GILA RIVER BASIN

09512800 AGUA FRIA RIVER NEAR ROCK SPRINGS, AZ

LOCATION.--Lat 34°00'56", long 112°10'02", in NW$^1/_4$NW$^1/_4$ 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

GILA RIVER BASIN

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

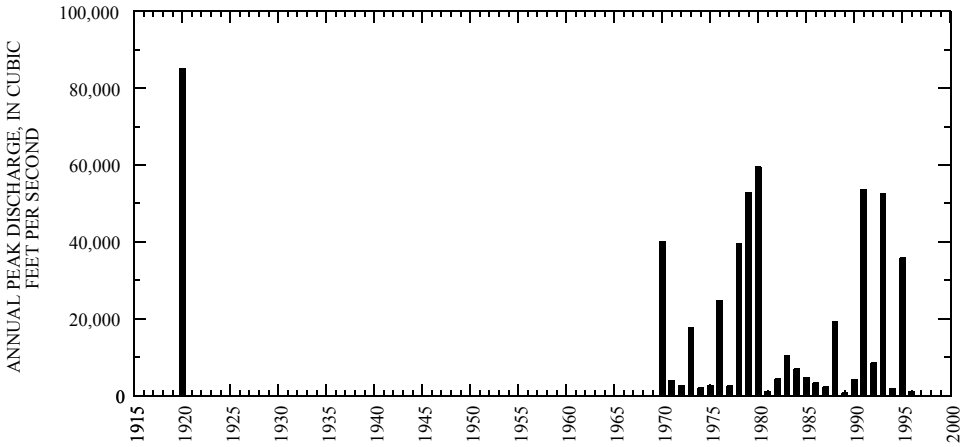
MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1971-73, 1975-96

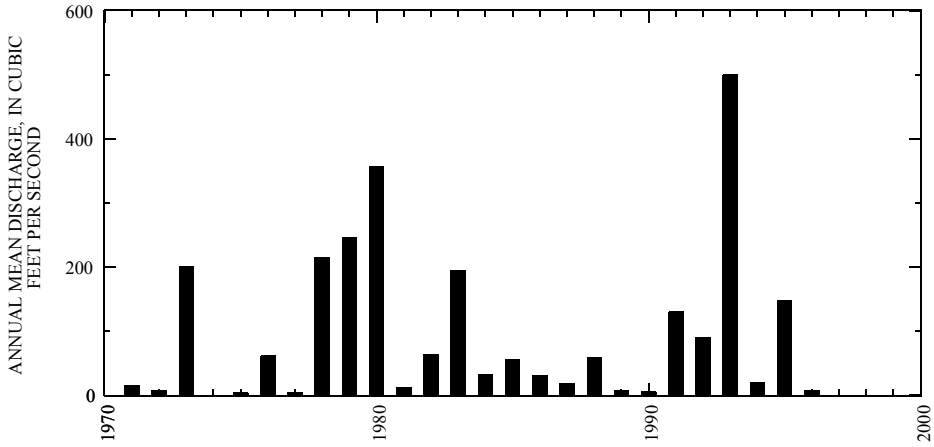
PERIOD (CONSECUTIVE DAYS)	DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50# 2%	100# 1%
1	1,860	8,200	18,100	42,900	75,400	126,000
3	957	4,390	9,760	22,900	39,900	65,600
7	594	2,610	5,590	12,400	20,800	32,800
15	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

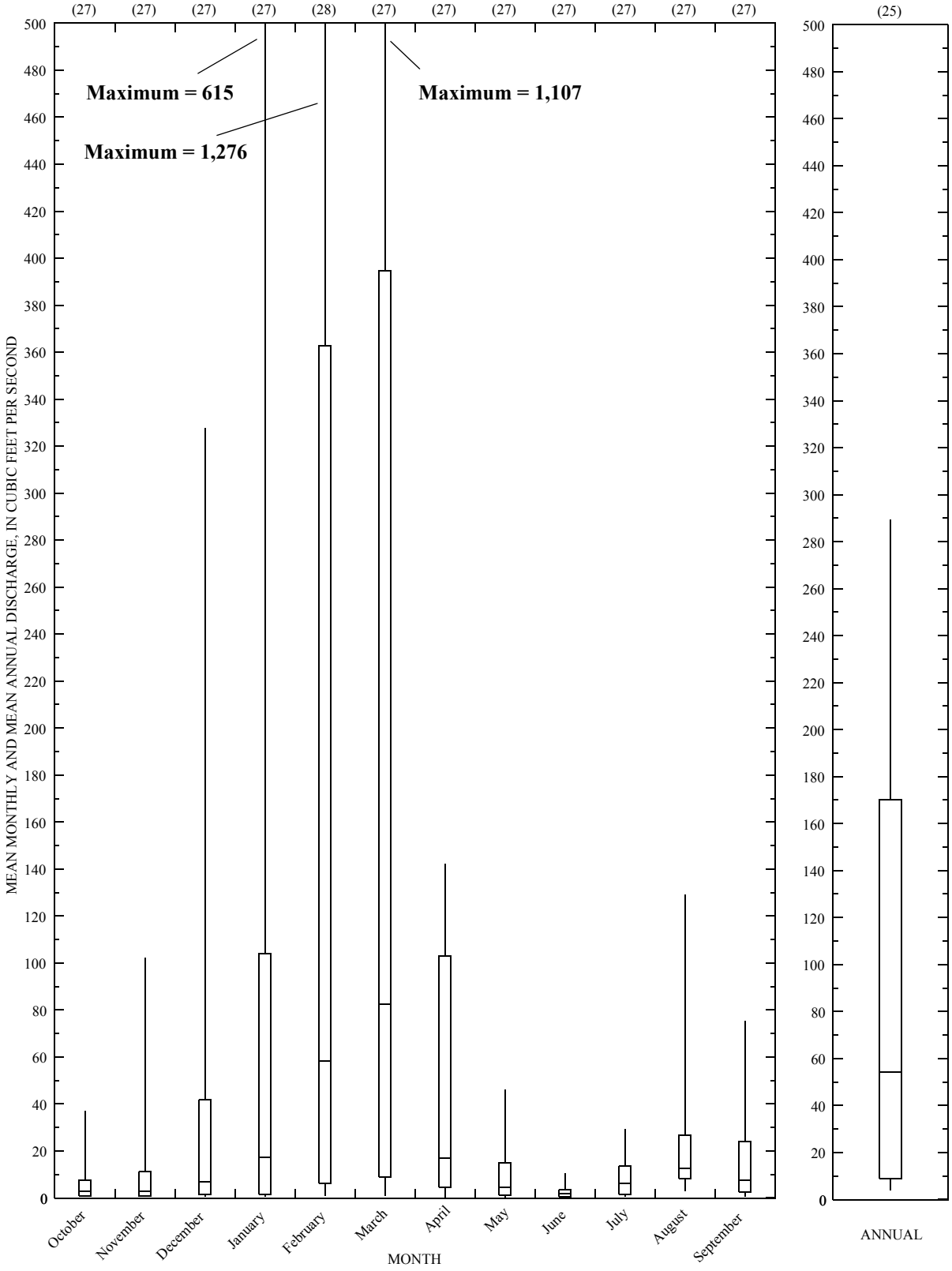
DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1971-73, 1975-96

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.


ANNUAL PEAK DISCHARGE, IN CUBIC FEET PER SECOND
100,000
80,000
60,000
40,000
20,000
0
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000


ANNUAL MEAN DISCHARGE, IN CUBIC FEET PER SECOND
600
400
200
0
1970
1980
1990
2000


(27)
(27)
(27)
(27)
(28)
(27)
(27)
(27)
(27)
(27)
(27)
(27)
(25)
Maximum = 615
Maximum = 1,276
Maximum = 1,107
MEAN MONTHLY AND MEAN ANNUAL DISCHARGE, IN CUBIC FEET PER SECOND
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
October
November
December
January
February
March
April
May
June
July
August
September
MONTH
ANNUAL