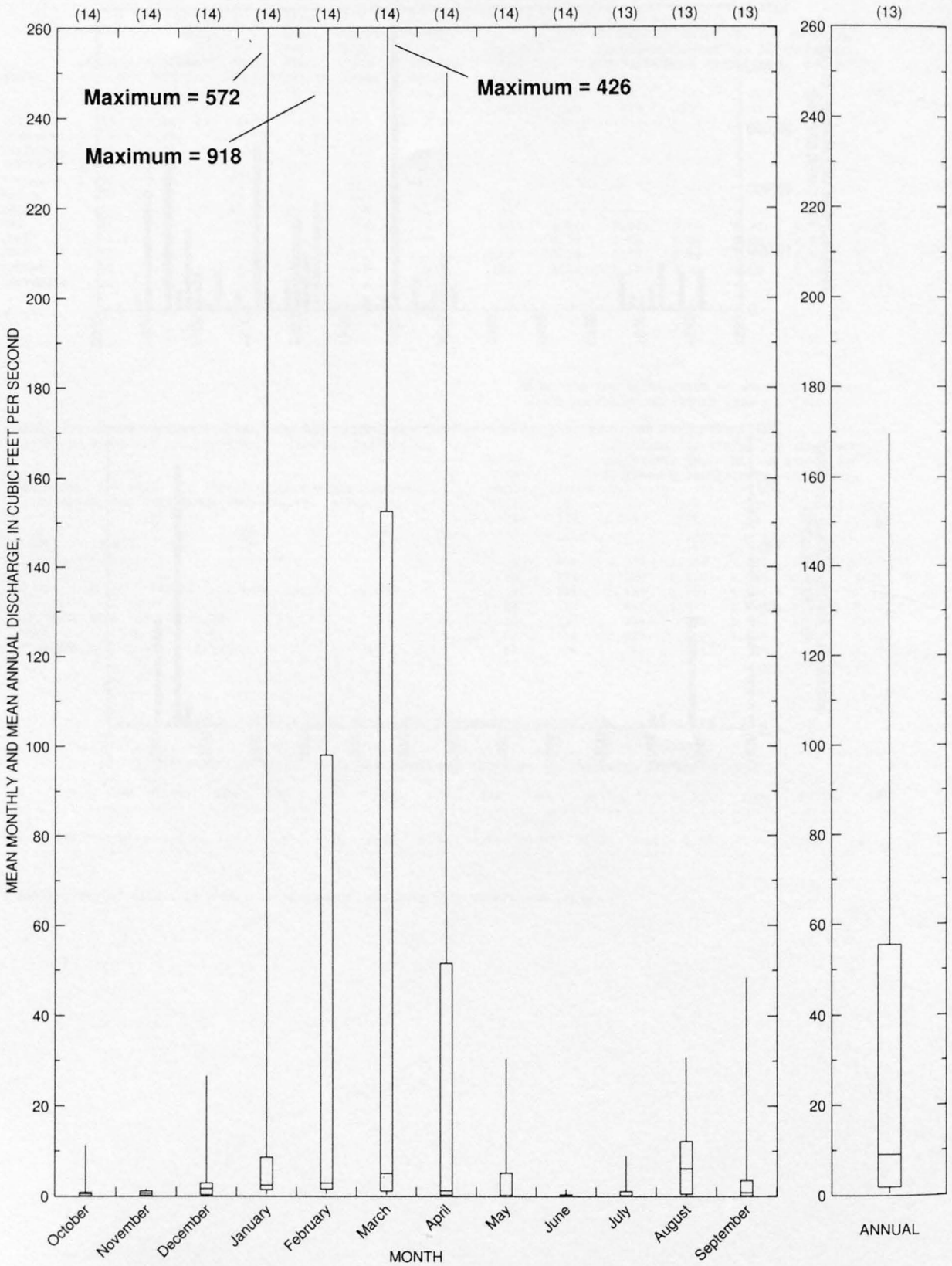
Reliability of values in column is uncertain, and potential errors are large.

09516500 HASSAYAMPA RIVER NEAR MORRISTOWN, AZ--Continued





09516500 HASSAYAMPA RIVER NEAR MORRISTOWN, AZ--Continued



09516600 OX WASH NEAR MORRISTOWN, AZ

LOCATION.--Lat 33°53'00", long 112°39'00", in NW$^1/_4$ sec.11, T.6 N., R.4 W., Maricopa County, Hydrologic Unit 15070103, at U.S. Highway 60, 2.4 mi northwest of Morristown.
DRAINAGE AREA.--6.31 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1960	00-00-60	1,770	HP	1974	00-00-74	0	
1963	08-26-63	628		1975	00-00-75	0	
1964	08-26-64	2,900		1976	00-00-76	0	
1965	09-02-65	50	ES	1977	00-00-77	0	
1966	09-13-66	1,300		1978	02-22-78	335	
1967	09-00-67	80	ES	1979	12-18-78	150	ES
1968	00-00-68	550		1991	00-00-91	4.0	
1969	01-15-69	30		1992	08-23-92	783	
1970	09-05-70	160		1993	01-08-93	661	
1971	08-20-71	250		1994	08-27-94	302	
1972	09-00-72	450		1995	08-14-95	388	
1973	10-00-72	220		1996	00-00-96	369	

Discharge rating table developed October 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	687	10.0	2,810
5.0	963	11.0	3,260
6.0	1,270	12.0	3,730
7.0	1,610	13.0	4,220
8.0	1,980	14.0	4,740
9.0	2,380	14.5	5,000

Magnitude and probability of instantaneous peak flow based on period of record 1960, 1963-79, 1991-96

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
209	647	1,120	1,960	2,760	3,720

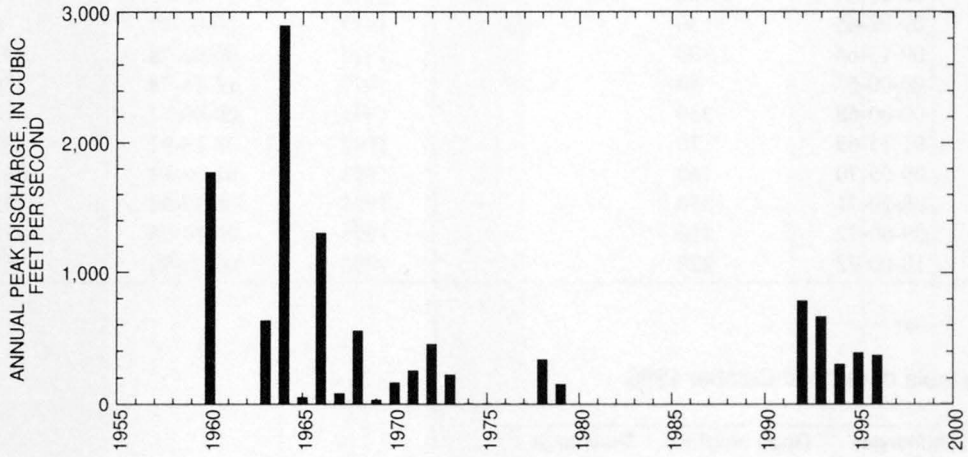
Weighted skew (logs) = -0.32
Mean (logs) = 2.29
Standard dev. (logs) = 0.61

† Reliability of values in column is uncertain, and potential errors are large.

09516600 OX WASH NEAR MORRISTOWN, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
101	6.6	2,290	0.0	3.0	12.2	1.8	3.8



09516800 JACK RABBIT WASH NEAR TONOPAH, AZ

LOCATION.--Lat 33°39'32", long 112°49'40", in NE$^1/_4$NW$^1/_4$ sec.25, T.4 N., R.6 W., Maricopa County, Hydrologic Unit 15070103, 100 ft upstream from the Wickenburg-Hassayampa Road, 4.5 mi upstream from Star Wash, and 14 mi northeast of Tonopah.
DRAINAGE AREA.--137 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	08-26-64	2,070		1976	09-25-76	2,200	
1965	04-04-65	200	ES	1977	08-16-77	80	
1966	09-13-66	200	ES	1978	10-06-77	650	
1967	09-03-67	6,040		1979	01-18-79	1,510	ES
1968	12-19-67	105		1983	09-00-83	13,000	
1969	09-13-69	200	ES	1991	08-26-91	2,250	
1970	09-05-70	5,000	ES	1992	08-23-92	2,960	
1971	08-17-71	2,500	ES	1993	02-08-93	2,670	
1972	09-18-72	100	ES	1994	10-06-93	191	
1973	10-07-72	6,840		1995	12-23-94	612	
1974	07-07-74	75		1996	09-10-96	3,000	
1975	03-11-75	6	ES				

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
8.0	191	10.5	7,680
8.5	677	11.0	11,100
9.0	1,580	11.5	15,320
9.5	3,000	12.0	20,410
10.0	5,010	12.2	22,700

Magnitude and probability of instantaneous peak flow based on period of record 1964-79, 1983, 1991-96

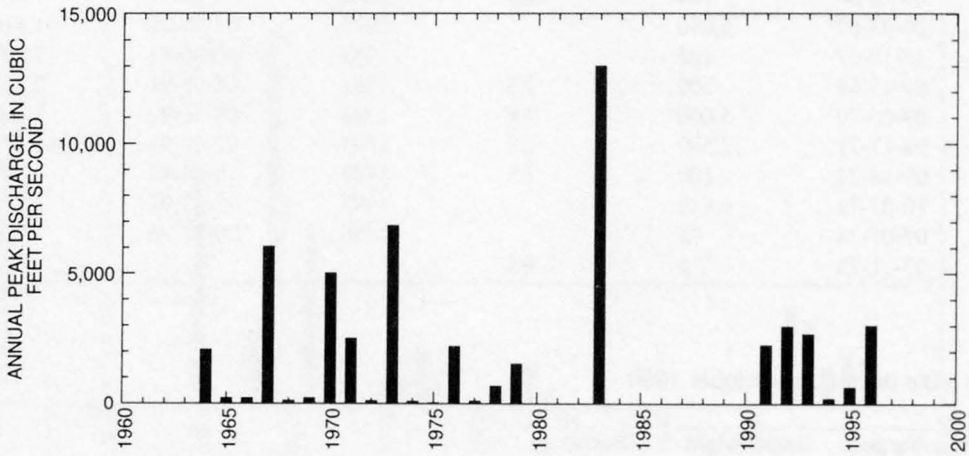
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
847	3,400	6,860	14,200	22,600	33,900
Weighted skew	(logs) =	-0.16			
Mean	(logs) =	2.91			
Standard dev.	(logs) =	0.73			

† Reliability of values in column is uncertain, and potential errors are large.

09516800 JACK RABBIT WASH NEAR TONOPAH, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
34.4	22.5	2,260	0.0	2.5	9.2	1.5	3.7



09517000 HASSAYAMPA RIVER NEAR ARLINGTON, AZ

LOCATION.--Lat 33°20'50", long 112°43'30", in NW$^1/_4$ sec.13, T.1 S., R.5 W., Maricopa County, Hydrologic Unit 15070103, at former U.S. Highway 80, 1.8 mi upstream from mouth and 2.8 mi northeast of Arlington.

DRAINAGE AREA.--1,471 mi^2.

PERIOD OF RECORD.--Water years 1961-77 (annual maximums only), October 1977 to September 1990 (discharge above 500 ft3/s only), October 1990 to current year.

REVISED RECORDS.--WDR AZ-81-1: 1969(M). WDR AZ-89-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 824.75 ft above sea level. Prior to Nov. 11, 1993 at datum 2.07 ft higher.

REMARKS.--Records include irrigation return flow past station. Small diversions above station for irrigation and livestock.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft^3/s Sept. 5, 1970, gage height, 8.40 ft, result of slope-area measurement of peak flow; no natural flow for most of time each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	09-11-61	50	ES	1978	03-02-78	20,000	
1962	09-06-62	470		1979	11-11-78	3,300	
1963	08-00-63	1,930		1980	02-20-80	11,200	
1964	08-14-64	6,500		1983	09-30-83	3,300	
1965	02-07-65	3,000		1984	09-02-84	2,850	
1966	12-10-65	1,600		1985	12-28-84	372	
1967	09-05-67	5,270		1986	11-26-85	2,610	
1968	12-20-67	4,000		1987	10-10-86	404	
1969	09-15-69	500	ES	1988	11-01-87	2,800	
1970	09-05-70	[1]39,000		1989	08-11-89	1,510	
1971	08-11-71	1,230		1990	08-14-90	2,120	
1972	08-12-72	225		1991	03-02-91	7,010	
1973	10-07-72	12,300		1992	08-22-92	6,110	
1974	09-00-74	250		1993	01-08-93	11,400	
1975	00-00-75	0		1994	02-02-94	129	
1976	09-26-76	13,000		1995	02-15-95	3,900	
1977	10-24-76	4,300		1996	07-15-96	1,730	

[1]Highest since 1916.

Discharge rating table developed December 1996

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	189	10.0	3,270
7.0	580	11.0	4,720
8.0	1,210	12.0	6,450
9.0	2,110	12.8	8,060

09517000 HASSAYAMPA RIVER NEAR ARLINGTON, AZ--Continued

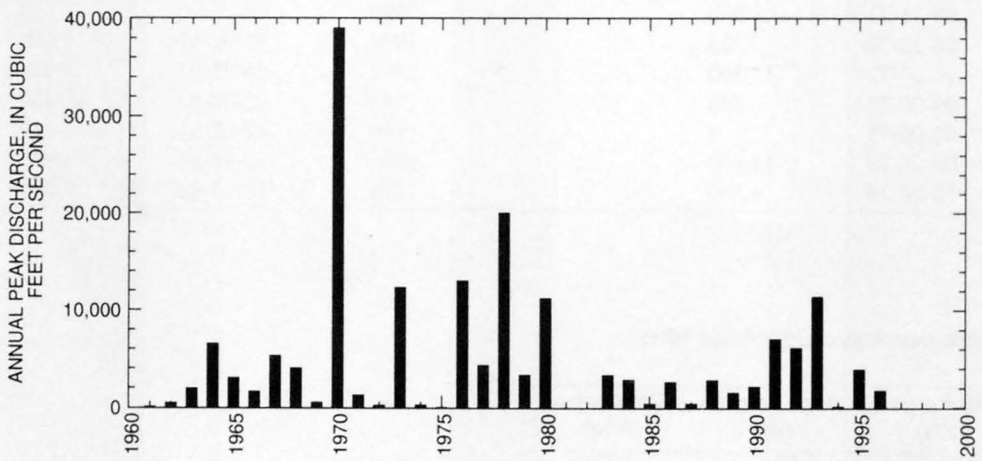
Magnitude and probability of instantaneous peak flow based on period of record 1961-80, 1983-96

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2 50%	5 20%	10 10%	25 4%	50† 2%	100† 1%
3,010	7,340	12,000	20,500	29,200	40,500
Weighted skew	(logs) =	0.22			
Mean	(logs) =	3.50			
Standard dev.	(logs) =	0.45			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
39.9	93.6	3,010	2.7	2.0	15.9	1.9	4.0



09517200 CENTENNIAL WASH TRIBUTARY NEAR WENDEN, AZ

LOCATION.--Lat 33°50'40", long 113°27'00", in $SW^1/_4SW^1/_4$ sec.24, T.6 N., R.12 W., Yuma County, Hydrologic Unit 15070104, at U.S. Highway 60, 5 mi northeast of Wenden.

DRAINAGE AREA.--2.79 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	394		1975	07-29-75	275	
1964	08-02-64	30	ES	1976	09-25-76	220	
1965	02-07-65	25	ES	1977	00-00-77	0	
1966	12-10-65	30	ES	1978	02-13-78	260	
1967	09-02-67	90		1979	05-21-79	90	
1968	00-00-68	320		1983	09-00-83	435	
1969	09-16-69	190		1991	08-12-91	169	
1970	09-05-70	720		1992	08-23-92	63	
1971	08-20-71	170		1993	02-08-93	15	
1972	10-00-71	90		1994	10-06-93	20	
1973	02-11-73	75		1995	00-00-95	0	
1974	07-00-74	330	ES	1996	09-10-96	450	

Discharge rating table developed October 1972

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.8	163	4.2	464
3.0	201	4.4	513
3.2	241	4.6	563
3.4	282	4.8	614
3.6	325	5.0	667
3.8	370	5.2	720
4.0	416	5.5	800

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

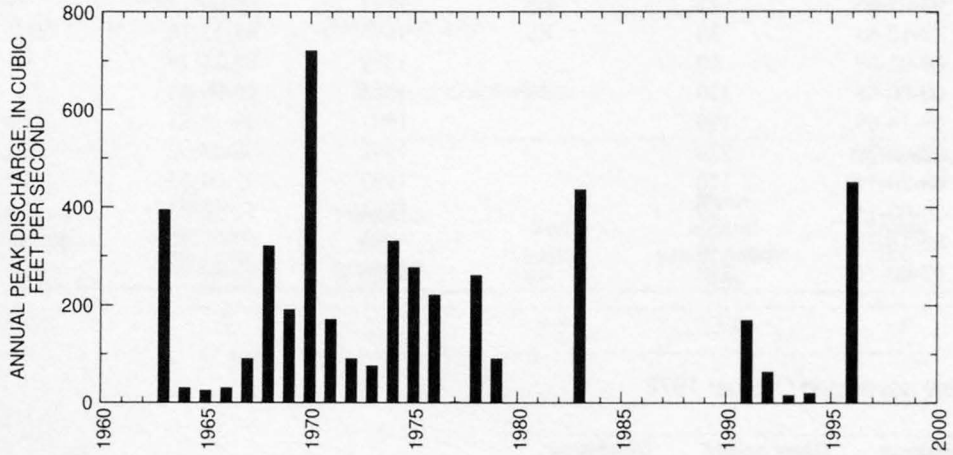
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
135	303	451	676	868	1,080
Weighted skew	(logs) =	-0.29			
Mean	(logs) =	2.11			
Standard dev.	(logs) =	0.44			

† Reliability of values in column is uncertain, and potential errors are large.

09517200 CENTENNIAL WASH TRIBUTARY NEAR WENDEN, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
193	5.4	2,480	0.0	1.0	8.0	1.6	3.7



09517280 TIGER WASH NEAR AGUILA, AZ

LOCATION.--Lat 33°44'30", long 113°16'43", in $SW^1/_4SW^1/_4$ sec.26, T.5 N., R.10 W., Maricopa County, Hydrologic Unit 15070104, 17 mi south of Aguila.

DRAINAGE AREA.--85.2 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-16-63	910	ES	1975	07-30-75	100	ES
1964	10-19-63	400	ES	1976	09-25-76	3,000	
1965	08-18-65	1,680		1977	08-16-77	870	
1966	09-13-66	1,450		1978	03-01-78	1,400	
1967	08-14-67	620		1979	12-18-78	60	ES
1968	12-19-67	440		1983	09-00-83	3,170	
1969	09-14-69	441		1991	09-04-91	1	
1970	08-20-70	4,550		1992	03-03-92	906	
1971	08-20-71	2,000		1993	01-08-93	1,040	
1972	08-00-72	2,770		1994	07-18-94	3,640	
1973	10-06-72	1,750		1995	02-15-95	185	
1974	08-03-74	45	ES	1996	00-00-96	0	

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	133	8.5	2,070
6.5	345	9.0	2,700
7.0	650	9.5	3,410
7.5	1,040	10.0	4,210
8.0	1,520	10.2	4,550

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

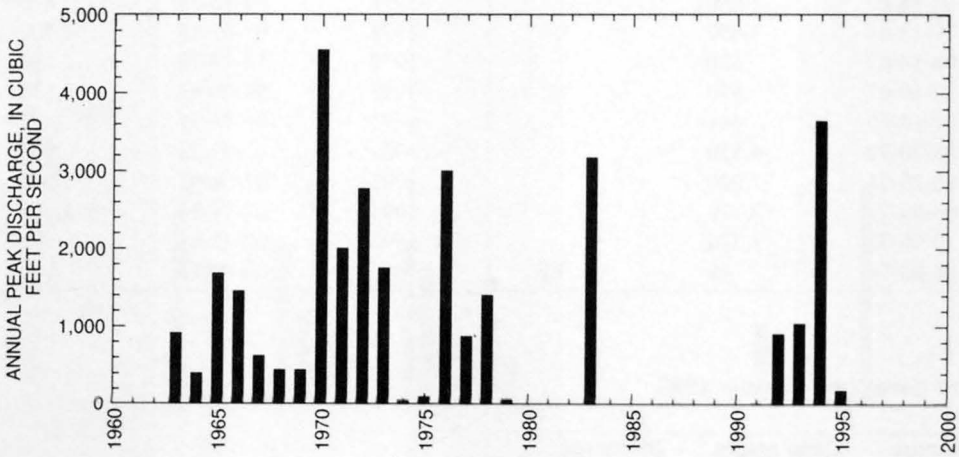
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
961	2,140	3,160	4,670	5,950	7,340
Weighted skew	(logs) =	-0.33			
Mean	(logs) =	2.96			
Standard dev.	(logs) =	0.43			

† Reliability of values in column is uncertain, and potential errors are large.

09517280 TIGER WASH NEAR AGUILA, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
35.2	15.0	2,590	0.0	1.0	9.6	1.5	3.6



09517400 WINTERS WASH NEAR TONOPAH, AZ

LOCATION.--Lat 33°29'22", long 112°55'05", in $SW^1/_4NW^1/_4$ sec.30, T.2 N., R.6 W., Maricopa County, Hydrologic Unit 15070104, 0.3 mi downstream from Airline Road, and 1 mi east of Tonopah.

DRAINAGE AREA.--47.8 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	09-05-62	776		1971	08-20-71	1,000	
1963	09-03-63	100	ES	1972	08-12-72	795	
1964	08-00-64	850		1973	10-06-72	2,100	
1965	02-07-65	810		1974	03-20-74	900	
1966	12-10-65	390		1975	10-28-74	560	
1967	09-03-67	900		1976	09-25-76	3,640	
1968	12-19-67	1,350		1977	08-16-77	60	ES
1969	11-15-68	960		1978	03-02-78	1,800	
1970	09-05-70	480		1979	12-18-78	2,100	

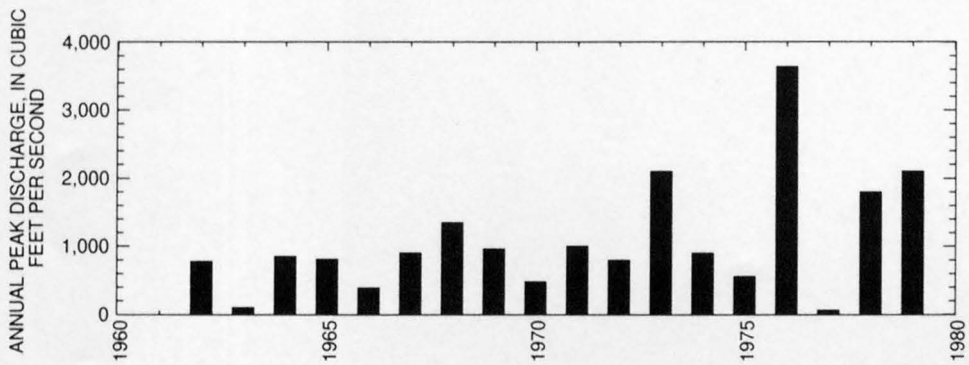
Magnitude and probability of instantaneous peak flow based on period of record 1962-79

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
857	1,540	2,120	2,980	3,720	4,560
Weighted skew	(logs) =	0.11			
Mean	(logs) =	2.94			
Standard dev.	(logs) =	0.30			

†Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
83.7	18.0	1,630	0.0	1.0	9.1	1.5	3.6



09517500 CENTENNIAL WASH NEAR ARLINGTON, AZ

LOCATION.--Lat 33°16'12", long 112°47'50", in sec.7, T.2 S., R.5 W., Maricopa County, Hydrologic Unit 15070104, on upstream side of ford on former U.S. Highway 80, 3.0 mi upstream from Gillespie Dam and 4.4 mi southwest of Arlington.

DRAINAGE AREA.--1,810 mi^2, approximately.

PERIOD OF RECORD.--January 1961 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 773.22 ft above sea level.

REMARKS.--Flow regulated by several small retention dams in upper end of basin. Records do not include irrigation return flow past station.

AVERAGE DISCHARGE.--18 years, 3.73 ft^3/s, 2,700 acre-ft/yr; median of yearly mean discharges, 1.9 ft^3/s, 1,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum dsicharge, 14,500 ft^3/s July 23, 1961, gage height, 4.70 ft, from rating curve extended above 5,500 ft^3/s; maximum gage height, 4.71 ft Sept. 5, 1970; no flow for most of time each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1961	07-23-61	14,500		1971	08-20-71	2,040	
1962	09-06-62	1,100		1972	00-00-72	0	
1963	00-00-63	0		1973	10-07-72	9,340	
1964	07-31-64	2,890		1974	08-04-74	105	
1965	02-07-65	1,040		1975	10-28-74	755	
1966	09-13-66	5,500		1976	09-26-76	7,800	
1967	09-05-67	1,040		1977	00-00-77	0	
1968	12-19-67	5,330		1978	03-02-78	10,900	
1969	08-29-69	990		1979	01-17-79	818	
1970	09-05-70	11,900					

09517500 CENTENNIAL WASH NEAR ARLINGTON, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1961-79

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	121	0.00	6.6	28	4.2	13.5
NOVEMBER	0.00	0.00	0.00	0.00	---	0.00
DECEMBER	55	0.00	3.0	13	4.2	6.2
JANUARY	6.6	0.00	0.69	2.1	3.0	1.4
FEBRUARY	19	0.00	1.3	4.5	3.3	2.8
MARCH	115	0.00	6.1	26	4.4	12.4
APRIL	0.00	0.00	0.00	0.00	---	0.00
MAY	0.00	0.00	0.00	0.00	---	0.00
JUNE	0.00	0.00	0.00	0.00	---	0.00
JULY	122	0.00	8.5	28	3.3	17.5
AUGUST	55	0.00	5.3	13	2.4	10.9
SEPTEMBER	146	0.00	17	40	2.3	35.4
ANNUAL	12.7	0.00	4.1	4.7	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-79

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT

2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
----	----	----	----	----	----

WEIGHTED SKEW (LOGS) = ----
MEAN (LOGS) = ----
STANDARD DEV. (LOGS) = ----

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-79

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	612	1,980	3,490	6,170	8,750	11,800
3	279	859	1,470	2,510	3,480	4,610
7	125	388	666	1,140	1,590	2,100
15	58	181	311	534	741	982
30	31	93	157	264	362	473
60	15	47	80	134	183	240
90	10	31	53	89	122	160

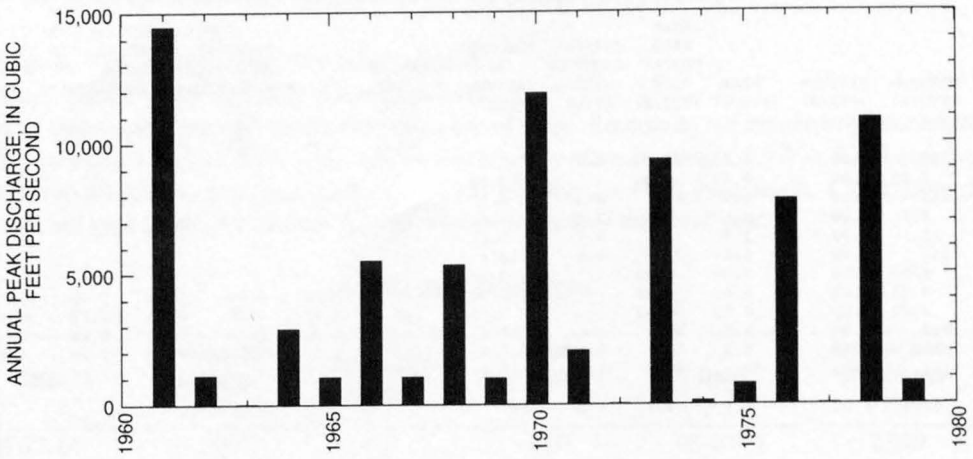
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-79

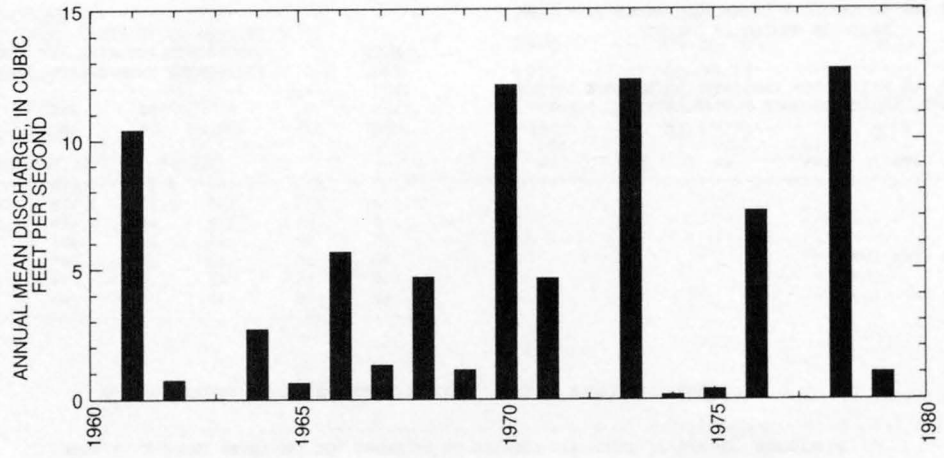
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

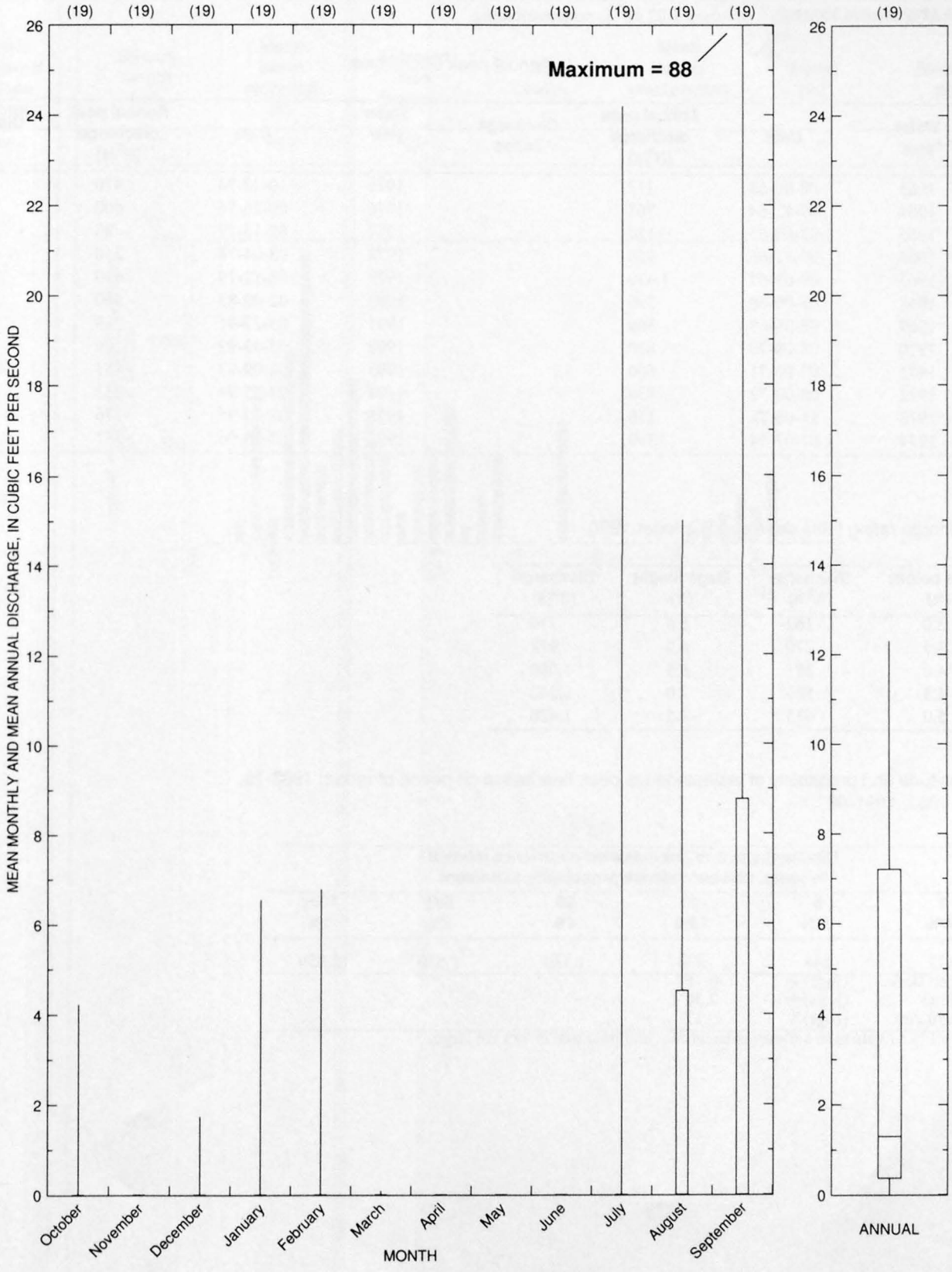
Reliability of values in column is uncertain, and potential errors are large.

09517500 CENTENNIAL WASH NEAR ARLINGTON, AZ--Continued





09517500 CENTENNIAL WASH NEAR ARLINGTON, AZ--Continued



09519600 RAINBOW WASH TRIBUTARY NEAR BUCKEYE, AZ

LOCATION.--Lat 33°14'35", long 112°38'15", in NE$^1/_4$ sec.23, T.2 S., R.4 W., Maricopa County, Hydrologic Unit 15070101, at U.S. Highway 80, 9.5 mi southwest of Buckeye.

DRAINAGE AREA.--3.45 mi^2, of which 1.02 mi^2 is noncontributing.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	112		1975	10-28-74	470	
1964	09-13-64	763		1976	09-26-76	660	
1965	02-07-65	120		1977	08-16-77	80	ES
1966	09-13-66	950		1978	08-04-78	240	ES
1967	09-03-67	1,430		1979	08-12-79	430	ES
1968	08-00-68	390		1983	02-00-83	600	
1969	08-29-69	560		1991	03-27-91	69	
1970	08-08-70	810		1992	03-03-92	106	
1971	07-00-71	660		1993	02-09-93	151	
1972	08-00-72	430		1994	03-25-94	233	
1973	11-00-72	150		1995	08-20-95	176	
1974	07-07-74	390		1996	07-15-96	351	

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
3.0	162	5.5	770
3.5	270	6.0	918
4.0	381	6.5	1,080
4.5	505	7.0	1,240
5.0	633	7.5	1,420

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

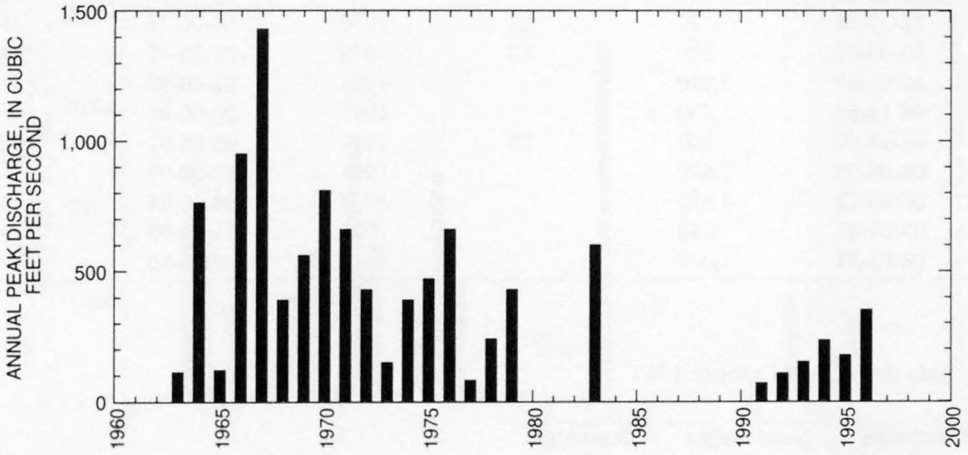
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
323	648	920	1,330	1,670	2,050
Weighted skew	(logs) =	-0.16			
Mean	(logs) =	2.50			
Standard dev.	(logs) =	0.37			

† Reliability of values in column is uncertain, and potential errors are large.

09519600 RAINBOW WASH TRIBUTARY NEAR BUCKEYE, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
34.4	3.1	950	0.0	2.0	7.6	1.4	3.6



09519750 BENDER WASH NEAR GILA BEND, AZ

LOCATION.--Lat 32°54'25", long 112°33'05", in NW$^1/_4$ sec.15, T.6 S., R.3 W., Maricopa County, Hydrologic Unit 15070101, along side of Interstate Highway 8, 10 mi southeast of Gila Bend. Prior to Oct. 1, 1966, at site 0.65 mi downstream.
DRAINAGE AREA.--68.6 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	1,740		1975	08-00-75	2,290	
1964	00-00-64	1,450		1976	09-25-76	1,220	
1965	00-00-65	943		1977	09-11-77	45	ES
1966	12-22-65	20	LT	1978	00-00-78	110	ES
1967	09-03-67	300	ES	1979	01-25-79	40	ES
1968	10-03-67	1,010		1983	02-00-83	3,610	
1969	08-18-69	1,500		1991	00-00-91	4.0	
1970	08-14-70	100	ES	1992	05-05-92	975	
1971	08-00-71	2,670		1993	00-00-93	0	
1972	06-00-72	1,550		1994	09-10-94	408	
1973	07-29-73	40		1995	01-05-95	793	
1974	08-03-74	1,000		1996	00-00-96	0	

Discharge rating table developed October 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.0	207	7.0	2,420
4.5	595	7.5	2,770
5.0	993	8.0	3,110
5.5	1,370	8.5	3,450
6.0	1,730	9.0	3,790
6.5	2,080	9.6	4,190

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

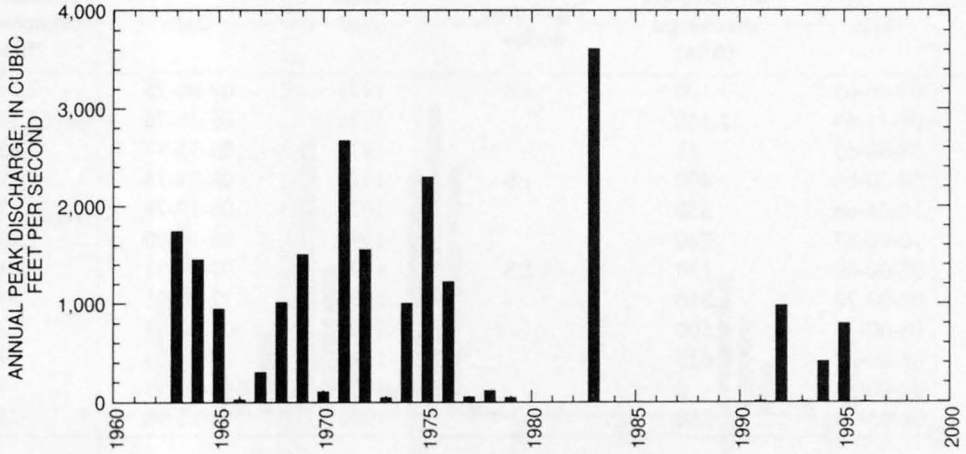
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
867	1,580	2,160	2,990	3,690	4,450
Weighted skew	(logs) =	-0.07			
Mean	(logs) =	2.93			
Standard dev.	(logs) =	0.31			

† Reliability of values in column is uncertain, and potential errors are large.

09519750 BENDER WASH NEAR GILA BEND, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
73.9	18.2	1,900	0.0	2.0	8.5	1.5	4.0



09519760 SAUCEDA WASH NEAR GILA BEND, AZ

LOCATION.--Lat 32°52'14", long 112°45'30", in $SE^1/_4SW^1/_4$ sec.27, T.6 S., R.5 W., Maricopa County, Hydrologic Unit 15070101, on right bank wing wall of culvert on State Highway 85, 5.3 mi south of Gila Bend.

DRAINAGE AREA.--126 mi^2, of which 20 mi^2 also contributes to an adjoining basin.

PERIOD OF RECORD.--Water years 1964-79 (annual maximums only), October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 848 ft above sea level, from topographic map. Prior to October 1979, crest-stage gage at same site and datum.

REMARKS.--No estimated daily discharges. Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,150 ft^3/s, Sept. 26, 1976, gage height, 6.3 ft; no flow most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-00-63	1,100	ES	1975	09-08-75	2,500	
1964	08-12-64	2,160		1976	09-26-76	3,150	
1965	08-00-65	55		1977	08-15-77	2,550	
1966	08-00-66	400	ES	1978	08-08-78	180	
1967	10-04-66	350		1979	08-12-79	20	ES
1968	10-02-67	840		1990	08-14-90	1,400	
1969	08-00-69	130	ES	1991	07-07-91	1,010	
1970	08-00-70	2,850		1992	12-20-91	530	
1971	08-00-71	1,500		1993	02-09-93	27	
1972	08-00-72	630		1994	09-11-94	172	
1973	00-00-73	0		1995	00-00-95	0	
1974	08-03-74	250		1996	08-15-96	757	

Discharge rating table developed March 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	184	7.0	3,940
3.0	671	8.0	5,030
4.0	1,320	9.0	6,200
5.0	2,100	10.0	7,440
6.0	2,960	10.2	7,700

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1990-96

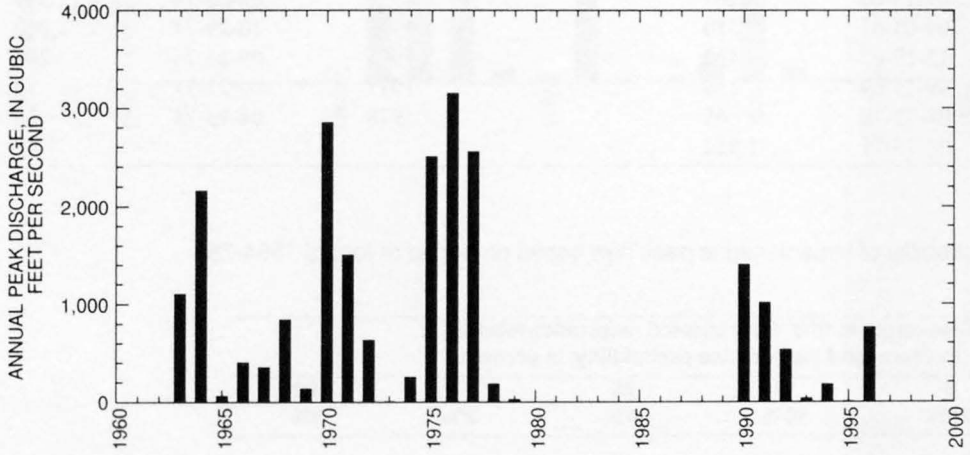
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
591	1,580	2,520	4,030	5,360	6,850
Weighted skew	(logs) =	-0.39			
Mean	(logs) =	2.74			
Standard dev.	(logs) =	0.54			

† Reliability of values in column is uncertain, and potential errors are large.

09519760 SAUCEDA WASH NEAR GILA BEND, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
46.7	32.5	1,980	0.0	2.0	8.2	1.5	4.0



09519780 WINDMILL WASH NEAR GILA BEND, AZ

LOCATION.--Lat 33°02'54", long 112°50'17", in SE$^1/_4$ sec.25, T.4 S., R.6 W., Maricopa County, Hydrologic Unit 15070101, at county road, 10.5 mi mi northwest of Gila Bend.
DRAINAGE AREA.--12.9 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1964	00-00-64	0		1972	06-06-72	5.0	ES
1965	02-09-65	10	LT	1973	10-00-72	60	ES
1966	09-13-66	967		1974	08-03-74	340	ES
1967	09-03-67	2,510		1975	10-29-74	1,900	
1968	12-19-67	4,430		1976	09-26-76	200	ES
1969	09-15-69	150		1977	09-27-77	10	ES
1970	08-12-70	65		1978	04-13-78	20	ES
1971	08-15-71	1,850					

Magnitude and probability of instantaneous peak flow based on period of record 1964-78

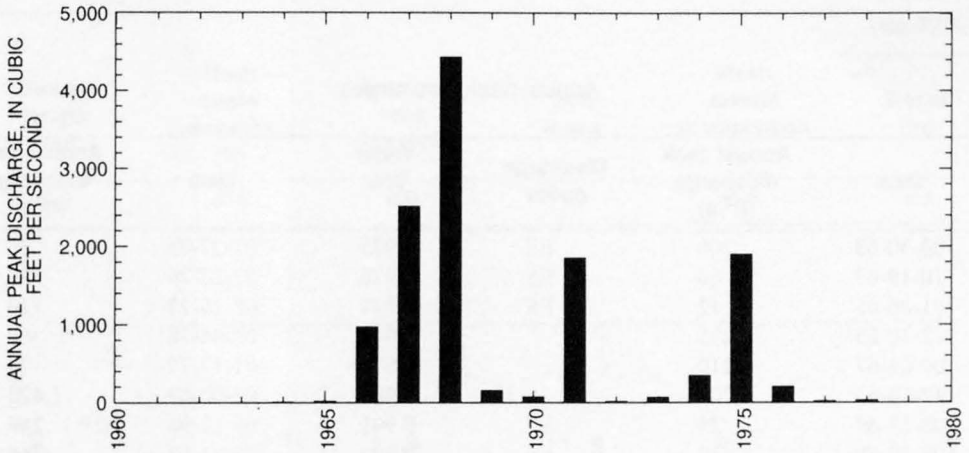
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
155	1,160	3,120	8,550	16,000	27,600
Weighted skew	(logs) =	-0.28			
Mean	(logs) =	2.14			
Standard dev.	(logs) =	1.09			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
64.4	9.1	1,050	0.0	1.0	6.1	1.3	3.6

09519780 WINDMILL WASH NEAR GILA BEND, AZ--Continued



09520100 MILITARY WASH NEAR SENTINEL, AZ

LOCATION.--Lat 32°50'43", long 113°16'44", in SW$^1/_4$ sec.3, T.7 S., R.10 W., Maricopa County, Hydrologic Unit 15070201, at U.S. Highway 80, 4.1 mi west of Sentinel.
DRAINAGE AREA.--8.70 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-30-63	200	ES	1975	07-27-75	30	
1964	10-19-63	60	ES	1976	07-27-76	550	ES
1965	01-06-65	12	ES	1977	08-15-77	120	ES
1966	12-10-65	235		1978	08-04-78	560	
1967	09-03-67	210		1979	01-17-79	20	ES
1968	12-19-67	1,200		1983	02-00-83	1,420	
1969	08-13-69	25	ES	1991	08-12-91	249	
1970	08-20-70	30	ES	1992	08-11-92	266	
1971	08-20-71	900		1993	04-19-93	122	
1972	06-00-72	30		1994	09-20-94	19	
1973	11-00-72	100		1995	08-14-95	468	
1974	08-02-74	1,530		1996	08-15-96	1,000	

Discharge rating table developed October 1982

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.8	110	3.0	1,310
2.0	205	3.2	1,670
2.2	336	3.4	2,100
2.4	509	3.6	2,590
2.6	726	3.8	3,130
2.8	990	4.0	3,740

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

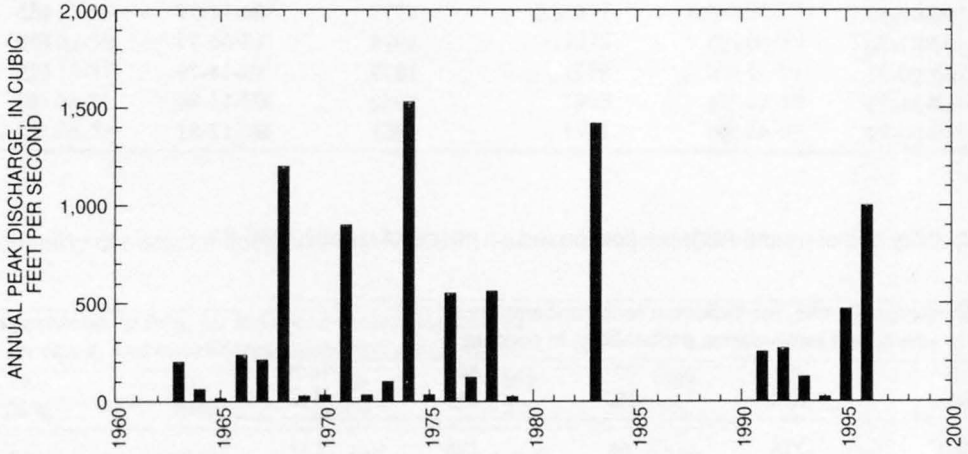
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
161	577	1,120	2,240	3,500	5,220
Weighted skew	(logs) =	-0.06			
Mean	(logs) =	2.20			
Standard dev.	(logs) =	0.67			

† Reliability of values in column is uncertain, and potential errors are large.

09520100 MILITARY WASH NEAR SENTINEL, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
56.0	5.0	674	0.0	1.0	5.0	1.3	3.6



09520110 HOT SHOT ARROYO NEAR AJO, AZ

LOCATION.--Lat 32°20'49", long 112°48'31", in SW$^1/_4$ sec.29, T.12 S., R.5 W., Pima County, Hydrologic Unit 15070202, at State Highway 85, 3 mi southeast of Ajo.
DRAINAGE AREA.--0.44 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	09-13-66	215		1974	09-23-74	215	
1967	07-15-67	206		1975	10-29-74	110	
1968	10-03-67	175		1976	09-05-76	240	
1969	00-00-69	5.0	ES	1977	09-11-77	155	
1970	07-27-70	170		1978	10-06-77	150	
1971	00-00-71	116		1979	09-14-79	125	
1972	08-31-72	92		1980	08-13-80	40	
1973	10-06-72	60		1981	01-12-81	72	

Magnitude and probability of instantaneous peak flow based on period of record 1966-81

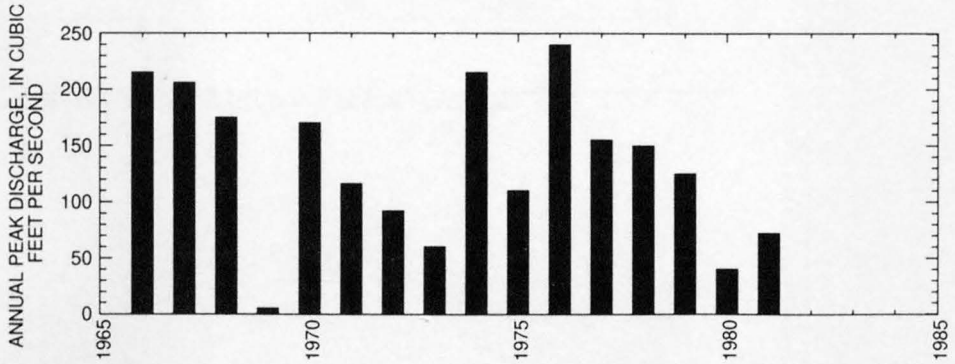
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
136	191	226	268	298	327

Weighted skew	(logs) =	-0.28
Mean	(logs) =	2.13
Standard dev.	(logs) =	0.18

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
83.3	1.6	1,760	0.0	3.0	8.1	1.7	4.0



09520130 DARBY ARROYO NEAR AJO, AZ

LOCATION.--Lat 32°21'19", long 112°49'31", in NW$^1/_4$ sec.30, T.12 S., R.5 W., Pima County, Hydrologic Unit 15070202, at State Highway 85, 2 mi southeast of Ajo.
DRAINAGE AREA.--4.72 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1966	09-13-66	1,320		1974	09-26-74	470	
1967	09-06-67	1,670		1975	10-29-74	270	
1968	07-04-68	480		1976	08-11-76	840	
1969	08-11-69	480		1977	07-04-77	780	
1970	08-02-70	960		1978	10-06-77	1,070	
1971	08-19-71	500		1979	11-11-78	320	
1972	10-06-71	450		1980	08-13-80	150	
1973	10-06-72	105		1981	08-23-81	400	

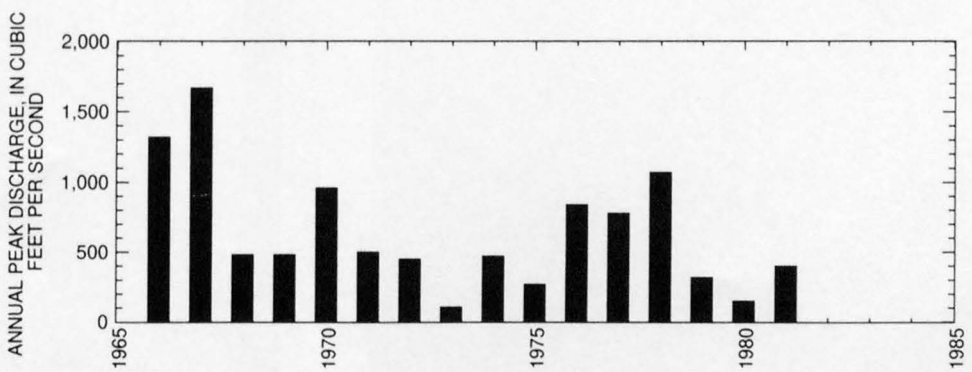
Magnitude and probability of instantaneous peak flow based on period of record 1966-81

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
550	922	1,210	1,640	1,990	2,380
Weighted skew	(logs) =	0.11			
Mean	(logs) =	2.75			
Standard dev.	(logs) =	0.26			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
71.1	6.0	1,920	0.0	3.0	8.1	1.6	4.1



09520160 GIBSON ARROYO AT AJO, AZ

LOCATION.--Lat 32°22'48", long 112°51'40", in NW$^1/_4$SW$^1/_4$ sec.14, T.12 S., R.6 W., Pima County, Hydrologic Unit 15070202, at 2nd Avenue next to railroad tracks in Ajo.

DRAINAGE AREA.--2.18 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	07-22-67	132		1975	10-29-74	320	
1968	07-04-68	553		1976	09-05-76	340	
1969	08-11-69	306		1977	07-04-77	50	
1970	08-02-70	[1]1,800		1978	08-11-78	380	
1971	08-19-71	10	LT	1979	08-13-79	270	
1972	08-00-72	345		1980	08-13-80	70	
1973	08-00-73	240		1981	08-23-81	200	
1974	08-02-74	254					

[1]Highest since 1960.

Magnitude and probability of instantaneous peak flow based on period of record 1967-81

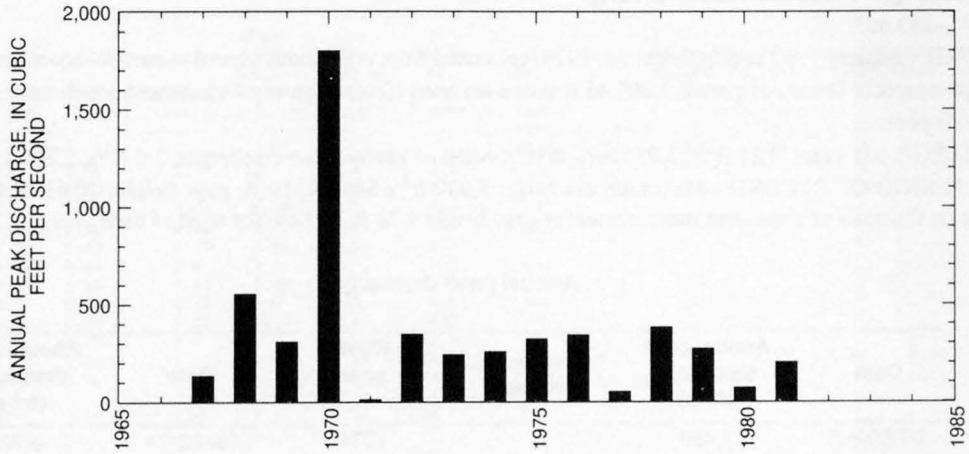
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
231	474	686	1,010	1,300	1,620
Weighted skew	(logs) =	-0.07			
Mean	(logs) =	2.36			
Standard dev.	(logs) =	0.37			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
171	2.8	2,100	0.0	2.0	8.1	1.7	4.1

09520160 GIBSON ARROYO AT AJO, AZ--Continued



09520170 RIO CORNEZ NEAR AJO, AZ

LOCATION.--Lat 32°29'58", long 112°52'50", in $SE^1/_4NE^1/_4$ sec.4, T.11 S., R.6 W., Pima County, Hydrologic Unit 15070202, on downstream side of bridge on State Highway 85, and 8 mi north of Ajo.

DRAINAGE AREA.--243 mi^2.

PERIOD OF RECORD.--January 1967 to September 30, 1978 (converted from continuous-record to partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 1,309.45 ft above sea level (State Highway Department bench mark).

REMARKS.--Records poor.

AVERAGE DISCHARGE.--11 years, 4.21 ft^3/s, 3,050 acre-ft/yr; median of yearly mean discharges, 3.0 ft^3/s, 2,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,030 ft^3/s Sept. 4, 1976, gage height, 10.41 ft, from rating curve extended above 520 ft^3/s on the basis of slope-area measurement at gage height 9.70 ft; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1967	07-09-67	3,460		1974	08-02-74	6,000	
1968	08-05-68	3,750		1975	09-07-75	2,570	
1969	08-29-69	1,610		1976	09-04-76	8,030	
1970	08-16-70	2,300		1977	09-10-77	1,390	
1971	08-20-71	3,000		1978	10-06-77	7,220	
1972	08-09-72	2,510		1979	11-11-78	3,360	
1973	08-19-73	2,620		1980	00-00-80	0	

Discharge rating table developed January ----

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	214	8.5	3,160
6.5	525	9.0	4,250
7.0	998	9.5	5,460
7.5	1,610	10.0	6,810
8.0	2,300	10.5	8,300

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
26.8	33.6	1,950	0.0	2.0	8.4	1.7	4.2

09520170 RIO CORNEZ NEAR AJO, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1968-78

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	41	0.00	4.6	12	2.7	9.1
NOVEMBER	3.8	0.00	0.64	1.2	1.9	1.3
DECEMBER	2.7	0.00	0.24	0.80	3.3	0.5
JANUARY	9.0	0.00	0.82	2.7	3.3	1.6
FEBRUARY	3.0	0.00	0.27	0.90	3.3	0.5
MARCH	39	0.00	3.6	12	3.3	7.2
APRIL	0.00	0.00	0.00	0.00		0.0
MAY	8.0	0.00	0.73	2.4	3.3	1.5
JUNE	1.2	0.00	0.11	0.35	3.3	0.2
JULY	35	0.00	6.5	11	1.7	13.0
AUGUST	56	0.00	18	18	0.98	36.5
SEPTEMBER	89	0.00	14	27	1.8	28.6
ANNUAL	12	0.96	4.2	3.3	0.79	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-78

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90						
120						
183	0.18	0.00	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1967-80

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
3,000	4,850	6,280	8,310	9,980	11,800

WEIGHTED SKEW (LOGS)= 0.13
MEAN (LOGS)= 3.48
STANDARD DEV. (LOGS)= 0.24

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-78

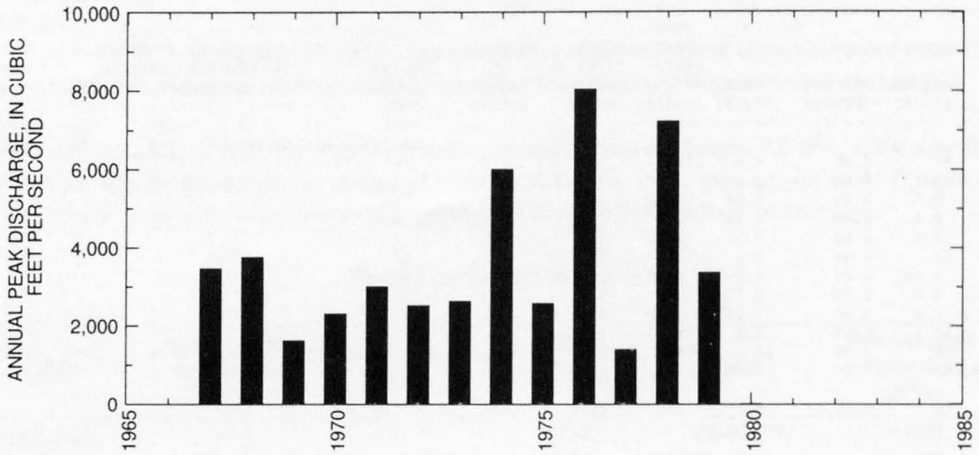
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25# 4%	50# 2%	100# 1%
1	432	761	972	1,220	1,380	1,530
3	228	396	487	577	628	668
7	96	170	223	291	343	395
15	53	87	108	132	148	162
30	30	53	71	97	119	142
60	16	29	38	52	64	77
90	11	21	30	45	60	77

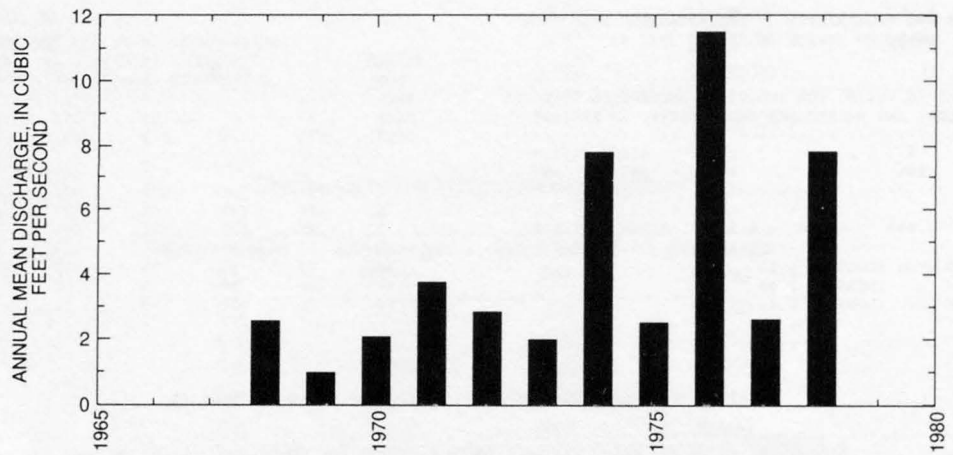
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-78

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

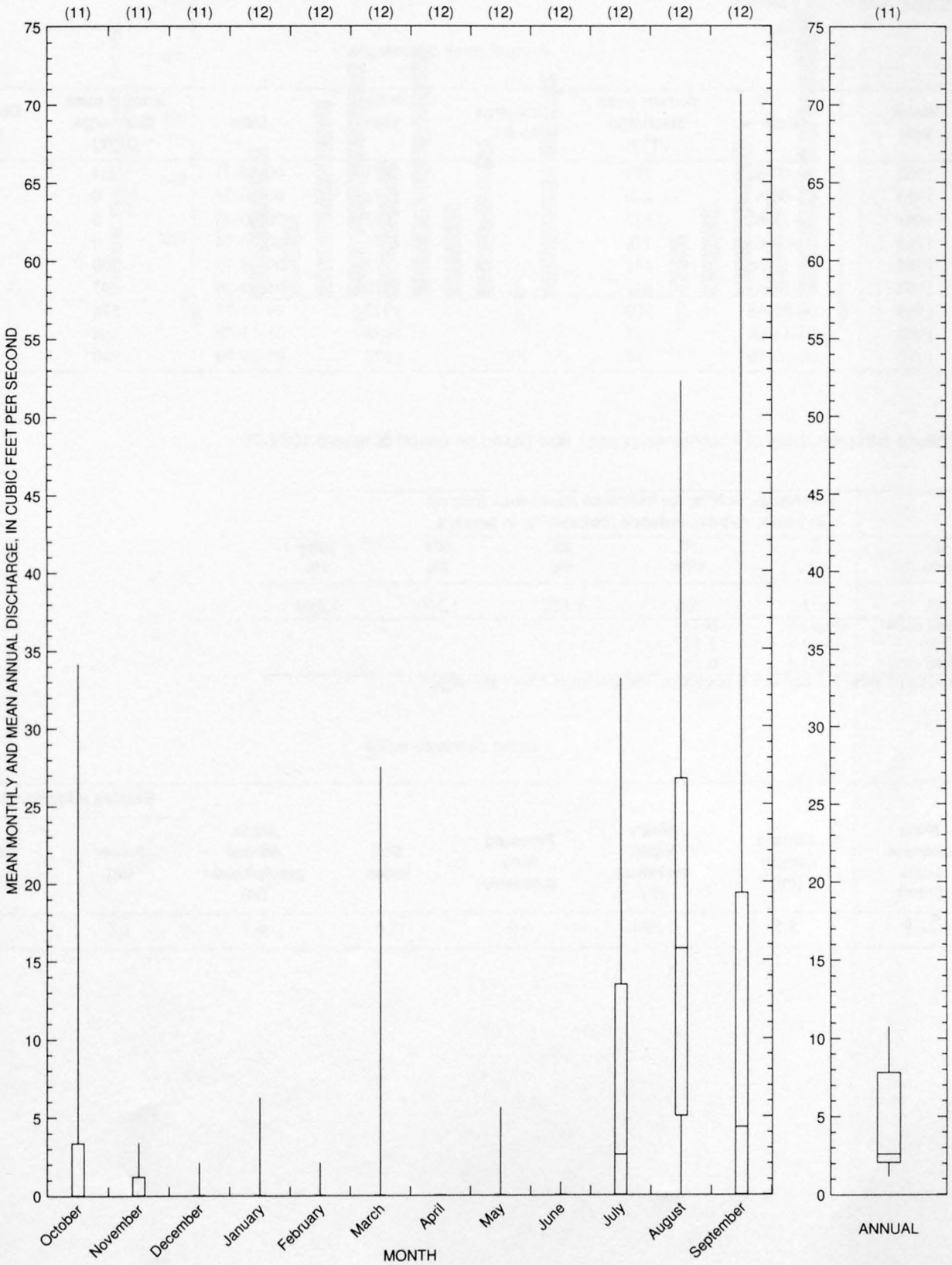
Reliability of values in column is uncertain, and potential errors are large.

09520170 RIO CORNEZ NEAR AJO, AZ--Continued





09520170 RIO CORNEZ NEAR AJO, AZ--Continued



09520200 BLACK GAP WASH NEAR AJO, AZ

LOCATION.--Lat 32°42'23", long 112°50'43", in NW$^1/_4$NE$^1/_4$ sec.26, T.8 S., R.6 W., Maricopa County, Hydrologic Unit 15070202, at State Highway 85, 5.7 mi north of Midway, and 23 mi north of Ajo.
DRAINAGE AREA.--12.1 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	00-00-62	499		1971	09-30-71	735	
1963	08-06-63	280		1972	00-00-72	0	
1964	10-19-63	652		1973	00-00-73	0	
1965	08-00-65	770		1974	00-00-74	0	
1966	09-13-66	445		1975	09-08-75	200	
1967	07-14-67	837		1976	05-04-76	297	
1968	08-00-68	309		1977	09-11-77	578	
1969	08-14-69	525		1978	01-15-78	364	
1970	08-20-70	10	ES	1979	07-20-79	940	

Magnitude and probability of instantaneous peak flow based on period of record 1962-79

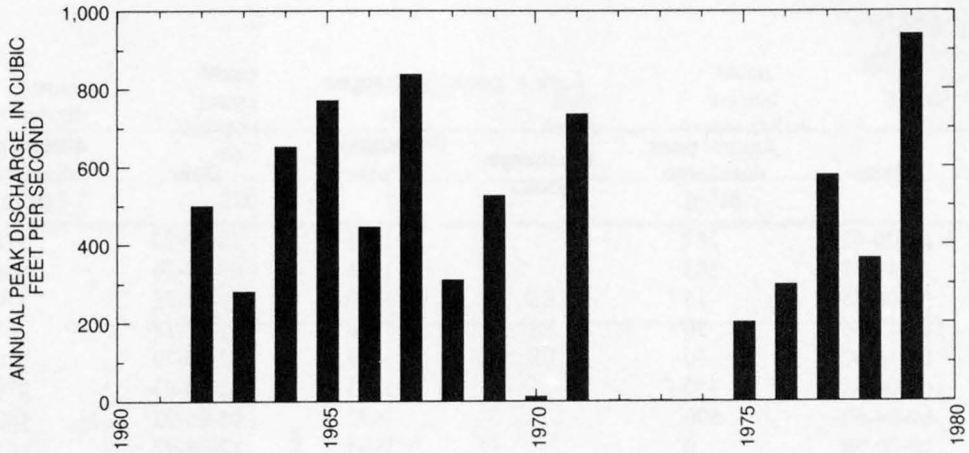
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
392	672	868	1,120	1,300	1,490
Weighted skew	(logs) =	-0.43			
Mean	(logs) =	2.57			
Standard dev.	(logs) =	0.30			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
21.8	5.5	1,280	0.0	2.0	6.7	1.5	3.9

09520200 BLACK GAP WASH NEAR AJO, AZ--Continued



09520230 CRATER RANGE WASH NEAR AJO, AZ

LOCATION.--Lat 32°33'44", long 112°52'37", in $NW^1/_4NW^1/_4$ sec.15, T.10 S., R.6 W., Maricopa County, Hydrologic Unit 15070202, at State Highway 85, 4.1 mi north of Maricopa-Pima County line, and 13.5 mi north of Ajo.
DRAINAGE AREA.--1.49 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-06-63	267		1975	10-00-74	175	
1964	10-19-63	303		1976	09-24-76	440	
1965	02-06-65	15	ES	1977	11-15-76	370	
1966	09-13-66	50	ES	1978	01-15-78	65	ES
1967	07-15-67	50	ES	1979	02-20-79	20	ES
1968	07-00-68	350		1983	02-00-83	270	
1969	09-04-69	590		1992	05-05-92	132	ES
1970	00-00-70	0		1993	12-08-92	25	
1971	09-00-71	300		1994	09-11-94	5.0	
1972	08-12-72	20		1995	00-00-95	0	
1973	02-22-73	260		1996	07-25-96	133	
1974	08-04-74	12	ES				

Discharge rating table developed October 1990

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
1.6	60	4.0	609
2.0	174	4.5	737
2.5	271	5.0	872
3.0	375	5.5	1,010
3.5	488	5.8	1,100

Magnitude and probability of instantaneous peak flow based on period of record 1963-79, 1983, 1991-96

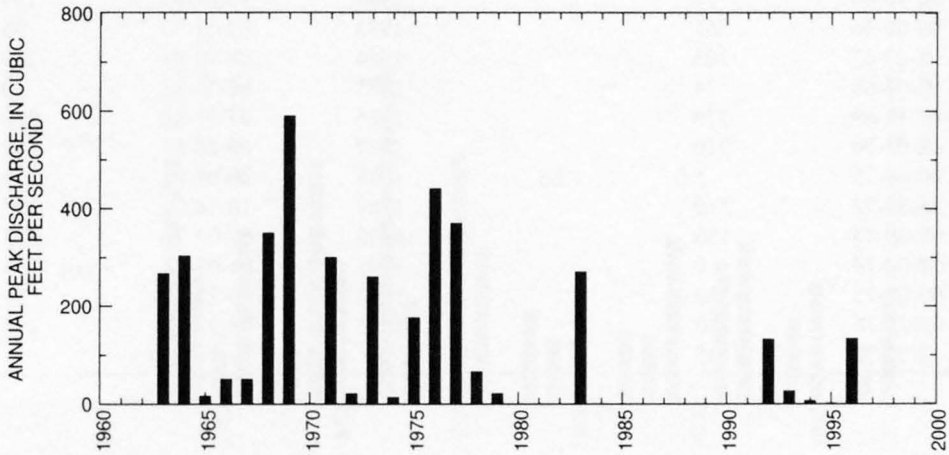
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
70	270	522	1,020	1,550	2,230
Weighted skew	(logs) =	-0.28			
Mean	(logs) =	1.81			
Standard dev.	(logs) =	0.73			

† Reliability of values in column is uncertain, and potential errors are large.

09520230 CRATER RANGE WASH NEAR AJO, AZ

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
69.3	2.5	1,280	0.0	1.0	6.6	1.5	3.9



09520300 ALAMO WASH TRIBUTARY NEAR AJO, AZ

LOCATION.--Lat 32°06'00", long 112°46'15", in SW$^1/_4$ sec.22, T.15 S., R.5 W. (unsurveyed), Pima County, Hydrologic Unit 15070203, at State Highway 85, 20 mi southeast of Ajo.
DRAINAGE AREA.--0.90 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-15-63	375		1979	00-00-79	92	
1964	09-09-64	187		1980	00-00-80	92	
1965	10-16-64	74		1982	10-01-81	104	
1966	00-00-66	261		1983	07-21-83	98	
1967	08-00-67	103		1984	08-00-84	250	
1968	08-02-68	74		1985	00-00-85	0	
1969	08-14-69	370		1986	07-21-86	210	
1970	08-02-70	210		1987	09-23-87	240	
1971	00-00-71	5.0	ES	1988	00-00-88	0	
1972	08-31-72	510		1989	10-14-88	125	
1973	08-00-73	150		1990	07-07-90	173	
1974	00-00-74	0		1991	01-05-91	5	
1975	09-08-75	380		1992	10-27-91	81	
1976	09-25-76	230		1993	08-27-93	154	
1978	10-06-77	[1]135					

[1]Highest since 1976.

Discharge rating table developed October 1989

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
2.0	107	4.5	485
2.5	166	5.0	585
3.0	233	5.5	693
3.5	308	6.0	808
4.0	392	6.5	1,020

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1978-80, 1982-93

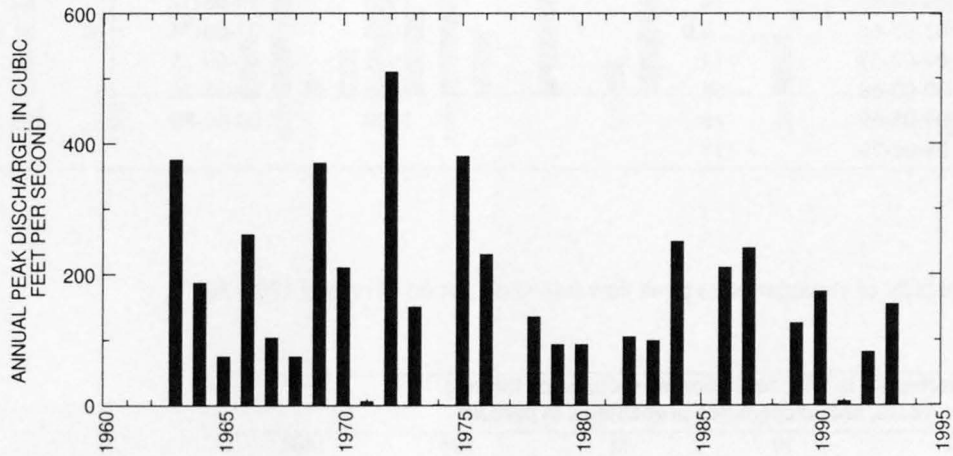
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
141	240	326	445	546	656
Weighted skew	(logs) =	0.06			
Mean	(logs) =	2.15			
Standard dev.	(logs) =	0.28			

† Reliability of values in column is uncertain, and potential errors are large.

09520300 ALAMO WASH TRIBUTARY NEAR AJO, AZ--Continued

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
64.0	2.5	2,040	0.0	2.0	9.7	1.7	4.2



09520350 MOHAWK PASS WASH AT MOHAWK, AZ

LOCATION.--Lat 32°43'44", long 113°44'30", in $SE^1/_4SW^1/_4$ sec.17, T.8 S., R.14 S., Yuma County, Hydrologic Unit 15070203, at Southern Pacific Railroad crossing, 0.6 mi east of Mohawk.

DRAINAGE AREA.--0.09 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	0		1971	09-29-71	20	
1964	10-17-63	17		1972	00-00-72	0	
1965	04-04-65	34		1973	10-06-72	82	
1966	02-07-66	4.0		1974	07-00-74	1.0	LT
1967	09-02-67	14		1975	09-00-75	10	LT
1968	00-00-68	58		1976	09-25-76	95	
1969	09-05-69	26		1980	00-00-80	[1]18	HP
1970	08-01-70	117					

[1]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1980

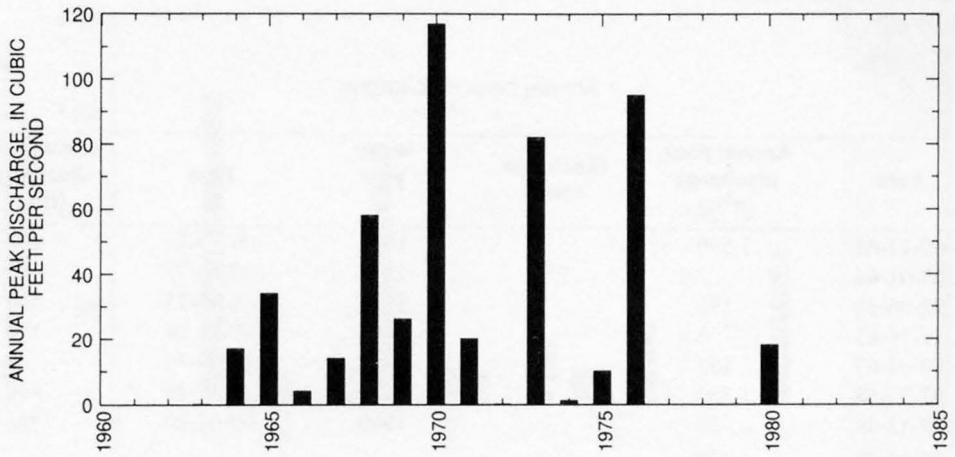
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
20.2	52.4	85.7	145	202	273
Weighted skew	(logs) =	-0.04			
Mean	(logs) =	1.30			
Standard dev.	(logs) =	0.50			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
707	0.49	601	0.0	1.0	4.9	1.4	3.6

09520350 MOHAWK PASS WASH AT MOHAWK, AZ--Continued



09520400 LIGURTA WASH AT LIGURTA, AZ

LOCATION.--Lat 32°40'33", long 114°17'38", in $NW^1/_4NW^1/_4$ sec.2, T.9 S., R.20 W., Yuma County, Hydrologic Unit 15070201, at U.S. Highway 80 at Ligurta, and 9.0 mi west of Wellton.

DRAINAGE AREA.--1.99 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	09-17-63	1,590		1971	09-29-71	156	
1964	08-01-64	2.0	ES	1972	00-00-72	0	
1965	02-06-65	195		1973	08-05-73	330	
1966	11-16-65	8.0		1974	09-03-74	190	
1967	09-02-67	194		1975	00-00-75	0	
1968	07-27-68	1,330		1976	09-25-76	430	
1969	08-13-69	58		1980	00-00-80	[1]780	HP
1970	02-10-70	175					

[1]Highest since 1976.

Magnitude and probability of instantaneous peak flow based on period of record 1963-76, 1980

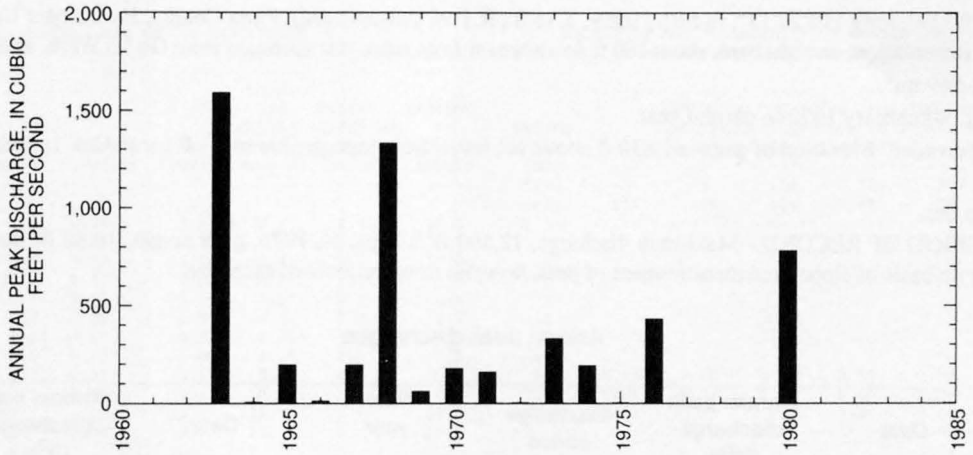
Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
182	548	980	1,820	2,730	3,930
Weighted skew	(logs) =	0.03			
Mean	(logs) =	2.26			
Standard dev.	(logs) =	0.57			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
127	2.0	395	0.0	2.0	4.0	1.4	3.6

09520400 LIGURTA WASH AT LIGURTA, AZ--Continued



SAN SIMON WASH BASIN

09535100 SAN SIMON WASH NEAR PISINIMO, AZ

LOCATION.--Lat 32°02'39", long 112°22'13", in SE$^1/_4$ sec.9, T.16 S., R.1 W. (unsurveyed), Pima County, Hydrologic Unit 15080101, in Tohono O'Odham Indian Reservation, on right bank about 100 ft downstream from road, just upstream from Gu Vo Wash, and 3.2 mi west of Pisinimo.

DRAINAGE AREA.--569 mi^2.

PERIOD OF RECORD.--February 1972 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,830 ft above sea level, from topographic map. Prior to Oct. 1, 1980, at site 120 ft upstream at same datum.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft^3/s Sept. 24, 1976, gage height, 10.82 ft, from rating curve extended above 1,700 ft^3/s on basis of slope-area measurement of peak flow; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1972	08-09-72	1,080		1985	07-19-85	790	
1973	10-19-72	1,930		1986	07-21-86	943	
1974	07-29-74	1,370		1987	08-11-87	641	
1975	09-07-75	1,950		1988	08-29-88	1,740	
1976	09-24-76	12,500		1989	10-15-88	1,420	
1977	08-08-77	720		1990	07-14-90	837	
1978	09-07-78	473		1991	08-27-91	648	
1979	11-11-78	512		1992	07-11-92	1,100	
1980	08-13-80	101		1993	01-08-93	1,050	
1981	07-12-81	2,020		1994	09-10-94	431	
1982	08-25-82	1,780		1995	08-24-95	1,240	
1983	09-29-83	688		1996	09-24-96	418	
1984	08-17-84	8,600					

Discharge rating table developed October 1985

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.5	187	7.5	1,200
5.0	247	8.0	1,740
5.5	337	8.5	2,580
6.0	458	9.0	4,010
6.5	622	9.5	6,700
7.0	854	10.0	12,500

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
17.4	39.4	2,250	0.0	0.0	10.0	1.8	4.2

SAN SIMON WASH BASIN

09535100 SAN SIMON WASH NEAR PISINIMO, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1973-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	44	0.00	5.2	12	2.4	12.7
NOVEMBER	14	0.00	1.4	3.5	2.5	3.3
DECEMBER	9.0	0.00	1.2	2.7	2.2	3.0
JANUARY	39	0.00	2.7	8.0	3.0	6.5
FEBRUARY	7.6	0.00	1.1	2.3	2.2	2.6
MARCH	8.5	0.00	1.0	2.3	2.3	2.5
APRIL	0.20	0.00	0.02	0.05	2.8	0.0
MAY	2.0	0.00	0.09	0.40	4.6	0.2
JUNE	0.02	0.00	0.00	0.00	4.9	0.0
JULY	40	0.00	8.1	10	1.3	19.6
AUGUST	93	0.01	12	22	1.9	28.0
SEPTEMBER	140	0.00	8.9	28	3.2	21.6
ANNUAL	15	0.13	3.5	3.6	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1973-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.06	0.00	0.00	0.00	0.00	0.00
183	0.53	0.09	0.01	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1972-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,020	2,210	3,450	5,770	8,190	11,400

WEIGHTED SKEW (LOGS)= 0.54
MEAN (LOGS)= 3.04
STANDARD DEV. (LOGS)= 0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1973-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	306	754	1,210	2,020	2,820	3,800
3	132	334	537	887	1,220	1,630
7	62	156	248	399	539	702
15	32	78	122	192	254	324
30	18	42	64	95	122	150
60	11	25	37	54	68	82
90	7.7	18	26	37	46	54

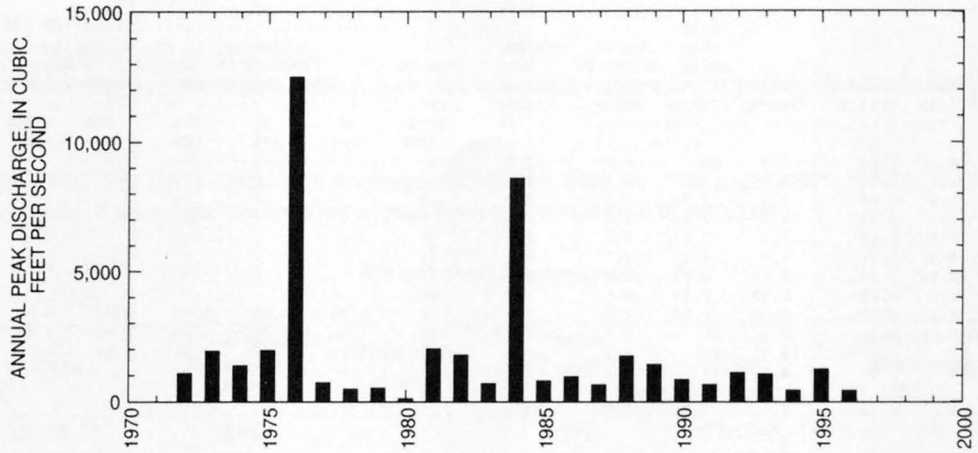
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1973-96

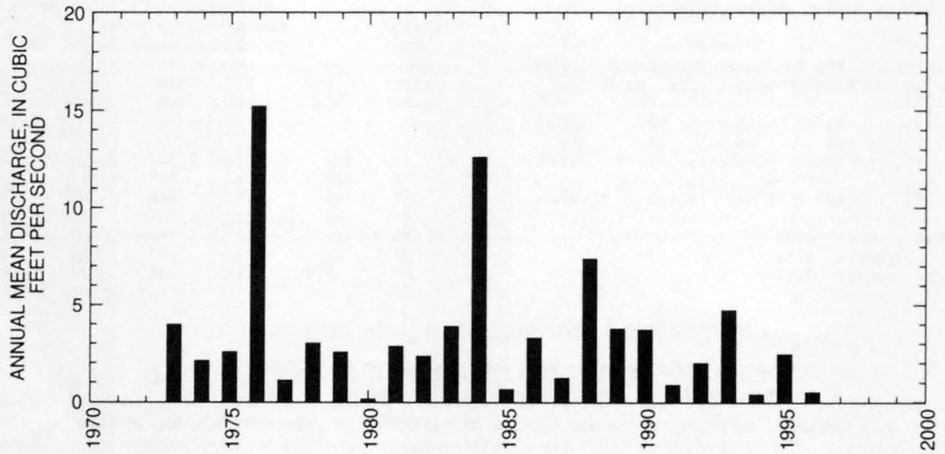
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
76	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

SAN SIMON WASH BASIN

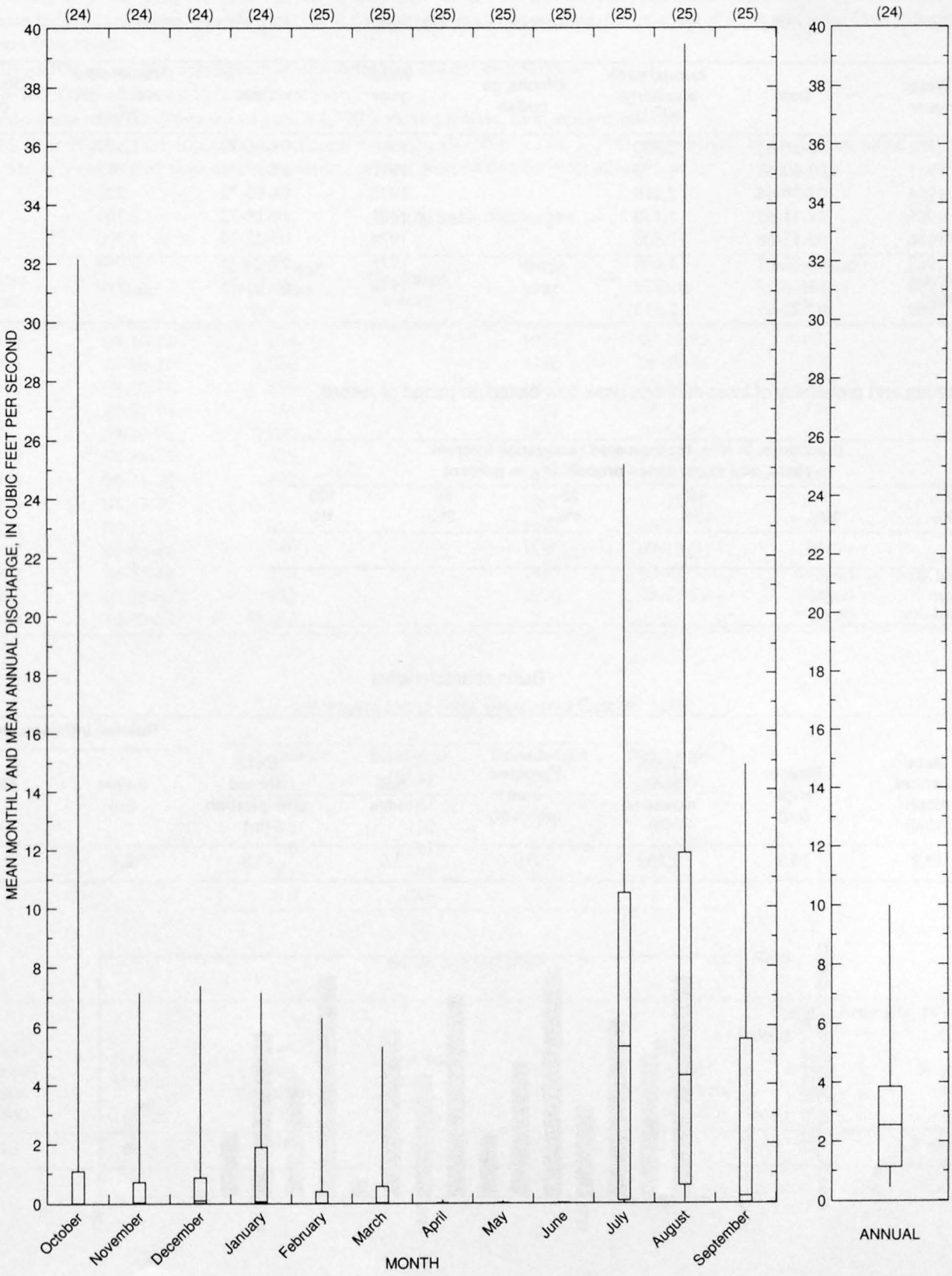
09535100 SAN SIMON WASH NEAR PISINIMO, AZ--Continued





SAN SIMON WASH BASIN

09535100 SAN SIMON WASH NEAR PISINIMO, AZ--Continued



09535200 LITTLE TUCSON WASH AT SELLS, AZ

LOCATION.--Lat 31°54'55", long 111°52'42", in SE$^1/_4$ sec.25, T.17 S., R.4 E., Pima County, Hydrologic Unit 15080101, at Sells.
DRAINAGE AREA.--26.8 mi^2 contributing drainage area not determined.

Annual peak discharges

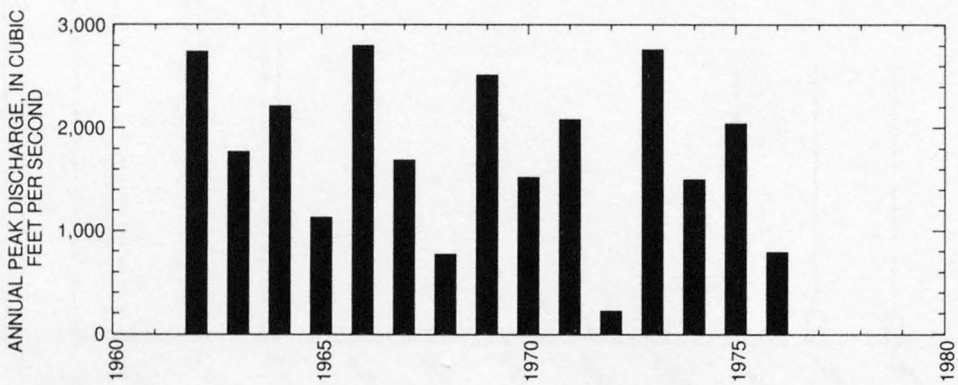
Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1962	09-26-62	2,740		1970	09-06-70	1,520	
1963	00-00-63	1,770		1971	08-19-71	2,080	
1964	07-29-64	2,210		1972	08-00-72	220	
1965	08-11-65	1,130		1973	10-18-72	2,760	
1966	09-13-66	2,800		1974	09-22-74	1,500	
1967	08-07-67	1,690		1975	09-05-75	2,040	
1968	12-19-67	770		1976	00-00-76	790	
1969	07-22-69	2,510					

Magnitude and probability of instantaneous peak flow based on period of record

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
---	---	---	---	---	---
Weighted skew	(logs) =	---			
Mean	(logs) =	---			
Standard dev.	(logs) =	---			

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
49.9	10.2	2,560	0.0	3.0	11.8	2.1	4.6



SAN SIMON WASH BASIN

09535300 VAMORI WASH AT KOM VO, AZ

LOCATION.--Lat 31°57'04", long 112°20'50", in NW$^1/_4$ sec.14, T.17 S., R.1 W (unsurveyed), Pima County, Hydrologic Unit 15080101, in Tohono O'Odham Indian Reservation, on right bank 200 ft downstream from road crossing, 0.6 mi south of Kom Vo (Santa Cruz Village) and 5 mi upstream from mouth.

DRAINAGE AREA.--1,250 mi^2, approximately, of which about 250 mi^2 is in Mexico.

PERIOD OF RECORD.--February 1972 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,770 ft above sea level, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft^3/s Oct. 3, 1983, gage height, 10.54 ft, from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow; no flow for most of each year.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1972	08-10-72	214		1985	07-19-85	630	
1973	10-20-72	1,880		1986	08-29-86	960	
1974	09-22-74	689		1987	07-31-87	762	
1975	09-00-75	751		1988	08-29-88	768	
1976	09-26-76	1,650		1989	07-28-89	453	
1977	08-14-77	325		1990	07-11-90	1,150	
1978	08-13-78	808		1991	10-01-90	1,210	
1979	01-17-79	575		1992	07-11-92	484	
1980	08-15-80	469		1993	08-28-93	1,400	
1981	09-05-81	769		1994	09-10-94	1,790	
1982	08-26-82	576		1995	09-07-95	1,250	
1983	07-23-83	982		1996	08-27-96	465	
1984	10-03-83	10,400					

Discharge rating table developed October 1992

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
6.0	87	8.5	340
6.5	120	9.0	700
7.0	157	9.5	1,820
7.5	197	10.0	4,360
8.0	240	10.5	9,780

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
14.1	64.4	2,699	1.6	0.0	12.5	2.2	4.5

SAN SIMON WASH BASIN

09535300 VAMORI WASH AT KOM VO, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1973-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	463	0.00	29	95	3.3	24.5
NOVEMBER	37	0.00	3.3	9.0	2.8	2.8
DECEMBER	26	0.00	5.4	8.4	1.5	4.6
JANUARY	61	0.00	8.9	17	1.9	7.6
FEBRUARY	33	0.00	4.5	9.6	2.1	3.9
MARCH	28	0.00	2.4	6.1	2.5	2.1
APRIL	10	0.00	0.45	2.1	4.7	0.4
MAY	0.49	0.00	0.04	0.13	2.9	0.0
JUNE	0.07	0.00	0.00	0.01	4.9	0.0
JULY	113	0.00	17	24	1.4	14.5
AUGUST	106	0.73	31	25	0.82	26.2
SEPTEMBER	103	0.00	16	22	1.4	13.4
ANNUAL	52	0.97	9.8	10	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1973-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	20# 5%	50# 2%	100# 1%
1						
3						
7						
14						
30						
60						
90	0.00	0.00	0.00	0.00	0.00	0.00
120	0.21	0.00	0.00	0.00	0.00	0.00
183	2.0	0.20	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1972-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
833	1,540	2,200	3,340	4,440	5,810

WEIGHTED SKEW (LOGS)= 0.59
MEAN (LOGS)= 2.95
STANDARD DEV. (LOGS)= 0.30

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1973-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10# 10%	25# 4%	50# 2%	100# 1%
1	357	851	1,490	2,940	4,790	7,680
3	236	567	967	1,810	2,810	4,260
7	123	282	473	877	1,360	2,060
15	70	153	246	429	631	910
30	45	95	143	227	310	414
60	31	63	90	132	169	210
90	23	46	65	92	114	138

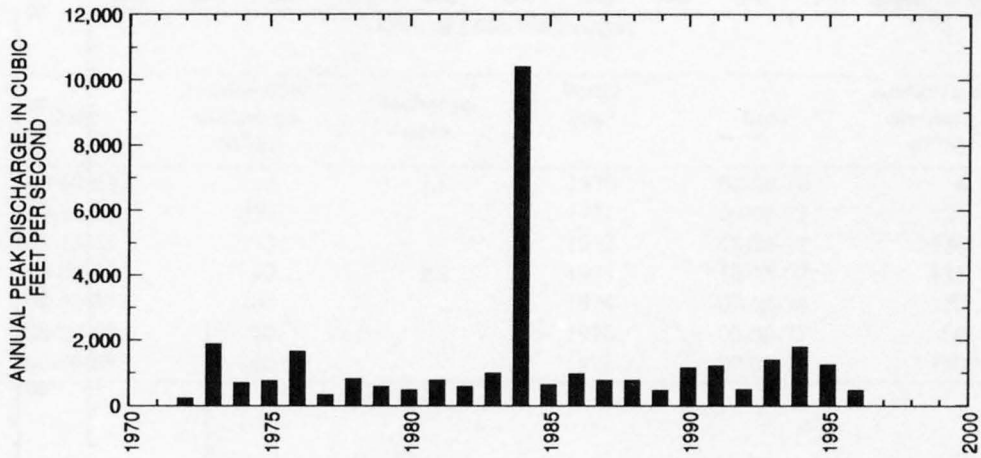
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1973-96

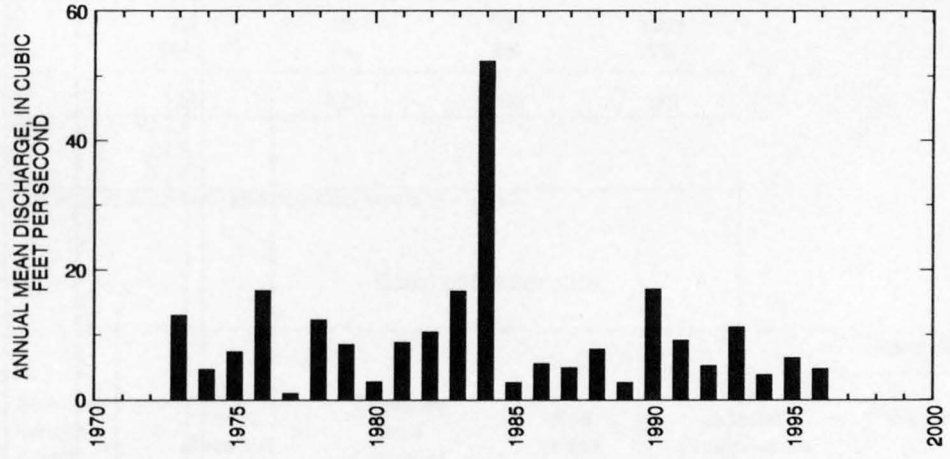
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
231	33	5.0	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

SAN SIMON WASH BASIN

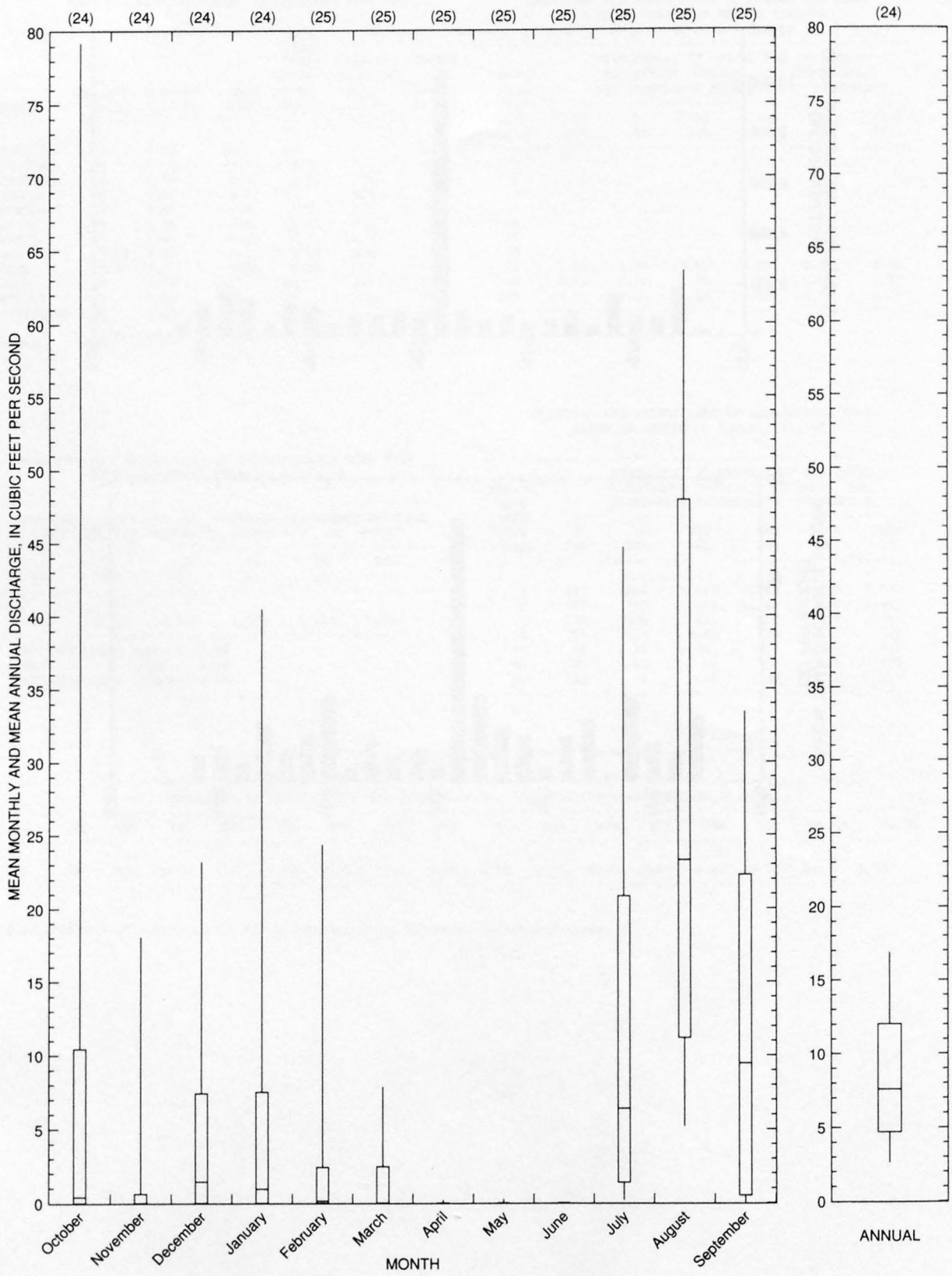
09535300 VAMORI WASH AT KOM VO, AZ--Continued





SAN SIMON WASH BASIN

09535300 VAMORI WASH AT KOM VO, AZ--Continued



09536100 PITCHFORK CANYON TRIBUTARY NEAR FORT GRANT, AZ

LOCATION.--Lat 32°35'20", long 109°54'40", in SE$^1/_4$ sec.5, T.10 S., R.24 E., Graham County, Hydrologic Unit 15050201, at State Highway 266, 3 mi southeast of Fort Grant.
DRAINAGE AREA.--0.81 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	00-00-63	10	LT	1970	00-00-70	0	
1964	07-24-64	354		1971	09-08-71	320	
1965	08-15-65	375		1972	08-26-72	130	
1966	08-07-66	40	ES	1973	10-15-72	135	
1967	08-00-67	200		1974	07-16-74	120	
1968	08-20-68	60		1975	00-00-75	0	
1969	00-00-69	180		1976	00-00-76	190	

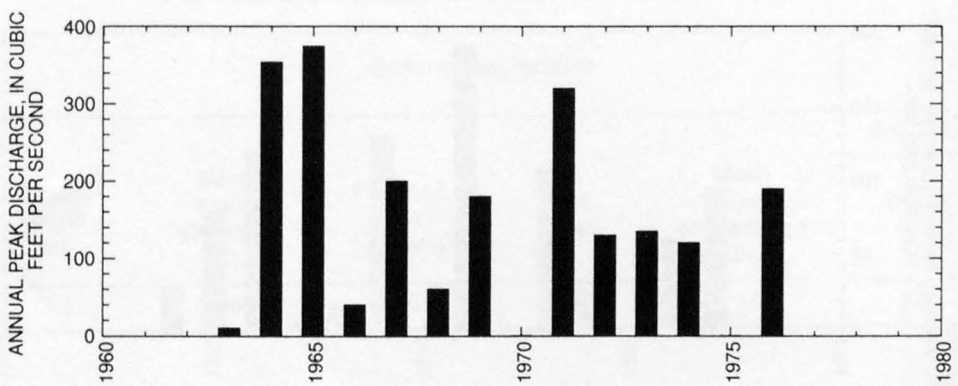
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
144	247	323	425	506	589
Weighted skew	(logs) =	-0.23			
Mean	(logs) =	2.15			
Standard dev.	(logs) =	0.29			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
459	1.8	5,210	0.0	3.0	15.0	2.1	3.8



09536350 SURPRISE CANYON NEAR DOS CABEZAS, AZ

LOCATION.--Lat 32°00'40", long 109°21'12", in SW$^1/_4$ sec.25, T.16 S., R.29 E., Cochise County, Hydrologic Unit 15050201, at main road through Chiricahua National Monument, 0.4 mi north of ranger station, and 19 mi southeast of Dos Cabezas.
DRAINAGE AREA.--0.65 mi^2.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1963	08-00-63	94		1970	00-00-70	0	
1964	08-14-64	61		1971	08-19-71	130	ES
1965	00-00-65	0		1972	10-25-71	17	
1966	08-18-66	32		1973	02-21-73	4.0	
1967	07-26-67	108		1974	07-07-74	120	
1968	00-00-68	0		1975	07-19-75	80	
1969	07-15-69	191		1976	00-00-76	30	ES

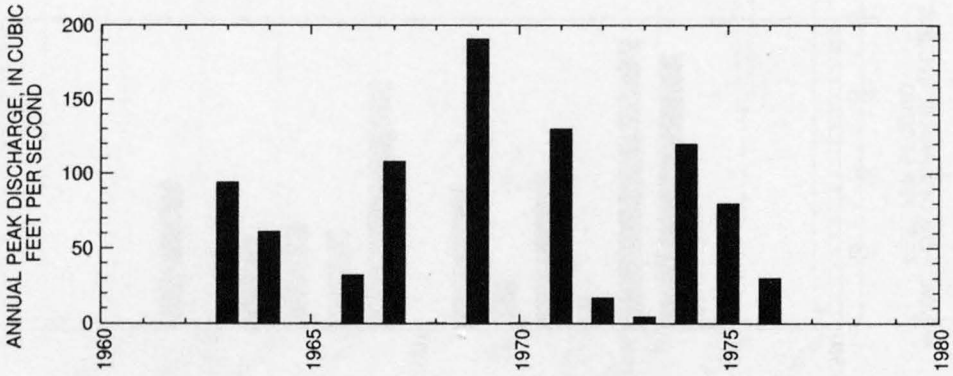
Magnitude and probability of instantaneous peak flow based on period of record 1963-76

Discharge, in ft^3/s, for indicated recurrence interval in years, and exceedance probablility, in percent					
2	5	10	25	50†	100†
50%	20%	10%	4%	2%	1%
44.9	113	172	261	335	413
Weighted skew	(logs) =	-0.51			
Mean	(logs) =	1.61			
Standard dev.	(logs) =	0.52			

† Reliability of values in column is uncertain, and potential errors are large.

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour 2-year (in)	Rainfall intensity, 24-hour 50-year (in)
1,040	1.7	6,280	100	1.0	18.0	2.2	4.4



WHITEWATER DRAW BASIN

09537200 LESLIE CREEK NEAR McNEAL, AZ

LOCATION.--Lat 31°35'24", long 109°30'30", in $SE^1/_4NE^1/_4$ sec.20, T.21 S., R.28 E., Cochise County, Hydrologic Unit 15080301, on right bank 10 mi east of McNeal.

DRAINAGE AREA.--79.1 mi^2.

PERIOD OF RECORD.--October 1969 to September 1977, July 1982 to current year.

GAGE.--Water-stage recorder and concrete control with shallow sharp-crested V-notch weir. Elevation of gage is 4,620 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft^3/s Sept. 1, 1994, gage height, 9.00 ft, from rating curve extended above 12 ft^3/s on basis of slope-area measurements of peak flow at gage height 7.33 ft and 8.54 ft; no flow for many days in 1976, 1977, and 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, October 1977 to July 1982, 468 ft^3/s, date unknown, gage height, 4.76 ft in gage well.

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1970	08-10-70	345		1986	08-18-86	658	
1971	08-12-71	1,760		1987	08-05-87	307	
1972	07-15-72	314		1988	07-20-88	250	
1973	10-20-72	255		1989	08-06-89	71	
1974	07-20-74	162		1990	07-21-90	1,090	
1975	07-23-75	132		1991	08-27-91	300	
1976	10-21-75	1.0		1992	07-23-92	750	
1977	08-08-77	563		1993	01-19-93	2,410	
1982	08-15-82	30		1994	09-01-94	5,200	
1983	02-04-83	322		1995	01-05-95	2,660	
1984	07-21-84	4,600		1996	07-10-96	4,920	
1985	10-03-83	709					

Discharge rating table developed October 1991

Gage height (ft)	Discharge (ft^3/s)	Gage height (ft)	Discharge (ft^3/s)
4.5	340	7.0	2,780
5.0	700	7.5	3,400
5.5	1,140	8.0	4,000
6.0	1,660	8.5	4,600
6.5	2,220	9.0	5,200

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
62.1	14.5	5,360	30.0	2.0	18.0	2.0	4.0

WHITEWATER DRAW BASIN

09537200 LESLIE CREEK NEAR McNEAL, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1970-77, 1983-96

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	31	0.00	2.5	6.5	2.6	14.5
NOVEMBER	1.8	0.00	0.73	0.57	0.78	4.3
DECEMBER	4.0	0.02	0.83	0.88	1.1	4.9
JANUARY	14	0.02	1.8	3.7	2.1	10.5
FEBRUARY	3.2	0.02	0.75	0.77	1.0	4.4
MARCH	1.6	0.02	0.54	0.42	0.78	3.2
APRIL	1.7	0.00	0.52	0.45	0.87	3.0
MAY	1.4	0.00	0.44	0.42	0.96	2.6
JUNE	1.8	0.00	0.42	0.46	1.1	2.4
JULY	26	0.00	3.3	7.2	2.2	19.2
AUGUST	17	0.00	3.2	4.0	1.3	18.9
SEPTEMBER	26	0.00	2.1	5.5	2.7	12.2
ANNUAL	6.6	0.07	1.4	1.5	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-77, 1984-96

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	20	50#	100#
	50%	20%	10%	5%	2%	1%
1	0.13	0.02	0.00	0.00	0.00	0.00
3	0.13	0.02	0.00	0.00	0.00	0.00
7	0.14	0.03	0.00	0.00	0.00	0.00
14	0.15	0.03	0.00	0.00	0.00	0.00
30	0.17	0.04	0.00	0.00	0.00	0.00
60	0.21	0.07	0.00	0.00	0.00	0.00
90	0.25	0.08	0.04	0.00	0.00	0.00
120	0.35	0.16	0.10	0.00	0.00	0.00
183	0.53	0.22	0.13	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1970-77, 1982-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2	5	10	25	50	100
50%	20%	10%	4%	2%	1%
612	1,910	3,430	6,380	9,490	13,500

WEIGHTED SKEW (LOGS)= -0.06
MEAN (LOGS)= 2.78
STANDARD DEV. (LOGS)= 0.59

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1970-77, 1983-96

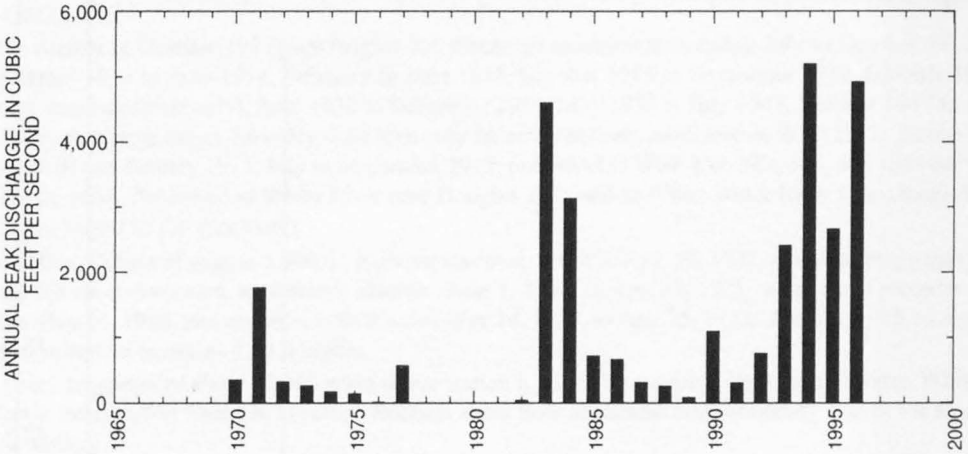
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2	5	10	25	50#	100#
	50%	20%	10%	4%	2%	1%
1	82	279	440	636	764	871
3	32	109	183	288	369	448
7	14	48	84	142	194	250
15	7.5	25	43	75	105	140
30	4.4	14	24	41	58	78
60	2.7	7.6	13	22	30	40
90	2.0	5.4	8.9	15	20	26

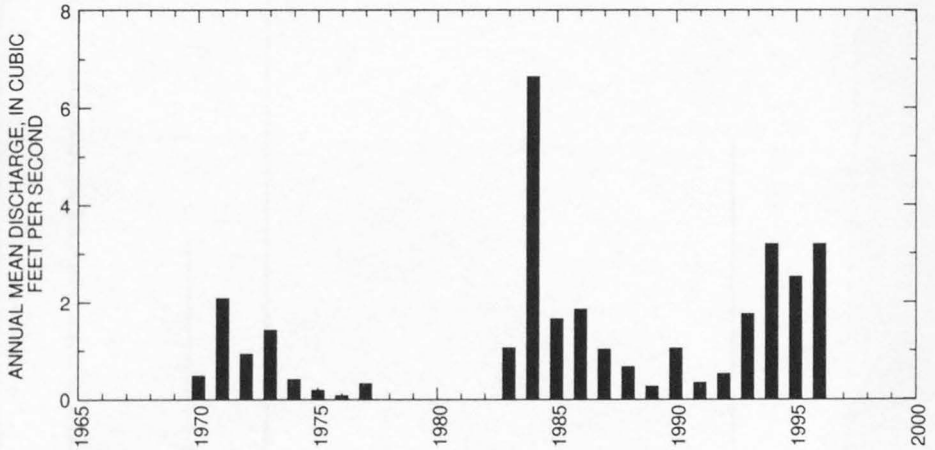
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1970-77, 1983-96

DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
10	1.9	1.5	1.3	1.1	0.74	0.57	0.44	0.31	0.22	0.16	0.07	0.02	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

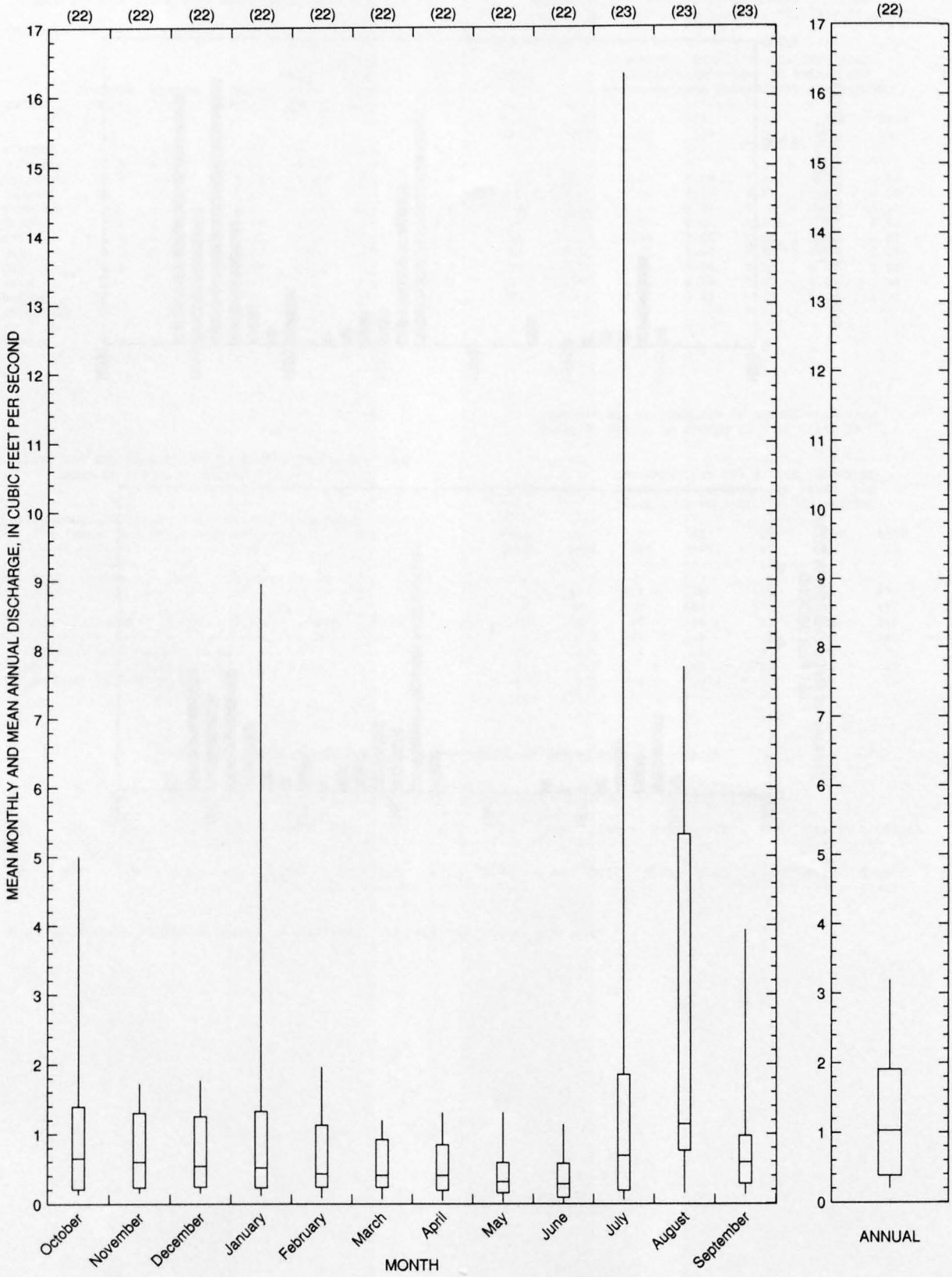
09537200 LESLIE CREEK NEAR McNEAL, AZ--Continued





WHITEWATER DRAW BASIN

09537200 LESLIE CREEK NEAR McNEAL, AZ--Continued



WHITEWATER DRAW BASIN

09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ

LOCATION.--Lat 31°21'08", long 109°35'04", in $SW^1/_4SE^1/_4$ sec.10, T.24 S., R.27 E., Cochise County, Hydrologic Unit 15080301, on downstream side of pier of bridge on U.S. Highway 80, 1.5 mi upstream from international boundary and 2 mi west of Douglas.

DRAINAGE AREA.--1,023 mi^2.

PERIOD OF RECORD.--August to October 191 (gage heights and discharge measurements only), July to October 1912, January to June 1913, October 1913, December 1913 to June 1914, February to June 1915, October 1915 to September 1919, October 1911 to April 1922 (gage heights and discharge measurements only), June 1930 to December 1933, May 1935 to July 1947, October 1947 to current year. (July 1954 to March 1955 monthly discharge only.) Monthly discharge only for some periods, published in WSP 1313. Records for July to September, November 1913, July 1914 to January 1915, July to September 1915, published in WSP 359, 389, 409, and 1049 have been found to be unreliable and should not be used. Published as White River near Douglas 1911 and as White Water River near Douglas 1912. Discontinued.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 3,909.14 ft above sea level. Prior to Apr. 30, 1922, nonrecording gages at various sites between 0.3 mi upstream and 0.8 mi downstream, at different datums. June 1, 1930, to Apr. 25, 1972, water-stage recorder at present site, at datum 2.17 ft lower prior to May 14, 1938, and at datum 2.20 ft lower May 14, 1938, to Apr. 25, 1972. Apr. 26, 1972, to Apr. 10, 1974, water- stage recorder at site 200 ft upstream at datum 4.40 ft higher.

REMARKS.--Records poor. Irrigation of about 40,000 acres above station in 1978, by pumping from ground water. Whitewater Draw discharges into Gulf of California through Rio Yaqui in Mexico. Records show flow at international boundary except for smelter waste water, which enters stream below station.

AVERAGE DISCHARGE.--53 years (water years 1916-19, 1931-33, 1936-46, 1948-82), 9.46 ft^3/s, 6,850 acre-ft/yr; median of yearly mean discharges, 8.2 ft^3/s, 5,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,060 ft^3/s Aug. 7, 1955; maximum gage height, 16.55 ft July 29, 1966; no flow at times in most years.

WHITEWATER DRAW BASIN

09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ--Continued

Annual peak discharges

Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes	Water year	Date	Annual peak discharge (ft^3/s)	Discharge codes
1916	07-11-16	1,600		1961	07-29-61	1,380	
1917	08-09-17	720		1962	07-28-62	687	
1918	07-15-18	1,050		1963	08-01-63	1,260	
1919	07-27-19	4,050		1964	07-31-64	1,370	
1920	11-23-19	3,400		1965	09-04-65	1,500	
1930	09-07-30	1,700		1966	07-29-66	3,760	
1931	08-10-31	3,450		1967	08-05-67	2,930	
1932	07-31-32	1,800		1968	09-01-68	1,280	
1933	09-20-33	1,730		1969	08-25-69	1,130	
1934	08-00-34	3,100		1970	08-17-70	2,260	
1935	09-01-35	2,900		1971	08-11-71	1,700	
1936	09-11-36	2,000	ES	1972	08-13-72	2,540	
1937	08-19-37	2,770		1973	07-11-73	800	
1938	08-07-38	1,990		1974	08-02-74	936	
1939	08-05-39	2,690		1975	07-23-75	1,020	
1940	06-24-40	2,750		1976	07-24-76	654	
1941	09-29-41	2,750		1977	08-19-77	625	
1942	09-13-42	2,300		1978	10-09-77	3,020	
1943	06-30-43	2,750		1979	07-20-79	1,100	
1944	08-16-44	2,190		1980	08-13-80	467	
1945	07-31-45	3,100		1981	07-19-81	753	
1946	10-09-45	1,440		1982	08-30-82	542	
1947	07-08-47	1,580		1983	07-24-83	170	
1948	07-22-48	3,170		1984	10-01-83	891	
1949	07-18-49	1,790		1985	09-29-85	1,420	
1950	07-19-50	3,400		1986	08-18-86	1,540	
1951	08-20-51	1,230		1987	08-05-87	381	
1952	06-02-52	1,670		1988	08-26-88	172	
1953	07-07-53	2,950		1989	10-16-88	95	
1954	08-09-54	3,680		1990	07-15-90	126	
1955	08-07-55	5,060		1991	11-26-90	52	
1956	08-27-56	513		1992	08-25-92	58	
1957	07-24-57	2,720		1993	09-02-93	66	
1958	09-23-58	1,280		1994	08-10-94	149	
1959	07-27-59	2,760		1995	11-13-94	242	
1960	07-31-60	676		1996	08-04-96	188	

Basin characteristics

Main channel slope (ft/mi)	Stream length (mi)	Mean basin elevation (ft)	Forested area (percent)	Soil index	Mean annual precipitation (in)	Rainfall intensity, 24-hour	
						2-year (in)	50-year (in)
20.5	61.7	4,740	11.0	2.3	14.8	1.8	3.6

WHITEWATER DRAW BASIN

09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ--Continued

MEAN MONTHLY AND ANNUAL DISCHARGES 1919, 1931-33, 1936-46, 1949-82

MONTH	MAXIMUM (FT3/S)	MINIMUM (FT3/S)	MEAN (FT3/S)	STANDARD DEVIATION (FT3/S)	COEFFICIENT OF VARIATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	99	0.00	4.9	15	3.1	4.4
NOVEMBER	9.9	0.00	0.85	1.7	2.0	0.8
DECEMBER	38	0.00	2.0	6.0	2.9	1.8
JANUARY	7.3	0.00	0.66	1.2	1.8	0.6
FEBRUARY	9.1	0.00	0.55	1.3	2.4	0.5
MARCH	4.8	0.00	0.49	0.79	1.6	0.4
APRIL	2.9	0.00	0.38	0.55	1.5	0.3
MAY	2.2	0.00	0.27	0.44	1.6	0.2
JUNE	27	0.00	2.1	5.9	2.8	1.9
JULY	342	0.00	38	55	1.5	34.2
AUGUST	235	0.00	48	58	1.2	43.3
SEPTEMBER	53	0.00	13	14	1.1	11.3
ANNUAL	33	0.32	9.3	6.9	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1932-33, 1937-47, 1949-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50# 2%	100# 1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
60	0.02	0.00	0.00	0.00	0.00	0.00
90	0.06	0.00	0.00	0.00	0.00	0.00
120	0.25	0.00	0.00	0.00	0.00	0.00
183	0.52	0.10	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1916-20, 1930-96

DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1,620	2,610	3,270	4,080	4,660	5,220

WEIGHTED SKEW (LOGS)= -0.46
MEAN (LOGS)= 3.19
STANDARD DEV. (LOGS)= 0.27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1919, 1931-33, 1936-46, 1949-82

PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	623	1,020	1,290	1,600	1,820	2,030
3	327	574	740	945	1,090	1,230
7	176	328	437	579	684	788
15	102	198	269	362	433	503
30	63	129	181	253	310	370
60	39	76	101	133	156	177
90	29	54	70	89	101	112

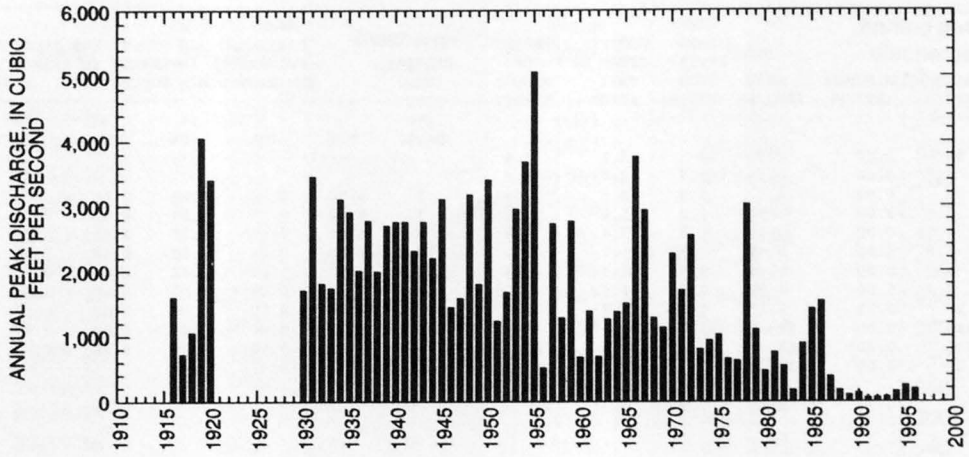
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1919, 1931-33, 1936-46, 1949-82

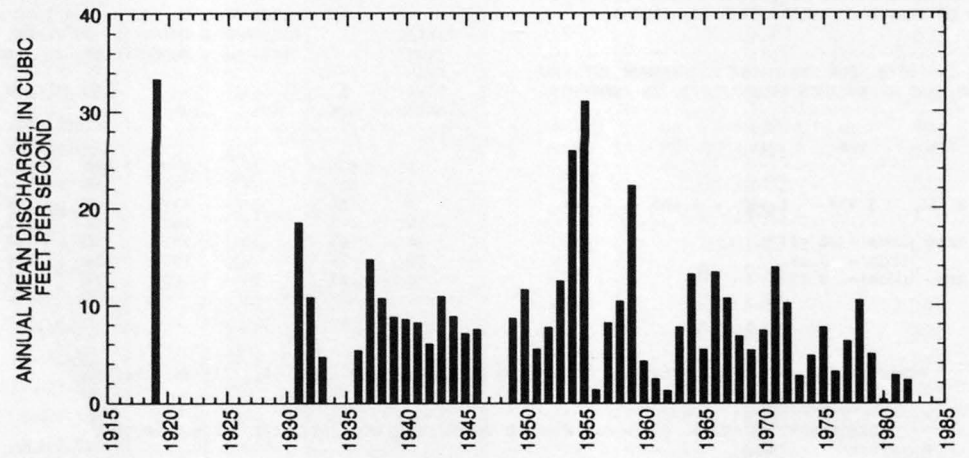
DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
248	22	3.4	1.4	1.0	0.66	0.44	0.25	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reliability of values in column is uncertain, and potential errors are large.

WHITEWATER DRAW BASIN

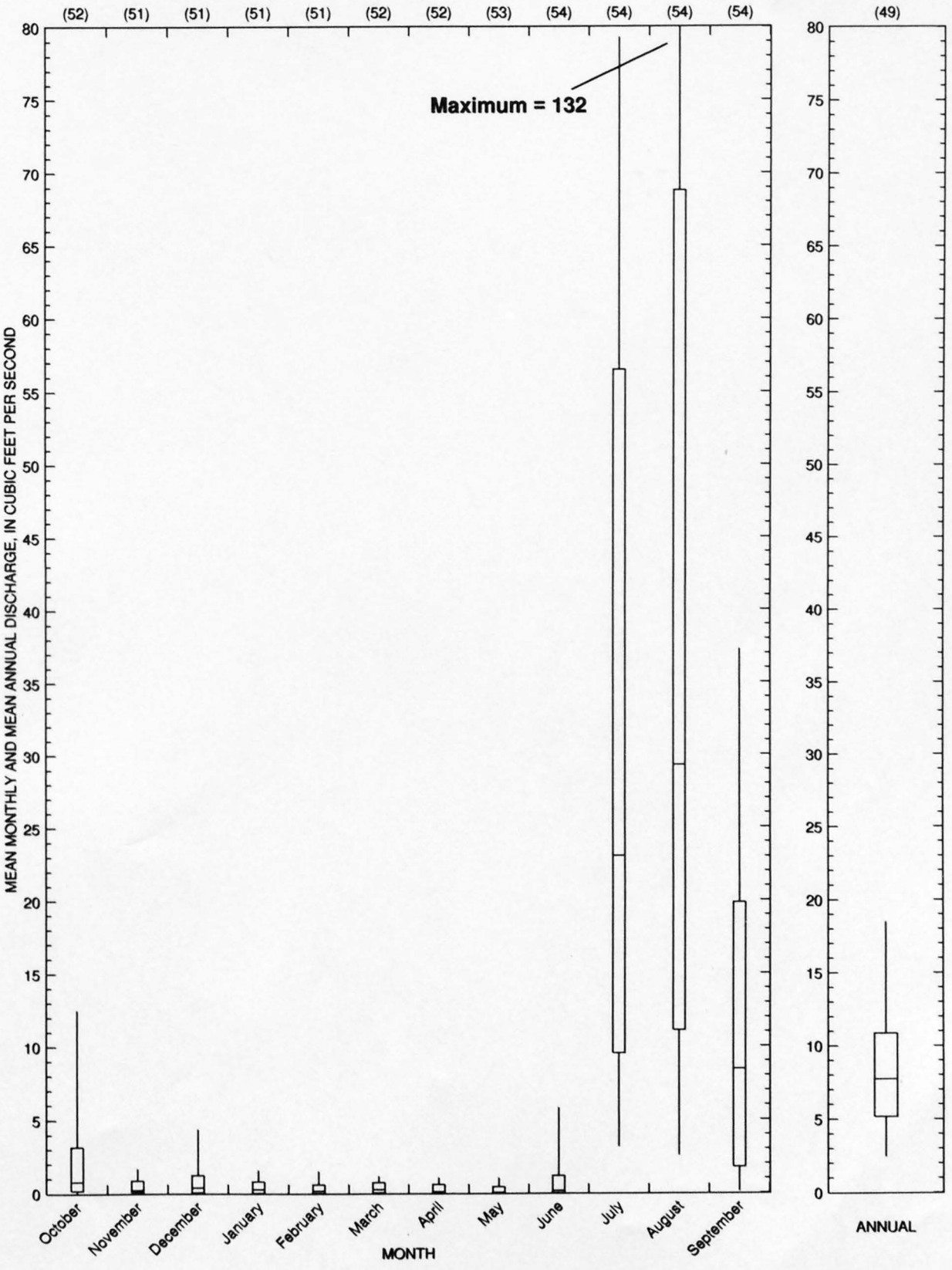
09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ--Continued





WHITEWATER DRAW BASIN

09537500 WHITEWATER DRAW NEAR DOUGLAS, AZ--Continued



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