INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

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Yuma, Arizona
JOSEPH F. BURKHOLDER, *Resident Engineer*
San Diego, California

MEXICAN SECTION

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EDUARDO ARGUELLES C., *Resident Engineer*
Mexicali, Baja California

WESTERN WATER BULLETIN 1973

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

1973

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FOREWORD

This bulletin is the fourteenth 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 Tjuana 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 1973.

Stream gaging on the Colorado River below Imperial Dam began in 1902 when the station at Yuma, Arizona was established. Stage records have been obtained at this station since January 1878. 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 1973.

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; 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:

METRIC UNITS		ENGLISH UNITS
	LENGTHS	
1 Centimeter		0.393701 Inch
1 Meter		3.28084 Feet
1 Kilometer		0.621371 Mile
	AREAS	
1 Square Meter		10.76391 Square Feet
1 Hectare		2.471054 Acres
1 Square Kilometer		0.386102 Square Mile
	VOLUMES	
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
	WEIGHTS	
1 Kilogram		2.204623 Pounds
1 Metric Ton		2204.623 Pounds
1 Metric Ton		1.102311 Short Tons (2000 lbs.)

GENERAL HYDROLOGIC CONDITIONS FOR 1973

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 1973. The average seasonal (October 1972-September 1973) rainfall over the upper basin, as gaged at 13 index stations, was about 16.9 inches compared to a seasonal average of about 13.8 inches for the 51 seasons (1923-1973). In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation (1973) measured at 6 index stations was 2.05 inches compared to an average of 2.56 inches during the last 15 years (1959-1973).

The flow of the Colorado River reaching Imperial Dam was 5,871,300 acre-feet, about 71% of the 39-year average (1935-1973) of 8,213,303 acre-feet. At the northerly international boundary, the total flow of the river during 1973 was 1,281,064 acre-feet, about 34% of the 1935-1973 average of 3,727,765 acre-feet. At the southerly international boundary, the flow during 1973 was only 162,074 acre-feet, or about 6% of the 1935-1973 average of 2,899,922 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 76,657 acre-feet in 1973, about 7% of the 1951-1973 average of 1,106,981 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1973 amounted to 1,625,152 acre-feet, 37% of the 1935-1973 average of 4,345,994 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 1973. A maximum instantaneous flow of 3,930 second-feet occurred in the Colorado River at the northerly boundary station on March 15.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 21,851,500 acre-feet, 76% of the usable capacity of 28,588,400 acre-feet. The greater part (19,737,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1973 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1973 was 1,087,593 acres; 667,380 acres in the United States and 420,213 acres in Mexico. An estimated 40% of acreage in Mexico is served by pumping from ground water.

The suspended sediment load passing the northerly boundary station in 1973 was 73.0 acre-feet, about 28% of the 1956-1973 average of 263 acre-feet.

Tijuana River Basin

During 1973, the temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 59.7 degrees, 1.6 degrees below the 43-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, 1.8 degrees below the long-term average, and at Rodriguez Dam, Baja California (elevation 459 feet), the recorded temperatures averaged 63 degrees, equal to the mean of many years.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 15.60 inches, 90% of normal, and at Chula Vista near the lower end of the basin, 8.09 inches, or 86% of normal. The recorded precipitation at San Juan de Dios in the upper portion of the basin in Mexico, was 13.54 inches, approximately 94% of the normal during the 18-year period, and at Rodriguez Dam in the lower portion of the basin in Mexico, 10.20 inches, 128% of the 36-year average.

Runoff in the basin during 1973 averaged less than 27% of normal. Above Morena Reservoir the runoff was 2,004 acre-feet, or about 35% of the 37-year 1937-1973 mean of 5,667 acre-feet. At Rodriguez Reservoir, the runoff was 2,981 acre-feet, or about 23% of the 36-year mean of 13,185 acre-feet.

The flow of the Tijuana River at the international boundary was 1,250 acre-feet during 1973, and the flow in the Tijuana River near Nestor was 66.4 acre-feet.

Whitewater Draw

During 1973, the average annual temperature over the watershed was slightly below normal, while the annual precipitation was below normal. Runoff for the year at the gaging station near Douglas, Arizona, of 987 acre-feet was about 14% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1973

San Pedro River

During 1973, the average annual temperature was below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 85% of the 1961-1973 mean of 19.69 inches. The stream flow at the international boundary was 7,638 acre-feet, 36% of the 1951-1973 normal.

Santa Cruz River

During 1973, the average annual temperature over the watershed was about normal and the annual precipitation was about 79% of the 35-year 1939-1973 mean. Runoff measured at the Nogales gaging station where the stream re-enters the United States was 19,299 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 560 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 18,739 acre-feet from the loop of the river lying in Mexico, or approximately 97% of the flow reaching the Nogales station.

Alamo and New Rivers

During 1973 the average annual temperature over the drainage area of the Alamo River, as recorded at El Centro, California, was 71.7 degrees, 0.6 degree below normal; and over the drainage area of the New River, as recorded at Mexicali, Baja California, it was 72.0 degrees, equal to the 48-year average.

At El Centro, the precipitation was 0.57 inch, about 23% of the 43-year average, and in Mexicali, the annual precipitation was 1.77 inches, 60% of the 48-year average. The total flow of the New River at the international boundary in 1973 was 117,158 acre-feet, which was about 152% of the 1943-1973 normal.

Salton Sea

During 1973, 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 72% of the long-term mean of 2.31 inches. The water surface of the Salton Sea remained more or less the same during the year. The maximum stage, 231.1 feet below mean sea level, was recorded April 27 to June 9, inclusive. The minimum stage, 232.1 feet below mean sea level, was recorded January 1-8 and September 23-30, inclusive.

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

DESCRIPTION: Delivery water is measured at a metering station located adjacent to the international boundary near Tijuana, and approximately 2.5 miles east of International Boundary Monument #253. The metering station consists of two venturi tubes, 20 inches and 18 inches, 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 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 of 24-inch 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 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.2	13.3	1.5	12.4	13.3	13.2	16.9	16.6	16.2	13.9	13.9	13.5
2	11.0	13.3	3.3	12.4	13.2	13.2	16.6	16.2	15.4	13.8	14.0	13.7
3	11.0	13.2	3.3	12.4	13.2	13.3	16.4	5.7	15.4	13.8	8.7	13.6
4	11.0	13.1	3.4	11.8	13.2	16.2	16.7	10.5	13.1	13.7	10.4	13.5
5	12.4	13.0	7.4	11.6	13.2	17.3	16.4	17.1	11.0	13.6	13.2	13.6
6	13.3	13.0	12.6	11.5	13.1	17.1	16.6	17.7	10.9	13.9	13.2	13.6
7	13.3	13.0	12.5	11.4	13.2	17.3	16.6	17.6	10.9	14.2	13.3	13.4
8	13.3	12.9	12.4	11.4	13.3	17.1	16.8	17.1	11.0	14.0	13.3	13.3
9	13.3	13.0	12.4	12.3	13.3	17.1	16.7	10.0	11.1	13.9	13.3	13.7
10	13.2	12.9	12.4	13.3	13.3	17.3	16.5	9.0	11.0	14.0	13.5	13.3
11	13.2	12.9	12.6	13.2	13.3	17.0	16.6	17.6	10.9	13.9	13.7	13.4
12	13.1	12.9	12.4	13.3	13.2	17.1	16.6	15.2	10.7	13.9	13.3	13.4
13	13.6	12.9	12.5	13.5	13.4	17.1	16.6	16.3	10.9	14.0	13.2	13.5
14	13.6	12.9	12.5	13.3	13.4	17.0	16.8	16.0	11.1	14.1	13.2	11.4
15	13.6	12.6	12.5	13.5	13.3	17.0	16.8	16.0	10.9	13.9	13.2	0
16	13.3	12.6	12.7	13.3	13.3	17.0	16.5	15.3	11.1	13.7	13.1	0
17	14.0	13.0	12.7	13.5	13.2	17.2	16.3	15.5	14.6	13.7	13.4	0
18	13.2	12.9	12.5	13.2	13.6	17.2	16.3	15.7	16.4	13.8	13.4	0
19	13.2	12.9	12.7	13.3	13.7	16.8	16.5	16.0	16.9	13.8	13.7	0
20	13.0	13.0	12.6	13.3	13.3	16.8	16.3	15.6	16.9	13.9	13.6	0
21	5.6	13.0	12.4	13.3	13.3	16.8	16.6	15.3	14.6	14.2	13.6	3.7
22	0	13.0	12.5	13.5	13.4	16.8	16.7	15.3	11.3	13.8	13.6	5.5
23	0	13.0	12.7	13.3	13.4	16.9	16.6	14.9	11.2	13.6	13.6	5.5
24	0	12.9	12.8	13.3	13.2	16.8	16.6	15.2	11.0	13.8	13.6	10.8
25	0	4.2	12.5	13.3	13.1	16.8	16.6	15.5	11.1	13.8	13.6	13.7
26	0	0	12.4	13.3	13.3	16.8	16.3	15.9	11.0	13.9	13.4	13.7
27	1.6	0	12.4	13.3	13.2	16.8	16.8	13.3	11.1	13.9	13.7	13.5
28	3.7	0	12.4	13.3	13.3	16.8	16.6	10.2	11.0	14.2	13.7	13.5
29	9.9		12.4	13.4	13.2	16.7	17.0	13.9	13.1	13.9	13.6	13.5
30	13.2		12.5	13.4	13.1	16.7	16.7	15.8	14.6	13.6	13.4	13.6
31	13.2		12.5		13.1		16.8	15.5		13.5		13.6
Sum	304.0	315.4	344.4	387.3	411.6	497.2	514.8	457.5	376.4	429.7	396.4	307.5

Month	Current Year 1973								Period		
	Extreme Gage Feet		*ø Extreme Second Feet				Average Second * Feet	* Total Acre Feet	Acre Feet		
				High		Low					
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			17	14.0	†22	0	9.8	603			
Feb.			† 1	13.3	†26	0	11.3	626			
Mar.			24	12.8	1	1.5	11.1	683			
Apr.			†13	13.5	† 7	11.4	12.9	768			
May			19	13.7	† 6	13.1	13.3	816			
June			† 5	17.3	† 1	13.2	16.6	986			
July			29	17.0	†17	16.3	16.6	1,021			
Aug.			6	17.7	3	5.7	14.8	907			
Sept.			†19	16.9	12	10.7	12.5	747			
Oct.			† 7	14.2	31	13.5	13.9	852			
Nov.			2	14.0	3	8.7	13.2	786			
Dec.			† 2	13.7	†15	0	9.9	610			
Yearly				17.7		0	13.0	9,405			

ø Mean daily † And other days * Includes 12% losses

COLORADO RIVER AT YUMA, ARIZONA - STAGES

DESCRIPTION: Water-stage recorder 200 feet upstream from lower highway bridge, 6.9 miles upstream from the northerly international land boundary, 2,100 feet downstream from the upper highway and railroad bridges at Yuma, Arizona, 4.7 miles downstream from the mouth of the Gila River, 19.1 miles downstream from Imperial Dam, and 0.3 mile upstream from the mouth of the Yuma Main Canal Wasteway. The zero of the gage is at mean sea level, U.S.C. & G.S. datum.

RECORDS: Mean daily gage heights are based on continuous water-stage records. Records available: Gage heights, January 1878 through August 10, 1965, furnished by the U. S. Geological Survey at a site 300 feet upstream. From August 11, 1965 through 1973, records obtained by the United States Section of the Commission.

EXTREMES: Prior to 1935: Maximum gage height 136.79 feet on January 22, 1916; minimum gage height 115.49 feet on September 17, 1917. Since 1935: Maximum gage height 127.36 feet on September 7, 1939; minimum gage height 111.22 feet on July 16, 1947.

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	112.87	112.98	*113.03	112.94	113.50	114.54	113.53	112.87	‼113.72	113.28	112.72	113.38
2	112.83	112.95	*113.13	113.15	113.52	114.55	113.38	112.89	‼113.45	113.29	113.02	113.32
3	112.82	112.92	*112.79	112.90	113.49	114.58	113.32	112.86	‼113.48	113.30	112.86	113.51
4	112.89	112.87	*112.79	112.89	113.49	114.61	113.20	112.85	‼113.49	113.24	112.83	113.08
5	112.87	112.89	*112.78	113.08	113.49	114.63	113.16	112.90	*113.49	113.23	112.72	112.50
6	112.85	113.33	112.74	113.68	113.18	114.65	113.33	112.92	113.50	113.24	112.84	112.56
7	112.89	113.30	112.68	113.41	113.23	114.68	113.28	112.92	113.51	113.23	112.77	112.57
8	112.83	113.28	112.70	113.19	113.60	114.51	113.20	112.83	113.49	113.28	112.75	112.58
9	112.80	113.28	112.74	113.18	113.82	114.29	113.13	112.78	113.49	113.25	112.66	112.53
10	112.75	113.73	112.80	113.12	114.00	114.33	113.09	112.78	113.49	113.29	112.66	112.51
11	112.70	113.67	112.83	112.95	114.02	114.14	113.20	112.80	113.60	113.22	112.75	112.52
12	112.72	113.58	113.17	112.99	113.94	114.21	113.50	112.80	113.59	113.25	112.79	112.57
13	113.02	113.59	112.80	112.98	113.89	114.43	113.42	112.86	113.58	113.25	112.79	112.59
14	113.02	113.46	114.15	113.00	113.89	114.42	113.40	113.16	113.51	113.25	112.79	112.58
15	112.99	112.66	113.95	112.94	113.94	114.39	113.19	115.01	113.38	113.25	112.79	112.57
16	112.85	112.65	113.66	112.90	114.07	114.29	113.06	115.24	113.42	113.24	112.77	112.57
17	112.70	112.72	113.45	112.91	114.16	114.50	113.01	113.50	113.41	113.25	112.78	112.61
18	112.74	112.70	113.34	112.90	114.20	114.46	113.04	*113.49	113.47	113.23	112.78	112.60
19	113.40	112.67	113.07	113.43	114.26	114.51	113.03	‼113.30	113.47	113.23	112.82	112.60
20	113.07	112.67	112.88	113.46	114.32	114.58	113.05	‼113.43	113.44	113.17	112.87	112.60
21	112.95	112.71	112.97	113.16	114.38	114.72	113.03	*112.98	113.43	*112.78	113.13	112.54
22	112.98	113.11	113.03	113.05	114.39	114.80	113.05	114.07	113.38	‼112.54	113.12	112.56
23	113.05	114.56	113.06	113.00	114.29	114.80	113.02	114.31	113.35	‼112.55	113.10	112.59
24	113.15	113.50	113.08	112.99	114.33	115.10	112.99	113.48	113.34	*112.65	113.02	112.62
25	113.13	112.82	113.06	113.00	114.38	115.10	112.86	*112.80	113.37	112.63	113.02	112.63
26	113.10	112.88	113.05	112.94	114.38	114.96	112.87	*112.74	113.32	112.61	112.99	112.56
27	113.03	112.82	113.00	112.86	114.44	114.89	112.89	112.99	113.37	112.59	113.02	112.51
28	113.02	112.95	112.92	112.91	114.40	114.70	112.88	112.74	113.38	112.60	113.07	112.51
29	113.00		112.94	114.06	114.26	114.58	113.56	112.82	113.40	112.61	113.04	112.54
30	113.03		112.90	113.54	114.36	114.71	113.35	113.83	113.37	112.66	113.05	112.55
31	113.00		112.92		114.50		112.94	*113.39		112.67		112.58
Avg.	112.94	113.12	113.05	113.12	114.00	114.59	113.16	113.24	113.46	113.03	112.88	112.66

* Partly estimated ‼ Estimated

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder (digital) located 1,000 feet upstream from railroad culvert and one mile 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 downstream from the spillway structure, and thence into the Colorado River on the right bank, 1,000 feet upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles 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 1973.

REMARKS: Reservation Main Drain No. 4 collects drainage and wastewater 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. Monthly and annual averages since 1937 are shown in the table below.

EXTREMES: Prior to 1937: Maximum annual flow 20,190 acre-feet, 1916; minimum annual flow 8,920 acre-feet, 1913.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	51	42	51	48	54	44	64	51	60	54	62	51
2	42	43	46	47	55	51	49	52	58	54	58	45
3	44	43	44	54	57	45	48	52	49	56	63	46
4	46	45	44	48	54	42	50	49	49	63	64	50
5	46	51	44	50	60	42	50	49	49	60	53	51
6	48	46	47	56	71	43	58	47	51	57	60	56
7	50	42	47	51	56	45	51	47	48	60	57	50
8	48	46	49	51	54	45	55	48	50	62	59	51
9	49	43	59	52	64	51	49	49	51	56	55	52
10	45	49	47	56	59	55	54	52	53	54	52	50
11	43	45	47	50	57	50	49	49	52	54	54	55
12	44	47	45	53	60	47	58	49	53	57	56	47
13	50	48	43	54	61	46	59	51	62	57	55	48
14	45	47	46	55	63	51	53	54	54	57	60	56
15	40	43	44	52	59	51	49	57	50	56	54	47
16	40	45	46	51	66	51	48	63	52	52	56	47
17	41	51	45	49	60	48	53	54	55	55	59	46
18	47	45	47	54	65	50	52	50	60	53	56	46
19	45	42	43	61	54	49	59	55	56	53	57	46
20	49	42	44	58	60	49	63	62	58	56	51	48
21	47	51	45	52	56	53	55	70	56	57	54	49
22	46	49	49	63	52	50	55	66	56	58	57	46
23	50	50	49	53	54	54	49	57	61	60	55	50
24	43	48	54	53	54	57	49	60	61	63	54	51
25	41	42	50	58	51	57	56	56	61	63	54	48
26	44	47	49	56	50	60	52	50	67	57	53	45
27	41	45	51	62	48	54	53	49	63	67	58	49
28	42	48	51	56	54	52	53	48	61	59	62	53
29	41		52	52	51	52	53	53	57	68	68	57
30	42		48	54	48	57	55	51	65	60	58	51
31	42		56		43		57	51		59		45
Sum	1,392	1,285	1,482	1,609	1,750	1,501	1,658	1,651	1,678	1,807	1,724	1,532

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1937-1973 Acre Feet Average	Maximum	Minimum
Jan.			1	51	†15	40	44.9	2,761	3,207	4,780	377
Feb.			† 5	51	† 1	42	45.9	2,549	3,050	4,320	563
Mar.			9	59	†13	43	47.8	2,940	3,708	5,240	1,240
Apr.			22	63	2	47	53.6	3,191	3,758	5,250	1,160
May			6	71	31	43	56.5	3,471	3,879	5,590	992
June			26	60	† 4	42	50.0	2,977	3,748	5,580	885
July			1	64	† 3	48	53.5	3,289	4,034	6,550	816
Aug.			21	70	† 6	47	53.3	3,275	3,997	6,810	861
Sept.			26	67	7	48	55.9	3,328	3,778	6,220	889
Oct.			†22	68	16	52	58.3	3,584	3,792	5,740	1,040
Nov.			†27	68	20	51	57.5	3,419	3,535	5,490	994
Dec.			†12	57	† 2	45	49.4	3,039	3,413	4,960	966
Yearly				71		40	52.2	37,823	43,899	63,700	12,840

∅ 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 upstream from the intake of the Colorado River siphon, and 3.2 miles downstream from the Siphon Drop Power Plant. This wasteway discharges into the Colorado River on the California side, 1,000 feet upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles 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. 1973 records good except those below 125 second-feet, which are fair. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 1973.

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; maximum annual flow, 913,700 acre-feet, 1932; minimum annual flow, 114,900 acre-feet, 1917. Since 1935: Maximum mean daily discharge, 2,020 second-feet, December 24-25, 1948; minimum mean daily discharge, no flow on numerous occasions.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13	371	15	14	730	16	26	14	826	736	144	849
2	13	386	16	14	738	16	26	18	712	767	16	841
3	13	341	15	15	690	15	26	18	749	768	17	958
4	13	302	15	16	734	15	21	15	752	693	60	486
5	13	372	15	22	666	14	18	15	717	727	3.0	15
6	13	638	14	12	344	14	17	15	721	726	3.0	15
7	14	584	15	15	307	14	18	14	732	705	11	15
8	12	646	15	15	39	14	20	14	741	665	37	15
9	12	660	14	16	53	15	18	15	786	676	81	15
10	12	764	14	19	250	14	19	15	685	743	101	15
11	12	825	14	23	224	258	18	15	525	729	244	15
12	12	840	15	13	213	542	14	14	540	755	266	15
13	13	868	13	18	267	853	14	14	459	743	270	15
14	14	709	13	13	226	1,010	12	14	584	733	300	15
15	14	14	12	14	231	1,020	13	14	744	743	277	15
16	15	14	12	23	162	943	14	14	754	758	265	15
17	16	14	12	9.5	63	1,020	14	16	699	755	275	15
18	109	14	14	7.2	32	859	14	15	534	743	246	15
19	668	14	12	7.8	21	735	17	20	550	754	276	15
20	422	14	13	6.6	23	634	16	14	582	672	306	15
21	300	14	12	6.6	23	580	15	14	669	350	516	15
22	327	14	12	6.1	23	588	15	14	664	93	472	15
23	297	14	12	7.2	41	351	15	14	683	156	487	15
24	159	14	11	7.2	20	142	15	14	701	212	449	15
25	213	14	13	7.2	19	160	15	14	744	177	480	15
26	254	14	13	7.2	19	317	15	14	708	173	516	15
27	320	14	13	7.8	18	372	15	14	706	178	537	15
28	387	14	14	71	16	698	14	14	727	206	534	15
29	389		13	1,010	16	818	14	84	751	215	553	15
30	383		14	741	16	678	14	826	728	259	612	15
31	370		12		16		15	680		273		15
Sum	4,822	8,502	417	2,164.4	6,240	12,725	517	2,005	20,473	16,888	8,354.0	3,539

Month	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
	Current Year 1973										
Jan.			19	668	† 8	12	156	9,564	59,089	110,700	3,230
Feb.			13	868	†15	14	304	16,863	51,885	89,140	2,856
Mar.			2	16	24	11	13.5	827	53,537	90,190	469
Apr.			29	1,010	22	6.1	72.1	4,293	54,092	86,580	2,215
May			2	738	†28	16	201	12,377	62,299	83,280	5,480
June			†15	1,020	† 5	14	424	25,240	54,415	86,960	3,330
July			† 1	26	14	12	16.7	1,025	52,991	91,220	452
Aug.			30	826	† 1	14	64.7	3,977	53,531	89,890	456
Sept.			1	826	13	459	682	40,608	55,882	83,660	12,419
Oct.			3	768	22	98	545	33,497	52,364	90,050	2,176
Nov.			30	612	† 5	3.0	278	16,570	52,376	101,500	3,850
Dec.			3	958	† 5	15	114	7,020	58,351	108,800	918
Yearly				1,020		3.0	237	171,861	660,812	1,042,850	75,950

∅ 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 downstream from the mouth of the Yuma Main Canal Wasteway, 0.6 mile downstream from the abandoned gaging station on the Colorado River at Yuma, 5.2 miles downstream from the mouth of the Gila River, 19.6 miles downstream from Imperial Dam and 6.4 miles upstream from the northerly international boundary. Zero of the gage is 101.99 feet 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 1973. 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 Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	570	788	683	633	1,230	1,450	880	538	1,320	1,100	587	1,290
2	543	788	724	706	1,250	1,460	764	546	1,150	1,120	642	1,240
3	534	766	556	609	1,220	1,460	776	547	1,170	1,130	583	1,380
4	556	725	549	597	1,220	1,450	732	525	1,190	1,080	673	991
5	556	755	529	731	1,140	1,440	702	533	1,190	1,080	508	456
6	552	1,060	510	958	911	1,460	795	548	1,210	1,090	559	469
7	574	1,030	484	694	928	1,490	768	556	1,210	1,030	539	460
8	543	1,050	502	616	936	1,390	744	536	1,210	1,080	563	460
9	534	1,060	528	601	1,050	1,250	705	512	1,200	1,060	553	447
10	504	1,320	544	655	1,280	1,290	690	492	1,190	1,110	563	432
11	488	1,300	552	589	1,240	1,300	731	485	1,160	1,030	661	437
12	496	1,260	705	592	1,210	1,490	881	484	1,180	1,100	731	450
13	615	1,260	548	593	1,220	1,750	854	503	1,120	1,090	723	459
14	620	1,170	1,210	611	1,200	1,780	842	656	1,150	1,080	741	469
15	592	496	1,120	571	1,220	1,750	746	1,600	1,140	1,090	731	456
16	543	492	906	549	1,240	1,670	682	1,720	1,180	1,080	729	459
17	476	520	827	564	1,220	1,800	658	788	1,150	1,100	721	479
18	512	512	789	571	1,220	1,750	682	780	1,120	1,070	713	475
19	1,060	500	671	799	1,240	1,760	687	696	1,120	1,070	740	463
20	826	500	588	816	1,280	1,780	693	764	1,110	1,010	769	468
21	730	516	621	674	1,300	1,850	676	559	1,150	737	1,010	445
22	755	655	662	619	1,320	1,900	685	1,130	1,120	536	976	448
23	777	1,500	665	602	1,300	1,780	668	1,300	1,110	558	958	460
24	755	903	667	585	1,300	1,800	635	836	1,110	615	929	483
25	766	592	659	601	1,330	1,790	528	524	1,150	592	943	497
26	771	620	659	570	1,330	1,820	547	506	1,110	580	939	449
27	777	592	640	539	1,370	1,820	547	608	1,130	571	963	434
28	804	655	611	581	1,360	1,850	534	502	1,130	584	978	434
29	804		620	1,610	1,270	1,830	831	585	1,150	607	930	452
30	810		606	1,250	1,330	1,890	782	1,400	1,130	638	1,010	447
31	793		617		1,420		606	1,120		654		455
Sum	20,236	23,385	20,552	20,686	38,085	49,300	22,101	22,884	34,770	28,372	22,725	17,244

Month	Current Year 1973								Period 1951-1973		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			19	1,060	17	476	653	40,138	226,241	979,890	29,857
Feb.			23	1,500	16	492	835	46,384	169,910	826,600	33,790
Mar.			14	1,210	7	484	663	40,764	186,781	1,073,270	35,002
Apr.			29	1,610	27	539	690	41,030	176,835	843,010	37,843
May			31	1,420	6	911	1,229	75,540	169,104	863,860	56,493
June			22	1,900	9	1,250	1,643	97,785	158,751	833,970	36,365
July			12	881	25	528	713	43,837	170,158	649,820	34,413
Aug.			16	1,720	12	484	738	45,390	175,809	670,050	36,426
Sept.			1	1,320	†20	1,110	1,159	68,955	149,192	775,930	43,182
Oct.			3	1,130	22	536	915	56,275	123,329	802,210	34,955
Nov.			†21	1,010	5	503	758	45,074	144,221	911,370	34,332
Dec.			3	1,380	10	432	556	34,203	183,824	1,114,550	33,023
Yearly				1,900		432	878	635,385	2,034,155	10,220,870	513,755

∅ Mean daily † And other days

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

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.03	10.43	10.15	10.05	11.11	11.49	10.54	9.95	11.35	10.90	9.85	11.07
2	9.96	10.42	10.23	10.18	11.14	11.52	10.33	9.99	11.08	10.93	9.96	10.99
3	9.95	10.38	9.88	10.03	11.10	11.55	10.34	10.01	11.11	10.94	9.84	11.22
4	10.00	10.29	9.86	10.01	11.10	11.56	10.24	9.96	11.14	10.86	10.00	10.52
5	10.00	10.35	9.82	10.28	10.96	11.57	10.17	9.98	11.15	10.86	9.67	9.50
6	9.99	10.90	9.77	10.71	10.57	11.60	10.34	10.01	11.16	10.88	9.79	9.53
7	10.04	10.84	9.71	10.22	10.61	11.64	10.29	10.03	11.16	10.86	9.74	9.51
8	9.97	10.88	9.75	10.07	10.62	11.48	10.25	9.99	11.16	10.87	9.79	9.51
9	9.95	10.89	9.82	10.04	10.81	11.25	10.17	9.93	11.13	10.84	9.76	9.48
10	9.88	11.32	9.85	10.15	11.20	11.32	10.14	9.88	11.12	10.91	9.78	9.44
11	9.84	11.29	9.87	10.01	11.13	11.31	10.22	9.86	11.08	10.86	9.99	9.45
12	9.86	11.22	10.19	10.03	11.08	11.60	10.50	9.86	11.10	10.89	10.12	9.48
13	10.13	11.23	9.86	10.03	11.09	12.01	10.45	9.92	10.99	10.88	10.11	9.51
14	10.14	11.05	11.06	10.07	11.06	12.05	10.43	10.21	11.04	10.87	10.14	9.53
15	10.08	9.80	10.91	9.98	11.10	12.01	10.25	12.00	11.01	10.88	10.12	9.50
16	9.96	9.79	10.57	9.94	11.13	11.87	10.12	12.21	11.08	10.87	10.11	9.51
17	9.81	9.86	10.42	9.98	11.10	12.09	10.08	10.43	11.04	10.90	10.09	9.56
18	9.88	9.84	10.35	9.99	11.10	12.01	10.12	10.43	10.98	10.86	10.08	9.55
19	10.96	9.81	10.12	10.45	11.13	12.01	10.13	10.26	10.98	10.84	10.13	9.52
20	10.54	9.81	9.95	10.49	11.21	12.05	10.15	10.39	10.96	10.75	10.17	9.53
21	10.36	9.85	10.02	10.22	11.24	12.17	10.11	9.98	11.03	10.23	10.60	9.47
22	10.41	10.14	10.10	10.11	11.26	12.26	10.13	11.03	10.97	9.78	10.55	9.48
23	10.45	11.46	10.11	10.07	11.23	12.05	10.10	11.33	10.96	9.81	10.54	9.51
24	10.41	10.50	10.11	10.04	11.23	12.08	10.03	10.52	10.96	9.91	10.47	9.57
25	10.42	9.96	10.10	10.08	11.29	12.07	9.80	9.89	11.02	9.86	10.49	9.60
26	10.43	10.02	10.10	10.01	11.29	12.13	9.86	9.85	10.96	9.83	10.49	9.48
27	10.43	10.01	10.06	9.94	11.35	12.12	9.88	10.09	10.99	9.81	10.53	9.44
28	10.48	10.09	10.00	10.00	11.34	12.17	9.87	9.85	11.00	9.84	10.56	9.44
29	10.47		10.02	11.75	11.18	12.14	10.58	10.00	11.03	9.89	10.56	9.49
30	10.48		9.99	11.15	11.29	12.24	10.42	11.49	11.00	9.96	10.62	9.48
31	10.44		10.01		11.44		10.08	11.02		9.99		9.50
Avg.	10.19	10.44	10.09	10.20	11.11	11.85	10.20	10.33	11.06	10.53	10.16	9.69

DRAIN NO. 8-B (ARAZ DRAIN)

DESCRIPTION: This drain discharges into the Colorado River 3.9 miles downstream from Colorado River below Yuma Main Canal Wasteway, and 2.5 miles 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 1973.
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 upstream, is affected by backwater from the river during ordinary high stages.
EXTREMES: Mean daily discharge: Maximum, 24 second-feet on September 1, 1953; minimum, 0.1 second-foot several days in February 1966.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	1.2	1.7	1.7	1.7	2.0	2.0	1.8	3.3	3.3	3.4	3.5
2	1.6	1.3	1.7	1.7	1.7	2.0	2.0	1.8	3.3	3.3	3.4	3.1
3	1.6	1.3	1.7	1.7	1.7	2.0	2.0	1.9	3.3	3.3	3.4	2.7
4	1.6	1.3	1.7	1.7	1.7	2.0	1.9	1.9	3.3	3.3	3.4	2.2
5	1.5	1.3	1.7	1.7	1.8	2.0	1.9	2.0	3.3	3.3	3.4	2.2
6	1.5	1.4	1.7	1.7	1.8	2.0	1.9	2.0	3.3	3.3	3.4	2.2
7	1.5	1.4	1.7	1.7	1.8	2.0	1.9	2.1	3.3	3.3	3.4	2.2
8	1.5	1.4	1.7	1.7	1.8	2.0	1.9	2.1	3.3	3.3	3.4	2.2
9	1.5	1.4	1.7	1.7	1.8	2.0	1.9	2.2	3.3	3.3	3.5	2.2
10	1.5	1.5	1.7	1.7	1.8	2.0	1.8	2.2	3.3	3.3	3.5	2.2
11	1.4	1.5	1.7	1.7	1.9	2.0	1.8	2.3	3.3	3.3	3.5	2.2
12	1.4	1.5	1.7	1.7	1.9	2.0	1.8	2.4	3.3	3.3	3.5	2.2
13	1.4	1.5	1.7	1.7	1.9	2.0	1.8	2.4	3.3	3.3	3.6	2.2
14	1.4	1.6	1.7	1.7	1.9	2.0	1.8	2.5	3.3	3.3	3.6	2.2
15	1.4	1.6	1.7	1.7	1.9	2.0	1.8	2.5	3.3	3.3	3.6	2.2
16	1.3	1.6	1.7	1.7	2.0	2.0	1.8	2.6	3.3	3.3	3.6	2.2
17	1.3	1.6	1.7	1.7	2.0	2.0	1.7	2.6	3.3	3.3	3.7	2.2
18	1.3	1.6	1.7	1.7	2.0	2.0	1.7	2.7	3.3	3.3	3.7	2.2
19	1.3	1.7	1.7	1.7	2.0	2.0	1.7	2.8	3.3	3.3	3.7	2.2
20	1.3	1.7	1.7	1.7	2.0	2.0	1.7	2.8	3.3	3.3	3.7	2.2
21	1.3	1.7	1.7	1.7	2.0	2.0	1.7	2.9	3.3	3.3	3.8	2.2
22	1.2	1.7	1.7	1.7	2.1	2.0	1.7	2.9	3.3	3.3	3.8	2.2
23	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.0	3.3	3.3	3.8	2.2
24	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.0	3.3	6.0	3.8	2.2
25	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.1	3.3	4.5	3.9	2.2
26	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.1	3.3	3.4	3.9	2.2
27	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.2	3.3	3.4	3.9	2.2
28	1.2	1.7	1.7	1.7	2.1	2.0	1.7	3.2	3.3	3.4	3.9	2.2
29	1.2		1.7	1.7	2.1	2.0	1.7	3.2	3.3	3.4	3.9	2.2
30	1.2		1.7	1.7	2.1	2.0	1.7	3.2	3.3	3.4	3.9	2.2
31	1.2		1.7		2.1		1.7	3.2		3.4		2.2
Sum	42.2	43.0	52.7	51.0	60.1	60.0	55.5	79.6	99.0	106.8	109.0	70.9

Month	Current Year 1973								Period 1948-1973		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			† 1	1.6	†22	1.2	1.4	83.7	358	899	39.3
Feb.			†19	1.7	1	1.2	1.5	85.2	311	746	40.5
Mar.				1.7		1.7	1.7	105	380	853	73.8
Apr.				1.7		1.7	1.7	101	402	1,000	66.8
May			†22	2.1	† 1	1.7	1.9	119	402	966	61.5
June				2.0		2.0	2.0	119	419	1,030	67.4
July			† 1	2.0	†17	1.7	1.8	110	476	1,260	72.8
Aug.			†27	3.2	† 1	1.8	2.6	158	529	1,350	73.8
Sept.				3.3		3.3	3.3	196	506	1,370	53.6
Oct.			24	6.0	† 1	3.3	3.4	212	515	1,220	55.3
Nov.			†25	3.9	† 1	3.4	3.6	216	464	1,240	57.7
Dec.			1	3.5	† 4	2.2	2.3	141	420	1,050	51.0
Yearly				6.0		1.2	2.3	1,646	5,182	12,429	834

∅ 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 downstream from the intake at Imperial Dam, 6 miles west of Yuma, about one mile 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 upstream from the northerly international boundary. Water-stage recorder is located in forebay on right bank of the All-American Canal, 550 feet upstream from wasteway gates and 1,800 feet from entrance to the power plant. Datum of gage is 150.00 feet above mean sea level. Tailrace gage is on left bank, 680 feet 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, 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 1973. 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 on January 26, 1958; minimum mean daily discharge, no flow during long periods.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,420	0	1,470	2,040	0	0	908	1,530	0	0	0	0
2	1,660	0	1,630	1,940	0	0	1,350	1,540	0	0	0	0
3	1,660	0	1,790	2,070	0	0	1,370	1,560	0	0	0	0
4	1,710	0	1,800	2,120	0	0	1,380	1,580	0	0	0	363
5	1,760	0	1,810	1,990	0	0	1,460	1,480	0	0	0	960
6	1,680	0	1,890	1,740	0	0	1,380	1,420	0	0	0	968
7	1,350	0	1,940	2,000	0	0	1,420	1,470	0	0	0	968
8	1,520	0	1,880	2,140	0	0	1,430	1,540	0	0	0	966
9	1,520	0	1,890	2,080	0	0	1,440	1,570	0	0	0	974
10	1,530	0	1,900	2,050	0	0	1,440	1,580	0	0	0	1,160
11	1,520	0	1,900	2,120	0	0	1,410	1,520	0	0	0	1,180
12	1,560	0	1,740	2,350	0	0	1,210	1,550	0	0	0	1,190
13	1,410	0	1,950	2,100	0	0	1,210	1,550	0	0	0	1,220
14	1,400	36	1,950	2,130	0	0	1,220	1,430	0	0	0	1,180
15	1,430	932	1,470	2,090	0	0	1,410	590	0	0	0	1,190
16	1,160	950	1,860	2,090	0	0	1,720	275	0	0	0	1,190
17	963	1,170	1,870	1,910	0	0	1,750	1,030	0	0	0	1,330
18	911	1,080	1,900	1,800	0	0	1,720	1,210	0	0	0	1,280
19	0	1,140	2,050	1,640	0	0	1,720	1,190	0	0	0	1,240
20	0	1,160	2,230	1,560	0	0	1,410	1,400	0	0	0	1,060
21	0	1,160	2,220	1,680	0	0	1,460	1,370	0	0	0	1,250
22	0	1,120	2,180	1,750	0	0	1,600	1,240	0	0	0	1,270
23	0	1,100	2,110	1,720	0	0	1,600	1,040	0	0	0	1,260
24	0	1,000	2,080	1,700	0	0	1,640	1,030	0	0	0	1,370
25	0	1,000	2,100	1,710	0	0	1,750	1,050	0	0	0	1,320
26	0	999	2,120	1,710	0	0	1,690	1,300	0	0	0	1,370
27	0	1,000	2,120	1,440	0	0	1,680	1,040	0	0	0	1,380
28	0	1,150	2,210	1,200	0	0	1,700	1,030	0	0	0	1,420
29	0		2,230	0	0	0	1,370	1,030	0	0	0	1,380
30	0		2,250	17	0	0	1,420	0	0	0	0	1,400
31	0		2,190		0		1,690	0		0		1,370
Sum	26,164	14,997	60,730	52,887	0	0	45,958	37,145	0	0	0	33,209

0 **Current Year** 1973 **Period** 1944-1973

Month	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			5	1,760	†19	0	844	51,896	43,668	400,200	0
Feb.			17	1,170	† 1	0	536	29,746	20,216	149,500	0
Mar.			30	2,250	† 1	1,470	1,959	120,456	71,918	279,300	0
Apr.			12	2,350	29	0	1,763	104,900	96,360	260,900	0
May				0		0	0	0	18,474	165,400	0
June				0		0	0	0	62,308	204,300	0
July			†17	1,750	1	908	1,483	91,156	113,429	260,000	0
Aug.			† 4	1,580	†30	0	1,198	73,676	115,875	270,100	0
Sept.				0		0	0	0	52,278	173,300	0
Oct.				0		0	0	0	10,802	51,460	0
Nov.				0		0	0	0	14,805	182,600	0
Dec.			28	1,420	† 1	0	1,071	65,869	38,331	319,700	0
Yearly				2,350		0	743	537,699	658,464	1,944,700	0

† And other days ∅ Mean daily

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 downstream from Colorado River below Yuma Main Canal Wasteway, 5 miles west of Yuma, Arizona, 1.1 miles upstream from Morelos Diversion Structure, and about one mile 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 267 current meter measurements during the year, 210 by the United States Section, 45 by the Mexican Section of the Commission, 12 by the U. S. Geological Survey, and a continuous record of gage heights. Computations by shifting control methods. Discharges are computed on the basis of a water-stage recorder located 1,680 feet 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 1973; daily discharge records available January 1, 1950 through 1973.

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 1973, 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, January 22, 1916; minimum discharge, no flow several days during August and September 1934; average annual flow 13,443,000 acre-feet; maximum annual flow 25,480,000 acre-feet, 1907; minimum annual flow 1,174,000 acre-feet, 1934. Since January 1935: Maximum mean daily discharge, about 33,000 second-feet, February 7, 1942; minimum discharge, no flow during April 1935.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,090	925	2,350	2,790	1,320	1,370	1,970	2,290	1,370	1,280	740	1,410
2	2,340	925	2,620	2,790	1,340	1,430	2,160	2,310	1,280	1,290	809	1,390
3	2,360	925	2,600	2,800	1,320	1,450	2,200	2,340	1,290	1,290	755	1,540
4	2,420	882	2,600	2,850	1,310	1,450	2,160	2,330	1,290	1,280	836	1,590
5	2,460	872	2,560	2,840	1,320	1,430	2,210	2,240	1,330	1,260	655	1,600
6	2,400	1,220	2,620	2,840	1,070	1,450	2,230	2,230	1,330	1,280	715	1,610
7	2,110	1,220	2,620	2,800	1,020	1,520	2,240	2,280	1,340	1,280	705	1,610
8	2,210	1,250	2,580	2,880	1,020	1,460	2,240	2,280	1,370	1,280	720	1,610
9	2,240	1,220	2,620	2,860	1,050	1,330	2,260	2,280	1,340	1,270	695	1,600
10	2,210	1,510	2,630	2,860	1,300	1,410	2,240	2,280	1,330	1,280	705	1,770
11	2,180	1,490	2,630	2,860	1,320	1,360	2,200	2,260	1,310	1,280	785	1,790
12	2,210	1,510	2,600	3,130	1,310	1,530	2,170	2,280	1,320	1,290	874	1,830
13	2,210	1,510	2,620	2,830	1,310	1,790	2,190	2,310	1,300	1,280	852	1,870
14	2,200	1,450	3,130	2,850	1,320	1,820	2,190	2,280	1,280	1,290	885	1,870
15	2,200	1,650	2,940	2,840	1,330	1,850	2,290	2,310	1,310	1,290	863	1,860
16	1,880	1,630	2,870	2,820	1,340	1,780	2,540	2,310	1,330	1,290	852	1,860
17	1,620	1,870	2,890	2,640	1,310	1,880	2,540	2,080	1,320	1,290	841	1,990
18	1,600	1,820	2,910	2,500	1,310	1,880	2,520	2,100	1,310	1,280	852	1,970
19	1,290	1,840	2,940	2,560	1,310	1,860	2,520	2,060	1,290	1,280	852	1,940
20	1,030	1,860	3,000	2,520	1,320	1,860	2,240	2,270	1,280	1,270	896	1,740
21	925	1,870	3,050	2,550	1,320	1,970	2,230	1,980	1,310	993	1,120	1,920
22	914	1,910	3,040	2,530	1,320	1,930	2,380	2,380	1,280	715	1,130	1,960
23	915	2,570	3,000	2,490	1,290	1,950	2,370	2,560	1,280	690	1,120	1,950
24	936	2,130	2,990	2,430	1,320	1,950	2,400	2,080	1,280	730	1,090	2,080
25	925	1,750	3,000	2,460	1,330	1,960	2,400	1,790	1,340	726	1,090	2,060
26	914	1,800	2,910	2,460	1,320	1,980	2,380	1,860	1,310	700	1,090	2,060
27	936	1,750	2,910	2,170	1,320	1,960	2,400	1,890	1,310	690	1,120	2,040
28	959	2,010	2,930	1,920	1,320	1,960	2,400	1,760	1,310	700	1,130	2,060
29	970		2,970	1,620	1,230	1,980	2,400	1,760	1,360	720	1,130	2,080
30	970		3,000	1,370	1,250	2,030	2,440	1,500	1,330	762	1,150	2,080
31	914		2,930		1,330		2,540	1,190		770		2,090
Sum	51,538	43,369	87,160	77,860	39,600	51,630	71,700	65,870	39,430	33,826	27,057	56,830

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet Average	Maximum	Minimum
Jan.	103.90	102.33	5	2,510	26	851	1,660	102,224	425,996	1,644,000	31,900
Feb.	105.92	102.33	23	2,910	5	862	1,550	86,021	355,889	1,378,000	60,400
Mar.	104.87	103.22	15	3,930	15	1,774	2,812	172,879	358,979	1,120,000	19,400
Apr.	104.40	102.87	12	3,180	30	1,230	2,600	154,433	280,001	823,850	0
May	103.05	*102.44	12	1,510	8	958	1,280	78,545	283,105	1,151,000	71,405
June	103.57	102.82	21	2,090	3	1,290	1,720	102,407	268,091	1,175,000	8,500
July	104.06	103.32	31	2,730	1	1,780	2,310	142,215	260,945	763,800	24,400
Aug.	104.38	102.58	22	3,150	31	1,020	2,120	130,651	276,643	791,600	43,800
Sept.	103.07	102.66	8	1,430	1	1,140	1,314	78,208	247,752	1,029,000	53,851
Oct.	102.92	102.16	4	1,340	†22	670	1,090	67,093	250,636	1,186,000	42,956
Nov.	102.66	102.07	†27	1,180	† 5	645	902	53,667	313,741	1,422,000	41,403
Dec.	103.75	102.65	24	2,220	1	1,180	1,830	112,721	405,987	1,832,000	42,000
Yearly	105.92	102.07		3,930		645	1,770	1,281,064	3,727,765	10,596,900	722,100

* Partly estimated † And other days

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

See Preceding Page for Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.60	102.40	103.73	104.10	102.92	102.95	103.49	*103.69	102.94	102.84	102.34	102.92
2	103.80	102.40	103.92	104.10	102.89	103.00	103.66	103.70	102.85	102.86	102.32	102.92
3	103.82	102.42	103.91	104.11	102.87	103.04	103.70	103.71	102.86	102.85	102.20	103.08
4	103.86	102.36	103.90	104.13	102.82	103.03	103.66	103.69	102.87	102.85	102.30	103.15
5	103.88	102.35	*103.86	104.13	102.93	103.03	103.69	103.62	102.96	102.83	102.08	103.17
6	103.85	102.70	*103.92	104.13	102.78	103.04	103.70	103.61	102.93	102.85	102.15	103.20
7	103.62	102.73	*103.93	104.10	*102.56	103.05	103.71	103.65	102.92	102.84	102.14	103.20
8	103.70	102.75	*103.90	104.15	*102.50	102.99	103.72	103.65	102.93	102.86	102.17	103.21
9	103.70	102.72	103.91	104.15	*102.55	102.86	103.72	103.66	102.92	102.84	102.16	103.20
10	103.69	103.02	103.92	104.15	*102.83	102.95	103.71	103.68	102.90	102.85	102.16	103.36
11	103.66	103.02	103.93	104.14	*102.87	102.88	103.66	103.64	102.86	102.86	102.25	103.39
12	103.68	103.04	103.92	104.37	*102.85	103.06	103.64	103.66	102.87	102.87	102.34	103.42
13	103.69	103.03	103.91	104.11	*102.85	103.30	103.64	103.68	102.86	102.87	102.30	103.46
14	103.67	102.99	104.24	104.13	*102.86	103.33	103.65	103.65	102.83	102.88	102.34	103.46
15	103.66	103.19	104.15	104.13	*102.86	103.36	103.73	103.67	102.86	102.86	102.31	103.45
16	103.41	103.15	104.06	104.10	*102.87	103.29	103.92	103.67	102.89	102.86	102.30	103.45
17	103.16	103.34	104.10	103.97	*102.84	103.38	103.91	103.48	102.88	102.86	102.30	103.57
18	103.13	103.32	104.10	103.85	*102.83	103.39	103.89	103.55	102.86	102.87	102.31	103.55
19	102.81	103.34	104.12	103.90	*102.84	103.36	103.88	*103.51	102.84	102.86	102.31	103.51
20	102.54	103.35	104.16	103.86	*102.84	103.37	103.65	*103.71	102.83	102.84	102.35	103.35
21	102.41	103.36	104.20	103.89	*102.84	103.46	103.67	103.47	102.85	102.54	102.58	103.50
22	102.38	103.38	104.19	103.89	*102.87	103.47	103.76	103.80	102.84	102.24	102.59	103.55
23	102.38	104.80	104.17	103.87	*102.86	103.44	103.75	103.93	102.85	102.18	102.57	103.53
24	102.43	104.13	104.16	103.82	*102.88	103.46	103.77	103.54	102.84	102.22	102.54	103.64
25	102.41	103.29	104.16	103.84	102.91	103.46	103.77	*103.31	102.89	102.25	102.54	103.63
26	102.39	103.29	104.17	103.84	102.90	103.48	103.76	"103.39	102.84	102.20	102.55	103.63
27	102.42	103.25	104.18	103.60	102.88	103.46	103.77	*103.41	102.86	102.19	102.58	103.61
28	102.42	103.46	104.23	103.40	102.89	103.46	103.77	103.31	102.87	102.20	102.60	103.63
29	102.45		104.23	103.15	102.80	103.49	103.78	103.29	102.92	102.20	102.60	103.63
30	102.46		104.24	102.94	102.82	103.52	"103.80	103.08	102.91	102.30	102.64	103.63
31	102.40		104.23		102.92		"103.90	102.76		102.36		103.65
Avg.	103.14	103.09	104.06	103.94	102.83	103.25	103.74	103.55	102.88	102.64	102.36	103.41

* Partly estimated " Estimated

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 downstream from the northerly international boundary, and about 7.5 miles 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 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 1973.

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 on January 2, 1958; minimum mean daily elevation above mean sea level, 101.51 on February 17, 1957.

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102.92	102.07	102.99	103.28	102.40	102.43	102.85	103.02	102.46	102.36	101.97	102.46
2	103.08	102.07	103.12	103.28	102.40	102.46	102.99	103.05	102.43	102.36	101.97	102.46
3	103.08	102.07	103.12	103.28	102.40	102.46	103.02	103.05	102.43	102.36	101.94	102.56
4	103.12	102.03	103.12	103.31	102.36	102.46	102.99	103.05	102.43	102.36	102.03	102.59
5	103.12	102.03	103.12	103.31	102.40	102.46	103.02	102.99	102.53	102.33	101.87	102.59
6	103.08	102.26	103.15	103.28	102.20	102.46	103.02	103.02	102.46	102.36	101.90	102.62
7	102.95	102.30	103.15	103.28	102.17	102.49	103.02	103.05	102.40	102.36	101.90	102.62
8	103.02	102.30	103.15	103.31	102.10	102.43	103.02	103.02	102.40	102.33	101.90	102.62
9	103.02	102.26	103.15	103.35	102.17	102.36	103.02	103.05	102.40	102.33	101.90	102.59
10	102.99	102.46	103.15	103.35	102.33	102.40	103.02	103.05	102.36	102.36	101.90	102.72
11	102.95	102.46	103.15	103.31	102.33	102.36	102.99	103.02	102.33	102.36	101.97	102.76
12	102.99	102.49	103.15	103.48	102.33	102.46	102.95	103.02	102.36	102.36	102.07	102.76
13	102.99	102.49	103.15	103.31	102.33	102.62	102.95	103.05	102.33	102.36	102.03	102.79
14	102.95	102.46	103.35	103.35	102.36	102.66	102.99	103.02	102.33	102.36	102.07	102.79
15	102.99	102.59	103.41	103.31	102.36	102.69	103.02	103.02	102.33	102.36	102.07	102.79
16	102.79	102.56	103.28	103.31	102.40	102.66	103.15	103.02	102.36	102.40	102.03	102.79
17	102.59	102.69	103.28	103.22	102.36	102.69	103.18	102.92	102.36	102.40	102.03	102.85
18	102.56	102.69	103.31	103.15	102.36	102.69	103.15	102.95	102.36	102.36	102.07	102.85
19	102.36	102.72	103.31	103.15	102.36	102.69	103.18	102.92	102.36	102.33	102.07	102.82
20	102.17	102.76	103.38	103.12	102.36	102.69	103.02	103.02	102.36	102.33	102.07	102.69
21	102.07	102.76	103.41	103.15	102.36	102.79	103.02	102.85	102.36	102.13	102.26	102.79
22	102.07	102.72	103.38	103.15	102.36	102.82	103.08	103.08	102.36	101.90	102.30	102.82
23	102.07	104.46	103.35	103.12	102.36	102.82	103.08	103.18	102.36	101.90	102.26	102.79
24	102.07	103.61	103.35	103.08	102.40	102.82	103.08	102.92	102.33	101.94	102.23	102.89
25	102.07	102.66	103.35	103.08	102.40	102.85	103.08	102.76	102.36	101.94	102.23	102.85
26	102.07	102.66	103.35	103.08	102.36	102.85	103.08	102.79	102.36	101.94	102.23	102.85
27	102.07	102.62	103.35	102.92	102.36	102.85	103.08	102.79	102.40	101.90	102.26	102.85
28	102.10	102.79	103.38	102.79	102.40	102.85	103.08	102.72	102.40	101.94	102.26	102.85
29	102.10		103.38	102.59	102.33	102.85	103.08	102.72	102.40	101.94	102.26	102.85
30	102.10		103.38	102.43	102.36	102.89	103.08	102.59	102.40	102.03	102.30	102.85
31	102.07		103.38		102.40		103.15	102.36		102.07		102.85
Avg.	102.59	102.56	103.25	103.18	102.33	102.62	103.05	102.95	102.40	102.23	102.07	102.76

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - DISCHARGES

DESCRIPTION: Water-stage recorder and staff gage on left bank of Intake Canal, 200 feet downstream from the intake at Morelos Dam, 1,350 feet upstream from the point where it joins the old Alamo Canal, 2.2 miles upstream from Matamoros Check, and about one mile south of the northerly international boundary. The zero of the gage is 0.16 foot below mean sea level, U.S.C. & G.S. datum.

RECORDS: The records are deduced from the flows arriving in the limitrophe section of the Colorado River at the northerly international boundary, the flows that pass downstream from the structure, and leakage through the structure. Records available: November 8, 1950 through 1973. Records obtained and furnished by the Mexican Section of the Commission.

REMARKS: The canal is operated with a minimum hydraulic slope to permit the maximum retention of silt above Matamoros Check and the lower velocities in the canal do not permit measuring the flow with a current meter. Records for this station show the amounts of Colorado River water diverted at Morelos Diversion Dam to the Intake Canal and thence to the Alamo Canal for use in Mexico. Water for use in Mexico may also be diverted to the Alamo Canal in the United States directly from the river at Rockwood Heading or by means of Imperial Dam, the All-American Canal, and certain facilities of the Imperial Irrigation District under conditions set forth in the 1944 Water Treaty. No diversions of the above nature have been made during the years 1951 through 1973 and consequently the records reported below show the total water diverted from the Colorado River to the Alamo Canal during those years.

EXTREMES: Maximum mean daily discharge, 6,540 second-feet, August 3, 1958; maximum mean daily gage height, 107.22 feet November 8, 1950. Minimum daily discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,080	911	2,340	2,780	1,310	1,360	1,970	2,290	1,360	1,270	738	1,410
2	2,330	915	2,620	2,780	1,330	1,430	2,150	2,310	1,260	1,290	784	1,390
3	2,350	911	2,590	2,790	1,310	1,450	2,190	2,340	1,270	1,290	756	1,530
4	2,420	872	2,590	2,840	1,300	1,440	2,150	2,330	1,280	1,270	833	1,590
5	2,450	865	2,540	2,830	1,310	1,420	2,200	2,240	1,320	1,250	653	1,600
6	2,390	1,210	2,600	2,830	1,060	1,440	2,220	2,230	1,320	1,270	713	1,610
7	2,100	1,210	2,600	2,790	1,010	1,510	2,240	2,280	1,330	1,270	703	1,610
8	2,200	1,240	2,570	2,870	1,010	1,450	2,240	2,280	1,370	1,270	720	1,610
9	2,230	1,210	2,610	2,840	1,040	1,330	2,260	2,280	1,330	1,270	699	1,600
10	2,200	1,500	2,610	2,840	1,290	1,410	2,240	2,280	1,320	1,270	703	1,770
11	2,170	1,480	2,620	2,850	1,320	1,350	2,200	2,260	1,300	1,280	788	1,790
12	2,200	1,500	2,590	3,120	1,310	1,530	2,160	2,280	1,310	1,280	879	1,820
13	2,200	1,500	2,610	2,820	1,300	1,790	2,190	2,310	1,280	1,280	855	1,860
14	2,190	1,440	2,950	2,840	1,310	1,820	2,190	2,280	1,270	1,230	890	1,870
15	2,190	1,640	2,630	2,830	1,320	1,850	2,250	2,310	1,300	1,280	862	1,860
16	1,870	1,620	2,860	2,810	1,330	1,780	2,540	2,310	1,320	1,280	851	1,860
17	1,610	1,860	2,880	2,630	1,300	1,880	2,540	2,080	1,300	1,290	940	1,930
18	1,590	1,810	2,900	2,490	1,300	1,880	2,520	2,090	1,290	1,270	848	1,960
19	1,230	1,830	2,930	2,540	1,310	1,860	2,520	2,050	1,290	1,270	848	1,930
20	1,020	1,850	2,990	2,510	1,320	1,860	2,240	2,260	1,270	1,270	890	1,740
21	915	1,870	3,050	2,540	1,310	1,970	2,280	1,970	1,300	989	1,120	1,920
22	904	1,850	3,030	2,520	1,310	1,970	2,350	2,370	1,270	713	1,130	1,960
23	904	1,780	2,990	2,480	1,280	1,950	2,330	2,550	1,270	689	1,120	1,950
24	925	1,590	2,980	2,420	1,310	1,950	2,400	2,070	1,270	731	1,090	2,030
25	915	1,720	2,990	2,450	1,320	1,950	2,400	1,770	1,330	724	1,090	2,060
26	904	1,780	2,900	2,450	1,310	1,980	2,380	1,850	1,300	696	1,090	2,060
27	922	1,740	2,900	2,160	1,310	1,960	2,400	1,890	1,310	689	1,120	2,040
28	946	2,000	2,970	1,910	1,310	1,960	2,400	1,760	1,310	699	1,130	2,060
29	957		2,960	1,610	1,230	1,970	2,400	1,760	1,360	713	1,130	2,080
30	957		2,970	1,360	1,240	2,020	2,440	1,470	1,330	759	1,140	2,080
31	904		2,930		1,320		2,540	1,180		766		2,090
Sum	51,245	41,689	86,370	77,540	39,350	51,510	71,490	65,690	39,160	33,701	26,995	56,770

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	∅ Extreme Second Feet High	∅ Extreme Second Feet Low Day	∅ Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1950-1973 Acre Feet Average	Maximum	Minimum
Jan.	101.80	99.87	5	2,450	†22	904	1,650	101,643	63,890	116,737	966
Feb.	101.77	99.54	28	2,000	5	865	1,490	82,683	59,247	101,685	9,232
Mar.	102.13	100.59	21	3,050	1	2,340	2,790	171,317	168,820	216,994	97,902
Apr.	101.97	99.84	12	3,120	30	1,360	2,590	153,792	193,424	264,127	153,792
May	100.95	99.51	† 2	1,330	† 7	1,010	1,270	78,045	93,661	159,010	66,207
June	102.07	100.00	30	2,020	9	1,330	1,720	102,161	160,460	269,632	102,000
July	102.23	100.95	†16	2,540	1	1,970	2,310	141,807	227,312	304,263	141,807
Aug.	102.82	100.95	23	2,550	31	1,180	2,120	130,293	225,897	341,044	130,293
Sept.	102.40	100.07	8	1,370	2	1,260	1,310	77,673	127,213	198,095	53,633
Oct.	102.10	100.20	† 2	1,290	†23	689	1,090	66,845	49,257	90,639	10,453
Nov.	101.94	99.21	30	1,140	5	653	901	53,543	37,593	103,954	7,516
Dec.	101.97	100.10	31	2,090	2	1,390	1,830	112,521	64,445	131,440	8,825
Yearly	102.82	99.21		3,120		653	1,760	1,272,332	1,473,831	1,961,556	1,272,332

† And other days ∅ Mean daily

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101.57	100.66	101.38	101.61	99.87	101.35	101.15	101.48	101.15	101.57	101.71	100.56
2	101.57	100.52	101.64	101.57	99.34	101.94	101.41	101.71	101.21	101.35	101.48	100.98
3	101.51	100.39	101.61	101.54	99.80	101.35	101.64	101.94	101.25	101.25	101.48	101.41
4	101.64	99.70	101.61	101.74	99.80	101.28	101.57	101.90	101.28	101.12	101.54	101.57
5	101.74	99.57	101.57	101.94	99.90	101.21	101.38	101.84	102.03	101.05	100.82	101.51
6	101.61	100.03	101.71	101.77	99.61	101.41	101.35	101.35	101.90	100.79	100.33	101.64
7	101.31	100.59	101.61	101.57	99.61	101.38	101.38	101.41	101.61	101.02	100.33	101.64
8	101.48	100.75	101.51	101.57	99.57	101.15	101.44	101.84	101.51	101.18	100.13	101.57
9	101.51	100.89	101.57	101.51	99.61	100.23	101.51	101.87	101.61	100.89	99.77	101.54
10	101.41	101.25	101.64	101.41	100.00	100.36	101.67	101.90	101.64	100.85	99.80	101.64
11	101.35	101.25	101.44	101.38	100.10	100.23	101.44	101.87	101.38	100.92	99.87	101.80
12	101.48	101.25	101.57	101.51	99.93	100.49	101.18	101.84	101.12	101.18	99.90	101.90
13	101.48	101.31	101.54	101.35	99.97	100.89	101.08	101.90	100.85	101.25	99.51	101.84
14	101.35	101.18	101.74	101.28	100.03	100.95	101.02	101.87	100.59	101.25	99.44	101.80
15	101.48	101.05	101.54	101.25	99.97	100.98	101.18	101 84	100.30	101.28	99.31	101.64
16	101.21	100.72	101.54	101.21	99.90	100.85	101.97	101.84	100.23	101.41	99.31	101.44
17	100.89	100.92	101.77	101.08	99.87	100.79	101.97	101.80	100.33	101.51	99.28	101.61
18	100.72	101.12	101.84	100.95	99.87	100.59	102.00	101.84	100.36	101.57	99.28	101.80
19	100.49	100.92	101.80	100.95	99.90	100.75	101.71	101.80	100.39	101.54	99.28	101.64
20	100.10	100.95	101.87	100.92	100.03	100.75	101.28	101.97	100.52	101.48	99.28	101.38
21	100.03	101.41	101.94	100.92	100.13	100.85	101.12	101.97	100.62	100.72	99.51	101.21
22	100.10	101.25	101.94	100.92	100.13	100.62	101.35	102.13	100.20	100.33	99.67	101.25
23	100.20	101.05	101.84	100.89	100.10	100.52	101.41	102.49	100.10	100.30	99.67	101.12
24	100.59	101.18	101.77	100.79	100.03	100.52	101.61	102.00	100.33	100.43	99.61	101.44
25	100.66	101.15	101.87	100.75	100.26	100.59	101.90	101.38	100.66	100.75	99.64	101.54
26	100.36	101.12	101.84	100.79	100.26	100.79	101.97	101.44	100.85	101.25	99.61	101.64
27	100.26	100.35	101.87	100.56	100.36	100.89	101.90	102.03	100.92	101.31	99.57	101.51
28	100.46	101.12	102.07	100.36	100.62	100.92	101.84	101.74	101.05	101.38	99.70	101.54
29	100.62		102.03	100.16	100.59	100.93	101.77	101.57	101.02	101.41	99.74	101.41
30	100.75		102.00	99.93	100.43	100.95	101.54	101.61	101.87	101.67	100.00	101.48
31	100.72		101.97		100.66		101.80	101.54		101.84		101.84
Avg.	100.98	100.85	100.74	101.15	100.03	100.89	101.54	101.80	100.95	101.15	99.97	101.51

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 downstream from the northerly international boundary, and about 7.5 miles 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 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 1973.

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 on January 2, 1958; minimum mean gage height, 98.13 feet several days during March and April 1967.

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.66	100.69	100.62	100.49	100.62	100.98	101.05	100.72	100.82	100.72	100.82	100.72
2	100.62	100.69	100.62	100.52	100.62	100.98	101.05	100.59	100.82	100.75	100.26	100.79
3	100.59	100.66	100.62	100.56	100.62	101.05	101.02	100.69	100.79	100.75	100.79	100.79
4	100.62	100.66	100.59	100.52	100.62	101.12	101.02	100.79	100.79	100.72	100.72	100.79
5	100.62	100.72	100.59	100.56	100.66	100.98	100.98	100.85	100.79	100.69	100.72	100.82
6	100.62	100.69	100.59	100.56	100.66	101.02	100.98	100.85	100.79	100.66	100.72	100.82
7	100.66	100.66	100.59	100.56	100.66	101.05	100.98	100.92	100.75	100.66	100.75	100.79
8	100.66	100.66	100.59	100.52	100.66	101.08	100.98	100.92	100.82	100.69	100.75	100.75
9	100.62	100.66	100.59	100.56	100.66	101.08	100.98	100.85	100.82	100.79	100.75	100.72
10	100.62	100.66	100.56	100.52	100.66	101.12	100.93	100.85	100.82	100.72	100.72	100.72
11	100.59	100.66	100.56	100.46	100.66	101.08	100.93	100.82	100.82	100.69	100.75	100.72
12	100.59	100.66	100.59	100.49	100.69	101.05	100.95	100.79	100.82	100.69	100.82	100.66
13	100.59	100.66	100.59	100.52	100.72	101.05	100.92	100.75	100.66	100.66	100.82	100.59
14	100.62	100.66	101.61	100.59	100.72	101.02	100.92	100.72	100.66	100.66	100.79	100.62
15	100.66	100.66	102.23	100.59	100.72	100.98	100.39	100.75	100.66	100.66	100.75	100.62
16	100.66	100.66	100.66	100.56	100.75	100.98	100.43	100.85	100.66	100.62	100.75	100.69
17	100.66	100.66	100.62	100.59	100.79	100.98	100.85	100.85	100.62	100.66	100.72	100.72
18	100.66	100.66	100.62	100.59	100.82	100.93	100.92	100.79	100.52	100.66	100.72	100.75
19	100.66	100.66	100.62	100.56	100.82	101.02	100.95	100.75	100.62	100.59	100.72	100.69
20	100.66	100.62	100.59	100.59	100.82	101.05	100.92	100.03	100.75	100.66	100.72	100.72
21	100.66	100.69	100.59	100.59	100.82	101.05	100.89	100.52	100.75	100.59	100.72	100.79
22	100.66	101.05	100.59	100.59	100.85	101.05	100.56	100.43	100.79	100.75	100.72	100.79
23	100.66	104.36	100.59	100.62	100.89	101.02	99.41	101.02	100.82	100.75	100.79	100.79
24	100.66	103.12	100.59	100.62	100.89	101.02	99.11	100.92	100.82	100.72	100.72	100.75
25	100.69	100.72	100.59	100.59	100.92	100.98	99.80	100.69	100.79	100.72	100.69	100.72
26	100.69	100.66	100.59	100.59	100.92	100.98	99.84	100.46	100.75	100.72	100.72	100.72
27	100.69	100.62	100.59	100.59	100.92	101.02	100.23	100.62	100.75	100.72	100.75	100.72
28	100.62	100.62	100.56	100.59	100.92	101.08	100.33	100.75	100.75	100.75	100.72	100.75
29	100.62		100.52	100.59	100.92	101.05	100.33	100.89	100.72	100.72	100.75	100.79
30	100.62		99.70	100.59	100.93	101.05	100.62	100.75	100.72	100.69	100.72	100.75
31	100.66		99.67		101.02		100.62	100.49		100.75		100.75
Avg.	100.66	100.89	100.62	100.56	100.79	101.02	100.66	100.72	100.75	100.69	100.72	100.72

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 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 1973.

REMARKS: Pursuant to Minute 218 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, 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 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 Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	290	304	295	235	295	312	314	294	317	304	319	305
2	285	307	300	290	293	319	312	278	310	309	212	312
3	283	297	302	292	297	326	309	298	307	309	310	307
4	290	300	295	290	297	328	307	312	305	302	305	310
5	237	307	298	290	297	319	305	314	307	295	302	305
6	290	304	297	292	298	322	305	316	309	295	300	307
7	292	298	298	290	295	322	307	322	304	293	307	302
8	290	300	298	290	295	324	307	319	314	298	305	302
9	288	297	300	292	293	326	309	310	317	316	309	300
10	287	300	295	282	295	328	309	310	312	302	305	300
11	283	300	295	280	297	324	304	307	312	300	314	295
12	285	298	300	283	302	317	293	304	316	295	312	283
13	287	302	295	292	300	316	293	304	284	293	312	275
14	290	300	295	298	300	312	300	297	288	293	312	282
15	292	295	298	298	304	305	204	307	287	292	304	287
16	293	298	307	292	302	305	238	319	283	288	307	293
17	293	304	309	295	309	302	292	324	275	295	304	300
18	293	305	305	295	310	307	305	305	266	286	300	301
19	292	302	302	292	309	312	307	309	292	285	300	295
20	297	302	300	295	310	316	305	174	304	295	297	300
21	295	305	300	295	309	319	304	253	304	298	300	305
22	293	305	297	297	312	314	240	243	304	305	305	307
23	293	300	302	304	312	310	74.2	325	307	307	307	307
24	295	302	304	297	312	310	78.0	328	307	304	302	300
25	297	302	307	290	316	300	155	286	309	302	302	300
26	298	300	304	293	314	302	163	263	310	302	304	300
27	293	298	302	295	316	312	226	288	307	305	304	293
28	292	298	295	290	316	319	235	312	307	305	304	302
29	292		290	290	317	314	232	322	309	300	312	302
30	295		141	297	317	314	292	296	305	302	297	297
31	302		174		317		285	274		307		300
Sum	8,430		8,761		9,456		9,213		9,282		9,284	
	9,032		9,000		9,461		8,214.2		9,078		9,073	

Month	Current Year 1973								Period 1966-1973		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	3.16	3.05	31	302	† 3	283	291	17,915	14,970	17,915	11,029
Feb.	3.20	2.98	† 2	309	15	271	301	16,721	11,824	16,721	6,978
Mar.	3.19	1.14	17	310	†30	56.6	290	17,851	5,040	17,851	6.9
Apr.	3.20	2.99	23	307	10	273	292	17,377	3,476	17,377	247
May	3.31	3.10	30	326	† 1	290	305	18,766	8,908	18,766	3,160
June	3.32	3.13	4	331	25	297	315	18,756	5,774	18,756	2,098
July	3.29	.57	30	326	23	19.6	265	16,293	5,535	17,423	0
Aug.	3.37	.41	23	337	20	11.9	297	18,274	6,097	18,274	34.9
Sept.	3.29	2.78	9	322	18	239	303	18,006	11,719	18,006	3,575
Oct.	3.34	3.00	9	331	18	273	299	18,411	18,255	18,742	17,599
Nov.	3.30	.75	1	324	2	28.0	302	17,996	17,962	18,478	17,234
Dec.	3.26	2.98	† 3	317	13	270	299	18,415	15,428	18,415	11,050
Yearly	3.37	0.41		337		11.9	297	214,781	124,938	214,781	100,028

† And other days

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 downstream from the northerly international boundary and 0.6 mile upstream from Morelos Diversion Dam. Prior to July 14, 1971, the wasteway was located 0.4 mile 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 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 1973, 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 in January 1940; minimum monthly discharge, zero for various months. Since March 1950, maximum instantaneous discharge, 79.3 second-feet on June 19, 1965, at a maximum gage height of 114.13 feet (old datum); minimum instantaneous discharge, zero during parts of each month.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	0	2.9	0.1	1.3	0	2.1	0	0.3	1.9	1.8	4.6
2	.7	0	5.2	0	2.1	0	.1	0	.7	.6	.5	0
3	.3	0	2.5	0	1.4	4.1	0	0	.9	.1	3.6	0
4	5.5	0	1.3	0	.1	.1	0	0	.1	0	.9	0
5	4.7	.2	.2	0	0	0	.7	1.1	0	0	0	0
6	.4	0	0	1.0	0	0	2.2	.3	0	0	0	1.7
7	.4	0	0	.6	0	0	0	0	.4	0	0	2.0
8	1.6	0	6.0	1.8	0	0	0	0	.1	0	3.2	1.9
9	2.6	0	4.5	0	0	4.7	0	0	0	0	8.0	.1
10	2.4	0	.2	0	.9	2.1	0	0	0	0	1.4	.1
11	.4	0	.1	0	2.5	.4	.9	0	0	1.1	5.2	0
12	.3	0	.1	0	4.6	2.0	0	0	0	0	7.3	0
13	4.3	0	.4	0	.4	.4	.7	0	0	5.0	4.5	0
14	.2	.6	.2	1.2	.2	2.9	7.7	0	0	.2	7.6	3.8
15	.1	.8	0	3.3	.1	2.2	.3	0	1.3	.1	2.5	.8
16	.1	0	2.0	.7	0	.3	1.2	0	.4	0	1.9	1.7
17	1.9	0	.3	.2	0	0	0	0	.3	0	2.1	0
18	.1	2.7	.1	0	0	0	0	2.6	.4	0	.3	0
19	.1	.4	.2	0	2.9	0	0	0	.4	1.6	.3	1.2
20	1.6	.2	1.0	2.5	5.1	3.1	0	0	0	0	.3	4.4
21	.2	6.7	5.7	1.6	.4	.2	0	2.1	0	0	1.0	0
22	0	3.6	.6	.1	.1	.2	.6	.1	0	0	.3	4.1
23	.7	.2	.6	.5	0	.1	.3	0	0	1.1	.8	.4
24	0	.9	.2	.1	0	0	.9	0	0	3.3	2.8	.3
25	.2	.2	.1	0	0	0	3.2	1.9	.6	4.0	.6	.3
26	.7	0	0	0	0	4.2	2.4	.5	0	.2	3.4	.2
27	0	0	1.2	1.0	2.0	.9	1.2	1.2	4.2	0	4.2	.8
28	0	0	0	4.4	.2	4.2	.8	4.0	.8	1.7	1.7	3.6
29	0		0	.4	0	2.5	1.2	6.4	0	.5	.2	.3
30	0		.9	.2	0	1.8	0	1.2	2.7	0	.1	.2
31	0		6.2		0		0	.4		0		.2
Sum	30.9	16.5	42.7	19.7	24.3	36.4	26.5	21.8	13.6	21.4	66.5	32.7

Month	Current Year 1973 Extreme Gage Feet High	Low	Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet Average	Maximum	Minimum
Jan.	0.93	0	10	12.8	† 6	0	1.0	61.3	181	914	0
Feb.	2.00	0	21	35.4	† 1	0	.6	32.7	159	400	6.0
Mar.	2.00	0	8	35.4	† 1	0	1.4	84.7	171	517	0
Apr.	1.60	0	21	26.6	† 1	0	.7	39.1	183	425	39.1
May	2.20	0	19	39.9	† 1	0	.8	48.2	175	440	40.3
June	1.50	0	12	24.5	† 1	0	1.2	72.2	165	595	43.8
July	1.96	0	14	34.5	† 3	0	.9	53.0	150	516	0
Aug.	2.18	0	28	39.4	† 1	0	.7	43.2	117	617	0
Sept.	1.76	0	25	30.1	† 1	0	.5	27.0	116	462	0
Oct.	2.01	0	13	35.6	† 1	0	.7	42.4	145	490	0
Nov.	2.20	0	11	39.9	† 1	0	2.2	132	167	462	9.0
Dec.	1.88	0	14	32.8	† 1	0	1.1	64.9	192	592	33.7
Yearly	2.20	0		39.9		0	1.0	701	1,921	4,500	638

† 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 downstream from the northerly international boundary, 0.7 mile downstream from Morelos Diversion Dam, and about 9 miles 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 1973; continuous record of gage heights, July 20, 1952 through 1973.

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 on January 4,1955; maximum gage height, 112.18 feet on January 28, 1958. Minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	297	317	306	293	306	326	321	294	329	310	318	304
2	299	317	306	306	301	323	323	276	326	311	239	314
3	293	310	312	304	306	330	319	289	322	311	306	313
4	299	310	309	301	306	334	317	303	317	303	307	310
5	297	315	316	304	304	328	315	308	318	301	304	308
6	297	314	317	304	308	328	312	310	320	301	303	310
7	304	310	317	304	308	328	310	317	317	300	308	306
8	301	310	317	304	306	328	310	318	318	303	307	304
9	301	308	317	308	306	330	310	313	324	317	311	301
10	297	308	312	299	306	332	312	311	322	308	306	303
11	293	312	308	286	304	334	310	310	320	304	310	299
12	293	310	312	293	310	323	306	307	322	303	313	296
13	297	315	308	299	308	321	299	307	304	299	311	280
14	299	315	467	308	308	319	304	301	297	300	310	287
15	304	310	604	308	312	308	240	307	296	300	306	289
16	304	310	322	306	312	308	224	320	294	296	307	301
17	304	312	319	308	317	304	289	323	292	300	307	304
18	304	315	317	310	319	306	304	316	283	296	306	308
19	301	310	312	308	317	310	311	316	293	292	306	303
20	306	306	308	308	319	319	311	* 188	308	297	304	306
21	306	315	308	308	319	321	307	260	314	300	304	307
22	304	368	306	306	321	321	272	249	314	301	308	307
23	304	1,090	310	317	321	315	113	337	317	311	313	308
24	306	846	312	312	321	315	75.5	335	318	307	308	304
25	308	333	315	301	326	308	158	304	318	308	306	303
26	310	319	315	301	326	306	164	276	317	306	310	304
27	306	312	317	301	326	317	222	293	316	303	310	301
28	306	308	308	301	326	326	237	315	313	308	307	306
29	304		301	299	323	326	236	334	313	307	313	306
30	308		169	304	326	321	280	324	311	303	304	301
31	312		157		328		282	283		308		301
Sum	9,364	10,125	9,824	9,111	9,746	9,615	8,393.5	9,344	9,373	9,424	9,172	9,394

Month	Current Year 1973								Period 1954-1973		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	100.20	100.12	31	319	† 3	290	302	18,573	157,099	969,540	949
Feb.	104.83	100.13	23	1,520	† 3	301	362	20,033	80,641	414,310	977
Mar.	103.24	98.61	15	947	31	68	317	19,486	51,799	630,230	659
Apr.	100.15	99.90	23	317	1	268	304	18,071	39,794	532,320	804
May	100.51	100.12	†25	330	2	301	314	19,331	48,325	375,970	460
June	100.65	100.48	4	339	†16	301	320	19,071	12,499	119,980	834
July	100.58	98.12	† 1	323	†23	28.6	271	16,648	12,236	89,430	654
Aug.	100.89	" 98.07	23	388	20	" 27.0	301	18,534	19,878	125,590	702
Sept.	100.47	100.11	1	330	18	275	312	18,591	18,079	87,830	113
Oct.	100.46	100.19	9	323	†18	286	304	18,692	46,489	172,940	9,750
Nov.	100.45	" 99.04	1	323	2	"133	306	18,192	80,402	356,390	4,869
Dec.	100.43	100.17	† 2	318	13	279	303	18,633	103,771	643,850	1,111
Yearly	104.83	" 98.07		1,520		" 27.0	309	223,905	676,012	3,957,730	101,758

† And other days * Partly estimated " Estimated

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.16	100.20	100.15	100.01	100.13	100.51	100.57	100.31	100.46	100.37	100.42	100.31
2	100.16	100.20	100.14	100.07	100.12	100.51	100.58	100.18	100.44	100.38	99.84	100.38
3	100.13	100.17	100.16	100.06	100.14	100.54	100.56	100.27	100.41	100.38	100.33	100.38
4	100.16	100.17	100.15	100.05	100.14	100.61	100.55	100.37	100.39	100.36	100.34	100.36
5	100.15	100.25	100.18	100.06	100.14	100.56	100.54	100.41	100.40	100.31	100.32	100.36
6	100.15	100.21	100.15	100.06	100.17	100.57	100.53	100.42	100.41	100.31	100.31	100.37
7	100.18	100.17	100.15	100.06	100.17	100.59	100.52	100.47	100.39	100.30	100.35	100.35
8	100.17	100.17	100.15	100.06	100.17	100.60	100.52	100.48	100.41	100.32	100.34	100.34
9	100.17	100.16	100.15	100.03	100.18	100.62	100.52	100.44	100.45	100.42	100.37	100.32
10	100.15	100.16	100 13	100.04	100.18	100.64	100.53	100.43	100.44	100.36	100.34	100.33
11	100.13	100.18	100.11	99.98	100.18	100.65	100.52	100.42	100.43	100.32	100.37	100.30
12	100.12	100.17	100.13	100.01	100.21	100.61	100.49	100.40	100.44	100.31	100.40	100.29
13	100.14	100.19	100.11	100.04	100.21	100.60	100.45	100.40	100.33	100.28	100.39	100.18
14	100.15	100.19	100.92	100.09	100.21	100.59	100.45	100.37	100.28	100.29	100.37	100.22
15	100.16	100.17	101.79	100.09	100.24	100.54	99.97	100.41	100.27	100.29	100.34	100.22
16	100.16	100.16	100.20	100.09	100.25	100.54	99.86	100.50	100.26	100.26	100.34	100.30
17	100.15	100.17	100.18	100.10	100.29	100.51	100.32	100.52	100.23	100.29	100.34	100.32
18	100.15	100.18	100.17	100.11	100.32	100.52	100.43	100.48	100.17	100.26	100.32	100.36
19	100.14	100.16	100.15	100.10	100.32	100.54	100.48	100.48	100.23	100.22	100.31	100.32
20	100.16	100.14	100.13	100.10	100.34	100.57	100.48	* 99.50	100.34	100.26	100.30	100.34
21	100.16	100.18	100.13	100.10	100.35	100.58	100.45	100.09	100.37	100.28	100.30	100.35
22	100.15	100.45	100.11	100.10	100.37	100.58	100.20	100.00	100.37	100.29	100.33	100.35
23	100.15	103.48	100.12	100.15	100.38	100.55	98.91	100.57	100.38	100.36	100.36	100.36
24	100.16	102.60	100.12	100.13	100.39	100.55	98.60	100.54	100.39	100.33	100.33	100.33
25	100.16	100.29	100.13	100.09	100.41	100.51	99.34	100.32	100.39	100.34	100.31	100.32
26	100.17	100.22	100.12	100.09	100.43	100.49	99.39	100.12	100.39	100.32	100.34	100.33
27	100.15	100.19	100.12	100.10	100.44	100.54	99.80	100.23	100.39	100.34	100.34	100.31
28	100.15	100.17	100.08	100.10	100.45	100.59	99.90	100.38	100.38	100.34	100.32	100.34
29	100.14		100.05	100.10	100.45	100.59	99.89	100.49	100.38	100.33	100.36	100.34
30	100.15		99.27	100.12	100.47	100.57	100.21	100.41	100.38	100.30	100.31	100.32
31	100.17		99.20		100.50		100.22	100.12		100.34		100.32
Avg.	100.15	100.40	100.16	100.08	100.28	100.57	100.19	100.34	100.37	100.32	100.32	100.32

* 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 downstream from the northerly international boundary and 3.2 miles 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 limitrophe 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 1973, 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 in August 1940; minimum monthly discharge, zero in April 1941. Since January 1, 1951, maximum instantaneous discharge, 800 second-feet on December 3, 1961, at a maximum gage height of 117.60 feet; minimum instantaneous discharge, zero during parts of most years.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.3	0.3	0.3	36.4	0.4	0.4	0.3	0.3	0.3	2.6	0.3	0.2
2	.4	.2	.3	33.2	.5	.4	.3	.3	.3	.3	.3	47.5
3	.4	.3	.2	3.4	.4	34.6	.2	2.8	.3	.3	.3	42.3
4	.4	43.1	41.8	1.9	.3	24.5	.2	2.4	.3	.3	35.0	4.1
5	.3	31.2	24.6	.3	.4	2.1	.2	47.3	.3	.3	34.5	1.1
6	.3	4.1	2.5	.2	.6	1.1	.2	34.0	.3	.3	10.3	.3
7	.3	2.0	.8	.1	.5	.2	.2	1.5	.3	.3	.2	.3
8	.3	.1	.1	.2	.3	.2	.3	.8	.3	.3	.2	.4
9	.4	.1	0	.3	.3	.2	.3	.3	.3	.4	.1	.4
10	.3	.1	.1	.2	.3	.3	.3	.3	.3	.3	.2	.3
11	.4	.2	0	.2	.2	.2	.2	.3	.2	.3	.3	.3
12	.4	.5	.1	.3	0	.3	.2	.3	.2	.3	.3	.3
13	.3	.1	.1	.3	0	.3	.3	.3	.2	8.2	.2	.2
14	.3	.2	.2	.3	.3	.3	.3	.3	.3	.3	.2	.2
15	.4	.2	.2	.6	.3	.4	.3	.3	.3	.2	.2	.2
16	.6	.2	.3	1.2	.2	.2	.3	.3	.3	.2	.2	.2
17	.4	.2	.3	.2	.3	.3	.3	.3	.2	.1	.2	.2
18	.6	.2	.3	.3	.3	.2	.3	.3	.2	.2	.3	.1
19	.4	.2	.3	.3	.3	.3	.3	1.1	.2	.2	.3	.3
20	.4	.2	.3	.3	.5	.2	.3	4.8	.2	.2	.3	.3
21	.5	.2	.2	.4	.3	.3	.4	.3	.2	.3	.2	.3
22	.7	.3	.2	.4	.3	.3	1.4	.3	.2	.2	.2	.3
23	.4	.3	.3	.3	.2	.3	.5	.3	.2	.2	4.1	.3
24	.5	.3	.3	.4	.2	.3	.5	.3	.2	.3	.3	1.5
25	.5	.3	.3	.4	.2	.3	.4	.3	.1	.2	.2	.3
26	.5	.3	.3	.2	.3	.3	.3	.3	.2	.3	.2	.3
27	1.6	.3	.3	.1	.3	.3	4.3	.3	.1	.3	.2	.2
28	.5	.3	.3	.1	.3	.2	7.1	.3	.2	.3	.2	.2
29	.4		.2	0	.3	.2	.3	.2	.7	.3	.2	.3
30	.5		.3	.3	.3	.2	.4	.3	.3	.3	.2	.3
31	.5		.3		.5		.3	.5		.3		.4
Sum	14.2	86.0	75.8	82.8	9.6	69.4	21.2	101.7	7.7	18.6	89.9	103.6

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet Average	Maximum	Minimum
Jan.	112.25	111.77	27	17.8	† 1	0.3	0.5	28.2	3,433	9,570	28.2
Feb.	115.23	111.72	4	213	† 9	0	3.1	171	2,762	8,430	171
Mar.	115.35	111.72	4	225	† 8	0	2.4	150	2,599	6,230	145
Apr.	114.94	111.72	1	189	29	0	2.8	164	2,403	6,300	0
May	111.86	111.72	3	1.1	†11	0	.3	19.0	2,880	9,320	15.7
June	114.69	111.74	3	171	† 6	.1	2.3	138	2,732	7,440	130
July	112.95	111.72	28	68.2	6	0	.7	42.0	2,760	8,320	20.0
Aug.	115.33	111.75	5	223	† 3	.2	3.3	202	2,359	9,740	194
Sept.	112.01	111.73	28	3.8	12	.1	.3	15.3	1,722	6,140	15.3
Oct.	114.39	111.73	13	151	17	.1	.6	36.9	2,344	5,680	36.9
Nov.	114.52	111.74	4	159	† 8	.1	3.0	178	2,789	8,220	18.8
Dec.	115.78	111.74	2	277	† 1	.1	3.3	205	3,693	9,430	164
Yearly	115.78	111.72		277		0	1.9	1,349	32,481	82,900	1,349

† 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 downstream from northerly international boundary, 3.2 miles downstream from Morelos Diversion Dam, about 50 feet downstream from the mouth of Eleven Mile Wasteway of the Yuma Project, and 11 miles 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 1973; 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 on January 2, 1958; minimum mean daily gage height, 94.95 feet on June 22, 1968.

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97.64	97.66	97.63	97.53	97.51	98.20	97.88	97.33	97.33	97.28	97.35	97.29
2	97.65	97.65	97.61	97.73	97.50	98.21	97.85	97.23	97.33	97.28	96.90	97.51
3	97.62	97.65	97.62	97.54	97.51	98.39	97.83	97.32	97.32	97.28	97.28	97.53
4	97.63	97.77	97.76	97.51	97.50	98.48	97.78	97.38	97.30	97.29	97.38	97.37
5	97.64	97.94	97.83	97.50	97.51	98.28	97.75	97.60	97.30	97.25	97.43	97.34
6	97.63	97.73	97.67	97.51	97.53	98.29	97.74	97.59	97.30	97.24	97.31	97.34
7	97.66	97.68	97.63	97.50	97.53	98.30	97.72	97.43	97.29	97.24	97.28	97.32
8	97.66	97.66	97.62	97.48	97.52	98.30	97.72	97.42	97.31	97.26	97.28	97.31
9	97.65	97.65	97.62	97.49	97.55	98.32	97.70	97.40	97.34	97.35	97.31	97.29
10	97.64	97.64	97.60	97.44	97.55	98.32	97.70	97.38	97.32	97.30	97.28	97.30
11	97.62	97.67	97.59	97.38	97.55	98.30	97.67	97.37	97.31	97.27	97.29	97.28
12	97.60	97.67	97.59	97.41	97.60	98.25	97.63	97.35	97.32	97.26	97.31	97.25
13	97.63	97.66	97.58	97.43	97.62	98.22	97.59	97.35	97.22	97.29	97.31	97.20
14	97.65	97.66	97.97	97.50	97.63	98.18	97.59	97.33	97.19	97.25	97.31	97.22
15	97.67	97.65	99.16	97.51	97.65	98.11	97.21	97.33	97.19	97.25	97.28	97.22
16	97.67	97.64	97.72	97.49	97.67	98.09	97.15	97.39	97.18	97.24	97.29	97.28
17	97.67	97.64	97.66	97.48	97.72	98.04	97.47	97.40	97.17	97.23	97.29	97.28
18	97.67	97.64	97.64	97.50	97.76	98.02	97.53	97.34	97.12	97.22	97.27	97.30
19	97.66	97.64	97.63	97.48	97.78	98.02	97.56	97.33	97.18	97.18	97.29	97.28
20	97.67	97.62	97.62	97.48	97.81	98.01	97.54	96.74	97.26	97.21	97.28	97.29
21	97.67	97.65	97.62	97.49	97.85	98.01	97.53	97.13	97.27	97.24	97.29	97.32
22	97.66	97.76	97.58	97.50	97.89	97.99	97.33	97.04	97.27	97.27	97.30	97.33
23	97.65	99.85	97.57	97.53	97.93	97.95	96.51	97.40	97.29	97.29	97.34	97.33
24	97.65	100.09	97.57	97.50	97.96	97.93	96.09	97.42	97.31	97.28	97.31	97.32
25	97.65	97.86	97.57	97.46	97.99	97.88	96.69	97.29	97.29	97.28	97.28	97.31
26	97.66	97.70	97.58	97.45	98.01	97.85	96.72	97.15	97.28	97.27	97.31	97.30
27	97.65	97.67	97.57	97.48	98.04	97.87	97.00	97.20	97.27	97.28	97.31	97.29
28	97.63	97.65	97.54	97.49	98.07	97.90	97.11	97.29	97.27	97.29	97.31	97.30
29	97.63		97.50	97.49	98.09	97.90	97.07	97.37	97.29	97.28	97.33	97.29
30	97.62		96.91	97.52	98.13	97.89	97.26	97.32	97.28	97.25	97.30	97.27
31	97.64		96.58		98.17		97.28	97.06		97.28		97.29
Avg.	97.65	97.85	97.62	97.49	97.75	98.12	97.39	97.31	97.27	97.26	97.29	97.31

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 upstream on wasteway. This wasteway is located in Arizona 18.5 miles downstream from the northerly international boundary, 17.4 miles downstream from Morelos Diversion Dam, and 2.2 miles 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 1973, 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, January 1946; minimum monthly discharge, 122 acre-feet in September 1950. Since January 1, 1951, maximum instantaneous discharge, 102 second-feet on January 24, 1954, at a maximum gage height of 95.46 feet (old datum); minimum instantaneous discharge, zero during a part of most months.

Mean Daily Discharge in Second Feet 1973 —— 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	.2	0	0	0	0	0	0	0	0	0
4	0	0	.1	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	.2	0	0	0	0	0	0	0
7	0	0	0	0	.1	0	.2	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	.4	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	.4	0	0	0	0	0	0	0	0	0	0
14	0	.1	0	0	0	0	0	0	0	0	0	0
15	0	.1	0	0	0	0	0	0	0	0	0	0
16	.2	.1	0	0	0	0	.7	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	.1	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	.5	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	.2	0	0	0	0	0	0	0	0	0
24	0	0	.8	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	.3	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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0.2	0.7	1.4	0.5	0.6	0	0.9	0	0.4	0	0	0

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1939-1973 Acre Feet Average	Maximum	Minimum
Jan.	0.73	0	16	14.0	† 1	0	0	0.4	861	2,860	0
Feb.	1.00	0	13	23.5	† 1	0	0	1.4	741	2,510	0
Mar.	.87	0	3	19.0	† 1	0	0	2.8	684	1,660	2.8
Apr.	.81	0	21	16.8	† 1	0	0	1.0	735	1,940	1.0
May	1.07	0	27	26.3	† 1	0	0	1.2	895	2,470	1.2
June	0	0		0		0	0	0	781	2,350	0
July	1.04	0	16	25.1	† 1	0	0	1.8	675	1,950	1.2
Aug.	0	0		0		0	0	0	708	2,530	0
Sept.	1.08	0	11	26.7	† 1	0	0	.8	636	2,180	0
Oct.	.02	0	25	.1	† 1	0	0	0	771	2,100	0
Nov.	0	0		0		0	0	0	890	2,380	0
Dec.	0	0		0		0	0	0	932	2,680	0
Yearly	1.08	0		26.7		0	0	9.4	9,359	24,370	9.4

† And other days

EAST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir located about 300 feet north of the international boundary near San Luis, Arizona, and 1.5 miles 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 1973. 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 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.7	3.9	13.6	14.2	8.0	19.7	12.7	20.2	9.0	13.6	25.1	6.0
2	4.1	3.5	.7	13.3	1.5	18.4	2.0	16.7	12.3	10.9	14.8	17.5
3	3.8	1.3	11.4	11.0	10.4	10.9	.1	8.9	2.2	21.7	15.8	13.5
4	11.7	2.6	6.9	6.8	3.1	8.5	5.5	12.0	5.6	8.1	20.4	4.7
5	4.3	6.0	3.3	8.4	4.9	8.7	1.1	5.8	0	18.7	32.5	6.6
6	4.9	5.0	4.5	.7	2.6	11.2	.1	4.9	12.0	11.7	8.4	14.3
7	1.0	2.5	6.7	7.6	11.8	4.0	4.0	4.4	5.0	22.0	4.7	21.4
8	.2	.1	2.8	9.8	14.0	5.5	2.2	2.8	5.9	13.1	1.0	13.8
9	.7	4.3	7.8	17.0	10.2	10.1	7.6	12.7	5.7	9.1	5.6	14.4
10	1.4	12.0	4.9	10.7	3.1	14.2	22.4	19.3	12.3	4.8	19.4	9.0
11	5.3	6.2	3.6	8.6	.7	15.9	12.7	7.3	6.8	11.3	16.7	.7
12	7.9	14.0	13.1	11.4	5.7	16.1	13.1	3.5	8.5	9.7	3.0	1.4
13	6.2	14.7	7.7	3.7	5.8	18.3	4.9	6.4	17.4	2.4	4.2	18.8
14	2.5	10.1	0	.1	8.3	15.4	4.6	4.7	23.5	20.5	9.3	8.6
15	1.0	5.1	5.0	0	11.1	2.6	8.2	11.2	14.1	10.9	5.6	4.5
16	1.8	1.5	9.3	3.9	13.2	6.2	12.0	8.4	11.2	8.7	15.0	22.8
17	11.6	4.0	10.6	1.6	12.0	5.5	21.6	9.4	22.2	6.7	20.6	3.6
18	11.6	5.6	13.9	.1	2.7	16.8	12.3	8.6	9.5	9.0	7.4	0
19	6.4	17.2	13.8	2.8	1.6	2.1	8.5	9.3	7.4	16.7	12.4	0
20	3.9	4.4	2.3	9.6	10.5	0	8.4	22.2	18.6	12.5	22.6	1.9
21	10.4	.2	0	2.0	7.6	0	14.9	7.0	11.9	8.4	15.9	18.1
22	1.7	.1	.3	7.0	6.5	11.2	1.7	1.7	4.2	3.3	13.1	18.0
23	0	0	6.2	6.4	5.8	12.0	8.5	1.6	4.7	14.1	17.8	20.7
24	1.6	.3	1.3	3.7	5.5	22.6	7.4	5.7	1.0	25.1	25.8	17.0
25	2.2	3.1	7.3	7.7	6.6	8.4	1.3	5.2	9.7	16.8	18.2	3.4
26	1.2	4.9	16.2	2.1	4.7	15.0	5.8	5.8	15.4	8.2	10.2	10.1
27	2.0	9.2	7.4	4.3	11.7	11.4	4.8	15.6	7.5	4.0	7.3	15.1
28	8.9	10.5	3.3	5.0	10.5	3.4	10.9	14.8	19.9	0	18.9	14.9
29	9.0		7.9	1.4	7.9	2.7	10.0	17.6	20.3	4.0	15.6	17.8
30	8.1		12.9	6.7	7.2	3.9	14.9	13.8	4.6	13.8	6.8	20.2
31	9.1		12.5		12.2		26.4	5.9		12.7		.9
Sum	154.2	152.3	217.2	187.6	227.4	300.7	270.6	293.4	308.4	352.5	414.1	339.7

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet Average	Maximum	Minimum
Jan.	90.71	90.15	28	23.8	† 6	0	5.0	306	1,204	3,360	280
Feb.	90.99	90.15	†12	47.6	† 1	0	5.4	302	1,010	3,170	298
Mar.	90.64	90.15	†18	19.4	† 2	0	7.0	431	1,170	2,920	190
Apr.	90.74	90.15	22	26.0	† 6	0	6.3	372	1,135	3,170	197
May	90.73	90.15	22	25.2	† 4	0	7.3	451	1,249	3,040	245
June	90.78	90.15	24	34.9	† 7	0	10.0	596	1,072	3,000	175
July	90.79	90.15	9	35.7	† 2	0	8.7	537	1,155	3,590	182
Aug.	90.73	90.15	8	30.9	† 6	0	9.5	582	1,176	3,960	169
Sept.	90.80	90.15	4	36.5	† 3	0	10.3	612	1,074	3,170	159
Oct.	90.72	90.15	† 5	30.1	† 6	0	11.4	699	1,132	3,280	357
Nov.	90.77	90.15	5	40.8	† 8	0	13.8	821	1,246	3,570	313
Dec.	90.75	90.15	30	38.0	†11	0	11.0	674	1,216	3,080	292
Yearly	90.99	90.15		47.6		0	8.8	6,383	13,839	38,310	3,967

† 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 north of the international boundary near San Luis, Arizona, 1.3 miles east of the Colorado River.

RECORDS: Main Drain discharges are lifted 10 to 12 feet 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 measurents. 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 1973.

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 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	142	132	133	138	170	154	146	146	160	171	157	137
2	135	131	130	141	155	152	153	140	164	171	179	144
3	135	136	134	142	150	146	143	146	171	177	160	144
4	141	140	147	132	144	153	140	152	161	170	159	137
5	139	140	145	153	148	151	136	160	159	169	160	145
6	132	142	148	140	139	144	154	138	176	168	157	133
7	125	137	134	138	145	146	152	151	162	168	142	138
8	132	134	138	142	153	145	148	146	163	164	146	134
9	142	141	159	143	160	155	149	143	168	154	150	129
10	146	137	138	144	151	145	152	142	158	170	146	138
11	137	135	140	144	157	142	151	150	165	168	154	120
12	142	141	144	144	149	151	150	140	157	163	150	135
13	136	138	124	144	150	152	146	144	169	166	155	151
14	142	127	139	141	157	163	157	145	159	169	153	145
15	135	136	139	144	143	160	152	140	158	160	155	137
16	128	143	129	154	149	145	164	164	158	179	160	144
17	136	136	134	140	147	154	150	141	158	168	148	160
18	132	159	141	132	144	146	145	152	173	178	149	137
19	134	140	140	134	150	143	146	150	160	181	140	134
20	134	123	140	136	146	140	145	157	162	176	162	120
21	121	132	136	142	156	136	153	129	161	155	145	117
22	125	130	128	149	141	156	149	124	159	153	145	129
23	138	127	143	153	149	128	144	154	172	139	165	136
24	142	136	133	150	148	132	159	147	172	152	150	128
25	136	122	135	150	149	151	151	156	169	172	146	128
26	133	132	143	144	150	160	144	146	169	166	143	135
27	136	138	145	151	145	159	141	144	179	161	141	116
28	138	144	137	150	158	149	152	148	178	160	146	124
29	136		146	152	162	147	155	153	158	157	158	133
30	126		144	148	157	144	148	163	158	153	143	137
31	131		147		148		156	138		127		122
Sum	4,187	3,809	4,313	4,315	4,670	4,449	4,631	4,549	4,936	5,085	4,564	4,167

Month	Current Year 1973								Period 1935-1973		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			10	146	21	121	135	8,305	7,899	11,203	1,740
Feb.			18	159	25	122	136	7,555	7,815	11,988	1,640
Mar.			9	159	13	124	139	8,555	8,925	12,430	1,940
Apr.			16	154	† 4	132	144	8,559	8,699	11,890	1,920
May			1	170	6	139	151	9,263	8,878	13,140	1,950
June			14	163	23	128	148	8,824	8,216	12,040	2,290
July			16	164	5	136	149	9,185	8,025	11,830	2,530
Aug.			16	164	22	124	147	9,023	7,949	11,960	2,560
Sept.			27	179	12	157	165	9,790	7,984	11,568	2,280
Oct.			19	181	31	127	164	10,086	8,989	12,385	2,940
Nov.			2	179	19	140	152	9,053	8,682	12,010	2,800
Dec.			17	160	27	116	134	8,265	8,366	11,480	2,450
Yearly				181		116	147	106,463	100,427	139,380	27,040

† And other days ∅ Mean daily

WEST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder located about 150 feet upstream from outlet to Yuma Main Drain, which is 175 feet upstream from East Main Canal Wasteway and 0.4 mile west of San Luis, Arizona.
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. Records available: March 1971 through 1973.
REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.7	5.4	7.3	30.9	12.5	4.7	1.7	0	0.3	10.1	5.3	0.9
2	27.8	3.1	1.0	41.5	18.4	.5	0	1.4	.2	7.4	.4	4.6
3	25.8	12.3	11.0	13.6	10.2	22.6	.1	3.9	.7	6.7	8.3	13.7
4	8.6	16.4	7.7	2.7	3.1	26.2	11.3	1.7	5.7	6.0	26.8	8.9
5	* 12.7	31.1	21.0	4.1	5.1	1.8	3.0	.9	.4	3.6	19.5	.5
6	" 1.9	6.0	4.5	3.8	2.4	.4	7.9	14.8	3.8	12.1	2.8	.2
7	" .7	.9	2.5	2.5	4.8	1.0	1.1	4.4	.2	4.1	22.5	5.0
8	* 7.3	.2	6.7	4.7	4.2	4.8	3.2	.6	3.8	1.8	14.0	.6
9	" 2.4	2.4	*39.3	1.6	.4	1.4	10.5	5.2	.2	11.5	8.0	1.1
10	5.1	12.6	"17.2	17.3	2.3	13.9	3.5	1.9	4.2	3.6	8.2	1.3
11	2.4	16.9	" 8.5	21.5	2.4	5.9	4.2	3.9	2.0	5.4	* 22.5	2.0
12	10.9	13.9	*14.0	16.9	.7	.3	4.5	4.1	8.1	5.2	22.5	2.0
13	8.0	6.5	17.1	16.2	2.4	6.5	7.7	8.3	.9	9.7	7.2	3.5
14	2.9	8.8	9.0	16.8	15.6	6.6	5.8	5.3	9.3	1.3	12.2	7.5
15	1.1	13.7	21.6	18.4	16.0	.9	16.4	2.3	10.8	1.1	32.1	8.6
16	.2	18.4	14.4	14.0	6.6	1.5	11.0	.8	4.7	11.1	6.7	.6
17	2.6	4.7	5.7	0	2.8	18.4	.5	2.9	4.0	14.0	2.5	1.2
18	.5	2.0	3.2	6.1	9.1	4.5	.8	1.9	.2	13.5	3.7	4.0
19	4.8	9.3	9.7	4.5	12.6	7.1	.2	14.1	.4	9.9	3.1	7.4
20	18.3	8.5	9.5	.9	6.6	6.2	7.1	1.8	1.0	.4	1.3	1.0
21	11.6	11.9	3.5	4.7	7.7	13.4	14.3	1.1	.8	3.7	3.1	* .1
22	16.3	12.5	5.0	22.1	2.2	2.9	14.1	2.1	.3	4.8	2.3	" .5
23	7.9	11.5	10.5	30.2	11.4	2.4	6.0	.1	.1	3.3	6.3	" 1.6
24	6.7	10.2	13.3	4.6	5.6	.6	5.5	.1	1.2	.3	1.8	" 6.5
25	11.3	2.6	1.8	1.1	3.6	7.0	19.8	.4	.4	6.2	1.1	" 3.6
26	0	14.0	2.1	7.7	4.9	2.7	17.8	1.1	4.8	.2	.9	* 1.3
27	2.3	6.3	6.5	5.2	2.5	7.8	2.0	7.4	2.1	1.4	.8	2.1
28	1.2	21.8	14.7	5.7	1.6	15.5	4.1	2.3	5.6	7.2	2.7	.7
29	19.8		17.6	2.2	10.1	14.4	.9	4.6	5.4	4.0	8.0	.4
30	13.9		13.7	.6	.9	4.6	.8	16.1	14.2	5.2	2.9	.8
31	7.5		9.3		.7		.1	3.5		3.5		2.7
Sum	255.2	283.9	328.9	322.1	189.4	206.5	185.9	119.0	95.8	178.3	259.5	94.9

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1971-1973 Acre Feet Average	Maximum	Minimum
Jan.	1.46	0.03	30	39.2	†17	0	8.2	506	372	506	237
Feb.	1.55	0	15	43.2	† 8	0	10.1	563	538	563	512
Mar.	1.70	.04	9	50.0	2	0	10.6	652	419	652	203
Apr.	1.83	.03	1	56.5	†17	0	10.7	639	385	639	175
May	1.64	.03	29	47.3	23	0	6.1	376	309	376	217
June	1.73	.06	4	41.4	† 2	.1	6.9	410	324	410	253
July	1.61	.04	10	36.0	2	0	6.0	369	309	369	242
Aug.	1.60	.04	30	35.5	† 1	0	3.8	236	313	536	166
Sept.	1.33	.05	12	24.9	25	0	3.2	190	388	568	190
Oct.	1.54	.06	25	33.1	† 8	.1	5.8	354	501	728	354
Nov.	* 1.84	.04	11	* 48.4	2	0	3.6	515	518	541	498
Dec.	1.23	.06	3	24.0	†10	.1	3.1	188	365	518	188
Yearly	* 1.84	0		56.5		0	6.9	4,998	4,741	5,240	# 3,070

* Partly estimated " Estimated † 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 Wastway, 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 downstream from the international boundary, 1.2 miles east of the Colorado River and 0.6 mile 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 1973. West Main Canal Wasteway from February 23, 1971 through 1973.

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 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	164	141	154	183	191	178	160	166	169	195	187	144
2	167	138	132	196	175	171	155	158	176	189	194	166
3	165	150	156	167	171	180	143	159	174	206	184	171
4	161	159	162	142	150	188	157	166	172	184	206	151
5	156	177	169	166	158	162	140	167	159	191	212	152
6	139	153	157	144	144	156	162	158	192	192	168	148
7	127	140	143	148	162	151	157	160	167	194	169	165
8	140	134	147	156	171	155	153	149	173	179	161	148
9	145	148	206	162	171	167	167	161	174	175	164	145
10	152	162	160	172	156	173	178	163	174	178	174	148
11	145	158	152	174	160	164	168	161	174	185	193	123
12	161	169	171	172	155	167	168	148	174	178	176	138
13	150	159	149	164	158	177	159	159	187	178	166	173
14	147	146	148	158	181	185	167	155	192	191	174	161
15	137	155	166	162	170	164	177	153	183	172	193	150
16	130	163	153	172	169	153	137	173	174	199	182	167
17	150	145	150	142	162	178	172	153	184	189	171	165
18	144	167	158	138	156	167	158	162	183	201	160	141
19	145	166	163	141	164	152	155	173	168	208	156	141
20	156	136	152	146	163	146	161	181	182	189	186	123
21	143	144	139	149	171	149	182	137	174	167	164	135
22	143	143	133	178	150	170	165	128	163	161	180	148
23	145	138	160	190	166	142	158	156	177	156	189	158
24	150	146	148	158	159	155	172	153	174	177	178	152
25	150	128	144	159	159	166	172	162	179	195	165	135
26	134	151	161	154	160	178	168	153	189	174	154	146
27	140	153	159	160	159	178	148	167	189	166	149	133
28	148	176	155	161	170	168	167	165	203	167	168	140
29	165		172	156	180	164	166	175	184	165	182	151
30	148		171	155	165	152	164	193	177	172	153	158
31	148		169		161		182	147		143		126
Sum	4,596	4,245	4,859	4,825	5,087	4,956	5,088	4,961	5,340	5,615	5,233	4,602

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1935-1973 Acre Feet Average	Maximum	Minimum
Jan.			2	167	7	127	148	9,117	9,350	12,131	* 2,123
Feb.			5	177	25	128	152	8,420	9,186	12,970	* 2,023
Mar.			9	206	2	132	157	9,638	10,513	13,704	* 2,322
Apr.			2	196	18	138	161	9,570	10,219	12,982	2,117
May			1	191	6	144	164	10,090	10,436	13,900	2,473
June			4	188	23	142	165	9,330	9,612	12,570	2,525
July			16	187	5	140	164	10,091	9,489	12,420	2,927
Aug.			30	193	22	128	160	9,841	9,438	12,657	2,939
Sept.			28	203	5	159	173	10,592	9,446	12,450	2,602
Oct.			3	206	31	143	181	11,139	10,622	13,893	3,444
Nov.			5	212	27	149	175	10,389	10,446	12,712	3,407
Dec.			13	173	†11	123	148	9,127	9,947	12,050	2,838
Yearly				212		123	163	117,844	118,704	149,010	31,840

∅ Mean daily † And other days * Partly estimated

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 upstream from the southerly international boundary, 2 miles west of San Luis, Arizona, and 19.4 miles 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 1973; continuous record of gage heights, January 1947 through 1973. 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 on December 18, 1952; maximum gage height, 84.84 feet on November 29, 1957. Minimum discharge, no flow on several occasions since September 1, 1956.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	224	232	250	149	220	234	220	186	204	207	224	234
2	228	234	248	231	217	232	217	188	215	207	228	234
3	226	239	250	239	217	232	217	182	217	207	176	264
4	222	237	248	226	217	245	215	192	217	209	215	254
5	222	255	266	224	217	245	215	202	211	211	234	243
6	220	268	264	224	220	228	213	227	209	209	245	241
7	220	248	248	226	220	226	213	221	207	207	234	241
8	220	243	241	222	220	226	211	215	205	205	230	241
9	220	243	243	224	217	226	211	211	205	207	232	237
10	217	239	243	224	215	226	211	205	205	215	232	232
11	215	243	239	215	215	226	211	207	205	213	234	234
12	211	241	239	211	215	226	209	205	207	213	234	232
13	213	241	237	213	220	224	207	205	209	213	239	228
14	215	241	234	215	220	224	204	204	196	215	239	224
15	217	241	332	224	217	220	202	200	194	215	239	226
16	220	243	415	228	220	217	155	205	194	213	237	232
17	220	243	279	226	217	217	175	215	192	213	237	239
18	222	243	261	224	224	215	205	217	190	217	237	243
19	224	241	254	224	228	213	215	213	186	220	232	241
20	222	239	249	222	226	220	224	205	198	217	232	241
21	224	243	245	224	230	222	220	151	207	220	232	241
22	224	250	243	224	230	224	220	175	209	222	232	245
23	222	286	241	226	230	220	175	174	209	224	232	243
24	222	582	241	224	232	217	79.4	212	215	226	239	241
25	222	601	241	222	234	215	72.6	211	215	226	237	234
26	224	315	239	217	234	211	99.1	192	213	228	234	234
27	226	266	239	217	234	211	108	177	211	226	234	232
28	224	266	237	217	237	215	149	194	211	226	232	232
29	226		230	215	234	220	157	213	211	228	232	232
30	228		225	217	234	220	157	224	209	224	237	232
31	230		133		234		183	203		224		228
Sum	6,870	7,663	7,754	6,594	6,945	6,697	5,770.1	6,231	6,176	6,707	6,951	7,355

Month	Current Year 1973 — Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1935-1973 — Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	75.80	75.65	† 2	230	†12	211	222	13,626	393,282	1,672,000	1,821
Feb.	77.44	75.80	†24	731	1	230	274	15,199	327,398	1,385,000	2,040
Mar.	76.72	74.90	16	501	31	96.0	250	15,380	263,132	1,127,000	798
Apr.	75.76	74.90	2	257	1	90.0	220	13,079	167,713	700,900	36.7
May	75.75	75.57	†25	237	9	213	224	13,775	230,573	1,160,000	1,045
June	75.91	75.68	1	259	†26	209	223	13,283	177,310	1,180,000	143
July	75.74	74.60	20	228	†24	59.0	186	11,445	129,749	772,800	0
Aug.	75.85	75.09	6	248	21	104	201	12,359	144,569	796,000	0
Sept.	76.00	75.62	† 3	217	1	179	206	12,250	175,457	1,033,000	0
Oct.	76.10	75.99	†25	228	† 8	205	216	13,303	224,669	1,192,000	9,120
Nov.	76.13	75.67	† 5	252	3	155	232	13,787	294,807	1,428,000	7,180
Dec.	76.35	75.82	3	285	†13	222	237	14,588	371,263	1,839,000	2,320
Yearly	77.44	74.60		731		59.0	224	162,074	2,899,922	10,688,800	83,792

† And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75.66	75.81	75.90	75.22	75.60	75.75	75.73	75.50	75.76	76.00	76.05	76.08
2	75.68	75.82	75.90	75.64	75.59	75.75	75.72	75.51	75.83	76.00	76.06	76.08
3	75.68	75.84	75.92	75.67	75.59	75.76	75.72	75.48	75.84	76.00	75.78	76.25
4	75.67	75.83	75.92	75.61	75.59	75.83	75.71	75.53	75.85	76.01	75.98	76.21
5	75.68	75.90	76.01	75.60	75.59	75.85	75.71	75.58	75.83	76.02	76.06	76.14
6	75.68	75.96	76.00	75.60	75.60	75.77	75.70	75.70	75.84	76.01	76.10	76.12
7	75.69	75.88	75.93	75.60	75.60	75.76	75.70	75.69	75.85	76.00	76.04	76.11
8	75.69	75.86	75.90	75.58	75.60	75.76	75.69	75.66	75.86	75.99	76.01	76.10
9	75.70	75.86	75.91	75.59	75.59	75.76	75.69	75.65	75.88	76.00	76.01	76.07
10	75.69	75.84	75.90	75.59	75.59	75.76	75.69	75.63	75.90	76.04	76.01	76.04
11	75.68	75.86	75.87	75.55	75.59	75.76	75.69	75.64	75.90	76.03	76.01	76.04
12	75.67	75.85	75.86	75.53	75.60	75.76	75.68	75.63	75.91	76.03	76.01	76.01
13	75.68	75.85	75.84	75.54	75.62	75.75	75.67	75.63	75.92	76.03	76.02	75.97
14	75.69	75.85	75.82	75.55	75.62	75.75	75.65	75.62	75.86	76.04	76.02	75.93
15	75.71	75.85	76.17	75.59	75.62	75.73	75.64	75.60	75.85	76.04	76.02	75.92
16	75.72	75.86	76.47	75.61	75.63	75.72	75.36	75.63	75.85	76.03	76.01	75.93
17	75.72	75.86	75.97	75.60	75.63	75.72	75.42	75.68	75.85	76.03	76.01	75.94
18	75.73	75.86	75.88	75.59	75.66	75.71	75.58	75.69	75.84	76.05	76.01	75.94
19	75.74	75.85	75.85	75.59	75.68	75.70	75.63	75.67	75.82	76.06	75.99	75.93
20	75.74	75.84	75.82	75.58	75.68	75.73	75.67	75.63	75.88	76.05	75.98	75.92
21	75.75	75.86	75.79	75.59	75.70	75.74	75.65	75.36	75.93	76.06	75.98	75.92
22	75.75	75.89	75.77	75.59	75.71	75.75	75.65	75.50	75.95	76.07	75.99	75.93
23	75.74	76.03	75.74	75.60	75.71	75.73	75.42	75.50	75.95	76.08	76.00	75.92
24	75.74	77.00	75.74	75.60	75.72	75.72	74.79	75.74	75.98	76.09	76.04	75.90
25	75.75	77.06	75.74	75.59	75.73	75.71	74.74	75.76	75.98	76.09	76.04	75.87
26	75.76	76.15	75.72	75.57	75.73	75.69	74.97	75.67	75.98	76.09	76.04	75.87
27	75.77	75.96	75.71	75.57	75.74	75.69	75.03	75.60	75.98	76.08	76.05	75.86
28	75.77	75.96	75.70	75.58	75.75	75.71	75.29	75.69	75.99	76.08	76.05	75.85
29	75.78		75.66	75.57	75.74	75.73	75.33	75.79	76.00	76.08	76.06	75.85
30	75.79		75.63	75.58	75.74	75.73	75.33	75.84	76.00	76.06	76.09	75.85
31	75.80		75.13		75.74		75.48	75.74		76.05		75.82
Avg.	75.72	75.97	75.84	75.58	75.65	75.74	75.51	75.63	75.90	76.04	76.02	75.98

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 downstream from the wasteway gates on Canal de Conexion, 16.8 miles downstream from Morelos Dam, and 0.2 mile 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. 1973 records good. Records available: April 1956 through 1973.

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.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1956-1973		
		Average	Maximum	Minimum
January	4,927	5,807	69,527	0
February	4,433	1,370	8,679	0
March	6,461	6,801	35,492	0
April	0	14,704	68,714	0
May	0	6,344	22,072	0
June	0	10,131	28,915	0
July	0	15,893	46,139	0
August	0	17,318	55,497	0
September	0	10,361	37,194	0
October	0	4,454	20,512	0
November	0	8,927	69,415	0
December	720	5,656	70,213	0
Yearly	16,541	100,969	346,339	0

WASTEWAY TO COLORADO RIVER AT COLONIA ELIAS IN MEXICO

DESCRIPTION: Wasteway structure located at Kilometer 7+570 of the Barrote Canal on the right bank of the Colorado River in Colonia Elias about 20.5 miles downstream from the southerly international boundary and the town of San Luis Rio Colorado, Sonora; about 10 miles upstream from the Sonora-Baja California railroad bridge and 4.3 miles upstream from the Miguel C. Rodriguez Gaging Station. The wasteway gates are located about 2,500 feet from the right bank of the Colorado River.
RECORDS: Data obtained by the Ministry of Hydraulic Resources and furnished by the Mexican Section of the Commission are based on gate openings. Records available: January 1957 through 1973.
REMARKS: The wasteway structure has 3 manually operated rectangular gates which discharge directly from the Barrote Canal into a wasteway leading to the Colorado River.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1957-1973		
		Average	Maximum	Minimum
January	0	464	3,201	0
February	0	306	4,097	0
March	0	489	6,850	0
April	0	377	3,707	0
May	0	85.9	1,163	0
June	0	44.6	625	0
July	0	253	4,296	0
August	0	242	1,926	0
September	0	293	1,548	0
October	0	87.6	791	0
November	0	210	1,891	0
December	0	259	3,047	0
Yearly	0	3,111	13,429	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 downstream from the southerly international boundary, 44.5 miles downstream from Morelos Dam and 4.5 miles 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 28 double current meter measurements 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 1973.

REMARKS: Diversions and return flows modify the flow of the river at this station. On many occasions the flow at this station consists solely of seepage from canals which run parallel and adjacent to the river at a higher elevation.

EXTREMES: Since January 1, 1952: Maximum mean daily gage height, 53.28 feet on January 4, 1958 with a discharge of 18,500 second-feet; minimum mean daily gage height, 37.73 feet on July 18, 1970 with a discharge of 2.8 second-feet; maximum mean daily discharge, 20,200 second-feet on December 19,1952 with a gage height of 52.30 feet; minimum mean daily discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	148	138	320	121	92.5	112	78.4	30.0	67.1	67.5	75.9	104
2	149	125	305	119	91.8	115	78.4	32.8	67.5	68.2	75.6	105
3	151	106	289	117	91.1	118	77.0	35.3	67.5	68.5	75.6	106
4	153	106	273	115	90.4	121	75.2	38.1	67.5	68.9	75.2	106
5	155	125	257	113	89.7	118	73.8	41.0	67.8	69.6	75.2	107
6	157	138	242	111	89.0	115	72.4	43.8	67.8	69.9	76.3	107
7	159	164	226	109	88.3	112	71.0	46.6	67.8	70.3	77.3	107
8	161	151	210	107	87.6	109	69.2	49.4	67.8	71.0	78.4	108
9	162	132	194	106	86.9	106	67.8	52.3	68.2	71.3	79.5	108
10	177	111	178	105	86.2	102	66.4	54.7	68.2	71.7	80.9	108
11	191	106	163	105	85.1	99.2	64.6	57.6	67.8	72.0	81.9	109
12	206	111	147	104	84.4	96.1	63.2	60.4	67.5	72.4	83.0	109
13	220	111	146	103	83.7	92.9	61.8	63.2	67.5	73.1	84.0	109
14	235	111	145	103	83.0	89.7	60.4	63.6	67.1	73.5	85.1	110
15	249	125	144	102	82.3	86.5	58.6	63.6	66.7	73.8	86.2	110
16	232	132	143	102	81.6	83.3	57.2	63.9	66.4	74.2	87.2	111
17	214	125	142	102	80.9	80.2	54.7	64.3	66.0	74.5	88.3	111
18	196	132	141	101	79.8	77.0	52.6	64.6	66.0	74.9	89.3	115
19	178	144	139	101	79.1	77.0	50.1	64.6	65.7	75.2	90.4	120
20	161	151	139	99.9	78.4	77.3	47.7	65.0	65.3	75.9	91.8	124
21	143	176	138	99.6	77.7	77.3	45.6	65.3	65.0	76.3	92.9	129
22	125	249	137	98.9	80.9	77.3	43.1	65.3	65.0	76.6	93.9	133
23	124	314	136	98.5	84.0	77.3	40.6	65.7	64.6	77.0	95.0	137
24	124	424	135	97.8	87.2	77.7	38.5	66.0	64.3	77.0	96.1	142
25	123	413	133	97.1	90.1	77.7	36.0	66.4	64.6	76.6	97.1	146
26	123	519	132	96.4	93.2	77.7	33.9	66.4	65.3	76.6	98.2	150
27	122	448	131	95.7	96.4	78.0	31.4	66.7	65.7	76.3	99.2	155
28	122	336	129	95.0	99.6	78.0	29.0	66.7	66.0	76.3	100	159
29	121		127	94.3	103	78.0	26.8	67.1	66.7	76.3	102	164
30	121		125	93.2	106	78.0	24.4	67.1	67.1	75.9	103	168
31	120		123		109		27.2	67.1		75.9		172
Sum	5,021	5,423	5,385	3,114.0	2,738.7	2,765.5	1,677.1	1,784.8	1,997.4	2,277.1	2,614.3	3,849

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	ø Extreme Second Feet High Day	ø Extreme Second Feet High	ø Extreme Second Feet Low Day	ø Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1951-1973 Acre Feet Average	Maximum	Minimum
Jan.	43.80	41.83	15	249	31	120	162	9,960	219,833	1,047,732	426
Feb.	43.96	42.26	26	519	† 3	106	194	10,757	138,638	696,461	317
Mar.	43.18	42.19	1	320	31	123	174	10,682	97,549	807,342	0
Apr.	42.49	42.19	1	121	30	93.2	104	6,177	64,001	588,983	0
May	42.39	41.47	31	109	21	77.7	88.3	5,432	88,975	732,815	0
June	42.16	41.54	4	121	†18	77.0	92.2	5,485	38,985	555,460	0
July	41.63	37.99	† 1	78.4	30	24.4	54.0	3,326	20,990	264,561	0
Aug.	41.34	40.55	†29	67.1	1	30.0	57.6	3,540	31,060	309,320	0
Sept.	41.37	41.01	† 9	68.2	24	64.3	66.7	3,962	48,494	572,551	0
Oct.	41.83	41.34	†23	77.0	1	67.5	73.5	4,516	80,785	769,939	2,456
Nov.	42.13	41.86	30	103	† 4	75.2	87.2	5,185	133,033	909,399	5,135
Dec.	42.65	41.14	31	172	1	104.0	124	7,635	179,395	1,060,767	687
Yearly	43.96	37.99		519		24.4	106	76,657	1,106,981	7,923,600	25,036

† And other days ø Mean daily

COLORADO RIVER AT MIGUEL C. RODRIGUEZ IN MEXICO – STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41.83	42.39	42.98	42.39	42.36	41.80	41.57	41.14	41.31	41.34	41.86	42.13
2	42.22	42.32	43.04	42.19	42.36	41.83	41.60	41.01	41.08	41.34	41.93	42.13
3	42.91	42.26	43.11	42.19	42.39	41.86	41.60	40.94	41.21	41.34	41.99	42.13
4	42.91	42.26	43.11	42.32	42.39	42.13	41.57	40.94	41.27	41.37	41.96	42.19
5	43.41	42.32	43.08	42.39	42.39	42.03	41.57	41.01	41.31	41.44	42.03	42.26
6	43.01	42.39	42.85	42.39	42.36	41.99	41.57	41.04	41.27	41.44	41.93	42.22
7	43.01	42.52	42.81	42.45	42.39	41.93	41.60	41.08	41.24	41.44	42.09	42.19
8	42.59	42.45	42.78	42.49	42.36	41.86	41.63	41.14	41.24	41.40	42.13	42.19
9	42.22	42.36	42.68	42.45	42.36	41.86	41.57	41.37	41.27	41.40	42.06	42.16
10	42.68	42.29	42.62	42.45	42.26	41.83	41.54	41.08	41.27	41.40	42.06	42.16
11	42.91	42.26	42.62	42.45	41.99	41.80	41.47	41.08	41.34	41.50	42.06	42.16
12	43.11	42.29	42.65	42.45	41.86	41.83	41.40	41.08	41.34	41.57	42.06	42.16
13	43.08	42.29	42.45	42.39	41.77	41.80	41.34	41.21	41.31	41.57	42.06	42.16
14	42.88	42.29	42.42	42.36	41.73	41.80	41.24	41.17	41.31	41.57	42.09	42.16
15	42.91	42.32	42.49	42.39	41.73	41.80	41.27	41.17	41.21	41.57	42.09	42.09
16	42.91	42.36	42.65	42.42	41.73	41.77	41.24	41.21	41.08	41.57	42.09	41.57
17	43.21	42.32	42.65	42.39	41.77	41.73	41.21	41.17	41.01	41.57	42.09	41.14
18	43.01	42.36	42.65	42.39	41.77	41.67	41.17	41.21	41.01	41.57	42.13	41.17
19	42.78	42.42	42.62	42.39	41.73	41.63	41.08	41.24	40.98	41.57	42.06	41.17
20	42.62	42.45	42.55	42.39	41.57	41.60	41.08	41.24	40.94	41.63	42.03	41.21
21	42.59	42.59	42.45	42.39	41.60	41.63	40.98	41.24	40.98	41.60	42.03	41.21
22	42.59	42.95	42.32	42.39	41.70	41.67	40.91	40.75	41.08	41.60	42.06	41.24
23	42.49	43.24	42.26	42.39	41.70	41.67	39.86	40.65	41.17	41.67	42.06	41.27
24	42.49	43.67	42.26	42.36	41.70	41.70	38.06	40.58	41.17	41.67	42.06	41.31
25	42.49	43.64	42.26	42.36	41.73	41.67	37.99	41.21	41.24	41.70	42.09	41.31
26	42.52	43.90	42.29	42.36	41.77	41.67	38.12	41.24	41.24	41.73	42.13	41.34
27	42.49	43.73	42.29	42.36	41.80	41.60	38.09	41.24	41.27	41.73	42.09	41.44
28	42.42	43.34	42.26	42.36	41.83	41.54	38.02	41.04	41.31	41.73	42.09	42.03
29	42.42		42.22	42.39	41.80	41.54	38.65	40.98	41.31	41.77	42.13	42.26
30	42.42		42.22	42.39	41.83	41.60	38.68	41.14	41.34	41.80	42.13	42.45
31	42.39		42.22		41.80		38.71	41.31		41.80		42.55
Avg.	42.68	42.65	42.59	42.39	41.96	41.77	40.52	41.11	41.21	41.57	42.06	41.83

WASTEWAY TO COLORADO RIVER AT UNION IN MEXICO

DESCRIPTION: Wasteway structure located at Kilometer 21+736 of the Barrote Canal in the Colonia Hidalgo about 1,500 feet from right bank of the Colorado River. The wasteway discharges into the Colorado River at a point about 0.6 mile upstream from the Sonora-Baja California railroad bridge and 30 miles downstream from the southerly international boundary.
RECORDS: Data obtained by the Ministry of Hydraulic Resources and furnished by the Mexican Section of the Commission are based on gate openings. Records available: January 1957 through 1973.
REMARKS: The wasteway structure has 3 manually operated rectangular gates which discharge from the Barrote Canal into a wasteway leading to the Colorado River.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1957-1973		
		Average	Maximum	Minimum
January	0	702	3,166	0
February	0	381	2,788	0
March	0	949	7,074	0
April	0	691	4,462	0
May	0	854	4,413	0
June	0	178	1,505	0
July	0	387	4,296	0
August	0	206	1,857	0
September	0	290	1,800	0
October	0	632	6,997	0
November	0	203	3,413	0
December	0	236	1,205	0
Yearly	0	5,703	24,526	0

COLORADO RIVER AT EL MARITIMO IN MEXICO - STAGES

DESCRIPTION: Water-stage recorder and cableway in Mexico, 47.6 miles downstream from the southerly international boundary, 18.6 miles downstream from the Sonora-Baja California railroad bridge and 3.7 miles 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 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 1973.

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, 4,410 second-feet, January 21 and December 7 and 8, 1960; minimum discharge, no flow on various occasions. Maximum monthly discharge, 225,224 acre-feet, January 1960; minimum monthly discharge, zero during various months of several years. Annual maximum discharge, 503,260 acre-feet during 1960; minimum 59,335 acre-feet in 1968. January 1960 through 1973: Maximum instantaneous gage height, 18.73 feet on January 21, 1960; minimum gage height, 12.47 feet on August 31 and September 1, 1960.

Mean Daily Gage Height in Feet 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.75	16.01	16.14	15.98	16.01	15.75	15.49	15.22	14.99	14.96	14.70	15.29
2	15.81	16.01	16.17	15.98	16.01	15.75	15.49	15.22	14.99	14.96	14.70	15.29
3	15.85	16.01	16.17	15.98	16.01	15.75	15.49	15.22	15.03	14.96	14.73	15.29
4	15.85	16.01	16.21	16.01	16.01	15.75	15.49	15.19	15.03	14.96	14.73	15.29
5	15.88	16.01	16.21	16.01	16.01	15.72	15.45	15.19	15.03	14.96	14.76	15.29
6	15.88	16.01	16.21	16.01	16.01	15.72	15.45	15.16	15.03	14.96	14.76	15.29
7	15.91	16.01	16.21	16.01	16.01	15.72	15.45	15.16	15.03	14.96	14.76	15.29
8	15.91	16.01	16.21	16.01	15.98	15.68	15.45	15.16	15.03	14.96	14.76	15.29
9	15.94	16.01	16.21	16.01	15.98	15.68	15.42	15.12	14.99	14.96	14.80	15.26
10	15.94	16.01	16.21	16.01	15.98	15.68	15.42	15.16	14.99	14.96	14.80	15.26
11	15.94	16.01	16.21	16.01	15.98	15.68	15.42	15.16	14.96	14.96	14.83	15.29
12	15.98	16.01	16.21	16.01	15.98	15.65	15.39	15.16	14.96	14.96	14.83	15.29
13	16.01	16.01	16.21	16.01	15.94	15.65	15.39	15.19	14.96	14.96	14.83	15.29
14	16.01	16.01	16.21	16.01	15.94	15.62	15.35	15.19	14.96	14.96	14.83	15.29
15	16.04	16.01	16.21	16.01	15.94	15.62	15.35	15.16	14.96	14.96	14.86	15.29
16	16.04	16.01	16.21	16.01	15.94	15.62	15.35	15.16	14.96	14.96	14.86	15.32
17	16.04	16.01	16.21	16.01	15.94	15.58	15.35	15.16	14.96	14.96	14.90	15.32
18	16.08	16.01	16.21	16.01	15.94	15.58	15.35	15.16	14.96	14.96	14.90	15.35
19	16.08	16.01	16.21	16.01	15.91	15.55	15.32	15.16	14.96	15.03	14.93	15.35
20	16.11	16.01	16.21	16.01	15.91	15.55	15.32	15.16	14.96	15.03	14.96	15.35
21	16.11	16.01	16.21	16.01	15.88	15.55	15.29	15.12	14.96	15.03	14.96	15.35
22	16.08	16.08	16.21	16.01	15.88	15.52	15.29	15.12	14.96	15.03	14.96	15.35
23	16.08	16.11	16.21	16.01	15.85	15.52	15.29	15.12	14.96	15.03	14.99	15.39
24	16.01	16.14	16.21	16.01	15.81	15.52	15.29	15.12	14.96	15.03	15.03	15.39
25	16.01	16.14	16.21	16.04	15.81	15.52	15.26	15.12	14.96	15.03	15.03	15.42
26	16.01	16.21	16.21	16.04	15.81	15.49	15.26	15.12	14.96	15.03	15.06	15.42
27	16.01	16.17	16.14	16.01	15.78	15.49	15.26	15.09	14.96	15.03	15.09	15.45
28	16.01	16.17	16.14	16.01	15.75	15.49	15.22	15.06	14.96	15.03	15.09	15.49
29	16.01		16.08	16.01	15.75	15.49	15.22	15.06	14.96	15.03	15.12	15.52
30	16.01		16.08	16.01	15.75	15.49	15.22	15.03	14.96	15.03	15.16	15.55
31	16.01		16.08		15.75		15.22	15.03		15.03		15.58
Avg.	15.98	16.04	16.17	16.01	15.91	15.62	15.35	15.16	14.99	14.99	14.90	15.35

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)	
	1973	Average 1935-1973	1973	Average 1951-1973	1973	Average 1939-1973	1973	Estimated Average
Jan.	19,200	16,572	1,607	1,650	542.2	555.2	21,349.2	18,777.2
Feb.	19,453	16,280	1,748	1,678	537.7	558.9	21,738.7	18,516.9
Mar.	19,980	16,000	1,679	1,676	565.0	573.8	22,224.0	18,249.8
Apr.	20,966	16,181	1,607	1,690	599.4	603.5	23,172.4	18,474.5
May	20,937	17,226	1,773	1,744	609.4	602.8	23,319.4	19,572.8
June	20,993	18,670	1,639	1,628	605.8	605.5	23,237.8	20,903.5
July	20,796	18,868	1,494	1,490	595.4	593.8	22,885.4	20,951.8
Aug.	20,445	18,610	1,506	1,418	573.7	576.1	22,524.7	20,604.1
Sept.	20,176	18,277	1,412	1,401	562.0	570.6	22,150.0	20,248.6
Oct.	20,071	17,986	1,376	1,424	553.9	573.4	22,000.9	19,983.4
Nov.	19,970	17,724	1,464	1,503	554.3	562.3	21,988.3	19,789.3
Dec.	19,737	17,423	1,570	1,600	544.5	557.3	21,851.5	19,580.3
Avg.	20,227	17,485	1,573	1,575	570.3	577.8	22,370.3	19,637.8
Max.	20,993	27,780	1,773	1,808	609.4	688.7	23,319.4	28,235.0
Min.	19,200	* 10,727	1,376	1,186	537.7	76.9	21,349.2	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-43 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.

Colorado River at Northerly International Boundary

Period 1956-1973

Month	1973 Tons Water	1973 Tons Silt	1973 No. of Samples	1973 Gravimetric Percentages Average	1973 Gravimetric Percentages Maximum Sample	1973 Gravimetric Percentages Minimum Sample	1973 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Average	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Maximum	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Minimum
Jan.	138,922,000	4,300	5	0.0031	0.0046	0.0015	2.3	32.2	336	1.6
Feb.	116,903,000	7,200	4	.0061	.0150	.0019	3.9	14.9	116	1.6
Mar.	234,943,000	25,600	4	.0109	.0139	.0077	13.9	47.9	499	8.8
Apr.	209,874,000	14,500	4	.0069	.0099	.0048	7.9	43.6	434	7.9
May	106,743,000	12,700	5	.0122	.0225	.0044	6.9	16.2	201	2.3
June	139,171,000	24,600	4	.0176	.0230	.0144	13.3	16.5	92.6	4.4
July	193,270,000	15,700	4	.0081	.0139	.0066	8.5	22.3	89.3	6.1
Aug.	177,555,000	13,600	5	.0076	.0148	.0038	7.4	21.4	103	6.2
Sept.	106,285,000	4,100	4	.0039	.0045	.0029	2.2	9.2	43.6	1.6
Oct.	91,179,000	2,600	5	.0028	.0039	.0014	1.4	4.4	20.0	.8
Nov.	72,933,000	1,700	4	.0023	.0032	.0014	.9	11.6	89.9	.5
Dec.	153,188,000	8,200	4	.0053	.0060	.0035	4.4	22.8	174	.6
Yearly	1,740,966,000	134,800	52	0.0072	0.0230	0.0014	73.0	263.0	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 1952-1973

Month	1973 Tons Water	1973 Tons Silt	1973 No. of Samples	1973 Gravimetric Percentages Average	1973 Gravimetric Percentages Maximum Sample	1973 Gravimetric Percentages Minimum Sample	1973 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Average	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Maximum	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Minimum
Jan.	138,202,000	7,672	4	0.0056	0.0078	0.0025	4.1	5.6	22.3	0.2
Feb.	112,430,000	7,420	7	.0066	.0089	.0023	4.0	5.9	19.4	.9
Mar.	232,937,000	26,813	6	.0115	.0204	.0079	14.5	45.1	154	11.1
Apr.	209,108,000	20,047	4	.0096	.0119	.0063	10.9	40.6	121	10.9
May	106,116,000	8,184	5	.0077	.0111	.0053	4.5	11.0	51.2	1.5
June	138,907,000	12,767	3	.0092	.0122	.0072	6.9	31.3	109	4.7
July	192,813,000	16,926	5	.0088	.0137	.0053	9.2	45.2	156	5.8
Aug.	177,165,000	18,927	4	.0107	.0127	.0082	10.2	41.8	135	6.8
Sept.	105,611,000	8,296	4	.0079	.0108	.0039	4.5	17.2	64.7	1.9
Oct.	90,888,000	7,258	4	.0080	.0108	.0025	3.9	4.3	12.0	.3
Nov.	72,801,000	2,921	4	.0040	.0065	.0016	1.5	2.2	9.3	.2
Dec.	152,993,000	10,298	5	.0067	.0076	.0056	5.6	4.8	14.8	1.1
Yearly	1,729,971,000	147,528	55	0.0080	0.0204	0.0016	79.7	255	696	67.5

Samples and analyses by Mexican Section, Method B

SUSPENDED SILT

Colorado River at Southerly International Boundary

Period 1946-1973

Month	1973 Tons Water	1973 Tons Silt	1973 No. of Samples	1973 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1973 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	18,518,000	800	5	0.0043	0.0102	0.0029	0.4			
Feb.	20,655,000	1,500	3	.0072	.0113	.0039	.8			
Mar.	20,901,000		0							
Apr.	17,774,000		0							
May	18,720,000		0							
June	18,052,000		0							
July	15,554,000	700	1	.0045	.0054	.0040	.4			
Aug.	16,796,000	1,100	1	.0065	.0082	.0055	.6			
Sept.	16,648,000	1,600	1	.0096	.0107	.0084	.9			
Oct.	18,079,000	1,400	1	.0077	.0092	.0063	.8			
Nov.	18,737,000	1,900	1	.0101	.0124	.0067	1.0			
Dec.	19,825,000	2,800	1	.0141	.0150	.0125	1.5			
Yearly	220,259,000		14							

Samples and analyses by U. S. Section, Method A

Colorado River at Miguel C. Rodriguez Gaging Station

Period 1960-1973

Month	1973 Tons Water	1973 Tons Silt	1973 No. of Samples	1973 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1973 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	13,542,000	905	5	0.0067	0.0092	0.0047	0.5	20.2	251	0
Feb.	14,625,000	995	3	.0068	.0083	.0051	.6	3.1	13.9	0
Mar.	14,524,000	1,313	2	.0090	.0117	.0058	.7	.6	4.1	0
Apr.	8,398,000	858	2	.0102	.0120	.0075	.5	.2	1.1	0
May	7,385,000	1,053	2	.0143	.0175	.0121	.6	.4	1.5	0
June	7,458,000	1,321	2	.0177	.0204	.0096	.7	.1	.1	0
July	4,523,000	196	3	.0043	.0087	.0020	.1	*	.2	0
Aug.	4,814,000	164	2	.0034	.0051	.0021	.1	*	.2	0
Sept.	5,387,000	128	2	.0024	.0036	.0010	.1	.4	4.5	0
Oct.	6,141,000	326	2	.0053	.0071	.0035	.2	2.4	20.8	.1
Nov.	7,050,000	291	2	.0041	.0075	.0021	.2	3.6	36.0	.2
Dec.	10,382,000	423	2	.0041	.0050	.0030	.2	3.4	13.0	0
Yearly	104,230,000	7,973	29	0.0074	0.0204	0.0010	4.4	34.3	289	1.6

Samples and analyses by Mexican Section, Method C

* Less than 0.1 acre-foot

CHEMICAL ANALYSES OF WATER SAMPLES
1973

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; (CO_3 plus HCO_3) expressed at CO_3, 30.00; SO_4, 48.03; Cl, 35.45; NO_3, 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 $EC \times 10^6$ at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids		$EC \times 10^6$ @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
Colorado River at Northerly International Boundary															
Jan.	5	1.42	145,000	1,660		8.1	50	33	5.28	3.19	8.40	3.38	8.11	5.59	
Feb.	4	1.40	121,000	1,683		8.1	50	33	5.34	3.24	8.55	3.44	8.20	5.65	
Mar.	4	1.25	217,000	1,485		8.1	48	31	4.96	2.86	7.34	3.18	7.46	4.69	
Apr.	5	1.25	193,000	1,463		8.1	48	31	4.96	2.81	7.24	3.17	7.25	4.67	
May	4	1.22	96,100	1,457		8.1	52	39	4.60	2.40	7.52	3.49	5.47	5.73	
June	5	1.23	126,000	1,526		8.1	53	40	4.71	2.47	8.06	3.53	5.77	6.10	
July	5	1.33	189,000	1,551		8.1	49	33	5.05	2.92	7.80	3.20	7.44	5.24	
Aug.	4	1.30	170,000	1,544		8.1	50	32	5.01	3.00	7.70	3.13	7.70	5.07	
Sept.	4	1.41	110,000	1,643		8.1	50	34	5.23	3.15	8.41	3.28	7.87	5.75	
Oct.	5	1.47	98,400	1,753		8.1	51	35	5.55	3.19	9.20	3.52	8.20	6.30	
Nov.	4	1.56	83,700	1,810		8.1	52	35	5.77	3.14	9.59	3.71	8.41	6.49	
Dec.	4	1.39	157,000	1,667		8.1	50	33	5.40	3.06	8.61	3.40	8.14	5.60	
Mean ⊕	ø53	1.35	ø1,706,200	1,604		8.1	50	34	5.16	2.95	8.20	3.37	7.50	5.57	
Period Avg.		1.68	2,454,542	2,040		7.9			6.08	3.76	10.63	3.33	8.52	8.64	
Tons of Constituents				1973					180,000	62,500	328,000	176,000	627,000	344,000	
Avg. Tons				Period 1962-1973					241,000	90,700	486,000	195,000	805,000	617,000	

** Percent of total cations *** Percent of total anions ⊕ Weighted mean ø Total

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1973

The following tables show electrical conductivity, expressed in mhos per centimeter x 10^6 at 25°C, of individual water samples taken at Colorado River stations and in Mexican canals. Samples were taken at the northerly and southerly international boundary stations by both Sections of the Commission and conductivity determinations were made by the United States Geological Survey. Samples for the Intake Canal at Morelos Dam, Sanchez Mejorada Canal, and Miguel C. Rodriguez Gaging Station were taken by the Mexican Section of the Commission, who also made determinations for the Sanchez Mejorada Canal. Determinations for the Intake Canal at Morelos Dam and Miguel C. Rodriguez Gaging Station 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	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Colorado River at Northerly International Boundary

January		February		April		May		July		August		October		November	
1	1,600	15	1,580	1	1,420	16	1,460	1	1,550	16	1,460	1	1,690	16	1,810
2	1,570	16	1,650	2	1,440	17	1,450	2	1,540	17	1,520	2	1,590	17	1,790
3	1,580	17	1,660	3	1,380	18	1,440	3	1,540	18	1,450	3	1,590	18	1,790
4	1,570	18	1,660	4	1,390	19	1,440	4	1,560	19	1,490	4	1,670	19	1,810
5	1,610	19	1,680	5	1,370	20	1,420	5	1,530	20	1,620	5	1,680	20	1,840
6	1,570	20	1,690	6	1,400	21	1,380	6	1,550	21	1,480	6	1,680	21	1,790
7	1,590	21	1,620	7	1,450	22	1,380	7	1,570	22	1,520	7	1,680	22	1,760
8	1,620	22	1,600	8	1,440	23	1,360	8	1,560	23	1,340	8	1,710	23	1,790
9	1,610	23	1,490	9	1,450	24	1,390	9	1,580	24	1,440	9	1,740	24	1,810
10	1,610	24	1,550	10	1,470	25	1,400	10	1,570	25	1,480	10	1,690	25	1,820
11	1,610	25	1,600	11	1,450	26	1,370	11	1,610	26	1,530	11	1,680	26	1,830
12	1,600	26	1,660	12	1,420	27	1,350	12	1,590	27	1,520	12	1,660	27	1,830
13	1,660	27	1,710	13	1,440	28	1,350	13	1,600	28	1,540	13	1,680	28	1,790
14	1,640	28	1,690	14	1,460	29	1,320	14	1,620	29	1,550	14	1,680	29	1,830
15	1,660	March		15	1,480	30	1,320	15	1,620	30	1,500	15	1,690	30	1,790
16	1,670	1	1,620	16	1,460	31	1,370	16	1,560	31	2,130	16	1,670	December	
17	1,680	2	1,570	17	1,470	June		17	1,570	September		17	1,680	1	1,740
18	1,640	3	1,540	18	1,510	1	1,330	18	1,590	1	1,590	18	1,650	2	1,740
19	1,700	4	1,500	19	1,450	2	1,340	19	1,550	2	1,620	19	1,650	3	1,690
20	1,740	5	1,550	20	1,460	3	1,330	20	1,590	3	1,620	20	1,670	4	1,720
21	1,800	6	1,520	21	1,460	4	1,370	21	1,580	4	1,610	21	1,770	5	1,730
22	1,760	7	1,500	22	1,490	5	1,370	22	1,560	5	1,620	22	1,840	6	1,680
23	1,800	8	1,500	23	1,460	6	1,340	23	1,560	6	1,630	23	1,850	7	1,610
24	1,750	9	1,460	24	1,470	7	1,340	24	1,570	7	1,630	24	1,800	8	1,600
25	1,760	10	1,450	25	1,460	8	1,350	25	1,480	8	1,640	25	1,790	9	1,640
26	1,760	11	1,470	26	1,450	9	1,560	26	1,510	9	1,640	26	1,850	10	1,680
27	1,770	12	1,470	27	1,460	10	1,660	27	1,490	10	1,640	27	1,860	11	1,650
28	1,780	13	1,460	28	1,450	11	1,770	28	1,480	11	1,640	28	1,860	12	1,630
29	1,770	14	1,450	29	1,460	12	1,720	29	1,540	12	1,630	29	1,840	13	1,610
30	1,770	15	1,420	30	1,560	13	1,600	30	1,500	13	1,750	30	1,860	14	1,610
31	1,740	16	1,480	May		14	1,570	31	1,500	14	1,680	31	1,850	15	1,570
February		17	1,470	1	1,580	15	1,600	August		15	1,620	November		16	1,600
1	1,740	18	1,500	2	1,540	16	1,640	1	1,480	16	1,640	1	1,910	17	1,610
2	1,720	19	1,500	3	1,560	17	1,550	2	1,480	17	1,650	2	1,870	18	1,560
3	1,710	20	1,470	4	1,580	18	1,510	3	1,480	18	1,650	3	1,820	19	1,530
4	1,730	21	1,470	5	1,550	19	1,470	4	1,490	19	1,650	4	1,840	20	1,580
5	1,770	22	1,420	6	1,740	20	1,440	5	1,500	20	1,630	5	1,880	21	1,550
6	1,650	23	1,410	7	1,610	21	1,430	6	1,530	21	1,670	6	1,890	22	1,600
7	1,660	24	1,450	8	1,620	22	1,450	7	1,600	22	1,650	7	1,910	23	1,630
8	1,650	25	1,410	9	1,580	23	1,470	8	1,520	23	1,640	8	1,940	24	1,640
9	1,660	26	1,420	10	1,520	24	1,500	9	1,550	24	1,650	9	1,820	25	1,690
10	1,590	27	1,360	11	1,500	25	1,460	10	1,540	25	1,560	10	1,820	26	1,680
11	1,620	28	1,320	12	1,520	26	1,460	11	1,550	26	1,580	11	1,810	27	1,640
12	1,630	29	1,360	13	1,490	27	1,450	12	1,530	27	1,640	12	1,740	28	1,560
13	1,590	30	1,370	14	1,490	28	1,520	13	1,510	28	1,650	13	1,790	29	1,550
14	1,590	31	1,360	15	1,470	29	1,560	14	1,480	29	1,650	14	1,760	30	1,580
						30	1,520	15	1,460	30	1,660	15	1,800	31	1,600

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1973

Intake Canal at Morelos Diversion Structure

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
1	1,675	15	1,625	1	1,490	17	1,400	1	1,550	16	1,450	1	1,700	16	1,800
2	1,600	16	1,550	2	1,480	18	1,400	2	1,525	17	1,500	2	1,575	17	1,825
3	1,600	17	1,700	3	1,400	19	1,400	3	1,525	18	1,450	3	1,650	18	1,825
4	1,600	18	1,750	4	1,400	20	1,375	4	1,550	19	1,500	4	1,625	19	1,850
5	1,650	19	1,725	5	1,400	21	1,350	5	1,525	20	1,900	5	1,700	20	1,850
6	1,625	20	1,750	6	1,400	22	1,325	6	1,550	21	1,500	6	1,675	21	1,775
7	1,725	21	1,700	7	1,500	23	1,325	7	1,600	22	1,525	7	1,675	22	1,775
8	1,700	22	1,700	8	1,400	24	1,375	8	1,600	23	1,350	8	1,700	23	1,800
9	1,600	23	1,450	9	1,425	25	1,375	9	1,600	24	1,400	9	1,750	24	1,825
10	1,650	24	1,550	10	1,450	26	1,350	10	1,600	25	1,425	10	1,675	25	1,850
11	1,700	25	1,700	11	1,500	27	1,300	11	1,600	26	1,500	11	1,680	26	1,850
12	1,625	26	1,700	12	1,400	28	1,330	12	1,600	27	1,525	12	1,675	27	1,875
13	1,700	27	1,800	13	1,400	29	1,300	13	1,600	28	1,525	13	1,675	28	1,800
14	1,700	28	1,700	14	1,450	30	1,290	14	1,650	29	1,550	14	1,675	29	1,825
15	1,700	March		15	1,450	31	1,350	15	1,600	30	1,550	15	1,675	30	1,825
16	1,750	1	1,650	16	1,450	June		16	1,500	31	2,100	16	1,700	December	
17	1,800	2	1,575	17	1,450	1	1,320	17	1,575	September		17	1,700	1	1,750
18	1,725	3	1,525	18	1,450	2	1,325	18	1,550	1	1,600	18	1,675	2	1,750
19	1,775	4	1,500	19	1,490	3	1,350	19	1,550	2	1,625	19	1,675	3	1,700
20	1,800	5	1,600	20	1,420	4	1,350	20	1,600	3	1,625	20	1,700	4	1,725
21	1,825	6	1,525	21	1,450	5	1,375	21	1,625	4	1,625	21	1,800	5	1,775
22	1,850	7	1,500	22	1,480	6	1,325	22	1,600	5	1,625	22	1,850	6	1,700
23	1,875	8	1,500	23	1,420	7	1,350	23	1,575	6	1,625	23	1,875	7	1,650
24	1,850	9	1,450	24	1,450	8	1,350	24	1,575	7	1,650	24	1,850	8	1,700
25	1,825	10	1,425	25	1,475	9	1,500	25	1,500	8	1,650	25	1,850	9	1,700
26	1,850	11	1,425	26	1,450	10	1,625	26	1,500	9	1,625	26	1,850	10	1,700
27	1,900	12	1,525	27	1,450	11	1,725	27	1,500	10	1,650	27	1,850	11	1,650
28	1,850	13	1,475	28	1,500	12	1,650	28	1,500	11	1,600	28	1,850	12	1,625
29	1,900	14	1,475	29	1,475	13	1,550	29	1,550	12	1,625	29	1,850	13	1,700
30	1,950	15	1,400	30	1,550	14	1,525	30	1,550	13	1,700	30	1,750	14	1,600
31	1,850	16	1,500	May		15	1,500	31	1,500	14	1,675	31	1,850	15	1,550
February		17	1,500	1	1,525	16	1,600	August		15	1,600	November		16	1,600
1	1,750	18	1,500	2	1,500	17	1,500	1	1,500	16	1,650	1	1,900	17	1,625
2	1,800	19	1,550	3	1,525	18	1,495	2	1,550	17	1,650	2	1,850	18	1,525
3	1,800	20	1,500	4	1,525	19	1,400	3	1,500	18	1,675	3	1,850	19	1,525
4	1,800	21	1,525	5	1,500	20	1,450	4	1,500	19	1,600	4	1,850	20	1,600
5	1,850	22	1,400	6	1,700	21	1,500	5	1,550	20	1,650	5	1,900	21	1,600
6	1,700	23	1,500	7	1,575	22	1,450	6	1,550	21	1,675	6	1,925	22	1,600
7	1,750	24	1,450	8	1,550	23	1,450	7	1,650	22	1,650	7	1,950	23	1,600
8	1,700	25	1,500	9	1,550	24	1,500	8	1,550	23	1,625	8	1,950	24	1,650
9	1,700	26	1,400	10	1,450	25	1,475	9	1,575	24	1,625	9	1,800	25	1,700
10	1,700	27	1,400	11	1,450	26	1,450	10	1,550	25	1,550	10	1,800	26	1,650
11	1,700	28	1,300	12	1,500	27	1,450	11	1,600	26	1,550	11	1,800	27	1,650
12	1,700	29	1,375	13	1,450	28	1,550	12	1,575	27	1,625	12	1,725	28	1,525
13	1,700	30	1,425	14	1,450	29	1,575	13	1,575	28	1,700	13	1,775	29	1,550
14	1,650	31	1,400	15	1,425	30	1,525	14	1,500	29	1,675	14	1,750	30	1,600
				16	1,400			15	1,450	30	1,650	15	1,800	31	1,600

Colorado River at Southerly International Boundary

January		February		April		July		August		September		October		November	
2	4,900	20	4,940	3	4,920	3	5,470	21	5,000	18	5,600	23	5,870	20	5,890
16	5,010	March		24	6,000	17	5,820	28	4,910	October		November		December	
February		9	4,850	June		August		September		2	5,780	6	5,380	26	5,880
6	6,160			5	5,530	7	5,670	4	5,650						

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1973

Sánchez Mejorada Canal

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
5	2,500	27	2,580	10	2,520	28	2,540	10	2,450	28	2,440	17	2,540	30	2,560
11	2,500	March		17	2,610	June		18	2,430	30	2,520	22	2,570	December	
18	2,550	6	2,950	24	2,660	5	2,580	24	2,440	September		26	2,530	4	2,590
26	2,570	13	2,580	27	2,740	12	2,530	27	2,650	18	2,500	29	2,500	11	2,530
February		20	2,600	May		19	2,650	31	2,500	24	2,570	November		18	2,500
2	2,450	27	2,580	2	2,520	26	2,560	August		28	2,560	6	2,450	24	2,550
8	1,340	30	2,380	8	2,230	29	2,490	7	2,450	October		13	2,430	28	2,600
13	2,540	April		15	2,460	July		14	2,440	2	2,500	22	2,540	31	2,510
19	2,340	3	2,000	22	2,590	4	2,560	21	2,500	8	2,510	27	2,560		
23	2,580														

Colorado River at Miguel C. Rodriguez Gaging Station

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		January		March		May		June		August		October		November	
2	5,000	29	5,048	12	4,810	7	6,510	18	5,600	13	5,630	9	5,000	19	5,510
9	4,400	February		26	6,270	21	5,670	July		27	4,540	23	5,870	December	
15	3,290	6	5,520	April				2	5,450	September		November		3	1,590
22	5,040	12	6,350	9	5,020	June		16	5,670	10	5,700	5	5,440	17	5,600
		26	2,360	23	6,210	4	5,590	29	4,450	24	5,610				

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 49 in this bulletin.

In United States

Month	Brawley, California		El Centro, California		Blythe, California		Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1973	Average 1931-1973	1973	Average 1931-1973	1973	Average 1931-1973	1973	Average 1955-1973	1973	Average 1931-1973
Jan.	0.01	0.30	T	0.33	0.06	0.43	0.40	0.36	0.09	0.35
Feb.	.60	.30	.29	.33	1.46	.40	1.24	.45	.67	.34
Mar.	.74	.17	.28	.17	.82	.40	2.95	.46	1.30	.23
Apr.	0	.07	0	.10	0	.14	0	.31	0	.11
May	0	.01	0	0	0	.01	.12	.13	0	.01
June	0	.01	0	.01	0	.05	.50	.06	0	.02
July	0	.04	0	.10	0	.17	0	.19	0	.16
Aug.	.26	.30	0	.30	.63	.78	.10	.49	1.24	.43
Sept.	0	.31	0	.25	0	.31	0	.28	0	.38
Oct.	0	.23	0	.25	0	.31	0	.30	0	.44
Nov.	.05	.16	0	.17	.16	.27	.57	.51	.13	.19
Dec.	0	.41	0	.42	0	.51	T	.50	0	.39
Yearly	1.66	2.31	0.57	2.43	3.13	3.78	5.88	4.04	3.43	3.05

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora		Delta, Baja California	
	1973	Average 1948-1973	1973	Average 1926-1973	1973	Average 1948-1973	1973	Average 1949-1973	1973	Average 1948-1973
Jan.	0	0.35	0.04	0.35	0	0.32	0.08	0.24	0.04	0.32
Feb.	.32	.16	.43	.32	.59	.08	.71	.20	.79	.12
Mar.	.63	.12	.39	.20	.39	.08	1.06	.16	.28	.12
Apr.	0	.08	0	.08	0	.08	0	.04	T	.04
May	0	T	0	T	0	0	0	T	0	0
June	0	T	0	T	0	.04	T	.04	0	T
July	0	.08	T	.12	0	.04	.04	.20	T	.04
Aug.	.20	.20	.67	.32	0	.12	.39	.47	.20	.16
Sept.	0	.20	0	.35	0	.04	0	.20	0	.16
Oct.	0	.35	0	.32	0	.32	0	.43	0	.32
Nov.	T	.16	.24	.16	.16	.16	.20	.59	.20	.16
Dec.	0	.28	0	.75	0	.20	0	.51	0	.28
Yearly	1.14	2.05	1.77	2.95	1.14	1.42	2.48	2.48	1.50	1.69

Month	Kilometer 50, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California			
	1973	Average 1952-1973	1973	Average 1959-1973	1973	Average 1949-1973	1973	Average 1948-1972		
Jan.	0.08	0.51	0.04	0.20	0.08	0.20	*	0.28		
Feb.	.71	.24	.59	.12	.47	.12	*	.08		
Mar.	.39	.24	.55	.12	.24	.12	*	.16		
Apr.	0	.12	T	.04	0	.04	*	.08		
May	0	.04	0	T	0	T	*	.04		
June	0	T	T	.04	0	T	*	.08		
July	0	.12	0	.08	T	.08	*	.16		
Aug.	.32	.35	.59	.20	.47	.35	*	.35		
Sept.	0	.24	0	.55	0	.51	*	.43		
Oct.	T	.55	0	.43	0	.43	*	.28		
Nov.	.93	.32	.24	.32	0	.16	*	.16		
Dec.	.20	.32	0	.35	0	.32	*	.35		
Yearly	2.68	2.24	2.01	2.56	1.26	2.32	*	2.48		

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 1973.

In United States

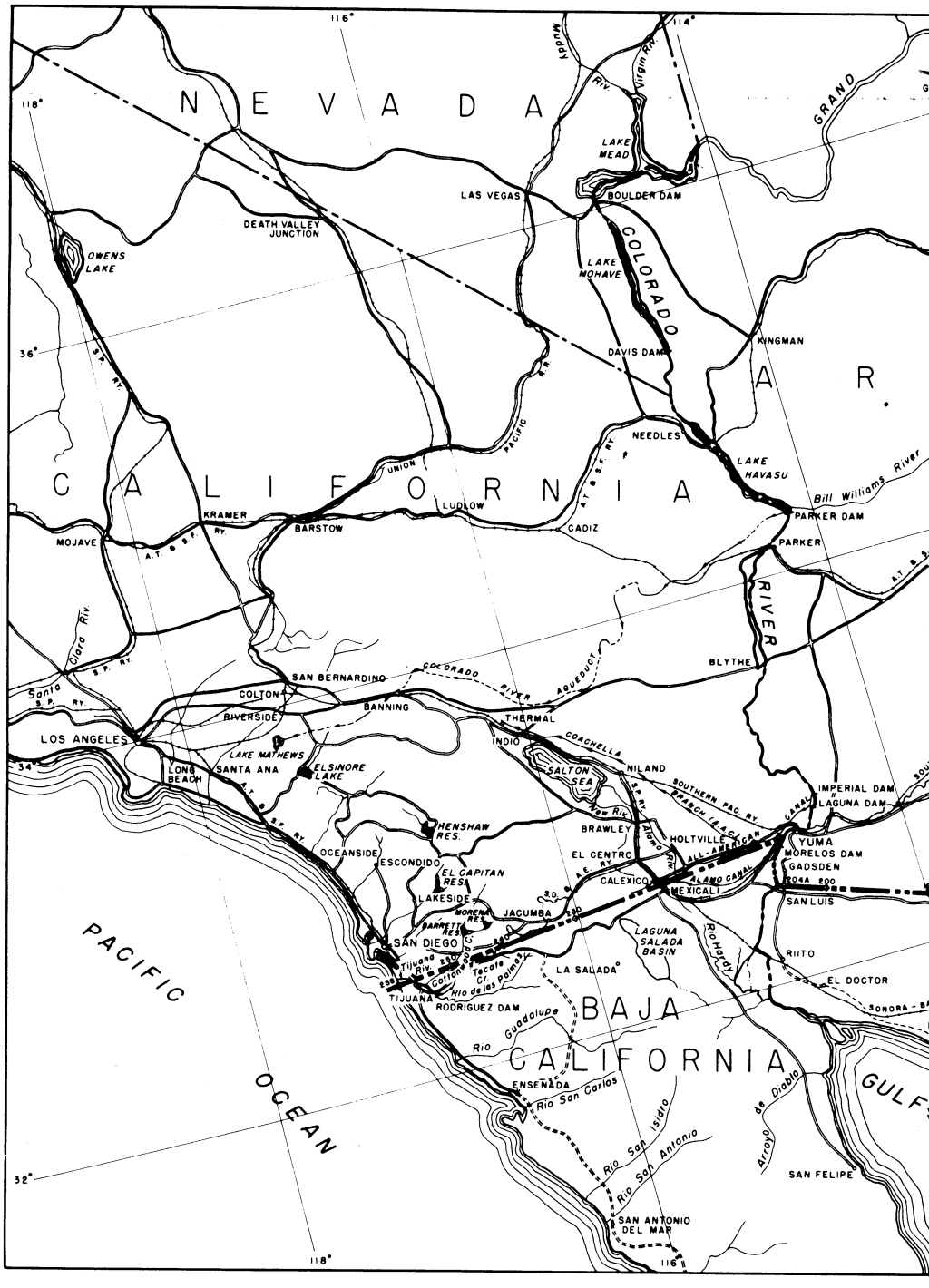
NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
* Blythe, California	33° 37'	114° 36'	268	1909	State Division of Forestry
Brawley, California	32° 57'	115° 33'	100	1908	Agricultural Research Service
* Davis Dam No. 2, Arizona	35° 12'	114° 34'	657	1954	U. S. Bureau of Reclamation
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

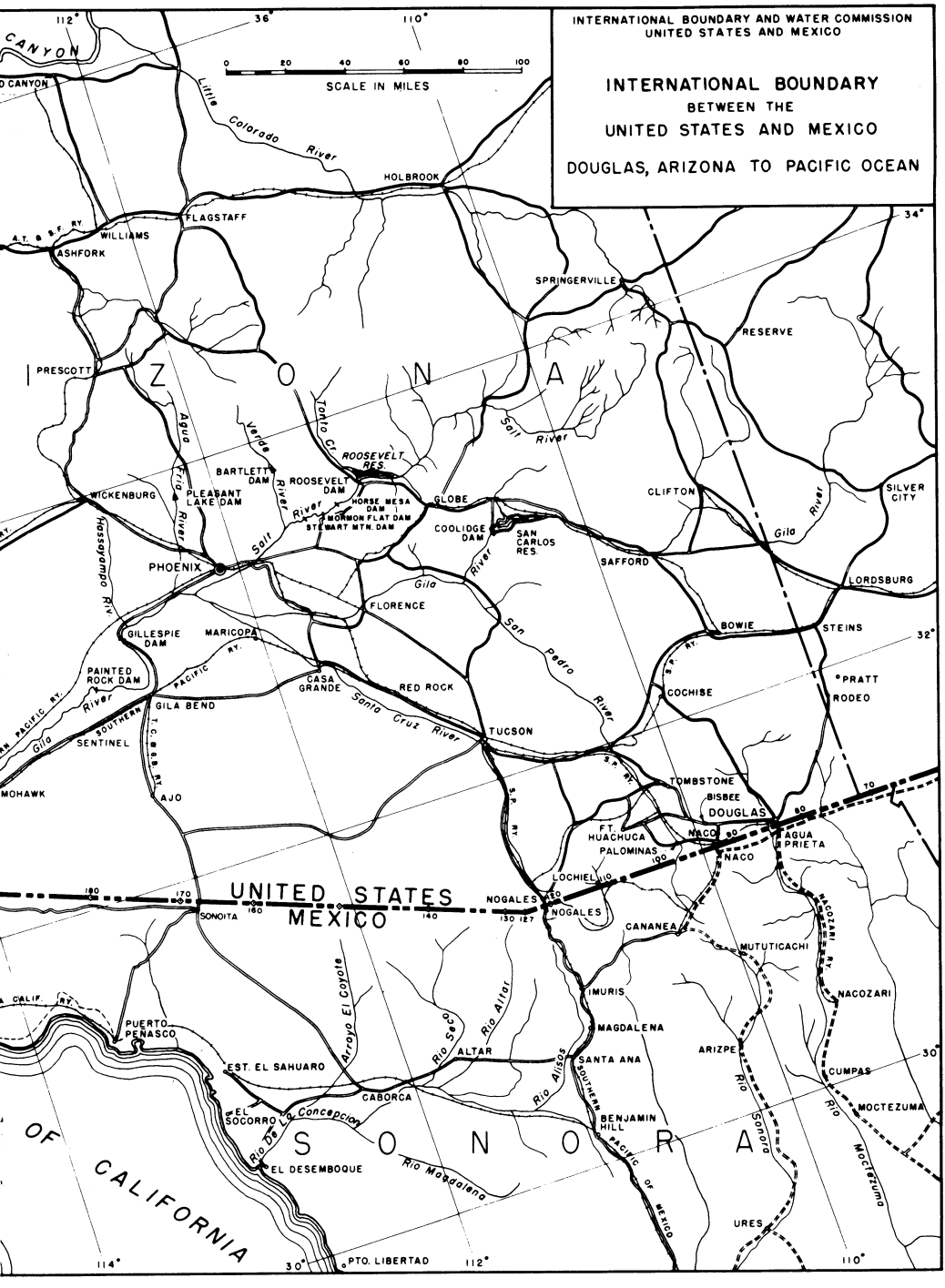
In Mexico

NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 33'	115° 04'	** 66	1948	Hydraulic Resources
Colonia Juarez, Baja California	32° 15'	115° 03'	49	1970	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
Kilometer 50, Baja California	32° 15'	115° 03'	49	1952	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

* Not shown on map ϑ 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


NEVADA
CALIFORNIA
BAJA CALIFORNIA
PACIFIC OCEAN
GULF
116°
114°
118°
36°
34°
32°
Muddy R.
Virgin R.
GRAND
LAKE MEAD
BOULDER DAM
LAS VEGAS
DEATH VALLEY JUNCTION
OWENS LAKE
LAKE MOHAVE
COLORADO R.
DAVIS DAM
KINGMAN
NEEDLES
LAKE HAVASU
Bill Williams River
PARKER DAM
PARKER
RIVER
BLYTHE
A.T. & S.F. RY.
S.P. RY.
UNION PACIFIC R.R.
KRAMER
MOJAVE
BARSTOW
LUDLOW
CADIZ
Santa Clara R.
SAN BERNARDINO
COLTON
RIVERSIDE
BANNING
COLORADO RIVER AQUEDUCT
THERMAL
INDIO
COACHELLA
LOS ANGELES
LONG BEACH
SANTA ANA
LAKE MATHEWS
ELSINORE LAKE
SALTON SEA
NILAND
SOUTHERN PAC. BRANCH
IMPERIAL DAM
LAGUNA DAM
HENSHAW RES.
BRAWLEY
New R.
HOLTVILLE
ALL-AMERICAN CANAL
YUMA
MORELOS DAM
GADSDEN
OCEANSIDE
ESCONDIDO
EL CAPITAN RES.
EL CENTRO
Alamo R.
CALEXICO
MEXICALI
ALAMO CANAL
204A E00
SAN LUIS
LAKESIDE
MORENA RES.
BARRETT RES.
JACUMBA
SAN DIEGO
Tijuana R.
Cottonwood Cr.
Tecate Cr.
Rio de las Palmas
LA SALADA
LAGUNA SALADA BASIN
Rio Hardy
RIITO
EL DOCTOR
SONORA - BA
TIJUANA
RODRIGUEZ DAM
Rio Guadalupe
ENSENADA
Rio San Carlos
Rio San Isidro
Rio San Antonio
Arroyo de Diablo
SAN FELIPE
SAN ANTONIO DEL MAR


INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
INTERNATIONAL BOUNDARY
BETWEEN THE
UNITED STATES AND MEXICO
DOUGLAS, ARIZONA TO PACIFIC OCEAN
SCALE IN MILES
0 20 40 60 80 100
Little Colorado River
HOLBROOK
FLAGSTAFF
WILLIAMS
ASHFORK
SPRINGERVILLE
RESERVE
PRESCOTT
ARIZONA
Agua Fria River
Verde River
Tonto Cr.
ROOSEVELT RES.
Salt River
BARTLETT DAM
ROOSEVELT DAM
PLEASANT LAKE DAM
HORSE MESA DAM
MORMON FLAT DAM
STEWART MTN. DAM
WICKENBURG
GLOBE
COOLIDGE DAM
SAN CARLOS RES.
CLIFTON
SILVER CITY
Gila River
Hassayampa River
PHOENIX
SAFFORD
LORDSBURG
FLORENCE
San Pedro River
BOWIE
STEINS
GILLESPIE DAM
MARICOPA
PAINTED ROCK DAM
CASA GRANDE
RED ROCK
COCHISE
PRATT
RODEO
GILA BEND
Santa Cruz River
TUCSON
SENTINEL
AJO
MOHAWK
TOMBSTONE
BISBEE
DOUGLAS
FT. HUACHUCA
PALOMINAS
NACO
AGUA PRIETA
LOCHIEL
UNITED STATES
MEXICO
NOGALES
SONOITA
CANANEA
MUTUTICACHI
NACOZARI
IMURIS
MAGDALENA
ARIZPE
CUMPAS
MOCTEZUMA
PUERTO PENASCO
EST. EL SAHUARO
Arroyo El Coyote
Rio Seco
Rio Altar
ALTAR
SANTA ANA
Rio Aros
Rio Sonora
Rio Moctezuma
CABORCA
EL SOCORRO
Rio De La Concepcion
BENJAMIN HILL
SONORA
EL DESEMBOQUE
Rio Magdalena
URES
OF CALIFORNIA
PTO. LIBERTAD
112°
114°
30°
110°
34°
32°

EVAPORATION IN THE COLORADO RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at two stations in Arizona and at nine 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 49 in this bulletin.

In United States

Month	Davis Dam No. 2 Arizona		Yuma Citrus Station, Arizona	
	1973	Average 1955-1973	1973	Average 1931-1973
Jan.	7.05	7.42	4.00	3.93
Feb.	5.36	7.54	3.45	4.88
Mar.	6.10	10.25	5.85	ϱ 7.83
Apr.	13.22	13.41	10.01	10.26
May	16.73	ϱ 17.18	12.34	13.25
June	19.75	19.61	13.84	14.47
July	21.22	20.31	13.85	15.67
Aug.	18.04	18.14	12.38	13.83
Sept.	13.01	15.01	9.66	10.98
Oct.	13.25	12.16	7.20	7.73
Nov.	6.15	8.64	3.88	5.02
Dec.	8.46	7.81	3.92	3.68
Yearly	148.34	ϱ 157.48	100.38	ϱ 111.53

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora	
	1973	Avg.1949-55 1961-1973	1973	Average 1926-1973	1973	Average 1963-1973	1973	Average 1953-1973
Jan.	4.96	4.29	2.95	2.60	3.74	3.82	3.74	3.39
Feb.	3.90	5.12	2.99	3.50	3.31	4.84	3.11	4.02
Mar.	6.46	7.36	5.94	5.87	5.71	7.24	5.59	6.34
Apr.	11.34	9.96	8.82	7.95	8.78	9.21	8.43	8.39
May	12.28	12.52	11.02	10.55	11.34	11.97	11.50	11.02
June	14.02	13.11	12.64	11.54	11.85	12.20	12.24	12.56
July	14.13	13.31	12.60	11.81	12.17	12.68	14.02	14.17
Aug.	14.02	12.01	10.55	10.12	11.18	10.55	11.89	12.72
Sept.	10.75	9.96	8.78	8.15	8.62	9.06	9.33	9.92
Oct.	9.53	7.83	6.61	5.59	6.93	6.14	6.85	6.57
Nov.	5.39	4.92	3.62	3.39	4.25	4.61	3.86	4.33
Dec.	5.16	4.06	2.99	2.44	3.86	3.46	3.58	3.27
Yearly	111.93	105.94	89.53	83.50	91.73	95.79	94.13	97.83

Month	Delta, Baja California		Colonia Juarez, ‡ Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California	
	1973	Average 1959-1973	1973	Average 1970-1973	1973	Average 1963-1973	1973	Average 1953-1972	1973	Average 1952-1972
Jan.	2.68	3.19	3.54	3.31	3.39	3.19	*	3.50	*	5.08
Feb.	3.43	4.29	3.11	3.86	3.46	4.09	*	4.21	*	5.83
Mar.	5.91	6.38	5.47	6.14	5.16	5.91	*	6.14	*	7.09
Apr.	8.78	8.15	7.83	7.56	8.50	7.44	*	7.95	*	8.43
May	10.71	10.28	9.65	9.84	10.91	9.80	*	10.00	*	10.55
June	11.93	11.22	11.46	10.79	12.13	11.10	*	10.75	*	10.94
July	11.81	11.54	11.42	11.34	12.80	12.17	*	12.05	*	11.81
Aug.	11.38	10.28	10.63	10.00	10.94	9.88	*	11.54	*	10.94
Sept.	8.70	8.23	8.54	8.39	8.98	7.87	*	10.04	*	9.92
Oct.	5.87	5.83	7.20	5.67	6.77	5.24	*	7.40	*	8.50
Nov.	3.46	3.70	3.74	3.98	3.78	3.39	*	4.53	*	6.26
Dec.	4.65	2.83	3.46	3.15	3.70	2.87	*	3.78	*	5.16
Yearly	89.29	86.69	86.06	84.09	90.51	85.94	*	92.16	*	101.81

ϱ One year missing ‡ Substitute for Kilometer 50, B.C. * Did not register

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 49 in this bulletin.

In United States

Month	Blythe, California				Davis Dam No. 2, Arizona				Yuma Citrus Station, Arizona			
	1973			Average 1931-73	1973			Average 1955-73	1973			Average 1931-73
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	50.3	75	23	52.5	* 48.2	66	29	52.5	51.1	77	28	53.0
Feb.	56.7	78	35	57.3	* 54.7	75	34	56.7	57.0	80	35	57.0
Mar.	59.1	79	39	63.1	* 57.0	78	42	62.2	58.2	80	38	
Apr.	68.0	100	40	70.2	* 68.4	98	40	69.5	65.6	98	39	68.8
May	79.4	109	44	77.5	* 82.0	108	50	78.6	77.3	110	46	75.9
June	87.9	122	58	85.0	* 89.1	121	63	88.3	85.6	114	51	83.3
July	93.3	117	69	92.2	* 95.2	119		95.0	89.4	113	61	91.2
Aug.	91.1	116	60	91.1	* 92.9	115	63	93.4	88.9	111	60	90.5
Sept.	82.3	111	56	85.0	* 82.6	108	60	85.6	81.0	108	55	85.0
Oct.	72.4	101	43	73.1	* 72.3	101	51		72.6	101	44	73.5
Nov.	59.5	91	32	60.2	* 59.6	86	35		60.7	92	35	61.5
Dec.	53.5	76	28	53.2	* 54.5	72		53.7	54.8	79	32	54.6
Yearly	71.1	122	23	71.7	* 71.4	121	29		70.2	114	28	

Month	Brawley, California				El Centro, California							
	1973			Average 1931-73	1973			Average 1931-73				
	Mean	Max.	Min.		Mean	Max.	Min.					
Jan.	51.2	78	26	53.6	51.3	79	27	53.6				
Feb.	57.7	77	34	58.1	58.0	78	36	57.9				
Mar.	58.3	79	39	63.4	58.5	79	35	63.2				
Apr.	66.4	97	40	70.3	67.0	103	40	69.8				
May	77.0	107	46	77.7	80.0	116	49	77.4				
June	85.0	116	55	85.0	87.2	119	55	84.8				
July	89.0	116	64	92.1	91.3	117	60	91.9				
Aug.	89.3	112	63	91.7	90.8	112	56	91.2				
Sept.	81.9	109	57	86.4	82.9	111	50	85.7				
Oct.	73.6	101	45	75.1	74.7	109	48	74.6				
Nov.	61.5	93	34	62.5	62.9	92	36	62.2				
Dec.	54.9	79	32	55.0	56.1	79	35	54.8				
Yearly	70.5	116	26	72.5	71.7	119	27	72.3				

In Mexico

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	1973		1948-1973		1973		1926-1973		1973		1948-1973	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	75	28	88	23	79	27	93	19	77	28	113	16
Feb.	81	39	95	28	81	37	93	23	81	37	99	21
Mar.	79	43	100	32	82	39	100	30	82	41	113	25
Apr.	100	45	109	37	100	43	106	34	102	41	118	16
May	95	48	117	43	108	45	117	43	118	46	124	34
June	90	54	126	52	117	55	120	48	120	57	135	43
July	95	64	118	61	115	66	118	55	115	63	133	45
Aug.	104	64	120	61	111	64	118	54	113	54	129	46
Sept.	100	59	122	54	111	55	122	48	102	52	135	39
Oct.	102	48	111	32	100	48	109	32	97	43	118	32
Nov.	88	37	100	27	93	37	99	28	88	32	115	32
Dec.	90	34	90	28	81	36	90	23	77	32	97	25
Yearly	104	28	126	23	117	27	122	19	120	28	135	16

* Less than 10 days missing

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Luis, R. C., Sonora				Delta, Baja California				Kilometer 50, Baja California			
	1973		1949-1973		1973		1948-1973		1973		1950-59 & 61-73	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	77	25	100	19	81	30	104	27	77	28	91	19
Feb.	79	36	109	27	82	41	104	28	81	39	97	21
Mar.	79	39	108	28	82	43	113	28	81	41	99	25
Apr.	97	43	115	37	100	45	118	32	115	41	115	30
May	109	48	115	41	111	52	129	32	108	48	117	36
June	115	55	126	45	120	55	133	36	117	52	122	39
July	115	64	126	59	115	63	135	45	111	61	122	45
Aug.	113	61	122	55	115	63	140	52	113	61	118	50
Sept.	109	54	118	50	113	55	135	39	109	55	122	39
Oct.	100	45	118	32	104	46	117	34	102	46	118	36
Nov.	91	34	113	30	93	37	120	32	91	36	104	25
Dec.	81	32	102	23	84	37	104	27	79	34	97	19
Yearly	115	25	126	19	120	30	140	27	117	28	122	19

Month	Riito, Sonora				El Mayor, Baja California							
	1973		1949-1973		1973		1949-1973					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
Jan.	77	25	91	19	86	30	108	18				
Feb.	81	34	95	21	91	36	93	27				
Mar.	79	37	100	25	79	37	102	32				
Apr.	100	37	109	37	104	39	108	36				
May	108	43	115	43	108	43	113	37				
June	118	48	124	45	118	52	122	37				
July	111	61	140	52	113	64	122	39				
Aug.	111	57	122	46	117	57	122	41				
Sept.	106	52	118	39	109	50	120	34				
Oct.	102	41	115	30	102	50	120	37				
Nov.	91	32	118	27	90	37	120	34				
Dec.	81	28	86	21	75	37	106	19				
Yearly	118	25	140	19	118	30	122	18				

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM
1973

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	45,372
Reservation Division	11,462
Yuma Mesa	18,372
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,116
South Gila Valley	10,208
North Gila Valley	6,026
Wellton-Mohawk	63,973
Coachella Valley	54,082
Imperial Valley	444,589
Warren Act	80
Non-Project lands adjacent to Colorado River	10,100
Total in United States	667,380
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 420,213
Total in United States and Mexico	1,087,593

* An estimated 40% 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 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 Cipolletti weir set 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 1973.
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, 258 second-feet (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 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.79	2.44	2.00	2.32	1.49	2.21	1.20	1.89	2.00	1.20	2.00	3.15
2	2.00	3.15	2.21	2.44	1.03	2.32	1.20	2.00	2.00	1.58	1.89	1.79
3	2.55	3.03	2.00	2.32	1.03	2.21	1.20	1.89	2.21	1.39	1.79	2.21
4	2.44	2.44	2.21	3.15	1.12	2.10	2.00	2.00	2.44	1.39	1.79	1.79
5	2.32	2.44	2.10	3.15	1.12	2.00	2.00	2.00	3.80	1.49	2.00	1.68
6	2.67	3.15	2.21	2.91	1.20	1.20	1.89	1.89	3.15	1.58	2.00	1.03
7	2.44	3.15	2.55	2.67	1.03	1.20	2.00	2.10	3.15	1.58	1.89	1.03
8	2.55	3.15	2.55	2.79	1.12	1.30	1.79	1.68	2.00	1.49	1.89	1.03
9	2.32	3.15	2.44	3.03	1.03	1.30	1.68	1.68	2.55	1.68	1.49	1.20
10	2.00	3.15	2.55	2.79	1.03	1.49	1.89	1.68	2.44	1.49	1.49	1.79
11	2.00	3.41	2.44	2.44	1.12	1.30	2.00	1.89	2.44	1.39	1.39	1.79
12	2.00	3.41	2.55	2.00	1.03	1.20	1.89	1.58	1.39	1.49	1.49	1.89
13	2.00	3.15	2.21	1.20	1.03	1.20	1.89	1.68	2.00	1.39	1.49	1.79
14	1.89	2.44	2.44	1.39	1.20	1.20	1.58	1.68	2.00	1.49	1.68	1.89
15	1.89	2.44	2.21	1.30	1.20	1.30	1.39	1.89	2.00	1.49	1.58	1.39
16	2.21	2.44	3.80	1.30	2.21	1.30	1.39	1.89	1.20	1.68	1.89	1.20
17	2.21	2.32	2.55	1.20	2.21	1.20	1.30	1.79	1.03	1.79	1.89	1.20
18	2.00	2.44	2.44	1.03	2.00	1.30	1.68	2.00	1.20	1.79	2.00	1.68
19	2.00	2.44	2.67	1.03	1.89	1.39	1.68	2.00	1.79	1.89	1.58	1.39
20	2.00	2.44	3.03	1.12	2.10	1.20	1.58	1.58	.71	1.89	1.58	1.89
21	2.00	2.21	2.44	1.20	2.21	1.20	1.68	2.67	.86	1.79	3.15	1.39
22	2.21	2.21	2.55	1.20	1.89	1.30	1.49	3.03	.86	1.68	2.79	1.68
23	2.10	2.21	2.79	1.03	1.89	1.30	1.58	2.79	1.03	1.89	2.21	1.49
24	2.32	2.32	2.67	1.30	1.89	1.30	1.49	2.44	1.03	1.03	2.00	1.68
25	2.21	2.21	2.44	1.49	1.89	1.20	1.68	2.44	.78	1.03	2.10	1.58
26	2.21	2.21	2.44	1.49	1.89	1.30	1.68	2.44	.86	1.03	2.00	1.79
27	2.21	2.21	2.44	1.49	1.89	1.20	1.68	2.21	1.03	1.03	2.44	1.79
28	2.21	2.00	2.32	1.68	1.89	1.30	1.79	2.44	.86	.94	2.44	1.58
29	2.21		2.32	1.68	2.00	1.30	1.79	2.00	1.89	1.39	3.93	1.58
30	2.44		2.44	1.49	2.32	1.20	2.00	2.00	1.89	1.03	3.41	1.58
31	2.44		2.67		2.32		2.00	2.00		2.00		1.58
Sum	67.84	73.76	76.68	55.63	49.27	42.52	52.09	63.25	52.59	46.00	61.27	50.53

Month	Current Year 1973 Extreme Gage ø Feet High	Low	Extreme Second Feet ø High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1943-1973 Acre Feet Average	Maximum	Minimum
Jan.	0.34	0.26	6	2.67	1	1.79	2.19	135	372	2,790	99
Feb.	.40	.28	†11	3.41	28	2.00	2.63	146	338	2,822	100
Mar.	.43	.28	16	3.80	3	2.00	2.47	152	379	3,154	111
Apr.	.38	.18	† 4	3.15	†18	1.03	1.85	110	404	2,222	97
May	.31	.18	†30	2.32	† 2	1.03	1.59	97.7	311	1,799	73
June	.31	.20	2	2.32	† 6	1.20	1.42	84.3	308	1,686	61
July	.28	.20	† 4	2.00	† 1	1.20	1.68	103	284	1,712	59
Aug.	.37	.24	22	3.03	†12	1.58	2.04	125	340	1,672	83
Sept.	.43	.14	5	3.80	20	.71	1.75	104	321	1,406	83.5
Oct.	.27	.17	31	2.00	28	.94	1.48	91.2	347	1,845	91.2
Nov.	.44	.22	29	3.93	†11	1.39	2.04	122	356	2,080	86
Dec.	.38	.18	1	3.15	† 6	1.03	1.63	100	328	1,686	80
Yearly	0.44	0.14		3.93		0.71	1.90	1,370	4,088	22,146	1,251

ø 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 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. Measurements are also made quarterly by the United States Section of the Commission. Records computed and furnished by the District. Records available: June 1942 through 1973.

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 during any successive five-year period under the provisions of Minute No. 197 of the Commission.

EXTREMES: Maximum mean daily discharge, 691 second-feet on December 3, 1962; minimum mean daily discharge, 2 second-feet 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 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	130	168	187	162	170	159	157	138	151	142	151	158
2	145	163	177	162	159	156	161	135	150	150	151	155
3	163	157	172	164	159	147	158	135	151	148	151	151
4	162	149	160	164	165	147	154	171	159	150	146	159
5	162	147	151	173	163	146	151	154	161	155	146	168
6	164	154	158	174	158	143	150	151	155	149	147	167
7	164	162	168	175	161	143	146	145	152	145	147	160
8	202	162	169	177	168	143	145	139	151	145	160	160
9	278	166	180	187	172	150	154	141	157	144	158	160
10	195	169	187	190	166	158	151	140	158	146	161	158
11	167	174	181	198	162	164	154	141	157	150	156	163
12	211	178	197	194	163	162	151	141	159	152	158	166
13	187	187	169	182	163	162	146	145	143	149	160	167
14	189	204	155	171	163	156	146	143	138	146	162	.170
15	261	196	156	165	158	147	148	149	137	145	174	170
16	214	175	165	171	155	140	151	153	128	144	181	170
17	152	166	171	175	163	141	145	153	121	142	184	171
18	154	163	172	180	175	140	141	156	128	145	185	168
19	145	152	177	179	170	148	141	160	140	145	187	162
20	149	170	175	180	169	149	139	165	141	144	172	162
21	163	249	165	179	171	147	139	161	142	144	162	166
22	156	250	164	183	172	140	138	158	143	146	159	165
23	150	236	167	193	170	141	140	154	143	150	160	168
24	150	248	177	187	165	141	133	154	142	150	163	173
25	150	223	188	182	165	136	136	157	138	139	162	193
26	150	216	193	183	170	143	133	156	141	140	167	259
27	151	205	185	184	173	149	135	154	141	149	170	197
28	156	197	178	182	176	150	138	146	141	150	172	171
29	162		172	183	173	158	142	148	145	145	167	169
30	168		169	185	166	156	147	148	143	148	164	176
31	171		167		162		142	151		152		194
Sum	5,321	5,186	5,352	5,364	5,145	4,462	4,512	4,642	4,356	4,549	4,883	5,296

Month	Current Year 1973 — ø Extreme Gage ** Feet		ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1943-1973 — Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	40.40	41.81	9	278	1	130	172	10,554	7,263	20,160	1,751
Feb.	40.85	41.72	22	250	5	147	185	10,286	6,067	17,845	1,258
Mar.	41.22	41.61	12	197	5	151	173	10,616	6,764	12,960	1,008
Apr.	41.28	41.47	11	198	† 1	162	179	10,639	6,957	14,489	1,390
May	41.52	41.85	28	176	16	155	166	10,205	6,155	10,618	629
June	41.74	41.97	11	164	25	136	149	8,850	5,315	9,689	1,087
July	41.79	42.01	2	161	†24	133	146	8,949	5,265	9,390	817
Aug.	41.62	42.01	4	171	† 2	135	150	9,207	6,276	11,145	1,139
Sept.	41.89	42.09	5	161	17	121	145	8,640	6,479	12,688	1,795
Oct.	41.79	42.03	5	155	25	139	147	9,023	6,856	13,902	2,081
Nov.	41.64	41.94	19	187	† 4	146	163	9,685	6,470	12,323	2,483
Dec.	40.47	41.74	26	259	3	151	171	10,504	7,076	21,205	1,763
Yearly	40.40	42.09		278		121	162	117,158	76,943	138,906	24,573

ø Mean daily ** Feet below sea level † And other days

WASTES FROM MEXICALI POTABLE WATER PLANT TO NEW RIVER IN MEXICO

DESCRIPTION: The Potable Water Plant of Mexicali, Baja California discharges waste water into a canal, approximately 2.5 miles long, that empties into the Rivera Drain and then into New River, approximately 0.9 mile above the international boundary. The measurements are taken in the wasteway canal 0.4 mile above the confluence with Rivera Drain, 1.2 miles below the plant, and 1.2 miles south of the international boundary.

RECORDS: No current meter measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Data available: January 1968 through 1973.

REMARKS: The Potable Water Plant is operated by the State Commission of Public Services of Mexicali and water is obtained from the West Main Canal which is a part of Mexico's system of canals in the Colorado River Irrigation District. The plant was completed in 1963 and began operation on September 28, 1963. Prior to 1968, the volumes wasted were small and infrequent.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.1	5.7	2.1	3.5	7.8	4.6	6.4	6.4	1.4	7.8	4.6	6.4
2	4.6	4.6	1.8	4.9	7.8	6.0	5.7	4.9	2.5	4.2	4.6	7.8
3	4.2	5.7	1.8	3.5	7.4	4.9	5.7	5.7	3.2	6.4	6.0	6.0
4	8.1	6.0	4.9	4.2	7.4	7.1	5.7	5.7	5.7	6.4	4.9	9.2
5	4.6	6.0	5.7	4.6	7.1	4.6	4.6	6.0	7.1	6.4	3.5	10.6
6	5.7	4.6	2.1	3.2	7.1	4.6	5.7	6.0	5.7	6.0	3.2	9.2
7	4.6	4.2	5.7	4.2	6.7	4.9	5.7	6.4	6.0	6.0	3.5	6.4
8	7.4	4.2	5.7	3.2	6.7	4.2	6.0	6.0	6.0	7.1	4.2	8.8
9	5.3	2.1	5.7	4.9	6.4	4.9	6.0	6.4	10.6	6.4	3.5	11.7
10	4.2	2.8	4.9	3.2	6.4	6.0	3.5	4.9	7.1	6.0	4.2	9.9
11	4.6	4.9	4.6	2.8	6.0	7.8	3.5	4.9	6.4	7.1	4.2	9.9
12	4.2	7.1	3.5	2.8	4.9	8.8	4.2	5.7	8.1	7.1	5.7	8.8
13	5.7	6.7	3.2	2.5	4.9	6.0	4.6	6.0	4.9	5.7	4.9	7.8
14	5.7	6.7	4.9	3.2	6.0	8.1	4.9	6.0	6.0	6.0	4.2	8.1
15	4.2	6.4	4.6	4.6	4.9	6.4	7.1	6.0	6.0	6.4	4.6	7.8
16	4.6	6.4	3.5	8.1	4.9	6.4	7.1	6.4	7.8	4.9	6.0	9.2
17	5.7	3.5	4.9	7.1	4.9	14.1	6.0	6.4	4.6	3.5	5.7	8.8
18	3.9	4.2	5.7	9.9	4.6	7.8	6.0	6.4	4.9	4.2	8.8	10.6
19	4.2	4.2	4.6	7.8	4.6	6.4	5.7	7.1	6.4	4.2	11.7	9.9
20	4.2	4.6	4.2	9.2	4.6	5.7	5.7	9.2	5.7	4.6	10.9	8.1
21	4.9	7.8	6.0	7.8	4.6	4.9	6.4	6.4	6.0	4.9	10.9	8.1
22	3.9	7.1	3.5	6.0	4.6	4.9	7.8	4.2	4.2	4.9	9.9	7.8
23	4.2	5.7	3.5	6.0	4.9	4.9	9.2	2.1	4.9	5.7	10.9	8.1
24	4.2	4.6	2.8	4.9	5.7	4.9	7.1	4.2	7.1	4.6	11.7	9.2
25	4.2	4.2	4.6	4.6	4.9	6.0	7.8	3.2	4.9	4.2	16.2	14.1
26	4.6	4.2	4.9	4.6	4.9	4.9	7.1	3.2	7.1	4.6	9.9	12.4
27	3.2	4.2	6.0	4.6	7.8	4.9	6.0	3.5	7.1	6.0	8.1	10.6
28	8.8	3.5	4.9	5.7	6.0	5.7	5.7	1.8	5.7	6.4	7.8	8.8
29	6.4		4.2	7.1	4.9	5.7	6.4	4.9	6.0	4.9	7.8	7.1
30	2.1		4.6	8.1	3.2	6.0	10.6	4.2	6.0	4.6	7.8	7.1
31	6.0		6.0		5.7		6.0	6.0		4.6		7.1
Sum	156.4	142.0	135.3	156.8	178.3	182.2	189.3	166.0	174.8	171.6	210.1	275.1

Month	Current Year 1973								Period 1968-1973		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.15	0.16	3	16.2	27	1.1	4.9	311	237	313	166
Feb.	1.41	.20	22	21.9	11	1.4	4.9	281	209	311	157
Mar.	1.12	.23	27	15.5	†13	1.4	4.2	268	336	871	132
Apr.	1.12	.23	†16	15.5	†11	1.4	5.3	311	243	317	135
May	1.38	.33	27	21.2	9	2.5	5.7	353	317	388	238
June	1.87	T	† 4	31.8		T	6.0	362	274	403	116
July	1.67	T	9	28.3		T	6.0	375	313	394	198
Aug.	1.12	.10	19	15.5	†28	.4	5.3	329	383	596	200
Sept.	1.25	0	27	18.4	† 1	0	5.7	347	385	549	131
Oct.	1.28	.20	1	19.1	†17	1.4	5.7	340	347	507	139
Nov.	1.48	.26	24	23.3	1	1.8	7.1	417	276	417	151
Dec.	2.26	.33	25	39.6	†17	2.5	8.8	546	288	546	149
Yearly	2.26	0		39.6		0	5.7	4,241	3,607	4,543	2,745

T Trace † 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 downstream from the confluence of the Cerro Prieto and West Main Canals of the Colorado River Irrigation District in Colonia Wisteria, 4.3 miles upstream from the international boundary, 1.9 miles east of the highway to Tijuana at the Tijuana-San Felipe junction, 3.0 miles west of the highway to San Felipe, and 3.1 miles 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 1973. 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 during any successive five-year period under the provisions of Minute No. 197 of the Commission.

EXTREMES: Maximum instantaneous discharge, 675 second-feet on January 24, 1962; minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1973 —— 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	113	0	0	0	0	0	0	0	0	0	0	0
9	35.7	0	0	0	0	0	0	0	0	0	0	0
10	98.9	0	0	0	0	0	0	0	0	0	0	0
11	67.8	0	0	0	0	0	0	0	0	0	0	0
12	59.3	0	17.7	0	0	0	0	0	0	0	0	0
13	12.4	0	0	0	0	0	0	0	0	0	0	0
14	39.6	15.9	0	0	0	0	0	0	0	0	0	0
15	90.8	13.4	0	0	0	0	0	0	0	0	0	0
16	40.3	9.2	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	4.9	0	0	0	0	0	0	0	0	0	0	0
21	0	91.8	0	0	0	0	0	0	0	0	0	0
22	0	26.5	0	0	0	0	0	0	0	0	0	0
23	0	23.7	0	0	0	0	0	0	0	0	0	0
24	0	19.1	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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	562.6	199.5	17.7	0	0	0	0	0	0	0	0	0

Month	Current Year 1973								Period 1951-1973		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			8	113	† 1	0	18.0	1,116	1,553	8,735	0
Feb.			21	91.8	† 1	0	7.1	396	949	7,218	0
Mar.			12	17.7	† 1	0	.7	35.0	694	2,568	0
Apr.				0		0	0	0	670	4,433	0
May				0		0	0	0	471	1,892	0
June				0		0	0	0	279	1,450	0
July				0		0	0	0	218	2,040	0
Aug.				0		0	0	0	423	1,926	0
Sept.				0		0	0	0	587	2,915	0
Oct.				0		0	0	0	932	2,993	0
Nov.				0		0	0	0	940	3,768	0
Dec.				0		0	0	0	1,326	8,669	0
Yearly				113		0	2.1	1,546	9,044	27,083	7.0

† And other days ∅ Mean daily

WASTE WATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1973, the discharge to the New River in Mexico was from Wisteria Wasteway, located 2.9 miles upstream from the international boundary in Colonia Wisteria, and from the Mexicali Potable Water Plant which discharges, by canal, into the Rivera Drain 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 1973; Sifon Wasteway, January 1952 through April 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through 1973.

REMARKS: Mean daily discharges for Wisteria Wasteway and the Potable Water Plant are shown on pages 59 and 58, 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 1973	Period 1956-1973		
		Average	Maximum	Minimum
January	1,426	1,502	8,758	15.4
February	677	998	7,281	19.6
March	303	627	2,610	21.7
April	311	462	2,843	16.1
May	353	341	1,141	9.1
June	362	261	1,477	0
July	375	195	394	0
August	329	387	1,413	0
September	347	446	2,081	21.0
October	340	739	3,474	8.4
November	417	837	3,784	0
December	546	1,385	8,691	0
Yearly	5,787	8,178	27,430	399

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 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. Zero of the gage is 250.00 feet below mean sea level, U. S. C. & G. S. datum.

RECORDS: Records of water surface elevations available from November 1904 through 1973. From January 1925 to October 22, 1951, once monthly records of elevations were collected by Imperial Irrigation District from a bench mark at Figtree John's Spring about 22 miles 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 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 below mean sea level, U. S. C. & G. S. datum.

EXTREMES: Maximum elevation during year, 231.1 feet below mean sea level. Minimum elevation during year, 232.1 feet below mean sea level. Extremes for period of record, maximum elevation 195.9 feet below mean sea level, February 10 to March 29, 1907; minimum elevation since 1906, 251.6 feet below mean sea level in November 1924.

Mean Daily Water Surface Elevation in Feet below Mean Sea Level - 1973

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	232.1	231.8	231.5	231.3	231.1	231.1	231.3	231.6	231.8	232.0	231.9	231.9
2	232.1	231.8	231.4	231.3	231.1	231.1	231.3	231.6	231.8	231.9	231.9	231.9
3	232.1	231.8	231.4	231.3	231.1	231.1	231.3	231.6	231.8	231.9	231.9	231.9
4	232.1	231.8	231.4	231.3	231.1	231.1	231.3	231.6	231.8	231.9	231.9	231.9
5	232.1	231.8	231.4	231.3	231.1	231.1	231.3	231.6	231.9	231.9	232.0	231.9
6	232.1	231.8	231.4	231.3	231.1	231.1	231.3	231.6	231.9	231.9	232.0	231.9
7	232.1	231.7	231.4	231.3	231.1	231.1	231.3	231.6	231.9	231.9	232.0	231.9
8	232.1	231.7	231.4	231.3	231.1	231.1	231.3	231.6	231.9	231.9	232.0	231.9
9	232.0	231.7	231.4	231.3	231.1	231.1	231.4	231.6	232.0	231.9	232.0	231.9
10	232.0	231.7	231.4	231.3	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.9
11	232.0	231.7	231.4	231.3	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.9
12	232.0	231.6	231.4	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.9
13	232.0	231.6	231.4	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.8
14	232.0	231.6	231.4	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.8
15	232.0	231.6	231.4	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.8
16	231.9	231.6	231.3	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.8
17	231.9	231.6	231.3	231.2	231.1	231.2	231.4	231.7	232.0	231.9	231.9	231.8
18	231.9	231.6	231.3	231.2	231.1	231.2	231.4	231.7	232.0	231.9	231.9	231.8
19	231.9	231.6	231.3	231.2	231.1	231.2	231.4	231.7	232.0	231.9	231.9	231.8
20	231.9	231.6	231.3	231.2	231.1	231.2	231.4	231.7	232.0	231.9	231.9	231.8
21	231.9	231.5	231.3	231.2	231.1	231.2	231.5	231.7	232.0	231.9	231.9	231.8
22	231.9	231.5	231.3	231.2	231.1	231.2	231.5	231.7	232.0	231.9	231.9	231.8
23	231.9	231.5	231.3	231.2	231.1	231.2	231.5	231.7	232.1	231.9	231.9	231.8
24	231.9	231.5	231.3	231.2	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.8
25	231.9	231.5	231.3	231.2	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.8
26	231.9	231.5	231.3	231.2	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.8
27	231.9	231.5	231.3	231.1	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.8
28	231.8	231.5	231.3	231.1	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.8
29	231.8		231.3	231.1	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.7
30	231.8		231.3	231.1	231.1	231.3	231.5	231.7	232.1	231.9	231.9	231.7
31	231.8		231.3		231.1		231.5	231.7		231.9		231.7
Avg.	232.0	231.6	231.4	231.2	231.1	231.2	231.4	231.6	232.0	231.9	231.9	231.8

Current Year 1973			Period 1935-1973		
Month	ø Extreme Elevation Feet		Elevation Feet		
	High	Low	# Average	# Maximum	‡ Minimum
Jan.	231.8	232.1	238.30	232.0	249.3
Feb.	231.5	231.8	237.98	231.6	248.8
Mar.	231.3	231.5	237.72	231.4	248.6
Apr.	231.1	231.3	237.53	231.2	248.7
May	231.1	231.1	237.52	231.1	248.5
June	231.1	231.3	237.69	231.2	248.8
July	231.3	231.5	237.85	231.4	249.1
Aug.	231.6	231.7	238.04	231.6	249.4
Sept.	231.8	232.1	238.25	232.0	249.4
Oct.	231.9	232.0	238.32	231.9	249.8
Nov.	231.9	232.0	238.31	231.9	250.0
Dec.	231.7	231.9	238.16	231.8	249.6
Yearly	231.1	232.1	237.97	231.6	250.0

Area and Capacity Table		
Elevation Feet below M.S.L.	Area Acres	Capacity Acre-Feet
277.7	0	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

ø Mean daily # Mean monthly ‡ Reading near first day of month

CHEMICAL ANALYSES OF WATER SAMPLES
1973

The tables below are based on quarterly samples from the Alamo and New Rivers taken and analyzed by the State of California Department of Water Resources. Beginning December 1971, not all constituents analyzed.

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 1973.

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; (CO_3 plus HCO_3) expressed as CO_3, 30.00; SO_4, 48.03; Cl, 35.45; NO_3, 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 10^6 at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Alamo River															
Jan.															
Feb.															
Mar.	1	2.85		3,000		7.8							14.10	14.38	
Apr.															
May															
June	1	2.47		2,700		7.4							11.27	13.11	
July															
Aug.															
Sept.	1	3.10		3,400		7.4							13.84	17.77	
Oct.															
Nov.															
Dec.	1	2.99		3,300		7.7							14.17	16.36	
Total	4														
New River															
Jan..															
Feb.															
Mar.	1														
Apr.															
May															
June	1	6.99											18.06	60.91	
July															
Aug.															
Sept.	1	6.01											17.00	49.35	
Oct.															
Nov.															
Dec.	1	5.29											15.95	43.71	
Total	4														

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1973

The following tables show electrical conductivity, expressed in mhos per centimeter x 10^6 at 25°C, of individual water samples from the wasteway canal at the Potable Water Plant in Mexicali, Baja California and the New River in Mexico at the international boundary. Samples were taken at both stations by the Mexican Section of the Commission, who also made the determinations. Sampling was discontinued after February 9 at the Potable Water Plant.

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

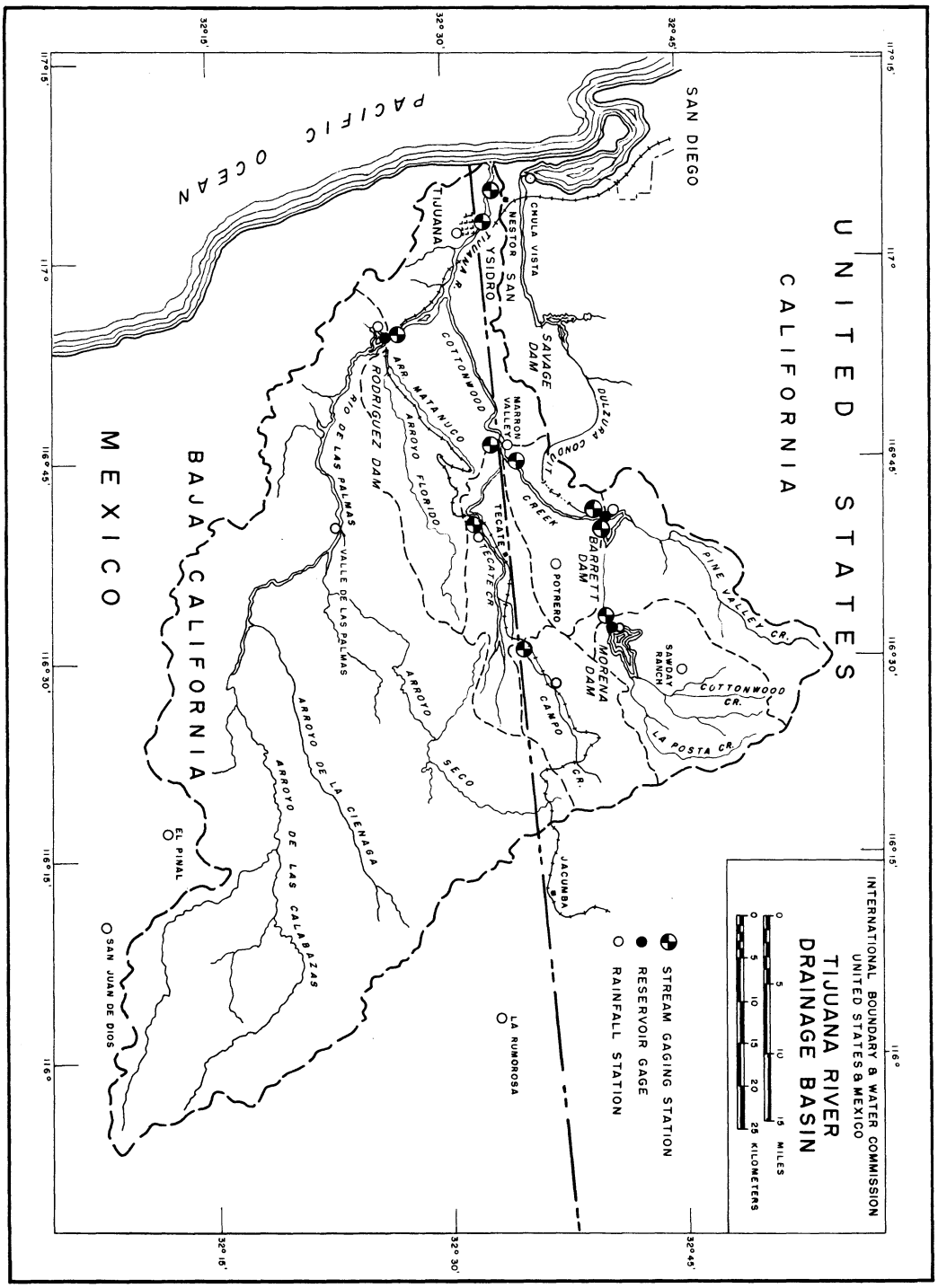
Mexicali Potable Water Plant to New River

Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C	Date	ECx10^6 @25°C
January		February													
6	1,575	2	2,150												
12	1,575	9	2,020 *												
19	1,810														
25	2,110														

New River at International Boundary

January		February		April		June		July		August		October		November	
6	6,200	16	7,140	9	7,100	4	7,200	16	7,230	21	7,050	8	7,100	19	6,150
12	6,000	23	7,070	17	6,970	12	7,150	18	7,250	27	8,000	16	7,000	27	6,000
19	6,960	March		24	7,350	18	7,200	24	7,700	September		22	5,690	December	
25	6,920	8	7,680	May		26	7,180	27	7,120	11	7,270	29	6,960	3	6,200
February		16	7,440	3	7,550	29	7,010	30	7,200	18	7,190	November		11	6,520
2	6,790	26	7,120	7	7,350	July		August		24	7,000	5	5,970	17	6,830
9	7,150	30	6,990	21	7,170	4	7,200	7	7,100	October		12	5,740	24	6,910
				28	7,050	10	7,100	14	8,040	2	7,210				

* Sampling discontinued


INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
TIJUANA RIVER
DRAINAGE BASIN
STREAM GAGING STATION
RESERVOIR GAGE
RAINFALL STATION
MILES
KILOMETERS
UNITED STATES
CALIFORNIA
MEXICO
BAJA CALIFORNIA
PACIFIC OCEAN
SAN DIEGO
CHULA VISTA
NESTOR
SAN YSIDRO
TIJUANA
TIJUANA R.
SAVAGE DAM
COTTONWOOD
MARRON VALLEY
CONCHA
CREEK
BARRETT DAM
POTRERO
PINE VALLEY CR.
SAWDAY RANCH
COTTONWOOD CR.
LA POSTA CR.
MORENA DAM
CAMPO
CR.
JACUMBA
LA RUMOROSA
ARR. MATANUCO
ARROYO FLORIDO
RIO DE LAS PALMAS
RODRIGUEZ DAM
TECATE
TECATE CR.
VALLE DE LAS PALMAS
ARROYO SECO
ARROYO DE LA CIENAGA
ARROYO DE LAS CALABAZAS
EL PINAL
SAN JUAN DE DIOS
117° 15'
117°
116° 45'
116° 30'
116° 15'
116°
32° 45'
32° 30'
32° 15'

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 upstream from the mouth of Hauser Creek, 8.5 miles upstream from Barrett Dam, and about 20 miles upstream from the international boundary. The zero of the gage is 2,882.4 feet 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 1973.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1973 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 present crest of ungated spillway is 157.00 feet, gage datum. Reservoir capacity at spillway crest, 1948 survey, is 50,210 acre-feet. 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, January 1916; minimum, no flow during parts of many years.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1937-1973		
		Average	Maximum	Minimum
January	68.7	436	3,520	0
February	147	1,075	16,700	8.0
March	1,277	1,626	13,220	19.3
April	326	1,019	11,490	3.3
May	46.7	359	3,550	0
June	0	184	1,660	0
July	0	129	1,010	0
August	1.7	94.8	1,260	0
September	0	64.3	1,070	0
October	1.1	76.3	1,270	0
November	38.5	140	1,380	0
December	97.4	464	3,590	4.4
Yearly	2,004.1	5,667.4	39,439	121

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 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 1973.
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, February 1916; minimum, zero during December 1936.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1937-1973		
		Average	Maximum	Minimum
January	0	118	1,700	0
February	0	329	4,260	0
March	0	267	1,731	0
April	0	816	12,950	0
May	0	223	3,040	0
June	0	306	7,360	0
July	0	175	2,340	0
August	0	145	1,550	0
September	0	285	5,880	0
October	9.6	84.5	529	0
November	0	115	1,260	0
December	0	316	5,350	0
Yearly	9.6	3,179.5	24,825	9.6

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 downstream from Morena Dam, 1 mile downstream from the mouth of Pine Valley Creek and about 12 miles upstream from the international boundary. Zero of gage is 1,446.12 feet 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 1973. 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) is 44,755 acre-feet. Capacity at spillway crest (gage height 160.88 feet) is 37,950 acre-feet. Dead storage, 719 acre-feet below lowest outlet (gage height 58.88 feet) 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, February 1927; minimum, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1937-1973		
		Average	Maximum	Minimum
January	122	569	3,430	5.2
February	701	1,573	26,790	7.6
March	3,628	2,655	18,860	14.1
April	1,318	1,726	21,630	10.2
May	398	533	5,130	0
June	122	223	1,730	0
July	100	146	1,010	0
August	33.2	82.9	579	0
September	6.1	93.8	759	0
October	9.1	60.1	645	.1
November	21.7	128	1,200	0
December	1.7	473	3,380	1.7
Yearly	6,460.8	8,262.8	59,387	129

DULZURA CONDUIT BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder 0.5 mile downstream from Barrett Dam on right bank of Dulzura Conduit 50 feet 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 1973.
REMARKS: Barrett Dam was completed in 1921. Prior to this date the intake of Dulzura Conduit was located 1.5 miles 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 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 on March 15, 1954; minimum discharge, no flow for long periods on many occasions.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	18.2	22.5	22.9	21.4	23.9	8.10	0	0	0	0
2	0	0	18.2	22.5	22.9	21.0	23.3	6.22	0	0	0	0
3	0	0	17.6	22.9	22.7	20.8	23.1	4.76	0	0	0	0
4	0	0	17.5	22.9	22.7	20.6	22.9	4.76	0	0	0	0
5	0	0	17.3	22.9	22.7	21.0	22.3	4.76	0	0	0	0
6	0	0	17.3	22.9	22.7	20.6	21.9	2.88	0	0	0	0
7	0	0	17.3	22.9	22.7	20.4	21.4	2.50	0	0	0	0
8	0	0	17.3	22.9	22.9	20.4	21.0	.02	0	0	0	0
9	0	0	17.3	22.9	22.7	20.2	20.6	0	0	0	0	0
10	0	0	19.1	23.1	0	20.0	20.0	0	0	0	0	0
11	0	0	19.3	23.1	28.8	19.8	19.7	0	0	0	0	0
12	0	0	20.8	23.1	28.8	19.8	19.3	0	0	0	0	0
13	0	0	21.8	23.1	28.8	19.7	18.7	0	0	0	0	0
14	0	0	20.9	23.3	30.1	19.3	18.2	0	0	0	0	0
15	0	0	18.9	23.3	29.8	19.3	17.5	0	0	0	0	0
16	0	0	18.9	23.5	29.4	23.5	21.4	0	0	0	0	0
17	0	0	18.9	23.5	28.6	23.3	20.2	0	0	0	0	0
18	0	0	19.1	23.5	27.8	22.9	19.3	0	0	0	0	0
19	0	0	19.3	23.5	27.3	22.7	18.7	0	0	0	0	0
20	0	0	19.5	23.5	26.7	22.5	17.8	0	0	0	0	0
21	0	19.5	19.8	23.5	24.7	22.5	16.9	0	0	0	0	0
22	0	1.37	20.0	23.5	0	22.1	20.8	0	0	0	0	0
23	0	1.37	20.2	23.3	0	22.1	19.5	0	0	0	0	0
24	0	19.1	20.6	23.3	0	21.8	16.6	0	0	0	0	0
25	0	18.9	20.8	23.3	0	21.6	14.8	0	0	0	0	0
26	0	18.7	20.8	23.3	22.5	21.2	11.1	0	0	0	0	0
27	0	18.4	21.2	23.3	22.3	20.8	6.50	0	0	0	0	0
28	0	18.4	21.4	23.3	22.5	20.4	4.24	0	0	0	0	0
29	0		21.6	23.1	22.5	25.1	6.36	0	0	0	0	0
30	0		21.9	22.9	22.3	24.1	11.7	0	0	0	0	0
31	0		22.1		21.9		10.9	0		0		0
Sum	0	115.74	604.9	694.6	649.7	640.9	550.60	34.0	0	0	0	0

Month	Current Year 1973								Period 1937-1973		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.				0		0	0	0	384	2,350	0
Feb.			21	19.5	† 1	0	4.13	230	393	2,130	0
Mar.			31	22.1	† 5	17.3	19.5	1,200	550	2,330	0
Apr.			†16	23.5	† 1	22.5	23.2	1,378	870	2,860	0
May			14	30.1	†22	0	21.0	1,289	993	3,040	0
June			29	25.1	†14	19.3	21.4	1,271	1,011	2,920	0
July			1	23.9	28	4.24	17.8	1,092	826	2,920	0
Aug.			1	8.10	† 9	0	1.10	67.4	692	2,820	0
Sept.				0		0	0	0	447	2,320	0
Oct.				0		0	0	0	342	2,450	0
Nov.				0		0	0	0	472	2,760	0
Dec.				0		0	0	0	436	2,305	0
Yearly				30.1		0	9.0	6,527.4	7,416	27,170	0

∅ Mean daily † And other days

COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located about 2.5 miles downstream from Barrett Dam and 0.5 mile 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 (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 1973. 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 February 1927; minimum, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1937-1973		
		Average	Maximum	Minimum
January	0	16.3	590	0
February	0	27.8	990	0
March	0	748	13,390	0
April	0	1,098	33,400	0
May	0	249	7,520	0
June	0	35.3	890	0
July	0	1.9	21	0
August	0	1.7	21	0
September	0	1.4	21	0
October	0	1.2	21	0
November	0	.9	15	0
December	0	1.5	21	0
Yearly	0	2,183.0	50,364	0

COTTONWOOD CREEK ABOVE TECATE CREEK NEAR DULZURA, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located 1.6 miles upstream from the international land boundary between the United States and Mexico, 0.8 mile upstream from the confluence with Tecate Creek, and 5.1 miles 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 downstream from the gage. Zero of gage is 569.40 feet 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 1973.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 10 and 18 miles, respectively, upstream from this station. During 1973, 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 February 7, 1937 (gage height 9.65 feet), from rating curve extended above 1,500 second-feet by logarithmic plotting. Minimum discharge, no flow during part of each year.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.25	1.8	9.9	0.58	0	0	0	0	0	0	0
2	0	.18	1.4	8.4	.35	0	0	0	0	0	0	0
3	0	.16	1.2	7.1	.20	0	0	0	0	0	0	0
4	.02	.17	1.5	6.2	.16	0	0	0	0	0	0	0
5	.11	.20	1.7	5.1	.20	0	0	0	0	0	0	0
6	.05	.47	2.3	4.6	.24	0	0	0	0	0	0	0
7	.01	.47	10	4.3	.22	0	0	0	0	0	0	0
8	.01	.34	18	3.8	.16	0	0	0	0	0	0	0
9	.03	.33	23	3.3	.15	0	0	0	0	0	0	0
10	.20	.31	14	3.1	.11	0	0	0	0	0	0	0
11	.12	7.4	23	3.0	.08	0	0	0	0	0	0	0
12	.08	9.5	60	2.7	.08	0	0	0	0	0	0	0
13	.06	18	50	2.7	.11	0	0	0	0	0	0	0
14	.03	11	60	2.4	.20	0	0	0	0	0	0	0
15	.01	14	32	2.3	.22	0	0	0	0	0	0	0
16	.04	12	20	1.9	.13	0	0	0	0	0	0	0
17	.89	8.5	14	1.7	.07	0	0	0	0	0	0	0
18	.33	6.1	11	1.6	.05	0	0	0	0	0	0	0
19	1.9	4.5	8.3	1.3	.03	0	0	0	0	0	0	0
20	1.0	3.4	10	1.3	.01	0	0	0	0	0	0	0
21	.77	2.8	11	1.1	0	0	0	0	0	0	0	0
22	.62	2.5	14	.70	0	0	0	0	0	0	0	0
23	.47	2.3	11	.51	0	0	0	0	0	0	0	0
24	.34	2.0	8.9	.42	0	0	0	0	0	0	0	0
25	.31	1.8	8.2	.40	0	0	0	0	0	0	0	0
26	.37	1.6	8.2	.32	0	0	0	0	0	0	0	0
27	.28	1.3	10	.29	0	0	0	0	0	0	0	0
28	.19	3.4	13	.29	0	0	0	0	0	0	0	0
29	.17		14	.33	0	0	0	0	0	0	0	0
30	.25		12	.64	0	0	0	0	0	0	0	0
31	.32		11		0		0	0		0		0
Sum	8.98	114.98	484.5	81.70	3.35	0	0	0	0	0	0	0

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1937-1973 Acre Feet Average	Maximum	Minimum
Jan.			19	1.9	† 1	0	0.29	17.8	189	1,190	0
Feb.			13	18	3	.16	4.11	228	611	9,940	0
Mar.			†12	60	3	1.2	15.6	961	1,640	20,880	0
Apr.			1	9.9	†27	.29	2.72	162	1,528	40,240	0
May			1	.58	†21	0	.11	6.6	354	10,040	0
June				0		0	0	0	67.9	1,590	0
July				0		0	0	0	7.8	206	0
Aug.				0		0	0	0	.4	7.7	0
Sept.				0		0	0	0	2.0	72	0
Oct.				0		0	0	0	3.9	101	0
Nov.				0		0	0	0	21.5	440	0
Dec.				0		0	0	0	137	1,316	0
Yearly				60		0	1.90	1,375.4	4,562.5	66,700	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 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 southwest of Campo, California. Low water discharge measurements are made by wading at the gage; high water measurements are made from the bridge. Zero of gage is 2,178.92 feet 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 1973.

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 upstream, completed in August 1956.

EXTREMES: Maximum instantaneous discharge during 1973, 1.0 c.f. s. on February 11 (gage height 1.30 feet); no flow for part of the year. Maximum discharge 880 second-feet, February 6, 1937 (gage height 4.80 feet, present datum), from rating curve extended above 110 second-feet 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 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.02	0.04	0.07	0.09	0.09	0.08	0.17	0.04	0	0	0	0.01
2	.02	.03	.07	.09	.08	.08	.16	.04	0	0	0	.01
3	.02	.03	.07	.09	.07	.08	.12	.03	0	0	0	.01
4	.03	.05	.09	.08	.07	.08	.12	.02	0	0	0	.01
5	.03	.05	.09	.08	.09	.08	.14	.02	0	0	0	.01
6	.03	.07	.11	.08	.08	.09	.16	.02	0	0	0	.01
7	.03	.05	.12	.08	.08	.09	.17	.02	0	0	0	.01
8	.03	.05	.15	.08	.07	.09	.16	.02	0	0	0	.01
9	.04	.05	.11	.08	.07	.09	.15	.02	0	0	0	.01
10	.05	.05	.10	.08	.05	.09	.15	.01	0	0	0	.02
11	.03	.21	.16	.08	.05	.09	.11	.01	0	0	0	.02
12	.03	.13	.22	.08	.06	.09	.02	.01	0	0	0	.02
13	.03	.14	.21	.07	.08	.09	.02	.01	0	0	0	.02
14	.03	.08	.17	.07	.09	.09	.02	.01	0	0	0	.03
15	.03	.07	.14	.07	.07	.09	.02	.01	0	0	0	.03
16	.05	.07	.12	.07	.07	.09	.03	.01	0	0	0	.03
17	.06	.07	.12	.07	.06	.09	.03	.01	0	0	0	.03
18	.07	.06	.14	.07	.06	.09	.03	0	0	0	.02	.03
19	.07	.05	.12	.07	.08	.09	.03	0	0	0	.01	.03
20	.05	.05	.11	.07	.08	.13	.04	0	0	0	0	.03
21	.05	.07	.10	.07	.08	.13	.04	0	0	0	0	.03
22	.05	.07	.10	.06	.08	.10	.04	0	0	0	0	.05
23	.04	.07	.10	.07	.08	.10	.03	0	0	0	.02	.05
24	.04	.07	.10	.07	.08	.12	.03	0	0	0	.01	.05
25	.05	.07	.10	.07	.08	.14	.02	0	0	0	.01	.05
26	.05	.07	.10	.07	.08	.17	.02	0	0	0	.01	.05
27	.04	.07	.10	.08	.08	.17	.02	0	0	0	.01	.05
28	.03	.09	.10	.09	.08	.19	.03	0	0	0	.01	.07
29	.03		.09	.09	.08	.21	.03	0	0	0	.01	.07
30	.04		.09	.09	.08	.22	.04	0	0	0	0	.07
31	.05		.09		.08		.04	0		0		.07
Sum	1.22	1.98	3.56	2.31	2.33	3.34	2.19	0.31	0	0	0.11	0.99

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1937-1973 Acre Feet Average	Maximum	Minimum
Jan.			†18	0.07	† 1	0.02	0.039	2.4	127	906	0
Feb.			11	.21	† 2	.03	.071	3.9	224	1,730	0
Mar.			12	.22	† 1	.07	.11	7.1	321	2,360	0
Apr.			† 1	.09	22	.06	.077	4.6	226	3,250	0
May			† 1	.09	†10	.05	.075	4.6	103	1,540	0
June			30	.22	† 1	.08	.11	6.6	41.0	719	0
July			† 1	.17	†12	.02	.071	4.3	16.6	361	0
Aug.			† 1	.04	†18	0	.010	.6	12.1	321	0
Sept.				0			0	0	11.4	264	0
Oct.				0			0	0	19.9	543	0
Nov.			†18	.02	† 1	0	.004	.2	36.6	542	0
Dec.			†28	.07	† 1	.01	.032	2.0	101	808	0
Yearly				0.22		0	0.050	36.3	1,240	11,141	0

† And other days

COTTONWOOD CREEK NEAR INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder and cableway, 0.6 mile upstream from the international land boundary between the United States and Mexico, 0.5 mile downstream from the confluence of Cottonwood Creek and Tecate Creek, and 5.5 miles south of Dulzura, California. Low water discharge measurements are made by wading at the gage. The zero of the gage is 542.42 feet 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. 1973 records good. Records available: October 1936 through 1973.

REMARKS: Flow is partially controlled by Barrett and Morena Reservoirs, 11 and 19 miles 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, February 7, 1937 (gage height 8.50 feet) from rating curve extended above 300 second-feet on basis of velocity, mean-depth and area computations. Minimum discharge, no flow for part of most years.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.22	0.94	4.0	19	2.4	1.1	0.41	0.10	0.07	0.12	0.55	1.0
2	.24	.85	3.2	16	1.8	1.1	.50	.09	.05	.10	.50	.94
3	.26	.77	2.9	14	1.5	1.1	.45	.10	.05	.10	.48	1.0
4	.50	.85	3.2	12	1.4	1.1	.25	.10	.06	.10	.47	1.0
5	1.1	.85	3.5	9.3	1.7	1.0	.21	.09	.04	.10	.49	1.2
6	.90	1.1	4.1	8.3	1.7	.99	.15	.09	.04	.12	.48	1.3
7	.80	1.3	22	7.8	1.4	.93	.12	.10	.04	.12	.44	1.3
8	.75	1.1	31	6.0	1.3	.82	.12	.11	.04	.15	.44	1.2
9	.66	.99	62	5.2	1.3	.65	.12	.11	.04	.18	.56	1.2
10	1.3	.98	31	5.1	1.4	.71	.15	.12	.05	.21	.56	1.4
11	1.3	17	44	4.8	1.4	.69	.15	.14	.04	.21	.56	1.4
12	1.0	24	164	4.8	1.4	.69	.14	.10	.05	.29	.56	1.4
13	.99	42	100	4.7	1.5	.52	.13	.11	.07	.29	.56	1.5
14	.92	20	195	4.4	1.6	.56	.10	.13	.09	.34	.56	1.5
15	.84	24	66	4.0	1.5	.58	.11	.13	.09	.37	.69	1.6
16	.94	24	38	3.7	1.3	.60	.12	.13	.13	.40	.69	1.6
17	4.8	14	26	3.4	1.3	.62	.10	.11	.19	.42	.77	1.6
18	2.0	10	19	3.5	1.3	.57	.11	.09	.24	.43	1.1	1.6
19	9.9	7.8	14	3.5	1.3	.53	.11	.10	.24	.43	1.0	1.6
20	3.8	6.0	20	3.5	1.3	.53	.10	.08	.27	.46	.94	1.6
21	2.5	5.0	24	2.9	1.3	.50	.10	.10	.29	.50	1.0	1.8
22	2.1	4.3	32	2.9	1.3	.56	.10	.07	.33	.51	1.0	1.8
23	1.6	3.8	24	2.6	1.4	.39	.11	.07	.38	.46	1.4	1.8
24	1.4	3.4	19	2.2	1.4	.21	.10	.05	.37	.50	1.2	1.8
25	1.1	3.1	16	2.2	1.4	.15	.09	.06	.39	.50	1.2	1.8
26	1.4	2.6	15	2.0	1.4	.15	.10	.06	.33	.56	1.3	1.8
27	1.4	2.4	20	2.0	1.3	.15	.09	.06	.18	.56	1.2	1.8
28	1.0	5.7	26	2.1	1.2	.21	.10	.07	.12	.56	1.1	1.9
29	.85		32	2.2	1.1	.21	.11	.06	.09	.56	1.0	2.0
30	.85		24	2.6	1.0	.29	.09	.06	.09	.50	1.0	2.0
31	.94		21		1.1		.09	.06		.50		2.0
Sum	48.36	228.83	1,105.9	166.7	43.7	18.21	4.73	2.85	4.46	10.65	23.80	47.44

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1937-1973 Acre Feet Average	Maximum	Minimum
Jan.			19	9.9	1	0.22	1.56	95.9	405	2,750	0
Feb.			13	42	3	.77	8.17	454	1,099	13,680	0
Mar.			14	195	3	2.9	35.7	2,194	2,624	27,140	0
Apr.			1	19	†26	2.0	5.56	331	2,091	51,060	0
May			1	2.4	30	1.0	1.41	86.7	529	14,110	0
June			† 1	1.1	†25	.15	.61	36.1	110	2,630	0
July			2	.50	†25	.09	.15	9.4	17.5	312	0
Aug.			11	.14	24	.05	.092	5.7	6.5	171	0
Sept.			25	.39	† 5	.04	.15	8.8	9.1	152	0
Oct.			†26	.56	† 2	.10	.34	21.1	23.0	705	0
Nov.			23	1.4	† 7	.44	.79	47.2	57.4	839	0
Dec.			†29	2.0	2	.94	1.53	94.1	342	3,330	0
Yearly				195		0.04	4.7	3,384	7,313.5	97,900	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 5.5 miles upstream from its confluence with Cottonwood Creek, 11 miles upstream from the point where the Tijuana River crosses the international boundary between the United States and Mexico, and 10 miles 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 1973. 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 above mean sea level; at top of spillway gates 410.10 feet above mean sea level. Reservoir capacity at spillway crest 76,210 acre-feet; at top of spillway gates 111,070 acre-feet.

EXTREMES: Maximum monthly inflow, 77,320 acre-feet, April 1941; minimum, no flow during part of most years.

Monthly Discharge in Acre-Feet

Month	Current Year 1973			Period 1938-1973		
	Natural Inflow	Otay Aqueduct	Total	Average	Maximum	Minimum
January	53.3	109	162	820	6,569	0
February	90.8	65.3	156	2,257	41,295	5.8
March	2,197	31.2	2,229	5,667	68,321	4.2
April	172	.6	173	2,938	77,790	0
May	67.2	3.1	70.3	378	9,962	0
June	78.2	2.8	81.1	73.5	891	0
July	46.5	239	285	80.9	326	0
August	61.5	191	252	55.8	770	0
September	69.2	106	175	55.5	466	0
October	86.7	86.7	173	68.6	344	0
November	105	67.9	173	159	1,940	0
December	44.3	161	206	884	15,686	12.8
Yearly	3,072	1,063	4,135	13,438	177,668	254

DIVERSIONS FROM RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Sparling flow meter located immediately below the dam in the pipe line which carries water released from Rodriguez Reservoir to the North and South Canals.

RECORDS: Direct recording by Sparling flow meter. 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 1973.

REMARKS: Since the dam was completed in 1937, water has been diverted directly into the aqueduct for domestic use for Tijuana, Baja California and into the North and South Canals for irrigation in Mexico. The North Canal delivers water to lands in the Tijuana Valley north of the Rio de las Palmas and the South Canal delivers water to lands in the valley south of the Rio de las Palmas and the Tijuana River. During 1973, no water was released for irrigation of farm lands.

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

Monthly Discharge in Acre-Feet

Month	Current Year 1973	Period 1938-1973		
		Average	Maximum	Minimum
January	2.5	231	782	1.5
February	.8	257	1,132	.8
March	1.8	310	1,223	0
April	2.3	439	1,602	0
May	3.1	597	1,676	1.8
June	2.5	693	1,857	1.9
July	3.2	735	1,963	1.9
August	29.8	634	1,859	0
September	49.9	512	1,420	1.9
October	9.9	441	1,187	1.9
November	5.9	336	1,037	1.9
December	4.2	297	981	0
Yearly	116	5,483	15,317	29.3

TIJUANA RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder on right bank about 550 feet downstream from the international boundary and about 0.8 mile 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 1973.

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

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.3	0.6	0.1	0	0	0	0	0	0	0
2	0	0	0	.4	0	0	0	0	0	0	0	0
3	0	0	0	.1	0	0	0	0	0	0	0	0
4	5.8	0	1.5	0	0	0	0	0	0	0	0	0
5	.5	0	.4	0	0	0	0	0	0	0	0	0
6	0	3.4	1.5	0	0	0	0	0	0	0	0	0
7	0	1.0	45.0	0	0	0	0	0	0	0	0	0
8	0	.2	53.2	0	0	0	0	0	0	0	0	0
9	.2	0	34.9	0	0	0	0	0	0	0	0	0
10	4.9	0	1.6	0	.1	0	0	0	0	0	0	0
11	.1	55.1	27.2	0	0	0	0	0	0	0	0	0
12	0	12.6	96.8	.2	0	0	0	0	0	0	0	0
13	0	85.2	10.8	0	0	0	0	0	0	0	0	0
14	0	6.4	20.0	.1	0	0	0	0	0	0	0	0
15	0	3.9	2.3	.2	0	0	0	0	0	0	0	0
16	7.4	1.9	.4	.2	0	0	0	0	0	0	0	0
17	9.5	.3	.1	0	0	0	0	0	0	0	0	0
18	4.9	.1	.1	.1	0	0	0	0	0	0	.3	0
19	21.9	0	0	0	0	0	0	0	0	0	0	0
20	2.8	0	77.1	0	0	0	0	0	0	0	0	0
21	.9	0	2.0	.1	0	0	0	0	0	0	0	0
22	.3	0	1.8	0	0	0	0	0	0	0	.8	0
23	.1	0	.4	0	0	0	0	0	0	0	3.7	0
24	0	0	.1	0	0	0	0	0	0	0	2.6	0
25	.1	0	.1	0	0	0	0	0	0	0	0	0
26	0	0	.8	0	0	0	0	0	0	0	2.3	0
27	0	0	1.5	0	0	0	0	0	0	0	0	0
28	0	5.3	.4	0	0	0	0	0	0	0	0	0
29	0		.3	0	0	0	0	0	0	0	0	0
30	1.0		.6	.8	0	0	0	0	0	0	0	0
31	.1		.4		0		0	0		0		0
Sum	60.5	175.4	381.6	2.8	0.2	0	0	0	0	0	9.7	0

Month	Current Year 1973								Period 1947-1973		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
				High		Low			Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	47.89	45.98	16	85.8	† 1	0	2.0	120	390	4,603	0
Feb.	48.45		13	176	† 1	0	6.3	348	278	1,496	0
Mar.	48.55		†11	198	† 2	0	12.3	757	833	13,309	0
Apr.	46.34		30	2.5	† 4	0	.1	5.6	232	2,926	0
May	46.16		1	.8	† 2	0	0	.4	39.2	312	0
June				0		0	0	0	24.8	309	0
July				0		0	0	0	19.5	239	0
Aug.				0		0	0	0	16.9	193	0
Sept.				0		0	0	0	22.0	216	0
Oct.				0		0	0	0	35.1	305	0
Nov.	47.31		23	33.6	† 1	0	.3	19.2	102	1,084	0
Dec.				0		0	0	0	279	2,725	0
Yearly	48.55	45.98		198		0	1.7	1,250	2,272	19,882	0

† And other days

TIJUANA RIVER NEAR NESTOR, CALIFORNIA

DESCRIPTION: Water-stage recorder on county road bridge 4.1 miles downstream from the international land boundary between the United States and Mexico, 2.9 miles upstream from mouth of the river, and 1.7 miles south of Nestor, California. The zero of the gage is 15.14 feet above mean sea level, U. S. C. & G. S. datum. From April 10, 1953 to August 5, 1958, station was located 2 miles 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 1973 (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, February 7, 1937 (gage height 8.20 feet), obtained from rating curve extended above 2,000 second-feet 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 1973 — 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	.05	0	0	0	0	0	0	0	0	0
9	0	0	1.0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	4.4	1.2	0	0	0	0	0	0	0	0	0
12	0	1.5	6.4	0	0	0	0	0	0	0	0	0
13	0	11.0	.11	0	0	0	0	0	0	0	0	0
14	0	.59	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	4.0	0	0	0	0	0	0	0	0	0	0	0
20	.01	0	1.8	0	0	0	0	0	0	0	0	0
21	0	0	1.4	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	.01	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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	4.01	17.50	11.96	0	0	0	0	0	0	0	0	0

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1937-1973 Acre Feet Average	Maximum	Minimum
Jan.			19	4.0	† 1	0	0.13	8.0	697	4,070	0
Feb.			13	11	† 1	0	.63	34.7	3,836	66,920	0
Mar.			12	6.4	† 1	0	.39	23.7	6,702	107,000	0
Apr.				0		0	0	0	5,731	181,900	0
May				0		0	0	0	640	18,340	0
June				0		0	0	0	108	3,060	0
July				0		0	0	0	21.5	523	0
Aug.				0		0	0	0	15.2	242	0
Sept.				0		0	0	0	22.4	234	0
Oct.				0		0	0	0	76.5	1,340	0
Nov.				0		0	0	0	130	1,490	0
Dec.				0		0	0	0	703	7,930	0
Yearly				11		0	0.10	66.4	18,682	332,749	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 Dam, 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 Department of Public Works and Services for Tijuana, Baja California.

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)	
	1973	Average 1937-1973	1973	Average 1937-1973	1973	Average 1937-1973	1973	Average 1937-1973
Jan.	2,734	15,464	1,284	10,923	676	30,428	4,694	56,815
Feb.	2,860	16,118	1,747	12,319	790	31,139	5,397	59,576
Mar.	4,116	17,335	4,160	13,854	2,960	34,061	11,236	65,250
Apr.	4,340	17,336	4,048	14,331	3,033	34,044	11,421	65,711
May	4,265	17,183	3,097	13,613	2,929	34,169	10,291	64,965
June	4,092	16,711	1,893	12,827	2,819	33,107	8,804	62,645
July	3,900	16,260	858	12,024	2,910	32,008	7,668	60,292
Aug.	3,739	15,848	792	11,294	2,944	31,015	7,475	58,157
Sept.	3,607	15,338	775	11,021	2,897	30,171	7,279	56,530
Oct.	3,502	15,114	766	10,686	2,890	29,461	7,158	55,261
Nov.	3,440	15,007	779	10,348	2,923	28,983	7,142	54,338
Dec.	3,502	15,064	788	10,637	3,049	29,300	7,339	55,001
Average	3,675	16,065	1,749	11,990	2,568	31,490	7,992	59,545
Maximum	4,340	# 61,670	4,160	♀ 45,920	3,049	109,608	11,421	213,600
Minimum	2,734	10	766	106	676	0	4,694	1,264

\# March 31, 1941 - Prior to removal of spillway gates
♀ April 30, 1937 - Sandbags 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 79.

In United States

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California		Sawday Ranch, California	
	1973	Average 1906-1973	1973	Average 1907-1973	1973	Average 1951-1973	1973	Average 1914-1973	1973	Average 1950-1973
Jan.	2.44	3.72	2.51	3.28	3.01	2.46	2.70	3.32	2.25	2.87
Feb.	3.93	3.74	3.78	3.35	3.43	1.92	3.84	3.65	3.82	2.28
Mar.	6.72	3.35	6.35	2.88	5.19	2.26	7.04	2.91	6.82	2.72
Apr.	.28	1.75	.31	1.58	.63	1.35	.37	1.81	.24	1.72
May	.21	.62	.09	.57	0	.40	.22	.65	.03	.42
June	0	.15	0	.07	.10	.07	0	.11	0	.07
July	0	.36	0	.09	0	.03	0	.19	0	.43
Aug.	0.09	.53	T	.19	0	.11	0	.19	1.59	.76
Sept.	0	.34	0	.25	0	.20	0	.25	0	.34
Oct.	.06	.87	.02	.70	0	.35	0	.73	T	.44
Nov.	2.23	1.58	2.20	1.38	1.90	1.58	2.50	1.50	2.07	1.81
Dec.	.25	3.28	.34	2.91	.21	2.30	0.38	3.19	0.11	2.44
Yearly	16.21	20.29	15.60	17.25	14.47	13.03	17.05	18.50	16.93	16.30

Month	Campo, California		Chula Vista, California	
	1973	Average 1900-1973	1973	Average 1930-1973
Jan.	1.70	2.94	1.73	1.74
Feb.	3.13	3.28	1.83	1.69
Mar.	5.24	2.73	2.58	1.45
Apr.	.29	1.47	.23	.83
May	.09	.53	.04	.24
June	0	.07	0	.06
July	0	.52	0	.02
Aug.	.09	.51	T	.07
Sept.	0	.32	T	.16
Oct.	.05	.63	T	.39
Nov.	1.69	1.37	1.57	1.08
Dec.	.11	2.57	.11	1.71
Yearly	12.39	16.94	8.09	9.44

In Mexico

Month	La Rumorosa, Baja California		Tecate, Baja California		Tijuana, Baja California		Rodriguez Dam, Baja California		Valle de Las Palmas, Baja Calif.	
	1973	Average 1945-1973	1973	Average 1946-59 1961-73	1973	Average 1948-59 1961-73	1973	Average 1938-1973	1973	Average 1948-1973
Jan.	0.31	0.63	2.17	2.20	1.57	1.69	2.40	1.42	1.69	1.38
Feb.	2.13	.39	6.14	1.50	2.20	1.26	2.36	1.26	2.20	.98
Mar.	1.18	.51	7.32	2.01	2.91	1.18	3.58	1.38	3.19	1.10
Apr.	0	.31	.47	1.14	.12	.63	.12	.75	.16	.59
May	0	.08	.16	.31	T	.20	T	.12	T	.12
June	T	.04	T	.12	0	.04	T	.04	0	.04
July	0	.28	Q 0	.03	0	.04	0	T	0	.04
Aug.	.91	.63	Q 0	.16	T	.04	.04	.04	T	.08
Sept.	0	.24	0	.12	0	.12	T	.24	0	.12
Oct.	0	.43	T	.31	T	.28	T	.31	0	.20
Nov.	.94	.51	.83	1.22	1.85	1.10	1.50	.91	1.42	.79
Dec.	T	.67	.24	2.13	.20	1.38	.20	1.61	.08	1.02
Yearly	5.47	4.72	17.32	11.81	8.86	8.35	10.20	7.95	8.74	6.65

T Trace Q Deduced

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

In Mexico

Month	El Pinal, Baja California		San Juan de Dios, Baja California							
	1973	Average 1964-1973	1973	Average 1956-1973						
Jan.	2.52	2.01	1.73	1.85						
Feb.	2.64	2.20	3.15	1.93						
Mar.	7.48	2.36	5.04	1.77						
Apr.	.47	1.77	.24	1.10						
May	.16	.24	.08	.28						
June	0	.08	0	.16						
July	0	.59	0	.98						
Aug.	.71	.71	1.42	.75						
Sept.	0	.47	0	.39						
Oct.	.04	.28	0	.55						
Nov.	.94	1.85	1.65	1.34						
Dec.	.63	3.62	.24	1.97						
Yearly	15.59	15.94	13.54	14.41						

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

In United States

NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	1,750	1907	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
Marron Valley, California	32° 34'	116° 46'	550	1951	Fred Mellor
Morena Dam, California	32° 41'	116° 32'	3,010	1906	City of San Diego
Potrero, California	32° 37'	116° 37'	2,390	1914	L. W. Whitehouse
Sawday Ranch, California	32° 45'	116° 29'	3,200	1950	William Tulloch

In Mexico

NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
El Pinal, Baja California	"32° 12'	"116° 17'	" 4,429	1964	Hydraulic Resources
La Rumorosa, Baja California	32° 33'	116° 03'	3,937	1946	Hydraulic Resources
Rodriguez Dam, Baja California	32° 26'	116° 55'	459	1938	Hydraulic Resources
San Juan de Dios, Baja California	32° 08'	116° 10'	" 3,280	1956	Hydraulic Resources
Tecate, Baja California	32° 32'	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

ϑ Elevation above mean sea level " Estimated from topographic maps

EVAPORATION IN THE TIJUANA RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at three 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 79 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 1973, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

2. Chula Vista: September 1918 through 1973, National Weather Service 4-foot diameter pan, 10 inches deep, set on 2 by 4-inch-timber grill.

3. Marron Valley: Station discontinued December 31, 1970.

4. 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 1973, 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	
	1973	Average 1916-1973	1973	Average 1921-1973	1973	Average 1919-1973
Jan.	2.71	2.25	1.50	1.86	3.09	2.83
Feb.	1.40	2.29	1.42	2.22	3.34	3.34
Mar.	.94	3.57	1.69	3.56	5.02	5.00
Apr.	4.37	4.86	4.10	4.83	6.50	5.94
May	5.28	6.81	5.51	6.90	5.68	6.85
June	7.28	8.70	6.76	8.40	6.55	6.95
July	8.47	10.17	7.92	10.08	6.81	7.61
Aug.	7.28	9.43	7.72	9.51	7.14	7.33
Sept.	5.51	7.63	5.71	7.72	6.02	6.10
Oct.	3.57	5.39	4.51	5.45	5.03	4.91
Nov.	3.21	3.50	2.16	3.41	3.40	3.62
Dec.	1.81	2.51	1.64	2.09	2.69	2.75
Yearly	51.83	67.11	50.64	66.03	61.27	63.23

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	
	1973	Average 1961-73	1973	Av. 1952-59 1961-1973	1973	Av. 1939-42 1946-1973	1973	Average 1948-73	1973	Average 1956-73
Jan.	2.83	3.27	3.19	2.91	2.24	4.84	2.68	3.62	*	2.72
Feb.	Q 2.56	3.31	3.82	3.43	2.72	3.78	2.40	3.46	*	2.60
Mar.	Q 2.91	4.29	2.87	3.93	2.95	4.92	2.56	5.20	*	4.17
Apr.	3.58	5.20	5.55	4.30	5.24	5.79	5.35	6.46	*	4.76
May	Q 5.71	6.14	4.80	5.71	5.59	7.24	8.11	7.56	6.73	6.61
June	6.85	6.38	6.42	5.71	7.44	7.83	10.51	9.21	9.84	7.40
July	*	8.62	6.73	6.65	7.36	8.94	11.65	10.83	10.67	8.94
Aug.	*	8.27	6.26	7.01	7.01	8.23	9.33	10.16	10.91	7.87
Sept.	*	6.81	5.47	5.94	6.02	6.97	8.19	8.70	8.62	7.95
Oct.	*	6.38	5.12	4.80	5.63	5.87	6.89	6.34	6.02	5.24
Nov.	3.66	3.86	3.35	3.31	3.03	4.80	3.43	4.41	3.82	3.62
Dec.	2.76	3.54	3.11	2.91	3.31	4.02	3.46	3.86	3.07	3.07
Yearly		67.87	56.69	55.98	58.54	72.32	74.57	79.49		60.71

Q Partly estimated * Data missing

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 79 in this bulletin.

In United States

Month	Barrett Dam, California				Chula Vista, California				Campo, California			
	1973			Average 1931-1973	1973			Average 1931-1973	1973			Average 1951-1973
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	46.0	80	23	48.5	51.9	68	33	52.4	44.1	72	18	46.7
Feb.	50.2	71	33	50.4	55.9	71	43	53.8	46.9	72	26	48.0
Mar.	48.7	70	33	53.3	54.3	65	42	55.2	45.2	69	24	49.4
Apr.	55.8	85	33	57.8	58.1	79	42	57.9	51.3	88	25	
May	63.3	97	41	62.7	59.9	76	49	60.6	60.1	93	29	58.2
June	71.4	105	46	68.1	64.2	85	56	62.9	67.5	102	34	64.7
July	73.9	105	46	76.1	65.5	71	60		71.0	105	34	73.4
Aug.	74.7	102	44	76.3	67.2	82	60		72.0	101	31	73.6
Sept.	66.6	96	40	72.1	65.3	87	55		63.6	100	29	68.7
Oct.	62.7	95	37	64.0	61.8	81	48	62.8	59.6	93	30	60.7
Nov.	52.9	88	31	55.8	56.8	75	42		50.0	86	24	52.5
Dec.	49.9	81	23	50.4	54.4	75	40	54.2	48.3	74	23	
Yearly	59.7	105	23	61.3	59.6	87	33		56.6	105	18	

In Mexico

Month	La Rumorosa, Baja California				Tecate, Baja California				Tijuana, Baja California			
	1973		1946-1973		1973		1946-59 & 61-73		1973		1948-59 & 61-73	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	64	16	81	5	77	16	100	16	75	36	93	27
Feb.	61	30	82	10	72	32	100	18	75	43	102	32
Mar.	61	28	88	16	68	28	97	25	72	46	90	34
Apr.	75	32	91	23	79	28	100	28	82	45	97	34
May	91	36	97	28	99	36	100	36	90	48	97	43
June	99	39	113	34	104	39	104	32	97	54	99	41
July	100	57	104	39	100	39	115	36	84	57	120	46
Aug.	95	54	102	46	99	41	113	34	90	54	106	52
Sept.	95	46	104	34	97	36	115	36	95	57	120	46
Oct.	82	37	93	25	100	34	106	27	90	48	117	41
Nov.	79	30	88	14	90	32	97	27	82	41	108	34
Dec.	68	30	81	10	81	30	97	23	82	32	99	25
Yearly	100	16	113	5	104	16	115	16	97	32	120	25

Month	Rodriguez Dam, Baja California				Valle de las Palmas, Baja California				El Pinal, Baja California			
	1973		1938-1973		1973		1948-1973		1973		1964-1973	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	79	32	88	27	79	27	91	12	68	19	73	12
Feb.	75	39	91	32	77	32	99	23	61	32	75	21
Mar.	72	39	88	32	73	34	100	28	59	25	82	19
Apr.	84	41	93	36	84	36	104	32	70	28	82	18
May	95	46	99	37	99	43	108	36	86	32	90	27
June	106	52	108	46	109	46	118	39	97	28	99	28
July	91	50	104	48	106	48	120	45	97	36	102	36
Aug.	93	55	106	52	106	48	111	48	93	36	104	36
Sept.	99	52	109	48	100	45	117	43	91	32	102	25
Oct.	95	46	108	34	100	39	108	32	88	30	95	30
Nov.	90	39	99	30	93	34	100	19	77	23	84	23
Dec.	88	39	93	27	86	34	91	21	73	27	79	18
Yearly	106	32	109	27	109	27	120	12	97	19	104	12

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Juan de Dios, Baja California											
	1973		1956-1973									
	Max.	Min.	Max.	Min.								
Jan.	70	16	88	7								
Feb.	63	16	84	16								
Mar.	63	19	84	14								
Apr.	81	21	102	19								
May	90	28	91	19								
June	97	32	106	28								
July	97	36	120	36								
Aug.	93	34	106	32								
Sept.	95	30	100	25								
Oct.	90	23	100	18								
Nov.	79	19	99	12								
Dec.	73	21	88	14								
Yearly	97	16	120	7								

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

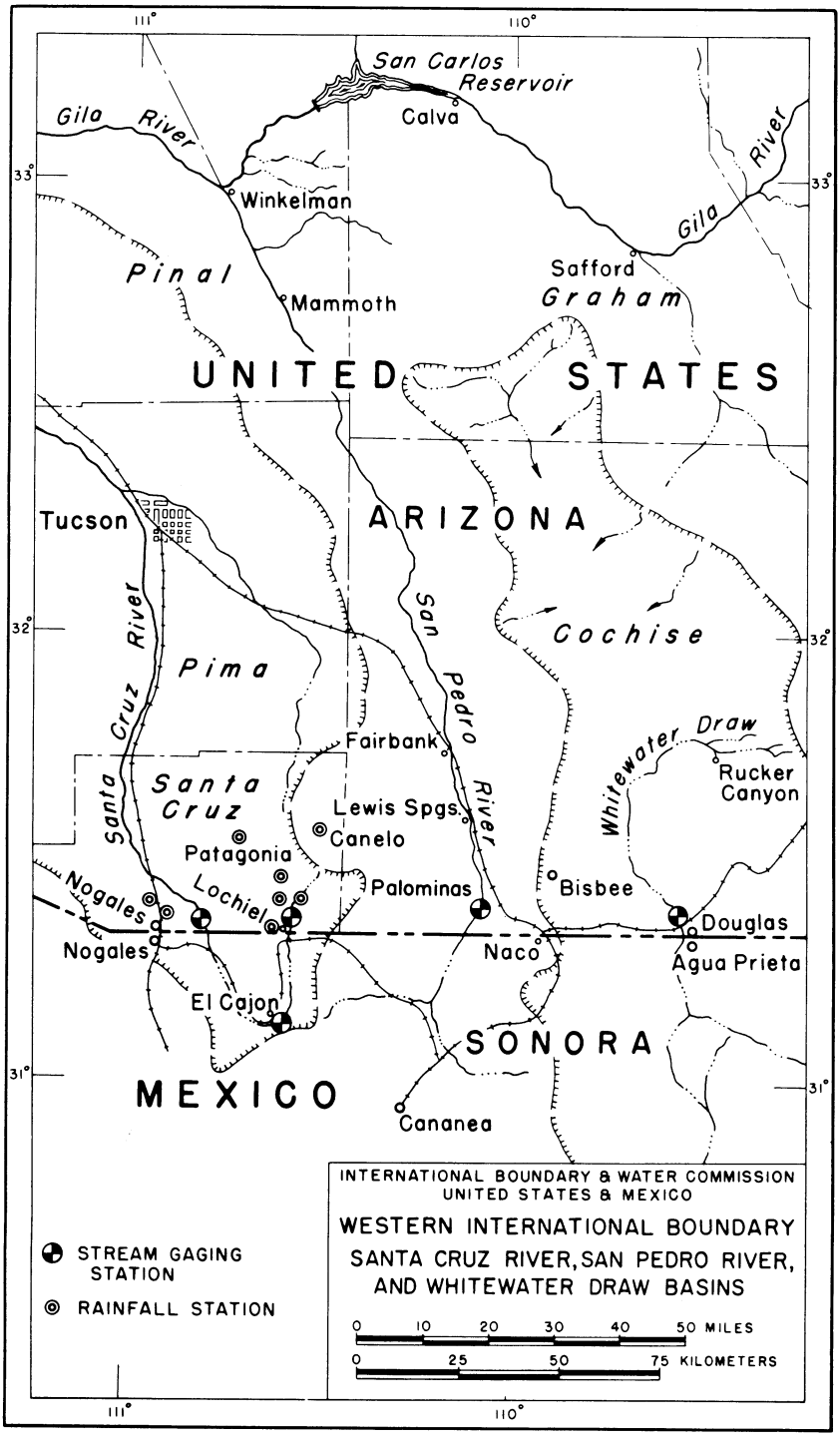
1973

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 1973 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 1973 in the Tijuana Irrigation District, Tijuana Valley, Baja California, Mexico, from the Rodriguez Reservoir


111°
110°
San Carlos Reservoir
Calva
Gila River
Winkelman
Gila River
33°
Pinal
Mammoth
Safford
Graham
UNITED STATES
Tucson
ARIZONA
32°
Santa Cruz River
Pima
San Pedro River
Cochise
Fairbank
Whitewater Draw
Rucker Canyon
Santa Cruz
Lewis Spgs.
Canelo
Patagonia
Nogales
Lochiel
Palominas
Bisbee
Douglas
Nogales
Naco
Agua Prieta
El Cajon
SONORA
31°
MEXICO
Cananea
INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
WESTERN INTERNATIONAL BOUNDARY
SANTA CRUZ RIVER, SAN PEDRO RIVER,
AND WHITEWATER DRAW BASINS
STREAM GAGING STATION
RAINFALL STATION
0 10 20 30 40 50 MILES
0 25 50 75 KILOMETERS

WHITEWATER DRAW NEAR DOUGLAS, ARIZONA

DESCRIPTION: Water-stage recorder located on U. S. Highway 80 bridge between Douglas and Bisbee, Arizona, about 450 feet upstream from the Southern Pacific Railroad bridge, 1.5 miles upstream from the international boundary, and 2 miles west of Douglas, Arizona. Zero of gage is 3,906.94 feet above mean sea level, U. S. C. & G. S. datum of 1929.

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 fair. 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 1973 (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 August 10, 1931 (gage height 12.15 feet); maximum estimated discharge, 4,050 second-feet July 27, 1919; minimum discharge, no flow for several days of many years. Since 1936: Maximum discharge, 5,060 second-feet August 7, 1955; maximum gage height 16.55 feet July 29, 1966; minimum daily discharge, no flow at times during most years.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.10	0	0	0	0	0	0	0	0	0	0	0
2	.10	0	0	0	0	0	0	0	0	0	0	0
3	.10	0	0	0	0	0	0	0	0	0	0	0
4	.10	0	0	0	0	0	0	0	0	0	0	0
5	.10	0	0	0	0	0	0	0	0	0	0	0
6	.10	0	0	0	0	0	0	0	0	0	0	0
7	.10	0	0	0	0	0	10	0	0	0	0	0
8	.10	0	0	0	0	0	10	0	0	0	0	0
9	.10	0	0	0	0	0	0	0	0	0	0	0
10	.10	0	0	0	0	0	0	0	0	0	0	0
11	.10	0	0	0	0	0	200	0	0	0	0	0
12	.10	0	0	0	0	0	10	0	0	0	0	0
13	.10	0	10	0	0	0	0	0	0	0	0	0
14	.10	0	100	0	0	0	0	0	0	0	0	0
15	.10	0	20	0	0	0	100	0	0	0	0	0
16	.10	0	10	0	0	0	10	0	0	0	0	0
17	.10	0	5.0	0	0	0	5.0	0	0	0	0	0
18	.10	0	2.0	0	0	0	1.0	0	0	0	0	0
19	.10	0	1.0	0	0	0	0	0	0	0	0	0
20	.10	0	.50	0	0	0	0	0	0	0	0	0
21	.10	0	.20	0	0	0	0	0	0	0	0	0
22	.10	0	.10	0	0	0	0	0	0	0	0	0
23	.10	0	0	0	0	0	0	0	0	0	0	0
24	.10	0	0	0	0	0	0	0	0	0	0	0
25	.10	0	0	0	0	0	0	0	0	0	0	0
26	.10	0	0	0	0	0	0	0	0	0	0	0
27	.10	0	0	0	0	0	0	0	0	0	0	0
28	.10	0	0	0	0	0	0	0	0	0	0	0
29	.10		0	0	0	0	0	0	0	0	0	0
30	.10		0	0	0	0	0	0	0	0	0	0
31	.10		0		0		0	0		0		0
Sum	3.10	0	148.80	0	0	0	346.0	0	0	0	0	0

Month	Current Year 1973 — Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1936-1973 — Acre Feet Average	Maximum	Minimum
Jan.				0.10		0.10	0.10	6.1	42.4	451	0
Feb.				0		0	0	0	22.5	132	0
Mar.			14	100	† 1	0	4.80	295	32.8	295	0
Apr.				0		0	0	0	22.5	173	0
May				0		0	0	0	16.3	138	0
June				0		0	0	0	142	1,590	0
July			11	200	† 1	0	11.2	686	# 2,126	8,110	39
Aug.				0		0	0	0	# 3,458	14,480	0
Sept.				0		0	0	0	# 760	3,170	0
Oct.				0		0	0	0	176	2,210	0
Nov.				0		0	0	0	41.7	352	0
Dec.				0		0	0	0	136	2,363	0
Yearly				200		0	1.4	988	6,976	22,321	900

∅ Mean daily # 1947 records not available † And other days

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 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 1973.
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 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 Millions of Gallons			Mean Daily Flows-Millions of Gallons Per Day					
				Current Year 1973			Period 1952-1973		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	31.650	0	31.650	1.120	0.920	1.021	1.618	0.619	1.058
Feb.	29.020	0	29.020	1.100	.930	1.036	1.784	.584	1.060
Mar.	32.590	0	32.590	1.190	.960	1.051	1.598	.590	1.062
Apr.	31.740	0	31.740	1.190	1.010	1.058	1.536	.619	1.060
May	33.020	0	33.020	1.140	.780	1.065	1.595	.619	1.068
June	33.609	0	33.609	1.260	.990	1.120	1.784	.626	1.125
July	35.445	0	35.445	1.210	1.065	1.143	3.209	.619	1.179
Aug.	35.320	0	35.320	1.260	1.010	1.136	1.985	.619	1.199
Sept.	19.624	0	19.624	1.090	.414	.677	1.884	.626	1.159
Oct.	23.926	0	23.926	1.410	.395	.772	1.667	.626	1.103
Nov.	29.680	0	29.680	1.115	.740	.989	1.586	.619	1.076
Dec.	29.450	0	29.450	1.200	.390	.950	1.736	.619	1.077
Yearly	365.074	0	365.074	1.410	0.390	1.002	3.209	0.584	1.102

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 1973.

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 south of international monument 85a.

Month	Total Monthly Flows Millions of Gallons			Mean Daily Flows-Millions of Gallons Per Day					
				Current Year 1973			Period 1968-1973		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	13.177	13.177	0.507	0.394	0.425	0.640	0.394	0.501
Feb.	0	12.763	12.763	.527	.394	.456	.726	.394	.521
Mar.	0	* 13.925	13.925	.470	.436	.447	.666	.399	.501
Apr.	0	13.547	13.547	.507	.394	.451	.666	.394	.498
May	0	13.944	13.944	.507	.394	.450	.666	.394	.515
June	0	14.532	14.532	.568	.394	.484	.617	.394	.493
July	0	14.248	14.248	.589	.394	.459	.617	.259	.495
Aug.	0	14.580	14.580	.589	.394	.470	.967	0	.413
Sept.	0	14.789	14.789	.568	.394	.493	.617	0	.413
Oct.	0	14.473	14.473	.568	.394	.467	.595	0	.538
Nov.	0	13.392	13.392	.507	.394	.446	.717	.394	.511
Dec.	0	13.728	13.728	.507	.394	.443	.709	.394	.510
Yearly	0	167.099	167.099	0.589	0.394	0.458	0.967	0	0.492

* Mean - no field data available

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 east of Palominas, 2.5 miles upstream from Green Brush Draw, 4.5 miles downstream from international boundary, and 12 miles southwest of Bisbee, Arizona Zero of gage is 4,187.62 feet 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 1973. 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 on August 14, 1940 (gage height, 16.16 feet present datum), from rating curve extended above 5,600 second-feet 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 present datum, from floodmarks; discharge not determined).

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.5	5.0	9.1	20	0.50	0.10	0	3.0	0.40	0	0	0.50
2	4.5	5.0	8.2	20	.50	.10	0	2.0	.40	.20	0	.50
3	4.5	5.0	7.3	19	.30	0	0	1.0	.40	0	.20	.50
4	4.5	5.0	6.5	17	.30	0	0	1.0	.30	.10	.40	.50
5	4.5	5.0	5.8	15	.20	0	0	1.0	.30	.10	.30	.50
6	4.5	5.0	5.8	15	.20	0	0	.50	.30	0	.10	.50
7	4.5	5.0	5.4	10	.20	0	82	.50	.30	0	.10	.50
8	4.5	5.0	5.4	10	.20	0	.20	.50	.30	.10	0	.50
9	4.5	5.0	7.3	5.0	.20	0	0	.50	.30	10	0	.50
10	4.5	5.0	6.1	5.0	.30	0	0	149	.20	.50	0	.60
11	4.5	5.0	5.4	5.0	.20	0	0	100	.20	.60	0	.40
12	4.5	5.0	8.2	5.0	.20	0	0	10	.20	.50	.10	.10
13	4.5	5.0	17	3.0	.20	0	110	2.0	.20	.20	.40	.10
14	4.5	5.4	72	3.0	.20	0	30	1.0	.10	0	.60	.10
15	4.5	5.4	283	3.0	.20	0	5.0	.50	.10	0	.10	.10
16	4.5	5.1	157	3.0	22	0	3.0	.50	.10	0	0	0
17	4.5	4.4	105	2.5	30	0	2.0	.50	0	0	0	.10
18	4.5	4.1	88	2.5	10	0	1.0	.50	0	.20	0	.40
19	4.5	3.8	73	2.5	5.0	0	.50	.50	0	.10	0	.10
20	4.5	4.7	72	2.5	4.0	0	0	.50	.10	.10	0	.10
21	4.5	378	64	2.5	4.0	0	0	.50	.10	.20	.30	.20
22	4.5	630	50	2.5	3.0	0	0	.50	0	.10	.20	.40
23	4.5	150	40	2.5	3.0	0	0	.50	0	.10	.30	.10
24	4.5	50	30	2.4	2.0	0	0	.50	0	0	.40	.10
25	4.5	30	20	2.4	2.0	0	0	.40	.30	.10	.60	0
26	4.5	25	20	2.0	1.0	0	0	.40	1.1	.10	.10	.10
27	4.5	20	16	2.0	1.0	0	0	.40	0	.10	0	.60
28	4.5	14	19	1.5	.50	0	140	.40	0	.20	.20	.80
29	4.5		20	1.5	.50	0	25	.40	0	.30	.50	.50
30	4.5		20	1.0	.20	0	10	.40	0	.40	.50	.20
31	4.5		20		.20		5.0	.40		.20		.40
Sum	139.5	1,394.9	1,266.5	188.3	92.30	0.20	463.70	279.80	5.70	4.60	5.40	10.00

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	ø Extreme Second Feet High Day	High	ø Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1951-1973 Acre Feet Average	Maximum	Minimum
Jan.			† 1	4.5	† 1	4.5	4.5	277	645	7,813	2.6
Feb.			22	630	19	3.8	49.3	2,767	459	2,727	3.0
Mar.			15	283	† 7	5.4	40.9	2,512	384	2,512	13.3
Apr.			† 1	20	30	1.0	6.28	373	96.0	373	0
May			17	30	† 5	.20	3.96	183	27.2	183	0
June			† 1	.10	† 3	0	.007	.4	163	1,391	0
July			23	140	† 1	0	15.0	920	6,031	17,233	184
Aug.			10	149	†25	.40	9.03	555	10,342	36,309	165
Sept.			28	1.1	†17	0	.19	11.3	1,749	16,344	11.3
Oct.			11	.60	† 1	0	.15	9.1	253	2,166	0
Nov.			14	.60	† 1	0	.16	10.7	147	609	0
Dec.			25	.50	†16	0	.32	19.5	827	10,959	6.2
Yearly				630		0	10.5	7,833	21,173	55,364	4,400

ø Mean daily † 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 northeast of Lochiel, Arizona, and 1.7 miles 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.
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 1973.
REMARKS: There are small diversions by ground water pumping for irrigating about 200 acres above this station.
EXTREMES: Maximum discharge, 4,810 second-feet on September 12, 1965 (gage height 8.90 feet); minimum discharge, no flow for several days of each year.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.38	0.35	0.50	0.44	0.23	0	1.9	0.71	0.33	0.11	0.26	0.27
2	.40	.34	.49	.47	.17	.03	.24	.69	.30	.10	.27	.28
3	.37	.37	.47	.44	.12	.06	.20	.63	.27	.09	.26	.28
4	.37	.37	.49	.41	.10	.07	.20	.67	.24	.09	.28	.29
5	.35	.36	.47	.43	.13	.08	.84	7.8	.24	.09	.26	.32
6	.37	.35	.46	.41	.12	.11	.33	.81	.22	.09	.27	.31
7	.37	.36	.48	.40	.12	.13	.25	.62	.22	.10	.27	.31
8	.35	.35	.47	.38	.12	.12	12	.61	.19	.12	.27	.32
9	.40	.37	.59	.39	.19	.13	.52	.57	.21	.14	.25	.31
10	.40	.38	.51	.38	.23	.14	.57	.58	.21	.16	.25	.32
11	.38	.42	.50	.35	.23	.15	.53	.66	.18	.18	.24	.32
12	.40	.41	.65	.35	.25	.27	7.4	.60	.18	.17	.25	.33
13	.41	.37	1.2	.33	.28	.31	28	.60	.15	.17	.25	.33
14	.41	.37	.74	.34	.30	.24	3.1	.63	.09	.17	.25	.34
15	.41	.37	.60	.33	.30	.23	1.0	.61	.04	.17	.24	.34
16	.38	.37	.54	.32	.31	.24	.64	.65	.06	.19	.20	.33
17	.39	.37	.55	.34	.33	.25	.57	.64	.14	.19	.14	.33
18	.38	.37	.55	.33	.33	.24	.58	.58	.10	.17	.14	.34
19	.39	.37	.53	.34	.23	.24	.54	.59	.11	.16	.16	.36
20	.40	.37	.53	.34	.14	.23	.53	.64	.11	.16	.19	.35
21	.37	1.3	.53	.35	.10	.20	.54	.64	.13	.15	.20	.35
22	.40	1.0	.54	.34	.15	.20	.55	.61	.09	.18	.23	.35
23	.38	.59	.55	.33	.17	.21	.55	.58	.07	.19	.23	.36
24	.38	.56	.54	.33	.13	.21	.59	.55	.06	.19	.25	.36
25	.38	.55	.52	.29	.16	.22	.59	.51	.08	.20	.26	.35
26	.37	.54	.52	.26	.11	.22	.59	.54	.08	.18	.27	.35
27	.35	.50	.53	.24	.07	.19	.70	.54	.08	.19	.25	.35
28	.34	.50	.54	.23	.04	.17	.99	.47	.08	.20	.24	.35
29	.35		.55	.20	.03	.16	.82	17	.09	.23	.25	.35
30	.39		.49	.19	.01	80	.83	3.5	.10	.25	.26	.35
31	.44		.47		0		.79	.44		.27		.35
Sum	11.36	12.93	17.10	10.28	5.25	85.05	67.48	45.27	4.45	5.05	7.14	10.25

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1949-1973 Acre Feet Average	Maximum	Minimum
Jan.			31	0.44	23	0.34	0.38	23.5	46.6	226	1.3
Feb.			21	1.3	2	.34	.46	25.6	40.2	261	1.8
Mar.			13	1.2	6	.46	.55	33.9	35.9	250	.7
Apr.			2	.47	30	.19	.34	20.4	20.5	143	0
May			†17	.33	31	0	.17	10.4	9.1	49.5	0
June			30	80	1	0	2.54	169	9.3	169	0
July			13	28	† 3	.20	2.18	134	476	4,270	1.6
Aug.			29	17	31	.44	1.46	89.8	1,048	10,120	.03
Sept.			1	.33	15	.04	.15	8.5	322	2,634	0
Oct.			31	.27	† 3	.09	.16	10.0	87.4	443	0
Nov.			4	.25	†17	.14	.24	14.2	42.7	152	0
Dec.			†19	.36	1	.27	.33	20.3	68.7	693	0
Yearly				80		0	0.77	560	2,207	12,633	12

∅ Mean daily † And other days

SANTA CRUZ RIVER AT EL CAJON, SONORA

DESCRIPTION: Water-stage recorder, cableway, and Cipolletti weir with crest length of 26.25 feet and depth of 0.82 foot, 4.3 miles southwest of Santa Cruz, Sonora and approximately 30 miles southeast of Nogales, Sonora. Zero of gage is 4,270.24 feet above mean sea level, U. S. C. & G. S. datum, which is the same elevation as the crest of the weir.

RECORDS: Data is based on river stages and on current meter measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 14, 1954 through August 1959, October 1, 1959 through June 14, 1960; July 1960; January 6, 1961 through September 5, 1963; October 15, 1963 through August 3, 1964; January 9 through February 11 and April 1 through December 1965; January 1, 1966 through November 1967; February 8 through October 23 and December 13 through 31, 1968; January 1 through April 9, June 5 through July 30, August 15 through 24, and October 17 through December 1969; 1970; February 1 through May 23 and June 18 through November 1971; July 1, 1972 through 1973.

REMARKS: Irrigation diversions above the station affect the regimen of the river. A flood in August 1955 destroyed the weir which was repaired in February 1957.

EXTREMES: Maximum instantaneous discharge, 4,590 second-feet on August 6, 1955 with stage of 6.00 feet. Minimum discharge, zero on several days during 1968, 1970, and 1971.

Mean Daily Discharge in Second Feet 1973 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	3.5	6.0	10.9	2.5	2.8	16.6	3.9	1.8	1.4	1.8	2.1
2	7.1	3.5	5.6	11.3	2.5	3.2	4.6	6.0	1.8	1.1	2.1	1.8
3	6.7	3.5	5.6	10.9	2.5	3.2	4.6	5.3	2.1	1.1	2.1	1.8
4	5.3	3.5	5.6	10.6	2.1	3.2	3.5	4.6	1.4	1.1	2.8	1.8
5	4.9	3.5	6.4	9.9	2.5	3.5	3.2	27.5	1.4	1.1	2.8	1.8
6	5.3	3.5	5.3	9.5	3.9	3.9	3.2	4.6	3.2	1.1	2.8	1.8
7	5.3	3.5	4.6	9.9	3.5	4.2	3.5	3.9	1.8	1.8	2.5	1.8
8	4.9	3.5	4.9	9.5	4.9	4.6	6.4	3.9	2.1	1.8	2.5	1.8
9	5.3	3.5	5.6	8.8	2.8	3.5	7.1	4.9	2.1	1.8	2.1	1.8
10	5.3	3.5	5.6	7.1	1.8	2.8	7.4	3.5	1.4	1.8	1.8	1.8
11	5.3	3.5	5.6	6.0	1.4	3.2	5.7	4.6	1.8	1.8	1.8	1.8
12	4.6	3.5	11.3	6.0	1.4	7.8	31.1	4.2	1.8	1.8	1.8	1.8
13	3.9	3.5	29.7	6.0	1.4	3.9	32.1	3.5	1.8	1.8	1.8	1.8
14	4.6	3.5	51.2	5.3	1.4	3.2	16.2	3.2	1.4	1.8	2.1	1.8
15	4.2	3.5	47.3	5.3	1.1	2.8	2.8	3.2	1.4	1.8	2.1	1.8
16	3.9	3.5	47.0	4.6	1.1	2.5	1.8	3.2	6.4	1.8	2.1	1.8
17	3.5	3.5	35.3	3.9	1.4	3.2	1.4	2.1	3.2	1.8	2.1	1.8
18	3.5	3.9	23.7	3.5	1.4	3.5	1.4	2.8	2.5	1.8	2.1	1.8
19	3.5	3.9	19.4	3.5	1.4	3.9	1.1	1.8	1.8	1.8	3.2	1.8
20	3.5	4.2	17.0	3.5	1.4	3.2	1.4	1.8	1.4	1.8	3.5	1.8
21	4.2	39.2	14.8	3.5	1.4	3.5	2.1	1.8	1.1	1.8	3.2	1.8
22	4.2	38.8	18.4	3.5	1.8	3.9	5.3	2.1	.7	1.8	3.2	1.8
23	3.5	13.4	19.1	3.5	1.8	3.9	4.6	1.8	.7	1.8	3.2	1.8
24	3.5	10.6	14.5	3.2	2.1	4.2	4.2	1.8	.7	1.8	3.5	1.8
25	3.5	10.6	13.1	2.8	2.1	3.5	4.6	1.4	.7	1.8	2.8	1.8
26	3.5	9.9	12.7	2.8	1.8	3.5	4.6	8.5	.4	2.1	2.8	1.8
27	3.2	7.1	12.0	2.8	1.8	3.5	5.7	17.0	.4	1.8	3.2	1.8
28	3.2	6.7	10.9	2.1	2.1	3.9	5.3	18.0	.7	1.4	2.8	1.8
29	3.2		11.3	2.5	1.8	5.3	18.0	2.8	1.4	1.8	2.8	1.8
30	3.2		11.7	2.5	1.8	17.3	12.4	2.5	1.4	1.8	2.8	1.8
31	3.5		11.7		2.8		6.7	2.1		1.4		1.8
Sum	135.3	208.4	493.0	175.5	63.6	124.7	223.6	158.2	50.5	50.5	76.3	55.1

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period 1954-1973 Acre Feet Average	Maximum	Minimum
Jan.	0.13	0.07	2	7.1	†27	3.2	4.2	268	519	1,486	203
Feb.	1.15	.07	21	113	† 1	3.5	7.4	413	433	1,598	84.3
Mar.	.89	.10	15	75.6	† 7	4.2	15.9	978	426	978	76.4
Apr.	.26	.03	1	11.7	†25	1.8	6.0	348	260	713	74.9
May	.36	.03	8	19.8	†11	.4	2.1	126	185	512	50.0
June	1.05	.03	30	102	16	2.1	4.2	247	154	480	63.1
July	1.38	.03	13	147	†17	1.1	7.4	453	611	1,227	33.5
Aug.	1.67	.03	5	187	†19	1.4	4.9	314	3,553	32,608	229
Sept.	.43	.03	16	24.0	†26	.4	1.8	101	858	3,000	101
Oct.	.03	.03	† 7	2.1	† 2	1.1	1.8	101	333	1,165	73.5
Nov.	.07	.03	†20	3.5	1	1.4	2.5	152	366	838	134
Dec.	.03	.03	† 1	2.8	† 1	1.4	1.8	109	505	331	109
Yearly	1.67	0.03		187		0.4	5.0	3,610	9,995	38,805	2,317

† And other days

SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

DESCRIPTION: Water-stage recorder, cable with sit-down cable car located 5.5 miles east of Nogales, Arizona, 0.8 mile downstream from the international land boundary and 6 miles upstream from the Santa Cruz bridge on State Highway No. 82. Zero of gage is 3,702.54 feet 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. 1973 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 1973.

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 1973.

EXTREMES: Maximum discharge, 15,200 second-feet on December 20, 1967 (gage height 13.5 feet); minimum discharge, no flow for several days of many years.

Mean Daily Discharge in Second Feet 1973 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	4.5	31	59	7.0	0.20	0	39	0	0	0	0
2	6.6	3.8	27	50	6.0	.20	0	5.3	0	0	0	0
3	6.1	3.8	23	48	6.0	.20	0	0	0	0	0	0
4	6.1	3.8	23	45	6.0	.20	0	0	0	0	0	0
5	6.1	3.4	22	42	6.0	.20	0	0	0	0	0	0
6	6.1	3.4	20	38	5.0	.20	0	15	0	0	0	0
7	6.1	3.8	19	33	5.0	.20	0	3.8	0	0	0	0
8	6.1	3.8	19	31	5.0	.10	0	3.4	0	0	0	0
9	6.1	3.6	23	27	5.0	.10	0	3.0	0	0	0	0
10	6.1	3.4	23	26	4.0	.10	0	2.6	0	0	0	0
11	6.1	3.4	22	22	4.0	.10	0	2.6	0	0	0	0
12	5.7	3.8	39	20	4.0	.20	14	1.8	0	0	0	0
13	5.7	3.8	669	19	4.0	.20	4.0	1.3	0	0	0	0
14	5.7	4.2	1,280	19	3.0	.10	27	.90	0	0	0	0
15	6.1	3.8	857	18	3.0	.10	.50	.60	0	0	0	0
16	5.7	3.8	693	17	3.0	0	0	.50	0	0	0	0
17	5.7	3.4	628	15	3.0	0	0	.20	0	0	0	0
18	5.3	3.4	434	15	2.0	0	0	.20	0	0	0	0
19	5.7	3.4	270	14	2.0	0	0	.10	0	0	0	0
20	5.7	4.5	182	13	2.0	0	0	.10	0	0	0	0
21	5.3	380	140	11	1.0	0	0	0	0	0	0	0
22	5.3	1,250	108	10	1.0	0	0	0	0	0	0	0
23	5.3	346	112	10	1.0	0	0	0	0	0	0	0
24	5.3	126	102	8.9	.50	0	0	0	0	0	0	0
25	5.3	74	90	8.9	.50	0	0	0	0	0	0	0
26	5.3	56	81	8.9	.40	0	0	0	0	0	0	0
27	5.3	44	76	8.9	.30	0	0	0	0	0	0	0
28	4.5	38	69	7.7	.30	0	0	0	0	0	0	0
29	3.4		67	7.1	.20	0	.50	0	0	0	0	0
30	3.8		67	7.0	.20	0	11	0	0	0	0	0
31	5.3		63		.20		0	0		0		0
Sum	172.6	2,388.8	6,279	659.4	90.60	2.40	57.00	80.40	0	0	0	0

Month	Current Year 1973 Extreme Gage Feet High	Extreme Gage Feet Low	Ø Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1936-1973 Acre Feet Average	Maximum	Minimum
Jan.			2	6.6	29	3.4	5.57	342	1,175	16,710	62
Feb.			22	1,250	† 5	3.4	85.3	4,738	960	11,129	59
Mar.			14	1,280	† 7	19	203	12,454	929	12,454	95
Apr.			1	59	30	7.0	22.0	1,308	244	1,308	19
May			1	7.0	†29	.20	2.92	180	70.1	338	2
June			† 1	.20	†16	0	.080	4.8	66.3	1,020	0
July			14	27	† 1	0	1.84	113	2,344	15,610	45
Aug.			1	39	† 3	0	2.59	159	6,159	45,790	91
Sept.				0		0	0	0	1,339	7,507	0
Oct.				0		0	0	0	383	2,616	0
Nov.				0		0	0	0	289	1,218	0
Dec.				0		0	0	0	1,803	28,559	0
Yearly				1,280		0	26.7	19,299	15,761.4	57,671	3,499

Ø Mean daily † And other days

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Three 12-inch 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 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 1973.

REMARKS: Prior to December 18, 1971 the plant was located along the right bank of Nogales Wash approximately two miles north of the international boundary. Nogales International Treatment Plant treats combined sewage from Nogales, Arizona and Nogales, Sonora by means of primary and secondary sedimentation, sludge digestion, and trickling filters. 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 Millions of Gallons			Mean Daily Flows-Millions of Gallons Per Day					
				Current Year 1973			Period 1952-1973		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	56.485	43.792	100.277	3.657	3.019	3.235	* 4.800	0.650	2.359
Feb.	46.758	54.210	100.968	4.846	3.010	3.606	* 6.130	.650	2.422
Mar.	62.812	67.661	130.473	5.342	3.328	4.209	5.342	.750	2.352
Apr.	66.562	61.355	127.917	4.572	3.859	4.264	4.572	.700	2.317
May	67.805	62.793	130.598	4.697	3.740	4.213	4.697	.550	2.233
June	47.158	60.283	107.441	4.055	2.775	3.581	4.055	.700	2.095
July	49.723	55.119	104.842	3.863	2.681	3.382	3.863	.700	2.135
Aug.	51.798	65.474	117.272	4.246	3.360	3.783	4.928	.750	2.413
Sept.	55.886	66.829	122.715	4.386	3.640	4.090	4.541	.800	2.711
Oct.	58.818	57.709	116.527	4.149	2.930	3.759	4.149	.700	2.569
Nov.	52.375	56.673	109.548	4.014	3.040	3.652	4.402	.800	2.387
Dec.	55.299	46.601	101.900	3.536	2.786	3.287	* 5.200	.350	2.400
Yearly	671.979	698.499	1,370.478	5.342	2.681	3.755	* 6.130	0.350	2.366

* Partially 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 94.

In United States

Month	Meigs Ranch, Arizona		Canelo, Arizona		Patagonia, Arizona		Jones Ranch, Arizona		Nogales, Arizona	
	1973	Average 1952-1973	1973	Average 1930-1973	1973	Average 1930-1973	1973	Average 1952-1973	1973	Average 1914-1973
Jan.	0.62	0.75	0.81	1.07	0.62	1.14	0.73		0.45	1.01
Feb.	2.34	.56	2.17	1.08	2.69	1.04	2.50		2.38	.84
Mar.	2.13	.86	2.70	.79	3.66	.86	2.55		2.72	.77
Apr.	0	.20	0	.35	0	.32	0	.19	0	.28
May	T	.09	.41	.14	.08	.16	.15	.06	.10	.14
June	4.54	.66	1.58	.87	.83	.52	1.03		.24	.46
July	1.20	4.66	3.51	4.28	3.71	4.46	4.10	5.68	5.07	4.22
Aug.	.97	4.66	2.53	4.48	2.59	4.21	3.16		2.20	3.96
Sept.	.30	1.47	.27	1.67	0	1.80	0		T	1.58
Oct.	0	.80	0	.89	0	.86	0		0	.75
Nov.	.20	.52	.41	.74	.47	.79	.45		.36	.70
Dec.	0	1.15	0	1.39	0	1.41	0	1.21	0	1.30
Yearly	12.30	16.38	14.39	17.75	14.65	17.57	14.72		13.52	16.01

Month	Nogales Sanitation Plant 6N, Arizona	
	1973	Average 1953-1973
Jan.	0.68	0.85
Feb.	3.07	.68
Mar.	2.60	.79
Apr.	T	.13
May	.05	.10
June	.25	.44
July	5.42	4.70
Aug.	.68	4.11
Sept.	0	1.40
Oct.	0	.97
Nov.	1.17	.60
Dec.	0	1.34
Yearly	13.92	16.11

In Mexico

Month	San Lazaro, Sonora	
	1973	Average 1961-1973
Jan.	0.43	0.63
Feb.	2.32	.67
Mar.	2.24	.75
Apr.	0	.43
May	0	.12
June	.79	.59
July	2.68	4.37
Aug.	1.54	3.35
Sept.	0	1.61
Oct.	0	.87
Nov.	.24	.55
Dec.	0	1.42
Yearly	10.24	13.31

T Trace

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 1973.

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
Jones Ranch, Arizona	S	31° 22'	110° 36'	4,960	Mar. 1952	I. B. & W. C.
Meigs Ranch, Arizona	S	31° 26'	110° 36'	4,836	Mar. 1952	I. B. & W. C.
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

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
San Lazaro, Sonora	S	*	*	4,199	Mar. 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 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 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 southwest of Santa Cruz, Sonora, and approximately 22 miles 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 rain gage, 48-inch diameter 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 rain gage and a 48-inch diameter evaporation pan.

For specific location of these two stations, refer to data opposite same station name shown in "Location of Rainfall Stations", page 94 of this bulletin.

In United States

Temperature - Degrees Fahrenheit

Month	Nogales Sanitation Plant - 6N		
	1973		
	Mean	Max.	Min.
Jan.	41.3	59.2	23.3
Feb.	47.3	63.8	30.7
Mar.	47.1	61.9	32.2
Apr.	56.4	73.4	39.3
May	65.8	87.1	44.5
June	73.3	95.4	51.1
July	76.9	96.0	57.8
Aug.	77.2	96.1	58.2
Sept.	72.6	94.2	50.9
Oct.	67.9	84.5	51.2
Nov.	54.2	73.8	34.6
Dec.	47.0	67.5	26.4
Yearly	60.6	96.1	23.3

Mean Relative Humidity - Percent

Month	Nogales Sanitation Plant - 6N	
	1973	
	Max.	Min.
Jan.	100	39
Feb.	93	18
Mar.	100	44
Apr.	100	21
May	95	0
June	100	16
July	100	57
Aug.	100	34
Sept.	100	62
Oct.	100	22
Nov.	100	19
Dec.	100	13
Yearly	100	0

Evaporation - Inches

Month	Nogales Sanitation Plant - 6N	
	1973	Average # 1953-1973
Jan.	3.74	3.53
Feb.	4.12	4.65
Mar.		6.97
Apr.	9.33	9.78
May	12.37	12.59
June	13.87	13.83
July	11.92	10.05
Aug.	11.56	7.85
Sept.	12.06	7.89
Oct.	10.24	6.99
Nov.	5.54	4.45
Dec.		3.12
Yearly		91.70

Mean Wind Speed - Miles Per Hour

Month	Nogales Sanitation Plant - 6N	
	1973	Average 1953-1973
Jan.	2.1	2.0
Feb.	2.1	2.3
Mar.	2.7	2.6
Apr.	3.1	2.6
May	2.7	2.5
June	2.8	2.4
July	2.5	1.6
Aug.	2.2	1.0
Sept.	2.3	1.1
Oct.	2.4	1.5
Nov.	2.2	1.5
Dec.	2.3	1.8
Yearly	2.4	1.9

In Mexico

Temperature - Degrees Fahrenheit

Month	San Lazaro, Sonora			
	1973		1961-1973	
	Max.	Min.	Max.	Min.
Jan.	75	19	93	10
Feb.	73	28	88	16
Mar.	70	28	99	19
Apr.	86	28	106	27
May	95	36	117	28
June	104	48	124	41
July	102	55	126	52
Aug.	99	59	117	52
Sept.	100	43	115	39
Oct.	97	34	111	34
Nov.	88	27	102	21
Dec.	75	19	95	14
Yearly	104	19	126	10

Evaporation - Inches

Month	San Lazaro, Sonora	
	1973	Average 1961-1973
Jan.	2.99	3.70
Feb.	3.43	4.37
Mar.	4.76	7.01
Apr.	8.35	9.76
May	10.87	11.89
June	12.64	12.52
July	9.84	8.54
Aug.	8.70	7.20
Sept.	9.41	7.40
Oct.	9.45	7.05
Nov.	5.28	4.61
Dec.	4.80	3.46
Yearly	90.51	88.03

Some months missing

DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG SANTA CRUZ RIVER, SAN PEDRO RIVER, AND WHITEWATER DRAW 1973

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 Smoke Control Section, Phelps-Dodge Smelter 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	0	2,696	2,696
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	16,373	0	16,373

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

CORRECTIONS TO PREVIOUS WATER BULLETINS

Water Bulletin and Page Numbers	Heading	Reference	Published As	Correction
1970-16	Colorado River at Northerly International Boundary - Discharges	Period Summary Table Period of record dates	1955-1970	1935-1970
1970-41	Stored Water in Large Reservoirs of the Colorado River	Lake Mohave Period of Record Maximum acre-feet Minimum acre-feet	 1,741.5 1,398.4	 1,808.0 1,186.0
1970-85	Whitewater Draw near Douglas, Arizona	Period Summary Table Minimum Acre-Feet October November December	 .4 .2 .4	 0 0 0
1970-95	Temperature, Humidity, Evaporation and Wind in the Santa Cruz River Basin	First sentence of first paragraph of textual heading	† See footnote below	‡ See footnote below
1971-32	West Main Canal Wasteway	Mean Daily Discharge Table January 1-31 Sum for January February 1-22 Sum for February Annual Summary Table Total Acre-Feet February Yearly	 0 0 0 3.7 7.3 3,077	 Leave blank Leave blank Leave blank Leave blank Leave blank 3,070
1971-86	Whitewater Draw near Douglas Arizona	Period Summary Table Minimum Acre-Feet October	 .4	 0
1972-32	West Main Canal Wasteway	Period Summary Table Average Acre-Feet January February Yearly Minimum Acre-Feet January February Yearly	 118 260 4,159 0 7.3 3,077	 237 512 4,530 Leave blank Leave blank #3,070 (add footnote at bottom of table: # Not for full year)
1972-53	Evaporation in the Colorado River Basin	San Felipe, Baja Calif. Average 1952-1970 May	 10.05	 10.55

† Tabulated below are monthly records of temperature, humidity, evaporation and wind at the station two miles north of the Nogales Sanitation Plant in Arizona.

‡ Tabulated below are monthly records of temperature, humidity, evaporation and wind at the station located at the Nogales Sanitation Plant in Arizona two miles north of the international boundary.