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WESTERN WATER BULLETIN 1976

Flow of
The Colorado River
and other
Western Boundary Streams
and
Related Data

COLORADO RIVER
TIJUANA RIVER
SANTA CRUZ RIVER
SAN PEDRO RIVER
WHITEWATER DRAW

1976

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FOREWORD

This bulletin is the seventeenth annual compilation of stream discharges and other hydrographic data relating to the international aspects of the Colorado River below Imperial Dam, the Tijuana River and other streams crossing the western land boundary of the United States and Mexico. The compilation was prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission, solely for the purpose of presenting statistical data relating to stream flow and kindred subjects for the Colorado River from Imperial Dam to the Gulf of California, the Tijuana River and its important tributaries in the United States and Mexico, and other streams, including the Alamo and New Rivers which cross the California-Baja California boundary, and the Santa Cruz River and Whitewater Draw which cross the Arizona-Sonora boundary. This volume contains the information for the year 1976.

Stream gaging on the Colorado River below Imperial Dam began in 1902 when the station at Yuma, Arizona was established. Stage records were obtained at this station from January 1878 until December 1973, when it was discontinued. Continuous stream gaging on the Tijuana River and its important tributaries in the United States and in Mexico began in 1936. Each government operates the gaging stations located within its own country.

Colorado River below Imperial Dam

Below Imperial Dam, the Colorado River flows southward 10 miles to the mouth of the Gila River, thence westward 11 miles to Pilot Knob Mountain, and south 1 mile to the point where the northerly international land boundary, between California and Baja California, intersects the river. From this point the river continues to flow southward and forms the boundary between the United States and Mexico for a distance of about 22 miles to the point where the southerly international land boundary between Arizona and Sonora intersects the river. From this point the river continues to flow southward about 90 miles to discharge into the Gulf of California.

The ordinary flows of Colorado River below Imperial Dam are largely controlled by releases at Hoover Dam, completed in 1935. The releases are further regulated at Davis Dam, completed in 1950, and by Parker and Imperial Dams, completed in 1938. Small amounts of runoff may occasionally be contributed to the flow in the lower river from the usually dry arroyos draining the 10,900 square miles along the river from Hoover Dam to the mouth of the Gila River, not including 5,500 square miles in the Bill Williams River watershed. In addition, flows ranging from usually minor amounts to infrequent torrential floods may enter the lower Colorado River from the Bill Williams River and from the Gila River, draining about 7,300 square miles below Painted Rock Dam and Reservoir, completed in January 1960.

At Imperial Dam, diversions are made to Gila Gravity Main Canal and All-American Canal for irrigation projects in Arizona, including the Yuma Valley, Gila and Wellton-Mohawk projects, and in California, including the Imperial Valley, Coachella Valley and Reservation Division of Yuma Project. Also, under the provisions of the 1944 Water Treaty, there may be diverted to the All-American Canal at Imperial Dam for delivery to Mexico in the Alamo Canal, or substitute canal, at the northerly boundary, a portion of Mexico's guaranteed annual allotment of waters of the Colorado River. No such diversions were made in 1976.

Below Laguna Dam, measured and unmeasured flows are returned to the river principally as waste and drainage water from the irrigation projects in the United States. Waste and drainage waters from irrigation projects in the United States also cross the boundary into Mexico near San Luis, Arizona without returning to the river in the United States.

In the limitrophe section of the river, 1.1 miles downstream from the northerly boundary, Morelos Dam, the principal diversion structure for Mexico, was completed and placed in operation on November 8, 1950. Since that date almost all the Colorado River flows that cross the northerly boundary (except emergency deliveries to Tijuana beginning in August 1972) have been diverted to the Alamo Canal at Morelos Dam.

Tijuana River Basin

The total drainage area of the Tijuana River basin is 1,731 square miles, of which 27 percent lies in the United States and 73 percent in Mexico. This river is formed by the principal tributaries, Cottonwood Creek, which rises in the United States and Rio de las Palmas, which rises in Mexico. Cottonwood Creek crosses the international land boundary 21 miles from the Pacific Ocean to join the Rio de las Palmas in Mexico. From the confluence of these tributaries, the Tijuana River flows northwesterly 5 miles to cross the land boundary into the United States near San Ysidro, California, and Tijuana, Baja California, and then flows westerly 6 miles to discharge into the Pacific Ocean 2 miles north of the boundary. The flow of Cottonwood Creek is partially controlled by Barrett and Morena Reservoirs in the United States and the flow of the Rio de las Palmas is partially controlled by Rodriguez Reservoir in Mexico.

Whitewater Draw near Douglas, Arizona

Whitewater Draw rises in the United States and flows south into Mexico crossing the international boundary near Douglas, Arizona, eventually discharging into the Gulf of California through the Yaqui River in Mexico. The total drainage area above the Douglas Gaging Station is 1,023 square miles. A number of mountain streams in the upper reaches of the basin are diverted for irrigation, but they would normally sink or go to ground water before reaching the main water course.

FOREWORD

San Pedro River at Palominas, Arizona

The San Pedro River rises in Mexico and flows north into the United States crossing the boundary near Palominas, Arizona, and thence northwesterly into the Gila River. The river in the vicinity of the international boundary drains an area of 741 square miles of which 649 square miles are in Mexico.

Santa Cruz River near Nogales and Lochiel, Arizona

The Santa Cruz River rises in the United States and flows south into Mexico crossing the international boundary near Lochiel, Arizona, and returns to the United States near Nogales, Arizona, eventually discharging into the Gila River southwest of Phoenix, Arizona. The drainage area of the Santa Cruz River above Nogales station is 533 square miles. Of this amount, 348 square miles lie in Mexico. There are a few ground water irrigation diversions above the Lochiel station in Arizona and an unknown amount of water diverted for irrigation in Mexico.

Acknowledgments

Other agencies which have contributed to the data published herein include the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the National Weather Service, Department of Commerce; the Yuma County Water Users' Association; the Imperial Irrigation District; the city of San Diego, California; the Otay Municipal Water District; and the Ministry of Hydraulic Resources of Mexico. Specific notation is made of each of the above named agencies, where the data appear. The courtesy and cooperation of those who have made these contributions are acknowledged with appreciation.

Units of Measure

Data collected by the Mexican Section are computed and published in a Spanish version of the water bulletin in metric units. The Mexican data are converted and reported in this bulletin in English units. Conversion factors conform generally to those in the National Bureau of Standards Miscellaneous Publication 286 "Units of Weight and Measure (United States Customary and Metric) - Definitions and Tables of Equivalents". However, for convenience some of the factors have been shortened and modified to facilitate conversion, reconversion to the original units when necessary, and checking of data. Conversion of the mean daily discharges, the monthly average discharge, and the monthly and annual volumes from metric to English units is direct. For this reason the monthly average discharge in cubic feet per second and monthly volumes in acre-feet shown for gaging stations operated by the Mexican Section cannot necessarily be obtained in the usual manner from the total monthly flow in second-foot days. For the same reason, evaporation and rainfall data, when totaled, may not be equivalent to the direct conversion from metric to English units. The following factors have been used for data in this bulletin:

<u>METRIC UNITS</u>	<u>ENGLISH UNITS</u>
	<u>LENGTHS</u>
1 Centimeter	0.393701 Inch
1 Meter	3.28084 Feet
1 Kilometer	0.621371 Mile
	<u>AREAS</u>
1 Square Meter	10.76391 Square Feet
1 Hectare	2.471054 Acres
1 Square Kilometer	0.386102 Square Mile
	<u>VOLUMES</u>
1 Cubic Meter	61023.74 Cubic Inches
1 Cubic Meter	35.31467 Cubic Feet
1 Cubic Meter	1.30795 Cubic Yards
1000 Cubic Meters	0.81071 Acre-Foot
1 Liter	0.264172 U.S. Gallon
	<u>WEIGHTS</u>
1 Kilogram	2.204623 Pounds
1 Metric Ton	2204.623 Pounds
1 Metric Ton	1.102311 Short Tons (2000 lbs.)

Beginning in 1976, as a step toward eventual publication of this bulletin in metric units only, both English and metric units are used to report the figures in the descriptive headings and for the yearly figures of the annual and period summaries of all gaging station pages. The yearly figures for the summaries are obtained by direct conversion, except for those stations operated by the Mexican Section, where the metric system of units is used.

GENERAL HYDROLOGIC CONDITIONS FOR 1976

Colorado River

Normally, there is no measurable amount of runoff from the portion of the Colorado River basin in the United States and Mexico below Hoover Dam, not including Bill Williams and Gila Rivers. There was no significant amount in 1976. The average seasonal (October 1975-September 1976) rainfall over the upper basin, as gaged at 13 index stations, was about 11.1 inches compared to a seasonal average of about 13.95 inches for the 54 seasons (1923-1976). In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation (1976) measured at 6 index stations was 5.28 inches compared to an average of 2.60 inches during the last 18 years (1959-1976).

The flow of the Colorado River reaching Imperial Dam was 5,902,300 acre-feet, about 73% of the 42-year average (1935-1976) of 8,061,795 acre-feet. At the northerly international boundary, the total flow of the river during 1976 was 1,449,516 acre-feet, about 41% of the 1935-1976 average of 3,561,062 acre-feet. At the southerly international boundary, the flow during 1976 was 187,276 acre-feet, or about 7% of the 1935-1976 average of 2,704,351 acre-feet. The total flow of the Colorado River reaching the M. C. Rodriguez gaging station, 24.5 miles downstream from the southerly international boundary, and 4.5 miles upstream from the Sonora-Baja California railroad bridge, was 90,230 acre-feet in 1976, about 9% of the 1951-1976 average of 982,882 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1976 amounted to 1,774,224 acre-feet, 43% of the 1935-1976 average of 4,158,593 acre-feet, as measured 1) in the Colorado River at the northerly international boundary, 2) in the Wellton-Mohawk Main Outlet Drain Extension near Morelos Dam, 3) in the wasteways that discharge into the limitrophe section of the river from the United States bank, 4) in the canal which discharges waste and drainage waters from the Yuma Project across the southerly land boundary into Mexico near San Luis, Arizona, and 5) emergency delivery of Colorado River water for use in Tijuana, Baja California.

No flood peaks of importance occurred in streams of the lower Colorado River basin during 1976. A maximum instantaneous flow of 8,930 second-feet occurred in the Colorado River at the northerly boundary station on September 27, 1976.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 23,499,500 acre-feet, 82% of the usable capacity of 28,588,400 acre-feet. The greater part (21,203,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1976 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1976 was 1,188,873 acres; 685,250 acres in the United States and 503,623 acres in Mexico. An estimated 34% of acreage in Mexico is served by pumping from ground water.

The suspended sediment load passing the northerly boundary station in 1976 was 71.0 acre-feet, about 30% of the 1956-1976 average of 236 acre-feet.

Tijuana River Basin

During 1976, the temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 60.7 degrees, 0.5 degree below the 46-year mean. In the extreme upper portion of the basin in Mexico at San Juan de Dios, Baja California (elevation 3,280 feet), the recorded temperatures during the year averaged 54 degrees, 2 degrees below the long-term average; and at Rodriguez Dam, Baja California (elevation 459 feet), the recorded temperatures averaged 64 degrees, 2 degrees above the normal of many years.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 17.09 inches, 100% of normal; and at Chula Vista near the lower end of the basin, 11.72 inches, or 125% of normal. The recorded precipitation at San Juan de Dios in the upper portion of the basin in Mexico was 16.65 inches, approximately 116% of the normal during the 21-year period; and at Rodriguez Dam in the lower portion of the basin in Mexico, 14.84 inches, 184% of the 39-year average.

Runoff in the basin during 1976 averaged less than 15% of normal. Above Morena Reservoir the runoff was 406 acre-feet, or about 8% of the 40-year 1937-1976 mean of 5,272 acre-feet. At Rodriguez Reservoir, the runoff was 2,502 acre-feet, or about 20% of the 39-year mean of 12,338 acre-feet.

The flow of the Tijuana River at the international boundary was 1,815 acre-feet during 1976, and the flow in the Tijuana River near Nestor was 674 acre-feet.

Whitewater Draw

During 1976, the average annual temperature over the watershed was slightly below normal, while the annual precipitation was about normal. Runoff for the year at the gaging station near Douglas, Arizona of 2,302 acre-feet was about 34% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1976

San Pedro River

During 1976, the average annual temperature was below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 84% of the 1951-1976 mean of 19.25 inches. The stream flow at the international boundary was 15,508 acre-feet, 75% of the 1951-1976 normal.

Santa Cruz River

During 1976, the average annual temperature over the watershed was somewhat below normal, and the annual precipitation was about 100% of the 38-year 1939-1976 mean. Runoff measured at the Nogales gaging station where the stream re-enters the United States was 15,353 acre-feet. The total runoff for the year measured at the gaging station near Lochiel, Arizona, where the stream enters Mexico from the United States was 4,099 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 11,254 acre-feet from the loop of the river lying in Mexico, or approximately 73% of the flow reaching the Nogales station.

Alamo and New Rivers

During 1976, the average annual temperature over the drainage area of the Alamo River, as recorded at El Centro, California, was 71.1 degrees, 1.1 degrees below normal; and over the drainage area of the New River, as recorded at Mexicali, Baja California, it was 72 degrees, equal to the 51-year average.

At El Centro, the precipitation was 4.36 inches, about 180% of the 46-year average; and in Mexicali, the annual precipitation was 5.79 inches, 194% of the 51-year average. The total flow of the New River at the international boundary in 1976 was 102,884 acre-feet, which was about 130% of the 1943-1976 normal.

Salton Sea

During 1976, the average annual temperature around the Salton Sea was about 97% of the long-term average, while the annual precipitation recorded at Brawley, California was approximately 297% of the long-term mean of 2.40 inches. The water surface of the Salton Sea continued to rise during the year. The maximum stage, 229.3 feet below mean sea level, was recorded on November 27, 1976. The minimum stage, 230.9 feet below mean sea level, was recorded on January 2-4.

EMERGENCY DELIVERIES OF COLORADO RIVER WATERS FOR USE IN TIJUANA, BAJA CALIFORNIA

DESCRIPTION: Delivery of water is measured at a metering station located adjacent to the international boundary near Tijuana, and approximately 2.5 miles (4.0 km) east of the International Boundary Monument #253. The metering station consists of two venturi tubes, 20 inches (50.8 cm) and 18 inches (45.7 cm), and two BIF recorders.

RECORDS: Based on totalizer readings read at approximately 8:00 a.m. each day and on continuous chart readings furnished by the Otay Municipal Water District. Records available since August 13, 1972. These records reflect a 12% loss incurred in conveying the water from the point of diversion above Parker Dam to the international boundary.

REMARKS: Emergency deliveries of Colorado River waters for use in Tijuana began August 13, 1972 pursuant to Minute No. 240 of this Commission. The deliveries are conveyed approximately 323 miles (520 km) using the following conveyance works: The diversion works from Lake Havasu above Parker Dam and the Colorado River Aqueduct, the San Diego Aqueducts, the Otay Reservoir and facilities of the Otay Municipal Water District. Furthermore, the following additional facilities were constructed as provided in Minute 240; new pumps at the Otay Pumping Station, approximately 5,800 feet (1,768 m) of 24-inch (61.0 cm) pipe and various valves, meters and accessories near the international boundary. The facilities were developed to circumvent serious water shortages predicted for Tijuana.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.2	11.6	8.1	14.5	14.5	14.6	14.9	15.5	8.0	13.1	15.9	16.3
2	11.0	11.4	3.3	14.5	14.6	14.5	14.7	15.1	10.6	16.2	15.6	15.8
3	11.1	11.4	3.4	14.5	14.3	14.5	14.9	15.2	15.7	15.9	16.1	16.0
4	10.8	11.5	3.4	14.3	14.4	14.7	14.9	15.2	16.0	15.7	11.0	16.1
5	11.1	11.6	3.5	14.4	14.3	14.7	14.9	15.2	16.1	15.5	7.9	16.3
6	11.0	11.4	3.5	14.3	14.3	14.7	14.8	15.2	16.0	15.3	8.0	16.1
7	11.1	11.6	3.5	14.3	14.3	14.5	14.8	15.4	15.5	15.6	8.1	16.2
8	11.1	11.6	1.3	14.2	14.5	14.7	14.8	15.6	15.2	15.3	13.0	16.1
9	8.7	11.4	0	14.4	14.6	15.0	14.8	15.4	15.6	15.0	16.0	16.0
10	5.6	11.5	9.3	14.3	14.5	15.0	14.9	15.2	16.0	15.7	16.2	15.9
11	7.8	11.4	14.5	14.5	14.6	15.0	15.0	15.2	16.0	9.1	16.2	15.9
12	11.0	11.5	14.5	14.3	14.4	15.0	14.9	15.3	16.2	5.8	16.3	15.9
13	11.4	11.2	14.6	14.6	14.3	15.1	14.9	15.2	16.0	8.0	16.5	15.9
14	11.5	11.3	14.6	14.2	14.3	15.0	15.0	15.4	16.0	10.0	16.5	16.3
15	11.4	11.2	14.6	14.5	14.5	15.3	14.9	15.6	16.0	14.0	16.3	16.2
16	11.4	11.3	14.3	14.5	14.6	14.9	14.7	15.1	16.0	16.0	16.5	16.0
17	11.3	14.3	14.7	14.4	14.4	14.9	14.9	15.2	16.0	16.1	16.5	15.9
18	11.4	15.9	14.6	14.6	14.6	14.9	14.9	15.4	16.0	15.8	16.2	15.9
19	11.4	15.9	14.3	14.4	14.4	15.1	15.4	15.4	16.2	15.9	16.3	15.9
20	11.6	16.0	14.6	14.4	14.4	15.1	15.0	15.0	15.5	15.8	16.4	15.9
21	11.4	15.9	14.5	14.3	14.2	14.9	15.3	15.2	15.6	16.0	16.5	16.4
22	11.5	16.2	14.4	14.5	14.3	14.9	15.4	15.6	15.6	16.0	16.5	16.5
23	11.5	15.9	14.2	14.6	14.6	14.9	15.4	15.3	15.4	16.0	16.5	16.4
24	11.3	15.7	14.4	14.5	14.3	14.7	15.3	15.1	15.2	16.2	16.5	16.4
25	11.3	15.7	14.5	14.4	14.3	14.9	15.6	15.1	16.1	16.1	16.6	16.6
26	11.3	15.5	14.5	14.3	14.5	14.8	15.2	15.1	16.0	16.1	16.4	16.6
27	11.4	15.5	14.5	14.4	14.3	15.0	15.2	12.4	15.6	16.1	16.1	16.5
28	11.4	15.6	14.4	14.4	14.5	15.0	15.2	9.6	15.6	16.0	16.1	16.1
29	11.4	15.7	14.4	13.9	14.3	14.9	15.3	8.3	15.2	16.0	15.9	15.9
30	11.3	14.4	14.4	14.7	14.6	14.9	15.4	8.1	11.1	15.9	16.0	16.2
31	11.5		14.5		14.4		15.6	8.1		16.2		16.4
Sum	338.2	386.7	343.3	432.1	447.1	446.1	466.9	443.7	456.0	456.4	454.6	500.6
Current Year 1976												
Month	Extreme Gage Feet		* ϕ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1973-1976 Acre-Feet			
	High	Low	Day	High	Day	Low	Average		Maximum	Minimum		
Jan.			20	11.6	10	5.6	10.9	671	708	846	603	
Feb.			22	16.2	113	11.2	13.3	767	700	767	626	
Mar.			17	14.7	9	0	11.1	631	722	849	675	
Apr.			30	14.7	29	13.9	14.4	857	760	857	591	
May			† 2	14.6	21	14.2	14.4	887	810	887	598	
June			15	15.3	† 2	14.5	14.9	835	841	986	700	
July			†25	15.6	† 2	14.7	15.1	926	888	1,021	783	
Aug.			† 8	15.6	†30	8.1	14.3	880	821	907	638	
Sept.			†12	16.2	1	8.0	15.2	904	755	904	599	
Oct.			† 2	16.2	12	5.8	14.7	905	818	905	701	
Nov.			25	16.6	5	7.9	15.2	902	800	902	690	
Dec.			†25	16.6	2	15.3	16.1	993	780	993	610	
Yearly				16.6		0	14.1	10,258	9,403	10,258	8,262	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.47		0	0.40	12,653	11,599	12,653	10,191	

* Includes 12% losses

 ϕ Mean daily

† And other days

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder (digital) located 500 feet (152 m) upstream from railroad culvert and one mile (1.6 km) northwest of Yuma, Arizona. Discharge measurements are made from a footbridge immediately below the gage. The drainage canal discharges into the outfall channel of the Yuma Main Canal Wasteway 200 feet (61.0 m) downstream from the spillway structure, and thence into the Colorado River on the right bank, 1,000 feet (305 m) upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles (10.5 km) upstream from the northerly international boundary. Prior to October 1955, published as "California Drainage Canal near Yuma, Arizona."

RECORDS: Based on current meter measurements and a continuous record of gage heights. Records are computed and furnished by the U. S. Geological Survey. Records available: Monthly discharge, January 1913 to April 1920, October 1921 to March 1925, and January 1934 to September 1947; daily and monthly discharge, October 1947 through 1976.

REMARKS: Reservation Main Drain No. 4 collects drainage and waste water from the area east of the Yuma Main Canal on the Reservation Division of the Yuma Project, located in California. Since 1939, collection of seepage from the All-American Canal has caused large increases in drainage flows. Average annual flow prior to 1937 was 12,800 acre-feet (15,789,000 m³). Monthly and annual averages since 1937 are shown in the table below.

EXTREMES: Prior to 1937: Maximum annual flow 20,190 acre-feet, (24,904,000 m³), 1916; minimum annual flow 8,920 acre-feet (11,003,000 m³), 1913.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	52	47	60	63	68	64	64	60	53	74	51	57
2	55	47	55	62	80	61	68	60	57	72	56	51
3	52	50	56	65	66	65	58	60	56	71	53	52
4	57	47	56	61	61	63	72	55	63	66	52	57
5	56	48	55	62	61	66	57	56	68	60	52	57
6	53	55	57	61	60	69	55	58	57	56	52	51
7	50	51	63	61	63	61	55	63	48	57	56	57
8	54	54	58	63	69	59	56	58	45	54	58	62
9	52	57	58	65	63	58	57	59	53	54	56	58
10	54	51	59	70	69	61	59	65	65	66	65	52
11	50	52	58	67	65	63	59	60	48	66	57	50
12	50	55	59	62	65	60	60	61	49	62	57	49
13	55	54	65	69	65	61	55	63	52	61	59	49
14	61	63	76	65	70	58	56	67	54	61	55	51
15	62	53	65	65	75	62	62	68	59	59	60	52
16	52	51	61	57	65	65	54	60	66	65	54	52
17	54	62	60	61	65	64	54	62	66	64	52	54
18	51	48	62	65	70	65	53	59	58	58	54	50
19	54	46	68	64	75	62	57	64	57	61	63	50
20	54	47	59	62	70	62	53	58	56	70	62	49
21	54	53	59	66	65	64	53	59	59	66	74	48
22	54	46	62	64	65	60	53	59	61	62	58	50
23	59	55	62	67	65	64	55	58	66	58	58	51
24	56	53	68	72	62	62	58	56	52	52	57	48
25	53	54	68	75	63	61	60	57	80	53	52	50
26	51	52	60	72	64	64	57	57	88	56	52	47
27	49	55	64	67	61	71	55	57	92	52	57	46
28	49	57	73	64	63	68	54	59	74	51	56	49
29	47	62	68	66	63	72	58	65	85	52	55	47
30	50	70	62	62	62	63	59	60	77	54	57	48
31	50		64		66		57	59		68		57
Sum	1,650	1,525	1,928	1,945	2,044	1,898	1,783	1,862	1,966	1,881	1,700	1,601

Month	Extreme Gage Feet		Current Year 1976				Average Second-Feet	Total Acre-Feet	Period 1937-1976		
	High	Low	Extreme Second-Feet		Low	Acre-Feet					
			Day	High		Day	Low	Average	Maximum	Minimum	
Jan.			15	62	29	47	53.2	3,273	3,194	4,780	877
Feb.			14	63	†19	46	52.6	3,025	3,031	4,320	563
Mar.			14	76	† 2	55	62.2	3,824	3,688	5,240	1,240
Apr.			25	75	16	57	64.8	3,858	3,744	5,250	1,160
May			2	80	6	60	65.9	4,054	3,868	5,590	992
June			29	72	† 9	58	63.3	3,765	3,722	5,580	885
July			4	72	†18	53	57.5	3,537	3,986	6,550	816
Aug.			15	68	4	55	60.1	3,693	3,962	6,810	861
Sept.			24	152	8	45	65.5	3,900	3,762	6,220	889
Oct.			1	74	28	51	60.7	3,731	3,793	5,740	1,040
Nov.			21	74	1	51	56.7	3,372	3,534	5,490	994
Dec.			8	62	27	46	51.6	3,176	3,415	4,960	966
Yearly				152		45	59.5	43,208	43,699	63,700	12,840
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				4.30		1.27	1.69	53.297	53.902	78,573	15,838

† Mean daily

‡ And other days

YUMA MAIN CANAL WASTEWAY TO COLORADO RIVER AT YUMA, ARIZONA

DESCRIPTION: The wasteway receives water from the Yuma Main Canal at the check structure on the canal, 1,645 feet (501 m) upstream from the intake of the Colorado River siphon, and 3.2 miles (5.1 km) downstream from the Siphon Drop Power Plant. This wasteway discharges into the Colorado River on the California side, 1,000 feet (305 m) upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles (10.5 km) upstream from the northerly international land boundary.

RECORDS: Discharge is computed as the difference between the measured discharge of the Yuma Main Canal at the Siphon Drop Power Plant upstream and that of the same canal below the Colorado River siphon, with deductions for small irrigation diversions from the canal between the two gaging stations. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 1976.

REMARKS: The wasteway discharges to the river the flow in excess of irrigation water in the Yuma Main Canal. This excess flow, in addition to the irrigation water, was diverted from the All-American Canal into the Yuma Main Canal and utilized for power purposes at the Siphon Drop Power Plant.

EXTREMES: Prior to 1935, when storage began in Lake Mead: Average annual flow, 297,800 acre-feet; (367,333,000 m³); maximum annual flow, 913,700 acre-feet (1,127,040,000 m³), 1932; minimum annual flow, 114,900 acre-feet (141,723,000 m³), 1917. Since 1935: Maximum mean daily discharge, 2,020 second-feet (57.2 m³/sec), December 24-25, 1948; minimum mean daily discharge, no flow on numerous occasions.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20	812	21	20	13	437	19	17	510	347	2.4	892
2	105	806	21	20	13	435	20	17	405	294	2.4	892
3	708	638	21	19	13	436	22	17	301	211	3.4	878
4	562	671	21	22	13	518	24	18	209	96	70	835
5	720	647	21	19	13	580	24	18	187	142	132	739
6	22	622	21	18	13	382	24	18	205	196	128	15
7	22	22	26	18	12	442	21	19	318	114	129	15
8	21	22	26	17	11	501	25	19	36	155	94	15
9	22	28	21	17	640	500	19	20	19	210	111	15
10	153	23	21	17	365	493	19	20	34	223	121	15
11	913	28	21	17	338	484	19	20	19	488	126	15
12	856	23	21	17	331	514	18	21	19	460	88	15
13	704	24	21	17	254	598	18	21	19	469	44	21
14	688	26	21	18	257	690	18	21	68	460	38	21
15	544	62	21	15	153	602	18	22	224	509	22	21
16	410	22	21	15	232	594	18	22	242	550	37	21
17	385	355	21	15	225	609	18	22	248	533	32	21
18	352	719	21	15	352	611	18	22	222	520	137	20
19	445	766	21	15	652	623	18	22	302	572	337	19
20	504	725	21	16	637	631	18	21	234	492	555	19
21	496	523	21	16	752	620	18	22	184	538	563	20
22	495	646	21	16	696	622	17	24	171	213	765	20
23	572	21	21	15	503	593	17	23	210	7.0	734	21
24	632	21	21	15	358	614	17	23	215	11	846	20
25	637	22	21	14	361	620	17	23	120	45	925	39
26	690	22	20	13	344	734	18	22	17	48	862	26
27	682	22	20	12	339	880	17	22	17	101	338	23
28	710	22	20	11	309	958	17	23	18	98	24	28
29	685	22	20	11	346	770	17	23	18	103	20	29
30	686	20	11	418	68	17	23	18	103	10	134	34
31	733	20	20	391*	17	17	36	100	100	100	36	36
Sum	15,174	8,373	655	481	9,404	17,199	587	662	4,909	8,316.0	7,420.2	4,800
Current Year 1976									Period 1935-1976			
Month	Extreme Gate Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			11	913	1	20	489	30,097	56,352	110,700	3,230	
Feb.			1	812	†23	21	289	16,608	49,234	89,140	2,856	
Mar.			†7	26	†26	20	21.1	1,299	49,789	90,190	469	
Apr.			4	22	†28	11	16.0	954	50,309	86,580	954	
May			21	752	8	11	303	18,653	58,951	88,280	5,480	
June			28	958	30	68	572	34,034	51,788	86,960	1,857	
July			8	25	†22	17	18.9	1,164	49,285	91,220	452	
Aug.			31	36	†1	17	21.4	1,313	49,848	89,890	455	
Sept.			1	510	†6	17	164	9,737	52,786	83,660	9,737	
Oct.			19	572	23	7.0	268	16,495	49,715	90,050	2,176	
Nov.			25	925	†1	2.4	247	14,718	49,759	101,500	3,850	
Dec.			†1	892	†6	15	155	9,521	54,771	108,800	918	
Yearly				958		2.4	214	154,593	622,587	1,042,850	75,950	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				27.1		0.07	6.06	190,689	767,955	1,286,345	93,684	

† Mean daily

† And other days

COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY AT YUMA, ARIZONA - DISCHARGES

DESCRIPTION: Water-stage recorder located in California on the right bank of the river, 1,000 feet (305 m) downstream from the mouth of the Yuma Main Canal Wasteway, 0.6 mile (1.0 km) downstream from the abandoned gaging station on the Colorado River at Yuma, 5.2 miles (8.4 km) downstream from the mouth of the Gila River, 19.6 miles (31.5 km) downstream from Imperial Dam, and 6.4 miles (10.3 km) upstream from the northerly international boundary. Zero of the gage is 101.99 feet (31.09 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Computations by shifting control methods. Records obtained and furnished by U. S. Geological Survey. Records available: October 1963 through 1976. Records from January 1951 through September 1963 deduced from "Colorado River at Yuma" plus flows from "Reservation Main Drain No. 4" and "Yuma Main Canal Wasteway."

REMARKS: Reservoirs on the Colorado River, power developments, transmountain diversions, reservoirs on the Gila River, irrigation diversions, and return flows modify the river flow at this station.

Mean Daily Discharge in Second-Foot 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	692	1,250	532	567	583	1,450	593	879	1,350	974	827	1,290
2	632	1,270	582	571	596	1,450	577	744	1,300	850	812	1,300
3	1,230	1,290	601	566	606	1,420	806	634	1,310	796	823	1,290
4	1,040	1,380	593	651	720	1,400	629	626	1,210	646	773	1,270
5	1,250	1,340	576	671	705	1,420	593	654	1,200	654	785	1,200
6	480	1,260	567	858	739	1,390	595	651	1,220	713	785	485
7	392	459	546	743	726	1,390	585	630	1,470	667	763	480
8	396	439	435	648	800	1,390	580	639	1,700	698	767	482
9	397	459	538	618	1,860	1,420	814	624	1,340	710	748	479
10	476	429	546	593	1,560	1,400	810	606	1,160	745	775	473
11	1,350	444	551	599	1,480	1,400	678	592	1,700	948	778	484
12	1,280	493	608	597	1,490	1,370	595	591	1,830	910	800	481
13	1,110	508	626	588	1,400	1,380	581	595	1,460	906	763	484
14	1,140	489	652	598	1,400	1,490	580	603	1,030	900	893	474
15	956	516	630	1,130	1,250	1,440	603	614	1,170	917	1,070	481
16	794	494	590	1,420	1,250	1,460	561	604	1,170	967	857	480
17	770	812	566	1,290	1,240	1,500	569	603	1,190	955	831	485
18	773	1,240	574	1,290	1,190	1,510	641	600	1,120	906	895	488
19	859	1,250	611	979	1,220	1,480	885	797	1,170	967	951	484
20	899	1,270	584	914	1,260	1,480	810	798	1,170	934	1,020	484
21	890	1,240	589	880	1,270	1,490	673	770	1,130	954	1,050	487
22	886	1,390	593	811	1,260	1,490	614	766	1,090	938	1,260	497
23	965	583	603	711	1,280	1,480	633	704	1,120	961	1,210	496
24	1,070	554	609	677	1,310	1,520	614	625	1,340	927	1,310	527
25	1,060	540	797	675	1,330	1,490	641	620	2,000	919	1,420	736
26	1,100	552	741	669	1,330	1,460	639	610	2,580	929	1,410	730
27	1,100	549	625	653	1,370	1,420	635	608	2,470	923	882	620
28	1,120	530	638	555	1,340	1,480	627	612	1,500	935	514	485
29	1,110	511	624	625	1,380	1,360	595	597	1,310	936	498	478
30	1,120		638	610	1,470	598	638	458	1,150	978	586	492
31	1,180		587		1,440		900	543		1,080		548
Sum	28,517	23,541	18,552	23,057	36,855	42,423	20,299	19,997	41,960	27,243	26,856	19,670
Current Year 1976									Period 1951-1976			
Month	Extreme Gage Feet		Extreme Second-Foot			Average Second-Foot	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.	11.17	9.32	11	1,350	7	392	920	56,563	206,972	979,890	29,857	
Feb.	11.20	9.29	22	1,390	10	429	812	46,693	155,704	826,600	33,790	
Mar.	10.06	9.24	25	797	8	435	598	36,797	169,445	1,073,270	35,002	
Apr.	11.28	9.55	16	1,420	3	566	769	45,733	161,436	843,010	33,687	
May	12.45	9.68	9	1,860	1	583	1,189	73,101	158,012	863,860	56,493	
June	11.61	9.64	24	1,520	30	598	1,414	84,155	147,195	833,970	33,856	
July	10.30	9.52	31	900	16	561	655	40,262	155,060	649,820	34,413	
Aug.	10.85	9.23	1	879	30	458	645	39,663	160,281	670,050	36,426	
Sept.	14.69	10.48	26	2,580	14	1,030	1,399	83,226	140,027	775,930	43,182	
Oct.	11.42	9.82	31	1,030	4	646	879	54,036	114,759	802,210	34,965	
Nov.	11.34	9.52	25	1,420	29	498	895	53,268	133,158	911,370	34,832	
Dec.	11.06	9.40	2	1,300	10	473	635	39,015	167,540	1,114,550	33,023	
Yearly	14.69	9.23		2,580		392	901	652,512	1,869,589	10,220,870	513,755	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	4.48	2.81		73.1		11.1	25.5	804,367	2,306.119	12,607,341	633,712	

β Mean daily

**COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY
AT YUMA, ARIZONA - STAGES**

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.92	10.88	9.52	9.56	9.71	11.29	9.66	10.14	11.15	10.49	10.19	11.00
2	9.79	10.91	9.64	9.57	9.75	11.29	9.63	9.88	11.07	10.26	10.17	11.02
3	10.89	10.95	9.68	9.57	9.78	11.25	10.08	9.67	11.08	10.16	10.19	11.00
4	10.56	11.09	9.66	9.75	10.02	11.22	9.73	9.66	10.91	9.87	10.10	10.96
5	10.90	11.04	9.62	10.18	9.99	11.27	9.66	9.72	10.90	9.89	10.12	10.83
6	9.54	10.90	9.60	10.16	10.06	11.23	9.65	9.72	10.93	10.01	10.12	9.48
7	9.32	9.38	9.55	9.94	10.03	11.23	9.63	9.68	11.35	9.91	10.08	9.47
8	9.33	9.33	9.29	9.77	10.16	11.25	9.62	9.70	11.73	9.97	10.09	9.47
9	9.33	9.38	9.54	9.70	11.97	11.30	10.08	9.68	11.13	9.99	10.05	9.47
10	9.49	9.30	9.56	9.66	11.47	11.27	10.07	9.64	10.83	10.05	10.11	9.45
11	11.04	9.34	9.57	9.68	11.34	11.28	9.81	9.62	11.73	10.43	10.11	9.47
12	10.93	9.46	9.69	9.69	11.36	11.24	9.64	9.62	11.95	10.36	10.15	9.46
13	10.65	9.50	9.73	9.68	11.20	11.26	9.61	9.62	11.34	10.35	10.08	9.47
14	10.70	9.45	9.77	9.71	11.20	11.44	9.60	9.64	10.62	10.34	10.32	9.45
15	10.39	9.50	9.73	10.70	10.95	11.38	9.65	9.67	10.84	10.37	10.62	9.46
16	10.09	9.46	9.64	11.22	10.96	11.41	9.56	9.64	10.86	10.47	10.26	9.46
17	10.05	10.03	9.59	10.98	10.94	11.48	9.58	9.64	10.89	10.43	10.21	9.46
18	10.05	10.78	9.61	10.97	10.85	11.49	9.72	9.64	10.79	10.34	10.33	9.47
19	10.21	10.75	9.68	10.43	10.90	11.44	10.19	10.03	10.88	10.45	10.42	9.46
20	10.28	10.79	9.62	10.32	10.97	11.45	10.04	10.03	10.88	10.39	10.55	9.46
21	10.27	10.73	9.63	10.26	10.98	11.47	9.77	9.98	10.82	10.43	10.60	9.47
22	10.26	10.99	9.64	10.13	10.98	11.47	9.66	9.97	10.76	10.40	10.95	9.49
23	10.40	9.57	9.66	9.94	11.00	11.44	9.68	9.85	10.82	10.44	10.87	9.48
24	10.57	9.55	9.66	9.87	11.06	11.50	9.64	9.69	11.20	10.37	11.03	9.55
25	10.56	9.54	10.04	9.87	11.08	11.47	9.69	9.68	12.31	10.36	11.21	9.99
26	10.62	9.57	9.93	9.86	11.09	11.41	9.69	9.66	13.45	10.38	11.20	9.98
27	10.63	9.56	9.70	9.83	11.15	11.34	9.67	9.65	13.84	10.37	10.25	9.76
28	10.66	9.52	9.72	9.83	11.11	11.45	9.65	9.66	11.36	10.39	9.56	9.45
29	10.63	9.48	9.69	9.78	11.16	11.23	9.58	9.63	11.05	10.39	9.53	9.43
30	10.66		9.71	9.76	11.32	9.67	9.67	9.31	10.79	10.47	9.71	9.47
31	10.76		9.61		11.27		10.17	9.47		10.63		9.60
Avg.	10.31	10.03	9.65	10.01	10.83	11.30	9.74	9.72	11.28	10.30	10.31	9.76

YUMA MESA OUTLET DRAIN TO COLORADO RIVER NEAR YUMA, ARIZONA

DESCRIPTION: Venturi meter with recorder 0.3 mile (0.5 km) from outlet to Colorado River, 0.5 mile (0.8 km) west of Joe Henry Memorial Park in Yuma, Arizona. Outlet is 1.7 miles (2.7 km) downstream from the mouth of Yuma Main Canal Wasteway.

RECORDS: Records are furnished by U.S. Geological Survey. Monthly discharge July 1970 through 1976. Prior to July 21, 1972, records furnished by U. S. Bureau of Reclamation.

REMARKS: Records show water pumped from wells on the Yuma Mesa and conveyed by underground conduit to Colorado River.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	73	72	73	70	66	75	75	74	73	48	69	72
2	72	70	73	70	66	75	74	74	74	73	70	71
3	73	71	70	70	67	75	74	74	73	73	70	71
4	73	72	69	70	67	75	74	74	74	72	70	71
5	73	72	70	70	68	75	73	74	72	71	70	71
6	73	72	70	70	68	75	73	74	64	69	69	71
7	73	72	44	70	68	74	73	74	0	69	70	71
8	73	72	40	69	69	74	74	74	0	63	63	71
9	72	72	73	70	72	75	74	74	0	62	63	71
10	72	36	73	70	74	73	74	74	0	62	63	60
11	73	0	73	70	75	66	74	74	0	62	63	72
12	73	0	72	58	75	75	74	74	0	62	59	73
13	73	43	71	40	75	75	74	74	0	62	58	73
14	73	35	71	31	75	75	74	74	51	61	28	73
15	73	65	72	3.4	75	75	73	71	74	59	3.3	72
16	73	.40	70	0	75	75	73	70	73	65	63	72
17	73	0	70	0	76	75	73	71	75	65	66	72
18	73	32	70	0	76	75	73	71	75	67	68	72
19	67	74	70	0	76	75	74	72	70	72	69	71
20	58	72	70	5.9	76	75	74	72	59	73	73	72
21	56	74	70	26	75	75	74	72	69	73	73	72
22	65	74	70	41	76	75	72	73	68	73	72	72
23	72	72	70	42	76	75	63	73	62	73	72	71
24	72	73	70	42	75	75	59	73	29	73	72	71
25	72	73	70	42	76	75	58	73	0	73	72	71
26	72	73	70	42	76	75	55	73	0	73	72	71
27	72	73	70	44	76	73	73	73	0	73	72	71
28	72	73	70	44	76	74	75	73	0	73	72	71
29	72	73	70	43	76	75	74	73	0	73	72	71
30	72	70	70	57	75	75	74	73	0	70	72	71
31	72	70	70	70	75	75	74	73	71	71	72	42
Sum		1,660.40	2,133	1,330.3	2,271	2,234	2,225	2,265	1,135	2,108	1,948.3	2,176
	2,205											
Current Year 1976									Period 1971-1976			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.			† 1	73	21	56	71.1	4,374	3,228	5,840	0	
Feb.			†19	74	†11	0	57.3	3,293	2,980	4,830	0	
Mar.			† 1	73	8	40	68.8	4,231	3,434	5,430	4	
Apr.			† 1	70	†16	0	44.3	2,639	2,808	5,120	242	
May			†17	76	† 1	66	73.3	4,504	3,029	4,933	0	
June			† 1	75	11	66	74.5	4,431	3,072	4,828	0	
July			† 1	75	26	55	71.8	4,413	3,833	5,510	692	
Aug.			† 1	74	16	70	73.1	4,493	4,095	6,000	180	
Sept.			†17	75	† 7	0	37.8	2,251	3,781	5,880	0	
Oct.			† 2	73	1	48	68.0	4,181	3,897	5,360	157	
Nov.			†20	73	15	3.3	64.9	3,864	3,992	5,290	313	
Dec.			†12	73	31	42	70.2	4,316	4,280	5,970	0	
Yearly				76		0	64.6	46,990	42,429	58,680	1,753	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				2.2		0	1.8	57,962	52,336	72,381	2,162	

Ø Mean daily

† And other days

DRAIN NO. 8-B (ARAZ DRAIN)

DESCRIPTION: This drain discharges into the Colorado River 4.0 miles (6.4 km) downstream from Colorado River below Yuma Main Canal Wasteway, and 2.5 miles (4.0 km) upstream from the northerly international boundary. Prior to October 1955, published as "Araz Drain".

RECORDS: Records are furnished by U. S. Geological Survey from current meter measurements during the year. Records available: May 1948 through 1976.

REMARKS: Drain 8-B, which was constructed in February 1948, collects seepage water in the westerly section of the Reservation Division of the Yuma Project which lies in California. Flow in the drain between the mouth and the U. S. Highway No. 80 culvert, about 3,200 feet (975 m) upstream, is affected by backwater from the river during ordinary high stages.

EXTREMES: Mean daily discharge: Maximum, 24 second-feet (0.68 m³/s) on September 1, 1953; minimum, 0.1 second-foot (0.003 m³/s) several days in February 1966.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.6	2.7	2.8	3.3	3.0	3.5	3.8	3.8	4.0	4.1	3.3	3.5
2	3.6	2.7	2.8	3.3	3.1	3.5	3.8	3.8	4.0	4.1	3.3	3.4
3	3.6	2.7	2.8	3.3	3.1	3.6	3.8	3.8	4.0	4.0	3.3	3.3
4	3.6	2.7	2.8	3.3	3.1	3.6	3.8	3.8	4.0	4.0	3.3	3.2
5	3.6	2.7	2.8	3.3	3.1	3.6	3.8	3.8	4.0	4.0	3.3	3.1
6	3.6	2.7	2.9	3.3	3.1	3.6	3.8	3.8	4.0	3.9	3.4	3.0
7	3.6	2.7	2.9	3.3	3.2	3.6	3.8	3.8	4.0	3.9	3.4	3.0
8	3.6	2.7	2.9	3.2	3.2	3.6	3.8	3.8	4.0	3.9	3.4	2.8
9	3.6	2.7	2.9	3.2	3.2	3.6	3.8	3.8	4.1	3.8	3.4	2.7
10	3.6	2.7	3.0	3.2	3.2	3.6	3.8	3.8	4.1	3.8	3.5	2.6
11	3.6	2.7	3.0	3.2	3.2	3.6	3.8	3.8	4.1	3.8	3.5	2.5
12	3.6	2.7	3.0	3.2	3.2	3.6	3.8	3.8	4.1	3.7	3.5	2.4
13	3.6	2.7	3.0	3.2	3.3	3.7	3.8	3.9	4.1	3.7	3.5	2.3
14	3.6	2.7	3.0	3.1	3.3	3.7	3.8	3.9	4.1	3.7	3.5	2.2
15	3.6	2.7	3.1	3.1	3.3	3.7	3.8	3.9	4.1	3.7	3.5	2.1
16	3.6	2.7	3.1	3.1	3.3	3.7	3.8	3.9	4.1	3.6	3.6	2.0
17	3.6	2.7	3.1	3.1	3.3	3.7	3.8	3.9	4.1	3.6	3.6	1.9
18	3.6	2.7	3.1	3.1	3.4	3.7	3.8	3.9	4.1	3.6	3.6	1.8
19	3.6	2.7	3.1	3.1	3.4	3.7	3.8	3.9	4.1	3.5	3.6	1.8
20	3.6	2.7	3.2	3.1	3.4	3.8	3.8	4.0	4.1	3.5	3.7	1.8
21	3.6	2.7	3.2	3.0	3.4	3.8	3.8	4.0	4.2	3.5	3.7	1.8
22	3.6	2.7	3.2	3.0	3.4	3.8	3.8	4.0	4.2	3.4	3.7	1.8
23	3.6	2.7	3.2	3.0	3.5	3.8	3.8	4.0	4.2	3.4	3.7	1.8
24	3.6	2.7	3.2	3.0	3.5	3.8	3.8	4.0	4.2	3.4	3.7	1.8
25	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
26	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
27	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
28	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
29	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
30	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
31	3.6	2.7	3.3	3.0	3.5	3.8	3.8	4.0	4.2	3.3	3.7	1.8
Sum	111.6	78.3	95.2	94.0	102.7	110.7	117.8	120.9	123.2	112.7	106.3	71.1
Current Year 1976												
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total	Period 1948-1976				
	High	Low	Day	High	Low			Acre-Feet				
Jan.			† 1	3.6	† 1	3.6	3.60	221	336	899	39.3	
Feb.			† 1	2.7	† 1	2.7	2.70	155	230	746	40.5	
Mar.			† 25	3.3	† 1	2.3	3.07	189	354	353	73.8	
Apr.			† 1	3.3	† 21	3.0	3.13	186	373	1,000	66.8	
May			† 23	3.5	† 1	3.0	3.31	204	376	966	61.5	
June			† 20	3.8	† 1	3.5	3.69	220	391	1,030	67.4	
July			† 1	3.8	† 1	3.8	3.80	234	445	1,260	72.8	
Aug.			† 20	4.0	† 1	3.8	3.90	240	495	1,350	73.8	
Sept.			† 21	4.2	† 1	4.0	4.11	244	476	1,370	53.6	
Oct.			† 1	4.1	† 25	3.3	3.64	224	484	1,220	55.3	
Nov.			† 20	3.7	† 1	3.3	3.54	211	439	1,240	57.7	
Dec.			1	3.5	† 18	1.8	2.29	141	396	1,050	51.0	
Yearly				4.2		1.8	3.40	2,469	4,855	12,429	834	
	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
				0.12		0.05	0.10	3.045	5.989	15,331	1,029	

‡ Mean daily

† And other days

PILOT KNOB POWER PLANT AND WASTEWAY NEAR PILOT KNOB, CALIFORNIA

DESCRIPTION: The Pilot Knob Power Plant and Wasteway is located on the All-American Canal, 20.8 miles (33.5 km) downstream from the intake at Imperial Dam, 6 miles (9.7 km) west of Yuma, about one mile (1.6 km) north of the northerly international boundary and empties into the old Alamo Canal in the United States and thence into the Colorado River through Rockwood gates, about one mile (1.6 km) upstream from the northerly international boundary. Water-stage recorder is located in forebay on right bank of the All-American Canal, 550 feet (168 m) upstream from wasteway gates and 1,800 feet (549 m) from entrance to the power plant. Datum of gage is 150.00 feet (45.72 m) above mean sea level. Tailrace gage is on left bank, 680 feet (207 m) downstream from power plant with automatic recording equipment in control house. All bypass gates are equipped with calibrated openings which are read on all gate changes. Datum of tailrace gage is at mean sea level; elevation of sill of wasteway gates is 147.88 feet (45.07 m), U. S. C. & G. S. datum. Prior to October 1956, this station was published as "Pilot Knob Wasteway near Pilot Knob, California."

RECORDS: Daily discharge is computed from flowmeter equipment and head and openings on wasteway gates or from head and gate opening on wicket and wasteway gates. Records furnished by the U. S. Geological Survey. Records available: July 1944 through 1976. The wasteway was operated for the purpose of diverting Colorado River water to the Alamo Canal for use in Mexico from July 1944 to November 8, 1950, in accordance with arrangements between the United States and Mexico for emergency use of the All-American Canal facilities. Records since 1950 show water released through Pilot Knob Power Plant and Wasteway from the All-American Canal and returned to the Colorado River through Rockwood gates.

REMARKS: Pilot Knob Wasteway was completed in 1938 and the first flow occurred on February 5, 1939. Pilot Knob Power Plant was completed in January 1957 and the first flow occurred on January 14, 1957.

EXTREMES: Maximum mean daily discharge, 8,350 second-feet (236 m³/s) on January 26, 1958; minimum daily discharge, no flow during long periods.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,050	0	2,090	2,770	1,600	0	1,260	1,310	0	0	0	0
2	954	0	1,760	2,830	1,460	0	1,250	1,370	0	0	0	0
3	0	0	1,520	2,830	1,450	0	1,090	1,500	0	0	0	0
4	0	0	1,480	2,760	1,150	0	1,240	1,520	0	0	0	0
5	42	0	1,500	2,760	1,200	0	1,290	1,500	0	0	0	44
6	1,030	43	1,540	2,760	1,160	0	1,320	1,480	0	0	0	1,050
7	1,020	1,010	1,640	2,860	1,170	0	1,330	1,500	0	0	0	1,080
8	1,040	1,060	2,020	2,940	1,140	0	1,350	1,520	0	0	0	1,240
9	999	1,120	1,940	3,000	0	0	1,110	1,480	0	0	0	1,400
10	978	1,500	1,870	3,080	0	0	1,150	1,540	1,490	0	0	1,430
11	0	1,970	1,880	3,010	0	0	1,300	1,550	3,080	0	0	1,430
12	0	1,180	1,820	3,010	0	0	1,520	1,490	1,560	0	0	1,540
13	0	1,240	1,900	2,970	0	0	1,550	1,470	0	0	0	1,740
14	0	1,300	1,980	4,000	0	0	1,590	1,430	0	0	0	1,740
15	0	1,220	2,070	5,920	0	0	1,540	1,440	0	0	0	1,700
16	0	1,140	2,110	4,520	0	0	1,570	1,440	0	0	0	1,710
17	0	715	2,170	2,490	0	0	1,590	1,460	0	0	0	1,850
18	0	0	2,160	1,750	0	0	1,540	1,440	0	0	0	1,800
19	0	0	2,130	2,140	0	0	1,380	1,200	0	0	0	1,770
20	0	0	2,200	2,030	0	0	1,460	1,200	0	0	0	1,970
21	0	0	2,230	2,120	0	0	1,590	1,220	0	0	0	2,150
22	0	41	2,280	2,150	0	0	1,680	1,210	0	0	0	2,120
23	0	1,100	2,340	2,210	0	0	1,580	1,400	0	0	0	2,040
24	0	1,460	2,370	2,290	0	0	1,600	1,450	915	0	0	1,990
25	0	1,750	2,170	2,200	0	0	1,580	1,430	3,300	0	0	1,770
26	0	2,080	2,230	2,220	0	0	1,600	1,400	3,140	0	0	1,770
27	0	2,330	2,330	2,000	0	0	1,650	1,390	4,640	0	601	1,860
28	0	2,440	2,300	1,870	0	0	1,700	1,330	555	0	989	2,040
29	0	2,390	2,370	1,910	0	0	1,700	1,150	0	0	999	2,070
30	0	0	2,330	1,890	0	1,160	1,620	1,100	0	0	993	2,050
31	0	0	2,420	0	0	0	1,360	1,120	0	0	0	2,080
Sum	7,113	27,089	63,150	81,290	10,330	1,160	45,090	43,040	18,680	0	3,582	45,444

Current Year 1976

Period 1944-1976

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High		Low			Average	Maximum	Minimum
				Day	Day		Day				
Jan.			1	1,050	† 3	0	229	14,103	40,366	400,200	0
Feb.			28	2,440	† 1	0	934	53,730	21,694	149,500	0
Mar.			31	2,420	4	1,480	2,037	125,256	75,855	279,300	0
Apr.			15	5,920	18	1,750	2,710	161,236	100,518	260,900	0
May			1	1,600	† 9	0	333	20,489	18,495	165,400	0
June			30	1,160	† 1	0	38.7	2,301	60,498	204,300	0
July			† 28	1,700	3	1,090	1,455	89,435	113,408	260,000	0
Aug.			11	1,550	30	1,100	1,388	85,369	115,003	270,100	0
Sept.			27	4,640	† 1	0	623	37,051	49,717	173,300	0
Oct.				0		0	0	0	9,820	51,460	0
Nov.			29	999	† 1	0	119	7,105	13,733	182,600	0
Dec.			21	2,160	† 1	0	1,466	90,137	40,670	319,700	0
Yearly				5,920		0	944	686,217	659,777	1,944,700	0
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				168		0	26.7	846,442	813,828	2,398,768	0

‡ Mean daily

† And other days

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank and cableway at the point where the northerly international land boundary (California-Baja California) intersects the Colorado River, about 6.4 miles (10.3 km) downstream from Colorado River below Yuma Main Canal Wasteway, 5 miles (8.0 km) west of Yuma, Arizona, 1.1 miles (1.8 km) upstream from Morelos Diversion Structure, and about one mile (1.6 km) downstream from Rockwood Gate. Zero of the gage is at mean sea level, U. S. C. & G. S. datum. Station is operated by the United States Section of the Commission.

RECORDS: Based on 283 current meter measurements during the year, 221 by the United States Section, 52 by the Mexican Section of the Commission, 10 by the U. S. Geological Survey, and a continuous record of gage heights. Discharges are computed on the basis of a water-stage recorder 1,680 feet (512 m) upstream from the northerly international boundary where the remains of an old weir serve as a partial controlling section. A continuous gage height record is available November 15, 1948 through 1976; daily discharge records available January 1, 1950 through 1976.

REMARKS: Reservoirs on the Colorado River, including Lake Mead above Hoover Dam, where storage began in 1935, reservoirs on the Gila River, and many irrigation diversions and return flows regulate the river flow at this station except for infrequent flood flows. During 1976, the flow at this point, and the emergency deliveries for Tijuana, Baja California shown on page 8, represented the total amount of the Colorado River water which crossed the northerly international boundary.

EXTREMES: Prior to January 1935: Maximum instantaneous discharge estimated about 250,000 second-feet, (7,030 m³/sec), January 22, 1916; minimum discharge, no flow several days during August and September 1934; average annual flow 13,443,000 acre-feet (16,581,806,000 m³); maximum annual flow 25,480,000 acre-feet (31,429,325,000 m³), 1907; minimum annual flow 1,174,000 acre-feet (1,448,117,000 m³), 1934. Since January 1935: Maximum mean daily discharge, about 33,000 second-feet (934 m³/sec), February 7, 1942; minimum discharge, no flow during April 1935.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,920	1,410	2,790	3,500	2,230	1,550	1,970	2,270	1,450	1,050	939	1,480
2	1,770	1,450	2,500	3,660	2,090	1,540	1,940	2,220	1,450	995	915	1,530
3	1,350	1,460	2,240	3,640	2,070	1,530	2,000	2,240	1,460	965	945	1,510
4	1,180	1,550	2,200	3,650	1,940	1,510	2,020	2,230	1,370	797	904	1,500
5	1,430	1,560	2,220	3,870	1,960	1,540	2,010	2,230	1,370	797	915	1,470
6	1,750	1,540	2,240	3,860	1,960	1,550	2,030	2,220	1,370	825	955	1,720
7	1,620	1,680	2,280	3,870	1,970	1,500	2,030	2,220	1,440	799	945	1,750
8	1,640	1,700	2,540	3,870	1,940	1,530	2,030	2,230	1,800	757	965	1,910
9	1,600	1,770	2,620	3,850	1,740	1,560	2,050	2,220	1,520	806	935	2,090
10	1,630	1,980	2,600	3,380	1,680	1,540	2,100	2,240	2,600	835	955	2,110
11	1,460	2,560	2,600	3,860	1,570	1,550	2,120	2,230	4,790	1,020	945	2,120
12	1,460	1,790	2,600	3,770	1,570	1,540	2,250	2,180	3,780	1,020	955	2,270
13	1,280	1,910	2,700	3,770	1,490	1,550	2,250	2,180	1,850	985	935	2,470
14	1,280	1,920	2,810	4,620	1,470	1,640	2,250	2,190	1,220	1,030	975	2,480
15	1,120	1,920	2,980	7,050	1,370	1,630	2,270	2,200	1,300	1,040	1,170	2,480
16	960	1,780	2,910	6,420	1,320	1,630	2,250	2,180	1,320	1,110	1,020	2,480
17	918	1,630	2,910	4,240	1,340	1,660	2,280	2,190	1,330	1,110	995	2,630
18	925	1,390	2,940	3,150	1,310	1,680	2,280	2,160	1,300	1,060	1,040	2,620
19	995	1,390	2,940	3,210	1,310	1,640	2,360	2,080	1,330	1,120	1,090	2,610
20	1,040	1,410	2,980	3,040	1,360	1,660	2,370	2,030	1,330	1,110	1,200	2,700
21	1,030	1,380	3,010	3,030	1,360	1,660	2,360	2,100	1,310	1,110	1,200	2,910
22	1,040	1,560	3,090	2,990	1,370	1,670	2,370	2,110	1,260	1,130	1,420	2,890
23	1,120	1,830	3,150	2,910	1,370	1,640	2,290	2,230	1,300	1,110	1,370	2,800
24	1,220	2,140	3,220	2,970	1,410	1,670	2,280	2,230	2,400	1,110	1,470	2,800
25	1,220	2,410	3,220	2,900	1,450	1,700	2,290	2,230	5,350	1,090	1,620	2,800
26	1,240	2,700	3,190	2,870	1,450	1,630	2,290	2,220	5,810	1,100	1,600	2,780
27	1,270	3,010	3,180	2,670	1,470	1,640	2,330	2,180	7,880	1,100	1,720	2,800
28	1,260	3,110	3,180	2,530	1,450	1,650	2,370	2,130	2,840	1,110	1,730	2,810
29	1,270	3,080	3,220	2,530	1,460	1,650	2,370	1,920	1,500	1,080	1,710	2,840
30	1,280	3,200	3,200	2,530	1,550	1,870	2,310	1,730	1,210	1,070	1,790	2,820
31	1,340	3,140	3,140	1,540	1,540	1,540	2,310	1,750	1,170	1,170	1,790	2,850
Sum	40,618	55,020	87,300	108,710	49,570	48,310	68,430	66,820	66,210	31,451	35,328	73,030

Month	Extreme Gage Feet		Current Year 1976				Average Second-Feet	Total Acre-Feet	Period 1935-1976		
	High	Low	Extreme Second-Feet		Total	Acre-Feet					
	High	Low	Day	High		Day	Low	Average	Maximum	Minimum	
Jan.	103.79	102.43	1	2,240	17	895	1,310	80,565	401,011	1,644,000	31,900
Feb.	104.64	102.91	29	3,220	18	1,270	1,897	109,131	337,120	1,378,000	60,400
Mar.	105.07	103.78	30	3,720	5	2,150	2,816	173,157	345,002	1,120,000	19,400
Apr.	108.74	104.00	15	7,230	28	2,480	3,624	215,623	273,927	823,850	0
May	104.05	102.91	1	2,490	19	1,240	1,599	98,321	269,817	1,151,000	71,405
June	103.61	103.03	30	1,960	30	1,310	1,610	95,821	256,826	1,175,000	8,500
July	104.02	103.46	122	2,410	3	1,810	2,207	135,729	253,838	763,800	24,400
Aug.	103.90	102.83	1	2,320	30	1,640	2,155	132,536	268,046	791,600	43,800
Sept.	112.56	102.78	27	8,930	30	1,100	2,207	131,326	237,484	1,029,000	53,851
Oct.	103.15	102.33	31	1,380	7	752	1,015	62,382	236,873	1,186,000	42,956
Nov.	104.96	103.84	30	2,100	4	761	1,178	70,072	295,669	1,422,000	41,403
Dec.	104.70	102.98	120	3,000	5	1,220	2,356	144,853	385,449	1,832,000	42,000
	112.56	102.33		8,930		752	1,998	1,449,516	3,561,062	10,596,900	722,100
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	34.31	31.19	253		21.3		56.6	1,787,963	4,392,534	13,071,170	890,703

† And other days

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.52	103.05	104.31	104.91	103.81	103.22	103.62	103.85	103.15	102.72	102.64	103.18
2	103.39	103.03	104.06	105.04	103.65	103.22	103.59	103.80	103.07	102.65	102.60	103.21
3	102.99	103.10	103.85	105.02	103.64	103.20	103.64	103.81	103.09	102.63	102.63	103.21
4	102.81	103.19	103.81	105.02	103.52	103.19	103.67	103.81	103.00	102.56	102.55	103.20
5	103.03	103.20	103.82	105.21	103.55	103.20	103.66	103.81	103.00	102.49	102.57	103.17
6	103.33	103.18	103.85	105.20	103.55	103.22	103.69	103.79	103.00	102.43	102.59	103.38
7	103.25	103.31	103.88	105.20	103.57	103.18	103.68	103.79	103.06	102.37	102.56	103.41
8	103.27	103.33	104.09	105.21	103.55	103.20	103.68	103.80	103.41	102.37	102.58	103.56
9	103.24	103.40	104.17	105.19	103.38	103.24	103.69	103.78	103.16	102.39	102.53	103.69
10	103.26	103.53	104.15	105.21	103.31	103.22	103.74	103.81	105.04	102.44	102.57	103.70
11	103.10	104.05	104.15	105.20	103.21	103.23	103.75	103.80	110.23	102.67	102.58	103.70
12	103.10	103.41	104.14	105.11	103.21	103.22	103.88	103.74	109.33	102.66	102.60	103.84
13	102.90	103.52	104.23	105.10	103.13	103.22	103.88	103.74	105.81	102.70	102.55	104.00
14	102.92	103.53	104.33	105.69	103.13	103.30	103.89	103.75	103.14	102.74	102.60	104.01
15	102.73	103.53	104.41	108.17	103.04	103.30	103.89	103.76	102.98	102.72	102.82	104.01
16	102.52	103.42	104.41	107.94	103.00	103.30	103.86	103.73	103.02	102.80	102.64	104.00
17	102.46	103.28	104.42	105.73	103.01	103.33	103.88	103.74	103.01	102.74	102.62	104.10
18	102.48	103.04	104.44	104.61	102.98	103.35	103.88	103.75	102.99	102.67	102.67	104.13
19	102.55	103.04	104.45	104.66	102.97	103.31	103.97	103.67	103.00	102.74	102.75	104.34
20	102.61	103.07	104.49	104.54	103.04	103.32	103.96	103.65	102.98	102.72	102.85	104.54
21	102.62	103.04	104.50	104.52	103.02	103.33	103.95	103.66	103.00	102.73	102.85	104.63
22	102.62	103.20	104.57	104.49	103.05	103.33	103.96	103.54	102.95	102.76	103.06	104.54
23	102.73	103.45	104.61	104.42	103.04	103.29	103.90	103.65	102.97	102.76	103.03	104.43
24	102.84	103.72	104.67	104.49	103.09	103.33	103.89	103.78	104.73	102.73	103.12	104.43
25	102.84	103.92	104.68	104.43	103.11	103.36	103.89	103.77	109.66	102.71	103.25	104.42
26	102.88	104.17	104.65	104.39	103.11	103.30	103.89	103.76	110.41	102.70	103.25	104.41
27	102.90	104.44	104.64	104.20	103.14	103.31	103.92	103.72	112.21	102.71	103.34	104.43
28	102.89	104.53	104.63	104.06	103.13	103.32	103.95	103.65	107.12	102.77	103.37	104.44
29	102.90	104.51	104.67	104.08	103.13	103.32	103.96	103.45	103.98	102.76	103.37	104.47
30	102.91		104.65	104.07	103.23	103.52	103.90	103.32	102.91	102.80	103.44	104.46
31	102.98		104.60	103.22	103.22		103.89	103.34		102.93		104.44
Avg.	102.92	103.49	104.33	105.04	103.24	103.28	103.83	103.71	104.65	102.66	102.82	103.98

COOPER WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway for discharging regulatory waste water from the Cooper Canal to the Colorado River. This wasteway is located 0.5 mile (0.8 km) downstream from the northerly international boundary and 0.6 mile (1.0 km) upstream from Morelos Diversion Dam. Prior to July 14, 1971, the wasteway was located 0.4 mile (0.6 km) downstream from Morelos Diversion Dam. This wasteway discharges waste water from the Valley Division of the Yuma Project in the United States into the Colorado River. Since July 14, 1971 zero of the gage is 117.64 feet (35.86 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, March 1950 through 1976, obtained by the United States Section; monthly discharge, January 1934 through March 1950, by the Bureau of Reclamation.

EXTREMES: Prior to March 1950, maximum monthly discharge 914 acre-feet (1,127,000 m³) in January 1940; minimum monthly discharge, zero for various months. Since March 1950, maximum instantaneous discharge, 79.3 second-feet (2.25 m³/sec) on June 19, 1965, at a maximum gage height of 114.13 feet (34.79 m) (old datum); minimum instantaneous discharge, zero during parts of each month.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.1	1.8	0	0	0	0	0	0.6	0	0.7	0	0
2	.9	.3	0	0	0	0	0	.1	0	.2	0	1.4
3	1.1	.2	0	4.4	3.6	0	0	0	0	.2	0	9.2
4	.5	.1	0	1.3	.4	.3	0	0	0	.1	.7	.1
5	.1	0	.4	.3	.1	2.5	0	0	0	0	8.4	0
6	4.0	0	.6	.1	0	3.3	.7	1.2	0	1.2	5.9	0
7	.1	2.9	.4	0	1.1	.2	.6	6.0	0	.3	2.5	0
8	0	.1	2.7	0	4.5	0	1.4	3.1	0	.2	3.6	0
9	4.1	4.2	6.8	0	.2	0	4.0	.1	0	.9	2.0	0
10	.9	.5	0	0	0	0	3.1	1.0	0	0	4.4	0
11	.2	.6	0	8.6	0	0	.1	0	0	0	4.9	6.1
12	.1	1.7	.7	5.1	0	5.0	0	0	0	0	1.5	1.0
13	.1	1.4	2.2	.4	2.7	.4	.2	0	0	0	6.2	.1
14	.3	.4	6.6	.4	11.5	.1	2.6	0	0	2.8	3.9	2.9
15	.1	.1	.9	1.1	5.4	.2	1.2	0	0	2.5	.2	.8
16	0	.1	.7	.2	4.4	6.7	3.4	0	0	2.8	.2	.1
17	0	.1	.6	.2	.1	.4	.4	0	0	.4	.1	0
18	0	.2	.6	.2	11.1	0	.1	3.1	0	.5	0	0
19	0	1.0	.6	0	.2	0	.1	4.3	0	3.4	4.2	0
20	.1	1.5	.6	0	0	0	0	.6	0	13.9	.4	0
21	12.0	1.2	.3	0	1.6	0	1.6	0	.1	0	2.5	.1
22	7.6	.3	.1	1.6	0	1.8	4.8	.1	0	2.8	0	0
23	.3	2.2	0	9.5	0	0	16.7	0	0	1.0	0	7.2
24	.2	4.6	0	4.1	0	0	11.3	0	0	.1	0	1.0
25	1.1	1.5	0	4.4	0	0	.8	0	2.7	0	1.4	.8
26	2.9	.3	0	3.1	2.9	1.8	.5	0	4.7	.2	1.0	.2
27	5.3	4.6	.6	.2	5.7	3.3	.2	0	1.1	3.3	3.1	.2
28	7.3	.6	.6	.2	.3	1.0	0	0	.5	1.9	0	.8
29	1.5	0	2.2	2.3	5.2	1.4	.8	0	.8	1.9	0	.5
30	1.6	0	1.1	.2	3.8	.1	.8	0	2.7	1.7	0	4.4
31	1.7	0	.1	0	.2	0	.2	2.5	0	.3	0	.2

Sum 56.7 32.5 29.4 47.9 63.4 30.1 54.0 22.8 12.5 45.8 54.7 37.0

Current Year 1976								Period 1935-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	2.31	0	23	42.4	† 5	0	1.8	112	173	914	0
Feb.	1.65	.01	27	27.7	† 4	0	1.1	64.5	152	400	6.0
Mar.	1.70	0	9	28.8	† 1	0	.9	58.3	164	517	0
Apr.	2.05	0	11	36.5	† 1	0	1.6	95.0	174	425	27.8
May	2.19	0	18	39.7	† 1	0	2.0	126	169	440	40.3
June	1.15	0	5	17.2	† 1	0	1.0	59.7	158	595	43.8
July	2.16	0	24	39.0	† 1	0	1.7	107	146	516	0
Aug.	1.72	0	31	29.2	† 2	0	.7	45.2	111	617	0
Sept.	.99	0	25	14.0	† 1	0	.4	24.8	110	462	0
Oct.	2.06	0	20	36.7	† 4	0	1.5	90.8	139	490	0
Nov.	1.95	0	13	34.3	† 1	0	1.8	108	161	462	9.0
Dec.	2.12	0	23	38.1	† 1	0	1.2	73.4	184	592	33.7
Yearly	2.31	0		42.4		0	1.3	965	1,841	4,500	638
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	0.70	0		1.20		0	0.04	1,190	2,271	5,551	737

† And other days

COLORADO RIVER IMMEDIATELY ABOVE MORELOS DAM - STAGES

DESCRIPTION: Water-stage recorder located on the right bank of the Colorado River in Mexico attached to the upstream abutment of the gates of the Intake Canal at Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary, and about 7.5 miles (12.1 km) downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date zero of the gage was 0.16 foot (0.05 m) below mean sea level.

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage height records November 8, 1950 to June 3, 1951; a continuous record of gage heights June 4, 1951 through 1976.

REMARKS: Prior to June 4, 1951, when a continuous water-stage recorder was installed, mean daily gage height records were determined from hourly readings of a staff gage.

EXTREMES: Since November 8, 1950: Maximum mean daily elevation above mean sea level, 112.70 feet (34.35 m) on January 2, 1958; minimum mean daily elevation above mean sea level, 101.51 (30.94 m) on February 17, 1957.

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102.76	102.43	103.31	103.61	103.05	102.59	102.85	103.02	102.46	102.10	102.13	102.49
2	102.66	102.43	103.15	103.74	102.89	102.56	102.82	102.99	102.46	102.03	102.10	102.49
3	102.36	102.43	102.99	103.74	102.92	102.56	102.89	102.99	102.46	102.07	102.13	102.49
4	102.23	102.49	102.92	103.77	102.85	102.53	102.89	102.99	102.40	101.94	102.10	102.49
5	102.40	102.49	102.95	103.94	102.85	102.56	102.89	102.95	102.40	101.90	102.10	102.46
6	102.59	102.49	102.95	104.00	102.82	102.56	102.92	102.95	102.40	101.94	102.10	102.59
7	102.56	102.59	102.99	103.97	102.82	102.53	102.92	102.95	102.43	101.94	102.07	102.62
8	102.56	102.59	103.15	104.00	102.82	102.56	102.92	102.95	102.66	101.94	102.10	102.76
9	102.53	102.66	103.22	103.97	102.66	102.59	102.92	102.95	102.49	101.94	102.07	102.85
10	102.53	102.72	103.22	103.97	102.62	102.56	102.95	102.99	104.69	101.97	102.10	102.89
11	102.43	103.15	103.22	103.94	102.56	102.56	102.95	102.99	110.01	102.13	102.10	102.89
12	102.43	102.66	103.22	103.90	102.56	102.56	103.05	102.92	109.06	102.13	102.10	102.99
13	102.30	102.76	103.25	103.90	102.49	102.56	103.05	102.92	105.54	102.20	102.07	103.12
14	102.33	102.76	103.31	104.27	102.49	102.62	103.05	102.95	102.62	102.26	102.10	103.15
15	102.20	102.76	103.35	106.96	102.43	102.62	103.05	102.95	102.26	102.20	102.23	103.15
16	102.07	102.69	103.35	107.05	102.40	102.62	103.02	102.92	102.30	102.26	102.13	103.15
17	102.03	102.59	103.38	104.72	102.40	102.66	103.02	102.92	102.33	102.17	102.13	103.22
18	102.03	102.43	103.35	103.61	102.40	102.66	103.05	102.99	102.33	102.10	102.13	103.28
19	102.10	102.43	103.35	103.71	102.36	102.66	103.08	102.92	102.33	102.17	102.20	103.61
20	102.10	102.43	103.38	103.61	102.43	102.66	103.05	102.95	102.30	102.17	102.26	103.81
21	102.13	102.43	103.38	103.58	102.43	102.66	103.05	102.85	102.33	102.17	102.26	103.84
22	102.13	102.53	103.44	103.54	102.43	102.66	103.05	102.85	102.30	102.17	102.43	103.71
23	102.20	102.72	103.44	103.51	102.43	102.62	103.02	102.95	102.33	102.17	102.40	103.64
24	102.26	102.89	103.48	103.58	102.46	102.66	102.99	102.95	104.27	102.17	102.43	103.64
25	102.30	103.08	103.48	103.51	102.49	102.69	102.99	102.95	109.35	102.17	102.53	103.61
26	102.30	103.25	103.48	103.48	102.49	102.62	103.05	102.92	110.17	102.17	102.53	103.58
27	102.33	103.41	103.48	103.35	102.49	102.62	103.05	102.92	112.07	102.20	102.62	103.61
28	102.33	103.48	103.48	103.22	102.49	102.66	103.05	102.89	106.89	102.23	102.62	103.61
29	102.33	103.48	103.51	103.25	102.49	102.62	103.05	102.76	103.58	102.20	102.62	103.61
30	102.33		103.54	103.25	102.59	102.76	103.02	102.62	102.26	102.23	102.66	103.61
31	102.36		103.51		102.56		103.02	102.66		102.30		103.51
Avg.	102.33	102.72	103.28	103.97	102.59	102.62	102.99	102.92	104.10	102.13	102.26	103.18

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102.10	101.28	102.79	102.89	102.66	101.28	101.64	102.40	100.95	100.82	101.80	101.61
2	101.67	101.18	102.59	103.08	102.30	101.28	101.61	102.30	100.92	100.75	101.74	101.41
3	101.15	101.21	102.03	103.12	102.17	101.25	101.64	102.30	100.92	100.69	101.77	101.31
4	100.82	101.35	101.71	103.15	102.20	101.28	101.71	102.23	100.82	100.72	101.71	101.38
5	101.12	101.35	101.71	103.41	102.36	101.31	101.67	102.17	100.79	100.75	101.74	101.28
6	101.87	101.31	101.77	103.51	102.26	101.35	101.71	102.20	100.79	100.85	101.71	101.67
7	101.90	101.57	101.94	103.48	102.30	101.28	101.71	102.20	100.89	100.95	101.74	102.00
8	102.03	101.57	102.40	103.51	102.30	101.31	101.67	102.26	101.61	100.92	101.77	102.26
9	101.84	101.90	102.69	103.44	102.03	101.41	101.67	102.30	101.90	100.82	101.67	102.33
10	101.84	101.97	102.72	103.44	102.10	101.35	101.74	102.33	101.35	100.85	101.74	102.40
11	101.28	101.97	102.72	103.41	101.77	101.35	101.77	102.43	101.18	101.15	101.77	102.30
12	101.38	101.64	102.62	103.35	101.90	101.31	101.97	102.30	101.25	101.54	101.67	102.56
13	101.64	101.90	102.56	103.35	101.84	101.35	101.97	102.03	101.18	101.87	100.92	102.76
14	101.77	101.64	102.69	103.71	101.84	101.44	101.97	102.00	101.77	102.03	100.79	102.79
15	101.64	101.80	102.76	103.87	101.77	101.44	101.97	102.10	101.48	101.97	101.31	102.82
16	101.31	101.84	102.79	103.81	101.64	101.41	101.94	102.23	101.35	102.00	101.54	102.79
17	101.25	101.80	102.69	103.67	101.80	101.48	101.97	102.30	101.44	101.84	101.57	102.82
18	101.31	101.57	102.59	103.28	101.84	101.48	102.00	102.62	101.44	101.71	101.57	102.99
19	101.25	101.71	102.53	103.35	101.71	101.41	102.20	102.53	101.35	101.61	101.67	103.41
20	101.18	101.74	102.53	103.28	101.35	101.41	102.26	102.26	101.51	101.48	101.84	103.64
21	101.25	101.67	102.53	103.25	101.15	101.38	102.33	102.10	101.61	101.44	101.87	103.64
22	101.25	101.77	102.56	103.25	101.15	101.38	102.40	102.03	101.41	101.77	101.94	103.48
23	101.31	101.97	102.59	103.18	101.12	101.31	102.49	102.17	101.44	101.71	101.90	103.38
24	101.51	102.17	102.66	103.22	101.18	101.28	102.46	102.43	101.31	101.67	101.97	103.38
25	101.57	102.36	102.69	103.18	101.18	101.31	102.46	102.43	101.05	101.64	102.00	103.35
26	101.67	102.56	102.62	103.12	101.21	101.21	102.59	102.33	101.05	101.67	102.00	103.35
27	101.61	102.76	102.62	103.02	101.21	101.25	102.59	102.26	101.02	101.80	102.10	103.35
28	101.35	102.85	102.62	102.82	101.21	101.21	102.26	102.13	101.02	101.97	102.10	103.38
29	100.79	102.92	102.56	102.85	101.21	101.25	102.46	101.74	100.98	101.90	102.10	103.41
30	103.82		102.66	102.85	101.31	101.48	102.56	101.38	100.95	101.94	102.10	103.38
31	100.92		102.59		101.28		102.59	101.31		101.97		103.25
Avg.	101.44	101.84	102.49	103.28	101.74	101.35	102.07	102.20	101.21	101.44	101.74	102.69

COLORADO RIVER IMMEDIATELY BELOW MORELOS DAM - STAGES

DESCRIPTION: Water-stage recorder located on the right bank of the Colorado River in Mexico immediately downstream from Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary, and about 7.5 miles (12.1 km) downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date zero of the gage was 0.16 foot (0.05 m) below mean sea level.

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage heights, February 20, 1951 to June 6, 1966; continuous record of gage heights June 7, 1966 through 1976.

REMARKS: On June 7, 1966 a continuous water-stage recorder was installed; prior to this date mean daily gage heights were determined from hourly readings of staff gage.

EXTREMES: Maximum mean daily gage height, 112.63 feet (34.33 m) on January 2, 1958; minimum mean gage height, 98.13 feet (29.91 m) several days during March and April 1967.

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101.35	100.23	101.41	101.18	101.48	101.38	101.48	101.57	101.57	101.64	101.41	101.38
2	101.31	99.74	101.35	101.18	101.44	101.38	101.51	101.57	101.61	101.57	101.41	101.38
3	101.31	99.67	101.31	101.08	101.44	101.38	101.51	101.54	101.61	101.54	101.44	101.35
4	101.31	99.61	101.25	101.02	101.44	101.38	101.54	101.57	101.64	101.51	101.38	101.31
5	101.35	99.57	101.25	101.05	101.44	101.38	101.54	101.57	101.64	101.51	101.38	101.28
6	101.38	99.51	101.31	101.08	101.48	101.41	101.51	101.57	101.61	101.51	101.31	101.31
7	101.31	99.44	101.38	101.05	101.44	101.38	101.51	101.54	101.44	101.48	101.35	101.31
8	101.31	99.41	101.38	101.05	101.41	101.41	101.51	101.51	101.54	101.44	101.38	101.35
9	101.35	99.41	101.38	101.05	101.41	101.41	101.51	101.51	101.64	101.44	101.38	101.35
10	101.31	100.66	101.38	101.05	101.44	101.41	101.51	101.54	104.27	101.41	101.35	101.35
11	101.31	103.02	101.31	100.85	101.44	101.41	101.48	101.54	109.88	101.44	101.35	101.35
12	101.35	99.74	101.28	100.59	101.41	101.44	101.48	101.57	108.96	101.48	101.35	101.35
13	101.31	99.05	101.28	100.62	101.44	101.44	101.44	101.57	105.38	101.48	101.35	101.35
14	101.31	100.10	101.31	102.30	101.44	101.35	101.44	101.57	102.17	101.48	101.28	101.38
15	101.31	100.92	101.31	105.82	101.38	101.38	101.41	101.51	101.57	101.48	101.28	101.41
16	101.31	100.89	101.35	106.92	101.41	101.41	101.41	101.54	101.61	101.44	101.31	101.38
17	101.31	100.30	101.38	102.92	101.41	101.44	101.51	101.57	101.57	101.38	101.31	101.38
18	101.31	100.26	101.31	99.51	101.44	101.48	101.54	101.64	101.54	101.31	101.35	101.39
19	101.31	99.57	101.28	99.34	101.48	101.51	101.54	101.67	101.51	101.35	101.41	101.38
20	101.31	100.39	101.28	99.18	101.48	101.51	101.54	101.64	101.48	101.38	101.35	101.31
21	101.31	100.82	101.28	99.11	101.44	101.44	101.54	101.64	101.44	101.38	101.35	101.31
22	101.31	101.15	101.28	99.18	101.41	101.41	101.51	101.64	101.41	101.44	101.38	101.35
23	101.35	101.15	101.28	99.11	101.41	101.41	101.44	101.64	101.38	101.44	101.35	101.31
24	101.35	101.18	101.28	99.08	101.41	101.38	101.44	101.64	103.67	101.41	101.31	101.31
25	101.35	101.31	101.28	100.30	101.35	101.38	101.61	101.64	109.28	101.41	101.35	101.28
26	101.31	101.48	101.21	100.95	101.38	101.38	101.54	101.67	110.17	101.38	101.35	101.28
27	101.31	101.35	101.28	101.25	101.41	101.44	101.51	101.71	112.07	101.35	101.35	101.28
28	101.31	101.38	101.28	101.31	101.38	101.44	101.41	101.67	106.53	101.38	101.35	101.28
29	101.28	101.38	101.25	101.35	101.35	101.41	101.41	101.71	102.46	101.41	101.35	101.31
30	100.98		101.15	101.44	101.38	101.41	101.51	101.31	101.74	101.41	101.35	101.28
31	100.85		101.18		101.38		101.57	101.57		101.41		102.23
Avg.	101.28	100.43	101.31	101.08	101.41	101.41	101.51	101.57	103.48	101.44	101.35	101.38

WELLTON-MOHAWK DRAINAGE WATER DISCHARGED TO COLORADO RIVER BELOW MORELOS DAM

DESCRIPTION: Water-stage recorder located on downstream end of the Wellton-Mohawk Drainage Extension Channel on the Arizona bank of the Colorado River at the east end of the weir section of Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary. The elevation of the zero of the gage has not been determined.

RECORDS: Based on discharge measurements and a continuous record of gage heights. Station is operated by the United States Section of the Commission. Records available: November 16, 1965 through 1976.

REMARKS: Pursuant to Minute 213 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 12 miles (19.3 km), and placed in operation on November 16, 1965. Drainage flows may be discharged to the Gila River and thence to the Colorado River at the diversion structure, Main Outlet Drain Extension No. 1, at the upstream end of the extension; directly to the Colorado River at Main Outlet Drain Extension No. 2, 1.9 miles (3.1 km) upstream from Morelos Dam; and directly to the Colorado River immediately below Morelos Dam at this station, Main Outlet Drain Extension No. 3. On July 14, 1972, Minute 241 of the Commission became effective. The Minute called for discharge of all Wellton-Mohawk drainage waters to be made below Morelos Dam.

Mean Daily Discharge in Second-Foot 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	307	99.8	319	264	316	298	309	317	304	321	312	310
2	305	16.4	312	268	314	300	312	314	312	321	316	309
3	304	4.1	304	258	317	297	316	310	307	316	314	305
4	304	1.4	298	246	317	297	317	317	312	314	307	298
5	309	1.0	300	251	319	297	314	316	310	312	307	297
6	312	1.0	312	254	322	300	307	314	307	309	302	302
7	307	.8	316	250	321	302	312	312	278	310	309	302
8	312	.8	316	251	317	304	309	305	300	317	309	307
9	312	1.4	317	251	316	307	309	307	307	314	302	309
10	312	1.2	316	254	322	309	314	310	315	316	305	310
11	312	.8	302	218	314	307	305	307	189	319	305	314
12	312	.6	302	189	312	307	304	312	214	317	305	314
13	312	3.4	302	194	314	312	298	316	295	317	300	312
14	310	142	305	216	309	298	300	314	312	317	293	314
15	310	233	307	211	304	297	293	309	309	316	292	316
16	307	223	310	207	304	298	300	307	316	309	297	316
17	309	141	314	115	302	304	316	310	309	305	300	314
18	310	147	300	9.9	314	305	314	316	309	309	305	314
19	309	156	300	3.5	314	309	309	319	309	310	314	314
20	307	162	305	1.6	314	316	303	317	309	309	307	307
21	304	235	302	1.2	312	310	307	321	305	309	310	309
22	309	280	297	5.7	307	302	300	317	300	317	312	310
23	309	275	292	0	309	305	292	317	293	314	307	309
24	312	285	292	6.1	309	304	297	317	296	310	300	310
25	309	300	288	148	298	302	316	316	312	307	309	307
26	307	304	283	236	302	302	304	316	312	305	310	309
27	309	307	288	277	305	307	306	319	316	300	310	309
28	307	314	288	287	304	305	288	319	314	304	312	307
29	298	316	285	295	297	300	295	317	319	312	310	314
30	250		271	312	302	304	310	261	317	310	307	317
31	241		268		298		314	305		314		314
Sum	9,437	3,952.7	9,311	5,480.0	9,625	9,105	9,495	9,674	9,007	9,680	9,188	9,599

Current Year 1976									Period 1966-1976		
Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	3.43	2.70	6	347	31	231	304	18,718	15,956	18,718	11,029
Feb.	3.25	.03	29	319	4	.6	136	7,840	12,034	16,992	6,978
Mar.	3.27	2.76	1	322	30	236	300	18,468	8,619	18,506	6.9
Apr.	3.27	.02	30	322	123	0	183	10,869	6,351	18,061	247
May	3.29	3.12	4	326	125	293	310	19,091	11,531	19,091	3,160
June	3.26	3.13	119	317	3	295	304	18,060	8,679	18,756	2,093
July	3.35	3.04	31	333	24	280	306	18,833	9,180	18,946	0
Aug.	3.32	2.67	31	329	30	225	312	19,188	9,583	19,188	34.9
Sept.	3.30	1.95	10	323	11	137	300	17,965	13,331	18,474	3,575
Oct.	3.30	3.13	122	328	127	298	312	19,200	18,487	19,200	17,599
Nov.	3.27	3.05	19	322	15	285	306	18,224	18,021	18,478	17,234
Dec.	3.27	3.07	129	321	5	298	310	19,039	16,372	19,121	11,050
Yearly	3.43	0.02		347		0	282	205,395	148,251	214,781	100,029
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	1.05	0.01		9.83		0	7.99	253,353	182,866	264,930	123,384

† And other days

COLORADO RIVER AT MORELOS GAGING STATION - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of the river, and cableway 1.8 miles (2.9 km) downstream from the northerly international boundary, 0.7 mile (1.1 km) downstream from Morelos Diversion Dam, and about 9 miles (14.5 km) downstream from Yuma, Arizona, along the river levee. Zero of gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Computations by shifting control methods. Records available: Daily discharges, January 1, 1954 through 1976; continuous record of gage heights, July 20, 1952 through 1976.

REMARKS: Reservoirs, diversions in the United States and Mexico, drainage returns, and waste flows modify the river flow at this station. The record at this station, less Main Outlet Drain Extension No. 3, represents the river flow passing Morelos Diversion Dam.

EXTREMES: Maximum instantaneous discharge, 22,240 second-feet (630 m³/sec) on January 4, 1955; maximum gage height, 112.18 feet (34.19 m) on January 28, 1958. Minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	320	* 131	324	274	332	314	312	334	312	334	319	321
2	323	* 25.0	318	277	327	314	318	332	318	330	319	318
3	323	* 12.4	312	271	327	314	319	327	314	321	318	312
4	323	* 9.5	306	* 260	328	312	323	329	316	319	314	306
5	324	* 9.0	306	* 260	330	314	325	328	316	319	311	302
6	329	* 8.5	316	* 268	334	318	323	328	312	318	306	309
7	330	* 8.3	319	* 270	328	319	321	323	286	319	312	311
8	330	* 8.1	322	* 271	323	319	318	318	300	325	316	319
9	329	* 7.8	325	* 271	319	321	323	319	312	325	311	319
10	330	* 103	326	* 272	325	323	323	325	1,250	327	312	319
11	330	544	314	* 242	323	321	323	321	3,720	328	309	319
12	330	* 87.3	313	* 217	318	323	321	325	3,020	330	311	318
13	330	* 12.6	312	* 213	319	327	312	328	1,200	328	309	319
14	329	* 135	316	508	323	309	311	325	396	327	302	321
15	326	243	318	2,420	314	309	309	318	328	325	302	327
16	325	244	320	2,370	314	312	299	319	330	316	307	323
17	324	* 158	324	753	314	316	312	325	327	314	307	318
18	323	* 147	313	* 41.8	319	316	319	328	325	319	314	319
19	321	* 156	310	* 29.4	325	316	321	332	327	318	321	319
20	320	* 165	308	* 18.1	328	323	319	330	325	314	318	314
21	317	* 225	307	* 15.8	325	321	319	332	325	314	318	314
22	315	289	304	* 20.8	319	312	319	332	318	321	321	314
23	316	292	301	* 14.0	321	311	309	334	309	319	318	312
24	317	296	300	* 18.0	323	311	300	332	977	314	309	314
25	317	313	296	* 152	312	309	319	330	3,610	311	316	311
26	319	331	290	* 250	316	309	325	327	4,410	312	318	314
27	319	316	298	296	316	311	326	332	6,720	306	316	316
28	317	318	296	307	316	312	302	330	1,850	312	319	311
29	316	320	292	* 309	309	314	306	327	450	321	319	318
30	277		282	* 327	309	311	324	270	344	319	318	327
31	250		230		312		331	309		319		476
Sum	9,899	4,914.5	9,568	11,215.9	9,948	9,461	9,831	10,069	33,647	9,924	9,410	9,960
Current Year 1976									Period 1954-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	100.97	100.48	† 7	330	31	250	319	19,634	139,176	969,540	949	
Feb.	102.36	98.13	11	544	9	7.8	169	9,748	71,887	414,310	977	
Mar.	100.96	100.72	10	326	31	280	309	18,978	47,463	630,230	659	
Apr.	106.36	98.60	15	2,420	23	14.0	374	22,240	37,298	532,320	804	
May	101.06	100.88	6	334	† 29	309	321	19,732	44,498	375,970	460	
June	101.00	100.88	13	327	† 14	309	315	18,766	13,074	119,980	834	
July	101.12	100.94	31	331	16	299	317	19,500	13,181	89,430	654	
Aug.	101.30	100.94	† 1	334	30	270	325	19,972	19,225	125,590	702	
Sept.	111.29	100.94	27	6,720	7	286	1,122	66,738	20,204	87,830	113	
Oct.	101.32	100.82	1	334	27	306	320	19,684	42,965	172,940	9,750	
Nov.	100.90	100.74	† 19	321	† 14	302	314	18,664	72,344	356,390	4,869	
Dec.	101.62	100.70	31	476	5	302	321	19,755	97,132	643,850	1,111	
Yearly	111.29	98.13		6,720		7.8	377	273,417	619,047	3,957,730	101,758	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	33.92	29.91		190		0.22	10.7	337,257	763,588	4,881,820	125,517	

* Partly estimated

† And other days

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.92	* 99.53	100.95	100.68	101.03	100.90	100.97	101.14	101.20	101.32	100.90	100.82
2	100.94	* 98.55	100.92	100.70	101.00	100.90	101.00	101.14	101.23	101.27	100.90	100.80
3	100.94	* 98.29	100.88	100.66	101.01	100.89	101.02	101.12	101.21	101.19	100.89	100.77
4	100.94	* 98.20	100.83	*100.59	101.02	100.88	101.04	101.15	101.23	101.15	100.86	100.73
5	100.95	* 98.18	100.83	*100.58	101.03	100.89	101.06	101.14	101.23	101.12	100.84	100.70
6	100.97	* 98.16	100.89	*100.64	101.05	100.90	101.06	101.14	101.21	101.08	100.80	100.74
7	100.97	* 98.15	100.91	*100.65	101.03	100.91	101.06	101.11	101.05	101.06	100.84	100.75
8	100.96	* 98.14	100.93	*100.66	101.00	100.92	101.03	101.09	101.14	101.06	100.85	100.80
9	100.95	* 98.13	100.94	*100.66	100.98	100.94	101.05	101.10	101.21	101.04	100.82	100.80
10	100.95	* 98.99	100.95	*100.67	101.02	100.95	101.05	101.13	103.71	101.03	100.82	100.81
11	100.95	102.36	100.86	*100.46	101.00	100.95	101.05	101.12	109.36	101.04	100.80	100.81
12	100.95	* 98.97	100.85	*100.29	100.97	100.96	101.04	101.14	108.46	101.04	100.80	100.80
13	100.95	* 98.31	100.84	*100.26	100.98	100.99	101.00	101.16	104.99	101.03	100.79	100.81
14	100.95	* 99.58	*100.85	101.69	100.99	100.89	101.00	101.15	101.76	101.01	100.74	100.82
15	100.94	100.43	*100.87	106.30	100.93	100.90	101.00	101.11	101.20	101.00	100.74	100.86
16	100.94	100.44	*100.89	106.36	100.93	100.92	100.94	101.13	101.18	100.94	100.76	100.84
17	100.93	* 99.91	100.92	102.49	100.92	100.95	101.02	101.16	101.13	100.93	100.76	100.82
18	100.93	* 99.87	100.86	* 99.00	100.94	100.95	101.07	101.18	101.09	100.95	100.80	100.83
19	100.92	* 99.93	100.85	* 98.88	100.97	100.96	101.09	101.21	101.08	100.94	100.84	100.83
20	100.92	* 99.98	100.85	* 98.73	100.99	101.00	101.08	101.21	101.05	100.91	100.82	100.80
21	100.91	*100.32	100.85	* 98.69	100.97	101.00	101.08	101.23	101.03	100.90	100.82	100.80
22	100.90	100.67	100.94	* 98.75	100.94	100.95	101.03	101.24	100.99	100.93	100.84	100.80
23	100.91	100.68	100.83	* 93.60	100.94	100.95	101.02	101.26	100.94	100.92	100.81	100.77
24	100.92	100.72	100.83	* 98.64	100.95	100.95	100.96	101.27	102.95	100.88	100.76	100.78
25	100.92	100.84	100.81	* 99.87	100.89	100.94	101.09	101.27	108.63	100.85	100.80	100.76
26	100.93	100.98	100.78	*100.55	100.91	100.94	101.12	101.26	109.41	100.86	100.81	100.77
27	100.93	100.90	100.83	100.84	100.91	100.95	101.12	101.30	111.29	100.82	100.79	100.77
28	100.92	100.91	100.83	100.90	100.81	100.97	100.99	101.29	106.13	100.85	100.81	100.74
29	100.91	100.94	*100.80	*100.90	100.89	100.98	101.03	101.28	102.16	100.90	100.81	100.77
30	100.65		*100.73	*101.00	100.88	100.95	101.10	100.94	101.42	100.89	100.80	100.82
31	100.43		100.72		100.90		101.12	101.18		100.90		100.62
Avg.	100.91	99.69	100.86	100.66	100.96	100.94	101.04	101.17	103.02	100.99	100.81	100.82

* Partly estimated

ELEVEN MILE WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway for discharging water from the West Main Canal to the Colorado River. This wasteway is located in Arizona, 4.3 miles (6.9 km) downstream from the northerly international boundary and 3.2 miles (5.1 km) downstream from Morelos Diversion Dam. It is the largest of three wasteways discharging waste water from the Valley Division of the Yuma Project in the United States into the limnотrophe section of the Colorado River.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1976, obtained by the United States Section; monthly discharge, January 1924 through 1950, by Bureau of Reclamation.

EXTREMES: Prior to January 1951, maximum monthly discharge, 9,740 acre-feet (12,014,000 m³) in August 1940; minimum monthly discharge, zero in April 1941. Since January 1, 1951, maximum instantaneous discharge, 800 second-feet (22.7 m³/sec) on December 3, 1961, at a maximum gage height of 117.60 feet (35.84 m); minimum instantaneous discharge, zero during parts of most years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	47.5	15.8	2.7	0	0.2	0.4	47.7	0.2	0.5	39.1	0.4
2	.4	33.9	2.0	.4	.2	.2	.4	26.7	.3	.5	7.6	.4
3	.4	1.3	1.4	.3	.3	.2	.3	.8	.3	.4	3.6	.3
4	.4	.4	.2	40.1	.1	.3	.4	.2	.3	.4	.2	.3
5	.4	.3	.2	15.8	0	.3	.5	.2	.3	.4	.2	43.9
6	.4	.3	.2	3.2	.3	32.2	.4	.2	.4	.4	.2	52.8
7	.4	.4	.2	1.1	0	39.5	.4	.2	.4	.4	.3	5.3
8	.4	.3	.3	.3	0	2.8	.4	.2	.3	.4	.3	2.1
9	.4	.4	.3	.3	0	1.3	.4	.2	.3	.4	.2	.2
10	.4	.3	.3	.3	0	.1	.4	.2	.3	.4	.2	.3
11	.4	.4	.3	.2	.1	.1	.4	.2	.4	.4	.2	.4
12	.5	.4	.4	.1	0	0	.6	.2	.4	.4	.2	.4
13	.4	.4	.4	.1	0	.1	.6	.3	.4	.4	.3	.4
14	.4	.4	.4	0	0	.1	.6	.4	.3	.4	.3	.4
15	.5	.3	.4	0	0	.1	.7	.3	.3	.4	.3	.2
16	.6	.4	.4	.1	0	.1	.6	.2	.4	.4	.2	.1
17	.5	.3	.3	.1	.1	.1	.6	.3	.4	.4	.2	0
18	.5	.4	.4	.2	.3	.2	.6	.3	.5	.4	.2	0
19	.4	.4	.5	.2	.3	.3	.7	.2	.5	.3	.2	0
20	.5	.4	.5	.2	.3	.4	.6	.3	.4	.3	.3	0
21	.5	.4	.5	.2	.2	.4	.6	.3	.4	.2	.3	0
22	.4	.4	.6	.1	.2	.4	.6	.3	.4	.2	.4	0
23	.4	.4	.5	.1	.2	.4	.5	.3	.4	.1	.3	0
24	.4	.4	.4	.1	.2	.4	.4	.2	.4	.2	.3	1.9
25	.5	.4	.4	.1	.3	.4	.6	.1	.4	.2	.3	0
26	.5	.4	.5	.2	.2	.4	.5	.1	.4	.3	.3	0
27	.4	.4	.4	.3	.2	.4	.3	.1	.4	.4	.4	0
28	.4	.3	.4	.2	.2	.4	.3	.1	.4	.4	.4	0
29	.4	1.3	.4	0	.2	.3	.3	.1	.4	.2	.4	0
30	.4	.4	.4	0	.2	.3	.2	.1	.4	.2	.4	0
31	.4	.4	.4	.1	.1	.1	.2	.3	.4	43.5	.4	0
Sum	13.4	93.3	29.8	67.0	4.2	82.4	14.5	81.3	11.1	53.9	57.8	109.8
Current Year 1976									Period 1935-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	111.82	111.76	25	0.9	† 7	0.3	0.4	26.6	3,189	9,570	20.0	
Feb.	115.50	111.75	1	24.1	† 4	.2	3.2	185	2,573	8,430	14.5	
Mar.	113.10	111.74	1	77.5	4	.1	1.0	59.1	2,423	6,230	59.1	
Apr.	115.28	111.72	4	218	† 3	0	2.2	133	2,238	6,300	0	
May	111.82	111.72	† 3	.9	† 1	0	.1	8.3	2,675	9,320	8.3	
June	115.18	111.72	6	208	† 2	0	2.7	163	2,547	7,440	81.3	
July	111.82	111.75	19	.9	† 3	.2	.5	28.8	2,565	8,320	13.9	
Aug.	115.68	111.73	1	262	† 0	.1	2.6	161	2,201	9,740	120	
Sept.	111.81	111.75	12	.7	† 1	.2	.4	22.0	1,600	6,140	6.0	
Oct.	115.33	111.74	31	223	† 2	.1	1.7	107	2,182	5,680	36.9	
Nov.	114.03	111.74	1	130	† 5	.1	1.9	115	2,602	8,220	18.8	
Dec.	114.76	111.72	5	176	† 7	0	3.5	218	3,445	9,430	61.9	
Yearly	115.68	111.72		262		0	1.7	1,227	30,240	82,900	943	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	35.26	34.05		7.42		0	0.05	1,513	37,301	102,256	1,163	

† And other days

COLORADO RIVER AT ELEVEN MILE GAGE - STAGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of the river, 4.3 miles (6.9 km) downstream from northerly international boundary, 3.2 miles (5.1 km) downstream from Morelos Diversion Dam, about 50 feet (15 m) downstream from the mouth of Eleven Mile Wasteway of the Yuma Project, and 11 miles (17.7 km) downstream from Yuma, Arizona, along the river levee. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily gage heights based on continuous water-stage records. Records available: Continuous record of gage heights, November 1947 through 1976; once weekly readings obtained by the U. S. Bureau of Reclamation, January 1940 through October 1947.

REMARKS: This station is maintained by the United States Section of the Commission as part of the continuing study of channel conditions in the limitrophe section of the river.

EXTREMES: Since November 1947, maximum mean daily gage height, 108.20 feet (32.98 m) on January 2, 1958; minimum mean daily gage height, 94.95 feet (28.94 m) on June 22, 1968.

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97.83	97.14	97.86	97.63	97.82	97.85	97.96	98.21	98.22	98.05	97.98	97.67
2	97.87	96.49	97.79	97.64	97.80	97.86	97.97	98.22	98.25	98.01	97.79	97.65
3	97.86	96.06	97.78	97.60	97.81	97.85	97.98	98.03	98.24	97.96	97.77	97.64
4	97.86	95.97	97.74	97.69	97.81	97.85	98.00	98.04	98.26	97.92	97.71	97.61
5	97.87	95.93	97.72	97.67	97.81	97.86	97.99	98.04	98.27	97.90	97.70	97.74
6	97.89	95.90	97.76	97.60	97.83	98.00	97.96	98.04	98.25	97.87	97.67	97.85
7	97.86	95.88	97.77	97.57	97.82	98.04	97.97	98.03	98.15	97.86	97.68	97.65
8	97.87	95.85	97.78	97.57	97.81	97.90	97.96	98.02	98.13	97.87	97.69	97.65
9	97.88	95.87	97.78	97.58	97.79	97.92	97.97	98.02	98.26	97.85	97.68	97.65
10	97.87	96.26	97.79	97.58	97.83	97.93	97.93	98.04	99.61	97.85	97.67	97.66
11	97.87	98.55	97.74	97.45	97.81	97.92	97.96	98.05	105.21	97.86	97.66	97.68
12	97.87	96.74	97.74	97.29	97.79	97.93	97.96	98.07	104.87	97.85	97.67	97.67
13	97.85	96.07	97.74	97.29	97.81	97.94	97.92	98.09	102.02	97.84	97.66	97.66
14	97.85	96.74	97.74	98.11	97.81	97.86	97.92	98.10	98.95	97.84	97.62	97.67
15	97.84	97.42	97.75	102.25	97.77	97.89	97.90	98.09	98.13	97.82	97.50	97.68
16	97.83	97.43	97.75	102.96	97.79	97.81	97.91	98.09	98.16	97.79	97.61	97.68
17	97.82	97.05	97.77	100.01	97.78	97.93	97.98	98.11	98.12	97.78	97.61	97.67
18	97.83	96.99	97.73	96.53	97.83	97.94	97.99	98.13	98.08	97.79	97.64	97.67
19	97.82	97.06	97.72	96.42	97.84	97.96	97.97	98.16	98.24	97.78	97.67	97.67
20	97.81	97.08	97.72	96.32	97.84	97.97	97.97	98.17	98.05	97.76	97.65	97.65
21	97.80	97.36	97.72	96.27	97.84	97.96	97.97	98.19	98.04	97.76	97.65	97.66
22	97.82	97.59	97.71	96.28	97.83	97.93	97.97	98.20	98.01	97.79	97.66	97.66
23	97.83	97.59	97.69	96.20	97.84	97.94	97.93	98.21	97.99	97.79	97.64	97.67
24	97.83	97.62	97.69	96.17	97.84	94.93	97.91	98.22	99.17	97.76	97.61	97.67
25	97.82	97.69	97.68	97.06	97.82	97.93	98.03	98.23	104.30	97.74	97.64	97.66
26	97.82	97.77	97.66	97.50	97.83	97.92	97.99	98.24	105.36	97.74	97.65	97.66
27	97.82	97.71	97.71	97.58	97.85	97.95	98.00	98.26	107.04	97.70	97.65	97.67
28	97.81	97.72	97.72	97.74	97.84	97.94	97.92	98.26	103.21	97.72	97.68	97.65
29	97.77	97.73	97.71	97.73	97.83	97.93	97.93	98.26	98.91	97.75	97.68	97.67
30	97.60		97.65	97.79	97.85	97.93	97.99	98.04	98.13	97.75	97.56	97.70
31	97.51		97.64		97.84		98.03	98.17		97.92		93.15
Avg.	97.82	96.94	97.73	97.71	97.82	97.92	97.96	98.13	99.79	97.83	97.68	97.69

TWENTY-ONE MILE WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway for discharging water from the West Main Canal to the Colorado River. Prior to May 1, 1971, water-stage recorder and control weir were located at a site 200 feet (61 m) upstream on wasteway. This wasteway is located in Arizona 18.5 miles (29.8 km) downstream from the northerly international boundary, 17.4 miles (28.0 km) downstream from Morelos Diversion Dam, and 2.2 miles (3.5 km) upstream from the southerly international boundary. It is the farthest downstream of the two wasteways discharging waste water from the Valley Division of the Yuma Project in the United States into the limitrophe section of the Colorado River. The elevation of the zero of the gage at the new location has not been determined.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1976, obtained by the United States Section; monthly discharge, March 1939 through 1950, by Bureau of Reclamation.

REMARKS: This wasteway was completed and flow began March 14, 1939. Since May 13, 1944, waste water from the West Main Canal which previously discharged across the southerly land boundary has been returned to the Colorado River through this wasteway.

EXTREMES: Prior to January 1951, maximum monthly discharge, 2,860 acre-feet (3,528,000 m³) in January 1946; minimum monthly discharge, 122 acre-feet (150,000 m³) in September 1950. Since January 1, 1951, maximum instantaneous discharge, 102 second-feet (2.89 m³/sec) on January 24, 1954, at a maximum gage height of 95.46 feet (29.10 m) (old datum); minimum instantaneous discharge, zero during a part of most months.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	6.1	0	0	0	0	0	0	0	0	0	0
3	0	1.3	0	0	0	0	0	0	0	0	0	0
4	0	.2	0	0	0	0	0	0	0	0	0	0
5	0	2.8	0	0	0	0	0	0	0	.4	0	0
6	0	2.4	0	0	0	0	0	0	0	.2	0	0
7	0	.4	0	0	0	0	0	0	0	.2	0	0
8	0	.3	0	0	0	0	0	0	0	.1	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	.5	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	13.5	0.5	0	0	0	0	0	0	0.9	0	0

Current Year 1976

Period 1939-1976

Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Foot	Acre-Foot		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
							Day	Day			
Jan.	0	0		0		0	0	793	2,860	0	
Feb.	.96	0	2	22.1	† 1	.5	26.8	684	2,510	0	
Mar.	.80	0	6	16.5	† 1	0	1.0	630	1,660	0	
Apr.	0	0		0		0	0	677	1,940	0	
May	0	0		0		0	0	824	2,470	0	
June	0	0		0		0	0	720	2,350	0	
July	0	0		0		0	0	621	1,950	0	
Aug.	0	0		0		0	0	652	2,530	0	
Sept.	.02	0	14	.1	† 1	0	0	586	2,180	0	
Oct.	1.13	0	5	28.8	† 1	0	1.8	710	2,100	0	
Nov.	0	0		0		0	0	820	2,380	0	
Dec.	0	0		0		0	0	904	2,680	0	
Yearly	1.13	0		28.8		0	0	29.6	8,621	24,370	4.8
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	0.34	0		0.82		0	0	36.5	10,634	30,060	5.92

† And other days

EAST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir located about 300 feet (91 m) north of the international boundary near San Luis, Arizona and 1.5 miles (2.4 km) east of the Colorado River.

RECORDS: Wasteway discharges computed by United States Section of the Commission beginning November 1, 1953, from head on control weir as measured by water-stage recorder and weir ratings as determined by current meter measurements. Records available: October 1946 through 1976. Records of monthly discharges also are available for the periods January 1924 through June 1928, January 1932 through 1933, and April 1935 through September 1946.

REMARKS: Wasteway discharges from the East Main Canal comprise regulatory waste and drainage waters from the eastern half of the Valley Division of the Yuma Project and are considered as part of the volumes arriving at the limitrophe section of the Colorado River.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.2	6.6	17.2	10.4	13.2	18.7	1.9	5.6	22.6	3.8	16.1	12.6
2	8.6	3.0	11.8	3.3	9.1	26.8	1.4	1.0	18.3	1.8	12.5	9.4
3	4.2	10.7	1.6	7.1	19.2	11.4	.5	1.1	13.6	12.0	12.5	15.7
4	7.2	10.8	9.1	3.7	11.9	8.0	1.0	3.5	9.5	8.6	7.7	11.2
5	2.7	11.5	4.8	1.9	15.2	2.8	11.6	8.3	13.4	9.9	17.0	18.3
6	11.5	8.6	18.4	.5	20.2	1.8	3.9	3.4	26.6	19.3	21.7	1.3
7	4.6	14.3	15.3	.2	10.2	2.6	17.4	7.5	1.5	17.1	16.9	1.1
8	12.6	4.2	11.5	1.7	7.0	.2	11.0	4.6	3.6	21.3	11.8	6.1
9	1.2	10.9	4.5	.8	10.1	.4	3.1	7.7	16.3	16.2	12.9	16.5
10	9.1	2.0	1.1	.2	1.6	7.8	2.3	13.7	20.7	11.3	17.4	22.7
11	8.2	.3	6.7	11.6	14.2	.9	6.4	6.6	13.9	3.0	.9	5.8
12	5.3	.1	3.3	22.4	7.8	2.9	13.5	3.8	15.8	6.2	13.3	2.1
13	17.6	16.1	8.1	14.4	8.4	25.4	10.3	4.2	2.4	4.7	16.5	1.1
14	23.8	19.6	9.3	20.5	3.7	14.3	2.0	2.3	11.8	9.1	12.3	6.7
15	13.1	5.8	28.5	19.5	3.4	10.0	2.8	1.1	9.7	2.9	13.9	12.2
16	.6	4.8	4.1	9.3	7.1	15.0	2.3	6.0	1.5	11.1	10.9	5.9
17	19.2	.7	.6	14.5	4.4	3.1	11.4	1.8	6.3	11.0	1.6	7.6
18	19.9	.2	1.2	24.8	5.8	4.3	8.4	.2	25.3	2.1	7.3	2.9
19	2.1	0	6.3	23.4	1.1	2.4	10.0	.7	23.3	1.4	20.1	.9
20	7.2	0	10.1	1.4	10.2	13.1	6.3	1.7	8.2	8.7	8.4	3.5
21	11.1	4.1	1.0	.3	15.2	26.4	7.9	15.7	19.8	24.9	7.0	.3
22	15.9	4.9	8.9	1.7	26.2	2.1	4.2	14.6	25.1	18.3	11.2	.1
23	12.8	4.4	14.0	2.8	15.8	7.1	.5	22.5	22.4	20.4	4.5	0
24	26.3	2.8	7.3	1.4	2.9	5.0	11.2	6.6	7.7	13.8	10.5	0
25	18.7	7.6	6.7	1.0	2.1	1.5	7.2	1.9	12.8	10.6	15.6	4.6
26	13.9	8.0	13.5	5.9	7.9	5.4	3.1	3.2	9.3	4.6	3.3	11.6
27	4.4	13.5	9.0	24.2	17.4	6.7	16.1	8.4	13.0	16.8	4.2	3.9
28	17.1	11.4	8.4	14.1	15.6	4.4	6.0	4.5	4.1	6.6	14.5	4.7
29	14.2	8.5	14.7	18.5	14.4	2.3	9.2	17.6	9.8	.6	24.0	11.3
30	10.7	14.0	15.4	5.1	.3	14.7	25.1	14.4	8.9	8.6	16.3	16.3
31	5.7	5.6		10.2		12.2	7.5		17.7		26.4	
Sum	347.7	195.4	276.6	276.9	316.6	233.1	219.8	212.4	402.7	324.7	355.1	242.8
Current Year 1976								Period 1935-1976				
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.	23.25	22.17	17	56.7	†10	0.2	11.2	690	1,159	3,360	280	
Feb.	22.98	22.15	13	36.3	†12	0	6.7	388	970	3,170	298	
Mar.	22.96	22.16	† 6	34.9	† 5	.1	8.9	549	1,122	2,920	190	
Apr.	23.09	22.15	28	44.3	† 7	0	9.2	549	1,087	3,170	197	
May	23.20	22.17	6	52.7	†17	.2	10.2	628	1,206	3,040	245	
June	23.08	22.15	2	43.5	† 8	0	7.8	462	1,027	3,660	175	
July	22.93	22.15	7	32.7	† 3	0	7.1	436	1,111	3,590	182	
Aug.	23.00	22.15	22	37.7	†18	0	6.9	421	1,130	3,950	169	
Sept.	22.99	22.16	22	37.0	17	.1	13.4	799	1,048	3,170	159	
Oct.	22.99	22.17	†14	37.0	25	.2	10.5	644	1,097	3,280	357	
Nov.	23.00	22.17	28	37.7	† 7	.2	11.8	704	1,201	3,570	313	
Dec.	22.94	22.15	27	33.4	†22	0	7.8	482	1,169	3,030	292	
Yearly	23.25	22.15		56.7		0	9.3	6,752	13,327	38,310	3,967	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	7.09	6.75		1.61		0	0.26	8,329	16,439	47,255	4,893	

† And other days

YUMA MAIN DRAIN (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorders located in the forebay and afterbay, with flow meters in the four discharge pipes at the Boundary Pumping Plant on the Main Drain about 200 feet (61 m) north of the international boundary near San Luis, Arizona, 1.3 miles (2.1 km) east of the Colorado River.

RECORDS: Main Drain discharges are lifted 10 (3.05) to 12 feet (3.66 m) at the pumping plant. Prior to April 1, 1969, discharges were computed from pump ratings and the differential head measured by the two gages. Beginning April 1, 1969, discharges were computed from flow meter charts. Pump ratings and flow meter discharges are checked by current meter measurements. Records obtained and computed by the United States Section of the Commission. Records available: Monthly discharges, June 1919 through 1951; daily discharges January 1952 through 1976.

REMARKS: Flows in the Main Drain are principally drainage waters from the Valley Division of the Yuma Project. The Main Drain, the East Main Canal Wasteway, and West Main Canal Wasteway discharge into Mexico at the international land boundary near San Luis, Sonora. The water is used for irrigation in Mexico on the left (Sonora) bank of the Colorado River and is considered as part of the volumes arriving at the limitrophe section of the river.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	110	112	123	141	143	135	147	153	138	153	114	122
2	109	106	111	135	145	128	134	154	135	154	115	119
3	108	102	117	146	113	121	141	133	136	153	118	124
4	105	105	116	141	134	137	131	134	136	154	122	121
5	119	117	133	131	146	131	133	135	155	151	131	113
6	112	108	132	128	147	121	125	136	139	144	137	122
7	105	123	130	133	141	118	128	125	135	146	111	122
8	105	117	137	140	141	121	124	123	153	142	101	120
9	103	123	122	142	134	126	130	111	140	143	109	120
10	100	116	128	138	135	126	138	138	155	141	135	107
11	109	98.7	124	150	131	138	143	149	103	137	130	112
12	107	116	123	133	136	126	142	142	107	138	131	126
13	108	126	130	144	141	123	136	142	105	131	130	117
14	103	122	140	142	141	127	139	137	122	136	127	118
15	116	129	121	141	129	116	135	156	140	143	126	121
16	118	106	111	150	133	132	146	138	144	148	127	112
17	119	107	95.0	149	134	144	141	119	154	145	127	126
18	115	103	112	148	129	146	143	131	156	141	119	126
19	108	107	117	138	125	132	132	138	155	144	127	138
20	102	99.9	116	109	144	151	138	140	158	140	121	131
21	115	107	117	118	146	153	152	142	162	143	119	129
22	115	109	120	127	130	126	145	146	146	145	120	113
23	110	111	128	140	138	130	124	138	147	128	114	117
24	108	117	116	149	126	128	134	141	143	108	123	120
25	106	121	129	141	128	126	138	140	139	111	123	138
26	107	119	132	137	130	140	142	147	128	132	120	113
27	119	119	153	148	128	133	120	151	119	139	117	113
28	119	115	117	143	131	130	137	143	144	139	124	113
29	115	109	113	151	146	137	136	156	161	149	124	119
30	112	133	139	139	126	139	137	146	149	133	113	121
31	118	136	136	136	125	139	139	133	139	135	118	116
Sum	3,435	3,275.6	3,837.0	4,163	4,176	3,943	4,230	4,317	4,209	4,346	3,655	3,731
Month	Current Year 1976						Period 1935-1976					
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum	
Jan.			† 5	119	10	100	111	6,813	7,840	11,203	1,740	
Feb.			15	129	11	98.7	113	6,497	7,725	11,988	1,640	
Mar.			27	153	17	95.0	124	7,611	8,940	12,430	1,940	
Apr.			29	151	20	109	139	8,257	8,650	11,890	1,920	
May			6	147	3	113	135	8,283	8,952	13,140	1,950	
June			21	153	† 7	118	131	7,821	8,202	12,040	2,290	
July			21	152	27	120	136	8,390	8,051	11,830	2,530	
Aug.			† 15	156	9	111	139	8,563	7,977	11,960	2,560	
Sept.			21	162	13	105	140	8,348	8,005	11,568	2,280	
Oct.			† 2	154	24	108	140	8,620	8,967	12,385	2,940	
Nov.			6	137	8	101	122	7,250	8,502	12,010	2,800	
Dec.			† 19	138	10	107	120	7,400	8,292	11,480	2,450	
Yearly				162		95.0	129	93,853	100,004	139,380	27,040	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				4.59		2.69	3.65	115,767	123,354	171,924	33,354	

‡ Mean daily

† And other days

WEST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder located about 0.3 mile (0.5 km) upstream from outlet to Yuma Main Drain, which is 175 feet (53.3 m) upstream from East Main Canal Wasteway and 0.4 mile (0.6 km) west of San Luis, Arizona. Prior to August 1, 1975 the recorder was located about 150 feet (45.7 m) upstream from outlet to Yuma Main Drain.

RECORDS: Wasteway discharges computed by United States Section of the Commission beginning February 23, 1971, from water-stage recorder and ratings as determined by current meter measurements.

REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.7	43.7	49.1	2.0	1.8	8.3	8.3	17.9	18.7	9.4	24.2	8.3
2	1.8	20.9	5.6	1.3	.4	19.3	4.4	22.6	21.6	2.4	1.9	4.4
3	.8	.1	.5	8.1	11.2	13.0	.9	1.9	1.1	4.6	.7	13.0
4	.8	0	5.0	38.8	10.9	14.2	2.2	.4	18.4	4.6	.7	15.5
5	.2	0	.2	41.8	17.1	8.5	10.3	1.7	3.8	19.3	9.7	18.5
6	1.1	12.3	5.1	2.6	11.2	32.2	8.0	3.2	24.8	8.5	17.9	36.9
7	15.2	12.0	3.3	.4	5.2	21.9	8.1	8.7	33.3	4.5	5.8	8.5
8	21.9	9.6	.6	3.5	9.7	2.5	.9	.1	13.8	4.4	1.7	1.4
9	13.0	17.5	7.9	3.9	2.1	.3	3.4	5.9	15.6	10.1	1.3	.7
10	5.1	7.7	.1	1.2	6.8	3.5	1.2	1.7	28.0	19.2	3.6	4.5
11	3.3	1.4	7.6	2.7	4.8	2.9	2.9	6.4	13.0	24.7	7.8	12.6
12	3.9	6.6	6.4	1.3	7.3	11.6	11.7	12.2	2.2	29.3	15.1	2.8
13	4.0	22.9	3.4	6.7	1.4	6.2	7.8	1.1	24.0	7.1	14.4	4.3
14	2.0	16.0	5.1	8.7	5.2	2.0	12.3	5.9	3.5	1.3	4.4	7.8
15	12.8	4.9	9.3	3.4	6.3	1.6	4.7	3.3	2.1	.6	2.2	5.7
16	23.0	4.1	2.7	7.1	8.2	4.2	.9	5.7	18.9	4.7	1.6	9.2
17	12.1	3.4	4.8	11.2	9.6	8.2	3.2	2.1	10.0	4.0	2.5	3.1
18	.5	2.4	10.1	6.3	3.4	3.8	10.6	1.3	16.1	.6	2.9	4.7
19	11.7	3.7	6.8	12.3	12.5	2.7	11.6	2.3	1.9	6.0	5.8	1.1
20	10.4	10.4	19.3	3.3	28.5	2.9	20.8	8.7	4.8	11.3	11.3	.6
21	8.9	5.1	5.7	11.3	10.8	4.7	15.0	12.2	4.9	19.9	10.6	.6
22	2.5	3.1	4.6	5.1	7.9	2.0	15.8	6.6	7.6	9.8	8.2	18.3
23	4.3	3.5	5.0	3.2	.7	2.3	20.1	2.9	2.1	9.4	10.7	35.9
24	4.2	18.6	6.9	2.9	1.9	3.6	2.6	16.0	19.2	9.1	15.4	19.6
25	16.5	3.7	9.9	5.8	1.8	3.9	16.0	11.4	15.1	4.8	10.8	3.2
26	4.8	13.2	8.8	11.6	6.8	7.3	3.7	8.5	25.5	4.0	5.0	12.8
27	8.7	5.3	3.9	11.8	10.8	12.8	8.8	2.8	12.4	11.0	9.8	7.9
28	11.3	10.6	7.4	4.5	5.9	13.2	2.6	6.7	5.4	21.8	3.1	7.4
29	6.6	10.2	10.5	6.6	3.9	9.0	6.4	3.0	17.1	5.6	5.1	7.0
30	25.4		9.2	5.3	3.4	5.2	5.4	8.0	2.2	9.3	2.1	5.4
31	44.6		3.8		1.5		1.8	28.6		24.2		25.9

Sum	285.1	270.9	228.6	234.7	219.0	233.8	232.4	219.8	387.1	305.5	216.3	307.6
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Month	Current Year 1976						Period 1971-1976				
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low	Feet	Acre-Feet	Average	Maximum	Minimum
Jan.	2.30	0	30	53.6	† 6	0	9.2	565	396	565	237
Feb.	2.36	0	1	56.1	† 3	0	9.3	537	501	563	429
Mar.	2.92	0	1	81.4	† 6	0	7.4	453	531	939	203
Apr.	2.89	.01	4	64.6	† 2	0	7.8	466	426	664	175
May	2.56	.02	20	51.5	14	.1	7.1	434	347	434	217
June	2.46	0	6	47.3	† 10	0	7.8	464	387	480	253
July	2.10	.03	20	35.3	† 8	.2	7.5	461	388	556	242
Aug.	2.14	0	31	37.1	† 8	0	7.1	436	379	536	166
Sept.	2.44	.04	13	47.1	3	.2	12.9	768	467	768	190
Oct.	2.60	0	12	53.0	† 4	0	9.9	606	467	728	270
Nov.	2.27	.09	1	41.3	9	.4	7.2	429	480	541	390
Dec.	2.49	.05	24	48.8	† 21	.2	9.9	610	433	610	183
Yearly	2.92	0		81.4		0	8.6	6,229	5,207	6,229	# 3,070
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	0.89	0		2.31		0	0.24	7,683	6,423	7,683	# 3,787

† And other days # Not for full year

TOTAL FLOWS CROSSING INTERNATIONAL BOUNDARY INTO MEXICO NEAR SAN LUIS, SONORA

DESCRIPTION: The tabulated data below are the combined flows of the East Main Canal Wasteway, West Main Canal Wasteway, and the Yuma Main Drain and represent the total water crossing the international land boundary into the Sanchez Mejorada Canal near San Luis, Arizona. The Mexican Section maintains a water-stage recorder in Mexico on right bank of Sanchez Mejorada Canal and obtains check measurements on a bridge located 0.2 mile (0.3 km) downstream from the international boundary, 1.2 miles (1.9 km) east of the Colorado River and 0.6 mile (1.0 km) west of San Luis, Sonora.

RECORDS: Records obtained and computed by the United States Section of the Commission. Records available: East Main Canal Wasteway and Yuma Main Drain from January 1935 through 1976. West Main Canal Wasteway from February 23, 1971 through 1976.

REMARKS: Descriptions and flows of the individual stations, East Main Canal Wasteway, West Main Canal Wasteway and the Yuma Main Drain, are published separately in this bulletin on pages 29, 31, and 30.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	132	160	189	153	158	162	157	176	179	166	154	143
2	119	130	128	140	154	174	140	178	175	158	129	133
3	113	113	119	161	143	145	142	136	151	170	131	153
4	113	116	130	184	157	159	134	138	164	167	130	148
5	122	128	138	175	178	142	155	145	172	180	158	150
6	125	129	156	131	178	155	137	143	190	172	177	160
7	125	149	149	134	156	142	154	141	170	168	134	132
8	140	131	149	145	158	124	136	128	170	168	114	128
9	122	151	134	147	146	127	136	125	172	169	123	137
10	114	126	129	139	143	137	142	153	204	172	156	134
11	120	100	138	164	150	142	152	162	135	165	139	130
12	116	123	133	157	151	140	167	158	125	174	159	131
13	130	165	142	165	151	155	154	147	131	143	161	122
14	134	158	154	171	150	143	153	145	137	146	144	132
15	142	140	159	164	139	130	142	160	152	146	142	139
16	142	115	118	166	148	151	149	150	164	164	140	127
17	150	111	100	166	148	155	156	123	170	160	131	137
18	135	111	123	179	138	154	162	132	197	144	129	134
19	122	111	130	174	139	137	154	141	180	151	153	140
20	120	110	145	114	183	167	165	150	171	160	141	135
21	135	116	124	130	172	184	175	170	187	188	137	130
22	133	117	134	134	164	130	165	167	179	173	139	131
23	127	119	147	146	154	139	145	163	172	158	129	153
24	138	138	130	153	131	137	148	164	170	131	149	140
25	141	132	146	148	132	131	161	153	167	126	149	146
26	126	140	154	154	145	153	149	159	163	141	128	137
27	132	138	166	184	156	152	145	162	144	167	131	125
28	147	137	133	162	152	148	146	154	154	167	142	125
29	136	128	138	176	164	148	152	177	188	155	153	137
30	148		161	160	134	144	157	179	166	151	124	143
31	168		145		137		153	169		177		170
Sum	4,067	3,742	4,341	4,676	4,709	4,407	4,683	4,748	4,999	4,977	4,226	4,282
Current Year 1976									Period 1935-1976			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.			31	168	† 3	113	131	8,068	9,395	12,131	* 2,123	
Feb.			13	165	11	100	129	7,422	9,196	12,970	* 2,023	
Mar.			1	189	17	100	140	8,613	10,493	13,704	* 2,322	
Apr.			† 4	184	20	114	156	9,272	10,163	12,982	2,117	
May			20	183	24	131	152	9,345	10,405	13,900	2,473	
June			21	184	8	124	147	8,747	9,616	12,570	2,525	
July			21	175	4	134	151	9,287	9,550	12,420	2,227	
Aug.			30	179	17	123	153	9,420	9,486	12,657	2,989	
Sept.			10	204	12	125	167	9,915	9,521	12,450	2,602	
Oct.			21	183	25	126	161	9,870	10,531	13,898	3,444	
Nov.			6	177	8	114	141	8,383	10,233	12,712	3,407	
Dec.			31	170	13	122	138	8,492	9,899	12,050	2,888	
Yearly	Meters			204		100	147	106,834	118,538	149,010	31,840	
			Cubic Meters per Second				Thousands of Cubic Meters					
				5.78		2.83	4.16	131,779	146,215	183,802	39,274	

† Mean daily

* Partly estimated

† And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder located in Mexico on the right bank of the river about 1,000 feet (305 m) upstream from the southerly international boundary, 2 miles (3.2 km) west of San Luis, Arizona, and 19.4 miles (31.2 km) downstream from Morelos Dam. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Records obtained and furnished by the United States Section of the Commission. Computations by shifting control methods. Records available: Daily discharges, January 1950 through 1976; continuous record of gage heights, January 1947 through 1976. Monthly flows for this station have been derived for the period January 1935 through 1949 based on the computed records of monthly flows of the Colorado River at the northerly international boundary combined with the measured monthly flows from the wasteways discharging into the boundary section of the river from the Yuma Project in Arizona.

REMARKS: Reservoirs, diversions in the United States and Mexico, drainage returns, and waste flows modify the river flow at this station.

EXTREMES: Since January 1950: Maximum instantaneous discharge, 28,610 second-feet (810 m³/sec) on December 18, 1952; maximum gage height, 84.84 feet (25.86 m) on November 29, 1957. Minimum discharge, no flow on several occasions since September 1, 1956.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	214	158	220	187	217	211	191	200	181	469	273	236
2	214	119	222	189	219	213	195	218	186	388	274	234
3	214	* 52.4	220	187	217	217	198	215	191	354	260	232
4	216	* 18.7	212	173	219	217	202	200	197	334	250	230
5	216	12.3	206	200	219	217	202	202	197	320	242	224
6	214	10.2	206	182	219	217	200	200	197	308	240	258
7	220	7.4	210	176	220	235	197	198	195	298	238	260
8	214	5.7	214	171	222	232	195	195	179	290	240	244
9	213	4.9	216	169	220	222	195	193	183	290	240	244
10	220	2.6	218	178	219	219	195	190	203	286	240	240
11	218	118	220	180	220	217	198	191	326	284	238	238
12	222	244	212	143	217	215	197	190	1,220	282	240	240
13	222	50.7	210	121	215	213	193	191	1,720	272	240	238
14	224	16.0	214	134	219	206	191	197	1,270	272	236	240
15	224	102	216	294	217	197	190	198	607	270	232	242
16	220	150	216	1,090	215	198	188	198	351	270	232	242
17	220	139	218	1,570	215	198	191	198	307	264	230	244
18	220	92.8	218	735	215	200	198	198	288	264	232	244
19	222	90.5	212	123	220	200	198	198	279	262	234	244
20	218	94.0	206	73.0	224	202	195	197	271	262	240	244
21	214	102	210	51.6	226	202	195	197	266	260	242	236
22	210	158	206	40.5	226	200	195	197	258	262	242	234
23	212	185	206	34.5	224	195	197	195	250	266	242	234
24	214	* 189	204	26.9	224	197	193	195	246	266	242	234
25	214	192	206	33.6	224	195	195	195	434	260	234	234
26	214	199	200	107	219	195	202	195	1,550	254	238	232
27	210	* 214	200	162	219	195	198	193	2,850	254	234	232
28	206	214	200	190	* 219	197	198	195	4,470	252	234	230
29	206	216	202	198	217	195	188	193	2,410	248	236	230
30	204		197	206	213	191	191	192	880	250	236	232
31	173		193		211	198	198	166		248	248	240
Sum	6,647	3,157.2	6,510	7,325.1	6,790	6,208	6,059	6,080	22,162	8,863	7,231	7,386
Current Year 1976									Period 1935-1976			
Month	Extreme Gage Feet		Extreme Second-Foot				Average Second-Foot	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	76.09	75.82	114	224	31	162	214	13,184	366,196	1,672,000	1,821	
Feb.	76.38	73.49	12	287	10	2.0	109	6,262	304,690	1,395,000	2,040	
Mar.	76.00	75.89	1	228	31	193	210	12,912	245,272	1,127,000	798	
Apr.	79.77	74.00	17	1,620	25	21.0	244	14,529	156,726	700,900	36.7	
May	75.95	75.84	120	226	1	209	219	13,468	215,034	1,160,000	1,045	
June	76.10	75.89	7	250	27	191	207	12,313	167,421	1,180,000	143	
July	76.04	75.87	26	209	17	184	195	12,015	121,355	772,800	0	
Aug.	76.19	75.71	2	238	31	158	186	12,060	135,086	796,000	0	
Sept.	83.66	75.75	28	4,790	1	166	739	43,958	164,488	1,033,000	0	
Oct.	77.77	76.42	1	570	30	244	206	17,580	209,628	1,192,000	9,120	
Nov.	76.75	76.33	1	294	27	230	241	14,342	274,706	1,428,000	7,180	
Dec.	76.59	76.19	16	284	15	220	238	14,650	345,749	1,839,000	2,320	
Yearly	83.66	73.49		4,790		2.0	258	187,276	2,704,351	10,688,800	83,792	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	25.50	22.40		136		0.06	7.31	231,003	3,335,790	13,184,528	103,357	

* Partly estimated † Estimated ‡ And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	76.00	75.76	75.96	75.88	75.88	75.92	75.89	75.99	75.84	77.36	76.62	76.39
2	76.00	75.32	75.97	75.88	75.90	75.92	75.91	76.08	75.86	77.03	76.63	76.38
3	76.00	* 74.57	75.96	75.86	75.90	75.93	75.93	76.07	75.89	76.88	76.55	76.36
4	76.02	* 74.12	75.92	75.77	75.91	75.93	75.95	75.99	75.92	76.78	76.51	76.35
5	76.02	73.96	75.89	75.91	75.91	75.93	75.95	76.00	75.92	76.71	76.47	76.31
6	76.02	73.89	75.89	75.81	75.91	75.93	75.94	75.99	75.92	76.64	76.46	76.47
7	76.05	73.77	75.91	75.76	75.92	76.02	75.92	75.98	75.91	76.58	76.45	76.43
8	76.03	73.69	75.93	75.71	75.93	76.01	75.91	75.96	75.82	76.53	76.46	76.33
9	76.05	73.65	75.95	75.68	75.92	75.96	75.91	75.95	75.84	76.53	76.46	76.33
10	76.06	73.53	75.96	75.71	75.91	75.96	75.91	75.93	75.95	76.50	76.46	76.30
11	76.05	74.93	75.97	75.70	75.92	75.97	75.93	75.94	76.61	76.49	76.46	76.29
12	76.07	76.12	75.93	75.47	75.90	75.98	75.92	75.93	79.37	76.48	76.47	76.29
13	76.08	74.58	75.93	75.30	75.89	75.99	75.91	75.93	80.75	76.46	76.48	76.28
14	76.09	74.10	75.95	75.40	75.91	75.97	75.90	75.95	79.89	76.44	76.46	76.28
15	76.09	75.14	75.96	76.31	75.90	75.92	75.90	75.95	78.04	76.44	76.44	76.28
16	76.08	75.57	75.97	78.64	75.89	75.93	75.89	75.94	76.88	76.44	76.43	76.28
17	76.03	75.49	75.98	79.69	75.89	75.93	75.92	75.94	76.63	76.42	76.42	76.23
18	76.03	75.10	75.99	77.89	75.89	75.94	75.97	75.94	76.51	76.42	76.43	76.28
19	76.09	75.08	75.96	75.33	75.92	75.94	75.97	75.95	76.46	76.42	76.44	76.27
20	76.03	75.12	75.94	74.89	75.94	75.95	75.96	75.95	76.42	76.43	76.46	76.27
21	76.06	75.19	75.96	74.63	75.95	75.95	75.96	75.96	76.38	76.42	76.47	76.23
22	76.04	75.58	75.95	74.43	75.95	75.94	75.96	75.96	76.34	76.44	76.46	76.22
23	76.06	75.73	75.96	74.31	75.94	75.91	75.97	75.96	76.30	76.46	76.46	76.22
24	76.07	* 75.75	75.95	74.15	75.94	75.92	75.95	75.96	76.28	76.47	76.45	76.22
25	76.08	" 75.77	75.96	74.24	75.94	75.91	75.96	75.96	77.05	76.45	76.41	76.22
26	76.03	" 75.83	75.94	75.17	75.92	75.91	76.00	75.96	79.96	76.44	76.42	76.21
27	76.07	* 75.93	75.94	75.57	75.92	75.91	75.98	75.95	82.01	76.44	76.40	76.21
28	76.05	75.93	75.95	75.73	* 75.93	75.92	75.98	75.95	83.48	76.43	76.39	76.20
29	76.05	75.94	75.96	75.78	" 75.93	75.91	75.92	75.94	81.64	76.43	76.40	76.20
30	76.05		75.94	75.82	" 75.92	75.89	75.94	75.92	78.73	76.46	76.40	76.21
31	75.88		75.92		" 75.92		75.98	75.75		76.47		76.25
Avg.	76.05	75.00	75.95	75.75	75.92	75.94	75.94	75.96	77.49	76.54	76.46	76.29

* Partly estimated

" Estimated

WASTEWAY TO COLORADO RIVER AT KILOMETER 27 IN MEXICO

DESCRIPTION: Water-stage recorder and cableway located on the left bank of the canal wasteway immediately upstream from where it discharges into the Colorado River, 0.6 mile (1.0 km) downstream from the wasteway gates on Canal de Conexion on the right bank of the Colorado River, 16.8 miles (27.0 km) downstream from Morelos Dam, and 820 feet (250 m) south of the junction of the Mexicali-San Luis and Algodones-Pescaderos highways.

RECORDS: Data obtained and computed by the Colorado River Irrigation District of the Ministry of Hydraulic Resources and furnished by the Mexican Section of the Commission. Records shown in table below are waste returns to the Colorado River. Records available: April 1956 through 1976.

REMARKS: The Colorado River Irrigation District transports water for irrigation of land on the left bank of the Colorado River by the Canal de Conexion to a point called Kilometer 27. At this point, flows may be returned to the river through the wasteway or diverted to the Bacanora-Monumentos Canal system through the Sanchez Mejorada Siphon, which was placed in operation on June 28, 1963. As part of the rehabilitation works, started in 1968, of the Colorado River Irrigation District, the Canal de Conexion was enlarged and lined, and is now known as the Central Feeder Canal.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1956-1976		
		Average	Maximum	Minimum
January	159	5,416	69,527	0
February	14,279	2,009	14,279	0
March	0	5,781	35,492	0
April	3,274	12,872	68,714	0
May	38.1	5,442	22,072	0
June	0	8,689	28,915	0
July	0	13,622	46,139	0
August	0	14,846	55,497	0
September	11,283	9,483	37,194	0
October	441	3,839	20,512	0
November	122	7,657	69,415	0
December	6,152	5,211	70,213	0
Yearly	35,749	88,483	346,339	0
	Thousands of Cubic Meters			
	44,096	109,143	427,205	0

COLORADO RIVER AT MIGUEL C. RODRIGUEZ IN MEXICO - DISCHARGES

DESCRIPTION: Water-stage recorder and cableway located in Mexico on the left bank of the Colorado River about 24.5 miles (39.4 km) downstream from the southerly international boundary, 44.5 miles (71.6 km) downstream from Morelos Dam and 4.5 miles (7.2 km) upstream from the Sonora-Baja California railroad bridge. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 23 double and 3 single current meter measurements made during the year and a continuous record of gage heights. Data obtained and furnished by the Mexican Section of the Commission. From June 1951 to July 1954, discharges were computed from gage height records based on daily gage readings at 8:00 a.m., Pacific Standard Time. A continuous record of gage heights obtained since July 21, 1954. Records available: June 1951 through 1976.

REMARKS: Because of the discharge of drainage waters to the Colorado River immediately below Morelos Dam, the diversion by pumps along both banks of the river has been suspended. Better utilization of irrigation waters has reduced the waste returns to a minimum, and the flow at Rodriguez station consists mostly of the drainage waters mentioned above and seepage from canals which run parallel and adjacent to the river at higher elevations. Because of a tropical disturbance which occurred in the basin during the month of September, the normal flow of the river increased, and the discharges were estimated from the rating curve extended to a stage of 50.0 feet (15.25 m) and a maximum measured discharge of 1,910 second-feet (54.1 m³/sec). The rest of the year, the low flows were measured by wading.

EXTREMES: Since January 1, 1952: Maximum mean daily gage height, 53.28 feet (16.24 m) on January 4, 1958 with a discharge of 18,500 second-feet (524 m³/sec); minimum mean daily gage height, 37.73 feet (11.50 m) on July 18 and 19, 1970 with a discharge of 2.8 second-feet (0.08 m³/sec); maximum mean daily discharge, 20,200 second-feet (571 m³/sec) on December 19, 1952 with a gage height of 52.30 feet (15.94 m); minimum mean daily discharge, no flow on various occasions.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103	93.6	224	90.8	90.1	93.6	87.6	68.9	76.6	964	193	111
2	104	86.5	162	90.8	90.1	92.5	86.5	68.5	66.4	352	189	113
3	105	68.9	118	90.8	90.1	91.8	85.5	68.2	72.4	188	185	115
4	106	42.7	114	90.8	90.4	91.1	84.4	67.8	74.5	155	180	117
5	107	21.2	110	87.9	91.1	90.4	83.3	67.5	76.3	141	176	118
6	109	12.0	106	90.8	91.5	89.3	82.6	66.7	78.8	133	172	120
7	110	8.5	102	93.6	91.8	88.6	81.6	66.4	78.8	123	168	121
8	111	8.5	102	90.8	92.2	87.9	80.5	66.0	78.8	128	164	123
9	112	9.5	101	82.3	92.9	86.9	79.5	65.7	78.0	119	160	125
10	113	7.1	101	85.1	93.2	86.2	78.4	66.0	71.7	116	155	126
11	114	5.7	98.9	90.8	93.6	85.5	77.3	66.4	73.1	116	151	128
12	115	7.1	98.9	90.8	94.3	84.8	76.3	66.7	81.2	114	147	130
13	115	53.0	97.1	79.5	94.6	83.7	75.9	67.5	130	114	143	131
14	114	97.1	97.1	69.6	95.0	83.0	75.6	67.8	487	113	138	131
15	114	130	95.3	74.5	95.3	83.7	75.2	68.2	689	111	134	131
16	113	179	95.3	148	96.1	84.0	74.9	68.5	650	109	132	132
17	113	236	95.3	244	96.4	84.8	74.5	68.9	243	108	130	132
18	112	261	95.3	424	96.4	85.1	74.2	69.2	141	103	129	132
19	112	295	95.3	544	96.1	85.8	73.8	69.6	123	106	127	132
20	112	242	93.6	392	96.1	86.2	73.5	70.3	115	106	125	132
21	111	197	93.6	285	95.7	86.9	73.1	70.6	112	105	123	132
22	111	197	93.6	223	95.7	87.6	72.7	71.0	108	105	121	132
23	110	174	95.3	194	95.3	87.9	72.4	71.3	106	104	119	132
24	109	172	93.6	154	95.3	88.6	72.0	70.6	103	105	117	132
25	109	172	93.6	103	95.3	89.0	71.7	69.6	99.9	106	115	132
26	108	172	93.6	131	95.0	89.7	71.3	68.5	98.5	106	114	132
27	101	189	91.8	106	95.0	90.1	71.0	67.8	174	104	112	132
28	94.3	177	91.8	120	94.6	90.8	70.6	67.1	622	102	110	137
29	87.2	202	93.6	143	94.6	89.7	70.3	66.0	1,140	102	108	141
30	80.2		95.3	154	94.3	88.6	69.6	65.0	1,790	101	110	145
31	72.7		95.3		94.3		69.2	64.3		99.2		149
Sum	3,310.4	3,518.0	3,233.1	4,663.7	2,912.4	2,633.8	2,365.0	2,106.5	7,842.0	4,662.2	4,248	3,996
Current Year 1976									Period 1951-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day		High	Low			Average	Maximum	Minimum	
Jan.	41.86	41.44	12	115	31	72.7	107	6,566	194,470	1,047,732	426	
Feb.	43.93	39.50	19	295	11	5.7	121	6,978	122,688	696,461	317	
Mar.	43.24	41.27	1	224	127	91.8	104	6,413	86,646	807,342	0	
Apr.	45.24	41.01	19	* 576	14	* 67.1	155	9,250	57,216	588,983	0	
May	42.75	42.13	† 17	96.4	† 1	90.1	93.9	5,776	78,966	732,815	0	
June	42.68	42.26	1	93.6	14	83.0	87.9	5,224	34,963	555,460	0	
July	42.26	41.57	1	87.6	31	69.2	76.3	4,691	19,032	264,561	0	
Aug.	41.77	41.24	23	71.3	31	64.3	67.8	4,178	27,897	309,320	0	
Sept.	50.03	40.52	30	‡ 1,910	2	66.4	261	15,554	43,796	572,551	0	
Oct.	45.90	41.93	1	964	31	99.2	150	9,248	72,113	769,939	2,459	
Nov.	42.59	41.96	1	193	29	108	142	8,425	118,454	909,399	5,185	
Dec.	44.13	41.86	31	149	1	111	129	7,926	159,506	1,060,767	687	
Yearly	50.03	39.50		1,910		5.7	125	90,230	982,882	7,923,600	25,036	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	15.25	12.04		54.1		0.16	3.53	111,297	1,212,372	9,773,655	30,882	

‡ Mean daily

† And other days

* Instantaneous

‡ Metered

COLORADO RIVER AT MIGUEL C. RODRIGUEZ IN MEXICO - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41.83	41.31	43.24	41.31	42.16	42.65	42.22	41.60	41.14	45.90	42.59	42.09
2	41.73	41.17	42.42	41.31	42.22	42.52	42.19	41.63	40.65	45.83	42.55	42.06
3	41.73	40.85	41.73	41.31	42.16	42.49	42.19	41.67	40.52	45.77	42.42	42.06
4	41.73	40.32	41.67	41.31	42.19	42.45	42.19	41.73	40.88	44.62	42.19	42.06
5	41.73	39.86	41.60	41.27	42.19	42.42	42.22	41.70	40.98	44.46	42.09	41.99
6	41.73	39.67	41.54	41.31	42.26	42.42	42.26	41.63	41.01	44.29	42.09	41.96
7	41.70	39.57	41.47	41.34	42.32	42.42	42.26	41.60	41.04	44.23	42.13	41.96
8	41.83	39.57	41.47	41.31	42.36	42.45	42.19	41.54	41.08	43.96	42.16	42.06
9	41.80	39.60	41.44	41.21	42.42	42.59	42.13	41.50	41.08	43.83	42.16	41.99
10	41.77	39.53	41.44	41.24	42.52	42.55	42.09	41.44	41.14	43.70	42.16	41.96
11	41.77	39.50	41.40	41.31	42.62	42.52	42.06	41.40	41.27	43.57	42.16	41.93
12	41.77	39.53	41.40	41.31	42.72	42.55	42.06	41.37	41.44	43.31	42.16	41.93
13	41.73	40.52	41.37	41.17	42.65	42.55	42.03	41.31	41.90	43.01	42.16	41.99
14	41.70	41.37	41.37	41.04	42.55	42.55	41.99	41.31	43.34	42.62	42.16	41.99
15	41.70	41.93	41.34	41.11	42.49	42.55	41.93	41.31	44.59	42.62	42.16	41.96
16	41.70	42.68	41.34	41.99	42.45	42.49	41.90	41.31	45.24	42.59	42.22	41.93
17	41.67	43.37	41.34	43.01	42.39	42.45	41.86	41.31	44.95	42.52	42.26	41.93
18	41.60	43.64	41.34	44.36	42.39	42.45	41.86	41.31	44.42	42.45	42.13	41.93
19	41.57	43.93	41.34	45.08	42.49	42.49	41.90	41.31	44.06	42.39	42.06	41.93
20	41.54	43.44	41.31	44.16	42.45	42.45	41.90	41.34	44.06	42.39	42.06	41.93
21	41.54	42.91	41.31	43.37	42.49	42.42	41.86	41.34	44.06	42.39	42.06	41.93
22	41.54	42.91	41.31	42.78	42.52	42.42	41.83	41.34	44.03	42.36	42.06	41.90
23	41.54	42.62	41.34	42.49	42.59	42.39	41.83	41.31	43.90	42.26	42.06	41.90
24	41.54	42.59	41.31	42.06	42.62	42.36	41.86	41.34	43.60	42.19	42.06	41.90
25	41.54	42.59	41.31	41.47	42.52	42.32	41.83	41.34	43.47	42.13	42.06	41.86
26	41.50	42.59	41.31	41.80	42.52	42.32	41.77	41.31	43.73	42.16	42.06	41.86
27	41.47	42.81	41.27	41.50	42.52	42.29	41.77	41.27	44.46	42.09	42.06	41.93
28	41.47	43.11	41.27	41.67	42.59	42.26	41.83	41.27	45.93	42.03	41.96	42.03
29	41.47	42.98	41.31	41.93	42.62	42.29	41.80	41.27	47.97	41.99	41.99	42.62
30	41.47		41.34	42.06	42.59	42.29	41.70	41.27	50.03	41.96	42.09	43.34
31	41.44		41.34		42.62		41.60	41.27		41.93		43.93
Avg.	41.63	41.60	41.47	41.96	42.45	42.45	41.96	41.40	43.18	43.14	42.16	42.09

WASTEWAY TO COLORADO RIVER AT KILOMETER 38 IN MEXICO

DESCRIPTION: Wasteway to the Colorado River on the left bank of new Barrote Canal at old dam and bridge at Kilometer 18+251 (old Kilometer 38+000). The wasteway is located in the Colonia Bojorquez 0.8 mile (1.3 km) upstream from the Sonora-Baja California railroad bridge, 3.7 miles (5.9 km) downstream from the Miguel C. Rodriguez gaging station, and 28.1 miles (45.3 km) downstream from the southerly international boundary.

RECORDS: The records are computed by the Ministry of Hydraulic Resources and based upon gate openings. Records available: January 1964 through 1976.

REMARKS: The wasteway structure on the left bank of the Colorado River has two manually operated radial gates 9.8 feet (3.0 m) wide. It discharges into a dirt canal 656 feet (200 m) long with a total capacity of 459 cubic feet (13.0 m³/s) which discharges to the river.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1964-1976		
		Average	Maximum	Minimum
January	0	144	1,453	0
February	426	125	953	0
March	205	95.7	572	0
April	0	0	0	0
May	81.9	35.3	378	0
June	0	0	0	0
July	0	0	0	0
August	0	6.6	85.1	0
September	901	69.3	901	0
October	140	168	1,381	0
November	800	165	800	0
December	22.7	52.1	655	0
Yearly	2,576	862	3,853	0
	Thousands of Cubic Meters			
	3,178	1,063	4,753	0

COLORADO RIVER AT EL MARITIMO IN MEXICO - STAGES

DESCRIPTION: Water-stage recorder and cableway in Mexico, 47.6 miles (76.6 km) downstream from the southerly international boundary, 18.6 miles (30.0 km) downstream from the Sonora-Baja California railroad bridge and 3.7 miles (6.0 km) east of Kilometer 70 of the Mexicali-San Felipe highway. The recorder is located on the right bank of the Colorado River. The zero of the gage is 9.84 feet (3.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records obtained and computed by the Mexican Section of the Commission. Records available: Mean daily discharges from January 1960 through 1968. Incomplete record of gage heights. March 1, 1946 through November 1947; twice daily readings of gage heights, January 1, 1948 through December 1949; continuous record of gage heights since installation of water-stage recorder February 8, 1956. Mean daily gage heights, January 1960 through 1976.

REMARKS: In former years the flow past this station was affected by the tides in the Gulf of California. After July 1968, measurement by current meter was suspended; beginning in 1969, twice daily readings of gage heights and no record of mean daily discharges.

EXTREMES: January 1960 through 1968: Maximum daily discharge, 4,380 second-feet (124 m³/sec), January 21, and December 7 and 8, 1960; minimum discharge, no flow on various occasions. Maximum monthly discharge, 225,224 acre-feet (277,811,000 m³) January 1960; minimum monthly discharge, zero during various months of several years. Annual maximum discharge, 503,260 acre-feet (620,765,000 m³) during 1960; minimum 59,335 acre-feet (73,189,000 m³) in 1968. January 1960 through 1976. Maximum instantaneous gage height, 18.73 feet (5.71 m) on January 21, 1960; minimum gage height, 12.47 feet (3.80 m) on August 31 and September 1, 1960.

Mean Daily Gage Height in Feet 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.96	14.96	15.32	14.99	15.12	14.90	14.57	14.57	14.60	15.65	15.22	15.09
2	14.96	14.96	15.35	14.99	15.12	14.90	14.57	14.57	14.60	15.62	15.22	15.09
3	14.96	14.96	15.35	14.99	15.09	14.90	14.57	14.57	14.60	15.52	15.22	15.09
4	14.96	14.93	15.32	14.99	15.09	14.86	14.57	14.57	14.60	15.45	15.22	15.09
5	14.96	14.93	15.29	14.99	15.09	14.86	14.57	14.57	14.60	15.72	15.22	15.09
6	14.96	14.93	15.26	14.99	15.09	14.83	14.57	14.57	14.60	15.68	15.22	15.09
7	14.96	14.93	15.26	14.99	15.09	14.83	14.57	14.57	14.60	15.62	15.22	15.09
8	14.96	14.93	15.26	14.99	15.09	14.83	14.57	14.57	14.60	15.62	15.22	15.12
9	14.96	14.90	15.29	14.99	15.09	14.80	14.57	14.60	14.60	15.55	15.22	15.12
10	14.96	14.90	15.12	14.99	15.09	14.80	14.57	14.60	14.60	15.49	15.22	15.16
11	14.99	14.86	15.09	14.99	15.09	14.76	14.57	14.60	14.60	15.45	15.22	15.16
12	14.99	14.90	15.09	14.99	15.09	14.76	14.57	14.57	14.60	15.42	15.22	15.16
13	14.99	14.90	15.06	14.99	15.09	14.73	14.57	14.57	14.60	15.39	15.22	15.16
14	15.03	14.96	15.09	15.03	15.09	14.70	14.57	14.57	14.60	15.35	15.22	15.12
15	15.03	15.03	15.09	15.03	15.09	14.67	14.60	14.60	14.60	15.35	15.22	15.12
16	15.03	15.06	15.09	15.03	15.09	14.63	14.60	14.60	14.63	15.32	15.22	15.16
17	15.03	15.09	15.09	15.03	15.09	14.63	14.57	14.60	14.73	15.32	15.29	15.16
18	15.03	15.09	15.06	15.03	15.06	14.63	14.57	14.60	14.76	15.29	15.29	15.16
19	14.99	15.09	15.03	15.03	15.03	14.60	14.57	14.60	14.83	15.29	15.22	15.16
20	14.99	15.12	15.03	15.03	14.99	14.60	14.57	14.60	14.96	15.29	15.22	15.19
21	14.99	15.16	15.03	15.03	14.96	14.57	14.57	14.60	15.09	15.29	15.19	15.16
22	14.99	15.16	15.03	15.06	14.93	14.57	14.57	14.60	15.22	15.29	15.19	15.16
23	14.99	15.16	15.03	15.06	14.90	14.57	14.57	14.60	15.39	15.29	15.19	15.16
24	14.96	15.19	15.03	15.06	14.90	14.53	14.57	14.60	15.42	15.29	15.16	15.16
25	14.96	15.22	15.03	15.06	14.90	14.53	14.57	14.60	15.55	15.29	15.16	15.16
26	14.96	15.29	15.03	15.06	14.90	14.53	14.57	14.60	15.62	15.29	15.12	15.16
27	14.96	15.29	15.03	15.06	14.90	14.50	14.57	14.60	15.62	15.29	15.12	15.16
28	14.96	15.29	15.03	15.06	14.90	14.50	14.57	14.60	15.62	15.29	15.09	15.16
29	14.96	15.29	14.99	15.06	14.90	14.50	14.57	14.60	15.65	15.29	15.09	15.16
30	14.96		14.99	15.06	14.86	14.50	14.53	14.60	15.68	15.26	15.09	15.22
31	14.96		14.99		14.86		14.53	14.60		15.22		15.22
Avg.	14.99	15.06	15.12	15.03	15.03	14.70	14.57	14.60	14.93	15.39	15.19	15.16

STORED WATER IN LARGE RESERVOIRS OF THE COLORADO RIVER

Data are presented below for all large storage reservoirs in the Colorado River basin below Lee's Ferry, all of which are located in the United States. The monthly figures represent usable contents on the last day of the month, in thousands of acre-feet. The capacities indicated are usable capacities at the top of the spillway gates in closed position, for those dams having controlled spillways; for all others, capacities indicated are at spillway level. Records furnished by the U. S. Geological Survey.

In Thousands of Acre-Feet

Month	LAKE MEAD (Capacity 26,159.0)		LAKE MOHAVE (Capacity 1,810.0)		HAVASU LAKE (Capacity 619.4)		TOTAL IN UNITED STATES RESERVOIRS (Capacity 28,588.4)	
	1976	Average 1935-1976	1976	Average 1951-1976	1976	Average 1939-1976	1976	Estimated Average
Jan.	20,265	16,826	1,617	1,645	548.6	554.2	22,430.6	19,025.2
Feb.	20,528	16,554	1,681	1,675	540.9	558.0	22,749.9	18,787.0
Mar.	20,307	16,275	1,655	1,670	558.4	572.3	22,520.4	18,517.8
Apr.	20,099	16,418	1,654	1,678	592.4	603.3	22,345.4	18,699.3
May	20,193	17,384	1,765	1,736	612.0	603.5	22,570.0	19,723.5
June	20,164	18,727	1,660	1,628	599.8	605.3	22,423.8	20,960.3
July	20,082	18,923	1,615	1,495	571.3	593.0	22,268.3	21,011.0
Aug.	19,818	18,685	1,570	1,425	560.0	575.6	21,948.0	20,685.6
Sept.	20,022	18,389	1,721	1,412	584.4	570.8	22,327.4	20,371.8
Oct.	20,429	18,129	1,633	1,432	575.1	573.0	22,637.1	20,134.0
Nov.	20,939	17,902	1,682	1,512	544.5	561.3	23,165.5	19,975.3
Dec.	21,203	17,632	1,716	1,600	570.5	556.7	23,489.5	19,788.7
Avg.	20,337	17,654	1,664	1,576	571.5	577.3	22,573.0	19,807.3
Max.	21,203	27,780	1,765	1,808	612.0	688.7	23,489.5	28,235.0
Min.	19,818	* 10,727	1,570	1,186	540.9	76.9	21,948.0	13,062.6

* Minimum since 1940

SUSPENDED SILT

The following tables are based on determinations of gravimetric percentages of dry silt in water samples taken at each station by one of the following methods:

A. By lowering a D-48 depth integrating sampler at verticals located at centers of sections of equal discharge in the river cross section, being careful to approach but not strike the bottom. The samples obtained in the section are combined to comprise a composite sample for that date.

B. By lowering a D-43 depth integrating sampler at verticals located at centers of each span of the service bridge across the Alamo Canal, being careful to approach but not strike the bottom. The samples obtained in the section are combined to comprise a composite sample for that date.

C. By sampling at the stream surface with a separate bottle at each of three points, spaced 1/6, 1/2, and 5/6 of the stream width. The gravimetric percentage in each sample is determined, a coefficient of 1.10 is applied to the average of the three, and the product applied to the volume of the stream flow represented by that set of samples.

For ease of comparison, the assumption is made that 1,847 tons of deposited silt would occupy a volume of one acre-foot, or one cubic foot of deposited silt would weigh 85 pounds.

Month	1976						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons Per Acre Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Colorado River at Northerly International Boundary

Period 1956-1976

Jan.	109,488,000	3,300	4	0.0030	0.0047	0.0016	1.8	27.9	336	1.4
Feb.	148,309,000	11,100	4	.0075	.0124	.0036	6.0	13.3	116	1.6
Mar.	235,320,000	26,300	5	.0112	.0131	.0085	14.2	43.1	499	8.8
Apr.	293,032,000	31,500	5	.0107	.0285	.0046	17.1	39.9	434	7.9
May	133,618,000	5,800	4	.0043	.0064	.0031	3.1	14.3	201	2.3
June	130,221,000	5,200	5	.0040	.0050	.0032	2.8	14.6	92.6	2.8
July	184,456,000	6,300	4	.0034	.0048	.0012	3.4	20.1	89.3	3.4
Aug.	180,116,000	7,000	4	.0039	.0059	.0031	3.8	19.9	103	3.8
Sept.	178,472,000	12,000	6	.0067	.0098	.0039	6.5	8.5	43.6	1.6
Oct.	84,777,000	4,600	4	.0054	.0068	.0037	2.5	4.0	20.0	.5
Nov.	95,228,000	4,600	4	.0048	.0067	.0026	2.5	10.2	89.9	.5
Dec.	196,855,000	13,500	5	.0068	.0102	.0038	7.3	20.2	174	.6
Yearly	1,969,892,000	131,200	54	0.0067	0.0285	0.0012	71.0	236.0	2,198	59.2

Samples by U. S. Section and analyses by United States Bureau of Reclamation, Method A

Intake Canal at Morelos Diversion Structure

Period 1952-1976

Jan.	108,440,000	4,642	4	0.0043	0.0047	0.0038	2.5	5.3	22.3	0.2
Feb.	145,803,000	7,446	4	.0051	.0059	.0046	4.1	5.6	19.4	.9
Mar.	234,832,000	18,621	5	.0079	.0127	.0046	10.1	40.5	154	5.3
Apr.	277,776,000	25,188	4	.0091	.0142	.0048	13.5	37.1	121	7.5
May	132,993,000	5,542	4	.0042	.0052	.0031	3.0	10.1	51.2	1.5
June	129,411,000	5,969	5	.0046	.0059	.0035	3.2	28.0	109	3.2
July	183,765,000	7,630	4	.0042	.0048	.0037	4.1	40.5	156	4.1
Aug.	179,241,000	6,982	5	.0039	.0045	.0033	3.8	37.4	135	3.8
Sept.	112,183,000	7,069	4	.0063	.0154	.0026	3.8	15.5	64.7	1.9
Oct.	84,316,000	6,194	4	.0073	.0116	.0045	3.3	4.0	12.0	.3
Nov.	94,840,000	4,094	5	.0043	.0052	.0031	2.2	2.1	9.3	.2
Dec.	196,108,000	7,732	4	.0039	.0047	.0031	4.2	4.6	14.8	1.1
Yearly	1,879,707,000	107,109	52	0.0054	0.0154	0.0026	57.9	231	696	51.4

Samples and analyses by Mexican Section, Method B

SUSPENDED SILT

Month	1976						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons Per Acre Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Colorado River at Southerly International Boundary

Period 1946-1976

Jan.	17,917,000	2,400	1	0.0134	0.0146	0.0110	1.3			
Feb.	8,510,000	1,000	1	.0117	.0136	.0085	.5			
Mar.	17,547,000	800	1	.0046	.0077	.0013	.4			
Apr.	19,745,000	2,100	2	.0106	.0115	.0080	1.1			
May	18,303,000	2,300	1	.0125	.0143	.0097	1.2			
June	16,733,000	1,400	1	.0084	.0111	.0064	.8			
July	16,332,000	1,500	1	.0092	.0104	.0072	.8			
Aug.	16,390,000	700	1	.0043	.0069	.0035	.4			
Sept.	59,739,000	3,800	2	.0064	.0085	.0030	2.1			
Oct.	23,891,000	2,100	1	.0088	.0114	.0082	1.1			
Nov.	19,491,000	2,700	1	.0138	.0156	.0116	1.5			
Dec.	19,909,000	2,100	1	.0105	.0128	.0090	1.1			
Yearly	254,508,000	22,900	14	0.0090	0.0156	0.0013	12.3			

Samples by U. S. Section and analyses by United States Bureau of Reclamation, Method A

Colorado River at Miguel C. Rodriguez Gaging Station

Period 1960-1976

Jan.	8,928,000	249	2	0.0028	0.0031	0.0022	0.2	16.7	251	0
Feb.	9,488,000	308	2	.0031	.0036	.0026	.2	2.5	13.9	0
Mar.	8,719,000	377	2	.0043	.0049	.0036	.2	.5	4.1	0
Apr.	12,577,000	887	2	.0071	.0089	.0040	.5	.2	1.1	0
May	7,854,000	358	3	.0046	.0059	.0030	.2	.3	1.5	0
June	7,103,000	310	2	.0044	.0060	.0031	.2	.1	.7	0
July	6,378,000	277	2	.0043	.0056	.0036	.2	.1	.2	0
Aug.	5,681,000	143	2	.0025	.0036	.0014	.1	.1	.2	0
Sept.	21,149,000	2,474	3	.0117	.0232	.0010	1.3	.4	4.5	0
Oct.	12,574,000	1,554	2	.0124	.0212	.0051	.8	2.0	20.8	.1
Nov.	11,455,000	599	3	.0052	.0060	.0040	.3	3.0	36.0	.1
Dec.	10,777,000	556	2	.0052	.0060	.0041	.3	2.8	13.0	0
Yearly	122,684,000	8,091	27	0.0056	0.0232	0.0010	4.3	28.7	289	1.6

Samples and analyses by Mexican Section, Method C

CHEMICAL ANALYSES OF WATER SAMPLES

1976

The table below is based on chemical analyses of weekly samples from the Colorado River at the Northerly International Boundary taken by the United States Section of the Commission and analyzed by the U.S. Geological Survey.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20.04; Mg, 12.16; Na, 22.99; (CO₃ plus HCO₃) expressed as CO₃, 30.00; SO₄, 48.03; Cl, 35.45; NO₃, 62.00. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5. Electrical conductivity, reported in the tables as ECx10⁰ at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids		ECx10 ⁰ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Colorado River at Northerly International Boundary

Jan.	4	1.39	112,000	1,626		8.1	50	32	5.46	2.85	8.35	3.42	7.99	5.28	
Feb.	4	1.37	150,000	1,624		8.1	50	32	5.44	2.86	8.34	3.45	7.95	5.33	
Mar.	5	1.24	214,000	1,426		8.1	47	29	4.99	2.76	6.82	3.11	7.32	4.21	
Apr.	4	1.22	262,000	1,427		8.1	47	29	5.00	2.76	6.83	3.18	7.26	4.19	
May	4	1.31	129,000	1,521		8.1	49	31	5.29	2.71	7.58	3.29	7.59	4.79	
June	5	1.31	126,000	1,537		8.1	49	31	5.27	2.73	7.78	3.36	7.61	4.84	
July	4	1.28	174,000	1,475		8.1	48	30	5.13	2.77	7.16	3.17	7.44	4.56	
Aug.	5	1.27	168,000	1,482		8.2	48	30	5.06	2.78	7.28	3.13	7.50	4.57	
Sept.	4	1.22	160,000	1,335		8.1	48	30	4.79	2.27	6.55	3.01	6.61	4.09	
Oct.	4	1.45	90,300	1,696		8.1	50	33	5.77	2.81	8.72	3.60	8.11	5.75	
Nov.	5	1.51	105,000	1,716		8.1	51	33	5.74	2.88	9.02	3.60	8.28	5.83	
Dec.	4	1.33	192,000	1,589		8.1	50	32	5.59	2.60	8.11	3.39	7.76	5.16	
Mean ϕ 52		1.32	1,833,300	1,538		8.1	49	31	5.29	2.73	7.71	3.31	7.62	4.88	
Period Avg.		1.61	2,328,600	1,944		8.0			5.91	3.59	10.07	3.32	8.37	7.91	
Tons of Constituents				1976					209,000	65,400	349,000	196,000	721,000	341,000	
Avg. Tons				Period 1962-1976					232,000	85,800	457,000	194,000	785,000	561,000	

** Percent of total cations *** Percent of total anions ϕ Weighted mean ϕ Total

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES 1976

The following tables show electrical conductivity, expressed in mhos per centimeter x 10⁶ at 25°C, of individual water samples taken at Colorado River stations and in Mexican canals. Samples were taken at the northerly international boundary by both Sections of the Commission and at the southerly international boundary by the United States Section. Conductivity determinations were made by the United States Geological Survey. Samples for the Intake Canal at Morelos Dam and Miguel C. Rodriguez Gaging Station were taken by the Mexican Section of the Commission, and determinations were made by the Ministry of Hydraulic Resources of Mexico.

Electrical conductivity is a relative indication of the concentration of dissolved solids in the water samples.

| Date ECx10 ⁶
@25°C |
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Colorado River at Northerly International Boundary

January	February	April	May	July	August	October	November
2 1,650	16 1,710	1 1,460	16 1,510	1 1,470	16 1,480	1 1,620	16 1,730
3 1,650	17 1,740	2 1,390	17 1,520	2 1,510	17 1,480	2 1,710	17 1,770
4 1,690	18 1,720	3 1,390	18 1,560	3 1,570	18 1,460	3 1,720	18 1,780
5 1,580	19 1,770	4 1,390	19 1,610	4 1,540	19 1,470	4 1,820	19 1,830
6 1,560	20 1,820	5 1,380	20 1,600	5 1,520	20 1,460	5 1,820	20 1,860
7 1,550	21 1,780	6 1,400	21 1,580	6 1,480	21 1,460	6 1,820	21 1,820
8 1,560	22 1,770	7 1,390	22 1,650	7 1,470	22 1,450	7 1,770	22 1,760
9 1,580	23 1,720	8 1,390	23 1,600	8 1,480	23 1,440	8 1,780	23 1,810
10 1,580	24 1,590	9 1,410	24 1,560	9 1,490	24 1,430	9 1,770	24 1,760
11 1,600	25 1,560	10 1,400	25 1,490	10 1,470	25 1,430	10 1,760	25 1,750
12 1,640	26 1,480	11 1,430	26 1,540	11 1,500	26 1,430	11 1,630	26 1,730
13 1,650	27 1,440	12 1,390	27 1,530	12 1,440	27 1,450	12 1,630	27 1,710
14 1,640	28 1,450	13 1,390	28 1,540	13 1,450	28 1,480	13 1,640	28 1,740
15 1,670	29 1,430	14 1,420	29 1,580	14 1,470	29 1,490	14 1,610	29 1,730
16 1,690	March	15 1,300	30 1,550	15 1,490	30 1,460	15 1,630	30 1,780
17 1,700	1 1,440	16 1,310	31 1,550	16 1,500	31 1,470	16 1,610	December
18 1,740	2 1,450	17 1,380	June	17 1,510	September	17 1,620	1 1,720
19 1,720	3 1,430	18 1,440	1 1,540	18 1,530	1 1,540	18 1,660	2 1,700
20 1,670	4 1,430	19 1,500	2 1,530	19 1,480	2 1,490	19 1,640	3 1,670
21 1,650	5 1,450	20 1,540	3 1,530	20 1,480	3 1,480	20 1,650	4 1,590
22 1,660	6 1,450	21 1,510	4 1,540	21 1,480	4 1,510	21 1,620	5 1,570
23 1,630	7 1,480	22 1,490	5 1,560	22 1,500	5 1,530	22 1,690	6 1,520
24 1,600	8 1,380	23 1,490	6 1,510	23 1,510	6 1,530	23 1,600	7 1,530
25 1,620	9 1,470	24 1,460	7 1,540	24 1,510	7 1,470	24 1,620	8 1,520
26 1,630	10 1,440	25 1,450	8 1,550	25 1,500	8 1,490	25 1,650	9 1,510
27 1,590	11 1,440	26 1,450	9 1,540	26 1,460	9 1,410	26 1,670	10 1,510
28 1,570	12 1,460	27 1,470	10 1,550	27 1,460	10 1,500	27 1,710	11 1,540
29 1,570	13 1,480	28 1,470	11 1,520	28 1,470	11 1,390	28 1,740	12 1,530
30 1,590	14 1,530	29 1,450	12 1,510	29 1,460	12 1,420	29 1,740	13 1,520
31 1,560	15 1,500	30 1,470	13 1,540	30 1,500	13 1,520	30 1,700	14 1,520
February	16 1,460	May	14 1,540	31 1,540	August	14 1,620	31 1,720
1 1,560	17 1,470	1 1,500	15 1,510	August	15 1,680	November	16 1,490
2 1,570	18 1,430	2 1,480	16 1,480	1 1,550	16 1,730	1 1,740	17 1,500
3 1,620	19 1,430	3 1,490	17 1,490	2 1,580	17 1,800	2 1,750	18 1,500
4 1,570	20 1,410	4 1,480	18 1,500	3 1,530	18 1,730	3 1,760	19 1,520
5 1,590	21 1,430	5 1,470	19 1,510	4 1,510	19 1,720	4 1,780	20 1,540
6 1,620	22 1,410	6 1,500	20 1,530	5 1,490	20 1,730	5 1,760	21 1,490
7 1,580	23 1,410	7 1,490	21 1,520	6 1,490	21 1,680	6 1,740	22 1,470
8 1,610	24 1,400	8 1,510	22 1,520	7 1,510	22 1,640	7 1,780	23 1,470
9 1,580	25 1,430	9 1,560	23 1,510	8 1,470	23 1,590	8 1,780	24 1,510
10 1,560	26 1,420	10 1,510	24 1,500	9 1,470	24 1,460	9 1,780	25 1,550
11 1,530	27 1,410	11 1,550	25 1,500	10 1,450	25 1,270	10 1,740	26 1,580
12 1,560	28 1,410	12 1,530	26 1,540	11 1,440	26 1,240	11 1,710	27 1,710
13 1,590	29 1,400	13 1,540	27 1,550	12 1,450	27 1,020	12 1,690	28 1,560
14 1,600	30 1,390	14 1,500	28 1,550	13 1,460	28 1,260	13 1,690	29 1,510
15 1,680	31 1,400	15 1,520	29 1,540	14 1,470	29 1,450	14 1,700	30 1,500
			30 1,490	15 1,480	30 1,550	15 1,530	31 1,510

RAINFALL ON THE COLORADO RIVER WATERSHED IN INCHES

Tabulated below are monthly records of rainfall at stations located in California and Arizona in the United States and in Baja California and Sonora in Mexico, with averages for their periods of record. Records of daily rainfall amounts, where available, are on file in the offices of the United States or Mexican Sections of the Commission. For location, elevation, period of record, and the observer, see alphabetical listings of these stations on page 50 in this bulletin.

In United States

Month	Brawley, California		El Centro, California		Blythe, California		Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1976	Average 1931-1976	1976	Average 1931-1976	1976	Average 1931-1976	1976	Average 1955-1976	1976	Average 1931-1976
Jan.	0.01	0.31	0	0.33	0	0.42	0	0.37	0.02	0.35
Feb.	1.42	.31	.67	.33	2.51	.43	2.36	.50	2.08	.36
Mar.	T	.16	0	.17	0	.39	.05	.44	.03	.23
Apr.	.43	.10	.33	.11	0	.14	.64	.30	.36	.12
May	.04	.01	.21	0	0	.01	0	.11	T	.01
June	0	.01	0	.01	0	.04	0	.05	0	.02
July	.37	.05	.04	.09	.72	.18	.07	.20	.15	.15
Aug.	0	.28	0	.28	0	.74	0	.45	0	.40
Sept.	2.93	.27	2.40	.29	2.62	.37	4.24	.46	.62	.37
Oct.	1.12	.24	.02	.24	.13	.30	1.23	.36	.66	.43
Nov.	.75	.16	.51	.17	0	.25	.16	.48	.22	.19
Dec.	.05	.40	.18	.40	.17	.50	.29	.49	0	.38
Yearly	7.12	2.40	4.36	2.42	6.15	3.77	9.04	4.21	4.14	3.01

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora		Delta, Baja California	
	1976	Average 1948-1976	1976	Average 1926-1976	1976	Average 1948-1976	1976	Average 1949-1976	1976	Average 1948-1976
Jan.	0	0.35	0.04	0.31	0	0.31	0.04	0.24	0.04	0.31
Feb.	1.61	.20	.71	.31	1.77	.16	1.65	.24	2.28	.16
Mar.	T	.12	T	.20	T	.08	T	.16	T	.12
Apr.	.31	.08	.31	.12	.20	.08	.43	.08	.35	.08
May	0	T	.35	T	.04	0	0	T	T	0
June	0	T	T	T	0	.04	T	.04	0	T
July	.47	.08	.43	.12	.31	.04	1.38	.24	T	.04
Aug.	0	.20	0	.28	0	.12	0	.43	0	.16
Sept.	.63	.20	2.99	.43	2.60	.12	1.89	.28	2.83	.24
Oct.	.39	.31	T	.28	.12	.28	.08	.39	T	.31
Nov.	.31	.16	.59	.16	.28	.16	.47	.55	.39	.16
Dec.	.47	.28	.35	.71	.31	.20	.47	.47	.39	.28
Yearly	4.21	2.05	5.79	2.99	5.63	1.54	6.42	2.56	6.30	1.81

Month	Colonia Juarez, Baja California		Laguna Salada, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California	
	1976	Average 1952-1976	1976	Average 1974-1976	1976	Average 1959-1976	1976	Average 1949-1976	1976	Average 1948-1976
Jan.	0.04	0.47	T	T	0.04	0.20	0	0.20	0.39	0.28
Feb.	.83	.28	**	0	.83	.16	1.06	.16	.24	.12
Mar.	T	.24	0	T	T	.12	0	.12	0	.16
Apr.	.28	.12	.51	.28	.59	.08	.28	.04	.08	.08
May	0	.04	.04	T	T	T	0	T	0	.04
June	0	T	0	0	0	.04	*	T	0	.08
July	0	.12	.16	.08	.20	.08	.12	.08	0	.12
Aug.	0	.31	0	T	T	.16	*	.31	0	.31
Sept.	2.13	.31	2.80	2.80	2.76	.63	*	.51	*	.39
Oct.	.47	.51	0	.04	.12	.55	*	.43	.24	.24
Nov.	.47	.28	0	.04	.51	.28	*	.16	*.55	.16
Dec.	.20	.31	0	.04	.24	.31	*	.31	0	.35
Yearly	4.41	2.28		3.11	5.28	2.68		2.32		2.40

T Trace

* Did not register

** Recorder inoperative

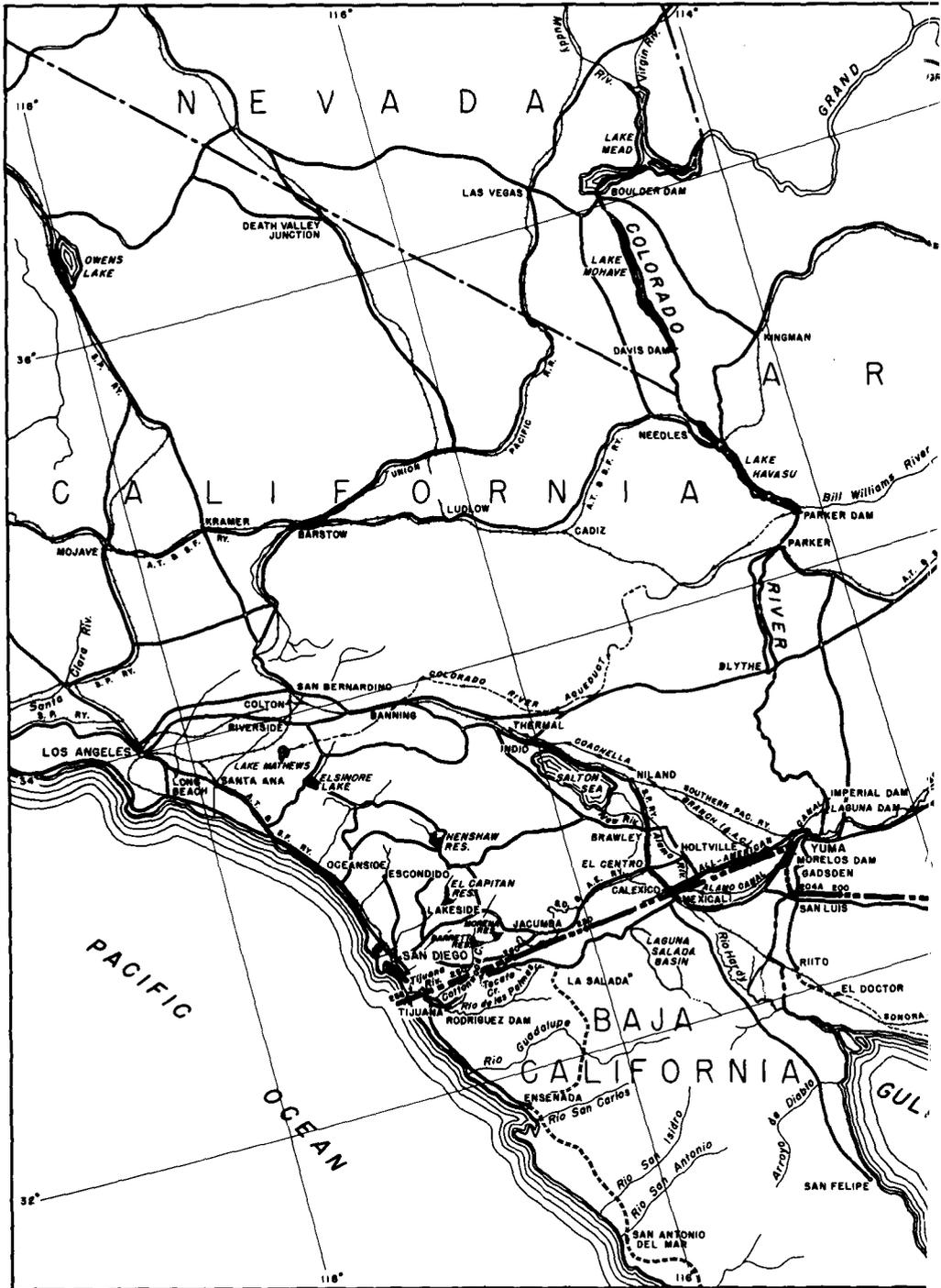
**RAINFALL ON THE COLORADO RIVER WATERSHED
IN INCHES**

In Mexico

Month	Santa Clara, Sonora		La Ventana, Baja California						
	1976	Average 1971-1976	1976	Average 1975-1976					
Jan.	0.31	0.08	0	0					
Feb.	.55	.20	.31	.16					
Mar.	T	.08	0	.63					
Apr.	.31	.12	.39	.20					
May	0	0	0	0					
June	0	T	*	0					
July	0	0	0	0					
Aug.	0	.04	*	0					
Sept.	.55	.43	*	.75					
Oct.	T	.51	*	.08					
Nov.	.39	.08	*	0					
Dec.	0	.20	0	.08					
Yearly	2.13	1.77							

T Trace

* Did not register



LOCATION OF RAINFALL STATIONS ON THE COLORADO RIVER WATERSHED

The precipitation records of the stations listed alphabetically below began on the date shown and extend through 1976.

In United States

NAME OF STATION	LATI- TUDE	LONGI- TUDE	8 ELEV. (FT.)	RECORD BEGAN	OBSERVER
* Blythe, California	33° 37'	114° 36'	268	1909	State Division of Forestry
Brawley, California	32° 57'	115° 33'	100	1908	Agricultural Research Service
* Davis Dam No. 2, Arizona	35° 12'	114° 34'	657	1954	U. S. Bureau of Reclamation
El Centro, California	32° 46'	115° 34'	30	1930	El Centro Water Department
Yuma Citrus Station, Arizona	32° 37'	114° 39'	191	1923	University of Arizona Experimental Farm

In Mexico

NAME OF STATION	LATI- TUDE	LONGI- TUDE	8 ELEV. (FT.)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 33'	115° 04'	** 66	1948	Hydraulic Resources
Delta, Baja California	32° 21'	115° 11'	** 39	1948	Hydraulic Resources
El Mayor, Baja California	32° 08'	115° 15'	** 33	1949	Hydraulic Resources
Colonia Juarez, Baja California	32° 15'	115° 03'	49	1952	Hydraulic Resources
Laguna Salada, Baja California	32° 12'	115° 44'	236	1974	Hydraulic Resources
La Ventana, Baja California	31° 42'	115° 04'	246	1975	Hydraulic Resources
Los Algodones, Baja California	32° 42'	114° 44'	115	1948	Hydraulic Resources
Mexicali, Baja California	32° 40'	115° 28'	13	1926	Hydraulic Resources
Riito, Sonora	32° 10'	114° 57'	** 39	1959	Hydraulic Resources
* San Felipe, Baja California	31° 02'	114° 53'	33	1948	Hydraulic Resources
San Luis, R. C., Sonora	32° 28'	114° 47'	131	1949	Hydraulic Resources
Santa Clara, Sonora	31° 42'	114° 29'	49	1971	Hydraulic Resources

* Not shown on map 8 Elevation above mean sea level except Brawley and El Centro which are elevations below mean sea level.

** Elevations obtained from International Boundary and Water Commission topographic maps

EVAPORATION IN THE COLORADO RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at two stations in Arizona and at ten stations in Baja California and Sonora, Mexico. The stations in the United States are operated by the U. S. Bureau of Reclamation and by the University of Arizona Experimental Farm. The stations in Mexico are operated by the Ministry of Hydraulic Resources. The type of pan used at all these stations was the National Weather Service standard pan of 4-foot diameter. For specific location of these stations, refer to data opposite the same station name shown in "Location of Rainfall Stations," page 50 in this bulletin.

In United States

Month	Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1976	Average 1955-1976	1976	Average 1931-1976
Jan.	9.16	7.47	3.99	3.94
Feb.	* 7.69	7.56	4.24	4.86
Mar.	10.93	10.18	6.92	7.58
Apr.	10.81	13.26	8.70	10.20
May	17.24	16.33	* 11.92	13.18
June	* 18.76	19.73	* 14.02	14.39
July	18.84	20.18	13.54	15.53
Aug.	* 17.19	18.07	12.46	13.77
Sept.	* 10.51	14.71	7.99	10.87
Oct.	11.46	12.02	7.17	7.68
Nov.	9.00	8.72	4.65	5.01
Dec.	9.77	7.90	4.37	3.69
Yearly	151.36	156.13	99.97	110.70

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora		Delta, Baja California	
	1976	Avg. 1949-55 1961-1976	1976	Average 1926-1976	1976	Average 1963-1976	1976	Average 1953-1976	1976	Average 1959-1976
Jan.	5.91	4.41	2.95	2.64	4.49	3.86	3.78	3.43	4.09	3.27
Feb.	5.35	5.20	3.03	3.50	3.70	4.76	3.82	4.06	3.78	4.29
Mar.	9.21	7.48	6.50	5.91	6.42	7.13	6.34	6.34	8.15	6.38
Apr.	9.84	10.04	7.56	7.95	7.13	8.98	7.80	8.39	7.60	8.11
May	14.25	12.72	10.91	10.55	11.34	11.85	11.61	11.14	10.83	10.39
June	17.48	13.54	13.35	11.61	13.86	12.44	13.82	12.76	14.84	11.57
July	14.88	13.46	11.85	11.81	12.64	12.56	13.62	14.13	14.61	11.81
Aug.	15.43	12.32	11.42	10.16	11.10	10.79	12.17	12.68	12.64	10.71
Sept.	9.21	10.08	7.13	8.15	7.09	9.02	7.44	9.76	8.46	8.58
Oct.	9.37	7.95	5.94	5.79	6.93	6.30	6.18	6.54	7.44	6.22
Nov.	6.14	5.12	3.62	3.43	4.53	4.65	4.41	4.25	8.35	4.37
Dec.	5.47	4.17	2.83	2.48	3.78	3.46	3.31	3.27	5.67	3.31
Yearly	122.56	107.95	87.09	83.98	92.99	95.79	94.29	97.76	106.46	90.28

Month	Colonia Juarez, Baja California		Laguna Salada, Baja California		Riito, Sonora		San Felipe, Baja California		Santa Clara, Sonora	
	1976	Average 1970-1976	1976	Average 1974-1976	1976	Average 1963-1976	1976	Average 1952-1976	1976	Average 1971-1976
Jan.	4.29	3.54	4.29	4.21	3.46	3.27	6.10	5.12	6.65	5.51
Feb.	3.98	4.09	#	4.61	3.62	4.13	4.76	5.75	4.61	4.88
Mar.	6.61	6.34	7.60	7.40	6.26	6.02	7.87	7.05	7.20	6.14
Apr.	7.52	7.56	8.82	8.74	7.83	7.60	7.80	8.31	7.28	7.52
May	10.24	10.00	11.85	12.28	11.02	10.16	9.69	10.43	9.33	8.43
June	12.91	11.34	13.90	13.78	12.91	11.42	11.06	10.83	10.83	11.81
July	11.69	11.57	13.07	13.50	12.40	12.24	10.67	11.73	10.83	11.14
Aug.	11.61	10.67	13.11	13.43	11.46	10.24	11.22	10.98	11.93	11.46
Sept.	7.72	8.58	5.12	5.59	7.05	8.03	ø	9.80	8.82	9.37
Oct.	7.48	6.22	8.15	7.72	6.30	5.47	7.76	8.39	7.99	7.60
Nov.	4.96	4.41	5.31	5.08	4.17	3.58	5.94	6.22	6.02	5.51
Dec.	4.09	3.43	4.29	3.78	3.50	2.91	5.31	4.88	6.89	5.67
Yearly	93.11	87.72		100.87	90.00	87.76		101.06	98.39	95.51

* Adjusted to a full month

Missing record

ø Incomplete record

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

The maximum, minimum, and monthly mean temperature observations for United States stations are from daily readings of thermometers generally exposed in a shelter located a few feet above sod-covered ground. The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations, with maximum and minimum for their periods of record. For specific location, elevation, period of record, and the observer, refer to data opposite same station name as shown in "Location of Rainfall Stations", page 50 in this bulletin.

In United States

Month	Blythe, California				Davis Dam No. 2, Arizona				Yuma Citrus Station, Arizona			
	1976			Average 1931-76	1976			Average 1955-76	1976			Average 1931-76
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	53.4	82	23	52.5	54.3	75	34	52.3	53.4	82	27	53.0
Feb.	58.1	82	37	57.2	58.7	82	42	56.5	58.3	85	36	57.0
Mar.	59.6	89	34	63.0	60.2	87	36	62.1	60.3	90	34	62.1
Apr.	66.7	98	40	70.0	66.7	94	45	69.1	64.7	96	38	68.5
May	78.7	107	53	77.5	81.8	107	61	78.7	75.8	107	43	75.9
June	84.5	114	53	85.1	86.8	117	56	88.4	83.6	115	53	83.4
July	89.9	116	64	92.2	95.0	117	71	94.9	88.6	115	57	91.0
Aug.	86.6	112	60	91.1	90.4	112	68	93.1	86.8	110	59	90.4
Sept.	81.2	111	59	85.0	82.6	109	61	85.6	81.4	110	61	85.0
Oct.	# 71.8	# 94	# 37	73.0	72.2	95	49		72.8	97	44	73.5
Nov.	† 60.7	88	28	60.2	62.0	84	38		63.1	89	30	61.4
Dec.	# 53.7	# 76	# 30	53.1	53.0	69	34	53.6	53.6	75	29	54.5
Yearly	70.4	116	23	71.7	72.0	117	34		70.2	115	27	71.3

Month	Brawley, California				El Centro, California							
	1976			Average 1931-76	1976			Average 1931-76				
	Mean	Max.	Min.		Mean	Max.	Min.					
Jan.	53.7	84	25	53.6	53.9	83	23	53.6				
Feb.	58.1	84	35	57.9	59.0	85	34	57.8				
Mar.	59.7	90	37	63.2	60.3	94	35	63.0				
Apr.	64.3	93	40	69.9	65.1	98	41	69.5				
May	76.5	108	45	77.5	79.0	108	49	77.3				
June	83.5	114	51	84.9	85.3	116	53	84.9				
July	89.4	116	61	91.9	89.1	116	62	91.8				
Aug.	86.1	110	60	91.5	89.8	112	59	91.1				
Sept.	81.0	110	58	86.2	82.6	112	57	85.7				
Oct.	73.2	98	44	74.9	73.2	98	42	74.5				
Nov.	63.3	93	27	62.4	63.2	93	28	62.1				
Dec.	54.1	78	29	54.9	52.9	78	30	54.6				
Yearly	70.2	116	25	72.4	71.1	116	23	72.2				

In Mexico

Month	Laguna Salada, Baja California				Los Algodones, Baja California				Mexicali, Baja California			
	1976		1974-1976		1976		1948-1976		1976		1926-1976	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	84	18	84	18	81	27	88	23	82	25	93	19
Feb.	*	*	88	27	84	39	95	28	84	37	93	23
Mar.	95	32	95	32	88	34	100	32	93	36	100	30
Apr.	99	37	99	36	99	39	109	37	97	45	106	34
May	111	50	111	39	108	52	117	43	106	52	117	43
June	120	50	120	50	113	54	126	52	113	54	120	48
July	122	59	122	54	117	68	118	61	115	57	118	55
Aug.	113	52	118	52	109	63	120	61	111	59	118	54
Sept.	109	64	111	59	104	63	122	54	104	61	122	48
Oct.	99	55	104	36	97	46	111	32	97	46	109	32
Nov.	90	50	93	28	90	36	100	27	91	28	104	28
Dec.	75	41	82	19	73	36	90	28	77	32	90	23
Yearly	122	18	122	18	117	27	126	23	115	25	122	19

Blythe FAA Airport

† One or more days missing

* Missing record

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Luis, R. C., Sonora				Delta, Baja California				Colonia Juarez, Baja California			
	1976		1949-1976		1976		1948-1976		1976		1964-1976	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	84	25	100	19	82	27	104	27	81	30	91	19
Feb.	86	36	109	27	88	41	104	28	82	41	97	21
Mar.	93	37	108	28	95	36	113	28	91	39	99	25
Apr.	97	43	115	37	100	45	118	32	97	41	115	30
May	109	54	115	41	111	54	129	32	108	50	117	36
June	118	55	126	45	120	57	133	36	117	57	122	39
July	118	64	126	59	118	61	135	45	117	63	122	45
Aug.	111	64	122	55	115	63	140	52	113	61	118	50
Sept.	109	64	118	50	109	61	135	39	109	64	122	39
Oct.	97	46	118	32	100	50	117	34	95	46	118	36
Nov.	91	28	113	28	99	39	120	32	90	34	104	25
Dec.	75	32	102	23	77	37	104	27	77	34	97	19
Yearly	118	25	126	19	120	27	140	27	117	30	122	19

Month	Riito, Sonora				El Mayor, Baja California				San Felipe, Baja California			
	1976		1949-1976		1976		1949-1976		1976		1948-1976	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	82	21	91	19	84	23	108	18	81	34	99	30
Feb.	86	36	95	21	86	39	100	27	86	41	102	32
Mar.	93	32	100	25	90	37	102	32	82	36	104	32
Apr.	99	39	109	36	93	39	108	36	90	39	113	34
May	109	48	115	41	109	46	113	37	97	50	120	41
June	117	54	124	45	*	*	122	37	102	55	124	50
July	117	63	140	52	* 122	* 54	122	39	104	63	124	50
Aug.	111	59	122	46	*	*	122	41	104	64	135	41
Sept.	109	63	118	39	*	*	120	34	95	57	126	37
Oct.	95	41	115	30	*	*	120	37	91	48	117	41
Nov.	90	28	118	27	*	*	120	34	90	46	118	21
Dec.	75	27	86	21	*	*	106	19	73	34	97	28
Yearly	117	21	140	19			122	18	104	34	135	21

Month	Santa Clara, Sonora				La Ventana, Baja California				Bataques, Baja California			
	1976		1971-1976		1976		1975-1976		1976		1948-1976	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	82	36	90	18	82	32	82	32	84	27	113	16
Feb.	86	43	88	23	84	46	86	43	88	39	99	21
Mar.	90	43	90	37	88	46	88	43	93	34	113	25
Apr.	90	46	102	46	97	45	97	45	100	41	118	16
May	90	57	104	50	102	52	108	50	111	52	124	34
June	108	64	117	57	*	*	108	59	120	48	135	43
July	97	72	106	64	108	68	108	68	120	59	133	45
Aug.	106	72	105	68	*	*	111	70	113	61	129	46
Sept.	97	70	108	63	*	*	102	72	108	63	135	39
Oct.	99	54	100	41	*	*	99	50	97	43	118	32
Nov.	93	36	93	36	*	*	93	45	91	32	115	32
Dec.	75	39	82	25	77	46	82	41	77	32	97	25
Yearly	103	36	117	18			111	32	120	27	135	16

* Missing record

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

1976

The total drainage area within the Colorado River basin is about 246,000 square miles, of which 184,600 square miles lie above Imperial Dam and about 61,400 square miles are below the dam. Of the area below Imperial Dam, 59,400 square miles are in the United States and about 2,000 square miles are in Mexico. The area below Imperial Dam includes the Gila River watershed with a total area of about 58,200 square miles, of which about 1,100 square miles are in Mexico.

The irrigated areas tabulated below comprise the areas in the United States and Mexico which are served by diversions from the Colorado River at or below Imperial Dam. The diversions are supplemented by some pumping from wells in both countries. The areas in the United States include: 1) those within the U. S. Bureau of Reclamation Projects and in the North and South Gila Valleys located near Yuma, Arizona, the data for which are furnished by the U. S. Bureau of Reclamation; 2) those within the Coachella Valley, California, the data for which are furnished by the Coachella Valley County Water District and State of California Department of Water Resources; and 3) those within the Imperial Valley, California, the data for which are furnished by the Imperial Irrigation District. The areas in Mexico include those in the Mexicali Valley located in the states of Baja California and Sonora, the data for which are furnished by the Ministry of Hydraulic Resources of Mexico. The areas tabulated below refer to the total areas farmed, and insofar as possible, duplication of irrigated areas because of double cropping has been eliminated.

Point of Diversion from Colorado River and Designation of Areas	Total Irrigated Areas Acres
IN UNITED STATES:	
Imperial Dam	
Yuma Valley Division	45,800
Reservation Division	12,310
Yuma Mesa	18,452
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,301
South Gila Valley	9,912
North Gila Valley	6,065
Wellton-Mohawk	64,684
Coachella Valley	56,160
Imperial Valley	458,386
Warren Act	80
Non-Project lands adjacent to Colorado River	10,100
Total in United States	685,250
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 503,623
Total in United States and Mexico	1,188,873

* An estimated 34% of total acreage is served by pumping from ground water in Mexicali Valley

ALAMO RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Staff gage located on the right bank of the river, about 7 miles (11.3 km) east of Calexico, California, immediately downstream from the international land boundary between the United States and Mexico and a few feet upstream from a 4-foot (1.22 m) Cipolletti weir in the throat of a twin-tube concrete culvert which carries the river flow under the All-American Canal.

RECORDS: Computed on the basis of head on the Cipolletti weir from daily staff gage readings, and weir ratings as determined by monthly current meter measurements. Records obtained and furnished by Imperial Irrigation District. Records available: June 1942 through 1976.

REMARKS: The flow at this station normally comprises seepage from the All-American Canal and drainage water from the Mexicali Valley which enters the United States.

EXTREMES: Maximum mean daily discharge, 253 second-feet (7.31 m³/sec) (estimated), April 13, 1946; minimum discharge, no flow July 22-23, 29-30, 1949. Prior to the period of record, and since 1900, considerably higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a part of its flow passed through the Alamo River channel.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.64	1.83	1.92	2.34	1.64	1.28	1.09	0.87	1.37	1.18	1.09	1.18
2	1.64	1.83	1.92	1.74	1.74	1.46	1.09	1.00	1.09	1.18	1.00	1.18
3	1.64	1.74	1.92	1.83	1.46	1.46	1.00	2.75	1.00	1.18	1.00	1.09
4	1.74	1.92	1.92	1.74	1.55	1.46	1.00	1.28	1.00	1.09	1.00	1.28
5	1.74	1.92	1.83	1.83	1.46	2.54	1.00	1.09	1.00	1.09	1.00	1.28
6	1.74	1.92	1.83	2.13	1.46	1.46	1.00	1.92	1.00	1.00	1.09	1.37
7	1.74	2.02	1.83	2.34	1.55	1.46	1.00	1.00	1.00	1.00	1.00	1.18
8	1.74	2.13	1.92	2.34	1.55	1.46	1.00	1.09	1.00	1.09	1.00	1.18
9	1.64	2.23	1.92	1.92	2.13	1.46	.93	1.09	1.00	1.18	1.00	1.18
10	1.64	1.92	2.65	2.34	1.55	1.46	.93	1.09	1.46	1.18	1.00	1.92
11	1.64	1.92	2.13	2.34	1.55	1.46	.81	1.00	3.79	.93	.87	1.46
12	1.64	1.92	2.13	1.74	1.92	1.18	1.00	1.00	2.96	.93	.93	1.46
13	1.74	1.92	1.92	1.74	2.23	1.00	1.00	1.09	3.10	.93	1.00	1.46
14	1.74	1.92	2.44	1.92	1.74	1.00	1.00	.87	3.10	.87	1.00	1.37
15	1.74	1.83	2.13	2.02	1.74	1.28	1.00	1.00	3.10	.93	1.09	1.37
16	1.74	1.83	2.23	2.44	1.74	1.18	1.00	1.00	3.24	1.00	1.00	1.37
17	1.92	1.74	2.23	2.02	1.55	1.18	1.09	1.00	3.10	1.09	1.28	1.37
18	1.92	1.92	2.13	2.02	1.46	1.18	1.09	1.00	3.10	1.00	1.09	1.37
19	1.92	1.92	2.65	1.92	1.92	1.37	1.09	.87	1.09	1.00	1.00	1.28
20	1.74	1.83	2.54	2.02	1.92	1.37	1.28	.87	1.00	1.00	1.18	1.28
21	1.92	1.83	1.92	1.92	1.92	1.37	1.00	1.00	1.09	1.00	1.18	1.37
22	1.92	1.83	1.83	1.92	1.92	1.18	1.00	1.00	1.00	1.00	1.46	1.37
23	1.83	1.83	2.13	2.02	1.92	1.37	1.18	1.00	1.00	1.09	1.00	1.37
24	1.74	1.83	2.13	2.02	1.74	1.00	.74	.87	1.18	1.09	1.00	1.28
25	1.74	1.74	2.13	2.02	1.74	1.46	.87	1.00	1.00	.93	1.00	1.37
26	1.74	1.74	1.92	1.92	1.92	1.46	.81	1.00	1.00	.93	1.00	1.37
27	1.55	1.83	1.92	1.92	1.46	1.46	.74	1.00	1.00	1.00	1.09	1.37
28	1.55	1.92	1.74	1.74	1.28	1.46	.87	1.00	1.09	.93	1.00	1.28
29	1.55	1.92	1.92	1.79	1.46	1.00	.87	1.00	1.18	.93	1.00	1.37
30	1.74		1.92	1.64	1.46	1.00	.87	.87	1.18	1.09	1.09	1.37
31	1.64		2.34		1.46		.87	1.00		1.09		1.46
Sum	53.56	54.68	64.09	59.64	52.14	40.46	30.22	33.62	47.30	31.93	31.44	41.61
Current Year 1976									Period 1943-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Average			Maximum	Minimum		
Jan.	0.30	0.26	†17	1.92	†27	1.55	1.73	106	349	2,790	99	
Feb.	.33	.28	9	2.23	†3	1.74	1.89	108	317	2,822	90.2	
Mar.	.37	.28	†10	2.65	†8	1.74	2.07	127	355	3,154	87.1	
Apr.	.35	.27	16	2.44	30	1.64	1.99	118	380	2,222	97	
May	.33	.23	13	2.23	†8	1.28	1.68	103	295	1,799	73	
June	.36	.20	5	2.54	†13	1.00	1.35	80.3	291	1,686	61	
July	.23	.16	20	1.28	†24	.74	.97	59.9	267	1,712	59	
Aug.	.38	.18	3	2.75	†1	.87	1.08	66.7	318	1,672	65.7	
Sept.	.46	.20	11	3.79	†3	1.00	1.58	93.8	302	1,406	83.5	
Oct.	.22	.18	†1	1.18	14	.87	1.03	63.3	325	1,845	63.3	
Nov.	.25	.18	22	1.46	11	.87	1.05	62.4	333	2,080	62.4	
Dec.	.30	.21	10	1.92	3	1.09	1.34	82.5	309	1,686	80	
Yearly	0.46	0.16		3.79		0.74	1.48	1,070.9	3,841	22,146	1,071	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	0.14	0.05		0.11		0.02	0.04	1.321	4.738	27,317	1.321	

♠ Mean daily

† And other days

NEW RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder located on the left (west) bank of the river in the limits of the city of Calexico, California, 1,400 feet (427 m) downstream (north) from the international land boundary between the United States and Mexico. Measurements are made from a foot bridge at the gage.

RECORDS: Based on a continuous record of gage heights and weekly current meter measurements, supplemented by additional measurements during periods of high flow by the Imperial Irrigation District. Records computed and furnished by the District. Records available: June 1942 through 1976.

REMARKS: The New River flows northward from Mexico into the United States and thence into the Salton Sea. The flow at this station normally comprises 1) a portion of the waste and drainage water from the irrigation system in the Mexicali Valley, and 2) sewage and other wastes from Mexicali, Baja California. Flood waters enter the river from local drainage in Mexico and such waters can reach damaging rates during violent desert storms. Waste flows from the Mexican system of canals are limited to an average annual quantity of 35,000 acre-feet (43,172,000 m³) during any successive five-year period under the provisions of Minute No. 197 of the Commission.

EXTREMES: Maximum mean daily discharge, 691 second-feet (19.6 m³/sec) on December 3, 1962; minimum mean daily discharge, 2 second-feet (0.06 m³/sec) on May 14, 1945. Prior to the period of record, and since 1900, much higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a considerable part of its flow passed through the New River channel.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	151	147	178	145	159	120	91	111	108	124	114	102
2	162	148	189	142	161	121	84	114	107	116	128	108
3	150	156	154	145	162	122	91	115	104	110	124	121
4	148	158	144	148	157	123	86	114	104	104	135	123
5	165	153	142	146	155	123	86	112	102	110	122	132
6	152	153	140	149	159	120	89	109	117	107	111	140
7	142	167	143	156	187	115	90	109	115	100	105	133
8	141	186	150	159	187	112	92	108	112	100	114	128
9	141	235	140	157	190	109	93	106	112	101	143	127
10	151	208	143	162	226	104	92	120	418	104	169	125
11	150	215	140	170	230	101	97	114	452	108	157	122
12	155	195	139	176	209	105	101	119	410	104	176	120
13	153	201	140	194	205	108	95	109	310	111	207	127
14	149	333	141	232	190	110	115	108	221	111	219	130
15	144	253	144	234	152	111	110	109	186	110	173	131
16	146	218	147	261	160	112	101	109	159	116	142	132
17	150	201	159	246	192	109	97	112	144	120	138	134
18	151	192	168	288	209	107	95	116	136	111	124	140
19	147	167	169	246	204	99	100	116	128	107	118	138
20	144	155	162	180	171	96	99	115	124	111	115	162
21	137	145	162	176	146	92	108	110	120	116	108	164
22	140	139	169	169	135	91	110	108	124	111	104	174
23	143	128	161	154	131	91	109	109	130	111	111	170
24	145	132	158	150	137	89	108	100	144	119	117	166
25	149	150	158	148	136	87	112	93	144	123	119	171
26	151	140	156	155	141	89	139	93	131	124	129	204
27	144	136	149	167	144	93	131	97	137	132	130	225
28	144	140	143	171	141	96	128	96	137	122	117	225
29	144	152	143	168	137	95	127	99	131	112	117	200
30	149	148	148	163	137	92	125	101	125	113	109	173
31	152	151	151	132	132	115	115	112	110	110	192	192
Sum	4,590	5,183	4,730	5,357	5,182	3,142	3,216	3,363	4,992	3,483	3,995	4,639
Current Year 1976									Period 1943-1976			
Month	Extreme Gage ** Feet		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	41.66	41.99	5	165	21	137	148	9,104	7,529	20,160	1,751	
Feb.	39.95	42.03	14	333	23	128	179	10,280	6,364	17,845	1,258	
Mar.	41.43	41.99	2	189	12	139	153	9,382	7,051	12,960	1,008	
Apr.	40.20	41.87	18	288	2	142	179	10,625	7,288	14,489	1,390	
May	41.05	42.13	11	230	23	131	167	10,278	6,477	10,618	629	
June	42.17	42.65	† 4	123	25	87	105	6,232	5,490	9,689	1,057	
July	42.00	42.60	26	139	2	84	104	6,379	5,441	9,390	817	
Aug.	42.16	42.45	10	120	† 25	93	108	6,670	6,407	11,145	1,139	
Sept.	38.93	42.34	11	452	5	102	166	9,901	6,648	12,688	1,795	
Oct.	42.05	42.45	27	132	† 7	100	112	6,908	6,899	13,902	2,081	
Nov.	41.16	42.31	14	219	22	104	133	7,924	6,573	12,323	2,483	
Dec.	40.99	42.22	† 27	225	1	102	150	9,201	7,237	21,205	1,763	
	38.93	42.65		452		84	142	102,884	79,404	138,906	24,573	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	11.87	13.00		12.8		2.38	4.02	126,906	97,944	171,339	30,311	

† Mean daily

** Feet below mean sea level

† And other days

WASTES FROM MEXICALI POTABLE WATER PLANT TO NEW RIVER IN MEXICO

DESCRIPTION: Water-stage recorder and rectangular control weir installed by the State Commission of Public Services of Mexicali. Located 2,300 feet (700 m) upstream from the confluence of the canal with Rivera Drain (Drain 134), which is 1.2 miles (2.0 km) below the water plant and 1.2 miles (2.0 km) south of the international boundary.

RECORDS: The discharge over the weir is computed from discharge measurements and a continuous record of gage heights. The records are obtained and furnished by the Mexican Section of the Commission. Records available: January 1968 through 1976.

REMARKS: The plant began operation on September 28, 1963 by the State Commission of Public Services of Mexicali. Before 1968, the flow was small and infrequent. The weir was installed in December 1970, and operation began with the installation of the recorder in April 1971. The potable water plant obtains water from the West Main Canal, which is a part of Mexico's system of canals in the Colorado Irrigation System. Excess water discharges into a canal which is 2.5 miles (4.0 km) long that empties into Rivera Drain (Drain 134) which drains west; and then into New River, about 0.9 mile (1.4 km) above the international boundary.

EXTREMES: Maximum instantaneous discharge, 81.9 second-feet (2.32 m³/sec) on March 26, 1969; minimum instantaneous discharge, zero during many days of 1976.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.1	8.1	2.5	3.2	1.8	* 3.2	* 3.9	7.1	6.0	1.8	3.2	4.6
2	3.2	6.0	1.4	1.4	2.8	* 2.8	* 3.9	7.8	6.4	4.2	3.5	1.8
3	1.4	8.1	4.6	2.1	3.5	* 2.8	* 3.2	6.4	6.7	4.6	3.5	3.5
4	3.5	7.8	2.8	6.4	1.4	* 2.8	* 6.4	5.7	7.1	1.4	3.5	2.5
5	2.1	8.8	2.5	9.9	1.4	* 2.5	* 6.4	3.2	7.8	1.4	3.5	2.5
6	1.1	9.2	2.1	12.0	1.8	* 2.5	* 6.7	5.7	8.1	1.1	2.8	1.4
7	1.8	4.9	1.4	6.4	10.9	* 2.5	3.2	7.1	8.5	1.8	3.2	1.4
8	2.5	9.9	2.5	5.7	8.8	2.1	5.7	7.8	8.8	1.4	6.4	2.5
9	2.5	4.6	1.4	6.0	9.2	2.1	7.1	4.6	9.2	1.4	3.5	2.5
10	2.1	2.5	1.4	5.7	4.9	2.5	5.7	4.9	37.4	2.8	2.5	2.8
11	3.2	4.2	1.1	7.1	7.1	1.8	7.1	5.7	16.2	4.2	4.6	1.4
12	6.0	6.0	1.4	7.8	1.1	3.5	6.0	6.0	8.8	1.8	4.6	1.8
13	1.4	8.8	.7	10.9	1.1	4.9	8.1	6.0	8.8	2.1	1.4	2.5
14	2.5	9.9	1.4	10.9	1.1	3.2	4.9	6.0	7.1	4.6	6.4	2.5
15	1.1	7.1	1.4	1.4	1.8	3.2	6.0	7.1	4.6	7.8	8.8	2.1
16	1.1	2.5	1.1	8.8	4.9	* 3.2	6.4	7.1	7.8	2.5	3.2	2.1
17	3.2	1.1	1.4	4.2	4.6	* 3.2	6.0	6.0	7.8	2.8	4.2	2.1
18	3.2	2.1	3.5	3.5	3.2	* 3.2	6.0	7.1	6.4	3.2	1.4	2.1
19	1.8	1.4	4.6	2.5	4.9	* 3.2	7.1	8.8	4.9	3.2	1.1	1.8
20	.4	3.2	4.6	2.1	2.5	* 3.5	7.8	6.4	3.5	2.5	4.6	4.6
21	.4	4.6	9.9	2.8	1.8	* 3.5	7.1	6.4	2.1	6.0	3.5	2.1
22	3.2	7.8	3.5	5.7	1.8	* 3.5	8.8	7.1	4.9	4.9	2.1	3.2
23	2.5	2.5	2.8	1.4	4.2	* 3.5	9.2	7.8	5.7	2.8	1.8	2.1
24	3.5	1.8	2.8	2.1	3.2	* 3.5	9.2	5.7	6.0	2.1	4.6	2.5
25	4.2	1.8	2.8	7.8	2.8	3.5	9.9	1.8	7.1	4.6	2.1	4.9
26	1.4	1.8	2.5	5.7	2.8	2.8	9.9	2.5	6.7	1.4	3.2	4.6
27	.4	2.8	2.5	1.4	3.5	7.8	10.6	4.6	6.0	2.5	3.5	5.7
28	1.4	1.8	7.1	4.6	3.2	3.5	8.5	3.2	5.7	2.5	.4	2.8
29	1.4	2.1	2.8	3.5	3.2	* 3.5	6.4	6.0	4.2	3.5	2.8	4.9
30	2.8	1.4	1.4	1.4	5.7	* 3.5	8.1	6.0	4.2	7.1	4.2	4.6
31	4.6		1.4		3.2		6.4	5.7		5.7		7.8
Sum	77.7	143.0	83.3	154.3	114.1	97.5	211.2	182.6	234.5	99.6	104.2	93.6
Current Year 1976								Period 1968-1976				
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.18	0.03	4	17.0	† 6	0	2.5	154	279	520	154	
Feb.	1.35	0	13	20.5	† 9	0	4.9	234	235	311	157	
Mar.	1.35	.03	† 20	20.5	† 9	0	2.8	165	324	871	132	
Apr.	1.54	0	7	25.1	† 15	0	5.3	306	290	431	135	
May	1.33	.03	18	21.2	† 4	0	3.5	226	330	435	226	
June			27	7.8	11	1.8	3.2	193	289	409	116	
July	1.25	.03	† 12	18.4	14	0	6.7	419	360	523	198	
Aug.	1.25	0	19	18.4	† 25	0	6.0	362	398	596	200	
Sept.	3.12	.03	10	57.9	15	0	7.8	465	415	540	131	
Oct.	1.15	.03	29	16.2	† 26	0	3.2	193	345	507	139	
Nov.	1.25	0	3	18.4	† 22	0	3.5	207	293	504	151	
Dec.	1.77	0	20	29.7	† 6	0	3.2	186	292	597	115	
Yearly	3.12	0		57.9		0	4.2	3,166	3,851	5,359	2,745	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	0.95	0		1.64		0	0.12	3,905	4,750	6,610	3,386	

* Estimated

† And other days

WISTERIA WASTEWAY TO NEW RIVER IN MEXICO

DESCRIPTION: Staff gage located near operator's house upstream from wasteway gates, 1,000 feet (305 m) downstream from the confluence of the Cerro Prieto and West Main Canals of the Colorado River Irrigation District in Colonia Wisteria, 4.3 miles (7.0 km) upstream from the international boundary, 1.9 miles (3.0 km) east of the highway to Tijuana at the Tijuana-San Felipe junction, 3.0 miles (4.8 km) west of the highway to San Felipe, and 3.1 miles (5.0 km) south of Mexicali. The wasteway structure is composed of three rectangular gates, two of which operate manually and one automatically.

RECORDS: Based on gate openings and water surface elevations upstream from the wasteway gates obtained by the Ministry of Hydraulic Resources and check measurements and observations of zero flow during the year at various locations by the Mexican Section of the Commission. Records computed and furnished by the Mexican Section of the Commission. Records available: January 1951 through 1976. Records reported below are part of the waste flows from the Mexican system of canals discharging into the territory of the United States, which wastes are not to exceed an average annual quantity of 35,000 acre-feet (43,172,000 m³) during any successive five-year period under the provisions of Minute No. 197 of the Commission. Since April 1973 the wasteway has not discharged to New River but to a lagoon near Bosque which has been used for a settling basin. The water eventually evaporates.

EXTREMES: Maximum instantaneous discharge, 675 second-feet (19.1 m³/s) on January 24, 1962; minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Current Year 1976									Period 1951-1976			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Average	Maximum	Minimum		
Jan.				0		0	0	1,373	8,735	0		
Feb.				0		0	0	340	7,218	0		
Mar.				0		0	0	614	2,568	0		
Apr.				0		0	0	593	4,433	0		
May				0		0	0	417	1,892	0		
June				0		0	0	247	1,450	0		
July				0		0	0	193	2,040	0		
Aug.				0		0	0	375	1,926	0		
Sept.				0		0	0	520	2,915	0		
Oct.				0		0	0	324	2,993	0		
Nov.				0		0	0	340	3,768	0		
Dec.				0		0	0	1,174	8,669	0		
				0		0	0	8,000	27,083	0		
Yearly	Meters:		Cubic Meters per Second				Thousands of Cubic Meters					
				0		0	0	0	9.368	33.406	0	

WASTE WATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1976, the discharge to the New River in Mexico was from Wisteria Wasteway, located 4.3 miles (7.0 km) upstream from the international boundary in Colonia Wisteria, and from the Mexicali Potable Water Plant which discharges, by canal, into the Rivera Drain (Drain 134) thence to New River.

RECORDS: Computations of flows from Wisteria Wasteway are based on gate openings and water-stage elevations upstream from the wasteway made by the Ministry of Hydraulic Resources, and of weekly measurements taken downstream from the weir by the Mexican Section of the Commission. Computation of flows from the Potable Water Plant are based on weekly readings from the discharge canal. Data obtained and furnished by the Mexican Section of the Commission. Records available: Wisteria Wasteway, January 1951 through 1976; Sifon Wasteway, January 1952 through April 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through 1976.

REMARKS: Mean daily discharges for Wisteria Wasteway and the Potable Water Plant are shown on pages 58 and 57, respectively in this bulletin. Records for Pueblo Nuevo and Sifon Wasteways are shown in previously published bulletins, 1960 through 1965; flows from these two wasteways are used for irrigation and no longer reach New River.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1956-1976		
		Average	Maximum	Minimum
January	154	1,339	8,758	15.4
February	284	896	7,281	19.6
March	165	580	2,610	21.7
April	306	451	2,843	16.1
May	226	343	1,141	9.1
June	193	269	1,477	0
July	419	232	528	0
August	362	393	1,413	0
September	465	415	2,081	21.0
October	198	683	3,474	8.4
November	207	764	3,784	0
December	186	1,229	8,691	0
Yearly	3,166	7,630	27,430	399
	Thousands of Cubic Meters			
	3,905	9,412	33,835	492

SALTON SEA - ELEVATIONS OF WATER SURFACE

DESCRIPTION: Water-stage recorder and staff gage located on the western shore of the Salton Sea, 15.5 miles (24.9 km) northwest of Westmoreland, Imperial County, California. The Salton Sea is the sink of a closed basin which has a drainage area of 8,360 square miles (21,652 km²). Zero of the gage is 250.00 feet (76.2 m) below mean sea level, U. S. C. & G. S. datum.

RECORDS: Records of water surface elevations available from November 1904 through 1976. From January 1925 to October 22, 1951, once monthly records of elevations were collected by Imperial Irrigation District from a bench mark at Pigtree John's Spring about 22 miles (35.4 km) northwest along the western shore from the present gage. Since October 24, 1951, a continuous record of gage heights has been obtained by the U. S. Geological Survey at new gaging station published as "Salton Sea near Westmoreland, California." The elevation of the old station is at a datum of one foot (0.30 m) higher than that of the present station. All records reported below and the area and capacity table are adjusted to the datum of the present station.

REMARKS: Runoff from the basin, irrigation drainage and waste water from Imperial and Coachella Valleys in the United States, and drainage and waste water from part of the Mexicali Valley in Mexico discharge into the Salton Sea. Water from Mexico enters the United States in the Alamo and New River channels. The bottom of the sea is 277.7 feet (84.6 m) below mean sea level, U. S. C. & G. S. datum.

EXTREMES: Maximum elevation during year, 229.3 feet (69.9 m) below mean sea level. Minimum elevation during year, 230.9 feet (70.4 m) below mean sea level. Extremes for period of record, maximum elevation 195.9 feet (59.7 m) below mean sea level, February 10 to March 29, 1907; minimum elevation since 1906, 251.6 feet (76.7 m) below mean sea level in November 1924.

Mean Daily Water Surface Elevation in Feet below Mean Sea Level - 1976

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	230.8	230.6	230.1	229.8	229.6	229.6	229.7	229.9	230.2	229.5	229.5	229.5
2	230.9	230.5	230.1	229.8	229.6	229.6	229.7	229.9	230.2	229.5	229.5	229.5
3	230.9	230.5	230.1	229.8	229.6	229.6	229.8	229.9	230.2	229.5	229.5	229.5
4	230.9	230.5	230.1	229.8	229.6	229.6	229.8	229.9	230.2	229.5	229.5	229.5
5	230.8	230.5	230.1	229.8	229.6	229.6	229.8	230.0	230.2	229.5	229.5	229.5
6	230.8	230.4	230.1	229.8	229.6	229.6	229.8	229.9	230.2	229.5	229.5	229.5
7	230.8	230.4	230.1	229.8	229.6	229.6	229.7	230.0	230.2	229.5	229.5	229.5
8	230.8	230.4	230.1	229.8	229.6	229.6	229.7	230.0	230.1	229.5	229.5	229.5
9	230.8	230.3	230.1	229.8	229.6	229.6	229.7	230.0	230.1	229.5	229.4	229.5
10	230.8	230.3	230.1	229.8	229.6	229.6	229.7	230.0	230.0	229.5	229.4	229.5
11	230.8	230.2	230.0	229.8	229.5	229.6	229.7	230.0	229.8	229.5	229.5	229.5
12	230.8	230.2	230.0	229.8	229.5	229.6	229.7	230.0	229.8	229.5	229.5	229.5
13	230.8	230.2	230.0	229.8	229.5	229.6	229.7	230.1	229.7	229.5	229.4	229.5
14	230.8	230.2	230.0	229.8	229.5	229.6	229.7	230.1	229.7	229.5	229.4	229.5
15	230.8	230.2	230.0	229.8	229.5	229.7	229.7	230.2	229.7	229.5	229.4	229.5
16	230.7	230.1	230.0	229.7	229.5	229.7	229.7	230.2	229.7	229.5	229.4	229.5
17	230.7	230.1	230.0	229.7	229.5	229.7	229.7	230.2	229.7	229.5	229.4	229.5
18	230.7	230.2	230.0	229.7	229.5	229.7	229.7	230.2	229.7	229.4	229.5	229.5
19	230.7	230.1	230.0	229.7	229.5	229.7	229.7	230.2	229.7	229.4	229.5	229.5
20	230.7	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.7	229.4	229.5	229.4
21	230.7	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.7	229.4	229.5	229.4
22	230.7	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.7	229.4	229.5	229.4
23	230.6	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.7	229.4	229.5	229.4
24	230.6	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.5	229.4	229.5	229.4
25	230.6	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.5	229.4	229.5	229.4
26	230.6	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.5	229.4	229.5	229.4
27	230.6	230.1	229.9	229.7	229.5	229.7	229.8	230.2	229.5	229.4	229.3	229.4
28	230.6	230.1	229.8	229.7	229.5	229.7	229.8	230.2	229.5	229.5	229.5	229.4
29	230.6	230.1	229.8	229.6	229.5	229.7	229.8	230.2	229.5	229.5	229.5	229.4
30	230.6	229.8	229.6	229.6	229.5	229.7	229.8	230.2	229.5	229.5	229.5	229.4
31	230.6	229.8	229.6	229.6	229.5	229.7	229.9	230.2	229.5	229.5	229.5	229.4
Avg.	230.7	230.2	230.0	229.7	229.5	229.7	229.8	230.1	229.8	229.5	229.5	229.5

Month	Current Year 1976		Period 1935-1976		
	Extreme Elevation Feet		Elevation Feet		
	High	Low	# Average	# Maximum	‡ Minimum
Jan.	230.6	230.9	237.79	230.7	249.3
Feb.	230.1	230.6	237.47	230.2	248.8
Mar.	229.8	230.1	237.21	230.0	248.6
Apr.	229.6	229.8	237.02	229.7	248.7
May	229.5	229.6	237.00	229.5	248.5
June	229.6	229.7	237.16	229.7	248.8
July	229.7	229.9	237.32	229.8	249.1
Aug.	229.9	230.2	237.51	230.1	249.4
Sept.	229.5	230.2	237.71	229.8	249.4
Oct.	229.4	229.5	237.75	229.5	249.8
Nov.	229.3	229.5	237.77	229.5	250.0
Dec.	229.4	229.5	237.63	229.5	249.6
Yearly	229.3	230.9	237.44	229.8	250.0

Area and Capacity Table		
Elevation	Area	Capacity
Feet Below M.S.L.	Acres	Acres-Feet
277.7	0	
274.0	20,600	25,700
270.0	62,900	188,700
266.0	94,600	510,600
260.0	122,600	1,170,000
256.0	134,700	1,684,000
252.0	148,800	2,250,000
244.0	179,700	3,562,000
240.0	196,900	4,315,000
235.0	221,800	5,360,000
230.0	235,800	6,504,000
220.0	262,000	8,993,000
210.0	288,500	11,740,000
200.0	315,500	14,760,000

‡ Mean daily

Mean monthly

‡ Reading near first day of month

CHEMICAL ANALYSES OF WATER SAMPLES

1976

The tables below are based on quarterly samples from the Alamo River taken and analyzed by the State of California Department of Water Resources. Beginning December 1971, not all constituents analyzed. New River samples are collected monthly and analyzed by the U. S. Geological Survey.

Samples from the Alamo River are taken north of the international boundary at upstream end of box culvert under the All-American Canal. Flow at this point includes drainage flows across international boundary and flows from drain intercepts along toe of south bank of All-American Canal. Samples from New River are taken from the right bank at road bridge 450 feet north of international boundary. Records of sampling extend from April 1951 through 1976.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20.04; Mg, 12.16; Na, 22.99; (CO₃ plus HCO₃) expressed as CO₃, 30.00; SO₄, 48.03; Cl, 35.45; NO₃, 62.00. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5. Electrical conductivity, reported in the tables as EC x 10⁶ at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids		ECx10 ⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Alamo River

Month	No. of Samples	Tons Per Acre-Foot	Total Tons	ECx10 ⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃
Jan.															
Feb.															
Mar.	1	4.55	578	4,960		8.1							20.48	26.48	
Apr.															
May															
June	1	3.33	267	3,693		7.8							15.64	18.30	
July															
Aug.															
Sept.	1	3.83	359	4,651		8.1							17.70	26.36	
Oct.															
Nov.															
Dec.															

New River

Month	No. of Samples	Tons Per Acre-Foot	Total Tons	ECx10 ⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃
Jan.	1	5.57	50,700	7,400		7.8	65	68	12.48	10.69	43.50	5.57	16.66	47.95	
Feb.	1	5.67	58,300	6,300		7.3	65	71	12.97	10.69	43.50	4.92	16.24	50.78	
Mar.	2	6.32	59,300	8,260		7.9	65	69	14.37	12.38	50.24	5.30	18.63	54.44	
Apr.	2	6.52	69,300	8,200		8.0	65	70	14.72	13.03	51.76	5.83	18.22	56.98	
May	1	6.54	67,200	6,930		7.6	66	70	14.17	13.40	52.63	5.41	19.05	56.98	
June	3	6.70	41,800	7,270		7.6	68	72	13.21	12.34	54.66	4.79	18.74	59.80	
July	2	7.14	45,500	8,540		7.6	72	76	12.97	11.23	61.33	4.01	17.38	66.43	
Aug.	2	6.67	44,500	7,680		7.8	70	75	12.97	11.18	56.33	4.05	16.45	61.50	
Sept.	2	6.25	61,900	7,520		7.9	68	71	12.82	11.43	52.20	4.87	17.12	55.01	
Oct.	2	5.87	40,500	6,920		7.6	68	71	11.98	10.36	47.85	5.59	15.82	52.33	
Nov.	2	5.33	42,200	6,160		8.0	68	70	11.03	8.96	43.06	5.26	14.52	46.40	
Dec.	2	6.24	57,400	7,120		8.0	70	74	12.57	10.12	51.76	4.83	15.09	57.55	

** Percent of total cations

*** Percent of total anions

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES 1976

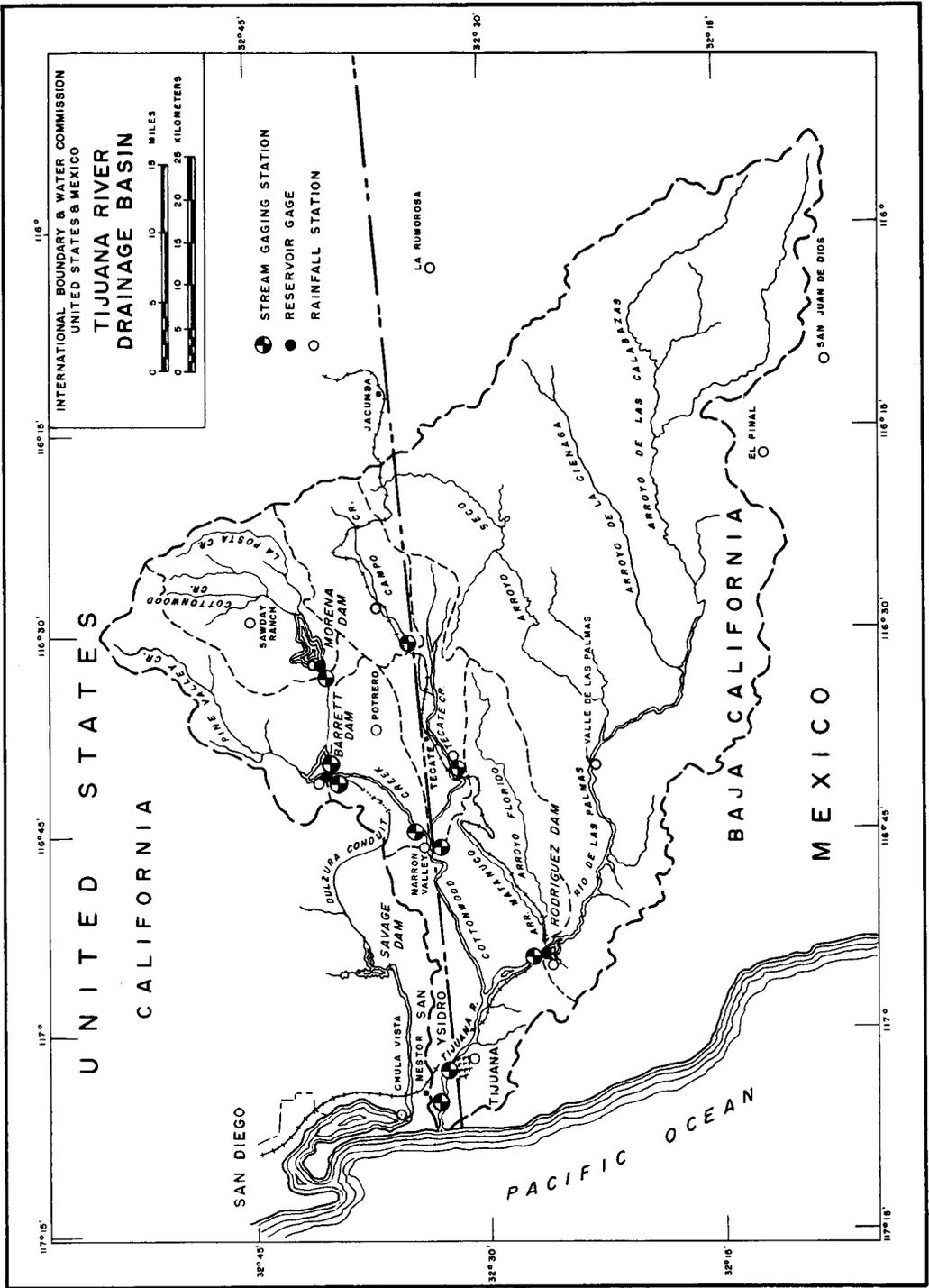
The following table shows electrical conductivity, expressed in mhos per centimeter $\times 10^6$ at 25°C , of individual water samples from the New River in Mexico at the international boundary. Samples were taken by the Mexican Section of the Commission, who also made the determinations.

Electrical conductivity is a relative indication of the concentration of dissolved solids in the water samples.

Date	ECx10 ⁶ @25°C								
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New River at International Boundary

January	February	April	May	July	August	October	November
6 6,950	24 6,980	6 6,950	27 6,980	6 7,150	17 7,130	5 7,320	22 7,010
13 7,010	March	13 7,000	June	13 7,080	24 7,020	11 6,920	29 7,000
20 6,900	2 7,010	20 5,980	1 7,000	20 6,990	31 7,200	19 6,890	December
27 6,980	9 6,960	27 7,650	8 6,990	27 6,960	September	26 7,040	6 6,910
February	16 6,900	May	14 7,050	30 7,030	7 7,230	November	14 6,890
3 7,000	22 7,100	4 7,430	22 7,000	August	14 7,120	2 6,460	21 7,030
9 6,900	30 7,010	11 7,520	29 6,980	3 6,990	20 7,060	8 6,810	28 7,000
17 6,930		18 7,100		9 7,090	27 6,810	15 6,900	



COTTONWOOD CREEK ABOVE MORENA DAM, CALIFORNIA

DESCRIPTION: Staff gage located on east side of outlet tower immediately upstream from face of Morena Dam. The dam is located on Cottonwood Creek 1.8 miles (2.9 km) upstream from the mouth of Hauser Creek, 8.5 miles (13.7 km) upstream from Barrett Dam, and about 20 miles (32.2 km) upstream from the international boundary. The zero of the gage is 2,882.4 feet (878.56 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Reservoir inflows shown below were computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, and rainfall, by the International Boundary and Water Commission, United States Section. They represent all water reaching Morena Reservoir, including rainfall on reservoir water surface. Basic data were furnished by the city of San Diego, California. Records available: April 1911 through 1976.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1976 computed on basis of area-capacity curves determined from 1948 resurvey. Various changes have been made to the spillway section since construction of the dam. Elevation of the present crest of ungated spillway is 157.00 feet (47.85 m), gage datum. Reservoir capacity at spillway crest, 1948 survey, is 50,210 acre-feet (61,934,000 m³). The entire capacity of Morena Reservoir is used to furnish a part of the water supply of the city of San Diego, California. Water is released from Morena Reservoir down Cottonwood Creek to Barrett Reservoir as required.

EXTREMES: Prior to 1937, maximum monthly inflow, 37,200 acre-feet (45,886,000 m³), January 1916; minimum, no flow during parts of many years.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1937-1976		
		Average	Maximum	Minimum
January	9.4	409	3,520	0
February	162	1,000	16,700	8.0
March	92.4	1,511	13,220	19.3
April	60.9	947	11,490	3.3
May	14.5	333	3,550	0
June	.6	171	1,660	0
July	5.1	120	1,010	0
August	.7	87.4	1,260	0
September	34.6	61.1	1,070	0
October	5.4	71.6	1,270	0
November	14.7	131	1,380	0
December	6.2	430	3,590	4.4
Yearly	406	5,272	39,439	121
	Thousands of Cubic Meters			
	501	6,503	48,648	149

COTTONWOOD CREEK BELOW MORENA DAM, CALIFORNIA

DESCRIPTION: Two water-stage recorders, one on the upstream side of the southeast abutment of Morena Dam for measuring head on the spillway crest and one immediately below the dam with a rectangular control weir for measuring ordinary reservoir releases, and cableway located about 0.8 mile (1.3 km) downstream from the dam. Discharge measurements made at the cableway include leakage, controlled releases, and spillway discharges.

RECORDS: Monthly records shown below represent the water available immediately below Morena Dam, consisting of spillway waste, draft, and leakage from the dam. They are computed by the International Boundary and Water Commission, United States Section, from basic data furnished by the city of San Diego, California. Records available: January 1911 through 1976.

REMARKS: Flows at this station are regulated by Morena Dam; storage began March 1910. Water is released from Morena Reservoir as required and flows down the natural channel of Cottonwood Creek to Barrett Reservoir. There are no major diversions above Morena Dam.

EXTREMES: Prior to 1937, maximum monthly discharge, 21,400 acre-feet (26,397,000 m³), February 1916; minimum, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1937-1976		
		Average	Maximum	Minimum
January	0	109	1,700	0
February	0	305	4,260	0
March	0	247	1,731	0
April	0	755	12,950	0
May	0	206	3,040	0
June	3.4	283	7,360	0
July	3.2	162	2,340	0
August	11.0	134	1,550	0
September	7.1	264	5,880	0
October	0	78.7	529	0
November	0	106	1,260	0
December	1.7	292	5,350	0
Yearly	26.4	2,942	24,825	0
	Thousands of Cubic Meters			
	32.6	3,629	30,621	0

COTTONWOOD CREEK ABOVE BARRETT DAM, CALIFORNIA

DESCRIPTION: Staff gage located immediately upstream from face of dam on west side of outlet tower. Barrett Dam is located on Cottonwood Creek 8.5 miles (13.7 km) downstream from Morena Dam, 1 mile (1.6 km) downstream from the mouth of Pine Valley Creek and about 12 miles (19.3 km) upstream from the international boundary. Zero of gage is 1,446.12 feet (440.78 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records reported below represent all water reaching Barrett Dam from the sub-basin below Morena Dam, including rainfall on the reservoir water surface. Leakage, releases, and spills from Morena Reservoir are not included. The inflows were computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, and rainfall furnished by the city of San Diego, California. Records available: January 1921 through 1976. Records of stream flow for a station at the dam site are also available for the periods 1906-1915 and 1917-1920.

REMARKS: Storage began at Barrett Reservoir in January 1921. The area-capacity-elevation curves used in the inflow calculations are dated 1948, 1951, and 1955 and were furnished by the city of San Diego, California. Capacity of reservoir at top of flash gates on spillway (gage height 168.88 feet (51.47 m) is 44,755 acre-feet (55,205,000 m³). Capacity at spillway crest (gage height 160.88 feet (49.04 m) is 37,950 acre-feet (46,811,000 m³). Dead storage, 719 acre-feet (887,000 m³) below lowest outlet (gage height 58.88 feet (17.95 m) is included in these capacities. The entire capacity of Barrett Reservoir is used to furnish a part of the water supply of the city of San Diego, California.

EXTREMES: Prior to 1937, maximum monthly discharge, 54,800 acre-feet (67,595,000 m³) February 1927; minimum, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1937-1976		
		Average	Maximum	Minimum
January	27.9	537	3,430	5.2
February	476	1,469	26,790	7.6
March	262	2,475	18,860	14.1
April	246	1,616	21,630	10.2
May	57.2	497	5,130	0
June	5.0	207	1,730	0
July	7.4	135	1,010	0
August	0	76.5	579	0
September	171	90.7	759	0
October	2.2	56.0	645	.1
November	10.9	120	1,200	0
December	9.0	439	3,380	1.7
Yearly	1,275	7,718	59,387	129
	Thousands of Cubic Meters			
	1,573	9,520	73,253	159

DULZURA CONDUIT BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder 0.5 mile (0.8 km) downstream from Barrett Dam on right bank of Dulzura Conduit 50 feet (15.2 m) upstream from road crossing to Barrett Dam. Elevation of gage has not been determined.

RECORDS: Computed on basis of head on control section of flume, as measured by water-stage recorder, and rating curve determined from current meter measurements. Records obtained and furnished by the city of San Diego, California. Records available: January 1909 through 1976.

REMARKS: Barrett Dam was completed in 1921. Prior to this date the intake of Dulzura Conduit was located 1.5 miles (2.4 km) upstream. The conduit carries diversions from Barrett Reservoir on Cottonwood Creek westerly across the divide into Otay Reservoir for municipal use by the city of San Diego. Prior to September 30, 1958, station was located 8 miles (12.9 km) along the conduit from Barrett Dam, being reported as "Dulzura Conduit near Dulzura" and the draft from Barrett Reservoir was computed from the discharges obtained at the conduit gaging station, multiplied by the factor 1.05 to allow for channel losses in the reach from the reservoir to the gaging station.

EXTREMES: Since 1937: Maximum mean daily discharge, 55 second-feet (1.56 m³/sec) on March 15, 1954; minimum discharge, no flow for long periods on many occasions.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	19.3	4.2	0	0	0	0	0	0	0
2	0	0	0	14.3	3.0	0	0	0	0	0	0	0
3	0	0	0	5.4	3.6	0	0	0	0	0	0	0
4	0	0	0	3.7	3.3	0	0	0	0	0	0	0
5	0	0	0	14.1	3.3	0	0	0	0	0	0	0
6	0	0	0	12.8	2.6	0	0	0	0	0	0	0
7	0	0	0	10.5	2.4	0	0	0	0	0	0	0
8	0	0	0	4.8	2.3	0	0	0	0	0	0	0
9	0	0	0	3.8	2.2	0	0	0	0	0	0	0
10	0	0	0	3.5	2.1	0	0	0	0	0	0	0
11	0	0	0	4.6	.1	0	0	0	0	0	0	0
12	0	0	0	5.4	0	0	0	0	0	0	0	0
13	0	0	0	8.1	0	0	0	0	0	0	0	0
14	0	0	0	7.1	0	0	0	0	0	0	0	0
15	0	0	0	5.7	0	0	0	0	0	0	0	0
16	0	0	12.1	4.2	0	0	0	0	0	0	0	0
17	0	0	0	5.0	0	0	0	0	0	0	0	0
18	0	0	0	13.6	0	0	0	0	0	0	0	0
19	0	0	0	12.5	0	0	0	0	0	0	0	0
20	0	0	12.6	11.3	0	0	0	0	0	0	0	0
21	0	0	12.4	10.5	0	0	0	0	0	0	0	0
22	0	0	12.2	6.6	0	0	0	0	0	0	0	0
23	0	0	11.9	6.2	0	0	0	0	0	0	0	0
24	0	0	20.2	6.1	0	0	0	0	0	0	0	0
25	0	0	19.5	7.5	0	0	0	0	0	0	0	0
26	0	0	18.9	6.5	0	0	0	0	0	0	0	0
27	0	0	18.0	5.3	0	0	0	0	0	0	0	0
28	0	0	17.3	4.0	0	0	0	0	0	0	0	0
29	0	0	16.4	4.0	0	0	0	0	0	0	0	0
30	0	0	15.1	4.5	0	0	0	0	0	0	0	0
31	0	0	14.1		0	0	0	0	0	0	0	0
Sum	0	0	200.7	231.0	29.1	0	0	0	0	0	0	0
Current Year 1976									Period 1937-1976			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.				0		0	0	355	2,350	0		
Feb.				0		0	0	363	2,130	0		
Mar.			24	20.2	† 1	0	6.5	398	2,330	0		
Apr.			1	19.3	10	3.6	7.7	459	2,860	0		
May			1	4.2	† 12		.9	57.7	3,040	0		
June				0		0	0	936	2,920	0		
July				0		0	0	764	2,920	0		
Aug.				0		0	0	640	2,820	0		
Sept.				0		0	0	414	2,320	0		
Oct.				0		0	0	316	2,450	0		
Nov.				0		0	0	436	2,760	0		
Dec.				0		0	0	403	2,305	0		
Yearly				20.2		0	1.3	914	6,917	27,170	0	
	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
				0.57		0	0.04	1,127	8,532	33,514	0	

∅ Mean daily † And other days

COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located about 2.5 miles (4.0 km) downstream from Barrett Dam and 0.5 mile (0.8 km) upstream from Rattlesnake Canyon for measuring Barrett Dam spills; and staff gage and control weir located immediately below the dam for measuring leakage. The elevation of the gage is about 1,000 feet (305 m) (from topographic map).

RECORDS: Data furnished by the city of San Diego, California. Prior to January 1953, the records were furnished by the city of San Diego and reviewed and revised by the United States Section of the Commission. The recorder is to be operated only when Barrett Reservoir is near or above spillway level. There have been no spillway discharges since May 1943. Spillway discharges included in the period record below were computed by the city of San Diego from the head on the spillway crest, read on the reservoir gage, and applied to a broad-crested weir formula. Records available: January 1921 through 1976. Storage began in Barrett Reservoir in January 1921.

REMARKS: Records reported below represent the water available in the natural channel of Cottonwood Creek immediately below Barrett Dam. Records of draft from Barrett Reservoir are not included, inasmuch as all releases are made to Dulzura Conduit which transports water outside the basin. Leakage is mainly through the spillway gates.

EXTREMES: Prior to 1937, maximum monthly discharge 38,400 acre-feet (47,366,000 m³) February 1927; minimum, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1937-1976		
		Average	Maximum	Minimum
January	0	15.1	590	0
February	0	25.7	990	0
March	0	692	13,390	0
April	0	1,016	33,400	0
May	0	230	7,520	0
June	0	32.4	890	0
July	0	1.8	21	0
August	0	1.6	21	0
September	0	1.3	21	0
October	0	1.2	21	0
November	0	.8	15	0
December	0	1.4	21	0
Yearly	0	2,019.3	50,364	0
	Thousands of Cubic Meters			
	0	2,491	62,123	0

COTTONWOOD CREEK ABOVE TECATE CREEK NEAR DULZURA, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located 1.6 miles (2.6 km) upstream from the international land boundary between the United States and Mexico, 0.8 mile (1.3 km) upstream from the confluence with Tecate Creek, and 5.1 miles (8.2 km) south of Dulzura, California. Low water discharge measurements are made by wading at the gage; high water measurements are made from the cableway which is located 700 feet (213 m) downstream from the gage. Zero of the gage is 569.40 feet (173.55 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and current meter measurements or observation of no flow generally made twice each month. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1976.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 10 (16.1 km) and 18 miles (29.0 km), respectively, upstream from this station. During 1976 there were no releases or spills to the natural channel of Cottonwood Creek at Barrett Dam, the lowermost dam in Cottonwood Creek Basin.

EXTREMES: Maximum discharge 4,340 second-feet (123 m³/sec) February 7, 1937 (gage height 9.65 feet) (2.94 m), from rating curve extended above 1,500 second-feet (42.5 m³/sec) by logarithmic plotting. Minimum discharge, no flow during part of each year.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.60	0.16	0	0	0	0	0	0	0	0
2	0	0	2.0	.14	0	0	0	0	0	0	0	0
3	0	0	7.1	.12	0	0	0	0	0	0	0	0
4	0	0	5.3	.10	0	0	0	0	0	0	0	0
5	0	0	2.7	.09	0	0	0	0	0	0	0	0
6	0	0	2.1	.07	0	0	0	0	0	0	0	0
7	0	.21	1.9	.06	0	0	0	0	0	0	0	0
8	0	2.6	1.8	.05	0	0	0	0	0	0	0	0
9	0	34	1.8	.03	0	0	0	0	0	0	0	0
10	0	13	1.7	.03	0	0	0	0	0	0	0	0
11	0	5.9	1.8	.01	0	0	0	0	0	0	0	0
12	0	3.9	1.6	.02	0	0	0	0	0	0	0	0
13	0	3.1	1.4	.66	0	0	0	0	0	0	0	0
14	0	2.5	1.3	.61	0	0	0	0	0	0	0	0
15	0	2.1	1.2	.61	0	0	0	0	0	0	0	0
16	0	1.8	1.1	3.2	0	0	0	0	0	0	0	0
17	0	1.5	1.0	1.1	0	0	0	0	0	0	0	0
18	0	1.4	.90	.56	0	0	0	0	0	0	0	0
19	0	1.2	.80	.36	0	0	0	0	0	0	0	0
20	0	1.1	.70	.23	0	0	0	0	0	0	0	0
21	0	.90	.63	.16	0	0	0	0	0	0	0	0
22	0	.72	.56	.09	0	0	0	0	0	0	0	0
23	0	.64	.50	.04	0	0	0	0	0	0	0	0
24	0	.62	.45	.02	0	0	0	0	0	0	0	0
25	0	.57	.40	.02	0	0	0	0	0	0	0	0
26	0	.48	.36	.01	0	0	0	0	0	0	0	0
27	0	.43	.32	0	0	0	0	0	0	0	0	0
28	0	.40	.28	0	0	0	0	0	0	0	0	0
29	0	.38	.25	0	0	0	0	0	0	0	0	0
30	0		.22	0	0	0	0	0	0	0	0	0
31	0		.19	0	0	0	0	0	0	0	0	0
Sum	0	79.45	42.96	8.55	0	0	0	0	0	0	0	0

Month	Extreme Gage Feet		Current Year 1976				Average Second-Feet	Total Acre-Feet	Period 1937-1976		
	High	Low	Extreme Second-Feet		Acre-Feet				Average	Maximum	Minimum
			Day	High	Day	Low					
Jan.				0		0	0	0	176	1,190	0
Feb.			9	34	† 1	0	2.74	158	569	9,940	0
Mar.			3	7.1	31	.19	1.39	85.2	1,522	20,880	0
Apr.			16	3.2	† 27		.28	17.0	1,416	40,240	0
May				0	0	0	0	0	327	10,040	0
June				0	0	0	0	0	62.8	1,590	0
July				0	0	0	0	0	7.0	206	0
Aug.				0	0	0	0	0	.3	7.7	0
Sept.				0	0	0	0	0	1.8	72	0
Oct.				0	0	0	0	0	3.5	101	0
Nov.				0	0	0	0	0	19.8	440	0
Dec.				0	0	0	0	0	127	1,316	0
Yearly				34		0	0.37	260	4,232	66,700	0
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				0.96		0	0.01	321	5,220	82,274	0

‡ Mean daily

† And other days

CAMPO CREEK NEAR CAMPO, CALIFORNIA

DESCRIPTION: Water-stage recorder and broad-crested weir on left bank, 0.5 mile (0.8 km) upstream from the international land boundary between the United States and Mexico, just upstream from the bridge on California State Highway 94, 3.5 miles (5.6 km) southwest of Campo, California. Zero of gage is 2,178.92 feet (664.13 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1976.

REMARKS: Campo Creek originates in the United States and flows southwestward into Mexico where it joins Tecate Creek. The flow at this station is partially regulated by a small conservation reservoir a quarter of a mile (0.4 km) upstream, completed in August 1956.

EXTREMES: Maximum instantaneous discharge during 1976, 1.0 c.f.s. (0.03 m³/sec) on February 8, (gage height 1.39 feet (0.42 m); no flow for part of the year. Maximum discharge 880 second-feet (24.9 m³/sec), February 6, 1937 (gage height 4.80 feet (1.46 m), present datum), from rating curve extended above 110 second-feet (3.12 m³/sec) on basis of velocity-depth relation and cross-section area at the control. Minimum discharge, no flow during part of most years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.05	0.03	0.02	0.01	0	0	0	0.06	0	0
2	0	0	.03	.03	.02	.01	0	0	0	.07	0	0
3	0	.01	.20	.04	.02	.01	0	0	0	.06	0	0
4	0	0	.08	.07	.02	.01	0	0	0	.05	0	0
5	0	.02	.07	.05	.02	.01	0	0	0	.03	0	0
6	0	.04	.06	.06	.03	.01	0	0	0	.03	0	0
7	0	0	.05	.06	.03	.01	0	0	0	.02	0	0
8	0	.06	.05	.06	.02	0	0	0	0	0	0	0
9	0	.11	.05	.06	.02	0	0	0	0	0	0	0
10	0	.02	.05	.06	.02	.01	0	0	.19	0	0	0
11	0	.02	.02	.06	.01	.01	0	0	.23	0	0	0
12	0	.01	0	.07	.01	.01	0	0	.02	0	.10	0
13	0	0	.02	.10	.01	.01	0	0	.01	0	.06	0
14	0	0	.02	.03	.01	0	0	0	0	0	.06	0
15	0	0	.02	.12	.01	0	0	0	0	0	.03	0
16	0	0	.03	.14	.01	0	0	0	.01	0	0	0
17	0	0	.05	.02	.01	0	0	0	0	0	0	0
18	0	0	.05	.02	.01	0	0	0	0	0	0	0
19	0	0	.05	.01	.01	0	0	0	0	0	0	0
20	0	0	.04	.01	.01	0	0	0	0	0	0	0
21	0	0	.05	.01	.01	0	0	0	0	0	0	0
22	0	0	.05	.02	.01	0	0	0	0	.05	0	0
23	0	0	.04	.02	.02	0	0	0	0	.06	0	0
24	0	0	.03	.02	.01	0	0	0	.01	.04	0	0
25	0	0	.03	.02	.01	0	0	0	.01	.02	0	0
26	0	0	.03	.02	.01	0	0	0	.01	0	0	0
27	0	0	.03	.02	.01	0	0	0	.01	0	0	0
28	0	0	.03	.02	.01	0	0	0	0	0	0	0
29	0	0	.03	.02	.02	0	0	0	.01	0	0	0
30	0	0	.03	.02	.02	0	0	0	.01	0	0	0
31	0	0	.03	.02	.02	0	0	0	0	0	0	.04
Sum	0	0.29	1.37	1.34	0.47	0.11	0	0	0.52	0.49	0.25	0.04

Month	Extreme Gage Feet		Current Year 1976				Average Second-Feet	Total Acre-Feet	Period 1937-1976			
	High	Low	Extreme Second-Feet		Day	Low			Acre-Feet			
			Day	High			Day	Low	Average	Maximum	Minimum	
Jan.												
Feb.			9	.11	† 1	0	0	.6	117	906	0	0
Mar.			3	.20	12	0	.04	2.7	207	1,730	0	0
Apr.			16	.14	† 19	.01	.04	2.7	297	2,360	0	0
May			† 6	.03	† 11	.01	.02	.9	209	3,250	0	0
June			† 1	.01	† 8	0	0	.2	96.1	1,540	0	0
July				0		0	0	0	38.0	719	0	0
Aug.				0		0	0	0	15.6	361	0	0
Sept.				0		0	0	0	11.3	321	0	0
Oct.			11	.23	† 1	0	.02	1.0	10.7	264	0	0
Nov.			2	.07	† 8	0	.02	1.0	18.5	543	0	0
Dec.			12	.10	† 1	0	.01	.5	34.0	542	0	0
Dec.			31	.04	† 1	0	0	.1	93.9	808	0	0
Yearly				0.23	0	0	0.01	9.7	1,148	11,141	0	0
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.01	0	0	0	12.0	1,416	13,742	0	0

∅ Mean daily

† And other days

COTTONWOOD CREEK NEAR INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder and cableway, 0.6 mile (1.0 km) upstream from the international land boundary between the United States and Mexico, 0.5 mile (0.8 km) downstream from the confluence of Cottonwood Creek and Tecate Creek, and 5.5 miles (8.9 km) south of Dulzura, California. Low water discharge measurements are made by wading at the gage. The zero of the gage is 542.42 feet (165.33 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and current meter measurements or observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1976.

REMARKS: Flow is partially controlled by Barrett and Morena Reservoirs, 11 (17.7 km) and 19 miles (30.6 km) respectively, upstream from this station. The flow at this station represents the amount of water passing the Marron Dam site.

EXTREMES: Maximum discharge, 4,700 second-feet (133 m³/sec), February 7, 1937 (gage height 8.50 feet) (2.59 m) from rating curve extended above 300 second-feet (8.50 m³/sec) on basis of velocity, mean depth and area computations. Minimum discharge, no flow for part of most years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.11	0.12	0.99	0.83	0.50	0.31	0.18	0.09	0.03	0.08	0.08	0.03
2	.12	.12	2.4	.83	.55	.31	.18	.10	.03	.08	.08	.03
3	.12	.13	12	.80	.48	.31	.18	.11	.04	.08	.08	.04
4	.12	.14	9.9	.83	.42	.31	.17	.11	.08	.08	.08	.04
5	.12	.21	3.7	.96	.43	.28	.17	.11	.04	.08	.08	.04
6	.12	.24	2.9	1.0	.47	.28	.16	.11	.05	.08	.08	.04
7	.12	.25	2.5	.90	.54	.28	.14	.11	.05	.07	.08	.05
8	.12	.27	2.2	.91	.58	.24	.14	.11	.06	.07	.08	.05
9	.12	43	2.0	.84	.54	.22	.14	.11	.07	.07	.07	.04
10	.13	22	1.9	.83	.43	.22	.14	.12	7.3	.07	.04	.04
11	.12	8.5	2.1	.92	.40	.22	.14	.12	3.7	.07	.04	.04
12	.12	5.0	2.0	1.1	.37	.22	.13	.12	.29	.07	.29	.03
13	.13	3.7	1.8	1.3	.40	.22	.13	.11	.17	.07	.40	.02
14	.13	2.8	1.7	1.5	.40	.22	.13	.10	.15	.07	.06	.02
15	.13	2.3	1.6	1.3	.37	.22	.12	.11	.13	.08	.04	.02
16	.12	1.8	1.4	4.2	.34	.22	.12	.10	.13	.08	.03	.01
17	.12	1.6	1.4	2.0	.34	.21	.12	.09	.12	.08	.03	.01
18	.12	1.4	1.1	1.3	.37	.22	.11	.09	.11	.04	.02	.01
19	.12	1.2	1.1	1.1	.37	.22	.11	.05	.11	.04	.02	.01
20	.13	1.1	1.0	1.1	.40	.22	.11	.04	.10	.05	.02	.01
21	.13	.98	1.0	.70	.43	.23	.11	.04	.10	.05	.02	.01
22	.15	.82	.94	.79	.43	.22	.10	.04	.10	.07	.02	.01
23	.14	.75	.88	.74	.40	.22	.10	.04	.10	.08	.02	.01
24	.14	.78	.89	.70	.37	.22	.10	.03	.10	.08	.02	.01
25	.12	.83	.91	.70	.40	.22	.10	.03	.10	.08	.02	.01
26	.12	.84	.90	.74	.40	.21	.11	.03	.09	.08	.02	.01
27	.12	.86	.91	.58	.37	.20	.11	.03	.09	.08	.02	.01
28	.12	.86	.94	.47	.37	.20	.10	.03	.09	.08	.02	.03
29	.11	.84	.88	.50	.34	.19	.11	.03	.09	.08	.02	.04
30	.12	.85	.85	.56	.34	.19	.11	.03	.09	.08	.02	.04
31	.12	.85	.85	.56	.34	.19	.10	.03	.09	.08	.02	.13
Sum	3.83	103.44	65.64	31.03	12.86	7.05	3.97	2.37	13.71	2.25	1.90	0.89
Current Year 1976								Period 1937-1976				
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum	
Jan.			22	0.15	† 1	0.11	0.12	7.6	380	2,750	0	
Feb.			9	43	† 1	.12	3.57	205	1,025	13,680	0	
Mar.			3	12	† 30	.85	2.12	130	2,437	27,140	0	
Apr.			16	4.2	28	.47	1.03	61.5	1,941	51,060	0	
May			8	.58	31	.31	.41	25.5	490	14,110	0	
June			† 1	.31	† 29	.19	.24	14.0	103	2,630	0	
July			† 1	.18	† 22	.10	.13	7.9	17.3	312	0	
Aug.			† 10	.12	† 24	.03	.03	4.7	6.5	171	0	
Sept.			10	7.3	† 1	.03	.46	27.2	9.4	152	0	
Oct.			† 1	.03	† 18	.04	.07	4.5	21.7	705	0	
Nov.			13	.40	† 18	.02	.06	3.8	53.6	839	0	
Dec.			31	.13	† 16	.01	.03	1.8	319	3,330	0	
Yearly				43		0.01	0.69	494	6,804	97,900	0	
	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
				1.22	0	0.02	609	8,393	120,759	0		

∅ Mean daily

† And other days

INFLOWS TO RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Rodriguez Dam is located in Mexico on Rio de las Palmas, the principal tributary to the Tijuana River, about 5.6 miles (9.0 km) upstream from its confluence with Cottonwood Creek, 10.6 miles (17.0 km) upstream from the point where the Tijuana River crosses the international boundary between the United States and Mexico, and 9.9 miles (16.0 km) southeast of Tijuana, Baja California.

RECORDS: Computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, rainfall and including Emergency Deliveries of Colorado River Water to Tijuana beginning in August 1972. The Emergency Deliveries of Colorado River Water to Tijuana are made pursuant to Minute 240 of this Commission. Records obtained by the Ministry of Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano of Tijuana, Baja California, and from April 1966 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1976. Storage began in Rodriguez Reservoir on September 22, 1936.

REMARKS: Records of runoff represent all water reaching Rodriguez Reservoir including rainfall on the reservoir water surface. Area-capacity-elevation rating for reservoir used in the computations is dated 1927 when the reservoir area was initially surveyed. Elevation of crest of spillway 380.08 feet (115.85 m) above mean sea level; at top of spillway gates 410.10 feet (125.00 m) above mean sea level. Reservoir capacity at spillway crest 76,210 acre-feet (94,004,000 m³); at top of spillway gates 111,070 acre-feet (137,004,000 m³).

EXTREMES: Maximum monthly inflow, 77,790 acre-feet (95,953,000 m³), April 1941; minimum, no flow during part of most years.

Monthly Discharge in Acre-Feet

Month	Current Year 1976			Period 1938-1976		
	Natural Inflow	* Otay Aqueduct	Total	Average	Maximum	Minimum
January	0.5	8.1	8.6	769	6,569	0
February	1,775	21.8	1,797	2,139	41,295	5.8
March	234	38.1	272	5,249	68,321	4.2
April	80.8	54.6	135	2,722	77,790	0
May	1.5	14.9	16.5	354	9,962	0
June	.8	7.6	8.4	70.5	891	0
July	.6	20.3	20.9	77.7	326	0
August	14.7	11.7	26.3	55.9	770	0
September	166	56.9	223	62.1	466	0
October	113	62.6	175	72.3	344	0
November	98.9	16.9	116	155	1,940	0
December	15.6	20.3	35.9	823	15,686	8.4
Yearly	2,502	334	2,836	12,551	177,668	254
	Thousands of Cubic Meters					
	3,086	412	3,498	15,482	219,151	313

* Inflow from the supply of water from Otay Aqueduct for the city of Tijuana

DIVERSIONS FROM RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Sparling flow meter located immediately below the dam in the pipeline which carries water from Rodriguez Reservoir to Gate No. 1 (Poblado Presa) and to Gate No. 2 (City Aqueduct). Formerly, water for irrigation was also diverted to the North and South Canals.

RECORDS: Direct recording by Sparling flow meter. Records through May 1961 were obtained by the Ministry of Hydraulic Resources; from June 1961 to March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana; and from April 1966 through 1976 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1976.

REMARKS: Beginning in January 1937, diversions for irrigation began from both sides for the Tijuana valley and for domestic use at the village by Rodriguez Dam and the city of Tijuana. Since February 1960, no water has been released for irrigation of farmlands.

EXTREMES: Maximum monthly diversion, 1,963 acre-feet (2,421,000 m³), July 1944; minimum, no flow March and April 1941, August 1960, and December 1962.

Monthly Discharge in Acre-Feet

Month	Current Year 1976	Period 1938 - 1976		
		Average	Maximum	Minimum
January	84.3	216	782	1.5
February	93.2	240	1,132	.8
March	113	289	1,223	0
April	29.4	406	1,602	0
May	63.9	555	1,676	1.8
June	86.7	645	1,857	1.9
July	85.1	684	1,963	1.9
August	133	593	1,859	0
September	53.3	480	1,420	1.9
October	103	413	1,187	1.9
November	85.1	317	1,037	1.9
December	36.4	278	981	0
Yearly	967	5,116	15,317	29.3
	Thousands of Cubic Meters			
	1,193	6,310	18,893	36.2

TIJUANA RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder on right bank about 550 feet (168 m) downstream from the international boundary and about 0.8 mile (1.3 km) west of the international gate at San Ysidro, California. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and observations of no flow and a continuous record of gage heights. Records obtained and furnished by the United States Section of the Commission. Records available: May 1947 through 1976.

EXTREMES: Since May 1947: Maximum instantaneous discharge, 2,570 second-feet (72.8 m³/sec). March 15, 1952; minimum discharge, no flow during part or all of each year since 1951.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	13.0	0.1	0	0	0	0	0	0	0	0
2	0	0	5.3	0	0	0	0	0	0	0	0	0
3	0	0	41.8	.1	0	0	0	0	0	0	0	0
4	0	.1	5.3	3.5	0	0	0	0	0	0	0	0
5	0	31.6	2.6	2.3	0	0	0	0	0	0	0	0
6	0	85.5	1.1	.2	0	0	0	0	0	0	0	0
7	0	84.8	1.2	.1	11.6	0	0	0	0	0	0	0
8	0	90.8	.7	0	.6	0	0	0	0	0	0	0
9	0	100	.3	0	.5	0	0	0	0	0	0	0
10	0	81.6	.3	0	.3	0	0	0	55.9	0	0	0
11	0	20.1	.3	0	.2	0	0	0	19.7	0	0	0
12	0	8.5	.8	0	.1	0	0	0	1.0	0	63.7	0
13	0	4.8	.4	32.5	0	0	0	0	.6	0	3.0	0
14	0	1.2	.3	.7	.1	0	0	0	.5	0	.8	0
15	0	.4	.3	11.4	0	0	0	0	.5	0	1.2	0
16	0	.3	.3	3.0	0	0	0	0	.5	0	.2	0
17	0	.4	.3	.3	0	0	0	0	.4	0	.1	0
18	0	.5	.3	0	0	0	0	0	.4	0	0	0
19	0	.4	.4	0	0	0	0	0	.4	0	0	0
20	0	.3	.3	0	0	0	0	0	.4	0	0	0
21	0	.1	.3	0	0	0	0	0	.4	0	0	0
22	0	0	.3	0	0	0	0	0	.2	36.3	0	0
23	0	0	.3	0	0	0	0	0	.1	2.6	0	0
24	0	0	.4	0	0	0	0	0	0	.3	0	0
25	0	0	.4	0	0	0	0	0	0	.2	0	0
26	0	.3	.3	0	0	0	0	0	0	0	0	0
27	0	.3	.3	0	0	0	0	0	0	0	0	0
28	0	.3	.3	0	0	0	0	0	0	0	0	0
29	0	.3	.3	0	0	0	0	0	0	0	0	0
30	0	0	.3	0	0	0	0	0	0	0	0	4.5
31	0	0	.2	0	0	0	0	0	0	0	0	61.4
Sum	0	512.6	78.7	54.4	13.4	0	0	0	81.0	39.4	69.0	65.9
Current Year 1976							Period 1947-1976					
Month	Extreme Gage Feet		Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet					
	High	Low	Day	Low			Average	Maximum	Minimum			
Jan.	45.95	45.95	0	0	0	0	360	4,603	0			
Feb.	49.17	45.95	8	286	f 1	17.7	1,017	286	1,496	0		
Mar.	48.85	46.27	3	149	31	.1	2.5	156	777	13,309	0	
Apr.	48.93	46.20	13	167	f 2	0	1.8	108	226	2,926	0	
May	48.32	46.20	7	69.2	f 1	0	.4	26.6	36.9	312	0	
June	46.20	46.20	0	0	0	0	0	22.9	309	0	0	
July	46.20	46.20	0	0	0	0	0	17.4	239	0	0	
Aug.	46.20	46.20	0	0	0	0	0	15.3	193	0	0	
Sept.	49.05	46.20	10	194	f 1	0	2.7	161	25.5	216	0	
Oct.	48.76	46.20	22	130	f 1	0	1.3	78.1	36.3	305	0	
Nov.	48.57	46.20	12	153	f 1	0	2.3	137	99.4	1,084	0	
Dec.	49.40	46.20	31	280	f 1	0	2.1	131	261	2,725	0	
Yearly	49.40	45.95		286		0	2.6	1,815	2,164	19,882	0	
Yearly	Meters		Cubic Meters per Second			Thousands of Cubic Meters						
	15.06	14.01		8.1		0	0.07	2,239	2,669	24,524	0	

f And other days

TIJUANA RIVER NEAR NESTOR, CALIFORNIA

DESCRIPTION: Water-stage recorder on county road bridge 4.1 miles (6.6 km) downstream from the international land boundary between the United States and Mexico, 2.9 miles (4.7 km) upstream from mouth of the river, and 1.7 miles (2.7 km) south of Nestor, California. The zero of the gage is 15.14 feet (4.61 m) above mean sea level, U. S. C. & G. S. datum. From April 10, 1953 to August 5, 1958, station was located 2 miles (3.2 km) upstream at different datum.

RECORDS: Based on current meter measurements or observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1914 through September 1915, and October 1922 through 1976 (October 1922 through May 1936 are from city of San Diego, California).

REMARKS: The flow at this station is partially controlled by Morena and Barrett Reservoirs on Cottonwood Creek in the United States and by Rodriguez Reservoir on Rio de las Palmas in Mexico. Some diversions for irrigation are normally made in Mexico whenever surface runoff occurs in the river or in its two principal tributaries.

EXTREMES: Since October 1, 1936: Maximum discharge, 17,700 second-feet (501 m³/s), February 7, 1937 (gage height 8.20 feet (2.50 m)), obtained from rating curve extended above 2,000 second-feet (56.6 m³/sec) on basis of velocity-depth relationship, and cross section after peak of the flood. Minimum discharge, no flow during parts of most years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.30	0	0	0	0	0	0	0	0	0
2	0	0	1.5	0	0	0	0	0	0	0	0	0
3	0	0	5.3	0	0	0	0	0	0	0	0	0
4	0	0	.48	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	11	0	0	0	0	0	0	0	0	0	0
7	0	14	0	0	0	0	0	0	0	0	0	0
8	0	14	0	0	0	0	0	0	0	0	0	0
9	0	93	0	0	0	0	0	0	0	0	0	0
10	0	117	0	0	0	0	0	0	0	0	0	0
11	0	67	0	0	0	0	0	0	.38	0	0	0
12	0	9.0	0	0	0	0	0	0	0	0	.27	0
13	0	.50	0	.62	0	0	0	0	0	0	.30	0
14	0	0	0	.14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	.15	0	0	0	0	0	0	0	0
17	0	0	0	.12	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	.86	0	0
23	0	0	0	0	0	0	0	0	0	1.18	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	2.6
Sum	0	325.50	7.58	1.03	0	0	0	0	0.38	2.04	0.57	2.6

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Low		Second-Feet	Acre-Feet	Average	Maximum	Minimum
				Day	Day	Day					
Jan.			10	0		0	0	0	646	4,070	0
Feb.			117	11.2	† 1	0	11.2	646	3,564	66,920	0
Mar.			3	5.3	† 5	0	.24	15.0	6,201	107,000	0
Apr.			13	.62	† 1	0	.03	2.0	5,302	181,900	0
May				0		0	0	0	592	18,340	0
June				0		0	0	0	99.9	3,060	0
July				0		0	0	0	19.9	523	0
Aug.				0		0	0	0	14.1	242	0
Sept.			11	.38	† 1	0	.01	.8	20.8	234	0
Oct.			23	1.18	† 1	0	.07	4.0	70.9	1,340	0
Nov.			13	.30	† 1	0	.02	1.1	120	1,490	0
Dec.			31	2.6	† 1	0	.08	5.2	650	7,930	0
Yearly				117		0	1.0	674	17,301	332,749	0
	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				3.3		0	0.028	831	21,341	410,443	0

‡ Mean daily

† And other days

STORED WATER IN RESERVOIRS, TIJUANA RIVER BASIN

Data are presented below for all storage reservoirs in the Tijuana River Basin. The data represent contents on the last day of the month in acre-feet. The reservoir capacities indicated are total capacities at the top of the spillway gates in closed position on the controlled spillways of Barrett and Rodriguez Dams, and at spillway level for Morena Dam, which has had an uncontrolled spillway since the spillway gates were removed in 1942. The records of storage reported below for Morena, Barrett, and Rodriguez Reservoirs are based on the capacities as determined by the following surveys: Morena 1948; Barrett 1948, 1951, and 1955; and Rodriguez 1927, when the reservoir area was initially surveyed.

Records for Morena and Barrett Reservoirs are obtained and furnished by the city of San Diego, the U. S. Geological Survey, and the National Weather Service. Records for Rodriguez Reservoir obtained and furnished by the State of Baja California Commission of Public Services for Tijuana.

In Acre-Feet

Month	MORENA RESERVOIR, CALIFORNIA (Capacity 50,210)		BARRETT RESERVOIR, CALIFORNIA (Capacity 44,760)		RODRIGUEZ RESERVOIR, BAJA CALIFORNIA (Capacity 111,880)		TOTAL IN TIJUANA RIVER BASIN RESERVOIRS (Capacity 206,850)	
	1976	Average 1937-1976	1976	Average 1937-1976	1976	Average 1937-1976	1976	Average 1937-1976
Jan.	2,485	14,530	719	10,169	2,022	28,325	5,226	53,024
Feb.	2,629	15,139	1,184	11,474	3,625	29,027	7,438	55,640
Mar.	2,686	16,268	1,032	12,887	2,681	31,731	7,399	60,886
Apr.	2,704	16,270	804	13,317	3,690	31,717	7,198	61,304
May	2,647	16,122	780	12,652	3,527	31,884	6,954	60,658
June	2,542	15,677	753	11,923	3,300	30,890	6,595	58,490
July	2,453	15,252	732	11,179	3,090	29,860	6,275	56,291
Aug.	2,357	14,861	702	10,501	2,819	28,925	5,878	54,287
Sept.	2,344	14,386	859	10,251	2,910	28,139	6,113	52,776
Oct.	2,278	14,173	842	9,940	2,884	27,480	6,004	51,593
Nov.	2,246	14,073	840	9,628	2,819	27,032	5,905	50,733
Dec.	2,214	14,125	840	9,896	2,722	27,320	5,776	51,341
Average	2,465	15,073	841	11,151	3,090	29,361	6,397	55,585
Maximum	2,704	# 61,670	1,184	Q 45,920	3,690	109,608	7,438	213,600
Minimum	2,214	10	702	106	2,022	0	5,226	1,264

March 31, 1941 - Prior to removal of spillway gates

Q April 30, 1937 - Sandbags were placed on crest of spillway

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

Tabulated below are monthly records of rainfall with averages for their periods of record at stations located in California and Baja California. Daily records, where available, are on file in the offices of the United States and Mexican Sections of the Commission. For location, elevation, period of record, and the observer, see alphabetical listing of these stations on page 78.

In United States

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California		Sawday Ranch, California	
	1976	Average 1906-1976	1976	Average 1907-1976	1976	Average 1951-1976	1976	Average 1914-1976	1976	Average 1950-1976
Jan.	0.11	3.64	0.06	3.22	0.10	2.37	0.07	3.24	0.45	2.80
Feb.	6.66	3.70	6.74	3.33	5.50	1.97	6.40	3.60	6.76	2.34
Mar.	2.00	3.32	2.34	2.90	1.60	2.30	2.27	2.95	2.39	2.72
Apr.	2.20	1.75	2.34	1.59	1.80	1.43	2.54	1.82	2.18	1.72
May	.24	.60	.01	.55	0	.36	.09	.62	.20	.39
June	.05	.14	.02	.07	.10	.07	0	.10	0	.06
July	.43	.36	.57	.11	0	.03	.36	.20	.25	.42
Aug.	0	.51	0	.18	.10	.10	0	.18	0	.70
Sept.	3.04	.39	1.88	.26	2.30	.26	3.32	.29	3.00	.45
Oct.	.48	.89	.42	.72	.50	.43	.24	.74	.54	.53
Nov.	1.32	1.57	1.38	1.37	1.10	1.51	1.54	1.50	.81	1.74
Dec.	.56	3.18	.63	2.83	1.50	2.19	.69	3.08	.57	2.30
Yearly	17.09	20.05	16.39	17.13	14.60	13.02	17.52	18.32	17.15	16.17

Month	Campo, California		Chula Vista, California		Lower Otay Dam, California		Brown Field, California			
	1976	Average 1900-1976	1976	Average 1930-1976	1976	Average 1950-1976	1976	Average 1964-1976		
Jan.	0.07	2.89	T	1.69	0	1.86	T	1.20		
Feb.	5.47	3.23	4.82	1.70	5.67	1.44	5.17	1.29		
Mar.	1.81	2.71	.96	1.47	1.48	1.81	1.36	1.54		
Apr.	1.85	1.46	1.12	.85	1.76	1.12	1.78	1.12		
May	.06	.51	.27	.23	T	.26	.09	.18		
June	0	.07	.01	.05	0	.08	.02	.09		
July	.61	.52	T	.02	T	.04	T	.07		
Aug.	0	.50	0	.06	.01	.06	.01	.01		
Sept.	2.85	.35	1.46	.18	1.63	.24	1.41	.18		
Oct.	.24	.64	1.04	.41	.53	.33	.72	.30		
Nov.	1.02	1.36	1.19	1.04	1.82	1.34	1.50	1.63		
Dec.	.76	2.51	.85	1.66	.59	1.44	1.19	1.77		
Yearly	14.74	16.75	11.72	9.36	13.49	10.02	13.25	9.38		

In Mexico

Month	La Rumorosa, Baja California		Tecate, Baja California		Tijuana, Baja California		Rodriguez Dam, Baja California		Valle de Las Palmas, Baja California	
	1976	Average 1945-1976	1976	Average 1946-1959 1961-1976	1976	Average 1948-1959 1961-1976	1976	Average 1938-1976	1976	Average 1948-1976
Jan.	T	0.67	*	2.20	0	1.61	0.04	1.38	0.08	1.34
Feb.	2.13	.43	*	1.42	6.50	1.38	6.02	1.34	4.45	1.06
Mar.	.12	.51	*	1.97	1.54	1.26	1.50	1.42	1.22	1.14
Apr.	T	.31	*	1.10	1.18	.67	1.34	.79	.71	.63
May	.12	.08	*	.28	.43	.20	.08	.12	0	.08
June	0	.04	*	.12	0	.04	.04	.04	0	.04
July	1.06	.31	*	.12	T	.04	.04	T	.04	.04
Aug.	0	.55	*	.12	T	.04	.91	.08	0	.08
Sept.	1.81	.31	*	.12	1.38	.16	1.85	.24	2.83	.24
Oct.	T	.43	.28	.35	.63	.31	1.61	.35	.24	.20
Nov.	1.02	.47	1.54	1.22	.94	1.02	.83	.91	.55	.75
Dec.	.43	.63	1.50	2.05	1.22	1.34	.59	1.54	.55	.94
Yearly	6.69	4.84		11.81	13.82	8.46	14.84	8.07	10.67	6.73

T Trace * Did not register

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

In Mexico

Month	El Pinal, Baja California		San Juan de Dios, Baja California						
	1976	Average 1964-1976	1976	Average 1956-1976					
Jan.	0.08	1.65	T	1.81					
Feb.	7.17	2.52	6.06	2.01					
Mar.	2.48	2.52	1.34	1.77					
Apr.	3.07	1.89	1.97	1.18					
May	.08	.35	T	.24					
June	0	.04	0	.12					
July	.59	.79	.98	1.14					
Aug.	0	.55	0	.67					
Sept.	4.09	.91	2.76	.59					
Oct.	1.24	.31	.59	.59					
Nov.	1.57	1.81	1.61	1.30					
Dec.	1.22	2.99	1.34	1.85					
Yearly	21.50	16.10	16.65	14.37					

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

In United States

NAME OF STATION	LATI- TUDE	LONGI- TUDE	Ø ELEV. (FT.)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	1,750	1907	City of San Diego
Brown Field, California	32° 34'	116° 59'	515	1964	City of San Diego
Campo, California	32° 37'	116° 28'	2,630	1877	Archie C. Leach
Chula Vista, California	32° 36'	117° 06'	9	1930	Western Salt Company
Lower Otay Dam, California	32° 37'	116° 56'	540	1950	City of San Diego
Marron Valley, California	32° 34'	116° 46'	550	1951	County of San Diego
Morena Dam, California	32° 41'	116° 32'	3,010	1906	City of San Diego
Portrero, California	32° 37'	116° 36'	2,400	1914	County of San Diego
Sawday Ranch, California	32° 45'	116° 29'	3,200	1950	William Tulloch

In Mexico

NAME OF STATION	LATI- TUDE	LONGI- TUDE	Ø ELEV. (FT.)	RECORD BEGAN	OBSERVER
El Pinal, Baja California	" 32° 11'	" 116° 17'	" 4,429	1964	Hydraulic Resources
La Rumorosa, Baja California	32° 31'	116° 04'	3,937	1945	Hydraulic Resources
Rodriguez Dam, Baja California	32° 26'	116° 55'	459	1938	Hydraulic Resources
San Juan de Dios, Baja California	31° 59'	116° 00'	" 3,280	1956	Hydraulic Resources
Tecate, Baja California	32° 33'	116° 39'	1,690	1946	Hydraulic Resources
Tijuana, Baja California	32° 31'	117° 02'	180	1948	Hydraulic Resources
Valle de Las Palmas, Baja California	32° 23'	116° 40'	148	1948	Hydraulic Resources

Ø Elevation above mean sea level

" Estimated from topographic maps

T Trace

EVAPORATION IN THE TIJUANA RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at four stations in California and at five stations in Baja California, with averages for their periods of record. The stations in California are observed by Western Salt Company, city of San Diego, California, and the United States Section of the Commission; those in Baja California are observed by the Ministry of Hydraulic Resources. For specific location of these stations refer to data opposite same station name shown in "Location of Rainfall Stations," page 78 in this bulletin.

Types of pans used:

1. Barrett Reservoir: January 1921 through September 1926, square 3-foot by 3-foot by 18-inch deep floating pan. October 1926 through 1976, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

2. Chula Vista: September 1918 through 1976, National Weather Service 4-foot diameter pan, 10 inches deep, set on 2 by 4-inch-timber grill.

3. Morena Reservoir: October 1915 through December 1921, square 3-foot by 3-foot by 18-inch deep floating pan. January 1922 through August 1926 records are the average of evaporation in a square 3-foot by 3-foot by 18-inch deep floating pan and a land pan of the same dimensions. September 1926 through 1976, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

4. Lower Otay Dam: January 1950 through 1976, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

In United States

Month	Morena Dam, California		Barrett Dam, California		Chula Vista, California		Lower Otay Dam, California	
	1976	Average 1916-1976	1976	Average 1921-1976	1976	Average 1919-1976	1976	Average 1950-1976
Jan.	2.38	2.23	2.58	1.86	4.03	2.85	2.84	1.97
Feb.	1.33	2.26	2.08	2.21	3.45	3.35	1.93	2.38
Mar.	2.53	3.50	3.39	3.52	5.54	4.99	3.37	3.47
Apr.	3.04	4.79	3.85	4.78	6.25	5.96	3.65	4.68
May	5.17	6.75	5.81	6.85	6.41	6.83	5.55	6.32
June	7.65	8.63	8.06	8.35	7.80	6.94	7.01	6.92
July	6.61	10.02	7.29	9.96	6.58	7.58	6.79	8.45
Aug.	6.71	9.31	7.56	9.42	7.95	7.34	7.41	8.09
Sept.	3.13	7.48	3.28	7.61	4.80	6.07	3.31	6.52
Oct.	3.32	5.27	4.49	5.38	5.28	4.92	1.69	4.80
Nov.	3.10	3.47	3.06	3.38	4.32	3.64	1.94	2.86
Dec.	2.23	2.45	2.14	2.07	3.60	2.76	2.65	2.16
Yearly	47.20	66.16	53.59	65.39	66.01	63.23	48.14	58.62

In Mexico

Month	Tecate, Baja California		Tijuana, Baja California		Rodriguez Dam, Baja California		Valle de Las Palmas, Baja California		San Juan de Dios, Baja California	
	1976	Average 1961-1973	1976	Avg. 1952-59 1961-1976	1976	Avg. 1939-42 1946-1976	1976	Average 1952-1976	1976	Average 1956-1976
Jan.	*	3.27	6.02	3.07	5.43	4.76	5.67	3.70	Ø	2.72
Feb.	*	3.31	4.17	3.50	3.54	3.78	3.58	3.50	Ø	2.60
Mar.	*	4.29	4.45	3.94	4.88	4.84	5.04	5.08	Ø	4.13
Apr.	*	5.20	5.63	4.84	4.61	5.71	5.75	6.42	Ø	4.84
May	*	6.14	5.91	5.75	5.83	7.13	7.17	7.60	7.83	6.81
June	*	6.38	7.76	5.33	8.39	7.80	10.87	9.29	9.69	7.72
July	*	8.62	6.65	6.69	6.81	8.82	8.39	10.75	9.25	8.98
Aug.	*	8.27	#	6.97	7.68	8.15	10.24	10.12	10.98	8.11
Sept.	*	6.81	4.09	5.33	3.86	6.35	4.88	8.58	5.51	7.80
Oct.	*	6.38	4.92	4.76	5.31	5.79	5.55	6.34	6.22	5.28
Nov.	*	3.86	5.12	3.50	5.20	4.80	5.51	4.45	3.94	3.66
Dec.	*	3.54	4.33	3.03	4.72	3.74	4.57	3.90	Ø	3.07
Yearly		67.87	866.02	57.13	66.26	71.54	77.20	79.61		60.71

* Did not register # Registered incomplete Ø Partly estimated Ø Frozen tank

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

The maximum, minimum, and monthly average temperature observations for United States stations are from daily readings of thermometers generally exposed in a shelter located a few feet above sod-covered ground. The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations, with maximum and minimum for their periods of record. For specific location, elevation, period of record, and the observer, refer to data opposite same station name as shown in "Location of Rainfall Stations," page 78 in this bulletin.

In United States

Month	Barrett Dam, California				Campo, California				Chula Vista, California			
	1976			Average 1931- 1976	1976			Average 1951- 1976	1976			Average 1931- 1976
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	50.2	83	19	48.6	48.8	77	15	46.8	54.9	79	32	52.5
Feb.	52.0	81	31	50.4	48.7	79	21	47.9	56.1	77	42	53.8
Mar.	51.9	83	30	53.2	47.9	78	23	49.4	55.8	75	40	55.2
Apr.	54.3	84	31	57.5	50.5	85	23		56.8	72	43	57.8
May	63.8	98	41	62.7	60.5	94	31	58.3	61.2	69	53	60.5
June	69.6	105	42	68.1	65.9	104	33	64.8	64.9	84	55	62.9
July	74.3	105	48	76.0	72.0	104	37	73.2	67.9	74	59	
Aug.	72.1	104	47	76.1	68.4	102	37	73.1	67.6	82	57	
Sept.	70.1	101	50	72.2	66.5	100	37	68.8	69.9	80	58	
Oct.	63.7	98	35	63.9	61.1	91	30	60.5	65.8	87	47	62.9
Nov.	56.9	90	28	55.7	54.7	84	29	52.6	62.4	96	35	
Dec.	49.6	78	25	50.3	48.4	78	19		56.4	79	39	54.2
Yearly	60.7	105	19	61.2	57.8	104	15		61.6	96	32	

Month	Potrero, California												
	1976			Average 1975- 1976									
	Mean	Max.	Min.										
Jan.	53.4	81	20	54.2									
Feb.	51.3	80	30	49.9									
Mar.	52.7	83	28	50.0									
Apr.	53.4	90	28	50.8									
May	63.7	99	31	61.2									
June	71.0	103	40	68.8									
July	74.7	103	47	74.9									
Aug.	72.1	104	46	73.8									
Sept.	69.0	96	44	71.9									
Oct.	64.8	94	39	63.2									
Nov.	59.4	87	36	58.2									
Dec.	52.8	78	30	52.1									
Yearly	61.5	104	20	60.8									

In Mexico

Month	La Rumorosa, Baja California				Tecate, Baja California				Tijuana, Baja California			
	1976		1946-1976		1976		1946-59 & 61-76		1976		1948-59 & 61-76	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	72	18	81	5	*	*	100	16	93	37	93	27
Feb.	70	30	82	10	*	*	100	18	86	46	102	32
Mar.	73	28	88	16	*	*	97	25	93	43	93	34
Apr.	81	30	91	23	*	*	100	28	82	43	97	34
May	90	39	97	28	*	*	100	36	77	50	97	43
June	100	41	113	34	*	*	104	32	100	54	100	41
July	100	54	104	39	*	*	115	36	93	57	120	46
Aug.	97	50	102	46	*	*	113	34	100	57	106	52
Sept.	90	46	104	34	*	*	115	36	93	57	120	46
Oct.	79	37	93	25	91	39	106	27	93	50	117	41
Nov.	73	30	88	14	91	41	97	27	95	41	108	34
Dec.	68	32	81	10	84	28	97	23	86	39	99	25
Yearly	100	18	113	5			115	16	100	37	120	25

* No record

DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG TIJUANA RIVER AND TRIBUTARIES

1976

The total area within Tijuana River basin is 1,731 square miles, as determined from the best available maps from both the United States and Mexico. The drainage areas shown below are tabulated according to their downstream sequence.

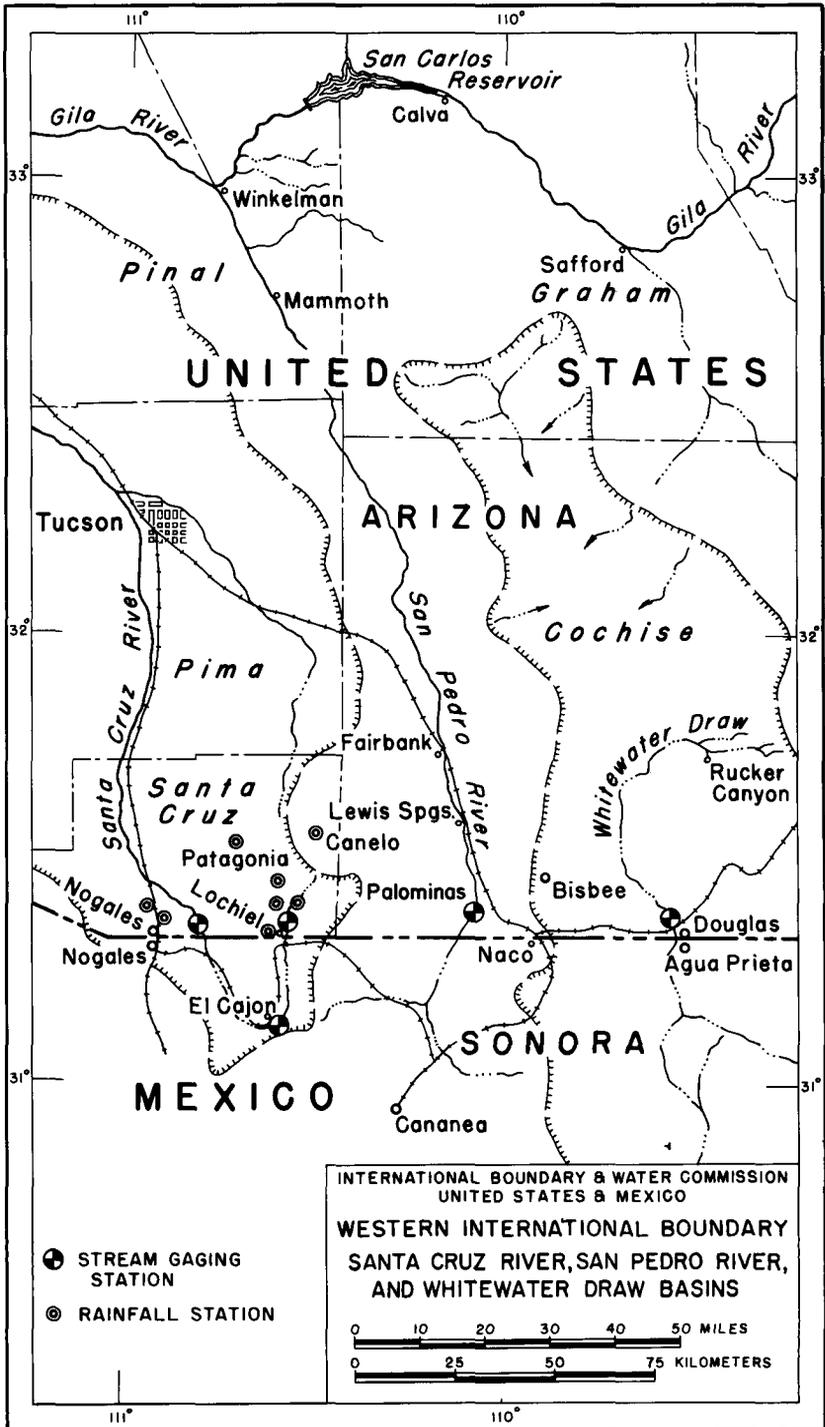
The irrigated areas, tabulated in downstream sequence, are from the most reliable sources available. Those in the United States were furnished by the United States Department of Agriculture and the State Engineer, State of California, or estimated from aerial photographs. Those in Mexico were furnished by the Ministry of Hydraulic Resources of Mexico through the Mexican Section of the Commission. All irrigation in the Tijuana basin in 1976 was by pumping from ground water.

Designation of Areas	Drainage Basin - Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Cottonwood Creek above Morena Dam	114	0	114	(a) 75	0	(a) 75
Morena Dam to Barrett Dam	133	0	133	0	0	0
above Barrett Dam	247	0	247	(a) 75	0	(a) 75
below Barrett Dam and above Tecate Creek	65	0	65	(a) 145	0	(a) 145
above Tecate Creek	312	0	312	(a) 220	0	(a) 220
Campo Creek above International Boundary	82	4	86	(a) 320	0	(a) 320
Tecate Creek above International Boundary (not including Campo Creek)	19	64	83	0	0	0
Cottonwood Creek above International Boundary Station	413	68	481	(a) 540	0	(a) 540
Rio de las Palmas above Rodriguez Dam	7	981	988	0	(b) 0	0
Tijuana River above Nestor Gaging Station	458	1,266	1,724			
above the Mouth	462	1,269	1,731	3,000	(c) 0	3,000

(a) Estimated. During extremely dry years these areas may be materially reduced.

(b) Areas in upper valleys may be irrigated by pumping from ground water.

(c) There was no irrigation in 1976 in the Tijuana Irrigation District, Tijuana Valley, Baja California, Mexico, from the Rodriguez Reservoir.



WHITEWATER DRAW NEAR DOUGLAS, ARIZONA

DESCRIPTION: Water-stage recorder located on U. S. Highway 80 bridge between Douglas and Bisbee, Arizona, about 450 feet (137 m) upstream from the Southern Pacific Railroad bridge, 1.5 miles (2.4 km) upstream from the international boundary, and 2 miles (3.2 km) west of Douglas, Arizona. Zero of gage is 3,909.14 feet (1,191.51 m) above mean sea level, U. S. C. & G. S. datum of 1929. Location April 26, 1972 to April 10, 1974 was 200 feet (61.0 m) upstream from bridge at datum 4.40 feet (1.34 m) higher.

RECORDS: Based on current meter measurements or observations of no flow during the year. Computations by shifting control methods. Records obtained and furnished by the U. S. Geological Survey. Records poor. Records available: August to October 1911 (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 1919 to April 1922 (gage heights and discharge measurements only), June 1930 to December 1933, May 1935 to July 1947, October 1947 through 1976 (July 1954 to March 1955 monthly discharge only).

REMARKS: Diversions above this station are mainly by pumping from ground water for irrigation. Records show flow at the international boundary into Mexico except for some smelter waste water entering the stream a short distance below this station.

EXTREMES: Prior to 1936: Maximum recorded discharge, 3,450 second-feet (97.7 m³/sec) August 10, 1931 (gage height 12.15 feet (3.70 m)); maximum estimated discharge, 4,050 second-feet (115 m³/sec) July 27, 1919; minimum discharge, no flow for several days of many years. Since 1936: Maximum discharge, 5,060 second-feet (143 m³/sec) August 7, 1955; maximum gage height 16.55 feet (5.04 m) July 29, 1966; minimum daily discharge, no flow at times during most years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1	0	0	0	0	0	0	31	3.2	1.3	0	0	0	
2	0	0	0	0	0	0	3.7	.13	.11	0	0	0	
3	0	0	0	0	0	0	.58	.09	.06	0	0	0	
4	0	0	0	0	0	0	.22	.07	.26	0	0	0	
5	0	0	0	0	0	0	.16	.06	18	0	0	0	
6	0	0	0	0	0	0	.14	.05	124	0	0	0	
7	0	0	0	0	0	0	.11	.05	7.3	0	0	0	
8	0	0	0	0	0	0	.08	.04	.16	0	0	0	
9	0	0	0	0	0	0	.05	.04	.08	0	0	0	
10	0	0	0	0	0	0	.03	.04	.06	0	0	0	
11	0	0	0	0	0	0	.02	.03	.04	0	0	0	
12	0	0	0	0	0	0	30	.03	.03	0	0	0	
13	0	0	0	0	0	0	6.2	25	.03	0	0	0	
14	0	0	0	0	0	0	.39	.55	.03	0	.19	0	
15	0	0	0	0	0	0	.22	.11	.02	0	.18	0	
16	0	0	0	0	0	0	11	.08	.01	0	.07	0	
17	0	0	0	0	0	0	6.3	.07	.01	0	.04	0	
18	0	0	0	0	0	0	55	9.3	.01	0	.01	0	
19	0	0	0	0	0	0	31	1.0	0	0	0	0	
20	0	0	0	0	0	0	8.4	.10	0	0	0	0	
21	0	0	0	0	0	0	.27	.07	0	0	0	0	
22	0	0	0	0	0	0	3.7	.06	0	0	0	0	
23	0	0	0	0	0	0	32	.05	0	0	0	0	
24	0	0	0	0	0	0	303	.03	0	0	0	0	
25	0	0	0	0	0	0	76	.02	0	0	0	0	
26	0	0	0	0	0	0	8.1	.01	0	0	0	0	
27	0	0	0	0	0	0	74	.01	0	0	0	0	
28	0	0	0	0	0	0	17	0	0	0	0	0	
29	0	0	0	0	0	2.1	.32	0	0	0	0	0	
30	0	0	0	0	0	.77	223	0	0	0	0	0	
31	0	0	0	0	0	0	31	12	0	0	0	0	
Sum	0	0	0	0	0	2.87	952.99	52.29	151.51	0	0.49	0	
Current Year 1976								Period 1936-1976					
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet					
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum		
Jan.				0		0	0	39.3	451	0			
Feb.				0		0	0	20.9	132	0			
Mar.				0		0	0	30.4	295	0			
Apr.				0		0	0	20.9	173	0			
May				0		0	0	15.2	138	0			
June	3.87		29	10	† 1	0	.10	5.7	132	2,590			
July	7.06		24	654	12	0	30.7	1,890	# 2,153	8,110			
Aug.	4.96		13	48	†27	0	1.69	104	# 3,232	14,480			
Sept.	6.26		6	279	†19	0	5.05	301	# 757	3,170			
Oct.				0		0	0	0	177	2,210			
Nov.	2.24		14	.42	† 1	0	.02	1.0	39.9	352			
Dec.				0		0	0	0	129	2,363			
Yearly	7.06		0		654		0		3.13	2,302	6,747	22,321	900
	Meters		Cubic Meters per Second			Thousands of Cubic Meters							
	2.15	0		18.5	0	0.09	2,839	8,322	27,533	1,110			

† And other days

1977 records not available

SEWAGE INFLUENT, DOUGLAS, ARIZONA INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Parshall flume in influent line to the international treatment plant, equipped with Simplex digital meter for measuring combined sewage flows from Douglas, Arizona and Agua Prieta, Sonora; and Parshall flume with recorder for measuring the sewage from Douglas. Flows from Agua Prieta are deduced from total flows and the city of Douglas flows; however, since April 8, 1968, all sewage flows from Agua Prieta have been diverted to new oxidation ponds located in Mexico, 1.6 miles (2.6 km) south of the international boundary.

RECORDS: Continuous monthly records since March 1948; daily records from March 18, 1948 through 1950 and from January 1952 through 1976.

REMARKS: The Douglas-Agua Prieta International Treatment Plant was constructed by the governments of the United States and Mexico in 1947 to correct a serious international sanitation problem. The plant is located in the United States adjacent to the international boundary about one mile (1.6 km) west of the Douglas-Agua Prieta Port of Entry. Prior to December 1970, the treatment of sewage was complemented by the use of old oxidation ponds in Mexico adjacent to the international boundary. Since December 1970, sewage effluent from the plant flows into Mexico and then across to the right bank of the Agua Prieta Arroyo, by means of a canal bridge, to be used for irrigation.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1976			Period 1952-1976		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	32.195	0	32.195	1.200	0.915	1.039	1.618	0.619	1.061
Feb.	31.050	0	31.050	1.210	.920	1.071	1.784	.584	1.066
Mar.	32.590	0	32.590	1.170	1.000	1.051	1.598	.590	1.068
Apr.	29.870	0	29.870	1.100	.910	.996	1.536	.619	1.066
May	33.901	0	33.901	1.420	1.000	1.094	1.595	.619	1.071
June	33.340	0	33.340	1.330	.930	1.111	1.784	.626	1.124
July	36.970	0	36.970	1.490	.940	1.193	3.209	.619	1.178
Aug.	36.160	0	36.160	1.390	.700	1.166	1.985	.619	1.197
Sept.	37.910	0	37.910	1.400	1.110	1.264	1.884	.626	1.166
Oct.	35.330	0	35.330	1.340	1.000	1.140	1.667	.626	1.110
Nov.	33.045	0	33.045	1.240	1.000	1.102	1.586	.619	1.083
Dec.	35.375	0	35.375	1.760	1.020	1.141	1.760	.619	1.081
Yearly	407.736	0	407.736	1.760	0.700	1.114	3.209	0.584	1.106

**SEWAGE INFLUENT, AGUA PRIETA, SONORA
INTERNATIONAL OXIDATION PONDS**

DESCRIPTION: Parshall flume equipped with staff gage in influent line to oxidation ponds. Since April 8, 1968, all sewage from Agua Prieta, Sonora has been diverted to oxidation ponds, which are located in Mexico; if necessary, sewage from Douglas, Arizona may be included, but this has never been done.

RECORDS: Discharges are computed from daily 11:00 a.m. readings of the staff gage by applying an index for that hour, determined from 7 days of hourly measurements from which the relationship between mean daily readings and 11:00 a.m. readings was developed. Records available: Mean daily flows from April 8, 1968 through 1976.

REMARKS: The construction of the international oxidation ponds in Agua Prieta, Sonora was completed in April 1968 by the government of Mexico, fulfilling an international agreement to solve the problem of insufficient capacity at the international treatment plant in Douglas, where the combined flows from Douglas and Agua Prieta were treated. If necessary, sewage from Agua Prieta may be treated in this plant, but since the completion of the oxidation ponds, this has never been done. The ponds are located 1.6 miles (2.6 km) south of international monument 85a.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1976			Period 1968-1976		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	15.237	15.237	0.589	0.394	0.491	0.640	0.394	0.490
Feb.	0	14.035	14.035	.589	.394	.484	.726	.394	.507
Mar.	0	14.195	14.195	.507	.394	.458	.666	.394	.482
Apr.	0	14.536	14.536	.630	.394	.484	.666	.394	.485
May	0	15.725	15.725	.630	.394	.507	.666	.394	.507
June	0	16.098	16.098	.630	.394	.537	.630	.394	.498
July	0	16.613	16.613	.630	.394	.536	.691	.259	.500
Aug.	0	16.645	16.645	.630	.394	.537	.967	0	.438
Sept.	0	15.801	15.801	.630	.394	.527	.630	0	.523
Oct.	0	15.969	15.969	.630	.394	.515	.630	0	.468
Nov.	0	14.204	14.204	.568	.394	.473	.717	.394	.502
Dec.	0	14.929	14.929	.568	.394	.482	.709	.394	.536
Yearly	0	183.986	183.986	0.630	0.394	0.503	0.967	0	0.495

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

DESCRIPTION: Water-stage recorder located near left bank on the downstream side of bridge pier on Highway 92, 0.7 mile (1.1 km) east of Palominas, 2.5 miles (4.0 km) upstream from Green Brush Draw, 4.5 miles (7.2 km) downstream from international boundary, and 12 miles (19 km) southwest of Bisbee, Arizona. Zero of gage is 4,187.62 feet (1,276.39 m) above mean sea level (State Highway bench mark).

RECORDS: Based on current meter measurements or observations of no flow during the year. Records available: May 1930 to October 1933, May 1935 to July 1941, and July 1950 through 1976. Records obtained and furnished by U. S. Geological Survey.

REMARKS: There are some small diversions for irrigation of a few hundred acres above this station, mostly in Mexico. Record shows approximate flow of river at international boundary.

EXTREMES: Maximum daily discharge, 22,000 second-feet (623 m³/s) on August 14, 1940 (gage height, 16.16 feet (4.93 m) present datum), from rating curve extended above 5,600 second-feet (159 m³/s) on basis of slope-area measurement of peak flow; no flow at times in most summers. Greatest flood known occurred on September 28, 1926 (gage height, about 23.9 feet (7.28 m) present datum, from flood marks; discharge not determined).

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	3.7	2.8	2.6	0.89	0.11	7.6	17	4.1	1.1	1.5	2.0
2	1.7	3.7	4.9	1.3	1.1	0	8.7	10	3.3	11.0	1.3	1.6
3	1.9	3.7	3.2	1.1	1.4	0	.08	7.1	32	12	1.2	2.5
4	4.2	4.0	2.3	.61	1.0	0	.12	6.2	70	4.5	1.2	3.3
5	5.7	5.4	2.2	.47	.88	.16	.22	5.7	115	3.4	1.2	3.9
6	2.6	15	2.8	.49	1.2	.28	.09	4.7	141	3.3	1.2	2.7
7	4.5	5.9	3.0	.42	1.2	.42	.33	3.7	13	3.2	1.2	2.5
8	2.7	4.4	1.4	.64	.95	.55	.47	95	7.1	1.4	1.5	2.9
9	2.9	4.7	1.4	.64	.93	.44	.32	322	5.6	.77	1.6	3.9
10	2.5	19	2.0	.47	.74	.50	8.6	48	5.0	.58	1.7	2.9
11	2.2	24	3.1	.82	.69	.42	.37	17	4.3	.58	1.7	3.4
12	2.4	6.8	3.2	.83	.36	.06	9.8	6.2	3.7	1.1	1.5	3.3
13	2.0	6.1	3.5	.91	.44	.04	18	184	3.1	1.7	7.0	2.7
14	1.2	5.1	1.7	.81	.79	.25	.06	8.3	2.6	2.4	6.2	2.0
15	1.2	4.2	1.4	1.5	.53	.19	.38	2.5	2.2	2.9	3.5	2.2
16	1.3	3.8	2.5	.58	.63	.42	.90	.80	1.9	2.7	3.2	2.2
17	1.6	3.7	4.1	.50	.65	.44	11.0	.28	1.8	1.8	3.0	2.3
18	1.6	3.5	3.3	.78	.33	.33	100	.12	1.7	.70	3.1	2.6
19	1.3	3.4	3.3	.80	.43	.22	.74	.08	1.6	.52	3.1	2.7
20	1.8	3.2	2.0	1.5	.66	.16	180	13	1.5	.41	3.0	2.8
21	2.6	3.1	1.7	1.2	.74	.03	307	2.6	1.5	.50	3.0	2.9
22	3.3	3.0	1.7	.88	.55	.18	749	.75	1.4	.60	3.0	2.9
23	4.1	3.1	1.9	.51	.21	.15	261	.60	15	.70	3.2	3.0
24	4.0	3.2	1.4	.18	.20	0	665	187	.86	.80	3.2	3.1
25	3.7	3.2	1.5	.03	.15	0	258	105	52	.90	3.2	3.3
26	3.5	3.1	1.2	.66	.16	0	187	5.1	6.2	1.0	3.1	3.5
27	3.3	3.1	1.2	.84	.22	0	1,470	2.9	3.5	1.3	2.7	4.1
28	3.4	3.1	2.0	.40	.47	0	482	4.4	2.3	1.3	2.6	5.0
29	3.6	3.0	1.8	1.0	.30	246	302	7.5	1.5	1.5	2.7	4.5
30	3.7		2.2	1.6	.30	38	87	1.7	1.4	1.5	3.7	3.6
31	3.7		1.4		.50		32	3.1		1.6		3.6
Sum	85.6	161.2	72.1	25.07	19.60	289.35	5,246.78	1,072.33	506.16	166.76	79.3	93.9
Current Year 1976								Period 1951-1976				
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum	
Jan.	4.14	3.67	5	13	17	0.90	2.76	170	587	7,813	2.6	
Feb.	4.72	3.33	10	83	29	2.8	5.56	320	424	2,767	3.0	
Mar.	4.01	3.63	2	7.9	26	.65	2.33	143	348	2,512	13.3	
Apr.	3.91		1	3.6	†24	0	.84	49.7		373	0	
May	3.90		3	2.2	†13	0	.63	38.9	90.9	183	0	
June	6.81		29	1,120	†1	0	9.65	574	29.6	1,391	0	
July	10.18	3.39	27	5,000	†14	.02	169	10,407	6,564	17,238	184	
Aug.	8.09	3.43	8	2,340	19	.07	34.6	2,127	9,616	36,359	165	
Sept.	6.20	3.45	4	794	24	.36	16.9	1,004	1,815	16,344	11.3	
Oct.	5.91	3.40	2	602	10	.22	5.38	331	250	2,166	0	
Nov.	4.29	3.69	13	23	†4	1.1	2.64	157	143	609	0	
Dec.	4.00	3.74	28	6.7	2	1.3	3.03	186	748	10,959	6.2	
Yearly	10.18		5,000		0		21.1	15,508	20,786	55,354	4,400	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	3.10		142		0		0.60	19,129	25,640	68,291	5,427	

† And other days

SANTA CRUZ RIVER NEAR LOCHIEL, ARIZONA

DESCRIPTION: Water-stage recorder located in the United States near left bank on the downstream side of concrete bridge pier of county highway bridge, 2.5 miles (4.0 km) northeast of Lochiel, Arizona, and 1.7 miles (2.7 km) upstream from the international land boundary. The elevation of the zero of the gage has not been determined but topographic maps indicate the elevation of the stream bed at the gage is about 4,620 feet (1,408 m).

RECORDS: Based on current meter measurements or observations of no flow during the year. Records obtained and furnished by the U. S. Geological Survey. Records available: January 1949 through 1976.

REMARKS: There are small diversions by ground water pumping for irrigating about 200 acres (80.9 ha) above this station.

EXTREMES: Maximum discharge, 4,810 second-feet (136 m³/s) on September 12, 1965 (gage height 8.90 feet) (2.71 m); minimum discharge, no flow for several days of each year.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.45	0.33	0.35	0.47	0.30	0.10	0	8.0	2.4	0.94	0.56	0.56
2	.38	.38	.36	.47	.28	.10	0	7.0	2.3	1.1	.60	.60
3	.38	.38	.38	.43	.25	.10	0	6.0	2.3	.89	.60	.61
4	.35	.41	.40	.45	.25	.10	0	5.2	1.3	.84	.60	.60
5	.35	.52	.36	.40	.26	.10	0	5.1	4.4	.82	.59	.61
6	.35	.45	.35	.38	.24	.10	0	5.3	2.8	.82	.56	.60
7	.35	.38	.37	.35	.23	.10	0	5.5	3.5	.82	.56	.60
8	.38	.38	.39	.31	.20	.10	0	5.5	2.4	.81	.56	.60
9	.38	.59	.41	.31	.17	0	0	5.6	2.2	.82	.56	.60
10	.38	.47	.42	.25	.14	0	0	5.2	2.1	.82	.56	.60
11	.38	.46	.40	.21	.12	0	0	5.2	2.0	.82	.56	.60
12	.38	.42	.37	.20	.09	0	0	5.1	1.8	.81	.58	.60
13	.38	.42	.37	.19	.06	0	0	5.0	1.7	.80	.65	.60
14	.38	.40	.37	.20	.06	0	.01	4.9	1.6	.79	.56	.60
15	.35	.35	.37	.25	.05	0	.01	4.7	1.5	.77	.56	.60
16	.35	.34	.37	.51	.07	0	.02	4.5	1.4	.74	.60	.60
17	.38	.35	.37	.52	.11	0	10	4.5	1.4	.73	.60	.60
18	.38	.36	.36	.42	.17	0	.71	4.4	1.3	.71	.60	.60
19	.38	.36	.33	.38	.22	0	.13	4.1	1.2	.70	.60	.60
20	.38	.38	.31	.40	.20	0	1.5	3.9	1.2	.71	.60	.61
21	.38	.37	.32	.42	.13	0	330	3.8	1.1	.72	.60	.60
22	.41	.35	.31	.39	.06	0	463	5.0	1.1	.72	.60	.60
23	.41	.34	.32	.38	.03	0	183	3.9	.98	.69	.60	.60
24	.38	.33	.33	.37	.04	0	136	3.3	1.2	.69	.60	.61
25	.38	.34	.33	.33	.10	0	58	3.4	1.1	.69	.60	.60
26	.35	.35	.34	.34	.10	0	28	2.9	.93	.65	.60	.60
27	.35	.33	.37	.34	.10	0	307	2.7	.85	.60	.60	.61
28	.35	.34	.39	.34	.10	0	159	2.6	.86	.60	.58	.61
29	.35	.34	.40	.33	.10	0	53	2.4	.86	.58	.58	.64
30	.35		.40	.32	.10	0	15	2.4	.85	.59	.56	.63
31	.35		.45		.10		10	2.4		.57		.60
Sum	11.55	11.22	11.37	10.66	4.43	0.80	1,754.38	139.5	62.33	23.36	17.58	18.69
Current Year 1976									Period 1949-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	3.22	3.16	1	0.48	†21	0.30	0.37	22.9	44.2	226	1.3	
Feb.	3.34	3.16	9	1.2	†24	.30	.39	22.3	37.7	261	1.8	
Mar.	3.25	3.17	3	.56	†20	.25	.37	22.6	33.7	250	.7	
Apr.	3.27	3.07	16	.76	13	.14	.36	21.1	19.7	148	0	
May	3.15	3.04	1	.32	†23	.01	.14	8.8	8.9	49.5	0	
June	3.15		2	.16	†9	0	.03	1.6	8.9	169	0	
July	9.39		33	3,540	†1	0	56.6	3,480	597	4,270	1.6	
Aug.	4.49	1.61	4	480	†29	2.3	4.50	277	972	10,120	.08	
Sept.	3.27	1.66	4	146	30	.78	2.08	124	301	2,634	0	
Oct.	1.76	1.61	2	1.4	27	.61	.75	46.3	80.6	448	0	
Nov.	1.67	1.58	13	.87	5	.48	.59	34.9	40.8	182	0	
Dec.	1.60	1.59	†3	.65	†14	.57	.60	37.1	64.8	693	0	
	9.39			3,540		0	5.56	4,099	2,209	12,633	126	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	2.86			100		0	0.16	5,056	2,725	15,583	155	

† And other days

SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

DESCRIPTION: Water-stage recorder, cable with sit-down cable car located 5.5 miles (8.9 km) east of Nogales, Arizona, 0.8 mile (1.3 km) downstream from the international boundary and 6 miles (9.7 km) upstream from the Santa Cruz bridge on State Highway No. 82. Zero of gage is 3,702.54 feet (1,128.53 m) above sea level, U. S. C. & G. S. datum (levels by International Boundary and Water Commission).

RECORDS: Based on current meter measurements or observation of no flow during the year. Records obtained and furnished by the U. S. Geological Survey. 1976 records fair. Records available: 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 discharges only); May 1930 to December 1933; and July 1935 through 1976.

REMARKS: Diversions in both countries affect the flow at this station. The major diversions occur in Mexico for domestic and irrigation uses. There are no storage dams above the station as of December 1976.

EXTREMES: Maximum discharge, 17,100 second-feet (484 m³/s) on August 1, 1974 (gage height 12.94 feet)(3.94 m); minimum discharge, no flow for several days of many years.

Mean Daily Discharge in Second-Feet 1976 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	1.4	8.5	3.0	0.40	0	0	39	2.0	0.90	0	0
2	1.3	1.4	7.7	2.6	.30	0	0	25	1.0	.70	0	0
3	1.8	1.4	7.0	2.3	.30	0	0	16	1.0	.40	0	0
4	2.2	1.8	8.5	2.3	.20	0	0	11	1.0	.40	0	0
5	2.2	2.8	7.0	2.2	.20	0	0	9.0	6.5	.40	0	0
6	2.1	3.5	7.0	2.1	.20	0	0	7.7	7.0	.20	0	0
7	2.0	3.5	7.0	2.0	.20	0	0	5.1	4.0	0	0	0
8	1.8	2.6	6.7	1.8	.20	0	0	131	3.0	0	0	0
9	1.7	3.3	6.7	1.6	.20	0	0	145	2.0	0	0	0
10	1.6	273.	6.7	1.2	.10	0	0	58	1.0	0	0	0
11	1.6	42	6.7	1.1	0	0	0	10	1.0	0	0	0
12	1.6	20	6.7	1.0	.10	0	27	11	1.0	0	0	0
13	1.6	15	6.4	.80	.20	0	0	8.0	1.0	0	0	0
14	1.4	12	6.4	.70	.20	0	0	6.7	1.0	0	0	0
15	1.3	10	6.1	1.0	.20	0	0	5.8	1.0	0	0	0
16	1.1	10	6.1	2.0	.20	0	.70	4.8	1.0	0	0	0
17	1.1	10	6.1	2.6	.20	0	51	4.1	1.0	0	0	0
18	1.1	10	6.1	2.0	.20	0	0	2.6	1.0	0	0	0
19	1.1	9.5	6.1	1.7	.20	0	0	3.9	1.0	0	0	0
20	1.1	8.5	6.1	1.3	.20	0	0	4.6	1.0	0	0	0
21	1.1	8.5	5.8	1.0	.20	0	12	3.7	1.0	0	0	0
22	1.4	8.5	5.8	.70	.20	0	1,100	4.6	9.3	0	0	0
23	1.7	9.5	5.4	.60	.20	0	631	16	8.8	0	0	0
24	1.7	10	5.4	.60	.20	0	82	27	15	0	0	0
25	1.4	10	5.4	.60	.20	0	998	73	10	0	0	0
26	1.4	10	4.8	.60	.20	0	12	45	5.1	0	0	.20
27	1.3	10	4.6	.50	.20	0	892	14	2.5	0	0	.50
28	1.3	9.5	4.4	.40	.20	0	1,300	18	1.4	0	0	.80
29	1.3	9.0	3.9	.40	.10	0	651	10	1.1	0	0	1.0
30	1.3		3.5	.40	0	0	268	5.0	.70	0	0	1.1
31	1.3		3.5		0	0	79	3.0		0	0	1.0
Sum	46.3	526.7	188.1	41.10	5.70	0	6,103.70	727.6	93.40	3.00	0	4.60
Current Year 1976									Period 1936-1976			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low	Acre-Feet	Average	Maximum	Minimum		
Jan.	2.98	2.84	4	2.8	116	1.1	1.49	91.8	1,094	16,710	0	
Feb.	4.86	2.88	10	644	1	1.4	18.2	1,045	918	11,129	0	
Mar.	3.45	3.24	1	8.5	31	3.0	6.07	373	873	12,454	0	
Apr.	3.40	3.17	116	4.1	30	.40	1.37	31.5	230	1,308	0	
May	3.16		1	.40	111	0	.18	11.3	65.7	338	0	
June				0	0	0	0	0	61.7	1,020	0	
July	8.70		22	6,700	1	0	197	12,107	2,957	15,610	45	
Aug.	6.25		8	2,350	18	2.6	23.5	1,443	6,018	45,790	91	
Sept.	5.08	3.83	22	486	30	.60	3.11	185	1,369	7,507	0	
Oct.	3.88		1	1.1	7	0	.10	6.0	358	2,610	0	
Nov.				0	0	0	0	0	271	1,213	0	
Dec.	3.89		27	1.1	1	0	.15	9.1	1,678	23,559	0	
	3.70			6,700		0	20.9	15,353	15,893	57,671	3,499	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	2.65			190		0	0.592	13.933	16,604	71.137	4,316	

† And other days:

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Three 24-inch (61.0 cm) Parshall flumes, each with a recording flow meter and continuous totalizer, one located at the international boundary for measuring effluent from Nogales, Sonora, one located in the influent line to the treatment plant and one on the plant effluent line. Nogales International Treatment Plant is located approximately 6 miles (9.7 km) north of the international boundary.

RECORDS: Flows from the United States are deduced from total plant influent less the flows measured crossing the international boundary from Mexico. Records available: Continuous monthly record for plant influent since August 1951, daily records for plant influent, January 1952 through 1976.

REMARKS: Prior to December 18, 1971 the plant was located along the right bank of Nogales Wash, approximately two miles (3.2 km) north of the international boundary. Nogales International Treatment Plant treats combined sewage from Nogales, Arizona and Nogales, Sonora by means of aerated stabilization lagoons. Chlorination of plant effluent, which may be used for irrigation of lands lying north of the plant, is carried out by the United States at its expense.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1976			Period 1952-1976		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	62.570	57.085	119.655	4.264	3.334	3.860	* 4.800	0.650	2.516
Feb.	46.056	67.238	113.294	4.950	3.369	3.907	* 6.130	.650	2.566
Mar.	41.845	75.195	117.040	4.088	3.438	3.775	5.342	.750	2.500
Apr.	40.287	76.299	116.586	4.775	3.449	3.886	4.775	.700	2.466
May	36.777	77.934	114.711	4.156	3.139	3.700	4.697	.550	2.383
June	34.577	68.888	103.465	3.740	2.851	3.449	4.055	.700	2.242
July	60.994	65.672	126.666	4.764	3.441	4.086	4.764	.700	2.319
Aug.	72.056	63.599	135.655	4.849	4.015	4.376	4.928	.750	2.604
Sept.	71.174	62.445	133.619	5.434	3.764	4.454	5.434	.800	2.893
Oct.	66.274	63.422	129.696	4.613	3.954	4.184	4.613	.700	2.740
Nov.	65.583	67.343	132.926	4.830	4.023	4.431	5.079	.800	2.577
Dec.	68.407	66.862	135.269	4.600	3.957	4.364	* 5.200	.350	2.585
Yearly	666.600	811.982	1,478.582	5.434	2.851	4.039	* 6.130	0.350	2.533

* Partly estimated

RAINFALL ON THE SANTA CRUZ RIVER WATERSHED IN INCHES

Tabulated below are the monthly records of rainfall with averages for their periods of record at stations located in Arizona and one in Sonora, Mexico. Three stations are operated and maintained by the United States Section of the Commission, three by the National Weather Service and one by the Mexican Section of the Commission. For location, elevation, period of record, type of gage in use, and the observer, see alphabetical listing of stations on page 92.

In United States

Month	† San Rafael #1, Arizona		San Rafael #2, Arizona		Canelo, Arizona		Patagonia, Arizona		Nogales, Arizona	
	1976	Average 1952-1976	1976	Average 1973-1976	1976	Average 1930-1976	1976	Average 1930-1976	1976	Average 1914-1976
Jan.	0.42	0.79	0.38	1.08	0.39	1.06	0.34	1.14	0.26	1.00
Feb.	1.52	.55	2.07	1.16	1.66	1.05	1.98	1.02	1.96	.84
Mar.	.30	.82	.32	.82	.39	.78	.40	.85	.20	.76
Apr.	.70	.24	1.20	.58	1.03	.37	1.24	.35	.91	.30
May	0	.08	.12	.03	.06	.13	.19	.16	.41	.14
June	.12	.59	.29	.50	.15	.82	.10	.51	.11	.45
July	8.76	4.88	10.27	6.66	5.41	4.36	7.60	4.56	6.54	4.29
Aug.	.78	4.24	2.42	2.16	2.19	4.31	1.41	4.09	2.46	3.88
Sept.	1.81	1.64	1.41	2.68	1.78	1.74	2.19	1.86	2.36	1.65
Oct.	*	*	*	*	.81	.89	.97	.89	.81	.77
Nov.	*	*	*	*	.76	.74	.63	.78	.56	.69
Dec.	*	*	*	*	.25	1.32	.18	1.34	.40	1.25
Yearly					14.88	17.57	17.23	17.55	16.98	16.02

Month	Nogales Sanitation Plant 6N, Arizona									
	1976	Average 1953-1976								
Jan.	0.20	0.84								
Feb.	1.26	.66								
Mar.	.31	.75								
Apr.	1.07	.18								
May	.72	.11								
June	.27	.40								
July	7.17	4.94								
Aug.	1.01	3.80								
Sept.	2.71	1.61								
Oct.	.51	.96								
Nov.	.40	.58								
Dec.	.36	1.20								
Yearly	15.99	16.03								

In Mexico

Month	San Lazaro, Sonora									
	1976	Average 1961-1976								
Jan.	0.31	0.67								
Feb.	1.97	.67								
Mar.	.16	.67								
Apr.	.63	.43								
May	.24	.12								
June	.24	.47								
July	4.65	4.57								
Aug.	2.56	3.15								
Sept.	1.97	1.65								
Oct.	.39	.83								
Nov.	.39	.63								
Dec.	.31	1.18								
Yearly	13.82	13.66								

* Data not available

† Formerly Meigs Ranch

LOCATION OF RAINFALL STATIONS ON THE SANTA CRUZ WATERSHED

The precipitation records of the stations listed alphabetically below begin on the date shown and extend through 1976.

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
Canelo, Arizona	S	31° 33'	110° 32'	4,985	1930	R. E. Ewing
Nogales, Arizona	R	31° 21'	110° 55'	3,808	1914	Milford L. Noon
Nogales Sanitation Plant 6N, Arizona	S	31° 25'	110° 57'	3,560	June 1952	I. B. & W. C.
Patagonia, Arizona	S	31° 33'	110° 45'	4,044	1930	O. J. Rothrock
San Rafael #1, Arizona	S	31° 26'	110° 36'	4,836	Mar. 1952	I. B. & W. C.
San Rafael #2, Arizona	S	31° 22'	110° 38'	4,860	Jan. 1975	I. B. & W. C.

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
San Lazaro, Sonora	S	*	*	4,199	March 1954	I. B. & W. C. Mexican Section

S Standard 8" rain gage

R Recording rain gage

* Unavailable

TEMPERATURE, HUMIDITY, EVAPORATION AND WIND IN THE SANTA CRUZ RIVER BASIN

Tabulated below are monthly records of temperature, humidity, evaporation and wind at the station located at the Nogales Sanitation Plant in Arizona six miles (9.7 km) north of the international boundary. December 18, 1971 the station was moved to correspond with a new Nogales Sanitation Plant. Prior to this date, the station was located 2 miles (3.2 km) north of the international boundary, at the old Nogales Sanitation Plant. This station is operated and maintained by the United States Section of the Commission. Also tabulated below are the monthly records of temperature and evaporation for a station at San Lazaro, Sonora, located approximately 6.5 miles (10.5 km) southwest of Santa Cruz, Sonora, and approximately 22 miles (35 km) southeast of Nogales, Sonora. This station is operated and maintained by the Mexican Section of the Commission. The equipment at the Nogales Sanitation Plant - 6N consists of: Standard 8-inch (203 mm) rain gage, 48-inch (1,219 mm) evaporation pan with stillwell and hook gage, maximum and minimum thermometer, anemometer (registers miles), hygrothermograph, and psychrometer, hand turbine type. The equipment at the station at San Lazaro, Sonora, consists of: Maximum and minimum thermometer, standard 8-inch (203 mm) rain gage and a 48-inch (1,219 mm) diameter evaporation pan.

For specific location of these two stations, refer to data opposite same station name shown in "Location of Rainfall Stations", page 92 of this bulletin.

In United States

Temperature - Degrees Fahrenheit

Month	Nogales Sanitation Plant - 6N		
	1976		
	Mean	Max. #	Min. #
Jan.	46.8	78	14
Feb.	51.1	82	22
Mar.	51.9	87	24
Apr.	57.1	86	25
May	65.9	96	38
June	74.4	104	42
July	* 76.8	103	55
Aug.	72.0	101	35
Sept.	69.4	96	43
Oct.	58.5	91	23
Nov.	51.1	81	15
Dec.	42.9	74	11
Yearly	59.8	104	11

Mean Relative Humidity-Percent

Month	Nogales Sanitation Plant - 6N	
	1976	
	Max.	Min.
Jan.	100	15
Feb.	93	32
Mar.	100	31
Apr.	85	0
May	90	19
June	100	18
July	95	18
Aug.	90	52
Sept.	100	51
Oct.	100	34
Nov.	88	26
Dec.	100	24
Yearly	100	0

Evaporation - Inches

Month	Nogales Sanitation Plant - 6N	
	1976	Average 1953-1976
	Jan.	** 3.64
Feb.	† 4.34	4.61
Mar.	† 8.32	7.36
Apr.	† 9.83	9.66
May	† 11.67	12.47
June	† 14.67	13.89
July	† 9.60	10.32
Aug.	† 11.67	8.25
Sept.	† 6.73	8.02
Oct.	† 5.15	6.99
Nov.	† 5.35	4.55
Dec.	† 4.33	3.31
Yearly	95.30	92.97

Mean Wind Speed - Miles per Hour

Month	Nogales Sanitation Plant - 6N	
	1976	Average 1953-1976
	Jan.	1.9
Feb.	2.4	2.3
Mar.	2.7	2.6
Apr.	3.0	2.6
May	2.7	2.5
June	2.6	2.4
July	2.1	1.6
Aug.	1.8	1.1
Sept.	1.8	1.2
Oct.	2.1	1.6
Nov.	2.5	1.6
Dec.	1.9	1.8
Yearly	2.3	1.9

In Mexico

Temperature - Degrees Fahrenheit

Month	San Lazaro, Sonora			
	1976		1961-1976	
	Max.	Min.	Max.	Min.
Jan.	77	19	93	10
Feb.	81	30	88	16
Mar.	81	23	99	19
Apr.	84	18	106	18
May	93	36	117	28
June	102	39	124	39
July	100	57	126	50
Aug.	97	55	117	52
Sept.	95	48	115	39
Oct.	84	32	111	32
Nov.	86	23	102	21
Dec.	68	21	95	10
Yearly	102	18	126	10

Evaporation - Inches

Month	San Lazaro, Sonora	
	1976	Average 1961-1976
	Jan.	3.94
Feb.	5.04	4.57
Mar.	7.56	7.09
Apr.	9.53	9.72
May	11.34	11.93
June	13.31	12.60
July	8.54	8.39
Aug.	8.43	7.40
Sept.	7.87	7.32
Oct.	6.02	6.97
Nov.	4.76	4.65
Dec.	3.82	3.58
Yearly	91.06	88.70

* One or more days missing

** Ten-year average

† Adjusted to full month

See "Corrections to Previous Water Bulletins," page 95 this bulletin, for corrected maximums and minimums for 1972, 1973 and 1974

**DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG
SANTA CRUZ RIVER, SAN PEDRO RIVER, AND WHITEWATER DRAW**

1976

The drainage basin areas tabulated below are derived from the best available maps from both the United States and Mexico.

Data on irrigated areas in the Whitewater Draw Basin were furnished by the Soil Conservation Service at Douglas, Arizona.

Designation of Areas	Drainage Basin - Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Santa Cruz River:						
Above Lochiel, Arizona Gaging Station	82	0	82	200	0	200
Above El Cajon, Mexico Gaging Station	179	125	304	200	2,352	2,552
Above Nogales, Arizona Gaging Station	185	348	533	200	2,696	2,896
San Pedro River:						
Above Palominas, Arizona Gaging Station	92	649 *	741	413	3,459	3,872
Whitewater Draw:						
Above Douglas, Arizona Gaging Station	1,023	0	1,023	35,000	0	35,000

* An additional 47 square miles in Mexico is tributary to the San Pedro River downstream from this station

CORRECTIONS TO PREVIOUS WATER BULLETINS

TEMPERATURE, HUMIDITY, EVAPORATION AND WIND IN THE SANTA CRUZ RIVER BASIN

Temperature for Nogales Sanitation Plant-6N -- In Water Bulletins for 1972 (page 96), 1973 (page 95), and 1974 (page 94), figures listed under columns headed Max. and Min. have been corrected. Shown below are figures as published and as corrected:

Month	AS PUBLISHED						AS CORRECTED					
	1972		1973		1974		1972		1973		1974	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	64	24	59.2	23.3	63.4	27.9	75	16	77	13	81	19
Feb.	69	28	63.8	30.7	67.5	28.1	85	18	77	21	84	12
Mar.	80	38	61.9	32.2	74.1	37.7	89	21	75	24	87	13
Apr.	82	38	73.4	39.3	80.6	49.6	94	27	91	24	88	32
May	87	44	87.1	44.5	87.0	52.3	95	36	98	32	102	29
June	93	56	95.4	51.1	100.0	63.0	104	48	108	41	106	52
July	96	63	96.0	57.8	93.0	64.5	105	54	106	44	104	56
Aug.	93	66	96.1	58.2	93.2	61.0	103	51	102	52	100	52
Sept.	92	59	94.2	50.9	88.6	55.5	101	43	102	37	101	48
Oct.	79	54	84.5	51.2	46.4	63.2	98	35	94	34	101	28
Nov.	66	35	73.8	34.6	70.6	30.5	79	19	89	21	81	19
Dec.	63	30	67.5	26.4	61.1	19.1	76	15	80	10	73	5
Yearly	96	24	96.1	23.3	100.0	19.1	105	15	108	10	106	5

Evaporation for Nogales Sanitation Plant-6N -- In Water Bulletins for 1973 (page 95) and 1974 (page 94), figures for March, December, and Yearly listed under columns headed Average, 1953-1973 and Average, 1953-1974 have been corrected. Shown below are figures as published and as corrected:

Month	AS PUBLISHED		AS CORRECTED	
	Average	Average	Average	Average
	1953-1973	1953-1974	1953-1973	1953-1974
Mar.	6.97	7.04	7.32	7.38
Dec.	3.12	3.13	3.28	3.28
Yearly	91.70	92.20	92.21	92.69