GILA RIVER BASIN

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ

LOCATION.--Lat 32°52'06", long 109°30'38", in SE$^1/_4$NE$^1/_4$ sec.3l, 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.

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

GILA RIVER BASIN

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

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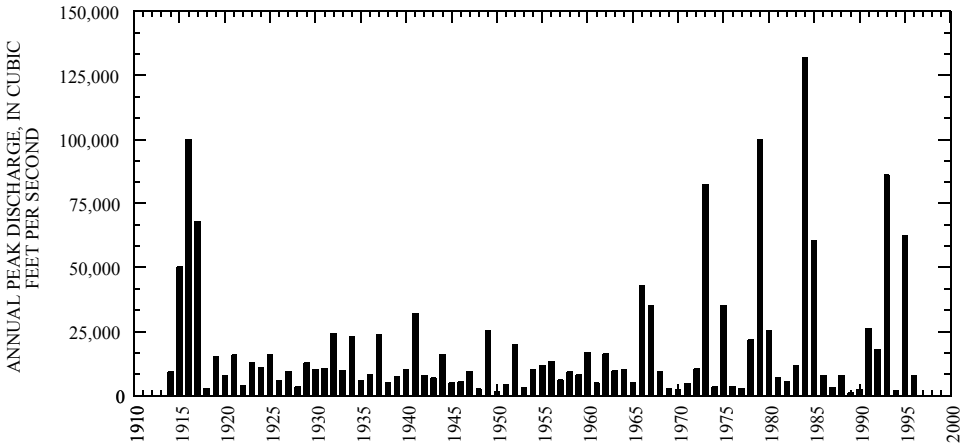

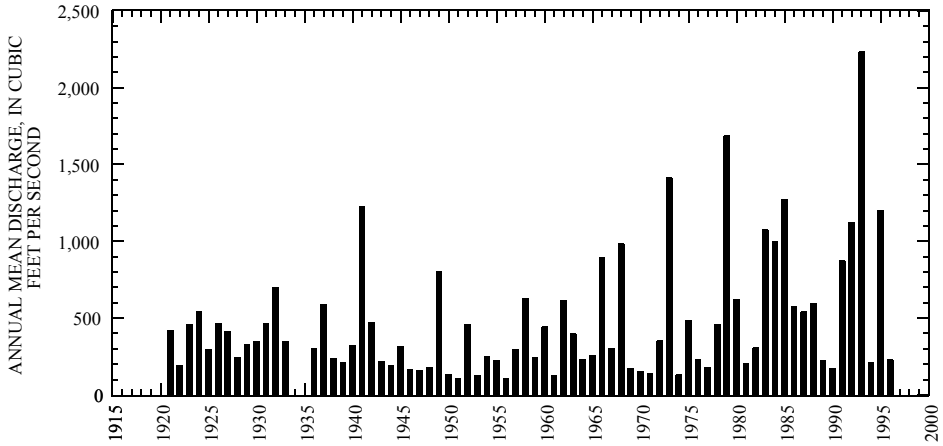
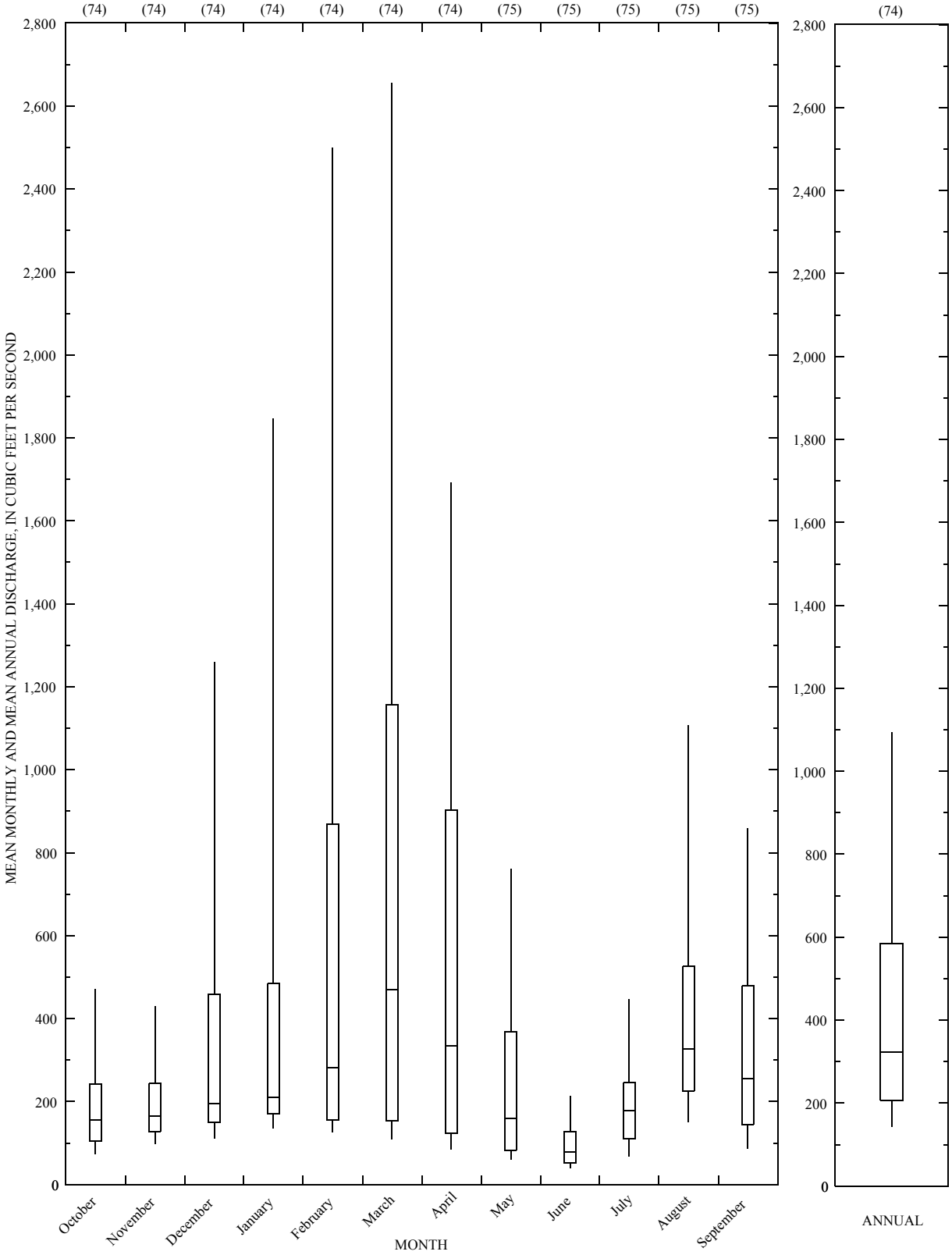
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