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UNITED STATES AND MEXICO

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San Diego, California

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

WESTERN WATER BULLETIN 1972

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

COLORADO RIVER

TIJUANA RIVER

SANTA CRUZ RIVER

WHITEWATER DRAW

SAN PEDRO RIVER

1972

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FOREWORD

This bulletin is the thirteenth 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 1972.

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 1972.

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 all of Mexico's guaranteed treaty allotment (except emergency delivery to Tijuana beginning in August 1972) of Colorado River water has been delivered in the limitrophe section of the river. The greater portion of such deliveries has 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
	VOLUME	
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 1972

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 1972. The average seasonal (October 1971-September 1972) rainfall over the upper basin, as gaged at 13 index stations, was about 11.2 inches compared to a seasonal average of about 13.8 inches for the 50 seasons (1923-1972). In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation (1972) measured at 6 index stations was 6.38 inches compared to an average of 2.60 inches during the last 14 years (1959-1972).

The flow of the Colorado River reaching Imperial Dam was 5,799,100 acre-feet, about 70% of the 38-year average (1935-1972) of 8,274,934 acre-feet. At the northerly international boundary, the total flow of the river during 1972 was 1,325,049 acre-feet, about 35% of the 1935-1972 average of 3,792,152 acre-feet. At the southerly international boundary, the flow during 1972 was only 117,927 acre-feet, or about 4% of the 1935-1972 average of 2,971,971 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 52,088 acre-feet in 1972, about 4.5% of the 1951-1972 average of 1,156,043 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1972 amounted to 1,612,538 acre-feet, 37% of the 1935-1972 average of 4,417,595 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, and 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 1972. A maximum instantaneous flow of 5,290 second-feet occurred in the Colorado River at the northerly boundary station on October 8.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 20,704,600 acre-feet, 72% of the usable capacity of 28,588,400 acre-feet. The greater part (18,645,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1972 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1972 was 1,087,300 acres, 663,364 acres in the United States and 423,936 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 1972 was 59.2 acre-feet, about 22% of the 1956-1972 average of 274 acre-feet.

Tijuana River Basin

During 1972, the temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 61.6 degrees, 0.3 degree below the 42-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 55 degrees, equal to the long-term average, and at Rodriguez Dam, Baja California (elevation 459 feet), the recorded temperatures averaged 64 degrees, 1.8 degrees above the mean of many years.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 11.11 inches, 64% of normal, and at Chula Vista near the lower end of the basin, 4.59 inches, or 48% of normal. The recorded precipitation at San Juan de Dios in the upper portion of the basin in Mexico, was 7.60 inches, approximately 52% of the normal during the 17-year period, and at Rodriguez Dam in the lower portion of the basin in Mexico, 6.42 inches, 82% of the 35-year average.

Runoff in the basin during 1972 averaged less than 6% of normal. Above Morena Reservoir the runoff was 336 acre-feet, or about 6% of the 36-year 1937-1972 mean of 5,770 acre-feet. At Rodriguez Reservoir, the runoff was 604 acre-feet, or about 4% of the 35-year mean of 13,476 acre-feet.

The flow of the Tijuana River at the international boundary was 417 acre-feet during 1972, and the flow in the Tijuana River near Nestor was 14.30 acre-feet.

Whitewater Draw

During 1972, the average annual temperature over the watershed was slightly below normal, while the annual precipitation was above normal. Runoff for the year at the gaging station near Douglas, Arizona, of 8,113 acre-feet was about 114% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1972

San Pedro River

During 1972, the average annual temperature was below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 95% of the 1961-1972 mean of 19.93 inches. The stream flow at the international boundary was 11,684 acre-feet, 54% of the 1951-1972 normal.

Santa Cruz River

During 1972, the average annual temperature over the watershed was somewhat below normal and the annual precipitation was about 86% of the 34-year 1939-1972 mean. Runoff measured at the Nogales gaging station where the stream re-enters the United States was 3,506 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 643 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 2,863 acre-feet from the loop of the river lying in Mexico, or approximately 82% of the flow reaching the Nogales station.

Alamo and New Rivers

During 1972 the average annual temperature over the drainage area of the Alamo River, as recorded at El Centro, California, was 72.2 degrees, 0.1 degree above normal; and over the drainage area of the New River, as recorded at Mexicali, Baja California, it was 72.0 degrees, equal to the 47-year average.

At El Centro, the precipitation was 2.32 inches, about 94% of the 42-year average, and in Mexicali, the annual precipitation was 3.94 inches, 132% of the 47-year average. The total flow of the New River at the international boundary in 1972 was 111,164 acre-feet, which was about 147% of the 1943-1972 normal.

Salton Sea

During 1972, the average annual temperature around the Salton Sea was about 98% of the long-term average, while the annual precipitation recorded at Brawley, California was approximately 91% of the long-term mean of 2.33 inches. The water surface of the Salton Sea remained more or less the same during the year. The maximum stage, 231.4 feet below mean sea level, was recorded on March 19 to May 23, inclusive; May 29 to June 15, inclusive; and June 19. The minimum stage, 232.3 feet below mean sea level, was recorded on January 1 to 11, inclusive; September 17 to October 21, inclusive; October 24; and October 30 to November 18, 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 commenced 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1									10.8	17.8	9.6	11.0
2									10.5	14.1	10.4	11.1
3									10.9	11.2	10.4	11.0
4									10.6	11.2	10.5	6.8
5									10.6	11.3	10.6	0
6									11.3	11.1	10.5	0
7									9.7	11.1	10.6	0
8									9.6	13.1	10.5	0
9									9.5	13.8	10.6	1.3
10									9.6	12.4	10.8	2.3
11									9.1	12.8	10.8	2.3
12									10.3	12.9	10.8	2.3
13								** 1.9	10.1	13.0	10.8	2.1
14								" 2.9	13.6	13.0	10.9	2.1
15								" 6.7	14.4	13.1	10.9	4.1
16								" 6.7	14.7	12.9	10.7	5.6
17								***5.9	16.6	13.0	10.9	5.6
18								6.2	15.0	13.1	10.9	5.7
19								6.3	8.3	13.0	10.9	5.7
20								7.3	14.0	12.9	10.9	8.3
21								7.5	7.8	9.4	10.9	11.2
22								6.5	0	7.8	10.9	11.3
23								2.5	0	7.8	10.9	11.3
24								1.6	.9	7.9	10.9	11.2
25								5.6	8.6	8.0	10.7	11.2
26								8.9	12.0	7.8	11.0	11.2
27								9.4	12.0	8.0	10.9	11.2
28								9.5	12.0	7.8	11.0	11.2
29								9.3	12.0	8.0	11.1	11.2
30								9.5	12.0	7.8	11.2	11.2
31								9.3		7.6		11.3
Sum								123.5	306.5	344.7	322.5	210.8

Month	Current Year 1972 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 Acre Feet Average	Maximum	Minimum
Jan.											
Feb.											
Mar.											
Apr.											
May											
June											
July											
Aug.			†28	9.5	24	1.6	6.5	245			
Sept.			17	16.6	†22	0	10.2	608			
Oct.			1	17.8	31	7.6	11.1	684			
Nov.			30	11.2	1	9.6	10.8	640			
Dec.			†22	11.3	† 5	0	6.8	418			
Yearly				17.8		0	9.3	2,595			

** Test water - not included in totalizer reading " Estimated *** Partially estimated
Ø Mean daily * Includes 12% losses † And other days

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 1972, 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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	112.80	112.88	112.80	113.14	113.35	113.26	113.52	113.06	113.52	112.59	112.72	112.82
2	113.02	112.91	112.78	113.13	113.28	113.12	113.16	113.01	113.50	112.69	112.75	112.86
3	112.80	112.90	112.92	113.09	113.20	113.14	113.00	113.02	113.54	112.70	112.75	112.88
4	112.87	112.88	113.41	113.09	113.20	113.12	113.03	113.00	113.51	112.70	112.79	112.71
5	112.91	112.89	113.15	113.10	113.27	113.66	112.99	112.99	113.54	112.70	112.74	112.85
6	112.89	112.86	113.05	113.07	113.28	113.62	112.97	113.04	113.49	113.12	112.69	113.40
7	112.85	112.89	112.86	113.13	113.21	113.58	112.94	113.03	113.43	116.66	112.70	113.49
8	112.79	112.84	112.81	113.51	113.18	113.42	112.91	113.05	113.46	117.15	112.69	112.76
9	112.80	112.87	112.82	113.32	113.13	112.77	112.91	113.02	113.40	115.49	112.69	112.74
10	112.79	113.11	112.91	113.10	113.15	112.77	112.95	113.12	113.48	113.93	112.71	112.75
11	112.78	113.35	112.98	113.09	113.18	112.77	112.96	113.55	113.42	113.25	112.97	112.74
12	112.78	112.79	112.94	113.08	113.14	112.81	112.94	113.47	113.39	112.81	112.87	112.75
13	112.79	112.79	112.98	113.19	113.14	112.82	112.97	113.18	113.38	112.81	112.79	112.75
14	112.81	112.80	113.00	113.09	113.11	112.79	112.95	113.09	113.34	113.13	112.70	112.73
15	113.51	112.81	112.96	113.09	113.11	112.80	112.96	113.07	113.29	112.76	112.68	112.74
16	113.08	112.87	113.01	113.06	113.09	112.72	112.98	113.07	112.92	113.00	112.78	112.69
17	112.84	112.98	112.90	113.01	113.11	112.94	112.98	113.09	112.96	113.09	113.05	112.71
18	112.89	112.95	112.91	113.07	113.13	112.96	113.01	113.07	113.04	112.92	112.98	112.79
19	112.91	112.86	112.92	113.62	113.14	112.84	113.00	113.06	113.09	112.95	112.98	113.17
20	112.95	112.89	112.99	113.38	113.15	112.81	113.00	113.09	113.10	114.36	112.92	113.13
21	112.98	112.90	113.38	113.07	113.14	112.80	113.49	113.08	113.09	114.92	112.83	112.76
22	113.00	113.06	113.41	113.00	113.12	112.77	113.50	113.08	113.13	113.25	112.88	112.78
23	112.97	112.94	113.31	112.99	113.09	112.75	113.23	113.07	113.10	113.03	112.84	112.81
24	112.98	112.84	113.03	112.97	113.08	112.76	113.08	113.05	113.13	112.82	112.79	112.77
25	112.96	112.89	113.31	112.97	113.10	112.74	113.03	113.03	113.10	112.81	112.79	112.70
26	112.98	112.89	113.17	112.92	113.12	112.72	113.00	113.01	113.04	112.87	112.79	112.68
27	112.93	112.88	113.31	112.89	113.13	112.93	113.00	113.03	113.05	112.89	112.76	112.76
28	112.91	112.85	113.18	112.85	113.30	112.88	113.01	113.03	112.95	112.90	112.82	112.80
29	112.90	112.79	113.14	112.91	113.31	112.79	113.19	113.11	112.95	112.89	112.88	112.82
30	112.94		113.13	113.61	113.33	112.81	113.18	114.13	112.90	112.85*	112.95	112.90
31	112.89		113.13		113.29		113.15	113.49		112.84*		112.90
Avg.	112.91	112.90	113.05	113.12	113.18	112.95	113.06	113.14	113.24	113.38	112.81	112.84

* Partly estimated

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder (digital) located 500 feet upstream from the U. S. Highway No. 80 crossing 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 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	48	56	46	60	58	57	63	61	51	59	52	55
2	47	44	47	52	58	55	57	63	49	51	54	45
3	46	47	50	51	62	67	48	60	56	52	50	47
4	52	50	55	52	57	79	47	63	52	52	50	44
5	57	49	51	52	58	55	47	51	49	55	50	51
6	54	54	47	53	62	58	47	52	49	81	50	48
7	53	44	46	56	72	54	47	49	50	53	57	46
8	47	44	53	56	57	58	52	49	49	51	54	46
9	57	44	46	60	58	52	52	52	46	60	50	48
10	46	48	47	66	60	53	47	50	53	54	49	49
11	46	47	47	58	60	52	57	48	47	50	49	48
12	49	47	48	60	61	49	52	47	47	50	50	46
13	46	44	48	58	65	50	50	48	51	54	52	54
14	46	43	50	57	62	57	50	50	52	52	51	46
15	48	43	51	56	70	55	52	44	49	48	51	42
16	51	47	52	60	65	52	57	48	48	47	57	42
17	44	46	58	58	67	50	46	42	49	46	67	49
18	43	53	64	52	62	50	45	41	58	52	59	46
19	43	46	52	53	61	48	51	40	58	47	51	44
20	49	44	49	53	60	50	52	42	60	54	47	43
21	58	47	50	54	63	50	49	43	59	48	48	42
22	49	45	52	57	64	52	51	43	53	46	55	43
23	47	52	54	56	68	51	51	40	55	45	55	43
24	45	48	52	52	69	52	58	42	58	45	49	51
25	44	46	55	59	69	49	53	44	57	44	46	44
26	45	52	58	57	66	50	58	48	58	49	50	46
27	46	49	57	56	64	52	60	44	57	47	47	43
28	49	46	57	55	59	53	57	42	57	46	47	42
29	44	46	53	57	63	50	55	48	58	46	47	44
30	47		60	60	63	50	56	45	58	47	48	44
31	49		57		63		56	47		50		51
Sum	1,495	1,371	1,612	1,686	1,946	1,610	1,623	1,486	1,593	1,581	1,542	1,432

Month	Current Year 1972								Period 1937-1972		
	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.			21	58	†18	43	48.2	2,965	3,220	4,780	877
Feb.			1	56	†14	43	47.3	2,719	3,064	4,320	563
Mar.			18	64	† 1	46	52.0	3,197	3,729	5,240	1,240
Apr.			10	66	3	51	56.2	3,344	3,774	5,250	1,160
May			7	72	† 4	57	62.8	3,860	3,890	5,590	992
June			4	79	19	48	53.7	3,193	3,769	5,580	885
July			1	63	18	45	52.4	3,219	4,055	6,550	816
Aug.			† 2	63	†19	40	47.9	2,947	4,017	6,810	861
Sept.			20	60	9	46	53.1	3,160	3,790	6,220	889
Oct.			6	81	25	44	51.0	3,136	3,798	5,740	1,040
Nov.			17	67	25	46	51.4	3,059	3,538	5,490	994
Dec.			1	55	†15	42	46.2	2,840	3,424	4,960	966
Yearly				81		40	51.8	37,639	44,068	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. 1972 records good, except those below 125 second-feet, which are fair. Records obtained furnished by U. S. Geological Survey. Records available: April 1913 through 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14	255	8.4	8.9	198	502	13	12	570	134	91	108
2	15	256	8.4	7.8	301	426	14	12	578	154	96	23
3	10	233	8.9	8.5	447	695	13	12	579	154	91	193
4	11	205	8.9	8.7	528	575	13	12	597	140	96	.60
5	11	223	9.5	9.8	538	719	13	11	615	149	91	.52
6	11	147	9.5	11	509	765	13	11	681	107	212	2.4
7	11	236	9.5	12	439	905	13	11	660	34	205	426
8	11	203	11	11	560	806	13	11	703	24	194	12
9	11	246	12	8.7	659	22	14	11	670	35	211	12
10	11	602	9.5	8.4	651	10	13	11	708	43	201	12
11	11	810	8.5	8.5	602	10	14	11	694	45	15	11
12	11	20	8.9	8.4	622	10	13	11	702	45	15	11
13	11	13	9.7	9.2	649	10	13	11	607	27	21	11
14	151	14	8.5	8.4	672	10	13	11	658	16	162	11
15	868	16	8.9	8.5	681	10	13	12	614	13	144	11
16	438	18	8.5	9.5	667	10	13	11	341	13	142	11
17	223	19	8.6	9.5	663	10	13	11	378	13	82	11
18	194	21	9.6	11	677	15	12	12	318	13	13	11
19	213	19	9.9	11	651	15	12	11	323	12	14	11
20	238	18	9.5	8.6	648	16	12	12	320	16	13	12
21	237	19	9.5	9.2	630	15	12	12	324	12	13	12
22	217	19	11	9.6	642	20	12	13	351	12	13	12
23	195	15	11	11	624	13	12	13	346	12	18	12
24	207	12	13	11	694	13	12	13	351	12	41	14
25	220	9.5	15	12	680	14	12	13	339	12	58	13
26	230	8.9	16	11	669	13	12	12	337	12	79	13
27	262	8.4	14	10	616	13	13	13	382	12	84	13
28	261	8.4	15	9.5	377	13	12	13	489	12	133	13
29	240	7.8	16	48	426	13	13	81	504	12	198	13
30	270		16	798	492	13	13	917	504	23	236	13
31	255		13		505		13	433		179		13
Sum	5,077	3,682.0	336.7	1,116.7	17,717	5,681	396	1,760	15,243	1,497	2,982	1,041.52

Month	Current Year 1972 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 1935-1972 Acre Feet Average	Maximum	Minimum
Jan.			15	868	3	10	164	10,070	60,392	110,700	3,230
Feb.			11	810	29	7.8	127	7,303	52,807	89,140	2,856
Mar.			†26	16	† 1	8.4	10.9	668	54,924	90,190	469
Apr.			30	798	2	7.8	37.2	2,215	55,402	86,580	2,215
May			24	694	1	198	572	35,141	63,613	88,280	5,480
June			7	905	†10	10	189	11,268	55,183	86,960	3,330
July			† 2	14	†18	12	12.8	785	54,358	91,220	452
Aug.			30	917	† 5	11	56.8	3,491	54,835	89,890	456
Sept.			10	708	18	318	508	30,234	56,284	83,660	12,419
Oct.			31	179	†19	12	48.3	2,969	52,860	90,050	2,176
Nov.			30	236	†18	13	99.4	5,915	53,319	101,500	3,850
Dec.			7	426	5	.52	33.6	2,066	59,702	108,800	918
Yearly				917		0.52	155	112,125	673,679	1,042,850	75,950

ø 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. The 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 1972. 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	482	685	490	643	920	1,060	821	636	1,150	547	574	583
2	585	670	490	630	910	985	666	620	1,170	588	583	543
3	473	661	553	598	940	1,100	586	618	1,190	592	579	620
4	506	639	785	603	970	1,070	596	607	1,170	588	592	484
5	524	648	675	607	1,010	1,390	580	592	1,190	592	570	538
6	516	607	643	598	1,020	1,380	567	610	1,180	766	579	745
7	498	657	540	625	965	1,390	556	601	1,160	2,990	597	1,040
8	469	616	531	800	990	1,280	552	606	1,170	3,380	579	516
9	480	666	531	715	1,000	458	558	603	1,140	2,100	583	512
10	462	925	553	616	1,020	442	563	641	1,190	980	583	516
11	459	1,030	589	607	1,020	450	580	828	1,160	645	597	508
12	467	474	576	607	1,010	499	567	799	1,140	496	565	508
13	467	458	589	666	1,020	530	570	659	1,140	516	561	512
14	497	478	598	612	1,010	526	565	612	1,120	615	570	504
15	1,160	482	580	612	1,020	535	573	603	1,090	496	565	496
16	836	522	607	598	1,000	499	589	605	822	561	597	460
17	634	567	558	580	1,010	571	574	610	859	597	680	492
18	635	558	571	598	1,010	589	591	607	871	561	601	516
19	649	517	562	860	1,010	530	588	598	876	565	597	725
20	685	535	580	746	1,000	526	587	609	891	1,290	579	725
21	699	535	760	594	1,010	525	807	598	880	1,630	547	512
22	700	612	780	567	1,010	527	821	607	910	670	565	520
23	677	567	735	564	1,000	504	690	600	899	583	552	534
24	691	513	589	550	1,020	507	625	596	914	492	547	532
25	680	540	720	560	1,020	504	607	582	892	496	556	484
26	704	544	657	543	1,020	494	595	588	868	534	565	472
27	703	540	730	515	1,020	538	605	595	888	538	547	512
28	695	522	661	480	1,040	556	604	599	885	547	601	534
29	690	474	643	525	1,060	523	677	658	901	552	645	538
30	715		639	1,260	1,090	528	676	1,590	884	574	705	570
31	680		639		1,080		665	1,110		640		583
Sum	17,242		19,079		21,016		20,787		26,721		17,314	
	19,118		19,154		31,225		19,201		30,600		17,561	

Month	Current Year 1972								Period 1951-1972		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	11.16	9.56	15	1,200	14	422	617	37,920	234,701	979,890	29,857
Feb.	11.12	9.61	11	1,180	13	446	595	34,199	175,525	826,600	33,790
Mar.	10.36	9.65	4	805	2	474	618	37,991	193,418	1,073,270	35,002
Apr.	11.41	9.70	30	1,390	29	450	636	37,843	183,008	843,010	37,843
May	10.94	10.42	28	1,140	1	850	1,007	61,934	173,357	863,860	56,493
June	11.35	9.57	5	1,430	10	430	701	41,685	161,522	833,970	36,365
July	10.57	9.83	1	895	7	540	619	38,085	175,899	649,820	34,413
Aug.	11.90	9.94	30	1,720	25	571	671	41,230	181,737	670,050	36,426
Sept.	11.43	10.03	13	1,400	13	652	1,020	60,694	152,839	775,930	43,182
Oct.	14.61	9.69	8	3,480	15	468	862	53,000	126,377	802,210	34,965
Nov.	10.35	9.86	30	3,725	6	496	585	34,832	148,728	911,370	34,832
Dec.	11.12	9.76	7	1,160	16	456	559	34,342	190,625	1,114,550	33,023
Yearly	14.61	9.56		3,480		422	708	513,755	2,097,736	10,220,870	513,755

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

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.71	10.14	9.71	10.10	10.56	10.73	10.41	10.04	11.04	9.86	10.04	10.06
2	9.94	10.13	9.68	10.08	10.54	10.59	10.11	10.01	11.04	9.94	10.06	9.97
3	9.69	10.11	9.82	10.04	10.60	10.78	9.93	10.01	11.07	9.96	10.05	10.12
4	9.76	10.07	10.32	10.03	10.66	10.73	9.96	9.99	11.04	9.95	10.08	9.83
5	9.82	10.09	10.10	10.04	10.73	11.28	9.92	9.96	11.07	9.96	10.03	9.96
6	9.80	9.99	10.03	10.03	10.75	11.26	9.89	10.00	11.06	10.30	10.05	10.39
7	9.77	10.10	9.80	10.09	10.65	11.28	9.87	9.99	11.02	13.89	10.09	10.92
8	9.70	10.01	9.78	10.46	10.70	11.08	9.86	10.00	11.05	14.46	10.05	9.91
9	9.71	10.11	9.78	10.29	10.72	9.64	9.87	9.99	10.99	12.52	10.06	9.90
10	9.67	10.63	9.83	10.08	10.76	9.60	9.88	10.07	11.08	10.70	10.06	9.91
11	9.66	10.81	9.92	10.06	10.75	9.62	9.92	10.47	11.02	10.08	10.09	9.89
12	9.67	9.68	9.89	10.06	10.73	9.74	9.89	10.41	10.99	9.75	10.02	9.89
13	9.67	9.64	9.92	10.19	10.76	9.81	9.90	10.12	10.98	9.80	10.01	9.90
14	9.72	9.68	9.94	10.07	10.74	9.80	9.89	9.93	10.95	10.02	10.03	9.88
15	10.08	9.69	9.90	10.07	10.76	9.82	9.90	10.01	10.89	9.75	10.02	9.86
16	10.45	9.78	9.96	10.04	10.73	9.74	9.94	10.02	10.37	9.91	10.09	9.77
17	10.04	9.88	9.85	10.00	10.74	9.90	9.91	10.03	10.45	9.99	10.26	9.85
18	10.04	9.85	9.88	10.04	10.75	9.94	9.94	10.03	10.47	9.91	10.10	9.91
19	10.06	9.76	9.87	10.58	10.73	9.81	9.94	10.01	10.48	9.92	10.09	10.25
20	10.14	9.80	9.91	10.35	10.73	9.80	9.94	10.03	10.51	11.19	10.05	10.25
21	10.17	9.80	10.29	10.03	10.73	9.80	10.39	10.01	10.49	11.83	9.98	9.90
22	10.16	9.96	10.33	9.97	10.74	9.80	10.42	10.04	10.55	10.17	10.02	9.92
23	10.11	9.96	10.25	9.96	10.72	9.75	10.16	10.02	10.53	10.02	9.99	9.95
24	10.14	9.74	9.94	9.93	10.75	9.76	10.02	10.02	10.56	9.83	9.98	9.90
25	10.12	9.80	10.23	9.96	10.75	9.75	9.98	9.98	10.51	9.86	10.00	9.83
26	10.16	9.81	10.10	9.92	10.74	9.73	9.95	10.00	10.47	9.95	10 02	9.80
27	10.16	9.80	10.26	9.95	10.73	9.83	9.98	10.01	10.51	9.96	9.93	9.90
28	10.15	9.75	10.12	9.77	10.75	9.87	9.97	10.02	10.50	9.98	10.10	9.95
29	10.15	9.65	10.08	9.86	10.78	9.79	10.13	10.14	10.53	9.99	10.19	9.96
30	10.20		10.08	11.19	10.82	9.80	10.13	11.71	10.50	10.04	10.31	10.03
31	10.14		10.09		10.78		10.11	10.91		10.18		10.06
Avg.	9.96	9.94	9.99	10.10	10.72	10.09	10.00	10.13	10.76	10.44	10.06	9.99

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 1972.
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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.1	1.5	1.3	1.8	1.9	1.7	1.5	2.1	2.2	2.8	2.2	2.0
2	2.0	1.5	1.3	1.8	1.9	1.7	1.5	2.1	2.3	2.8	2.1	1.9
3	2.0	1.4	1.4	1.8	1.9	1.7	1.6	2.1	2.5	2.7	2.0	1.9
4	2.0	1.4	1.4	1.8	1.9	1.7	1.6	2.1	2.7	2.7	2.0	1.9
5	2.0	1.4	1.4	1.8	1.9	1.7	1.6	2.1	2.8	2.7	2.0	1.8
6	1.9	1.4	1.4	1.8	1.8	1.7	1.6	2.1	2.8	2.6	2.0	1.8
7	1.9	1.4	1.4	1.8	1.8	1.7	1.7	2.1	2.8	2.6	2.0	1.8
8	1.9	1.4	1.4	1.8	1.8	1.7	1.7	2.1	2.8	2.6	2.0	1.8
9	1.8	1.4	1.4	1.8	1.8	1.7	1.7	2.1	2.8	2.6	2.0	1.8
10	1.8	1.4	1.4	1.8	1.8	1.6	1.7	2.1	2.8	2.5	2.0	1.7
11	1.8	1.3	1.5	1.8	1.8	1.6	1.8	2.1	2.8	2.6	2.0	1.7
12	1.8	1.3	1.5	1.8	1.8	1.6	1.8	2.1	2.8	2.5	2.0	1.6
13	1.7	1.3	1.5	1.8	1.8	1.6	1.8	2.1	2.8	2.5	2.0	1.6
14	1.7	1.3	1.5	1.8	1.8	1.6	1.8	2.1	2.8	2.4	2.0	1.6
15	1.7	1.3	1.5	1.8	1.8	1.6	1.8	2.1	2.8	2.4	2.0	1.6
16	1.6	1.3	1.5	1.8	1.8	1.6	1.9	2.1	2.8	2.4	2.0	1.6
17	1.6	1.3	1.6	1.8	1.8	1.6	1.9	2.1	2.8	2.4	2.0	1.6
18	1.6	1.3	1.6	1.8	1.8	1.6	1.9	2.1	2.8	2.3	2.0	1.6
19	1.6	1.2	1.6	1.8	1.8	1.5	1.9	2.1	2.8	2.3	2.0	1.6
20	1.5	1.2	1.6	1.8	1.7	1.5	2.0	2.1	2.8	2.3	2.0	1.6
21	1.5	1.2	1.6	1.8	1.7	1.5	2.0	2.1	2.8	2.3	2.0	1.6
22	1.5	1.2	1.6	1.9	1.7	1.5	2.0	2.1	2.8	2.3	2.0	1.6
23	1.5	1.2	1.6	1.9	1.7	1.5	2.0	2.1	2.8	2.3	2.0	1.6
24	1.5	1.3	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
25	1.5	1.3	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
26	1.5	1.3	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
27	1.5	1.3	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
28	1.5	1.3	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
29	1.5	1.4	1.7	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
30	1.5		1.8	1.9	1.7	1.5	2.1	2.1	2.8	2.3	2.0	1.6
31	1.5		1.8		1.7		2.1	2.1		2.3		1.6
Sum	52.5	38.5	47.8	54.9	55.1	47.7	57.6	65.1	82.3	75.9	60.3	52.1

Month	Current Year 1972 Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1948-1972 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			1	2.1	†20	1.5	1.7	104	369	899	39.3
Feb.			† 1	1.5	†19	1.2	1.3	76.4	321	746	40.5
Mar.			†30	1.8	† 1	1.3	1.5	94.8	391	853	73.8
Apr.			†22	1.9	† 1	1.8	1.8	109	414	1,000	66.8
May			† 1	1.9	†20	1.7	1.8	109	413	966	61.5
June			† 1	1.7	†19	1.5	1.6	94.6	431	1,030	67.4
July			†24	2.1	† 1	1.5	1.9	114	491	1,260	72.8
Aug.			† 1	2.1	† 1	2.1	2.1	129	543	1,350	73.8
Sept.			† 5	2.8	1	2.2	2.7	163	519	1,370	53.6
Oct.			† 1	2.8	†18	2.3	2.4	151	527	1,220	55.3
Nov.			1	2.2	† 3	2.0	2.0	120	474	1,240	57.7
Dec.			1	2.0	†12	1.6	1.7	103	431	1,050	51.0
Yearly				2.8		1.2	1.9	1,368	5,324	12,429	834

† And other days Ø Mean daily

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 1972. 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,800	0	1,890	2,360	0	0	1,510	2,020	0	0	0	0
2	1,660	0	1,870	2,330	0	0	1,550	2,050	0	0	0	0
3	1,770	0	1,840	2,380	0	0	1,730	2,100	0	0	0	0
4	1,820	0	1,530	2,430	0	0	1,690	2,100	0	0	0	0
5	1,740	0	1,640	2,420	0	0	1,700	2,120	0	0	0	0
6	1,690	0	1,940	2,420	0	0	1,740	2,060	0	5.0	0	0
7	1,770	0	2,120	2,390	0	0	1,750	1,940	0	1,690	0	28.0
8	1,800	0	2,120	2,150	0	0	1,750	1,970	0	1,910	0	978
9	1,820	0	2,130	2,220	0	1,110	1,740	1,910	0	429	0	1,050
10	1,780	0	2,170	2,370	0	1,160	1,730	1,920	0	0	0	1,030
11	1,620	41.0	2,120	2,440	0	1,150	1,690	1,710	0	0	0	980
12	1,490	1,090	2,140	2,420	0	1,240	1,710	1,680	0	0	0	952
13	1,340	1,150	2,360	2,380	0	1,180	1,700	1,820	0	0	0	950
14	1,080	1,120	2,350	2,400	0	1,200	1,720	1,910	0	0	0	951
15	0	1,360	2,360	2,400	0	1,190	1,620	1,900	0	0	0	951
16	0	1,290	2,330	2,400	0	1,420	1,720	1,900	0	0	0	992
17	0	1,260	2,360	2,390	0	1,350	1,780	1,880	0	0	0	963
18	0	1,170	2,360	2,270	0	1,280	1,760	1,910	0	0	0	956
19	0	1,280	2,360	1,960	0	1,580	2,020	1,900	0	0	0	1,070
20	0	1,450	2,350	2,050	0	1,650	2,060	1,880	0	0	0	1,040
21	0	1,430	2,140	2,170	0	1,660	1,830	1,650	0	0	0	957
22	0	1,380	2,130	1,890	0	1,700	1,770	1,620	0	0	0	950
23	0	1,430	2,190	1,580	0	1,700	1,860	1,690	0	0	0	951
24	0	1,450	2,360	1,600	0	1,750	1,990	1,700	0	0	0	950
25	0	1,470	2,160	1,580	0	1,770	1,990	1,810	0	0	0	950
26	0	1,480	2,260	1,620	0	1,750	2,020	1,780	0	0	0	950
27	0	1,440	2,190	1,660	0	1,610	1,970	1,460	0	0	0	949
28	0	1,460	2,240	1,400	0	1,600	1,980	1,440	0	0	0	952
29	0	1,550	2,290	1,110	0	1,580	1,900	1,150	0	0	0	952
30	0		2,370	0	0	1,620	1,900	0	0	0	0	1,030
31	0		2,340		0		1,860	0		0		1,060
Sum	24,301			61,190		32,250		52,980		4,034		23,542
	23,180		67,010		0		55,740		0		0	

Month	Current Year 1972 — Extreme Gage Feet		Ø Extreme Second Feet — High		Low		Average Second Feet	Total Acre Feet	Period 1944-1972 — Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			† 4	1,820	†15	0	748	45,977	43,384	400,200	0
Feb.			29	1,550	† 1	0	838	48,200	19,887	149,500	0
Mar.			30	2,370	4	1,530	2,162	132,912	70,245	279,300	0
Apr.			11	2,440	30	0	2,040	121,369	96,066	260,900	0
May			† 1	0	† 1	0	0	0	19,111	165,400	0
June			25	1,770	† 1	0	1,075	63,967	64,456	204,300	0
July			20	2,060	1	1,510	1,798	110,559	114,197	260,000	0
Aug.			5	2,120	†30	0	1,709	105,084	117,331	270,100	0
Sept.			† 1	0	† 1	0	0	0	54,081	173,300	0
Oct.			8	1,910	† 1	0	130	8,001	11,174	51,460	0
Nov.			† 1	0	† 1	0	0	0	15,315	182,600	0
Dec.			19	1,070	† 1	0	759	46,695	37,381	319,700	0
Yearly				2,440		0	938	682,764	662,628	1,944,700	0

Ø Mean daily † And other days

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

DESCRIPTION: Diversion structure (Main Outlet Drain Extension No. 1) in Wellton-Mohawk Drainage Extension Channel for diverting water to the Gila River, 0.5 mile upstream from the confluence of the Gila and Colorado Rivers. A continuous water-stage recorder immediately upstream from outlet structure (Main Outlet Drain Extension No. 2) 0.4 mile downstream from diversion structure which diverts water from the Extension Channel directly to the Colorado River at a point 0.8 mile upstream from the northerly international boundary, and 1.9 miles upstream from Morelos Dam. The Gila River enters the Colorado River 13 miles upstream from Morelos Dam.

RECORDS: Partial diversions of the Extension Channel flow at M. O. D. E. No. 1 were determined from the gate openings, rated by discharge measurements below the outlet. Diversions of the total Extension Channel flow were determined at an upstream measuring station at channel station 9+00. Flows diverted at M. O. D. E. No. 2 were based on discharge measurements and a continuous record of gage heights. The record shown below is the combination of diversions at M. O. D. E. No. 1 and M. O. D. E. No. 2. Records available: February 10, 1961 through 1972.

REMARKS: Pursuant to Minute No. 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 immediately below Morelos Dam, Main Outlet Drain Extension No. 3. The discharge record for M.O.D.E. No. 3 is shown on page 23. On July 14, 1972, Minute 241 of the Commission became effective. Minute 241 provided for the discharge of Wellton-Mohawk drainage waters to be made immediately below Morelos Dam. Prior to July 14, 1972 drainage waters were discharged above Morelos Dam on the days and at such rates as Mexico requested in writing. Otherwise, they were discharged to the Colorado River immediately below Morelos Dam.

Mean Daily Discharge in Second Feet 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	170	0	190	291	111	128	0	0	0	0	0	0
2	174	0	193	290	108	137	0	0	0	0	0	0
3	188	0	191	293	106	124	0	0	0	0	0	0
4	185	0	192	296	111	131	0	0	0	0	0	0
5	193	0	188	294	117	148	0	0	0	0	0	0
6	149	0	231	292	115	158	0	0	0	0	0	0
7	67.0	0	240	293	118	157	0	0	0	0	0	0
8	.55	0	268	291	118	158	0	0	0	0	0	0
9	.48	34.0	295	289	117	181	0	0	0	0	0	0
10	.38	60.0	291	284	123	188	0	0	0	0	0	0
11	.20	79.0	292	279	130	190	0	0	0	0	0	0
12	161	97.0	290	279	131	193	0	0	0	0	0	0
13	157	100	286	284	129	189	0	0	0	0	0	0
14	137	101	276	288	132	193	0	0	0	0	0	0
15	106	116	276	282	133	194	0	0	0	0	0	0
16	85.0	117	274	282	132	195	0	0	0	0	0	0
17	56.0	113	272	286	132	198	0	0	0	0	0	0
18	2.7	114	275	282	132	196	0	0	0	0	0	0
19	0	113	274	286	132	203	0	0	0	0	0	0
20	0	129	281	288	132	206	0	0	0	0	0	0
21	0	144	281	277	133	206	0	0	0	0	0	0
22	0	146	287	271	131	202	0	0	0	0	0	0
23	0	148	289	243	132	197	0	0	0	0	0	0
24	0	155	289	243	133	197	0	0	0	0	0	0
25	0	167	290	243	132	187	0	0	0	0	0	0
26	0	166	292	244	134	71.0	0	0	0	0	0	0
27	0	166	295	244	132	.01	0	0	0	0	0	0
28	0	166	294	202	131	0	0	0	0	0	0	0
29	0	179	288	173	133	0	0	0	0	0	0	0
30	0		287	138	135	0	0	0	0	0	0	0
31	0		292		134		0	0		0		0
Sum	1,832.31	2,610.0	8,259	8,027	3,919	4,527.01	0	0	0	0	0	0

Month	Current Year 1972 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1961-1972 Acre Feet Average	Maximum	Minimum
Jan.			5	193	†19	0	59.1	3,635	7,653	19,452	0
Feb.			29	179	† 1	0	90.0	5,177	7,594	16,784	0
Mar.			† 9	295	5	188	266	16,381	15,256	18,742	8,434
Apr.			4	296	30	138	268	15,921	15,603	18,573	11,948
May			30	135	3	106	126	7,773	11,901	19,783	5,944
June			†20	206	†27	0	151	8,979	13,813	19,186	8,979
July				0		0	0	0	15,491	19,295	0
Aug.				0		0	0	0	14,876	18,887	0
Sept.				0		0	0	0	9,900	18,313	0
Oct.				0		0	0	0	5,922	18,625	0
Nov.				0		0	0	0	5,662	17,627	0
Dec.				0		0	0	0	6,820	18,988	0
Yearly				296		0	90	57,866	130,491	215,087	57,866

∅ Mean daily † And other days

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank and cableway at the point where the northerly international land boundary (California-Baja California) intersects the Colorado River, about 6.4 miles 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 381 current meter measurements during the year, 210 by the United States Section, 160 by the Mexican Section of the Commission, 11 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 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 1972; daily discharge records available January 1, 1950 through 1972.

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 1972, the flow at this point 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,500	719	2,620	3,310	1,160	1,190	2,330	2,880	1,260	716	719	746
2	2,490	719	2,610	3,260	1,130	1,140	2,320	2,880	1,290	706	702	711
3	2,490	728	2,630	3,300	1,140	1,190	2,350	2,920	1,320	735	719	802
4	2,540	700	2,610	3,340	1,100	1,190	2,350	2,920	1,290	726	711	651
5	2,500	710	2,590	3,340	1,140	1,500	2,330	2,900	1,320	726	711	719
6	2,420	672	2,840	3,340	1,160	1,560	2,380	2,860	1,320	804	696	927
7	2,430	721	2,940	3,360	1,130	1,590	2,380	2,720	1,330	3,860	755	1,280
8	2,380	766	2,920	3,320	1,120	1,560	2,360	2,760	1,330	5,230	719	1,640
9	2,420	786	2,930	3,310	1,150	1,790	2,380	2,760	1,330	3,140	728	1,700
10	2,350	1,090	3,020	3,320	1,180	1,800	2,380	2,760	1,350	1,350	728	1,700
11	2,210	1,430	3,020	3,360	1,190	1,820	2,330	2,760	1,350	783	746	1,630
12	2,210	1,700	3,010	3,340	1,160	1,930	2,350	2,760	1,330	583	719	1,600
13	2,090	1,760	3,250	3,360	1,160	1,910	2,350	2,740	1,300	640	711	1,620
14	1,800	1,750	3,250	3,320	1,180	1,930	2,360	2,780	1,330	669	728	1,590
15	1,450	1,990	3,250	3,340	1,160	1,930	2,330	2,750	1,290	620	719	1,590
16	1,090	1,980	3,240	3,310	1,160	2,100	2,480	2,750	997	693	746	1,580
17	786	1,970	3,240	3,320	1,160	2,100	2,520	2,720	990	728	793	1,590
18	719	1,930	3,240	3,160	1,150	2,080	2,520	2,760	1,020	711	719	1,590
19	710	1,960	3,220	3,180	1,160	2,320	2,780	2,760	1,020	719	711	1,890
20	748	2,150	3,240	3,160	1,150	2,390	2,840	2,750	1,040	1,120	746	1,890
21	757	2,180	3,220	3,070	1,150	2,390	2,810	2,510	1,030	1,840	737	1,660
22	757	2,180	3,200	2,770	1,180	2,400	2,780	2,500	1,060	940	737	1,640
23	728	2,220	3,220	2,470	1,160	2,380	2,780	2,540	1,050	676	728	1,670
24	738	2,210	3,220	2,460	1,140	2,390	2,800	2,520	1,060	628	719	1,630
25	710	2,220	3,220	2,450	1,150	2,400	2,780	2,540	1,040	651	719	1,590
26	719	2,240	3,220	2,460	1,180	2,270	2,810	2,540	1,000	676	728	1,590
27	719	2,220	3,260	2,470	1,150	2,100	2,760	2,220	1,040	676	728	1,630
28	719	2,240	3,250	2,170	1,200	2,120	2,800	2,220	1,020	685	755	1,660
29	719	2,290	3,250	1,860	1,200	2,110	2,800	1,950	1,050	693	802	1,670
30	728		3,290	1,550	1,230	2,150	2,810	1,620	1,030	685	862	1,750
31	719		3,300		1,220		2,740	1,300		775		1,800
Sum	46,346	46,231	95,370	89,780	36,000	57,730	79,090	80,350	35,187	34,184	22,041	45,736

Month	Current Year 1972								Period 1935-1972		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	103.97	102.11	4	2,590	†19	681	1,495	91,926	434,516	1,644,000	31,900
Feb.	103.75	101.99	29	2,360	6	624	1,590	91,698	362,990	1,378,000	60,400
Mar.	104.52	103.67	†27	3,400	1	2,190	3,080	189,164	363,876	1,120,000	19,400
Apr.	104.60	102.90	15	3,420	30	1,390	2,990	178,076	283,306	823,850	0
May	102.99	102.47	1	1,380	1	1,030	1,160	71,405	288,488	1,151,000	71,405
June	103.83	102.46	†22	2,500	2	1,030	1,920	114,506	272,451	1,175,000	8,500
July	104.10	103.59	†20	2,880	† 1	2,190	2,550	156,873	264,070	763,800	24,400
Aug.	104.14	102.36	† 3	2,960	31	856	2,590	159,372	280,485	791,600	43,800
Sept.	102.89	102.38	13	1,450	16	919	1,170	69,792	252,214	1,029,000	60,000
Oct.	111.51	101.93	8	5,290	†12	518	1,100	67,803	255,466	1,186,000	42,956
Nov.	102.24	101.93	30	882	6	643	735	43,718	320,585	1,422,000	41,403
Dec.	103.45	101.92	†19	1,940	† 4	635	1,475	90,715	413,705	1,832,000	42,000
Yearly	111.51	101.92		5,290		518	1,825	1,325,049	3,792,152	10,596,900	722,100

† And other days

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.92	102.14	103.96	104.45	* 102.60	* 102.56	103.70	104.07	102.74	102.14	102.06	102.08
2	103.90	102.09	103.94	104.43	* 102.54	* 102.53	103.69	104.08	102.76	102.11	102.03	102.04
3	103.88	102.14	103.95	104.43	* 102.56	* 102.58	103.72	104.10	102.79	102.11	102.05	102.15
4	103.93	102.14	103.93	104.47	* 102.55	* 102.57	103.69	104.10	102.77	102.12	102.05	101.95
5	103.91	102.15	103.90	104.48	* 102.58	* 102.83	103.67	104.08	102.79	102.12	102.04	102.02
6	103.85	102.11	104.10	104.47	102.60	* 102.89	103.70	104.04	102.79	102.20	102.01	102.26
7	103.87	102.13	104.18	104.48	102.57	* 102.94	103.71	103.94	102.80	108.01	102.07	102.63
8	103.82	102.20	104.17	104.48	102.55	102.93	103.70	103.94	102.80	111.41	102.03	103.03
9	103.85	102.21	104.22	104.45	102.59	103.16	103.71	103.95	102.80	109.06	102.06	103.11
10	103.79	102.54	104.25	104.46	102.60	103.19	103.70	103.96	102.82	105.34	102.06	103.12
11	103.68	102.90	104.25	104.48	102.61	103.21	103.67	103.96	102.81	102.79	102.09	103.09
12	103.66	103.20	104.25	104.47	102.58	103.31	103.68	103.95	102.79	102.01	102.06	103.08
13	103.57	103.27	104.41	104.46	102.57	103.30	103.68	103.95	102.76	102.03	102.03	103.10
14	103.31	103.27	104.40	104.44	102.59	103.32	103.69	103.97	102.80	102.08	102.05	103.10
15	102.96	103.46	104.41	104.46	102.58	103.33	103.68	103.94	102.75	101.98	102.05	103.10
16	102.63	103.46	104.40	104.44	102.58	103.49	103.78	103.95	102.48	102.07	102.09	103.10
17	102.25	103.47	104.40	104.44	102.58	103.50	103.82	103.94	102.44	102.08	102.17	103.12
18	102.17	103.44	104.39	104.30	102.57	103.48	103.83	103.95	102.48	102.08	102.06	103.12
19	102.15	103.45	104.40	104.30	102.58	103.69	104.04	103.95	102.47	102.10	102.03	103.40
20	102.19	103.62	104.40	104.29	102.58	103.74	104.07	103.93	102.49	103.28	102.05	103.41
21	*102.21	103.64	104.38	104.23	102.59	103.74	104.03	103.74	102.48	106.63	102.02	103.19
22	*102.20	103.64	104.37	104.00	102.59	103.76	104.01	103.74	102.50	104.36	102.04	103.18
23	*102.16	103.68	104.38	103.77	102.58	103.73	104.01	103.78	102.49	102.22	102.02	103.20
24	*102.17	103.65	104.39	103.75	102.55	103.74	104.00	103.78	102.49	101.96	102.02	103.19
25	*102.14	103.66	104.38	103.75	102.58	103.75	104.00	103.84	102.47	101.96	102.01	103.13
26	*102.14	103.67	104.37	103.75	102.58	103.65	104.01	103.85	102.43	102.01	102.01	103.14
27	*102.14	103.66	104.39	103.76	102.55	103.51	103.99	*103.61	102.44	102.01	102.02	103.17
28	*102.13	103.65	104.41	*103.54	102.60	103.52	104.00	*103.60	102.43	102.01	102.07	103.21
29	*102.14	103.69	104.40	‡103.27	102.59	103.50	104.01	103.35	102.47	102.01	102.13	103.22
30	*102.16		104.43	103.02	102.60	103.56	104.02	103.09	102.45	102.00	102.22	103.29
31	102.14		104.43		102.59		103.96	102.80		102.13		103.35
Avg.	102.94	103.05	104.28	104.18	102.58	103.30	103.84	103.84	102.63	103.18	102.06	102.94

* 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 1972.
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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.15	101.84	103.18	103.58	102.23	102.26	103.05	103.31	102.33	101.90	101.88	101.94
2	103.15	101.87	103.18	103.58	102.20	102.23	103.05	103.31	102.36	101.90	101.88	101.90
3	103.15	101.87	103.18	103.58	102.20	102.26	103.08	103.31	102.36	101.94	101.88	101.97
4	103.15	101.84	103.18	103.58	102.17	102.26	103.05	103.31	102.36	101.90	101.88	101.84
5	103.12	101.87	103.18	103.61	102.20	102.46	103.05	103.31	102.36	101.94	101.84	101.90
6	103.08	101.80	103.31	103.61	102.23	102.53	103.05	103.28	102.36	102.00	101.84	102.10
7	103.08	101.87	103.38	103.61	102.20	102.53	103.05	103.25	102.36	107.78	101.90	102.36
8	103.05	101.90	103.38	103.61	102.20	102.53	103.05	103.25	102.36	111.32	101.87	102.59
9	103.08	101.94	103.41	103.58	102.23	102.69	103.08	103.28	102.36	108.99	101.87	102.66
10	103.05	102.17	103.44	103.58	102.23	102.69	103.05	103.28	102.40	105.31	101.87	102.66
11	102.95	102.40	103.44	103.61	102.26	102.72	103.05	103.25	102.40	102.59	101.90	102.62
12	102.95	102.62	103.44	103.58	102.23	102.79	103.05	103.25	102.36	101.77	101.87	102.59
13	102.89	102.66	103.54	103.61	102.23	102.79	103.05	103.25	102.33	101.84	101.87	102.59
14	102.72	102.66	103.54	103.58	102.23	102.79	103.05	103.25	102.36	101.84	101.87	102.59
15	102.49	102.49	103.54	103.58	102.23	102.79	103.02	103.25	102.33	101.74	101.87	102.59
16	102.20	102.79	103.54	103.58	102.26	102.89	103.08	103.25	102.13	101.84	101.90	102.59
17	101.94	102.79	103.54	103.58	102.26	102.89	103.12	103.25	102.13	101.87	101.94	102.59
18	101.87	102.76	103.54	103.51	102.23	102.89	103.12	103.25	102.17	101.84	101.87	102.59
19	101.84	102.79	103.51	103.51	102.26	103.02	103.28	103.25	102.17	101.87	101.87	102.82
20	101.90	102.92	103.51	103.51	102.26	103.05	103.31	102.22	102.17	103.05	101.90	102.82
21	101.90	102.92	103.51	103.48	102.26	103.05	103.31	103.12	102.17	106.53	101.90	102.66
22	101.90	102.95	103.51	103.28	102.26	103.08	103.20	103.08	102.17	104.36	101.94	102.66
23	101.87	102.95	103.51	103.12	102.23	103.08	103.20	103.12	102.17	102.03	101.90	102.62
24	101.87	102.95	103.51	103.08	102.23	103.08	103.20	103.08	102.17	101.77	101.90	102.62
25	101.84	102.95	103.54	103.08	102.26	103.03	103.20	103.12	102.17	101.80	101.90	102.62
26	101.87	102.95	103.54	103.08	102.26	103.02	103.20	103.15	102.17	101.84	101.90	102.59
27	101.87	102.95	103.54	103.08	102.23	102.92	103.20	102.99	102.17	101.84	101.90	102.62
28	101.87	102.95	103.54	102.92	102.26	102.95	103.20	102.99	102.17	101.84	101.94	102.66
29	101.87	102.99	103.54	102.72	102.30	102.92	103.31	102.79	102.17	101.84	101.97	102.66
30	101.87		103.58	103.35	102.30	102.95	103.31	102.59	102.17	101.84	102.03	102.69
31	101.84		103.58		102.30		103.25	102.36		101.94		102.76
Avg.	102.43	102.50	103.45	103.43	102.24	102.77	103.14	103.12	102.26	103.00	101.90	102.50

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 1972. 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 1972 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,500	713	2,610	3,300	1,160	1,190	2,330	2,870	1,260	713	710	738
2	2,490	717	2,600	3,260	1,130	1,130	2,320	2,870	1,290	703	699	706
3	2,490	727	2,620	3,290	1,140	1,180	2,350	2,920	1,320	727	717	802
4	2,530	699	2,610	3,330	1,100	1,180	2,340	2,920	1,290	724	713	643
5	2,490	710	2,590	3,330	1,140	1,490	2,330	2,900	1,320	724	710	713
6	2,420	667	2,830	3,330	1,160	1,550	2,380	2,860	1,320	798	692	922
7	2,430	713	2,930	3,350	1,130	1,580	2,380	2,710	1,320	1,980	752	1,270
8	2,380	756	2,910	3,310	1,120	1,550	2,350	2,760	1,330	1,410	713	1,640
9	2,420	777	2,970	3,300	1,150	1,780	2,380	2,760	1,330	805	720	1,700
10	2,350	1,080	3,010	3,310	1,180	1,800	2,380	2,760	1,350	650	727	1,700
11	2,210	1,430	3,010	3,350	1,190	1,820	2,330	2,760	1,350	607	738	1,620
12	2,190	1,700	3,000	3,330	1,160	1,920	2,350	2,760	1,330	579	713	1,590
13	2,090	1,760	3,240	3,350	1,160	1,900	2,340	2,740	1,300	632	699	1,610
14	1,800	1,750	3,240	3,320	1,180	1,920	2,360	2,770	1,320	657	720	1,590
15	1,450	1,990	3,240	3,330	1,150	1,920	2,330	2,740	1,290	607	713	1,580
16	1,080	1,980	3,230	3,300	1,150	2,090	2,480	2,740	989	682	742	1,570
17	784	1,970	3,230	3,310	1,160	2,090	2,520	2,710	985	717	788	1,580
18	717	1,930	3,230	3,150	1,150	2,080	2,520	2,750	1,010	703	710	1,590
19	706	1,960	3,210	3,170	1,150	2,310	2,780	2,750	1,010	710	699	1,890
20	742	2,150	3,230	3,150	1,150	2,380	2,840	2,740	1,030	915	738	1,890
21	752	2,180	3,210	3,060	1,150	2,380	2,810	2,500	1,030	805	727	1,660
22	756	2,180	3,190	2,760	1,180	2,400	2,780	2,490	1,050	367	731	1,630
23	724	2,220	3,210	2,460	1,160	2,380	2,780	2,540	1,050	583	724	1,660
24	735	2,200	3,210	2,450	1,140	2,390	2,800	2,510	1,060	618	710	1,620
25	706	2,220	3,210	2,440	1,140	2,390	2,780	2,530	1,030	643	706	1,580
26	713	2,240	3,210	2,450	1,180	2,270	2,810	2,530	996	667	720	1,580
27	720	2,220	3,250	2,460	1,140	2,100	2,760	2,210	1,030	671	720	1,620
28	713	2,240	3,240	2,170	1,190	2,120	2,800	2,210	1,020	682	745	1,650
29	713	2,280	3,240	1,860	1,190	2,110	2,790	1,950	1,050	685	798	1,670
30	724		3,280	1,550	1,230	2,150	2,800	1,610	1,030	682	858	1,740
31	713		3,290		1,220		2,740	1,290		770		1,790
Sum	46,223	46,139	95,110	89,580	35,900	57,580	79,000	80,170	35,070	23,219	21,860	45,531

Month	Current Year 1972 Extreme Gage Feet High	Extreme Gage Feet Low	Ø 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 1950-1972 Acre Feet Average	Maximum	Minimum
Jan.	101.38	99.48	4	2,530	†19	706	1,490	91,682	62,174	116,737	966
Feb.	100.85	99.41	29	2,280	6	667	1,593	91,515	58,181	101,685	9,232
Mar.	101.64	100.69	31	3,290	5	2,590	3,069	188,639	168,706	216,994	97,902
Apr.	101.61	99.57	7	3,350	30	1,550	2,988	177,677	195,225	264,127	158,162
May	99.57	99.21	30	1,230	4	1,100	1,158	71,215	94,372	159,010	66,207
June	100.75	99.34	22	2,400	2	1,130	1,918	114,202	163,110	269,632	102,000
July	101.02	100.49	20	2,840	2	2,320	2,550	156,685	231,198	304,263	154,478
Aug.	101.38	99.93	† 3	2,920	31	1,290	2,585	159,018	230,242	341,044	153,925
Sept.	100.69	99.77	11	1,350	17	985	1,169	69,562	129,464	198,095	53,633
Oct.	102.36	99.90	7	1,980	22	367	749	46,055	48,458	90,639	10,453
Nov.	101.02	99.80	30	858	6	692	727	43,358	36,899	103,954	7,516
Dec.	101.71	99.54	†19	1,890	4	643	1,469	90,310	62,355	131,440	8,825
Yearly	102.36	99.21		3,350		643	1,787	1,299,917	1,483,042	1,961,556	1,290,627

† And other days Ø Mean daily

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101.35	99.61	101.05	101.41	99.31	99.48	100.69	100.98	100.43	100.20	100.49	100.16
2	101.31	99.54	101.05	101.38	99.48	99.44	100.66	100.98	100.62	100.16	100.56	99.80
3	101.25	99.57	101.05	101.38	99.41	99.48	100.69	101.02	100.39	100.33	100.62	99.87
4	101.31	99.57	101.02	101.41	99.34	99.44	100.62	101.02	100.23	100.52	100.52	99.80
5	101.28	99.61	100.98	101.41	99.34	99.70	100.62	101.02	100.10	100.33	100.56	99.70
6	101.21	99.57	101.25	101.41	99.38	99.74	100.69	100.95	100.13	100.56	100.30	99.84
7	101.25	99.61	101.35	101.44	99.34	99.80	100.69	100.85	100.10	101.35	100.33	100.30
8	101.25	99.61	101.32	101.41	99.34	99.80	100.69	100.89	100.07	100.95	100.26	101.18
9	101.25	99.67	101.35	101.38	99.31	100.00	100.69	100.95	100.10	100.72	99.93	101.25
10	101.25	99.87	101.35	101.41	99.28	100.03	100.69	100.98	100.07	100.23	99.97	101.02
11	101.12	100.33	101.38	101.48	99.28	100.03	100.66	100.98	100.10	100.30	100.03	100.92
12	101.08	100.46	101.35	101.48	99.38	100.13	100.66	100.98	100.07	100.20	100.18	100.75
13	100.98	100.49	101.51	101.51	99.48	100.10	100.69	100.98	100.03	100.36	99.97	100.66
14	100.66	100.49	101.51	101.51	99.44	100.13	100.69	101.15	100.13	100.36	99.87	100.52
15	100.33	100.72	101.51	101.54	99.41	100.13	100.59	101.25	100.07	100.10	99.97	100.43
16	99.93	100.72	101.48	101.51	99.44	100.33	100.66	101.02	99.90	100.30	100.26	100.72
17	99.67	100.62	101.48	101.51	99.44	100.30	100.72	101.02	100.00	100.33	100.30	101.15
18	99.54	100.49	101.44	101.41	99.44	100.30	100.75	101.05	100.13	100.36	100.56	101.12
19	99.54	100.52	101.41	101.41	99.48	100.52	100.98	100.98	100.00	100.39	100.39	101.57
20	99.57	100.72	101.41	101.35	99.48	100.59	100.98	100.95	100.43	100.36	100.52	101.44
21	99.61	100.72	101.38	101.25	99.51	100.62	100.92	100.89	100.52	100.39	100.69	100.85
22	99.61	100.72	101.35	100.95	99.51	100.62	100.89	100.85	100.52	100.30	100.56	100.72
23	99.57	100.75	101.35	100.69	99.48	100.59	100.92	100.85	100.66	100.26	100.49	100.66
24	99.57	100.72	101.35	100.66	99.48	100.62	100.92	101.02	100.46	100.07	100.36	100.62
25	99.57	100.72	101.38	100.66	99.51	100.69	100.92	101.08	100.52	100.07	100.26	100.46
26	99.57	100.72	101.38	100.62	99.48	100.56	100.92	101.15	100.33	100.20	100.33	100.49
27	99.61	100.69	101.38	100.69	99.41	100.43	100.89	100.89	100.26	100.49	100.59	100.49
28	99.61	100.69	101.41	100.49	99.44	100.46	100.92	101.05	100.23	100.69	100.72	100.56
29	99.57	100.79	101.38	100.07	99.48	100.46	100.95	100.82	100.23	100.72	100.35	100.63
30	99.61		101.41	99.74	99.48	100.52	100.95	100.43	100.30	100.56	100.56	100.69
31	99.61		101.41		99.48		100.92	100.33		100.72		101.18
Avg.	100.34	100.29	101.34	101.15	99.42	100.18	100.78	100.95	100.24	100.42	100.37	100.63

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 1972.

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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	99.44	100.43	99.21	98.69	99.38	99.48	100.56	101.02	101.80	102.03	100.89	100.75
2	99.44	100.39	99.18	98.69	99.44	99.41	100.59	101.02	101.90	102.03	100.89	100.75
3	99.31	100.39	99.21	98.69	99.54	99.25	100.59	101.08	101.87	102.03	100.85	100.75
4	99.34	100.43	99.18	98.69	99.54	98.82	100.59	101.18	101.84	102.00	100.82	100.79
5	99.31	100.43	99.21	98.69	99.51	98.65	100.62	101.21	101.84	102.03	100.85	100.75
6	99.51	100.43	98.92	98.69	99.48	98.65	100.62	101.25	101.90	102.23	100.79	100.75
7	100.00	100.39	98.79	98.65	99.48	98.69	100.56	101.28	101.90	107.68	100.79	100.72
8	100.43	100.30	98.75	98.65	99.48	98.62	100.46	101.28	101.90	111.15	100.82	100.72
9	100.46	100.07	98.72	98.65	99.48	98.59	100.46	101.35	102.00	108.89	100.82	100.72
10	100.46	99.90	98.72	98.65	99.48	98.59	100.56	101.38	102.00	105.15	100.82	100.75
11	100.46	99.77	98.69	98.65	99.44	98.59	100.59	101.38	101.97	102.43	100.82	100.75
12	99.67	99.64	98.69	98.62	99.41	98.59	100.62	101.38	102.00	101.35	100.79	100.75
13	99.51	99.57	98.69	98.62	99.41	98.59	100.56	101.41	102.00	101 31	100.79	100.72
14	99.61	99.54	98.69	98.62	99.41	98.59	100.56	101.48	102.00	101.25	100.72	100.69
15	99.77	99.57	98.69	98.62	99.41	98.59	100.59	101.51	102.00	101.18	100.75	100.69
16	99.90	99.70	98.69	98.62	99.41	98.59	100.66	101.54	102.00	101.18	100.79	100.66
17	100.07	99.70	98.69	98.62	99.41	98.59	100.69	101.54	102.00	101.18	100.79	100.69
18	100.36	99.70	98.65	98.62	99.41	98.62	100.69	101.57	102.00	101.18	100.79	100.72
19	100.39	99.64	98.65	98.62	99.44	98.59	100.69	101.57	102.03	101.15	100.75	100.69
20	100.36	99.57	98.69	98.62	99.48	98.59	100.69	101.61	102.03	102.72	100.79	100.59
21	100.39	99.51	98.69	98.62	99.48	98.62	100.79	101.64	102.03	106.43	100.79	100.59
22	100.43	99.44	98.69	98.62	99.48	98.62	100.82	101.64	102.03	104.23	100.79	100.62
23	100.39	99.44	98.69	98.62	99.48	98.62	100.79	101.64	102.03	101.64	100.75	100.66
24	100.39	99.41	98.69	98.62	99.48	98.62	100.85	101.71	102.03	100.96	100.79	100.69
25	100.39	99.38	98.69	98.62	99.41	98.65	100.95	101.71	102.03	100.96	100.79	100.62
26	100.39	99.34	98.69	98.59	99.41	99.44	100.95	101.74	102.07	100.95	100.75	100.62
27	100.43	99.34	98.69	98.59	99.38	100.39	100.98	101.74	102.03	100.92	100.75	100.66
28	100.43	99.38	98.69	98.72	99.31	100.46	100.02	101.71	102.03	100.92	100.75	100.66
29	100.39	99.31	98.69	98.88	99.28	100.49	100.02	101.77	102.03	100.92	100.72	100.66
30	100.39		98.69	99.18	99.28	100.52	100.82	101.84	102.03	100.89	100.75	100.66
31	100.43		98.69		99.34		100.98	101.84		100.89		100.66
Avg.	100.07	99.80	98.78	98.67	99.43	98.97	100.64	101.48	101.98	102.58	100.79	100.69

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 1972.

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. The combined 1972 record of discharges to the Colorado River above Morelos Dam through M. O. D. E. No. 1 and No. 2 is shown page 16. 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	136	300	111	0	148	135	287	276	288	297	305	297
2	137	300	108	0	156	124	292	273	298	298	304	298
3	124	300	113	0	167	95.9	297	280	295	293	302	298
4	124	300	108	0	163	49.6	290	290	288	293	302	298
5	113	300	113	0	154	34.5	290	288	292	300	302	300
6	148	298	70.3	0	152	39.5	287	288	295	316	298	298
7	230	292	59.7	0	148	46.4	273	285	292	302	300	298
8	297	271	34.9	0	148	40.8	265	292	295	292	304	297
9	302	232	4.0	0	148	15.5	268	295	304	305	300	298
10	302	206	3.0	0	147	1.5	287	292	298	307	304	302
11	304	189	2.8	0	140	.7	285	288	300	302	302	298
12	151	172	2.2	0	141	0	290	287	304	305	305	297
13	149	162	2.1	0	141	0	278	295	304	309	300	298
14	165	159	2.0	0	139	0	277	298	300	307	298	300
15	192	162	.7	0	137	0	283	300	300	304	300	297
16	211	184	0	0	136	0	288	300	300	305	304	297
17	238	182	0	0	137	0	287	297	300	307	304	295
18	295	183	0	0	136	0	282	295	300	309	300	300
19	297	177	0	0	140	0	278	295	298	307	297	292
20	293	165	0	0	140	0	276	295	298	305	302	276
21	295	152	0	0	141	0	290	295	302	305	302	282
22	300	145	0	0	139	0	287	292	300	300	304	283
23	297	146	0	18.3	139	0	278	292	302	290	302	290
24	302	140	0	23.8	136	0	287	293	300	298	308	292
25	298	135	0	24.5	128	0	293	290	302	302	300	288
26	298	135	0	21.4	131	141	288	292	300	298	298	288
27	300	136	0	28.4	123	271	292	290	300	298	300	292
28	300	136	0	63.6	112	278	293	285	298	307	298	288
29	298	122	0	84.3	112	283	282	293	297	305	298	288
30	298		0	123	113	285	258	298	298	304	302	288
31	298		0		121		276	293		307		288
Sum	7,492	5,781	734.7	387.3	4,313	1,841.4	8,784	9,022	8,948	9,377	9,045	9,101

Month	Current Year 1972								Period 1966-1972		
	Extreme Gage Feet		Extreme Second Feet			Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low					
	High	Low	Day		Day			Average	Maximum	Minimum
Jan.	3.19	1.74	†11	305	5	110	242	14,860	14,549	17,740	11,029
Feb.	3.18	1.73	† 1	304	29	109	199	11,466	11,124	15,154	6,978
Mar.	1.90	0	1	129	†16	0	23.7	1,457	3,210	8,083	6.9
Apr.	1.92	0	30	134	† 1	0	12.9	768	1,490	3,977	247
May	2.28	1.70	4	177	†28	109	139	8,555	7,500	11,207	3,160
June	3.07	0	30	290	†11	0	61.4	3,652	3,919	7,529	2,098
July	3.14	2.68	14	302	30	229	283	17,423	3,998	17,423	0
Aug.	3.13	2.94	†14	300	2	268	291	17,895	4,358	17,895	34.9
Sept.	3.18	3.02	21	307	1	282	298	17,748	10,820	17,748	3,575
Oct.	3.35	3.01	6	337	8	278	302	18,599	18,233	18,742	17,599
Nov.	3.32	3.07	24	329	28	287	302	17,940	17,957	18,478	17,234
Dec.	3.17	2.98	† 5	304	20	271	294	18,052	15,002	18,052	11,050
Yearly	3.35	0		337		0	204	148,415	112,160	148,415	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 1972, 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0.2	3.7	2.4	2.2	1.0	0	1.1	0	0	0	2.2
2	.1	.2	.2	5.4	6.4	0	0	.3	0	0	3.9	.5
3	.1	1.7	0	0	.5	0	5.6	0	0	.5	3.2	6.2
4	.5	2.9	.9	0	0	5.1	1.1	0	0	4.1	5.1	.6
5	.1	2.0	2.2	0	0	.3	.1	.6	0	2.3	1.4	0
6	.1	2.0	.3	0	.2	0	.1	.3	0	8.8	0	0
7	0	0	0	0	.1	0	0	0	0	.4	0	.3
8	0	0	0	4.3	0	0	0	0	2.5	.5	0	.3
9	6.6	0	0	.4	0	1.0	4.1	0	.1	.3	1.5	2.4
10	1.8	0	1.4	.3	.9	3.8	0	0	.2	1.8	3.3	.1
11	1.2	0	.3	0	.2	2.8	1.3	.9	.3	0	.1	0
12	1.1	0	0	0	2.3	.2	3.0	2.4	.3	6.7	0	0
13	5.4	5.6	0	0	0	.1	.2	2.5	.7	1.6	.4	.5
14	1.2	.4	0	3.7	0	0	.1	.6	1.8	.5	.9	4.5
15	.6	1.1	0	.4	0	2.4	.1	.1	3.2	.5	1.7	1.4
16	.3	.2	1.6	.3	0	0	.3	.2	0	.2	.8	1.0
17	.1	.2	.8	.2	0	0	.3	0	0	0	1.1	0
18	1.3	.4	.9	1.9	0	1.0	.3	0	0	0	1.0	.5
19	1.1	.1	1.0	.2	0	0	0	0	0	.2	.6	2.5
20	0	.1	.3	0	1.7	0	0	0	0	.7	0	1.9
21	0	.5	3.4	0	1.8	.4	3.4	0	0	0	0	2.0
22	0	5.0	1.1	0	0	1.1	.1	.2	0	0	.9	4.4
23	0	2.0	2.7	0	1.4	2.3	0	2.9	.8	0	3.8	.7
24	0	.1	.2	0	.2	.1	.1	.2	.8	0	3.5	4.6
25	0	0	.1	0	0	.4	0	0	0	0	.3	.3
26	0	0	.1	0	.1	.1	0	0	1.1	0	3.5	.1
27	8.8	0	0	0	0	0	0	0	1.9	0	1.4	0
28	1.3	0	0	3.1	0	0	0	0	.4	0	1.5	2.3
29	.2	0	0	.1	.8	0	0	0	.3	0	.9	3.9
30	.1		0	3.6	0	0	.9	0	.4	1.6	4.4	.7
31	.6		0		1.5		2.6	0		.3		3.2
Sum	32.7	24.7	21.2	26.3	20.3	22.1	23.7	12.3	14.8	31.0	45.2	47.1

Current Year 1972									Period 1935-1972		
Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	2.20	0	27	39.9	† 4	0	1.1	64.9	184	914	0
Feb.	2.40	0	13	44.5	† 4	0	.9	49.0	162	400	6.0
Mar.	1.73	0	23	29.5	† 1	0	.7	42.0	174	517	0
Apr.	1.85	0	28	32.1	† 1	0	.9	52.2	187	425	40
May	1.67	0	1	28.1	† 4	0	.7	40.3	178	440	40.3
June	1.90	0	15	33.2	† 1	0	.7	43.8	168	595	43.8
July	1.81	0	3	31.2	† 1	0	.8	47.0	152	516	0
Aug.	1.24	0	† 2	19.0	† 1	0	.4	24.4	119	617	0
Sept.	1.90	0	24	33.2	† 1	0	.5	29.4	118	462	0
Oct.	1.85	0	30	32.1	† 1	0	1.0	61.5	147	490	0
Nov.	1.68	0	26	28.4	† 1	0	1.5	89.7	168	462	9
Dec.	1.90	0	3	33.2	† 1	0	1.5	93.4	196	592	33.7
Yearly	2.40	0		44.5		0	0.9	638	1,953	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 1972; continuous record of gage heights, July 20, 1952 through 1972.

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 1972 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	136	305	121	9.8	145	139	286	283	290	301	315	306
2	136	299	117	9.0	154	132	289	279	300	301	310	304
3	129	303	119	8.3	162	109	296	285	299	300	308	304
4	131	305	114	9.0	163	61.0	296	290	293	299	306	306
5	125	303	116	8.3	155	41.6	294	292	293	301	304	306
6	150	303	85.5	8.3	155	44.8	292	290	299	330	299	304
7	229	299	69.3	8.3	153	53.4	276	292	297	2,180	304	304
8	301	282	48.8	9.0	153	46.4	272	294	296	4,110	303	304
9	307	242	13.5	8.3	151	22.3	272	300	304	2,640	308	304
10	307	213	12.8	8.3	150	8.3	289	299	304	1,010	308	308
11	305	193	11.2	9.0	144	6.9	289	296	303	479	310	310
12	173	176	9.8	8.3	144	6.4	290	294	307	317	312	308
13	148	166	10.5	9.0	144	6.9	283	301	308	319	312	308
14	164	161	11.2	8.3	142	6.2	280	307	307	319	306	310
15	192	160	13.9	7.6	141	6.2	282	307	306	317	308	308
16	216	184	9.8	8.3	140	6.2	286	307	307	317	310	308
17	240	185	10.5	8.3	140	5.5	289	304	306	317	312	304
18	291	184	9.8	8.3	139	6.2	286	304	307	319	312	306
19	301	178	10.5	8.3	144	5.5	283	301	306	315	308	299
20	301	164	10.5	8.3	143	5.5	279	303	304	511	310	282
21	299	154	10.5	7.6	145	5.5	287	303	306	1,340	310	286
22	303	148	9.8	7.6	143	4.8	287	299	306	873	310	295
23	301	148	9.8	26.2	142	5.5	282	296	306	383	310	301
24	305	146	9.8	32.5	139	4.8	287	300	306	308	319	306
25	303	138	9.8	32.5	134	4.8	294	301	306	310	312	299
26	305	139	9.8	29.3	135	123	292	299	306	306	308	297
27	307	139	9.8	35.9	130	265	292	299	306	304	308	297
28	308	139	9.8	63.7	119	273	296	292	303	310	306	297
29	305	129	9.0	85.2	118	280	291	299	300	312	304	295
30	303		8.3	121	117	283	264	304	301	308	310	297
31	305		9.0		124		282	301		312		297
Sum	7,626	5,885	1,030.0	611.8	4,408	1,968.7	8,863	9,221	9,082	20,368	9,267	9,360

Month	Current Year 1972								Period 1954-1972		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	99.99	98.89	†27	308	† 5	122	246	15,126	164,390	969,540	949
Feb.	99.97	98.77	† 1	305	29	117	203	11,673	83,829	414,310	977
Mar.	98.89	97.53	1	131	†30	8.3	33.2	2,043	53,500	630,230	659
Apr.	98.83	97.49	30	130	22	6.9	20.4	1,213	40,937	532,320	804
May	99.18	98.83	4	169	30	116	142	8,743	49,851	375,970	460
June	100.06	97.59	30	287	†20	4.8	65.6	3,905	12,153	119,980	334
July	100.69	100.00	3	299	30	250	286	17,580	12,004	88,430	654
Aug.	101.47	100.65	15	310	2	276	297	18,290	19,948	125,590	702
Sept.	101.64	101.36	†13	303	† 4	286	303	18,014	18,052	87,830	113
Oct.	110.23	100.50	8	4,160	† 3	299	657	40,399	47,952	172,940	9,750
Nov.	100.50	100.27	24	332	†28	297	309	18,381	83,676	356,390	4,869
Dec.	100.33	100.10	14	312	†20	275	302	18,565	113,516	643,850	1,111
Yearly	110.23	97.49		4,160		4.8	239	173,932	699,808	3,957,730	101,758

† And other days

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	98.99	99.97	98.80	97.55	98.97	99.03	100.06	100.68	101.38	101.61	100.50	100.31
2	98.99	99.94	98.76	97.54	99.04	98.97	100.08	100.68	101.46	101.61	100.47	100.30
3	98.94	99.96	98.78	97.53	99.11	98.80	100.13	100.75	101.47	101.60	100.45	100.30
4	98.95	99.96	98.74	97.53	99.12	98.38	100.14	100.83	101.45	101.59	100.43	100.31
5	98.91	99.95	98.75	97.52	99.07	98.20	100.13	100.87	101.45	101.61	100.42	100.31
6	99.07	99.95	98.47	97.52	99.07	98.24	100.14	100.90	101.50	101.81	100.39	100.30
7	99.57	99.93	98.31	97.52	99.06	98.31	100.06	100.91	101.50	106.69	100.40	100.29
8	99.98	99.83	* 98.08	97.52	99.06	98.25	100.02	100.93	101.50	110.16	100.41	100.29
9	100.01	99.62	* 97.66	97.51	99.05	97.94	100.02	100.99	101.57	108.00	100.40	100.28
10	100.01	99.46	97.65	97.51	99.04	97.69	100.14	101.00	101.58	104.45	100.39	100.30
11	100.00	99.34	97.63	97.52	98.99	97.66	100.14	101.00	101.57	101.96	100.39	100.30
12	99.22	99.23	97.61	97.51	98.99	97.64	100.17	101.00	101.60	100.98	100.39	100.29
13	99.07	99.16	97.61	97.52	98.99	97.64	100.14	101.07	101.61	100.93	100.38	100.29
14	99.18	99.13	97.61	97.51	98.97	97.63	100.14	101.13	101.60	100.88	100.35	100.30
15	99.34	99.12	97.63	97.50	98.97	97.61	100.18	101.15	101.59	100.82	100.35	100.28
16	99.49	99.28	97.57	97.51	98.96	97.61	100.25	101.17	101.60	100.80	100.36	100.28
17	99.63	99.29	97.57	97.51	98.97	97.60	100.29	101.18	101.60	100.78	100.37	100.26
18	99.90	99.28	97.56	97.51	98.97	97.61	100.29	101.21	101.61	100.78	100.36	100.27
19	99.95	99.24	97.57	97.51	99.02	97.60	100.30	101.21	101.60	100.75	100.34	100.23
20	99.95	99.15	97.57	97.51	99.02	* 97.60	100.30	101.24	101.60	101.76	100.35	100.13
21	99.94	99.08	97.57	97.50	99.04	" 97.60	100.39	101.26	101.61	105.43	100.34	100.13
22	99.96	99.02	97.56	97.50	99.03	" 97.59	100.42	101.25	101.61	103.76	100.34	100.17
23	99.95	99.02	97.56	97.77	99.02	" 97.60	100.41	101.25	101.61	101.10	100.34	100.19
24	99.97	99.00	97.56	97.86	99.00	" 97.59	100.48	101.30	101.62	100.61	100.37	100.20
25	99.96	98.93	97.56	97.86	98.96	" 97.59	100.56	101.33	101.62	100.60	100.34	100.17
26	99.97	98.94	97.56	97.82	98.98	* 98.70	100.57	101.33	101.63	100.56	100.32	100.16
27	99.98	98.94	97.56	97.90	98.94	99.90	100.60	101.35	101.63	100.53	100.32	100.16
28	99.99	98.94	97.56	98.21	98.86	99.98	100.66	101.32	101.62	100.54	100.31	100.16
29	99.97	98.86	* 97.55	98.43	98.86	100.01	100.66	101.39	101.60	100.54	100.30	100.15
30	99.96		* 97.53	98.75	98.86	100.03	100.48	101.45	101.61	100.50	100.33	100.16
31	99.97		97.54		98.91		100.64	101.45		100.50		100.16
Avg.	99.64	99.36	97.84	97.67	99.00	98.22	100.29	101.12	101.57	102.07	100.37	100.24

* Partly estimated " 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 1972, 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.7	2.5	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3
2	1.7	2.5	.2	39.4	.2	.2	.3	.3	.3	.4	.3	.3
3	1.7	2.4	.2	29.7	.2	.3	.3	.3	.3	.3	.5	49.4
4	1.6	2.3	.2	4.1	.2	32.2	.3	.3	.3	.3	.5	71.0
5	1.6	2.3	40.0	1.7	.2	37.3	.3	.2	.3	.3	.5	21.5
6	1.8	45.3	22.0	.3	.2	3.3	.3	54.9	.3	35.0	.3	.3
7	2.5	32.1	3.2	.3	.3	1.5	.3	17.3	.3	.8	.3	.3
8	1.9	2.0	1.5	.3	.3	.4	.3	2.7	.4	.7	.3	.2
9	1.8	2.0	.1	.3	.3	.4	.4	1.6	.3	.7	.3	.2
10	1.9	.1	* .1	‹.2	.2	.4	.4	.3	.3	.5	.3	.3
11	1.9	.1	‼ .2	.2	.2	* .4	.4	5.8	.3	.2	.3	.3
12	1.9	.1	‼ .2	.3	.2	* 2.5	.4	.3	.3	.3	.3	.3
13	2.2	.2	* .3	.3	.2	.4	.4	.3	.3	.3	.3	.3
14	1.9	.3	.2	.2	.3	.4	.4	.3	.3	.3	.3	.3
15	1.7	.2	.2	.3	.2	.4	.4	.3	.3	.3	.3	.5
16	1.8	.2	.3	.3	.2	.4	.3	.3	.3	.3	.2	.3
17	2.0	.2	.2	.3	.3	.5	.3	.3	.3	.4	.3	.3
18	2.3	.2	.2	.3	.3	.4	.3	11.6	.3	.4	.3	.3
19	2.4	.2	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3
20	2.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
21	2.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
22	2.3	.2	.2	.3	.3	.3	.4	.3	.3	.3	.3	.3
23	2.2	.2	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3
24	2.4	.3	.3	.5	.3	.9	.3	9.7	.3	.3	.2	.3
25	2.5	.2	.3	.3	.3	2.4	.3	.3	.4	.3	.2	.3
26	2.3	.2	.3	.2	.3	.4	.3	.3	.4	.3	.3	.3
27	2.5	.2	.3	.2	.3	.4	.3	.4	.4	.3	.4	.3
28	2.5	.2	.3	.1	.3	.3	.3	.4	.3	.3	.3	.3
29	2.5	.2	.3	0	.3	.3	.3	.4	.3	.3	.3	.3
30	2.5		.3	.1	.2	.3	.3	2.4	.3	.3	.4	.3
31	2.5		.3		.2		.3	1.0		.3		.4
Sum	65.1	97.3	73.3	81.7	7.9	88.2	10.1	113.8	9.5	45.8	9.5	150.4

Month	Current Year 1972 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 1935-1972 Acre Feet Average	Maximum	Minimum
Jan.	111.98	111.90	7	3.1	† 1	1.6	2.1	129	3,522	9,570	129
Feb.	115.63	111.72	6	256	11	0	3.4	193	2,831	8,430	193
Mar.	115.88	111.73	5	292	† 9	.1	2.4	145	2,664	6,230	145
Apr.	115.07	111.72	1	199	†28		2.7	162	2,462	6,300	0
May	111.81	111.73	2	.6	1	.1	.3	15.7	2,955	9,320	15.7
June	114.72	111.75	4	173	1	.2	2.9	175	2,800	7,440	130
July	111.80	111.76	†18	.5	† 1	.3	.3	20.0	2,832	8,320	20.0
Aug.	115.34	111.74	6	224	† 4	.1	3.7	226	2,415	9,740	194
Sept.	111.79	111.75	†26	.5	13	.2	.3	18.8	1,767	6,140	18.8
Oct.	114.69	111.75	6	171	†11	.2	1.5	90.8	2,405	5,680	90.8
Nov.	111.83	111.75	30	.8	†15	.2	.3	18.8	2,858	8,220	18.8
Dec.	115.53	111.75	3	244	† 8	.2	4.9	298	3,790	9,430	164
Yearly	115.88	111.72		292		0	2.1	1,492	33,301	82,900	1,492

† And other days * Partly Estimated ‼ Estimated

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 1972; 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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	96.28	97.10	96.16	95.09	96.10	96.33	97.09	98.09	98.74	98.85	98.04	97.81
2	96.29	97.11	96.12	95.35	96.17	96.29	97.13	98.09	98.78	98.85	98.02	97.79
3	96.25	97.11	96.13	95.45	96.26	96.20	97.17	98.14	98.80	98.85	97.99	97.98
4	96.24	97.10	96.12	95.21	96.30	95.98	97.18	98.20	98.80	98.84	97.97	98.20
5	96.21	97.09	96.28	95.17	96.26	95.97	97.18	98.26	98.79	98.84	97.96	97.96
6	96.30	97.24	96.08	95.14	96.27	95.72	97.21	98.56	98.84	99.20	97.94	97.82
7	96.70	97.23	95.80	95.13	96.27	95.76	97.19	98.50	98.85	102.06	97.93	97.79
8	97.06	97.01	* 95.68	95.12	96.28	95.67	97.17	98.37	98.84	105.90	97.94	97.79
9	97.10	96.85	" 95.23	95.11	96.28	95.48	97.18	98.39	98.89	104.68	97.93	97.78
10	97.11	96.70	" 95.19	95.11	96.27	95.26	97.28	98.40	98.91	101.74	97.92	97.80
11	97.10	96.60	" 95.16	95.11	96.23	* 95.23	97.31	98.44	98.91	99.58	97.92	97.79
12	96.53	96.51	" 95.14	95.10	96.23	* 95.20	97.38	98.41	98.92	98.41	97.93	97.77
13	96.35	96.45	* 95.14	95.10	96.25	95.14	97.38	98.46	98.93	98.33	97.93	97.76
14	96.43	96.42	95.14	95.09	96.25	95.12	97.40	98.52	98.92	98.28	97.90	97.76
15	96.57	96.40	95.16	95.10	96.25	95.11	97.45	98.54	98.91	98.24	97.90	97.75
16	96.67	96.51	95.12	95.11	96.24	95.10	97.55	98.56	98.90	98.22	97.90	97.74
17	96.80	96.53	95.12	95.11	96.25	95.10	97.60	98.57	98.91	98.20	97.90	97.73
18	97.00	96.53	95.12	95.11	96.25	95.11	97.61	98.69	98.90	98.21	97.90	97.73
19	97.05	96.49	95.13	95.11	96.28	95.12	97.65	98.62	98.89	98.19	97.89	97.71
20	97.05	96.43	95.14	95.11	96.28	95.17	97.65	98.63	98.88	98.79	97.89	97.63
21	97.05	96.37	95.14	95.10	96.29	95.16	97.74	98.63	98.88	101.78	97.88	97.61
22	97.07	96.32	95.12	95.10	96.29	95.17	97.80	98.63	98.88	101.16	97.86	97.65
23	97.07	96.31	95.12	95.25	96.27	95.16	97.80	98.63	98.88	98.80	97.86	97.65
24	97.09	96.29	95.10	95.32	96.28	95.20	97.86	98.69	98.88	98.15	97.86	97.66
25	97.08	96.24	95.10	95.31	96.25	95.23	97.96	98.72	98.89	98.13	97.86	97.65
26	97.08	96.25	95.10	95.28	96.25	95.81	97.99	98.70	98.88	98.10	97.84	97.65
27	97.09	96.26	95.12	95.33	96.23	96.89	98.01	98.72	98.87	98.07	97.84	97.65
28	97.09	96.27	95.12	95.56	96.17	96.98	98.07	98.70	98.87	98.06	97.82	97.65
29	97.10	96.20	95.11	95.71	96.17	97.03	98.09	98.74	98.85	98.07	97.80	97.63
30	97.10		95.10	95.92	96.17	97.05	97.91	98.83	98.85	98.06	97.82	97.62
31	97.11		95.10		96.21		98.05	98.81		98.05		97.63
Avg.	96.81	96.62	95.37	95.23	96.24	95.66	97.55	98.52	98.87	99.31	97.90	97.75

* Partly estimated " Estimated

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 1972, 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, in 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec
1	0	0	0	0	0.1	0.1	0	0	0	0	0	0
2	0	0	0	0	.2	.3	0	0	0	0	0	0
3	0	0	0	14.6	.1	.1	0	0	0	0	0	0
4	0	0	0	3.3	.3	0	.6	0	0	0	.1	0
5	0	0	4.9	.3	.1	21.4	.2	0	0	0	.1	0
6	0	0	22.7	0	0	3.5	.7	0	0	11.7	0	0
7	0	0	2.2	0	0	.3	0	0	0	0	0	0
8	0	0	.3	0	0	0	0	0	0	0	0	.3
9	0	0	.1	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	.2	0
11	0	0	0	0	.4	0	0	0	0	0	0	0
12	0	0	0	0	.3	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	.1	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	2.5	0	0	0	0	0	0
21	0	0	0	0	0	.5	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	.1	0	0	0	.5	0	0	0	0
30	0		0	.4	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	30.2	18.7	1.5	28.7	1.5	0.5	0	11.8	0.4	0.3

Month	Current Year 1972 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 1939-1972 Acre Feet Average	Maximum	Minimum
Jan.	0	0	† 1	0	† 1	0	0	0	886	2,860	0
Feb.	0	0	† 1	0	† 1	0	0	0	763	2,510	0
Mar.	1.38	0	6	41.4	† 1	0	1.0	59.9	704	1,660	22.8
Apr.	1.15	0	3	29.8	† 1	0	.6	37.1	757	1,940	22.6
May	.11	0	11	.7	† 2	0	0	3.0	921	2,470	3.0
June	1.30	0	5	37.0	† 1	0	1.0	56.9	804	2,350	52.6
July	.16	0	4	1.2	† 1	0	0	3.0	694	1,950	1.2
Aug.	.17	0	29	1.3	† 1	0	0	1.0	729	2,530	1.0
Sept.	0	0	† 1	0	† 1	0	0	0	655	2,180	0
Oct.	1.50	0	6	41.0	† 1	0	.4	23.4	794	2,100	23.4
Nov.	.36	0	10	18.6	† 1	0	0	.8	916	2,380	.8
Dec.	.76	0	9	15.1	† 1	0	0	.6	1,011	2,680	0
Yearly	1.50	0		41.4		0	0.2	185.7	9,634	24,370	185.7

† 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 1972. 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.1	1.9	9.2	3.2	9.4	5.2	.2	1.7	2.1	5.9	8.2	4.4
2	3.4	6.4	3.9	2.0	6.1	8.5	.6	6.5	4.5	1.0	9.3	4.5
3	1.8	3.4	7.3	1.5	6.7	9.4	11.5	1.0	7.2	0	12.8	12.6
4	3.8	3.8	6.7	5.9	1.1	3.0	1.8	0	4.7	5.0	3.0	18.6
5	3.5	7.3	3.6	3.9	.8	.8	7.2	0	7.1	8.6	3.3	5.3
6	7.3	6.1	5.7	10.1	4.3	3.0	7.4	5.6	1.5	23.9	4.8	.6
7	5.4	4.5	8.7	.9	11.4	9.1	2.0	1.4	6.6	30.4	0	0
8	2.8	6.0	7.3	3.1	1.8	7.4	0	10.6	2.4	10.5	7.5	1.9
9	5.6	2.4	5.5	1.0	2.6	7.6	10.1	1.1	3.3	2.4	12.6	4.3
10	9.1	2.6	11.4	.2	5.6	12.4	2.7	0	9.1	3.1	10.4	8.1
11	3.6	11.0	6.5	1.3	2.4	17.2	7.9	4.3	10.3	4.5	7.4	7.0
12	1.2	2.3	1.8	.7	.1	11.6	10.4	.6	2.4	7.9	14.0	6.1
13	0	6.9	.6	5.0	1.8	5.7	6.6	10.2	4.9	7.4	*10.6	11.4
14	.1	5.0	7.0	6.6	7.8	2.1	11.0	11.7	12.1	3.2	*13.8	1.7
15	4.3	3.8	3.3	12.7	6.1	1.3	8.0	8.7	7.9	1.0	7.9	4.3
16	4.3	6.8	4.7	16.9	13.5	6.0	7.5	9.3	6.4	.8	1.8	1.5
17	2.7	5.4	1.5	20.0	6.3	.5	2.3	4.5	1.3	1.5	5.5	2.0
18	.3	1.6	1.7	3.9	3.2	.8	4.6	2.2	5.1	11.7	12.7	9.5
19	2.9	7.1	2.0	1.1	6.9	2.7	6.5	1.8	4.1	14.4	3.4	8.6
20	13.4	4.2	15.5	5.4	6.0	3.4	4.2	5.4	5.0	12.6	8.2	9.9
21	8.0	22.0	7.4	5.9	2.8	.5	7.1	2.2	.1	10.9	8.8	9.4
22	5.6	2.8	1.0	2.4	14.0	0	3.9	0	3.0	.2	5.3	6.4
23	.3	.1	0	9.6	15.8	9.0	3.5	0	.5	1.6	7.4	4.6
24	2.6	.3	12.2	10.2	7.2	14.9	6.2	0	0	0	2.2	5.0
25	8.4	6.2	10.8	2.6	8.2	5.6	5.0	9.4	.6	0	0	4.0
26	1.3	6.9	1.8	4.3	7.7	2.7	.8	3.7	7.0	0	0	.1
27	7.7	1.6	.8	.8	3.1	2.1	2.9	10.3	8.8	0	2.4	0
28	10.9	7.8	5.2	3.8	8.5	5.1	9.7	2.0	4.8	0	6.1	.2
29	4.7	3.9	3.4	4.3	.9	9.5	3.3	17.5	5.7	.3	3.9	2.4
30	1.6		1.9	10.6	15.2	4.7	7.7	11.3	4.0	2.8	10.2	11.8
31	3.4		11.0		10.4		2.1	6.4		8.6		3.0
Sum	141.1	150.1	169.4	159.9	197.7	171.8	164.7	149.4	142.5	180.2	203.5	169.2

Current Year 1972 — Period 1935-1972

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	91.22	90.15	10	71.1	†13	0	4.6	280	1,228	3,360	280
Feb.	90.86	90.15	10	35.6	† 1	0	5.2	298	1,028	3,170	298
Mar.	90.95	90.15	2	43.8	†18	0	5.5	336	1,189	2,920	190
Apr.	90.93	90.15	4	41.8	† 2	0	5.3	317	1,155	3,170	197
May	90.88	90.15	9	37.3	† 4	0	6.4	392	1,270	3,040	245
June	90.86	90.15	12	35.6	† 3	0	5.7	341	1,084	3,660	175
July	90.83	90.15	22	33.0	† 1	0	5.3	327	1,171	3,590	182
Aug.	91.29	90.15	29	78.4	† 1	0	4.8	296	1,192	3,960	169
Sept.	90.89	90.15	26	38.2	† 6	0	4.8	283	1,086	3,170	159
Oct.	92.18	90.15	6	140	† 2	0	5.8	357	1,145	3,280	357
Nov.	90.74	90.15	23	26.0	† 2	0	6.8	404	1,257	3,570	313
Dec.	90.77	90.15	9	28.2	† 6	0	5.5	336	1,230	3,080	292
Yearly	92.18	90.15		140		0	5.5	3,967	14,035	38,310	3,967

† And other days * Partly estimated

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 measurements. During the year, 11 measurements were made by the United States Section of the Commission. 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 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	177	170	178	199	196	185	176	186	168	169	152	149
2	162	179	180	182	199	187	175	180	173	169	154	151
3	155	172	174	187	188	192	182	181	172	170	164	162
4	155	171	182	185	189	197	187	173	157	174	149	142
5	166	171	178	177	192	172	175	172	165	168	156	140
6	167	176	192	175	194	172	172	179	159	222	155	133
7	165	173	185	179	200	182	178	197	164	246	148	138
8	175	176	172	184	187	176	177	169	161	203	165	145
9	167	174	176	180	184	186	178	171	166	181	160	160
10	167	174	177	190	204	189	178	170	159	182	153	141
11	164	184	185	184	191	191	180	166	154	173	160	145
12	174	186	175	189	190	190	173	176	154	179	156	149
13	174	177	186	186	193	177	178	170	167	174	158	137
14	164	178	183	186	196	172	176	168	167	173	154	140
15	163	177	179	187	175	184	175	166	177	168	149	141
16	162	179	187	200	184	184	170	165	168	166	157	136
17	161	172	189	194	188	176	175	169	165	167	153	143
18	162	185	184	184	185	192	172	166	160	163	158	132
19	164	185	193	178	183	186	174	173	172	165	156	141
20	164	200	194	181	195	174	174	194	155	166	171	140
21	175	188	188	175	187	175	173	203	165	165	158	156
22	179	180	186	181	190	173	165	165	170	156	149	139
23	171	176	176	187	185	165	171	164	168	163	156	143
24	169	175	185	186	182	189	172	162	169	157	157	137
25	174	185	184	179	181	184	171	162	182	154	152	143
26	165	182	174	186	189	175	180	166	165	150	142	122
27	178	181	175	193	191	182	176	165	173	157	125	136
28	175	186	183	198	185	173	181	162	166	154	140	146
29	173	176	173	194	174	187	173	157	187	151	145	141
30	178		185	192	187	174	178	179	172	141	144	143
31	171		193		184		174	170		151		148
Sum	5,216	5,188	5,651	5,578	5,848	5,441	5,439	5,346	5,000	5,277	4,596	4,419

Month	Current Year 1972 Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1935-1972 Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			22	179	† 3	155	168	10,346	7,888	11,203	1,740
Feb.			20	200	1	170	179	10,290	7,821	11,988	1,640
Mar.			20	194	8	172	182	11,209	8,935	12,430	1,940
Apr.			16	200	† 6	175	186	11,064	8,703	11,890	1,920
May			10	204	29	174	189	11,599	8,868	13,140	1,950
June			4	197	23	165	181	10,792	8,200	12,040	2,290
July			4	187	22	165	175	10,788	7,995	11,830	2,530
Aug.			21	203	29	157	172	10,604	7,921	11,960	2,560
Sept.			29	187	†11	154	167	9,917	7,937	11,568	2,280
Oct.			7	246	30	141	170	10,467	8,960	12,385	2,940
Nov.			20	171	27	125	153	9,116	8,672	12,010	2,800
Dec.			3	162	26	122	143	8,765	8,368	11,480	2,450
Yearly				246		122	172	124,957	100,268	139,380	27,040

∅ Mean daily † And other days

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 1972.
REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal.

Mean Daily Discharge in Second Feet 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.2	7.1	13.7	10.0	0.2	3.6	3.4	6.2	* 3.2	2.3	12.1	2.2
2	3.4	.1	21.3	* 37.9	.8	4.4	2.8	11.2	0	4.7	23.3	* 11.1
3	2.6	5.5	7.1	* 9.4	10.6	6.6	.3	4.5	0	1.1	13.9	13.2
4	2.9	3.9	3.0	0	4.5	18.4	1.1	5.3	0	8.8	5.1	35.0
5	.7	11.7	19.1	0	13.0	19.2	6.2	20.3	0	8.4	2.8	* 22.9
6	.9	15.3	7.8	0	9.2	0	7.4	28.1	1.8	* 34.0	17.7	12.7
7	1.8	25.1	0	.8	7.9	0	20.1	38.5	6.0	" 29.3	8.6	3.3
8	14.5	3.2	0	2.1	6.7	.3	18.1	5.3	4.0	" 7.0	2.0	8.6
9	3.5	.5	1.6	1.9	1.3	10.9	3.0	1.1	10.6	" 2.8	2.1	19.5
10	1.2	.1	5.4	7.7	.1	3.0	3.7	1.8	4.1	* 5.1	9.3	11.9
11	5.1	9.5	9.8	7.7	0	8.1	4.4	7.1	1.2	13.6	4.8	21.7
12	3.4	9.1	5.1	1.5	0	.8	7.3	5.0	15.2	13.3	9.9	12.4
13	1.0	12.5	20.4	7.5	.6	.4	3.9	7.2	26.8	16.3	33.6	7.9
14	2.9	10.5	.8	.2	.2	3.4	2.8	4.5	10.7	11.3	16.1	16.1
15	2.9	.1	.3	5.9	.8	.5	0	3.3	21.8	5.0	6.6	21.7
16	.2	5.7	.9	3.3	20.0	.4	10.0	.1	13.5	1.9	2.8	2.6
17	2.1	28.8	2.2	10.4	10.2	1.0	9.7	.1	18.1	.6	12.2	.2
18	2.7	12.8	3.7	2.3	24.5	1.9	0	3.2	10.9	22.6	10.5	0
19	1.5	21.6	7.7	5.3	2.1	.9	.3	6.6	.7	26.3	3.7	.8
20	1.7	3.1	.7	4.7	3.1	.7	2.8	5.9	0	26.2	8.7	2.7
21	2.5	13.3	12.0	15.0	4.5	3.1	15.8	.6	9.9	17.0	7.7	.5
22	.4	6.0	6.6	5.1	12.0	4.3	3.1	6.3	20.1	7.1	8.9	4.5
23	8.0	1.7	6.2	6.5	.4	.6	5.8	7.9	23.4	1.5	13.5	.3
24	9.6	19.6	4.9	11.9	7.2	11.3	.1	4.4	18.1	.5	1.2	.5
25	2.2	.1	.2	.2	4.6	3.3	1.9	10.3	6.8	12.7	1.2	.5
26	.4	9.7	3.8	1.7	7.4	13.5	5.8	15.0	7.0	23.5	1.3	3.6
27	1.5	13.1	6.2	0	.4	0	.8	3.8	14.7	16.8	1.4	7.4
28	.1	6.7	4.9	4.8	3.6	0	5.4	13.5	11.6	3.4	3.6	7.3
29	.4	1.8	9.2	5.7	7.6	.8	6.9	10.0	13.1	1.1	.3	.8
30	11.3		.7	2.4	1.1	6.4	.4	* 22.5	12.9	13.8	6.1	.9
31	16.9		17.1		3.3		5.7	10.6		29.0		8.6
Sum	119.5	258.2	202.4	171.9	167.9	127.8	159.0	270.2	286.2	367.0	251.0	261.4

Month	Current Year 1972 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 1971-1972 Acre Feet Average	Maximum	Minimum
Jan.	1.55	0.03	31	43.2	† 6	0	3.9	237	118	237	0
Feb.	1.46	.03	19	39.2	†10	0	3.9	512	260	512	7.3
Mar.	1.65	.03	5	47.8	† 7	0	6.5	401	302	401	203
Apr.	1.98	.03	2	64.0	† 4	0	5.7	341	258	341	175
May	1.52	.03	16	41.9	† 1	0	5.4	333	275	333	217
June	1.79	0	5	54.5	† 6	0	4.3	253	281	308	253
July	1.17	.03	7	27.3	† 2	0	5.1	315	278	315	242
Aug.	1.69	.03	28	49.6	†16	0	8.7	536	351	536	166
Sept.	1.53	.03	13	42.5	† 1	0	9.5	568	487	568	406
Oct.	1.78	.03	6	54.0	† 3	0	11.8	728	575	728	422
Nov.	1.81	.03	13	55.5	†16	0	8.4	498	520	541	498
Dec.	1.67	.03	4	48.6	†18	0	8.4	518	454	518	390
Yearly	1.98	0		64.0		0	7.2	5,240	4,159	5,240	3,077

† And other days " Estimated * Partly estimated

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 1972. West Main Canal Wasteway from February 23, 1971 through 1972.

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 30, 32, and 31.

Mean Daily Discharge in Second Feet 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	199	179	201	212	206	194	180	194	173	177	172	156
2	169	186	205	222	206	200	178	198	178	175	187	167
3	159	181	188	198	205	208	194	186	179	171	191	188
4	162	179	192	191	195	218	190	178	162	188	157	196
5	170	190	201	181	206	192	188	192	172	185	162	168
6	175	197	206	185	208	175	187	213	162	280	178	146
7	172	203	194	181	219	191	200	237	177	306	157	141
8	192	185	179	189	196	184	195	185	167	220	174	156
9	176	177	183	183	188	204	191	173	180	186	175	184
10	177	177	194	198	210	204	184	172	172	190	173	161
11	173	204	201	193	193	216	192	177	166	191	172	174
12	179	197	182	191	190	202	191	182	172	200	180	168
13	175	196	207	198	195	183	188	187	199	198	202	156
14	167	194	191	193	204	178	190	184	190	188	184	158
15	170	181	183	206	182	186	183	178	207	174	164	167
16	166	192	193	220	218	190	188	174	188	169	162	140
17	166	206	193	224	204	178	187	174	184	169	171	145
18	165	199	189	190	213	195	177	171	176	197	181	142
19	168	214	203	184	192	190	181	181	177	206	163	150
20	179	207	210	191	204	178	181	205	160	205	188	153
21	186	223	207	196	194	179	196	206	175	193	174	166
22	185	189	194	188	216	177	172	171	193	163	163	150
23	179	178	182	203	201	175	180	172	192	166	177	148
24	181	195	202	208	195	215	178	166	187	158	160	142
25	185	191	195	182	194	193	178	182	189	167	153	148
26	167	199	180	192	204	191	187	185	179	174	143	126
27	187	196	182	194	194	184	180	179	196	174	129	143
28	186	200	193	207	197	178	196	178	182	157	150	154
29	178	182	186	204	182	197	183	184	206	152	149	144
30	191		188	205	203	185	186	213	189	158	160	156
31	191		221		198		182	187		189		160
Sum	5,475	5,597	6,025	5,909	6,213	5,740	5,763	5,764	5,429	5,826	5,051	4,853

Month	Current Year 1972							Period 1935-1972		
	Extreme Gage Feet		ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			1	199	3	159	177	10,863	9,123	12,131	" 2,123
Feb.			21	223	† 9	177	193	11,100	8,868	12,970	" 2,023
Mar.			31	221	8	179	194	11,946	10,140	13,704	" 2,322
Apr.			17	224	† 5	181	197	11,722	9,871	12,982	2,117
May			7	219	†15	182	200	12,324	10,152	13,900	2,473
June			4	218	† 6	175	191	11,386	9,299	12,570	2,525
July			7	200	22	172	186	11,430	9,181	12,420	2,927
Aug.			7	237	24	166	186	11,436	9,132	12,657	2,989
Sept.			15	207	20	160	181	10,768	9,048	12,450	2,602
Oct.			7	306	29	152	188	11,552	10,134	13,898	3,444
Nov.			13	202	27	129	168	10,018	9,957	12,712	3,407
Dec.			4	196	26	126	157	9,619	9,622	12,050	2,888
Yearly				306		126	185	134,164	114,527	149,010	31,840

ø 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 1972; continuous record of gage heights, January 1947 through 1972. 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	104	247	93.7	0	37.9	59.0	143	160	182	196	266	245
2	108	245	85.0	0	55.0	65.0	148	158	176	192	268	245
3	106	242	82.0	4.7	64.0	61.0	154	156	180	194	261	248
4	100	245	81.0	6.8	72.0	43.5	158	160	178	196	261	279
5	101	247	79.0	0	73.0	46.9	160	166	176	196	257	292
6	99.2	245	118	0	73.0	28.3	162	170	172	218	257	268
7	124	267	70.0	0	72.0	5.8	160	190	172	264	254	250
8	182	251	54.1	0	72.0	3.9	154	176	172	754	252	248
9	225	225	40.4	0	73.0	.4	146	168	174	1,782	254	245
10	238	196	20.8	0	73.0	0	146	170	178	1,684	254	243
11	238	170	15.8	0	72.0	0	154	170	178	1,001	257	243
12	225	156	12.6	0	70.0	0	156	170	180	573	257	243
13	134	141	9.7	0	70.0	0	158	166	182	376	257	243
14	122	132	6.4	0	70.0	0	154	170	186	330	254	243
15	132	130	4.2	0	69.0	0	152	168	188	308	250	243
16	152	134	3.3	0	70.0	0	156	168	190	290	252	243
17	170	146	2.1	0	69.0	0	160	172	194	280	254	243
18	193	148	1.8	0	70.0	0	160	180	194	278	254	241
19	221	150	1.4	0	71.0	0	158	180	192	280	252	243
20	228	145	.8	0	74.0	0	154	176	196	280	248	237
21	230	134	.4	0	75.0	0	154	176	196	400	248	228
22	234	120	0	0	77.0	0	160	176	200	882	250	230
23	238	114	0	0	76.0	0	164	168	200	867	248	230
24	238	114	0	0	76.0	0	160	166	200	456	250	228
25	240	108	0	0	73.0	0	166	170	198	314	252	230
26	240	106	0	0	68.0	0	170	172	196	292	250	228
27	240	105	0	0	69.0	10.7	168	174	198	280	250	230
28	242	105	0	0	64.0	88.2	170	176	196	273	245	232
29	242	101	0	0	56.0	118	174	178	196	270	243	230
30	242		0	7.0	55.0	134	170	184	194	266	243	228
31	245		0		54.1		152	184		264		228
Sum	5,833.2	4,869	782.5	18.5	2,113.0	664.7	4,901	5,318	5,614	14,236	7,598	7,507

Month	Current Year 1972 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1935-1972 Acre Feet Average	Maximum	Minimum
Jan.	75.68	74.80	31	247	1	97.0	188	11,570	403,273	1,672,000	1,821
Feb.	75.88	74.87	7	282	29	95.9	168	9,658	335,614	1,385,000	2,040
Mar.	75.29	73.60	6	150	†21	0	25.2	1,552	269,652	1,127,000	798
Apr.	74.07	73.60	30	23.5	† 1	0	.6	36.7	171,782	700,900	36.7
May	74.64	74.06	†22	77	1	21.7	68.2	4,191	236,278	1,160,000	1,045
June	74.99	73.45	30	139	†10	0	22.2	1,318	181,626	1,180,000	143
July	75.17	74.99	29	176	1	139	158	9,721	132,863	772,800	0
Aug.	75.37	75.08	7	206	3	154	172	10,548	148,048	796,000	0
Sept.	75.40	75.13	†22	202	† 6	168	187	11,135	179,752	1,033,000	0
Oct.	80.40	75.38	† 9	1,985	† 2	192	459	28,237	230,231	1,192,000	9,120
Nov.	75.85	75.73	† 1	268	29	241	253	15,070	302,202	1,428,000	7,180
Dec.	76.01	75.67	4	308	†21	226	242	14,890	380,650	1,839,000	2,320
Yearly	80.40	73.45		1,985		0	162	117,927	2,971,971	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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	74.86	75.68	74.86	73.60	74.25	74.35	75.01	75.10	75.18	75.40	75.84	75.75
2	74.90	75.67	74.79	73.60	74.45	74.41	75.04	75.10	75.15	75.38	75.85	75.75
3	74.88	75.67	74.76	73.70	74.53	74.37	75.07	75.10	75.17	75.39	75.82	75.76
4	74.83	75.68	74.76	73.78	74.61	74.18	75.09	75.13	75.16	75.40	75.82	75.89
5	74.84	75.69	74.74	73.60	74.61	74.21	75.09	75.16	75.15	75.40	75.80	75.95
6	74.82	75.68	75.07	73.60	74.60	74.00	75.11	75.18	75.15	75.63	75.80	75.85
7	75.01	75.80	74.67	73.60	74.58	73.70	75.10	75.29	75.17	75.85	75.79	75.77
8	75.36	75.74	74.50	73.60	74.57	73.66	75.06	75.22	75.18	77.34	75.78	75.76
9	75.57	75.64	74.33	73.60	74.57	73.51	75.02	75.18	75.20	79.92	75.79	75.76
10	75.63	75.51	74.10	73.60	74.57	73.45	75.02	75.19	75.23	79.86	75.79	75.75
11	75.63	75.40	74.02	73.60	74.55	73.45	75.06	75.19	75.23	78.38	75.80	75.75
12	75.57	75.34	73.96	73.60	74.52	73.45	75.07	75.19	75.24	77.04	75.80	75.75
13	75.08	75.28	73.90	73.60	74.52	73.45	75.08	75.17	75.25	76.27	75.80	75.75
14	75.01	75.24	73.85	73.60	74.51	73.45	75.06	75.19	75.27	76.11	75.79	75.75
15	75.07	75.23	73.81	73.60	74.50	73.45	75.05	75.18	75.28	76.03	75.77	75.75
16	75.18	75.25	73.78	73.60	74.50	73.45	75.07	75.18	75.29	75.96	75.78	75.75
17	75.27	75.33	73.74	73.60	74.49	73.45	75.09	75.20	75.31	75.92	75.79	75.75
18	75.39	75.34	73.73	73.60	74.49	73.45	75.09	75.23	75.31	75.91	75.79	75.74
19	75.55	75.35	73.71	73.60	74.49	73.45	75.08	75.23	75.31	75.92	75.78	75.75
20	75.58	75.32	73.67	73.60	74.51	73.45	75.06	75.21	75.33	75.92	75.76	75.72
21	75.59	75.26	73.64	73.60	74.51	73.45	75.06	75.21	75.34	76.32	75.76	75.68
22	75.61	75.18	73.60	73.60	74.53	73.45	75.09	75.20	75.36	77.70	75.77	75.69
23	75.63	75.12	73.60	73.60	74.52	73.45	75.11	75.16	75.37	77.66	75.76	75.69
24	75.63	75.10	73.60	73.60	74.52	73.45	75.09	75.14	75.38	76.49	75.77	75.68
25	75.65	75.04	73.60	73.60	74.49	73.45	75.12	75.16	75.38	76.03	75.78	75.69
26	75.65	75.00	73.60	73.60	74.44	73.45	75.14	75.16	75.38	75.95	75.77	75.68
27	75.65	74.98	73.60	73.60	74.45	73.63	75.13	75.16	75.39	75.90	75.77	75.69
28	75.66	74.96	73.60	73.60	74.40	74.60	75.14	75.16	75.39	75.87	75.75	75.70
29	75.66	74.92	73.60	73.60	74.32	74.86	75.16	75.16	75.39	75.86	75.74	75.69
30	75.66		73.60	73.80	74.31	74.96	75.14	75.19	75.39	75.84	75.74	75.68
31	75.67		73.60		74.30		75.05	75.19		75.83		75.68
Avg.	75.36	75.36	74.01	73.62	74.49	73.77	75.08	75.18	75.28	76.40	75.78	75.74

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. 1972 records good. Records available: April 1956 through 1972.

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 1972	Period 1956-1972		
		Average	Maximum	Minimum
January	0	5,862	69,527	0
February	0	1,179	8,679	0
March	0	6,823	35,492	0
April	0	15,569	68,714	0
May	0	6,718	22,072	0
June	0	10,727	28,915	0
July	0	16,828	46,139	0
August	2,646	18,337	55,497	0
September	0	10,970	37,194	0
October	12,664	4,716	20,512	0
November	2,214	9,452	69,415	0
December	547	5,947	70,213	0
Yearly	18,071	106,246	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 1972.
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 1972	Period 1957-1972		
		Average	Maximum	Minimum
January	0	493	3,201	0
February	0	325	4,097	0
March	0	519	6,850	0
April	0	400	3,707	0
May	0	90.8	1,163	0
June	0	47.3	625	0
July	0	268	4,296	0
August	0	258	1,926	0
September	0	311	1,548	0
October	0	93.2	791	0
November	0	224	1,891	0
December	0	275	3,047	0
Yearly	0	3,305	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 64 current meter measurements made during the year and a continuous record of gage heights. Data obtained and furnished by the Mexican Section of the Commission. From June 1951 to July 1954, discharges were computed from gage height records based on daily gage readings at 8:00 a.m., Pacific Standard Time. A continuous record of gage heights obtained since July 21, 1954. Records available: June 1951 through 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	113	14.8	5.7	5.7	4.2	2.1	2.1	6.4	34.6	164	126
2	10.9	114	13.4	5.3	5.7	3.9	1.8	2.1	5.7	34.6	161	130
3	13.4	113	12.0	5.3	5.7	3.9	1.4	2.1	4.9	36.0	157	134
4	12.0	113	10.2	5.7	5.3	3.9	1.8	2.1	4.9	38.8	154	138
5	12.0	114	8.8	5.7	5.3	3.9	2.1	2.5	4.9	41.3	150	142
6	10.9	113	7.4	6.0	5.3	3.9	2.5	2.5	4.9	77.7	147	150
7	10.9	113	7.4	6.4	4.9	3.9	3.2	2.8	4.9	140	147	150
8	20.1	117	7.1	6.7	4.9	3.9	3.5	3.2	5.7	73.8	148	151
9	49.8	120	6.7	6.7	4.9	3.9	3.9	3.9	5.7	540	141	151
10	89.7	110	6.7	7.1	4.9	3.9	4.2	3.9	7.4	1,127	134	151
11	171	95.0	6.4	7.1	4.9	3.9	4.2	3.5	8.8	1,377	133	151
12	174	77.3	6.0	6.7	4.6	3.9	4.2	3.5	12.7	1,158	131	149
13	155	65.7	6.0	6.7	4.6	3.9	4.2	3.5	14.8	784	130	145
14	128	55.1	6.0	6.4	4.6	3.9	3.9	3.9	16.6	477	118	143
15	73.8	45.9	6.4	6.4	4.6	3.9	3.9	3.9	17.7	396	106	140
16	53.3	41.0	6.4	6.0	4.6	3.5	3.9	4.6	19.1	347	111	137
17	53.3	38.5	6.7	6.0	4.6	3.5	3.9	4.6	19.8	275	116	134
18	48.7	41.0	6.7	6.0	4.6	3.5	4.2	4.6	20.5	272	124	131
19	36.0	43.4	7.1	6.0	4.9	3.5	4.2	4.9	21.2	290	131	133
20	109	42.4	7.1	6.0	4.9	3.5	4.6	6.7	21.2	357	138	134
21	96.1	41.0	7.1	5.7	4.9	3.5	4.9	13.4	23.0	378	146	136
22	101	36.0	6.7	5.7	4.9	3.5	5.3	7.8	24.0	360	155	137
23	104	32.5	6.7	5.7	4.9	3.9	5.3	6.7	24.7	491	164	139
24	107	27.9	6.4	5.7	4.6	3.9	5.7	6.4	26.5	720	173	141
25	107	26.8	6.4	5.7	4.6	3.9	5.3	6.7	27.5	505	182	142
26	111	24.4	6.0	5.7	4.6	3.9	4.9	6.7	28.3	298	167	144
27	111	19.8	6.0	5.7	4.6	3.5	4.6	7.8	31.1	227	151	145
28	113	17.7	6.0	5.7	4.2	3.2	3.9	16.2	32.5	205	136	146
29	116	16.6	5.7	5.7	4.2	2.8	3.5	8.8	35.3	187	133	147
30	111		5.7	5.7	4.2	2.5	3.2	7.1	36.7	177	129	147
31	111		5.7		4.2		2.8	7.8		167		148
Sum	2,425.1	1,928.2	227.4	180.1	149.7	110.9	117.2	166.3	517.4	11,768.3	4,277	4,393

Current Year 1972									Period 1951-1972		
Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	42.16	38.45	12	174	1	7.4	78.4	4,810	229,827	1,047,732	426
Feb.	41.40	38.65	† 8	120	29	15.5	66.4	3,824	144,727	696,461	317
Mar.	38.75	38.29	1	Ø 14.8	†29	Ø 5.7	7.4	451	101,686	807,342	0
Apr.	38.58	38.32	†10	Ø 7.1	† 2	Ø 5.3	6.0	358	66,754	588,983	0
May	38.68	38.58	† 1	Ø 5.7	†28	Ø 4.2	4.9	297	92,953	732,815	0
June	38.65	38.42	1	Ø 4.2	30	Ø 2.5	3.5	220	40,508	555,460	0
July	38.68	38.48	24	Ø 5.7	3	Ø 1.4	3.9	233	21,793	264,561	0
Aug.	39.70	38.62	28	20.8	† 1	2.1	5.3	330	32,311	309,320	0
Sept.	40.26	38.94	30	38.1	† 3	4.9	17.3	1,026	50,519	572,551	0
Oct.	48.16	42.55	11	1,384	† 1	34.6	378	23,342	84,252	769,939	2,459
Nov.	42.52	41.21	25	182	15	106	143	8,485	138,845	909,399	5,981
Dec.	42.55	41.21	11	151	1	126	142	8,714	187,202	1,060,767	687
Yearly	48.16	38.29		1,384		1.4	71.3	52,038	1,156,043	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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	38.45	41.21	38.62	38.32	38.58	38.62	38.55	38.62	39.01	40.26	42.13	41.27
2	38.58	41.24	38.55	38.35	38.58	38.62	38.58	38.62	38.98	40.26	42.19	41.40
3	38.65	41.21	38.48	38.32	38.62	38.58	38.55	38.62	38.94	40.29	42.19	41.44
4	38.62	41.21	38.39	38.32	38.62	38.58	38.55	38.62	38.94	40.35	42.19	41.50
5	38.62	41.24	38.32	38.35	38.62	38.58	38.55	38.65	38.94	40.39	42.09	41.67
6	38.58	41.21	38.32	38.32	38.62	38.58	38.55	38.65	38.94	40.85	42.13	41.80
7	38.58	41.21	38.35	38.32	38.62	38.58	38.52	38.68	38.94	41.57	42.13	41.80
8	38.85	41.31	38.52	38.32	38.62	38.58	38.55	38.71	38.98	42.62	41.96	41.90
9	39.67	41.40	38.32	38.35	38.62	38.52	38.55	38.78	38.98	44.69	41.86	41.90
10	40.68	41.14	38.32	38.35	38.62	38.52	38.52	38.78	39.07	47.18	41.86	42.42
11	42.13	40.75	38.32	38.35	38.65	38.48	38.52	38.75	39.17	48.13	41.93	42.26
12	42.16	40.29	38.29	38.35	38.65	38.52	38.48	38.75	39.30	47.57	41.86	42.03
13	41.93	39.99	38.42	38.35	38.65	38.52	38.52	38.75	39.37	46.42	41.80	41.99
14	41.50	39.73	38.29	38.39	38.65	38.48	38.52	38.78	39.47	44.88	41.77	41.99
15	40.29	39.50	38.29	38.39	38.65	38.48	38.52	38.78	39.53	44.36	41.73	41.99
16	39.76	39.37	38.29	38.39	38.68	38.48	38.55	38.81	39.60	44.00	41.73	41.96
17	39.76	39.30	38.29	38.39	38.68	38.48	38.55	38.81	39.63	43.37	41.77	41.96
18	39.63	39.37	38.29	38.39	38.68	38.48	38.58	38.81	39.67	43.34	42.22	41.99
19	40.22	39.44	38.29	38.39	38.68	38.45	38.58	38.85	39.70	43.50	42.99	41.99
20	41.14	39.40	38.32	38.42	38.68	38.45	38.58	38.98	39.70	43.80	42.13	41.99
21	40.85	39.37	38.32	38.42	38.68	38.45	38.62	39.40	39.80	43.93	41.63	41.96
22	40.94	39.24	38.32	38.45	38.65	38.45	38.65	39.07	39.86	43.83	41.67	41.90
23	41.01	39.14	38.32	38.45	38.65	38.45	38.65	38.98	39.90	44.59	42.03	41.77
24	41.08	39.01	38.32	38.48	38.65	38.45	38.65	38.94	39.96	45.41	42.09	41.83
25	41.08	38.98	38.32	38.48	38.65	38.45	38.65	38.98	39.99	44.65	41.93	41.83
26	41.17	38.91	38.32	38.52	38.65	38.48	38.65	38.98	40.03	43.37	41.80	41.86
27	41.17	38.78	38.32	38.48	38.65	38.48	38.58	39.04	40.09	42.75	41.57	41.86
28	41.21	38.71	38.32	38.55	38.65	38.48	38.62	39.53	40.12	42.55	41.37	41.93
29	41.27	38.68	38.32	38.55	38.65	38.52	38.65	39.17	40.19	42.39	41.31	41.86
30	41.17		38.32	38.58	38.65	38.52	38.65	39.01	40.22	42.29	41.24	41.83
31	41.17		38.32		38.65		38.65	39.04		42.19		41.83
Avg.	40.16	40.03	38.35	38.42	38.65	38.52	38.58	38.88	39.50	43.41	41.90	41.86

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 1972.
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 1972	Period 1957-1972		
		Average	Maximum	Minimum
January	0	746	3,166	0
February	0	405	2,788	0
March	0	1,008	7,074	0
April	0	735	4,462	0
May	0	907	4,413	0
June	0	189	1,505	0
July	0	411	4,296	0
August	0	219	1,857	0
September	0	309	1,800	0
October	0	671	6,997	0
November	0	216	3,413	0
December	0	251	1,205	0
Yearly	0	6,065	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 1972.

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 1972: 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 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.76	15.03	15.03	14.99	15.06	14.76	14.57	14.27	14.30	14.24	15.62	15.78
2	14.76	15.03	15.03	15.03	15.06	14.76	14.57	14.27	14.30	14.24	15.62	15.81
3	14.76	15.03	15.03	15.03	15.06	14.76	14.57	14.27	14.30	14.24	15.62	15.81
4	14.73	15.06	15.03	15.03	15.06	14.76	14.53	14.27	14.30	14.27	15.62	15.81
5	14.76	15.06	15.03	15.03	15.03	14.73	14.53	14.27	14.30	14.40	15.62	15.81
6	14.76	15.09	15.03	15.03	15.03	14.73	14.53	14.27	14.30	14.57	15.62	15.81
7	14.76	15.06	15.06	15.03	15.03	14.76	14.53	14.27	14.30	14.76	15.62	15.81
8	14.80	15.06	15.06	15.03	15.03	14.83	14.50	14.27	14.30	14.90	15.62	15.81
9	14.80	15.06	15.06	15.03	15.03	14.86	14.50	14.27	14.27	15.03	15.62	15.81
10	14.83	15.06	15.03	15.06	14.99	14.86	14.44	14.27	14.27	15.09	15.62	15.81
11	14.83	15.06	15.06	15.03	14.96	14.83	14.40	14.27	14.27	15.22	15.62	15.81
12	14.86	15.06	15.06	15.03	14.96	14.83	14.40	14.27	14.27	15.65	15.58	15.81
13	14.90	15.06	15.06	14.99	14.96	14.83	14.40	14.27	14.27	15.88	15.58	15.81
14	14.93	15.09	15.06	14.99	14.93	14.80	14.40	14.24	14.27	15.81	15.62	15.81
15	14.96	15.09	15.03	14.99	14.93	14.76	14.40	14.24	14.24	15.81	15.68	15.81
16	14.96	15.06	15.03	15.03	14.93	14.76	14.40	14.24	14.24	15.81	15.72	15.75
17	14.99	15.06	15.03	15.03	14.93	14.76	14.37	14.24	14.24	15.81	15.72	15.78
18	15.03	15.06	15.06	15.03	14.93	14.73	14.34	14.24	14.24	15.78	15.72	15.78
19	15.03	15.06	15.06	14.99	14.90	14.70	14.34	14.24	14.24	15.75	15.72	15.78
20	15.03	15.06	15.09	14.99	14.86	14.67	14.34	14.24	14.24	15.75	15.72	15.78
21	15.03	15.06	15.09	14.99	14.86	14.67	14.30	14.24	14.24	15.75	15.72	15.78
22	15.03	15.03	15.06	14.99	14.93	14.67	14.30	14.24	14.24	15.75	15.68	15.78
23	15.03	15.03	15.06	15.03	14.86	14.63	14.30	14.24	14.24	15.78	15.72	15.78
24	15.03	15.03	15.06	15.06	14.83	14.60	*14.30	14.24	14.24	15.78	15.72	15.81
25	15.06	15.06	15.06	15.03	14.83	14.60	14.30	14.24	14.24	15.78	15.72	15.81
26	15.03	15.06	15.09	14.99	14.83	14.60	14.30	14.24	14.24	15.75	15.72	15.81
27	15.03	15.03	14.99	15.03	14.83	14.57	14.30	14.24	14.24	15.68	15.72	15.78
28	15.03	15.03	15.03	15.03	14.83	14.57	14.27	14.24	14.24	15.65	15.72	15.78
29	15.03	15.03	15.03	15.06	14.83	14.57	14.27	14.30	14.24	15.68	15.72	15.78
30	15.03		14.99	15.03	14.80	14.57	14.27	14.30	14.24	15.55	15.72	15.75
31	15.03		14.99		14.80		14.27	14.30		15.52		15.75
Avg.	14.93	15.06	15.06	15.03	14.93	14.73	14.40	14.27	14.27	15.35	15.65	15.78

* Recorder not working July 24 to December 31, stages estimated from two daily figures

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)	
	1972	Average 1935-1972	1972	Average 1951-1972	1972	Average 1939-1972	1972	Estimated Average
Jan.	17,901.0	16,502.5	1,633.0	1,651.8	542.7	555.6	20,076.7	18,709.9
Feb.	17,741.0	16,196.9	1,666.0	1,674.8	551.2	559.5	19,958.2	18,431.2
Mar.	17,174.0	15,895.5	1,686.0	1,675.4	569.9	574.1	19,429.9	18,145.0
Apr.	17,015.0	16,055.2	1,689.0	1,693.7	598.4	603.7	19,302.4	18,352.6
May	16,970.0	17,128.0	1,723.0	1,742.6	617.8	602.6	19,310.8	19,473.2
June	16,999.0	18,609.2	1,692.0	1,627.8	607.2	605.5	19,298.2	20,842.5
July	17,027.0	18,817.2	1,503.0	1,489.5	597.4	593.7	19,127.4	20,900.4
Aug.	17,193.0	18,561.5	1,454.0	1,413.6	576.0	576.2	19,223.0	20,551.3
Sept.	17,451.0	18,227.4	1,404.0	1,400.6	563.8	570.9	19,418.8	20,198.9
Oct.	17,819.0	17,931.6	1,582.0	1,426.1	542.0	573.9	19,943.0	19,931.6
Nov.	18,088.0	17,665.5	1,600.0	1,504.9	534.1	562.6	20,222.1	19,733.0
Dec.	18,645.0	17,362.4	1,520.0	1,600.9	539.6	557.6	20,704.6	19,520.9
Avg.	17,501.9	17,412.7	1,596.0	1,575.1	570.0	578.0	19,667.9	19,565.9
Max.	18,645.0	27,780.0	1,723.0	1,808.0	617.8	688.7	20,704.6	28,235.0
Min.	16,970.0	* 10,727.0	1,404.0	1,186.0	534.1	76.9	19,127.4	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.

Month	1972							Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons Per Acre Foot			
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum

Colorado River at Northerly International Boundary

Period 1956-1972

Jan.	124,927,000	6,200	4	0.0050	0.0088	0.0021	3.4	34.0	336	1.6
Feb.	124,618,000	6,200	4	.0050	.0074	.0019	3.4	15.5	116	1.6
Mar.	257,074,000	19,400	5	.0075	.0090	.0063	10.5	49.9	499	8.8
Apr.	242,005,000	18,400	4	.0076	.0098	.0042	10.0	45.7	434	9.4
May	97,039,000	4,300	5	.0044	.0049	.0036	2.3	16.8	201	2.3
June	155,614,000	8,200	4	.0053	.0072	.0040	4.4	16.6	92.6	4.4
July	213,190,000	11,200	4	.0052	.0062	.0039	6.1	23.1	89.3	6.1
Aug.	216,586,000	17,000	5	.0078	.0154	.0036	9.2	22.3	103	6.2
Sept.	94,847,000	3,000	4	.0032	.0047	.0019	1.6	9.6	43.6	1.6
Oct.	92,144,000	3,200	5	.0035	.0091	.0015	1.7	4.5	20.0	.8
Nov.	59,413,000	1,900	5	.0032	.0103	.0018	1.0	12.3	89.9	.5
Dec.	123,283,000	10,300	4	.0083	.0125	.0050	5.6	23.9	174	.6
Yearly	1,800,742,000	109,300	53	0.0060	0.0154	0.0015	59.2	274	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 1952-1972

Jan.	124,658,000	8,797	4	0.0071	0.0078	0.0057	4.8	5.7	22.3	0.2
Feb.	124,430,000	9,721	4	.0078	.0087	.0063	5.3	6.0	19.4	.9
Mar.	256,488,000	26,459	5	.0103	.0122	.0089	14.3	46.5	154	11.1
Apr.	241,582,000	23,255	4	.0096	.0119	.0032	12.6	42.1	121	12.6
May	96,829,000	4,536	3	.0047	.0064	.0023	2.4	11.3	51.2	1.5
June	155,278,000	10,738	5	.0069	.0137	.0044	5.8	32.5	109	4.7
July	213,039,000	10,763	4	.0051	.0058	.0045	5.8	46.9	156	5.8
Aug.	216,211,000	12,650	6	.0059	.0081	.0051	6.8	43.2	135	6.8
Sept.	94,582,000	5,288	4	.0056	.0079	.0028	2.8	17.8	64.7	1.9
Oct.	62,619,000	4,146	5	.0066	.0119	.0022	2.3	4.3	12.0	.3
Nov.	58,953,000	3,009	5	.0051	.0126	.0031	1.6	2.3	9.3	.2
Dec.	122,792,000	5,431	4	.0044	.0059	.0033	2.9	4.7	14.8	1.1
Yearly	1,767,460,000	124,792	53	0.0066	0.0137	0.0022	67.4	263	696	67.4

Samples and analyses by Mexican Section, Method B

SUSPENDED SILT

Colorado River at Southerly International Boundary

Period 1946-1972

Month	1972 Tons Water	1972 Tons Silt	1972 No. of Samples	1972 Gravimetric Percentages Average	1972 Gravimetric Percentages Maximum Sample	1972 Gravimetric Percentages Minimum Sample	1972 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Acre-Feet at 1,847 Tons Per Acre Foot Average	Maximum	Minimum
Jan.	15,724,000	2,100	5	0.0133	0.0199	0.0079	1.1			
Feb.	13,125,000	1,500	3	.0114	.0155	.0084	.8			
Mar.	2,109,000	300	4	.0142	.0158	.0045	.2			
Apr.	50,000	0	0	* .0042	*.0043	*.0040	0			
May	5,696,000	800	4	.0140	.0258	.0032	.4			
June	1,791,000	400	3	.0223	.0312	.0115	.2			
July	13,211,000	1,700	3	.0128	.0183	.0103	.9			
Aug.	14,335,000	1,200	5	.0084	.0106	.0069	.7			
Sept.	15,132,000	1,100	4	.0073	.0108	.0040	.6			
Oct.	38,374,000	4,900	5	.0127	.0357	.0049	2.7			
Nov.	20,480,000	2,000	4	.0097	.0130	.0061	1.1			
Dec.	20,235,000	2,200	4	.0109	.0135	.0089	1.2			
Yearly	160,262,000	18,200	44	0.0113	0.0357	0.0032	9.9			

Samples and analyses by U. S. and Mexican Sections, Method A

* Estimated

Colorado River at Miguel C. Rodriguez Gaging Station

Period 1960-1972

Jan.	6,539,000	743	5	0.0114	0.0138	0.0083	.4	21.7	251	0
Feb.	5,200,000	615	4	.0118	.0141	.0099	.3	3.2	13.9	0
Mar.	613,000	56.2	4	.0092	.0131	.0070	0	.6	4.1	0
Apr.	486,000	28.7	4	.0059	.0072	.0030	0	.2	1.1	0
May	403,000	49.6	5	.0123	.0296	.0032	0	.3	1.5	0
June	299,000	47.4	4	.0159	.0321	.0089	0	0	.1	0
July	316,000	25.4	5	.0081	.0102	.0051	0	0	.2	0
Aug.	449,000	55.1	4	.0123	.0149	.0052	0	0	.2	0
Sept.	1,396,000	126	4	.0090	.0138	.0050	.1	.4	4.5	0
Oct.	31,737,000	4,691	7	.0148	.0262	.0042	2.5	2.5	20.8	.1
Nov.	11,537,000	1,002	11	.0087	.0226	.0030	.6	3.8	36.0	.2
Dec.	11,848,000	597	6	.0050	.0072	.0031	.3	3.6	13.0	0
Yearly	70,823,000	8,037	63	0.0104	0.0321	0.0030	4.2	36.6	289	1.6

Samples and analyses by Mexican Section, Method C

CHEMICAL ANALYSES OF WATER SAMPLES
1972

The tables below are 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. Samples from the Intake Canal at Morelos Diversion Structure were taken by the Mexican Section of the Commission and analyzed by the Ministry of Hydraulic Resources.

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$\times 10^6$ at 25°C, is a relative measure of the total salt concentration.

Colorado River at Northerly International Boundary

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC$\times 10^6$ @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
Jan.	5	1.54	142,000	1,831		8.1	50	36	5.65	3.59	9.22	3.51	8.33	6.62	
Feb.	4	1.57	144,000	1,879		8.1	51	37	5.74	3.68	9.66	3.59	8.51	6.97	
Mar.	4	1.63	308,000	1,941		8.1	51	38	5.83	3.75	10.13	3.51	8.71	7.48	
Apr.	4	1.62	289,000	1,930		8.1	52	38	5.83	3.74	10.19	3.52	8.77	7.46	
May	5	1.62	116,000	1,928		8.1	52	37	5.93	3.64	10.27	3.71	8.84	7.26	
June	4	1.50	172,000	1,815		8.1	51	35	5.59	3.54	9.47	3.50	8.64	6.47	
July	5	1.31	205,000	1,540		8.1	48	32	5.11	3.14	7.53	3.16	7.64	4.97	
Aug.	4	1.32	211,000	1,562		8.1	49	32	5.07	3.07	7.84	3.11	7.71	5.16	
Sept.	4	1.52	106,000	1,802		8.1	52	37	5.53	3.28	9.65	3.45	8.27	6.74	
Oct.	5	1.40	94,700	1,725		8.0	50	33	5.63	3.23	8.78	3.57	8.32	5.75	
Nov.	4	1.59	69,400	1,851		8.0	52	35	5.79	3.33	9.89	3.84	8.58	6.69	
Dec.	4	1.46	132,000	1,682		8.1	50	33	5.38	3.14	8.62	3.44	8.17	5.64	
Mean ⊕	∅52	1.50	∅1,989,100	1,784		8.1	50	35	5.56	3.45	9.20	3.44	8.35	6.43	
Period Avg.		1.71	2,523,000	2,080		7.9			6.16	3.84	10.86	3.32	8.62	8.92	
Tons of Constituents 1972									200,000	75,600	381,000	186,000	722,000	411,000	
Avg. Tons Period 1962-1972									246,000	93,300	501,000	197,000	821,000	642,000	

Intake Canal at Morelos Diversion Structure

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC$\times 10^6$ @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
Jan.	5	1.73	158,441	1,935		7.8	52		5.60	3.72	10.08	3.64	8.16	7.58	
Feb.	4	1.81	165,364	2,062		7.9	52		6.20	3.50	10.45	3.75	8.15	8.52	
Mar.	4	1.84	346,262	2,100		8.0	53		5.85	3.90	10.90	3.55	8.48	8.80	
Apr.	4	1.75	312,129	2,000		8.0	51		5.60	4.00	10.18	3.60	8.15	8.08	
May	5	1.75	125,202	1,965		8.0	52		5.68	3.72	10.28	3.68	8.46	7.54	
June †	4	1.82	208,304	2,025		8.0	53		5.70	3.95	10.78	3.70	8.70	8.12	
July	0														
Aug.	0														
Sept.	0														
Oct.	0														
Nov.	0														
Dec.	0														
Mean ⊕	∅26														
Period Avg.															
Tons of Constituents 1972															
Avg. Tons Period 1962-1972															

** Percent of total cations *** Percent of total anions ⊕ Weighted mean ∅ Total
† Last analysis made on June 26, 1972

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1972

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 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 beginning August 15, 1972. Determinations for the Intake Canal at Morelos Dam, Miguel C. Rodriguez Gaging Station, and Sanchez Mejorada Canal (prior to August 15, 1972) 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

Colorado River at Northerly International Boundary

January		February		April		May		July		August		October		November	
1	1,910	15	1,790	1	2,000	16	1,930	1	1,540	16	1,540	1	1,690	16	1,840
2	1,970	16	1,870	2	1,920	17	1,920	2	1,530	17	1,530	2	1,720	17	1,790
3	2,000	17	1,830	3	1,990	18	1,940	3	1,510	18	1,530	3	1,660	18	1,700
4	1,910	18	1,840	4	1,920	19	1,940	4	1,550	19	1,530	4	1,700	19	1,790
5	1,960	19	1,860	5	1,950	20	1,930	5	1,510	20	1,580	5	1,690	20	1,780
6	1,980	20	1,890	6	1,910	21	1,920	6	1,510	21	1,580	6	1,590	21	1,890
7	1,780	21	1,880	7	1,940	22	1,950	7	1,470	22	1,590	7	1,410	22	1,910
8	1,530	22	1,960	8	1,850	23	1,920	8	1,540	23	1,560	8	1,330	23	1,920
9	1,530	23	1,910	9	1,890	24	1,940	9	1,550	24	1,580	9	1,320	24	1,960
10	1,520	24	1,910	10	1,920	25	1,940	10	1,550	25	1,580	10	1,530	25	1,880
11	1,540	25	1,990	11	1,920	26	1,940	11	1,520	26	1,570	11	1,680	26	1,900
12	1,950	26	1,970	12	1,890	27	1,930	12	1,540	27	1,610	12	1,780	27	1,940
13	1,950	27	1,980	13	1,930	28	1,930	13	1,510	28	1,610	13	1,950	28	1,930
14	2,040	28	1,950	14	1,920	29	1,890	14	1,510	29	1,640	14	1,920	29	1,950
15	2,050	29	2,040	15	1,940	30	1,910	15	1,500	30	1,700	15	1,890	30	1,950
16	2,110	March		16	2,050	31	1,910	16	1,580	31	1,740	16	1,970	December	
17	2,210	1	1,960	17	1,970	June		17	1,560	September		17	1,920	1	1,990
18	1,840	2	1,910	18	1,980	1	1,880	18	1,560	1	1,740	18	1,900	2	1,980
19	1,800	3	1,920	19	1,930	2	1,990	19	1,530	2	1,770	19	1,920	3	1,870
20	1,810	4	1,920	20	1,900	3	1,850	20	1,530	3	1,760	20	1,880	4	1,860
21	1,830	5	1,940	21	1,930	4	1,900	21	1,560	4	1,770	21	1,580	5	1,830
22	1,810	6	1,950	22	1,830	5	1,870	22	1,540	5	1,750	22	1,730	6	1,820
23	1,810	7	1,910	23	1,900	6	1,860	23	1,550	6	1,740	23	1,790	7	1,640
24	1,820	8	1,990	24	1,870	7	1,820	24	1,530	7	1,790	24	1,860	8	1,640
25	1,860	9	2,030	25	1,910	8	1,850	25	1,520	8	1,800	25	1,960	9	1,620
26	1,920	10	1,990	26	1,910	9	1,840	26	1,510	9	1,780	26	1,950	10	1,600
27	1,840	11	1,990	27	1,890	10	1,850	27	1,520	10	1,790	27	1,950	11	1,590
28	1,800	12	1,990	28	1,840	11	1,900	28	1,540	11	1,790	28	1,960	12	1,610
29	1,790	13	1,940	29	1,810	12	1,900	29	1,560	12	1,790	29	1,950	13	1,600
30	1,790	14	1,900	30	1,850	13	1,830	30	1,560	13	1,790	30	1,980	14	1,590
31	1,760	15	1,920	May		14	1,840	31	1,540	14	1,780	31	1,940	15	1,610
February		16	1,910	1	1,860	15	1,830	August		15	1,800	November		16	1,560
1	1,770	17	1,910	2	1,880	16	1,780	1	1,530	16	1,870	1	1,930	17	1,630
2	1,810	18	1,910	3	1,870	17	1,770	2	1,520	17	1,880	2	1,870	18	1,620
3	1,860	19	1,960	4	1,900	18	1,780	3	1,520	18	1,880	3	1,840	19	1,580
4	1,810	20	1,920	5	1,910	19	1,780	4	1,510	19	1,850	4	1,840	20	1,660
5	1,770	21	1,910	6	1,910	20	1,760	5	1,510	20	1,830	5	1,820	21	1,730
6	1,800	22	1,910	7	1,890	21	1,740	6	1,490	21	1,850	6	1,840	22	1,750
7	1,820	23	1,890	8	1,930	22	1,710	7	1,530	22	1,830	7	1,770	23	1,750
8	1,730	24	1,890	9	1,890	23	1,690	8	1,510	23	1,830	8	1,760	24	1,770
9	1,950	25	1,890	10	1,920	24	1,740	9	1,540	24	1,840	9	1,770	26	1,830
10	1,830	26	1,950	11	1,920	25	1,710	10	1,510	25	1,850	10	1,780	27	1,890
11	1,760	27	1,950	12	1,950	26	1,700	11	1,540	26	1,890	11	1,790	28	1,750
12	1,770	28	2,000	13	1,960	27	1,510	12	1,550	27	1,880	12	1,790	29	1,700
13	1,790	29	1,960	14	1,930	28	1,540	13	1,540	28	1,690	13	1,800	30	1,610
14	1,770	30	1,950	15	1,960	29	1,530	14	1,560	29	1,580	14	1,800	31	1,620
		31	1,990			30	1,550	15	1,540	30	1,610	15	1,830		

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1972

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**	
3	2,275	28	2,250	12	2,150	26	1,850	8	1,650	23	1,650	5	1,650	18	1,875
8	1,650	29	2,300	13	2,200	27	2,000	9	1,650	24	1,700	6	1,625	19	1,800
10	1,600	**March**		14	2,200	28	2,100	10	1,650	25	1,650	7	1,325	20	1,800
11	1,650	1	2,200	15	2,200	29	1,975	12	1,750	26	1,675	8	1,350	21	1,900
17	2,225	2	1,700	16	2,300	30	1,825	13	1,650	27	1,750	9	1,275	22	1,900
*19	1,850	3	2,200	17	1,850	31	1,925	14	1,650	28	1,750	10	1,400	23	1,850
20	1,800	4	2,250	18	2,200	**June**		15	1,700	29	1,750	11	1,600	24	1,900
21	1,825	5	2,300	19	2,200	1	1,900	16	1,700	30	1,700	12	1,700	25	1,875
22	1,850	6	2,250	20	2,200	2	2,000	17	1,700	31	1,725	13	1,850	26	1,875
23	1,825	7	1,700	21	2,300	3	1,825	18	1,575	**September**		14	1,900	27	1,950
24	1,800	8	2,250	22	2,200	4	1,950	19	1,650	1	1,725	15	1,900	28	1,925
25	1,850	9	1,800	23	2,200	5	2,050	20	1,650	2	1,800	16	2,050	29	1,950
26	1,875	10	2,350	24	2,150	6	1,900	21	1,625	3	1,750	17	2,000	30	1,950
27	1,850	11	2,400	25	2,050	7	1,950	22	1,650	4	1,750	18	2,000	**December**	
28	1,800	12	2,400	26	2,100	8	1,975	23	1,675	5	1,725	19	2,050	1	2,000
29	1,825	13	2,250	27	2,050	9	1,700	24	1,700	6	1,700	20	1,975	2	2,000
30	1,800	14	1,375	28	2,100	10	2,000	25	1,650	7	1,775	21	1,675	3	1,900
31	1,775	15	2,250	29	2,000	11	2,050	26	1,650	8	1,775	22	1,750	4	1,900
February		16	2,100	30	1,900	12	2,075	27	1,650	9	1,750	23	1,850	5	1,875
1	1,750	17	1,950	**May**		13	2,050	28	1,675	10	1,800	24	1,850	6	1,850
2	1,800	18	2,000	1	1,950	14	2,000	29	1,600	11	1,800	25	2,000	7	1,800
3	1,900	19	1,875	2	1,900	15	2,050	30	1,700	12	1,750	26	2,000	8	1,725
4	1,800	20	1,950	3	2,000	16	2,000	31	1,700	13	1,750	27	1,975	9	1,650
5	1,800	21	1,975	4	1,900	17	2,000	**August**		14	1,750	28	1,925	10	1,725
6	1,800	22	1,900	5	1,950	18	1,950	1	1,650	15	1,750	29	2,000	11	1,650
7	1,800	23	2,100	6	1,950	19	2,000	2	1,675	16	1,875	30	2,050	12	1,675
8	1,700	24	2,000	7	1,950	20	2,000	3	1,650	17	1,850	31	2,000	13	1,725
9	1,900	25	2,000	8	2,000	21	1,975	4	1,500	18	1,825	**November**		14	1,650
10	1,750	26	2,050	9	1,950	22	1,950	5	1,650	19	1,800	1	2,000	15	1,675
11	1,900	27	1,950	10	1,950	23	1,900	6	1,675	20	1,800	2	1,950	16	1,675
12	1,950	28	2,000	11	2,000	24	2,000	7	1,700	21	1,825	3	1,850	17	1,675
13	2,000	29	2,000	12	2,000	25	1,900	8	1,700	22	1,800	4	1,850	18	1,675
14	2,000	30	1,950	13	1,950	26	1,975	9	1,650	23	1,800	5	1,875	19	1,600
15	2,000	31	2,050	14	2,000	27	1,600	10	1,650	24	1,800	6	1,850	20	1,700
16	2,100	**April**		15	2,025	28	1,675	11	1,675	25	1,800	7	1,800	21	1,850
17	2,100	1	1,900	16	1,950	29	1,675	12	1,625	26	1,850	8	1,775	22	1,850
18	2,150	2	2,000	17	1,975	30	1,700	13	1,650	27	1,800	9	1,800	23	1,850
19	2,150	3	2,050	18	1,900	**July**		14	1,675	28	1,650	10	1,800	24	1,950
20	2,100	4	1,850	19	2,000	1	1,700	15	1,525	29	1,550	11	1,825	25	1,925
21	2,200	5	2,000	20	1,950	2	1,625	16	1,650	30	1,550	12	1,750	26	1,925
22	2,100	6	1,850	21	1,900	4	1,650	17	1,650	**October**		13	1,800	27	2,100
23	2,150	7	1,825	22	1,875	5	1,650	18	1,700	1	1,625	14	1,850	28	1,850
24	2,200	8	2,150	23	2,000	6	1,675	19	1,700	2	1,700	15	1,850	29	1,800
25	2,300	9	2,000	24	2,000	7	1,675	20	1,700	3	1,650	16	1,850	30	1,700
26	2,200	10	1,950	25	2,000			21	1,700	4	1,700	17	1,850	31	1,750
27	2,250	11	2,100					22	1,700						

* Sample collection changed from weekly to daily

Colorado River at Southerly International Boundary

January		February		March		April		June		August		October		November	
4	5,990	1	6,490	7	3,960	4	1,890	6	2,430	1	5,360	3	6,390	7	6,040
11	6,520	15	4,740	22	3,100	**May**		**July**		**September**		8	2,140	21	6,340
25	6,490					2	4,550	5	5,490	5	6,340	10	1,890	**December**	
								18	5,230	19	6,390	17	6,030	5	5,340

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1972

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

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		March		May		June		August		September		November	
7	2,400	18	2,350	24	2,450	12	2,500	16	1,700	4	2,400	13	2,390	13	2,480
12	2,550	25	2,450	April		19	2,600	23	3,200	7	2,200	22	2,460	24	2,550
21	2,400	March		6	2,600	26	2,700	July		15	2,430	29	2,360	28	2,600
28	2,500	3	2,500	14	2,450	June		5	2,400	21	2,180	October		December	
February		10	2,500	17	3,375	2	1,825	14	5,000	28	2,330	20	2,430	15	2,300
4	2,400	14	2,550	21	2,700	9	2,000	21	2,400	September		27	2,540	22	2,600
11	4,500	17	2,600							4	2,370			26	2,600

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		February		April		June		July		September		October		November	
3	4,600	29	4,400	17	3,300	5	2,500	31	3,200	18	6,340	25	3,270	25	5,120
10	5,100	March		28	3,300	12	3,400	August		25	6,410	November		29	6,170
17	5,600	6	3,400	May		19	3,400	7	3,400	October		6	6,340	December	
24	5,900	13	3,400	2	3,300	26	3,400	15	3,460	9	1,820	8	5,980	1	6,370
31	6,000	20	3,400	8	3,300	July		21	2,940	10	1,640	10	6,120	5	5,120
February		27	3,250	15	3,300	3	3,900	28	3,860	11	1,680	13	6,210	6	4,190
7	6,000	April		22	3,200	10	4,000	September		13	2,680	17	6,040	11	4,500
14	4,100	8	3,250	29	3,400	17	3,300	3	3,510	16	3,760	21	6,140	18	6,000
21	4,900	10	3,200			24	3,200	13	5,920	24	2,640	23	5,000	27	6,000

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 52 in this bulletin.

In United States

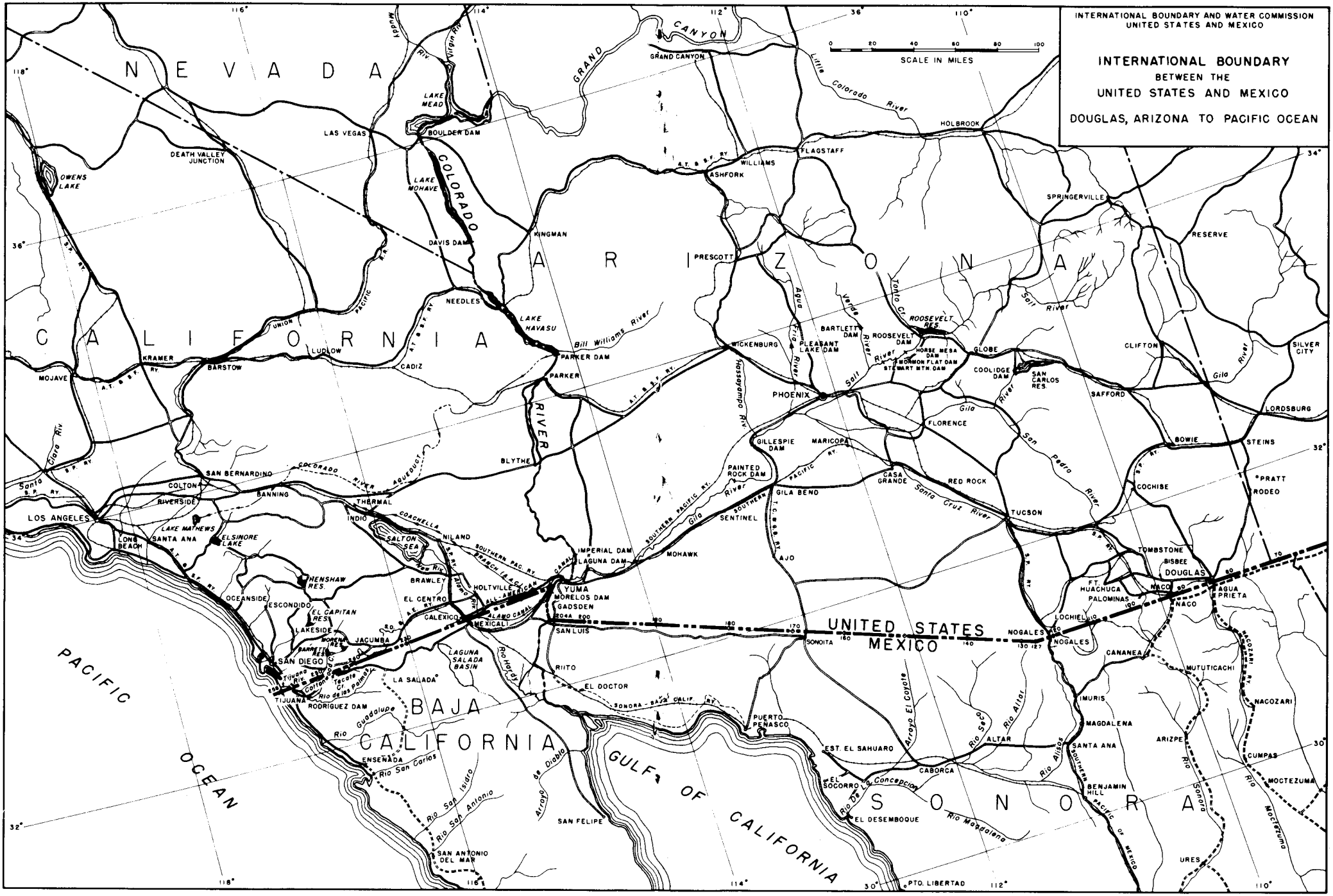
Month	Brawley, California		El Centro, California		Blythe, California		Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1972	Average 1931-1972	1972	Average 1931-1972	1972	Average 1931-1972	1972	Average 1955-1972	1972	Average 1931-1972
Jan.	0	0.30	0	0.34	0	0.44	0	0.35	0	0.36
Feb.	0	.29	0	.33	0	.37	0	.41	0	.33
Mar.	0	.16	0	.17	0	.39	0	.33	0	.21
Apr.	0	.08	0	.10	T	.14	.52	.32	0	.11
May	0	.01	T	0	0	.02	0	.13	0	.01
June	.13	.01	.10	.01	.93	.05	.15	.04	.16	.02
July	T	.04	0	.10	.02	.18	.11	.20	T	.17
Aug.	.03	.30	0	.31	.12	.78	.25	.51	.39	.41
Sept.	T	.32	0	.25	0	.32	.37	.29	0	.38
Oct.	1.42	.24	1.86	.26	2.17	.31	.76	.32	3.86	.45
Nov.	.55	.16	.36	.18	.54	.27	1.69	.51	.25	.19
Dec.	0	.42	T	.43	0	.52	.18	.53	.05	.40
Yearly	2.13	2.33	2.32	2.48	3.78	3.79	4.03	3.94	4.71	3.04

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C. Sonora		Delta, Baja California	
	1972	Average 1948-1972	1972	Average 1926-1972	1972	Average 1948-1972	1972	Average 1949-1972	1972	Average 1948-1972
Jan.	0	0.39	0	0.35	0	0.31	0	0.28	0	0.31
Feb.	0	.16	0	.31	0	.08	0	.20	0	.08
Mar.	0	.12	0	.20	0	.04	0	.12	0	.12
Apr.	0	.08	T	.08	0	.08	0	.04	0	.04
May	0	0	0	T	0	0	T	T	0	0
June	.24	0	.04	T	.08	.04	.59	.04	.31	T
July	0	.08	T	.12	0	.04	.12	.20	T	.04
Aug.	.16	.20	.12	.28	.28	.12	2.68	.47	.55	.16
Sept.	0	.24	T	.35	0	.04	0	.20	0	.16
Oct.	2.60	.35	3.43	.31	3.62	.31	5.31	.43	5.28	.35
Nov.	.12	.16	.35	.16	.20	.16	.47	.63	.31	.16
Dec.	T	.31	T	.75	0	.20	T	.51	.04	.28
Yearly	3.11	2.09	3.94	2.99	4.17	1.46	9.17	2.44	6.50	1.69

Month	Kilometer 50, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California			
	1972	Average 1952-1972	1972	Average 1959-1972	1972	Average 1949-1972	1972	Average 1948-1972		
Jan.	0	0.55	0	0.20	0	0.20	# 0.08	0.28		
Feb.	0	.24	0	.08	0	.12	# 0	.08		
Mar.	0	.24	0	.08	0	.12	# 0	.16		
Apr.	0	.12	0	.04	0	.04	# 0	.08		
May	0	.04	T	T	0	0	# .12	.04		
June	.16	T	.59	T	0	T	# 0	.08		
July	0	.16	T	.08	0	.08	.28	.16		
Aug.	.24	.35	.39	.20	.12	.31	.16	.35		
Sept.	0	.28	0	.59	0	.55	*	.43		
Oct.	5.16	.59	5.63	.47	6.26	.43	*	.28		
Nov.	.31	.28	.20	.31	.31	.16	*	.16		
Dec.	.08	.31	T	.39	T	.31	**	.35		
Yearly	5.94	2.24	6.81	2.60	6.69	2.36		2.48		

T Trace # Some days missing * Registered incomplete ** No data


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
NEVADA
ARIZONA
CALIFORNIA
BAJA CALIFORNIA
SONORA
UNITED STATES
MEXICO
PACIFIC OCEAN
GULF OF CALIFORNIA
GRAND CANYON
LAKE MEAD
BOULDER DAM
LAS VEGAS
DEATH VALLEY JUNCTION
OWENS LAKE
LAKE MOHAVE
COLORADO RIVER
DAVIS DAM
KINGMAN
NEEDLES
LAKE HAVASU
Bill Williams River
PARKER DAM
PARKER
BLYTHE
RIVERSIDE
SAN BERNARDINO
COLTON
BANNING
LOS ANGELES
LONG BEACH
SANTA ANA
LAKE MATHEWS
ELSINORE LAKE
OCEANSIDE
ESCONDIDO
LAKESIDE
SAN DIEGO
TIJUANA
RODRIGUEZ DAM
ENSENADA
MOJAVE
BARSTOW
LUDLOW
CADIZ
KRAMER
THERMAL
INDIO
COACHELLA
NILAND
SALTON SEA
BRAWLEY
EL CENTRO
CALEXICO
MEXICALI
IMPERIAL DAM
LAGUNA DAM
YUMA
MORELOS DAM
GADSDEN
SAN LUIS
RIITO
EL DOCTOR
LA SALADA
LAGUNA SALADA BASIN
PUERTO PENASCO
SONORA - BAJA CALIF. RY.
SAN FELIPE
SAN ANTONIO DEL MAR
PTO. LIBERTAD
EST. EL SAHUARO
CABORCA
EL SOCORRO
EL DESEMBOQUE
BENJAMIN HILL
SONOITA
NOGALES
LOCHIEL
CANANEA
IMURIS
MAGDALENA
SANTA ANA
ALTAR
ARIZPE
CUMPAS
MOCTEZUMA
URES
NACOZARI
MUTUTICACHI
NACO
AGUA PRIETA
DOUGLAS
TOMBSTONE
BISBEE
FT. HUACHUCA
PALOMINAS
WILLIAMS
FLAGSTAFF
ASHFORK
HOLBROOK
SPRINGERVILLE
RESERVE
CLIFTON
SILVER CITY
GLOBE
SAFFORD
LORDSBURG
BOWIE
STEINS
PRATT
RODEO
COCHISE
TUCSON
RED ROCK
CASA GRANDE
FLORENCE
PHOENIX
MARICOPA
GILLESPIE DAM
PAINTED ROCK DAM
GILA BEND
SENTINEL
AJO
MOHAWK
WICKENBURG
PRESCOTT
ROOSEVELT DAM
ROOSEVELT RES.
BARTLETT DAM
PLEASANT LAKE DAM
HORSE MESA DAM
MORMON FLAT DAM
STEWART MTN. DAM
COOLIDGE DAM
SAN CARLOS RES.
HENSHAW RES.
EL CAPITAN RES.
BARRETT RES.
MORENA RES.
Little Colorado River
Gila River
Salt River
San Pedro River
Santa Cruz River
Hassayampa River
Agua Fria River
Verde River
Tonto Cr.
Santa Ana River
Rio Hardy
Arroyo El Coyote
Arroyo de Diablo
Rio Sonoyta
Rio Altar
Rio Asuncion
Rio De La Concepcion
Rio Magdalena
Rio Sonora
Rio Moctezuma
Rio Alisos
Rio San Carlos
Rio San Isidro
Rio San Antonio
Rio Guadalupe
Rio de las Palmas
Tecate Cr.
Tijuana River
Cottonwood Cr.
Alamo Canal
All-American Canal
Coachella Canal
Southern Pacific Ry.
Union Pacific Ry.
A.T. & S.F. Ry.
Colorado River Aqueduct
Santa Fe Ry.
Southern Pacific Branch (A.C.)
Pacific of Mexico Ry.
Sonora - Baja Calif. Ry.

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 1972.

In United States

NAME OF STATION	LATITUDE	LONGITUDE	δ 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	δ ELEV. (FT.)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 33'	115° 04'	** 66	1948	Hydraulic Resources
Delta, Baja California	32° 21'	115° 11'	** 39	1948	Hydraulic Resources
El Mayor, Baja California	32° 08'	115° 15'	** 33	1949	Hydraulic Resources
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

δ Elevation above mean sea level except Brawley and El Centro which are elevations below mean level

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

EVAPORATION IN THE COLORADO RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at two stations in Arizona and at 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-type 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 52 in this bulletin.

In United States

Month	Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1972	Average 1955-1972	1972	Average 1931-1972
Jan.	7.95	7.44	4.27	3.93
Feb.	8.26	7.66	4.69	4.91
Mar.	12.74	10.48	8.26	7.88
Apr.	13.31	13.42	9.76	10.27
May	18.65	17.21	11.80	13.28
June	18.98	19.60	12.14	14.48
July	20.84	20.26	14.80	15.71
Aug.	17.78	18.15	12.60	13.86
Sept.	14.39	15.13	9.69	11.01
Oct.	8.60	12.10	5.76	7.74
Nov.	6.87	8.78	4.25	5.05
Dec.	7.16	7.77	4.32	3.67
Yearly	155.53	Q 158.00	102.34	Q 111.79

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora	
	1972	Av. 1949-55 1961-1972	1972	Average 1926-1972	1972	Average 1963-1972	1972	Average 1953-1972
Jan.	5.00	4.25	2.52	2.60	3.58	3.82	3.70	3.35
Feb.	5.59	5.20	3.98	3.50	4.53	5.00	4.76	4.06
Mar.	8.54	7.40	6.81	5.87	7.24	7.40	7.28	6.38
Apr.	11.85	9.88	8.86	7.91	9.61	9.25	8.94	8.39
May	14.17	12.52	10.83	10.51	11.97	12.01	11.54	10.98
June	14.02	13.07	11.54	11.54	11.61	12.24	13.19	12.60
July	15.87	13.23	13.27	11.77	12.72	12.72	14.45	14.17
Aug.	13.31	11.89	10.51	10.12	10.47	10.51	11.81	12.76
Sept.	11.26	9.92	8.43	8.15	8.74	9.09	8.78	9.96
Oct.	6.69	7.76	4.72	5.59	4.69	6.06	4.72	6.54
Nov.	4.84	4.88	3.35	3.39	3.31	4.65	3.54	4.33
Dec.	5.59	4.02	2.95	2.44	3.66	3.43	3.74	3.23
Yearly	116.73	105.55	87.76	83.39	92.13	96.22	96.46	98.15

Month	Delta, Baja California		Kilometer 50, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California	
	1972	Average 1959-1972	1972	‡ Average 1950-1959 1961-1972	1972	Average 1963-1972	1972	Average 1953-1972	1972	Average 1952-1972
Jan.	2.91	3.23	3.31	3.23	3.07	3.15	3.50	3.50	# 2.99	5.08
Feb.	6.18	4.37	4.37	4.13	4.25	4.13	4.17	4.21	4.61	5.83
Mar.	6.77	6.38	6.42	6.38	6.61	6.06	7.01	6.14	# 6.65	7.09
Apr.	7.32	8.11	8.62	7.44	8.35	7.36	8.35	7.95	# 6.22	8.43
May	9.88	10.24	10.51	9.92	10.63	9.72	11.22	10.00	# 10.00	10.05
June	11.42	11.18	10.35	10.59	11.85	11.02	10.55	10.75	10.91	10.94
July	12.28	11.50	10.28	11.30	12.91	12.09	12.76	12.05	*	11.81
Aug.	10.98	10.20	11.14	9.80	11.85	9.76	8.23	11.54	11.02	10.94
Sept.	8.78	8.23	8.58	8.31	8.94	7.76	†	10.04	*	9.92
Oct.	5.35	5.83	4.02	5.16	4.37	5.08	# 3.54	7.40	*	8.50
Nov.	3.50	3.74	3.54	4.06	3.39	3.35	†	4.53	*	6.26
Dec.	3.11	2.68	3.70	3.07	3.70	2.80	†	3.78	†	5.16
Yearly	88.50	86.46	84.84	83.43	89.92	85.31	*	92.17	*	101.81

Q One year missing # Adjusted to complete month * Record incomplete † Data missing
‡ 1969 missing

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 52 in this bulletin.

In United States

Month	Blythe, California				Davis Dam No. 2, Arizona				Yuma Citrus Station, Arizona			
	1972			Average 1931-72	1972			Average 1955-72	1972			Average 1931-72
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	49.8	75	23	52.5	50.2	71	33	52.7	* 51.3	78	28	53.0
Feb.	58.6	89	29	57.3	* 58.7	87	34	56.8	58.1	91	33	57.0
Mar.	70.3	99	39	63.2	69.4	95	43	62.5	68.9	97	37	ϱ
Apr.	71.2	100	45	70.3	70.6	94	46	69.6	69.4	99	40	68.8
May	78.4	104	51	77.4	* 79.3	104	56	78.4	75.6	104	47	75.9
June	87.8	117	63	84.9	* 89.0	117	69	88.2	84.1	113	60	83.3
July	94.8	117	72	92.2	96.1	119	72	95.0	91.8	116	65	91.2
Aug.	89.5	118	63	91.1	* 91.8	116	67	93.5	87.2	116	59	90.6
Sept.	84.0	108	57	85.1	* 82.4	108	61	85.7	82.3	108	56	85.1
Oct.	* 70.6	93	45	73.1	* 70.3	99	47	ϱ	70.4	105	44	73.6
Nov.	57.0	82	34	60.2	* 56.7	80	39	ϱ	57.3	83	35	61.5
Dec.	50.4	78	24	53.2	* 48.6	71	30	53.7	52.4	77	29	54.6
Yearly	71.9	118	23	71.7	* 71.9	119	30		70.7	116	28	

Month	Brawley, California				El Centro, California			
	1972			Average 1931-72	1972			Average 1931-72
	Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	50.8	75	21	53.6	51.8	76	22	53.6
Feb.	59.0	87	25	58.1	60.5	89	26	57.9
Mar.	68.5	95	41	63.5	69.6	97	40	63.5
Apr.	69.3	94	42	70.3	69.6	98	41	69.9
May	76.0	103	48	77.7	77.1	110	48	77.3
June	83.9	111	62	85.0	85.9	119	61	84.8
July	91.6	114	63	92.2	93.4	118	64	91.9
Aug.	88.0	115	63	91.8	89.6	120	65	91.4
Sept.	82.7	106	57	86.5	83.6	107	60	85.7
Oct.	71.4	104	48	75.1	72.5	104	45	74.6
Nov.	58.1	84	35	62.5	59.7	83	37	62.1
Dec.	52.1	80	24	55.0	52.6	79	25	54.7
Yearly	71.0	115	21	72.6	72.2	120	22	72.3

In Mexico

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	1972		1948-1972		1972		1926-1972		1972		1948-1972	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	77	28	88	23	75	23	93	19	99	27	113	16
Feb.	90	37	95	28	86	28	93	23	97	36	99	21
Mar.	97	43	100	32	97	43	100	30	108	45	113	25
Apr.	99	46	109	37	102	43	106	34	115	36	118	16
May	104	54	117	43	102	50	117	43	106	50	124	34
June	113	64	126	52	115	61	120	48	127	63	135	43
July	115	72	118	61	115	66	118	55	118	66	133	45
Aug.	115	70	120	61	117	64	118	54	118	63	129	46
Sept.	106	61	122	54	106	57	122	48	108	55	135	39
Oct.	104	50	111	32	104	41	109	32	106	45	118	32
Nov.	81	39	100	27	84	37	99	28	82	39	115	32
Dec.	75	28	88	28	81	27	90	23	79	27	97	25
Yearly	115	28	126	23	117	23	122	19	127	27	135	16

* Less than 10 days missing ϱ Data 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			
	1972		1949-1972		1972		1948-1972		1972		1950-59 & 61-72	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	75	25	100	19	84	28	104	27	75	25	91	19
Feb.	90	28	109	27	95	32	104	28	91	32	97	21
Mar.	95	41	108	28	100	45	113	28	97	41	99	25
Apr.	97	43	115	37	99	45	118	32	97	45	106	30
May	100	52	115	41	104	52	129	32	108	50	117	36
June	115	64	126	45	117	63	133	36	122	61	122	39
July	115	68	126	59	118	66	135	45	122	68	122	45
Aug.	115	66	122	55	120	66	140	52	117	63	118	50
Sept.	104	57	118	50	109	57	135	39	111	57	122	39
Oct.	104	41	118	32	108	50	117	34	100	45	118	36
Nov.	82	36	113	30	84	41	120	32	82	39	104	25
Dec.	77	28	102	23	81	28	104	27	77	28	97	19
Yearly	115	25	126	19	120	28	140	27	122	25	122	19

Month	Riito, Sonora				El Mayor, Baja California				San Felipe, Baja California			
	1972		1949-1972		1972		1949-1972		1972		1948-1972	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	79	23	91	19	84	18	108	18	77	32	99	30
Feb.	93	28	95	21	95	34	93	27	82	34	102	32
Mar.	100	37	100	25	102	39	102	32	95	41	104	32
Apr.	97	39	109	37	95	39	108	36	95	34	113	34
May	104	50	115	43	104	46	113	37	79	52	120	41
June	115	61	124	45	111	50	122	37	120	50	124	50
July	117	63	140	52	113	64	122	39	115	52	124	50
Aug.	117	63	122	46	118	64	122	41	118	50	135	41
Sept.	108	54	118	39	109	57	120	34	**	**	126	37
Oct.	102	43	115	30	104	43	120	37	**	**	117	41
Nov.	82	34	118	27	82	39	120	32	**	**	118	21
Dec.	77	25	86	21	84	32	106	19	0	0	97	28
Yearly	117	23	140	19	118	18	122	18	**	**	135	21

** Record incomplete 0 Data missing

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM
1972

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	44,865
Reservation Division	11,415
Yuma Mesa	17,697
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,116
South Gila Valley	10,245
North Gila Valley	5,995
Wellton-Mohawk	62,351
Coachella Valley	52,787
Imperial Valley	444,713
Warren Act	80
Non-Project lands adjacent to Colorado River	10,100
Total in United States	663,364
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 423,936
Total in United States and Mexico	1,087,300

* 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. 1972 records excellent. Records available: June 1942 through 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.89	2.55	2.32	2.44	1.89	1.79	1.79	1.30	1.68	1.68	2.00	2.55
2	2.00	2.21	2.32	2.44	1.89	1.79	1.79	1.30	1.68	1.68	2.00	2.44
3	2.00	2.32	2.44	2.44	1.79	1.79	1.68	1.30	1.68	1.68	1.79	2.32
4	2.00	2.44	2.21	2.55	1.79	1.79	1.49	1.30	1.58	1.68	2.00	2.21
5	2.32	2.44	2.44	2.55	1.79	1.89	1.39	1.30	1.58	1.68	2.10	2.21
6	2.44	2.21	2.21	2.21	1.79	1.68	1.39	1.30	.78	1.58	2.21	2.91
7	2.44	2.21	2.00	2.44	2.00	1.68	1.49	1.39	.78	1.59	2.21	2.91
8	2.21	2.00	3.93	2.32	1.89	1.68	1.39	1.30	.94	1.20	2.21	2.79
9	2.10	2.00	3.41	2.55	1.30	1.68	1.58	2.91	.86	1.58	2.21	2.79
10	2.32	2.00	3.41	2.55	1.30	1.49	1.49	3.41	1.03	1.58	2.21	2.67
11	2.21	2.00	3.15	2.32	1.30	1.49	1.39	3.03	.86	2.00	2.21	2.67
12	3.67	2.10	3.03	2.32	1.39	1.49	1.58	3.03	.78	1.79	2.32	2.67
13	2.55	2.21	2.67	2.44	1.39	1.68	1.58	2.79	1.39	2.21	2.32	2.44
14	2.44	2.32	2.67	2.32	1.49	1.68	1.39	3.41	1.39	2.21	2.21	2.44
15	2.32	2.10	2.55	2.55	1.30	1.68	1.49	2.79	1.20	2.10	2.44	2.44
16	2.44	2.10	2.55	2.55	1.49	1.68	1.49	1.03	1.20	2.00	2.21	2.44
17	2.32	2.21	2.44	2.21	1.39	1.68	1.49	1.03	1.39	2.00	2.21	2.67
18	2.44	2.21	2.44	2.00	1.39	1.68	1.20	1.03	1.39	2.10	2.21	2.55
19	2.44	2.32	2.44	1.89	1.30	1.79	.86	1.03	1.39	2.10	2.21	2.21
20	2.44	2.44	2.44	1.89	1.39	2.00	.86	1.03	1.68	2.10	2.00	1.89
21	2.21	2.44	2.44	2.67	1.30	1.68	1.03	1.12	1.68	2.44	2.21	1.89
22	2.44	2.21	2.44	2.67	1.30	1.68	1.03	1.68	1.58	2.44	2.67	2.00
23	2.79	2.21	2.44	2.21	1.58	1.79	1.20	2.00	1.68	2.44	2.55	2.00
24	2.32	2.00	2.44	2.21	1.58	1.79	1.03	1.79	1.68	2.21	2.44	1.89
25	2.44	2.00	2.21	1.79	1.58	1.89	1.03	1.58	1.58	1.89	2.44	1.89
26	2.21	2.10	2.21	1.68	2.00	1.68	1.39	1.58	1.68	1.89	2.44	1.79
27	2.21	2.21	2.44	3.03	2.00	1.79	1.30	1.68	1.79	1.68	2.44	1.89
28	2.44	2.21	2.32	1.79	2.00	1.79	1.30	1.79	1.79	1.68	2.44	1.79
29	2.67	2.21	2.32	2.00	1.89	1.68	1.39	1.58	1.68	1.89	2.67	1.79
30	2.91		2.32	1.89	1.79	1.79	1.20	1.58	1.68	1.89	2.55	1.79
31	2.55		2.32		1.30		1.30	1.68		1.89		1.79
Sum	74.18	63.98	78.97	68.92	49.58	51.67	42.01	55.07	42.08	58.78	68.13	70.73

Month	Current Year 1972 Extreme Gage ∅ Feet High	Extreme Gage ∅ Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1943-1972 Acre Feet Average	Maximum	Minimum
Jan.	0.42	0.27	12	3.67	1	1.89	2.39	147	380	2,790	99
Feb.	.33	.28	1	2.55	†8	2.00	2.21	127	344	2,822	100
Mar.	.44	.28	8	3.93	7	2.00	2.55	157	386	3,154	111
Apr.	.37	.25	27	3.03	26	1.68	2.30	137	414	2,222	97
May	.28	.21	†7	2.00	†9	1.30	1.60	98.3	318	1,799	73
June	.28	.23	20	2.00	†10	1.49	1.72	102	316	1,686	61
July	.26	.16	†1	1.79	†19	.86	1.36	83.3	290	1,712	59
Aug.	.40	.18	†10	3.41	†16	1.03	1.78	109	348	1,672	83
Sept.	.26	.15	†27	1.79	†6	.78	1.40	83.5	329	1,406	83.5
Oct.	.32	.20	†21	2.44	8	1.20	1.90	117	356	1,845	102
Nov.	.34	.26	†22	2.67	3	1.79	2.27	135	363	2,080	86
Dec.	.36	.26	†6	2.91	†26	1.79	2.28	140	335	1,686	80
Yearly	0.44	0.15		3.93		0.78	1.98	1,436	4,179	22,146	1,251

∅ Mean daily † And other days

NEW RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder located on the left 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. 1972 records good. Records available: June 1942 through 1972.

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 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	127	177	146	165	162	128	130	126	157	121	168	153
2	133	135	150	166	165	124	128	133	158	119	161	133
3	140	134	154	168	168	125	126	127	142	123	158	139
4	141	137	155	174	166	125	127	137	126	129	154	141
5	141	137	155	183	162	129	126	133	132	118	149	133
6	145	137	158	180	162	134	123	131	135	328	145	136
7	147	139	159	180	158	142	124	139	146	397	138	133
8	150	137	163	176	158	142	127	130	140	595	133	133
9	150	136	161	176	151	141	127	141	135	513	133	129
10	158	137	162	177	147	136	127	146	135	347	135	141
11	157	133	160	178	148	131	124	164	134	296	141	152
12	165	136	153	177	149	128	122	167	126	281	139	134
13	182	133	152	173	151	132	119	163	137	280	141	129
14	161	138	158	172	153	136	118	177	133	229	146	133
15	195	139	162	176	159	130	115	173	130	212	165	141
16	187	143	157	177	143	127	111	174	127	209	205	140
17	162	145	155	179	133	124	115	167	127	192	233	141
18	156	148	157	185	130	120	120	167	129	191	219	144
19	153	149	152	187	130	118	124	168	120	243	167	140
20	148	146	161	196	138	116	123	162	117	215	157	133
21	145	147	162	198	136	116	124	160	120	213	166	137
22	147	154	165	184	133	116	125	153	123	203	170	133
23	147	158	169	188	138	120	123	140	127	187	152	138
24	147	157	173	181	135	122	133	143	128	159	139	141
25	144	155	173	184	137	127	127	141	133	148	131	151
26	138	149	170	188	139	130	130	139	135	154	146	159
27	136	145	172	183	139	133	140	134	130	155	148	160
28	140	147	169	177	141	136	138	133	127	158	136	145
29	145	147	167	169	141	137	133	142	125	160	131	140
30	143		165	163	136	133	128	159	127	166	144	140
31	146		163		128		121	157		168		136
Sum	4,676	4,175	4,978	5,360	4,536	3,858	3,878	4,626	3,961	7,009	4,650	4,338

Month	Current Year 1972 — ø Extreme Gage ** Feet		ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1943-1972 — Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	41.05	41.87	15	195	1	127	151	9,275	7,153	20,160	1,751
Feb.	41.44	41.95	1	177	†11	133	144	8,281	5,927	17,845	1,258
Mar.	41.50	41.79	†24	173	1	146	161	9,874	6,636	12,960	1,008
Apr.	41.23	41.60	21	198	30	163	179	10,631	6,835	14,489	1,390
May	41.60	42.02	3	168	31	128	146	8,997	6,020	10,618	629
June	41.91	42.12	† 7	142	†20	116	129	7,652	5,197	9,689	1,087
July	41.93	42.14	27	140	16	111	125	7,692	5,142	9,390	817
Aug.	41.61	42.10	14	177	1	126	149	9,176	6,178	11,145	1,139
Sept.	41.72	42.12	2	158	20	117	132	7,857	6,407	12,688	1,795
Oct.	37.26	42.19	8	595	5	118	226	13,902	6,784	13,902	2,081
Nov.	40.89	42.04	17	233	†25	131	155	9,223	6,362	12,323	2,483
Dec.	41.57	42.05	27	160	† 9	129	140	8,604	6,962	21,205	1,763
Yearly	37.26	42.19		595		111	153	111,164	75,603	138,906	24,573

ø Mean daily ** Feet below mean 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 thence 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: Based on 44 double current meter measurements made during the year by wading. Data obtained and furnished by the Mexican Section of the Commission. Data available: January 1968 through 1972.

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 1972 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	4.6	3.2	4.2	6.4	5.7	5.7	4.6	6.4	7.1	3.5	4.6
2	6.0	4.6	3.5	3.5	5.7	6.4	6.0	7.1	7.8	5.3	3.2	5.7
3	4.6	4.6	4.2	2.8	4.9	5.7	5.3	10.6	9.2	4.9	3.9	7.1
4	4.2	6.0	3.2	3.5	6.0	4.9	3.5	11.3	8.8	5.3	6.7	6.0
5	3.5	4.2	4.6	4.2	7.1	6.0	4.6	7.1	7.8	5.3	6.0	4.2
6	3.2	4.2	3.5	4.6	8.8	4.9	7.8	7.1	6.0	25.1	5.3	7.1
7	3.5	5.7	3.5	4.2	9.2	4.6	5.7	8.1	5.7	27.5	5.3	4.9
8	4.2	2.5	3.2	4.2	7.8	6.4	6.4	6.7	4.2	20.5	4.6	6.0
9	4.2	2.1	2.8	3.5	6.4	6.0	8.8	10.6	6.4	17.3	4.2	6.4
10	3.5	1.8	4.2	4.2	7.8	6.0	6.7	8.8	11.3	7.4	4.9	6.4
11	3.5	.7	4.6	4.2	5.7	5.7	6.4	6.4	7.4	7.8	6.4	5.7
12	3.5	1.4	4.6	5.7	4.6	7.1	6.4	6.7	6.4	6.7	5.3	4.2
13	2.8	2.1	4.9	4.9	4.2	4.9	6.0	9.2	9.2	7.4	4.6	5.7
14	3.2	2.1	5.7	4.9	4.9	4.9	7.1	9.5	9.2	6.7	5.7	4.2
15	3.5	.7	5.7	6.0	7.8	4.6	6.4	8.1	6.4	6.7	6.4	4.9
16	4.6	.4	4.6	6.4	4.2	5.7	7.4	9.5	7.1	7.1	4.6	6.4
17	4.6	.4	4.9	6.0	4.9	4.9	7.1	6.7	9.9	5.7	3.9	6.4
18	3.5	0	4.2	8.1	5.7	5.7	6.7	7.1	9.5	8.8	6.7	5.7
19	3.2	0	5.7	7.1	6.0	7.1	5.7	9.2	5.7	3.9	6.0	3.5
20	3.2	0	6.4	6.0	9.2	5.7	6.0	9.2	6.7	8.5	5.3	5.7
21	3.5	2.5	6.0	6.0	6.4	4.6	6.4	7.8	6.4	5.7	5.7	4.6
22	4.2	4.2	2.8	6.0	6.4	6.0	6.7	6.0	4.9	6.0	4.9	5.3
23	4.2	3.2	3.2	5.7	7.1	8.8	6.4	6.7	3.9	6.0	3.9	6.0
24	3.2	4.9	4.2	5.7	6.0	5.7	7.1	9.2	6.0	3.9	4.2	6.7
25	4.2	4.2	4.9	6.4	6.0	9.2	6.0	6.7	7.4	4.2	6.7	5.3
26	4.6	3.5	6.4	6.0	6.0	8.8	5.3	7.8	6.0	3.9	5.7	6.4
27	2.8	3.5	8.1	6.0	6.0	7.1	4.6	14.8	5.7	5.3	5.3	3.2
28	4.9	4.6	7.1	6.4	6.4	7.1	4.9	8.8	5.3	6.0	2.5	4.2
29	6.0	3.2	5.7	6.4	6.0	6.0	4.2	8.8	6.0	7.1	4.6	2.8
30	4.6		4.6	7.1	6.0	6.0	5.3	7.8	6.4	6.7	4.2	3.2
31	4.6		4.6		6.0		3.5	3.9		5.7		4.9
Sum	125.0	81.9	144.8	159.9	195.6	182.2	186.1	251.9	209.1	255.5	150.2	163.4

Month	Current Year 1972 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 1968-1972 Acre Feet Average	Maximum	Minimum
Jan.	1.02	0.26	31	13.4	11	1.8	3.9	249	221	313	166
Feb.	2.07	.03	7	35.3	†18	0	2.8	162	195	311	157
Mar.	1.44	.23	28	22.6	† 4	1.4	4.6	287	350	871	132
Apr.	1.31	.26	18	19.8	† 3	1.8	5.3	317	229	317	135
May	1.35	.30	20	20.5	14	2.1	6.4	388	310	388	238
June	1.21	.33	12	17.7	† 5	2.5	6.0	361	256	403	116
July	1.31	.23	6	19.8	† 1	1.4	6.0	368	300	394	198
Aug.	1.61	.33	† 3	26.8	†30	2.5	8.1	499	393	596	200
Sept.	1.67	.23	17	28.3	22	1.4	7.1	414	392	549	131
Oct.	1.77	.26	9	29.0	† 1	1.8	8.1	507	348	507	139
Nov.	1.08	.23	26	14.8	† 1	1.4	4.9	298	248	354	151
Dec.	1.38	.20	26	21.2	†29	1.4	5.3	323	237	323	149
Yearly	2.07	0.03		35.3		0	5.7	4,173	3,480	4,543	2,745

† 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 3 check measurements and 41 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 1972. 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 1972 —— 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	54.7	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	42.4	0	0
7	0	0	0	0	0	0	0	0	0	122	0	0
8	0	0	0	0	0	0	0	0	0	111	0	0
9	.4	0	0	0	0	0	0	0	0	138	0	0
10	1.1	0	0	0	0	0	0	0	0	76.3	0	24.7
11	1.4	0	0	0	0	.4	0	0	0	42.4	0	26.1
12	1.8	0	0	0	0	.7	0	0	0	111	0	0
13	2.1	0	0	0	0	1.1	0	0	0	113	0	0
14	2.8	0	0	0	0	1.1	0	0	0	48.0	31.1	0
15	3.2	0	0	0	0	1.4	0	0	0	41.0	55.4	0
16	2.8	0	0	0	0	1.8	0	0	0	65.7	67.8	0
17	2.1	0	0	0	0	2.1	0	0	0	31.8	36.0	0
18	1.8	0	0	0	0	2.1	0	0	0	120	30.0	0
19	1.4	0	0	0	0	1.8	0	0	0	90.4	17.3	0
20	1.1	0	0	0	0	1.8	0	0	0	43.8	27.5	0
21	.4	0	0	0	0	1.4	0	0	0	10.6	9.2	0
22	0	0	0	0	0	1.4	0	0	0	5.3	0	0
23	0	0	0	0	0	1.1	0	0	0	8.8	0	0
24	0	0	0	0	0	1.1	0	0	0	3.5	0	0
25	0	0	0	0	0	1.1	0	0	0	12.4	0	0
26	0	0	0	0	0	.7	0	0	0	15.9	48.0	0
27	0	0	0	0	0	.7	0	0	0	28.3	59.3	0
28	0	0	0	0	0	.4	0	0	0	0	4.2	0
29	0	0	0	0	0	.4	0	0	0	88.3	14.1	31.4
30	0		0	0	0	0	0	0	0	68.9	48.4	0
31	0		0		0		0	0		56.5		0
Sum	22.4	0	0	0	0	22.6	0	0	0	1,495.3	503.0	82.2

Month	Current Year 1972 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 1951-1972 Acre Feet Average	Maximum	Minimum
Jan.			15	3.2	† 1	0	0.7	44.1	1,572	8,735	0
Feb.				0		0	0	0	974	7,218	0
Mar.				0		0	0	0	724	2,568	0
Apr.				0		0	0	0	700	4,433	0
May				0		0	0	0	493	1,892	0
June			†17	2.1	† 1	0	.7	44.1	292	1,450	0
July				0		0	0	0	228	2,040	0
Aug.				0		0	0	0	443	1,926	0
Sept.				0		0	0	0	614	2,915	0
Oct.			9	138	† 1	0	48.4	2,967	974	2,993	0
Nov.			16	67.8	† 2	0	17.0	998	933	3,768	0
Dec.			29	31.4	† 1	0	2.8	163	1,387	8,669	0
Yearly				138		0	5.7	4,217	9,385	27,083	7.0

† And other days ø Mean daily

WASTE WATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1972, 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 1972; Sifon Wasteway, January 1952 through April 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through 1972.

REMARKS: Mean daily discharges for Wisteria Wasteway and the Potable Water Plant are shown on pages 60 and 59, 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 1972	Period 1956-1972		
		Average	Maximum	Minimum
January	293	1,506	8,758	15.4
February	162	1,017	7,281	19.6
March	287	646	2,610	21.7
April	317	471	2,843	16.1
May	388	340	1,141	9.1
June	405	255	1,477	0
July	368	184	394	0
August	499	390	1,413	0
September	414	452	2,081	21.0
October	3,474	762	3,474	8.4
November	1,296	862	3,784	0
December	486	1,433	8,691	0
Yearly	8,388	8,320	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 1972. 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, 231.4 feet below mean sea level. Minimum elevation during year, 232.3 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 - 1972

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	232.3	232.0	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
2	232.3	232.0	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
3	232.3	232.0	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
4	232.3	232.0	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
5	232.3	231.9	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
6	232.3	231.9	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
7	232.3	231.9	231.5	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2
8	232.3	231.9	231.5	231.4	231.4	231.4	231.6	231.8	232.2	232.3	232.3	232.2
9	232.3	231.9	231.5	231.4	231.4	231.4	231.6	231.9	232.2	232.3	232.3	232.2
10	232.3	231.9	231.5	231.4	231.4	231.4	231.6	231.9	232.2	232.3	232.3	232.2
11	232.3	231.8	231.5	231.4	231.4	231.4	231.6	231.9	232.2	232.3	232.3	232.2
12	232.2	231.8	231.5	231.4	231.4	231.4	231.6	231.9	232.2	232.3	232.3	232.2
13	232.2	231.8	231.5	231.4	231.4	231.4	231.6	231.9	232.2	232.3	232.3	232.2
14	232.2	231.8	231.5	231.4	231.4	231.4	231.7	231.9	232.2	232.3	232.3	232.2
15	232.2	231.8	231.5	231.4	231.4	231.4	231.7	232.0	232.2	232.3	232.3	232.2
16	232.2	231.8	231.5	231.4	231.4	231.5	231.7	232.0	232.2	232.3	232.3	232.2
17	232.2	231.8	231.5	231.4	231.4	231.5	231.7	232.0	232.3	232.3	232.3	232.2
18	232.1	231.8	231.5	231.4	231.4	231.5	231.7	232.0	232.3	232.3	232.3	232.2
19	232.1	231.8	231.4	231.4	231.4	231.4	231.7	232.0	232.3	232.3	232.2	232.2
20	232.1	231.7	231.4	231.4	231.4	231.5	231.7	232.0	232.3	232.3	232.2	232.2
21	232.1	231.7	231.4	231.4	231.4	231.5	231.7	232.0	232.3	232.3	232.2	232.1
22	232.1	231.7	231.4	231.4	231.4	231.5	231.8	232.0	232.3	232.2	232.2	232.1
23	232.0	231.7	231.4	231.4	231.4	231.5	231.8	232.0	232.3	232.2	232.2	232.1
24	232.0	231.7	231.4	231.4	231.5	231.6	231.8	232.0	232.3	232.3	232.2	232.1
25	232.0	231.7	231.4	231.4	231.5	231.6	231.8	232.0	232.3	232.2	232.2	232.1
26	232.0	231.7	231.4	231.4	231.5	231.6	231.8	232.0	232.3	232.2	232.2	232.1
27	232.0	231.6	231.4	231.4	231.5	231.6	231.8	232.0	232.3	232.2	232.2	232.1
28	232.0	231.6	231.4	231.4	231.5	231.6	231.8	232.1	232.3	232.2	232.2	232.1
29	232.0	231.6	231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.2	232.2	232.1
30	232.0		231.4	231.4	231.4	231.6	231.8	232.1	232.3	232.3	232.2	232.1
31	232.0		231.4		231.4		231.8	232.1		232.3		232.1
Avg.	232.2	231.8	231.5	231.4	231.4	231.5	231.7	231.9	232.2	232.3	232.3	232.2

Current Year 1972			Period 1935-1972		
Month	ø Extreme Elev. Feet		Elevation Feet		
	High	Low	# Average	# Max.	‡ Min.
Jan.	232.0	232.3	238.47	232.0	249.3
Feb.	231.6	232.0	238.15	231.8	248.8
Mar.	231.4	231.6	237.88	231.5	248.6
Apr.	231.4	231.4	237.70	231.4	248.7
May	231.4	231.5	237.69	231.4	248.5
June	231.4	231.6	237.86	231.5	248.8
July	231.6	231.8	238.02	231.7	249.1
Aug.	231.8	232.1	238.21	231.9	249.4
Sept.	232.1	232.3	238.42	232.2	249.4
Oct.	232.2	232.3	238.49	232.3	249.8
Nov.	232.2	232.3	238.48	232.3	250.0
Dec.	232.1	232.2	238.32	232.2	249.6
Yearly	231.4	232.3	238.14	231.9	250.0

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

Area and Capacity Table		
Elevation	Area	Capacity
Feet below M.S.L.	Acres	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

CHEMICAL ANALYSES OF WATER SAMPLES
1972

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 1972.

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		EC x 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
Alamo River															
Jan.															
Feb.															
Mar.	1	2.81		3,250		7.8							13.62	15.09	
Apr.															
May															
June	1	3.02		3,550		7.8							14.64	16.50	
July															
Aug.															
Sept.	1	2.58		3,000		7.7							12.23	14.10	
Oct.															
Nov.															
Dec.	1	3.42		3,700		7.8							16.33	19.18	
Total	4														
New River															
Jan.															
Feb.															
Mar.	1	6.03											16.89	50.06	
Apr.															
May															
June	1	6.05											16.95	49.91	
July															
Aug.															
Sept.	1	5.60											15.97	46.25	
Oct.															
Nov.															
Dec.	1	5.17											14.82	41.74	
Total	4														

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1972

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 determinations for the Potable Water Plant in Mexicali beginning August 15, 1972 and from the New River beginning August 18, 1972. Prior to those dates, determinations were made by the Ministry of Hydraulic Resources of Mexico.

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

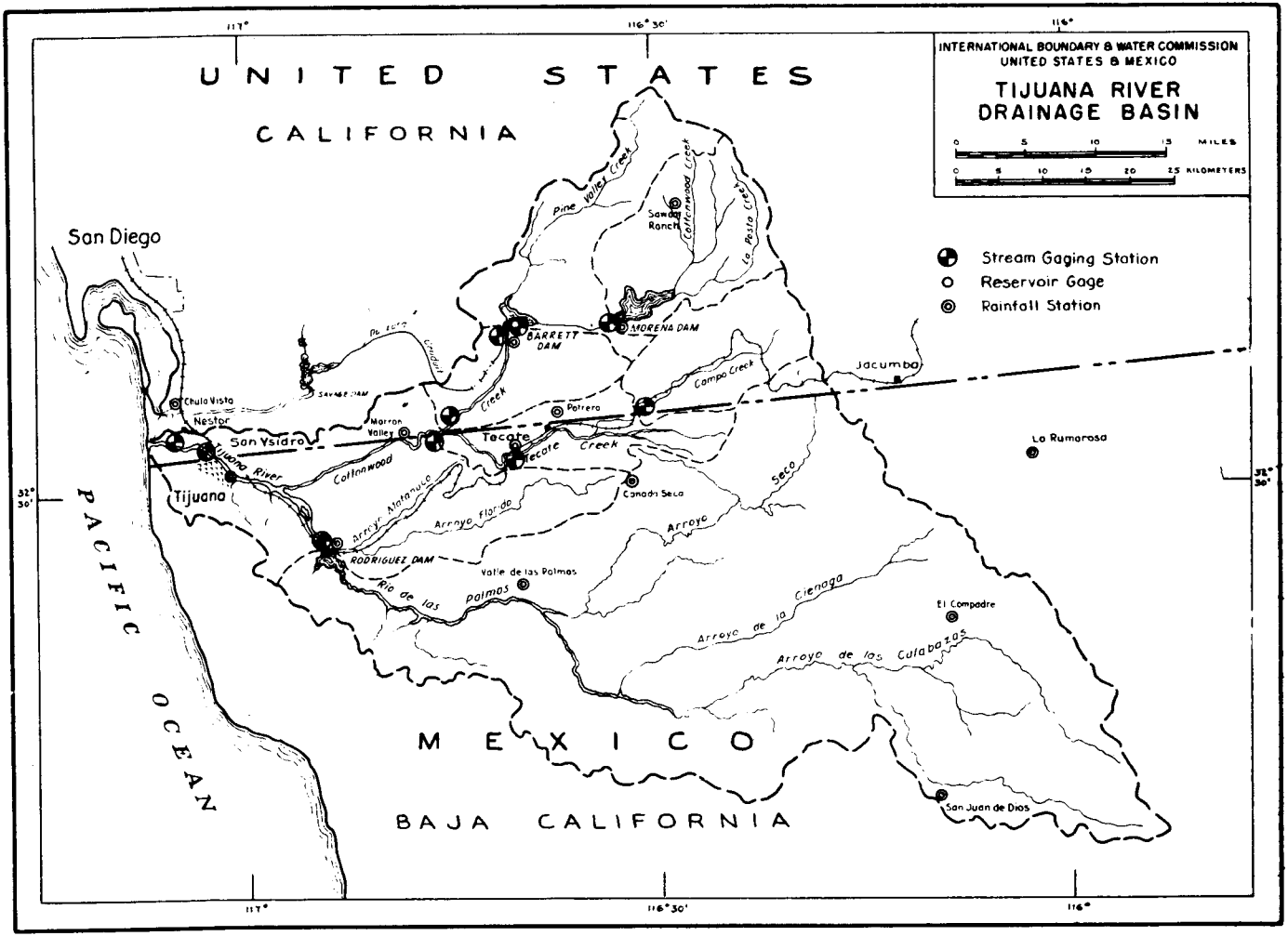
Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Mexicali Potable Water Plant to New River

	January		February		March		May		July		August		October		November
8	2,100	12	2,300	25	1,900	13	2,000	1	1,650	18	1,480	14	1,470	27	1,980
15	1,500	19	2,100		April	19	2,550	8	2,000	25	1,510	21	2,000		December
22	2,050	26	1,750	8	1,750		June	15	1,550		September	28	2,070	2	2,020
25	2,110		March	15	1,850	3	1,650	22	1,550	1	1,590		November	16	1,700
29	2,300	4	1,850	22	1,950	10	2,000	29	1,660	8	1,910	4	2,210	23	1,600
	February	11	1,850	29	2,000	17	2,000		August	23	1,960	11	2,100	30	2,000
2	2,150	18	1,620		May	24	2,000	5	1,500	30	1,910	18	1,960		
9	2,020			6	2,000			11	1,450						

New River at International Boundary

	January		March		April		May		July		August		October		November
8	7,400	4	6,750	22	6,250	26	6,500	8	7,000	18	6,890	7	6,840	27	6,160
18	7,500	11	5,250	29	6,500		June	15	6,100	25	6,850	14	6,570		December
29	6,750	18	6,500		May	10	7,500	22	6,500		September	21	7,080	2	7,290
	February	25	6,250	6	6,600	17	7,500	29	6,000	1	6,480	28	7,470	16	7,000
12	7,000		April	13	6,350	24	7,500		August	8	6,890		November	23	6,000
19	7,000	8	7,500	19	6,500		July	5	6,000	23	6,820	4	7,540	30	6,500
26	6,500	15	6,500			1	6,500	11	6,000	30	6,370	18	5,680		


INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
TIJUANA RIVER
DRAINAGE BASIN
0 5 10 15 MILES
0 5 10 15 20 25 KILOMETERS
Stream Gaging Station
Reservoir Gage
Rainfall Station
UNITED STATES
CALIFORNIA
MEXICO
BAJA CALIFORNIA
PACIFIC OCEAN
San Diego
Chula Vista
Nestor
San Ysidro
Tijuana
Tecate
Potrero
Jacumba
La Rumorosa
El Compadre
San Juan de Dios
Valle de las Palmas
Canada Seca
Pine Valley Creek
Cottonwood Creek
La Posta Creek
Campo Creek
Tecate Creek
Arroyo Seco
Arroyo de la Cienega
Arroyo de las Calabazas
Rio de las Palmas
Arroyo Florido
Arroyo Matanuco
Otay River
Cottonwood
Morena Valley
Savage Dam
Barrett Dam
Morena Dam
Rodriguez Dam
117°
116° 30'
116°
32° 30'

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 1972.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1972 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 1972	Period 1937-1972		
		Average	Maximum	Minimum
January	0	446	3,520	0
February	46.9	1,101	16,700	8.0
March	19.8	1,636	13,220	19.3
April	5.1	1,038	11,490	3.3
May	11.0	368	3,550	0
June	65.0	189	1,660	0
July	0	133	1,010	0
August	15.0	97.0	1,260	0
September	9.7	66.0	1,070	0
October	30.1	78.2	1,270	0
November	50.4	143	1,380	0
December	83.1	474	3,590	4.4
Yearly	336.1	5,769.2	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 1972.

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 1972	Period 1937-1972		
		Average	Maximum	Minimum
January	9.4	121	1,700	0.2
February	0	338	4,260	0
March	0	275	1,731	0
April	8.2	839	12,950	0
May	0	229	3,040	0
June	0	314	7,360	0
July	49.6	180	2,340	0
August	0	148	1,550	0
September	14.8	293	5,880	0
October	0	87.5	529	0
November	4.1	118	1,260	0
December	0	325	5,350	0
Yearly	86.1	3,267.5	24,825	15.6

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 1972. 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 1972	Period 1937-1972		
		Average	Maximum	Minimum
January	35.0	581	3,430	5.2
February	46.4	1,597	26,790	7.6
March	15.6	2,628	18,860	14.1
April	11.0	1,738	21,630	10.2
May	85.8	537	5,130	0
June	72.2	226	1,730	0
July	0	147	1,010	0
August	3.3	84.4	579	0
September	2.1	96.0	759	0
October	21.5	61.5	645	.1
November	177	131	1,200	0
December	231	486	3,380	5.5
Yearly	700.9	3,312.9	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 1972.
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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	30.5	0	0	0	0	0	0
2	0	0	0	0	0	29.0	0	0	0	0	0	0
3	0	0	0	0	0	26.9	0	0	0	0	0	0
4	0	0	0	0	0	24.5	0	0	0	0	0	0
5	0	0	0	0	0	28.8	0	0	0	0	0	0
6	0	0	0	0	0	28.4	0	0	0	0	0	0
7	0	0	0	0	0	20.2	0	0	0	0	0	0
8	0	0	0	0	0	12.9	0	0	0	0	0	0
9	0	0	0	0	0	8.7	0	0	0	0	0	0
10	0	0	0	0	0	6.1	0	0	0	0	0	0
11	0	0	0	0	0	5.4	0	0	0	0	0	0
12	0	0	0	0	0	4.4	0	0	0	0	0	0
13	0	0	0	0	0	2.7	0	0	0	0	0	0
14	0	0	0	0	0	2.9	0	0	0	0	0	0
15	0	0	0	0	0	2.4	0	0	0	0	0	0
16	0	0	0	0	0	1.7	0	0	0	0	0	0
17	0	0	0	0	0	2.4	0	0	0	0	0	0
18	0	0	0	0	0	2.1	0	0	0	0	0	0
19	0	0	0	0	0	2.4	0	0	0	0	0	0
20	0	0	0	0	0	1.2	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	13.4	0	0	0	0	0	0	0
24	0	0	0	0	29.0	0	0	0	0	0	0	0
25	0	0	0	0	32.2	0	0	0	0	0	0	0
26	0	0	0	0	34.2	0	0	0	0	0	0	0
27	0	0	0	0	34.6	0	0	0	0	0	0	0
28	0	0	0	0	22.2	0	0	0	0	0	0	0
29	0	0	0	0	.2	0	0	0	0	0	0	0
30	0		0	0	3.7	0	0	0	0	0	0	0
31	0		0		17.3		0	0		0		0
Sum	0	0	0	0	186.8	243.6	0	0	0	0	0	0

Month	Current Year 1972 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 1937-1972 Acre Feet Average	Maximum	Minimum
Jan.				0		0	0	0	394	2,350	0
Feb.				0		0	0	0	397	2,130	0
Mar.				0		0	0	0	532	2,330	0
Apr.				0		0	0	0	856	2,860	0
May			27	34.6	† 1	0	6.0	371	985	3,040	0
June			1	30.5	†21	0	8.1	483	1,004	2,920	0
July				0		0	0	0	819	2,920	0
Aug.				0		0	0	0	709	2,820	0
Sept.				0		0	0	0	460	2,320	0
Oct.				0		0	0	0	351	2,450	0
Nov.				0		0	0	0	485	2,760	0
Dec.				0		0	0	0	447	2,305	0
Yearly				34.6		0	1.2	854	7,439	27,170	0

ø 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 1972. 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 1972	Period 1937-1972		
		Average	Maximum	Minimum
January	0	16.7	590	0
February	0	28.5	990	0
March	0	769	13,390	0
April	0	1,129	33,400	0
May	0	256	7,520	0
June	0	35.9	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	2,243.7	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 1972.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 10 and 18 miles, respectively, upstream from this station. During 1972, 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 1972 — 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	0.39
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	2.3
9	0	0	0	0	0	0	0	0	0	0	0	4.0
10	0	0	0	0	0	0	0	0	0	0	0	1.7
11	0	0	0	0	0	0	0	0	0	0	0	1.0
12	0	0	0	0	0	0	0	0	0	0	0	0.59
13	0	0	0	0	0	0	0	0	0	0	0	.37
14	0	0	0	0	0	0	0	0	0	0	0	.25
15	0	0	0	0	0	0	0	0	0	0	0	.18
16	0	0	0	0	0	0	0	0	0	0	0	.09
17	0	0	0	0	0	0	0	0	0	0	0	.07
18	0	0	0	0	0	0	0	0	0	0	0	.06
19	0	0	0	0	0	0	0	0	0	0	0	.04
20	0	0	0	0	0	0	0	0	0	0	0	.04
21	0	0	0	0	0	0	0	0	0	0	0	.03
22	0	0	0	0	0	0	0	0	0	0	0	.02
23	0	0	0	0	0	0	0	0	0	0	0	.01
24	0	0	0	0	0	0	0	0	0	0	0	.01
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	0	0	11.15

Month	Current Year 1972 — Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1937-1972 — Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.				0		0	0	0	194	1,190	0
Feb.				0		0	0	0	621	9,940	0
Mar.				0		0	0	0	1,660	20,880	0
Apr.				0		0	0	0	1,566	40,240	0
May				0		0	0	0	363	10,040	0
June				0		0	0	0	69.8	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	4.0	101	0
Nov.				0		0	0	0	22.0	440	0
Dec.			9	4.0	† 1	0	.36	22.1	141	1,316	0
Yearly				4.0		0	0.03	22.1	4,651.0	66,700	0

Ø 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 1972.

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 1972, 20 c. f. s. on November 11 (gage height 1.45 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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.05	0.05	0.03	0	0.01	0.03	0.02	0	0	0	0	0.01
2	.05	.04	.03	0	.02	.03	.02	0	0	0	0	.02
3	.05	.05	.03	0	.02	.03	.01	0	0	0	0	.02
4	.05	.05	.03	0	.04	.03	.01	0	0	0	0	.14
5	.05	.06	.02	0.01	.04	.03	.01	0	0	0	0	.02
6	.05	.06	.02	.01	.04	.06	.01	0	0	0	0	.02
7	.05	.06	.02	.01	.04	.03	.01	0	0	0	0	.03
8	.05	.06	.02	.01	.04	.03	.01	0	0	0	0	.05
9	.05	.06	.02	.01	.04	.03	.01	0	0	0	0	.02
10	.05	.05	.02	.01	.04	.02	.01	0	0	0	0	.01
11	.06	.05	.01	.02	.03	.02	.01	0	0	0	0.08	.01
12	.06	.05	.01	.03	.03	.01	.01	0.01	0	0	.02	.01
13	.06	.05	.01	.03	.03	.01	.01	.01	0	0	.01	.01
14	.05	.06	.01	.02	.03	.01	.01	.01	0	0	.02	.01
15	.06	.05	0	.01	.03	.01	.01	0	0	0	.01	.01
16	.05	.06	0	.01	.03	.01	.01	0	0	0	.10	.01
17	.05	.05	.01	.01	.04	.01	.01	0	0	0	.02	.01
18	.05	.05	.01	.02	.05	.01	.01	0	0	.01	.01	.01
19	.05	.04	.01	.03	.07	.01	.02	0	0	0	.01	.01
20	.05	.04	.01	.02	.05	.02	.02	0	0	0	0	.01
21	.05	.05	.01	.02	.04	.02	.01	0	0	0	0	.01
22	.05	.04	.01	.01	.04	.02	.01	0	0	0	0	.01
23	.05	.04	0	.01	.04	.02	.01	0	0	0	0	.01
24	.04	.04	0	.01	.05	.02	.01	0	0	0	0	.01
25	.05	.04	0	.01	.04	.02	.01	0	0	0	0	.02
26	.05	.03	0	.01	.04	.02	0	0	0	0	0	.01
27	.05	.03	0	0	.03	.02	0	0	0	0	0	.01
28	.05	.03	0	.01	.03	.01	0	0	0	0	.01	.01
29	.05	.03	0	.01	.04	.01	.01	0	0	0	.01	.01
30	.04		0	0	.04	.01	0	0	0	0	.01	.01
31	.05		0		.03		.01	0		0		.02
Sum	1.57	1.37	0.34	0.35	1.14	0.61	0.31	0.03	0	0.01	0.31	0.57

Month	Current Year 1972 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 1937-1972 Acre Feet Average	Maximum	Minimum
Jan.			†11	0.06	†24	0.04	0.051	3.1	130	906	0
Feb.			† 5	.06	†26	.03	.047	2.7	230	1,730	0
Mar.			† 1	.03	†15	0	.011	.7	330	2,360	0
Apr.			†12	.03	† 1	0	.012	.7	232	3,250	0
May			19	.07	1	.01	.037	2.3	106	1,540	0
June			6	.06	†12	.01	.020	1.2	41.8	719	0
July			† 1	.02	†26	0	.010	.6	17.0	361	0
Aug.			†12	.01	† 1	0	.001	.06	12.4	321	0
Sept.				0		0	0	0	11.8	264	0
Oct.			18	.01	† 1	0	0	.02	20.4	543	0
Nov.			16	.10	† 1	0	.010	.6	37.6	542	0
Dec.			4	.14	† 1	.01	.018	1.1	104	808	0
Yearly				0.14		0	0.018	13.08	1,273	11,141	0

∅ Mean daily † 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. 1972 records good. Records available: October 1936 through 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.21	0.18	0.15	0.08	0.12	0.05	0.13	0.01	0	0.02	0.06	0.10
2	.21	.15	.15	.08	.12	.05	.13	.01	0	.02	.07	.10
3	.21	.15	.15	.08	.14	.05	.13	.01	0	.02	.07	.12
4	.18	.15	.12	.08	.14	.05	.12	.01	0	.02	.07	.39
5	.18	.18	.10	.08	.15	.07	.11	.01	0	.01	.08	6.9
6	.15	.18	.10	.08	.17	3.3	.10	0	0	0	.07	.44
7	.18	.18	.08	.08	.17	12	.08	0	.01	.01	.08	.34
8	.18	.18	.10	.12	.18	.67	.08	0	.04	.01	.08	3.3
9	.18	.18	.08	.12	.17	.52	.07	0	.05	.02	.08	19
10	.18	.18	.08	.10	.18	.39	.06	0	.05	.03	.08	3.0
11	.15	.18	.08	.12	.18	.30	.06	0	.06	.03	.10	1.8
12	.15	.18	.08	.12	.16	.26	.06	0	.07	.03	.10	1.2
13	.15	.18	.08	.12	.15	.20	.05	0	.06	.03	.09	.81
14	.12	.17	.08	.12	.14	.10	.04	0	.06	.03	.11	.68
15	.12	.17	.08	.12	.14	.10	.04	0	.06	.03	.10	.66
16	.12	.17	.08	.10	.14	.10	.03	0	.05	.03	.13	.50
17	.12	.17	.08	.12	.13	.12	.03	0	.05	.04	4.9	.57
18	.12	.17	.10	.12	.13	.12	.03	0	.05	.10	.15	.53
19	.15	.17	.10	.15	.17	.10	.03	0	.05	.08	.12	.46
20	.15	.17	.08	.12	.18	.15	.03	0	.05	.09	.12	.45
21	.15	.17	.08	.12	.16	.16	.03	0	.04	.08	.10	.46
22	.12	.16	.08	.12	.14	.19	.02	0	.03	.08	.10	.51
23	.12	.16	.08	.12	.12	.19	.02	0	.02	.08	.10	.53
24	.15	.16	.08	.12	.09	.17	.02	0	.02	.08	.10	.53
25	.15	.16	.08	.10	.08	.17	.02	0	.02	.08	.10	.35
26	.15	.16	.08	.12	.08	.17	.03	0	.02	.08	.10	.15
27	.15	.16	.08	.12	.07	.16	.02	0	.03	.08	.10	.11
28	.15	.15	.08	.12	.06	.16	.02	0	.03	.08	.10	.14
29	.15	.15	.10	.12	.06	.16	.02	0	.02	.08	.10	.18
30	.15		.10	.12	.05	.13	.02	0	.02	.09	.10	.20
31	.15		.08		.05		.01			.08		.20
Sum	4.80	4.87	2.87	3.29	4.02	20.36	1.64	0.05	0.96	1.54	7.66	44.71

Month	Current Year 1972 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 1937-1972 Acre Feet Average	Maximum	Minimum
Jan.			† 1	0.21	†14	0.12	0.15	9.5	413	2,750	0
Feb.			† 1	.18	† 2	.15	.17	9.7	1,117	13,680	0
Mar.			† 1	.15	† 7	.08	.093	5.7	2,636	27,140	0
Apr.			19	.15	† 1	.08	.11	6.5	2,140	51,060	0
May			† 8	.18	†30	.05	.13	8.0	541	14,110	0
June			7	12	† 1	.05	.68	40.4	112	2,630	0
July			† 1	.13	31	.01	.053	3.3	18.2	312	0
Aug.			† 1	.01	† 6	0	.002	.1	6.6	171	0
Sept.			12	.07	† 1	0	.032	1.9	9.1	152	0
Oct.			18	.10	6	0	.050	3.1	23.2	705	0
Nov.			17	4.9	1	.06	.26	15.2	57.6	839	0
Dec.			9	19	† 1	.10	1.44	88.7	349	3,330	0
Yearly				19		0	0.26	192	7,422.7	97,900	0

† And other days ø Mean daily

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 1972. 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 1972			Period 1938-1972		
	Natural Inflow	Emergency Delivery of Colorado River water	Total	Average	Maximum	Minimum
January	59.3		59.3	838	6,569	0
February	51.5		51.5	2,317	41,295	5.8
March	50.3		50.3	5,766	68,321	4.2
April	48.8		48.8	3,017	77,790	0
May	48.3		48.3	387	9,962	0
June	43.6		43.6	73.3	891	0
July	42.2		42.2	75.1	326	0
August	41.7	3.6	45.3	50.2	770	0
September	41.2	64.2	105	52.0	466	0
October	31.7	102	134	65.6	344	0
November	111	23.8	135	159	1,940	0
December	59.1	7.7	66.8	904	15,686	12.8
Yearly	628	202	830	13,703	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 1972.
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 1972, 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 1972	Period 1938-1972		
		Average	Maximum	Minimum
January	1.5	238	782	1.5
February	2.4	264	1,132	1.9
March	2.0	319	1,223	0
April	2.4	451	1,602	0
May	2.6	615	1,676	1.8
June	2.5	713	1,857	1.9
July	2.6	756	1,963	1.9
August	3.2	651	1,859	0
September	2.5	525	1,420	1.9
October	2.4	454	1,186	1.9
November	1.9	346	1,037	1.9
December	3.2	305	981	0
Yearly	29.3	5,636	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 1972.
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 1972 — 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	47.4
5	0	0	0	0	0	0	0	0	0	0	0	9.0
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	10.1
8	0	0	0	0	0	0	0	0	0	0	0	38.8
9	0	0	0	0	0	0	0	0	0	0	0	16.6
10	0	0	0	0	0	0	0	0	0	0	0	3.5
11	0	0	0	0	0	0	0	0	0	0	12.6	1.1
12	0	0	0	0	0	0	0	0	0	0	.2	.1
13	0	0	0	0	0	0	0	0	0	0	0	.1
14	0	0	0	0	0	0	0	0	0	0	6.6	.1
15	0	0	0	0	0	0	0	0	0	0	.1	0
16	0	0	0	0	0	0	0	0	0	0	30.4	0
17	0	0	0	0	0	0	0	0	0	0	1.1	0
18	0	0	0	0	0	0	0	0	0	13.4	0	0
19	0	0	0	0	0	0	0	0	0	5.3	0	0
20	0	0	0	0	0	0	0	0	0	13.7	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	32.4	51.0	126.8

Month	Current Year 1972 Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1947-1972 Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.				0		0		0	400	4,603	0
Feb.				0		0		0	275	1,496	0
Mar.				0		0		0	836	13,309	0
Apr.				0		0		0	241	2,926	0
May				0		0		0	40.6	312	0
June				0		0		0	25.6	309	0
July				0		0		0	20.1	239	0
Aug.				0		0		0	17.6	193	0
Sept.				0		0		0	22.7	216	0
Oct.	47.86		20	124	† 1	0	1.0	64.3	36.3	305	0
Nov.	48.07		16	159	† 1	0	1.7	101	106	1,084	0
Dec.	48.31		4	206	† 1	0	4.1	252	290	2,725	0
Yearly				206		0	0.6	417	2,311	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 1972 (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 1972 — 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	0.43
5	0	0	0	0	0	0	0	0	0	0	0	2.2
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	C
8	0	0	0	0	0	0	0	0	0	0	0	1.2
9	0	0	0	0	0	0	0	0	0	0	0	3.4
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	0	0	7.23

Month	Current Year 1972 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 1937-1972 Acre Feet Average	Maximum	Minimum
Jan.				0		0	0	0	716	4,070	0
Feb.				0		0	0	0	3,941	66,920	0
Mar.				0		0	0	0	6,888	107,000	0
Apr.				0		0	0	0	5,890	181,900	0
May				0		0	0	0	658	18,340	0
June				0		0	0	0	111	3,060	0
July				0		0	0	0	22.1	523	0
Aug.				0		0	0	0	15.6	242	0
Sept.				0		0	0	0	23.0	234	0
Oct.				0		0	0	0	78.7	1,340	0
Nov.				0		0	0	0	134	1,490	0
Dec.			9	3.4	† 1	0	.23	14.3	722	7,930	0
Yearly				3.4		0	0.019	14.3	19,199	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)	
	1972	Average 1937-1972	1972	Average 1937-1972	1972	Average 1937-1972	1972	Average 1937-1972
Jan.	3,281	15,817	1,596	11,191	315	31,422	5,192	58,430
Feb.	3,281	16,486	1,625	12,613	325	32,327	5,231	61,426
Mar.	3,224	17,702	1,615	14,123	329	35,701	5,168	67,526
Apr.	3,132	17,697	1,596	14,617	329	35,681	5,057	67,995
May	3,043	17,542	1,293	13,905	325	35,014	4,661	66,461
June	2,992	17,062	852	13,131	319	33,948	4,163	64,141
July	2,796	16,604	821	12,334	306	32,817	3,923	61,755
Aug.	2,704	16,185	788	11,586	298	31,794	3,790	59,565
Sept.	2,629	15,664	768	11,306	357	30,927	3,754	57,897
Oct.	2,614	15,436	777	10,961	447	30,204	3,838	56,601
Nov.	2,644	15,328	946	10,614	538	29,706	4,128	55,648
Dec.	2,704	15,385	1,170	10,911	558	36,029	4,432	56,325
Average	2,920	16,409	1,154	12,274	370	32,464	4,445	61,147
Maximum	3,281	# 61,670	1,625	⊙ 45,920	558	109,608	5,231	213,600
Minimum	2,614	10	768	106	298	0	3,754	1,264

March 31,1941 - Prior to removal of spillway gates
⊙ April 30, 1937 - Sand bags were place 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 80.

In United States

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California		Sawday Ranch, California	
	1972	Average 1906-1972	1972	Average 1907-1972	1972	Average 1951-1972	1972	Average 1914-1972	1972	Average 1950-1972
Jan.	T	3.73	T	3.29	0.04	2.44	0.04	3.33	0	2.90
Feb.	.24	3.74	.23	3.35	.33	1.85	.31	3.64	.15	2.21
Mar.	0	3.30	0	2.83	0	2.13	0	2.86	0	2.54
Apr.	.33	1.78	.44	1.60	.25	1.38	.56	1.84	.43	1.78
May	.32	.63	.43	.57	.35	.42	.44	.65	.21	.44
June	.71	.15	.88	.07	.61	.07	1.44	.11	.75	.07
July	0	.37	0	.10	0	.03	T	.19	0	.45
Aug.	0	.54	0	.19	0	.11	T	.19	0	.71
Sept.	.20	.34	.35	.25	.50	.20	.37	.25	.30	.36
Oct.	2.46	.89	2.44	.72	1.77	.37	1.98	.74	2.05	.46
Nov.	2.96	1.57	3.40	1.36	2.34	1.57	3.26	1.48	3.15	1.80
Dec.	2.83	3.31	2.94	2.94	3.02	2.40	3.30	3.24	2.99	2.55
Yearly	10.05	20.35	11.11	17.27	9.21	12.97	11.70	18.52	10.03	16.27

Month	Campo, California,		Chula Vista, California,							
	1972	Average 1900-1972	1972	Average 1930-1972						
Jan.	0	2.96	0	1.74						
Feb.	.18	3.28	.19	1.69						
Mar.	0	2.69	0	1.43						
Apr.	.24	1.49	.10	.85						
May	.14	.54	.13	.24						
June	.31	.07	.47	.06						
July	0	.52	0	.02						
Aug.	.04	.52	.03	.07						
Sept.	.14	.32	.17	.16						
Oct.	1.87	.64	.80	.40						
Nov.	2.60	1.36	1.37	1.06						
Dec.	2.55	2.61	1.33	1.75						
Yearly	8.07	17.00	4.59	9.47						

In Mexico

Month	La Rumorosa, Baja California		Tecate, Baja California		Tijuana, Baja California		Rodriguez Dam, Baja California		Valle De Las Palmas, Baja Calif.	
	1972	Average 1945-1972	1972	Average 1946-59 1961-72	1972	Average 1948-59 1961-72	1972	Average 1938-1972	1972	Average 1948-1972
Jan.	0	0.67	0	2.20	0	1.69	0	1.38	T	1.38
Feb.	0	.35	.28	1.30	T	1.22	.12	1.22	.04	.94
Mar.	0	.51	0	1.81	0	1.10	T	1.30	0	1.02
Apr.	0	.35	.16	1.18	.04	.63	.24	.75	.08	.63
May	0	.08	* .16	.31	T	.20	.31	.12	.08	.12
June	.39	.04	*1.50	.16	.24	.04	.28	.04	.71	.04
July	0	.28	0	.08	0	.04	0	T	0	.04
Aug.	T	.63	*0	.16	0	.04	T	.04	T	.08
Sept.	0	.24	.20	.12	T	.12	.31	.24	.08	.16
Oct.	3.50	.43	1.14	.31	1.46	.31	1.57	.31	1.10	.20
Nov.	1.10	.47	2.44	1.26	1.42	1.06	1.57	.87	1.34	.75
Dec.	.16	.67	3.07	2.20	1.77	1.42	2.01	1.65	1.26	1.06
Yearly	5.16	4.72	8.94	11.57	4.92	8.31	6.42	7.87	4.69	6.57

T Trace * Registered incomplete

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

In Mexico

Month	El Pinal, Baja California,		San Juan De Dios, Baja California,							
	1972	Average 1964-1972	1972	Average 1956-1972						
Jan.	0	1.97	0	1.89						
Feb.	.08	2.17	.08	1.85						
Mar.	0	1.69	0	1.57						
Apr.	.20	1.93	.16	1.18						
May	T	.24	.12	.28						
June	.63	.08	0	.16						
July	.04	.67	.87	1.06						
Aug.	.08	.71	.04	.71						
Sept.	.63	.55	.12	.43						
Oct.	* .43	.31	* 2.13	.59						
Nov.	3.23	1.97	2.13	1.34						
Dec.	2.52	4.02	1.97	2.09						
Yearly	7.83	15.98	7.60	14.49						

T Trace * Registered incomplete

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

In United States

NAME OF STATION	LATITUDE	LONGITUDE	8 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	8 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

8 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 80 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 1972, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

2. Chula Vista: September 1918 through 1972, 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 1972, 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	
	1972	Average 1916-1972	1972	Average 1921-1972	1972	Average 1919-1972
Jan.	1.69	2.24	1.89	1.87	2.80	2.83
Feb.	2.60	2.31	2.68	2.23	3.33	3.34
Mar.	4.36	3.61	4.16	3.60	4.53	5.00
Apr.	5.26	4.87	5.08	4.85	6.14	5.93
May	6.19	6.84	6.60	6.93	7.22	6.87
June	7.24	8.72	6.30	8.43	6.47	6.96
July	10.00	10.20	9.38	10.12	8.14	7.62
Aug.	7.60	9.47	8.02	9.55	7.56	7.34
Sept.	5.09	7.66	5.26	7.76	5.70	6.10
Oct.	2.37	5.43	3.11	5.46	4.45	4.91
Nov.	1.18	3.50	1.92	3.43	3.26	3.62
Dec.	1.63	2.52	1.52	2.09	3.11	2.75
Yearly	55.21	67.37	55.92	66.32	62.71	63.27

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	
	1972	Average 1961-72	1972	Av.1952-59 1961-1972	1972	Av.1939-42 1946-1972	1972	Average 1948-72	1972	Average 1956-72
Jan.	3.19	3.27	3.11	2.87	3.31	4.92	2.95	3.66	ϙ	2.72
Feb.	3.86	3.39	3.78	3.43	3.86	3.82	4.72	3.54	ϙ	2.60
Mar.	4.06	4.41	4.02	4.06	4.96	5.00	6.02	5.35	4.53	4.17
Apr.	6.54	5.35	5.00	4.76	6.30	5.83	8.11	6.54	5.16	4.76
May	7.17	6.18	5.55	5.75	7.32	7.32	9.17	7.52	8.54	6.61
June	6.02	6.34	4.69	5.63	6.61	7.87	7.91	9.13	11.14	7.20
July	10.35	8.62	6.06	6.65	9.21	8.98	12.32	10.79	11.65	8.82
Aug.	* 9.33	*8.27	7.87	7.09	7.95	8.27	10.35	10.20	10.04	7.64
Sept.	5.75	6.81	5.67	5.94	5.20	7.01	7.40	8.74	7.87	7.87
Oct.	6.18	6.38	5.75	4.80	3.31	5.87	4.88	6.34	* 4.69	5.16
Nov.	3.19	3.90	2.80	3.31	3.03	4.88	3.50	4.49	ϙ	3.62
Dec.	3.07	3.62	3.23	2.91	3.27	4.02	4.09	3.90	ϙ	3.11
Yearly	68.70	67.87	57.52	55.87	64.33	72.83	81.46	79.84	*	60.71

* Record incomplete ϙ Frozen pan

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 80 in this bulletin.

In United States

Month	Barrett Dam, California				Chula Vista, California				Campo, California			
	1972			Average 1931-1972	1972			Average 1931-1972	1972			Average 1951-1972
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	47.5	74	22	48.6	49.8	69	31	52.4	46.6	75	21	46.8
Feb.	52.7	85	24	50.4	53.9	73	40	53.8	49.5	82	20	48.0
Mar.	58.8	89	31	53.4	57.0	67	43	55.2	55.9	86	19	49.6
Apr.	59.0	87	35	57.8	58.1	71	42	57.9	54.6	86	24	
May	65.1	96	42	62.7	61.6	73	51	60.6	60.1			58.1
June	69.8	97	47	68.0	64.9	76	56	62.9	67.7			64.5
July	79.1	107	51	76.2	*69.2	83	59		75.5			73.5
Aug.	75.9	106	48	76.4	70.1	83	58		71.5	101	39	73.6
Sept.	* 69.4	98	45	72.3	67.4	80	56		66.6	97	36	69.0
Oct.	* 61.3	99	38	64.0	64.1	82	43	62.8	58.1	89	25	60.7
Nov.	52.7	82	30	55.8	57.2	72	44		49.8	80	26	52.6
Dec.	48.3	80	24	50.4	54.4	79	36	54.2	46.2	74	17	
Yearly	* 61.6	107	22	61.3	*60.6	83	31		58.5			

In Mexico

Month	La Rumorosa, Baja California				Tecate, Baja California				Tijuana, Baja California			
	1972		1946-1972		1972		1946-59 & 61-72		1972		1948-59 & 61-72	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	70	25	81	5	75	36	100	21	81	39	93	27
Feb.	75	28	82	10	82	18	100	18	86	43	102	32
Mar.	81	27	88	16	97	36	97	25	79	46	90	34
Apr.	81	30	91	23	100	36	100	32	84	50	97	34
May	86	36	97	28	93	39	100	36	91	48	97	43
June	99	48	113	34	88	45	104	32	86	57	99	41
July	99	63	104	39	102	48	115	36	100	57	120	46
Aug.	97	54	102	46	100	52	113	34	104	63	106	52
Sept.	90	41	104	34	97	43	115	36	97	57	120	46
Oct.	82	36	93	25	84	36	106	27	93	48	117	41
Nov.	66	34	88	14	79	30	97	27	73	48	108	34
Dec.	68	19	81	10	82	32	97	23	81	36	99	25
Yearly	99	19	113	5	102	18	115	18	104	36	120	25

Month	Rodriguez Dam, Baja California				Valle de las Palmas, Baja California				El Pinal, Baja California			
	1972		1938-1972		1972		1948-1972		1972		1964-1972	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	70	34	88	27	82	27	91	12	68	23	73	12
Feb.	79	39	91	32	88	32	99	23	75	23	75	21
Mar.	82	39	88	32	95	39	100	28	82	19	82	19
Apr.	82	41	93	36	91	37	104	32	79	27	82	18
May	90	48	99	37	99	43	108	36	88	28	90	27
June	86	54	108	46	104	50	118	39	99	39	99	28
July	100	57	104	48	109	54	120	45	97	45	102	36
Aug.	106	54	106	52	109	50	111	48	97	36	104	36
Sept.	93	54	109	48	100	48	117	43	91	41	102	25
Oct.	93	41	108	34	90	41	108	32	* 82	37	95	30
Nov.	82	43	99	30	84	34	100	19	73	30	84	25
Dec.	86	34	93	27	82	25	91	21	73	23	79	18
Yearly	106	34	109	27	109	25	120	12	99	19	104	12

* Record incomplete

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Juan de Dios, Baja California											
	1972		1956-1972									
	Max.	Min.	Max.	Min.								
Jan.	70	18	88	7								
Feb.	77	18	84	16								
Mar.	82	14	84	14								
Apr.	79	19	102	19								
May	86	25	91	19								
June	102	36	106	28								
July	102	45	120	36								
Aug.	97	36	106	32								
Sept.	91	36	100	25								
Oct.	84	37	100	18								
Nov.	77	19	99	12								
Dec.	73	16	88	14								
Yearly	102	14	120	7								

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

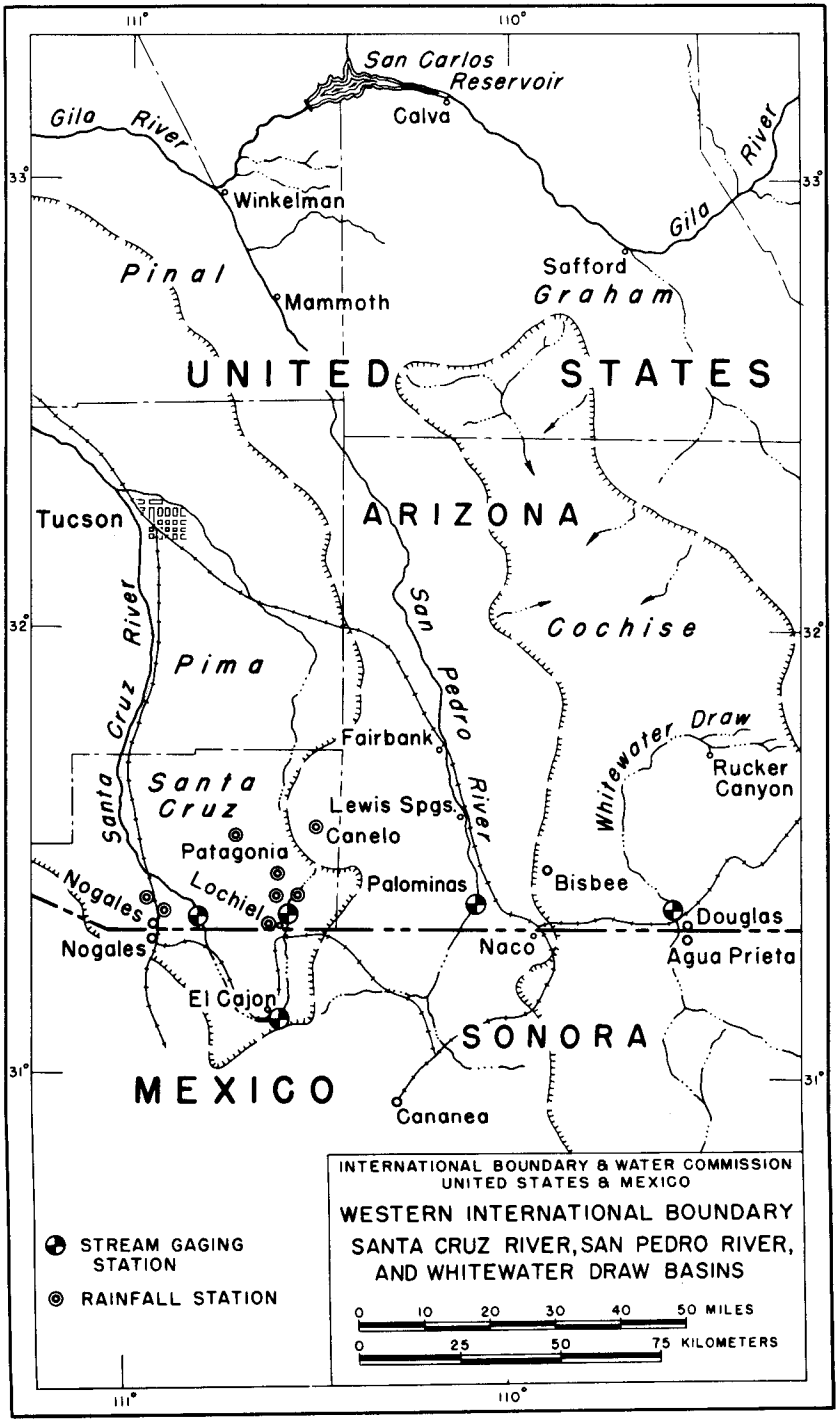
1972

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 1972 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 1972 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
Safford
Graham
Mammoth
UNITED STATES
Tucson
ARIZONA
San Pedro River
Cochise
32°
Santa Cruz River
Pima
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 1972 (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 1972 — 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	0.50	100	0	0.30	0.25
2	0	0	0	0	0	0	0	.50	150	0	.30	.25
3	0	0	0	0	0	0	0	1.0	230	0	.30	.25
4	0	0	0	0	0	0	0	.50	200	10	.30	.25
5	0	0	0	0	0	0	0	.50	50	5.0	.30	.25
6	0	0	0	0	0	0	0	.50	10	1.0	.30	.25
7	0	0	0	0	0	0	0	1.0	5.0	0	.30	.25
8	0	0	0	0	0	0	0	.50	2.0	0	.30	.25
9	0	0	0	0	0	0	0	.50	1.0	0	.30	.20
10	0	0	0	0	0	0	1.0	1.0	70	0	.30	.20
11	0	0	0	0	0	0	10	1.0	5.0	0	.30	.20
12	0	0	0	0	0	0	0	.50	1.0	0	.30	.20
13	0	0	0	0	0	0	0	500	1.0	0	.30	.20
14	0	0	0	0	0	0	0	5.0	.50	0	.30	.20
15	0	0	0	0	0	0	10	2.0	.50	0	.30	.20
16	0	0	0	0	0	0	500	1.0	.30	0	.30	.15
17	0	0	0	0	0	0	250	.50	.30	5.0	.30	.15
18	0	0	0	0	0	0	10	94	.30	100	.30	.15
19	0	0	0	0	0	0	1.0	5.0	.30	300	.30	.15
20	0	0	0	0	0	0	30	1.0	.30	50	.30	.15
21	0	0	0	0	0	0	5.0	.50	.20	5.0	.30	.15
22	0	0	0	0	0	0	1.0	.20	.20	2.0	.30	.15
23	0	0	0	0	0	0	20	.10	.20	1.0	.30	.15
24	0	0	0	0	0	0	70	0	.20	.50	.30	.15
25	0	0	0	0	0	0	10	0	.20	.40	.30	.15
26	0	0	0	0	0	0	3.0	0	.20	.30	.30	.15
27	0	0	0	0	0	0	1.0	0	.20	.30	.30	.15
28	0	0	0	0	0	0	2.0	0	.20	.30	.30	1.0
29	0	0	0	0	0	0	5.0	400	.10	.30	.30	.50
30	0		0	0	0	0	2.0	734	.10	.30	.30	.15
31	0		0		0		1.0	80		.30		.15
Sum	0	0	0	0	0	0	932.0	1,831.30	829.30	481.70	9.00	7.00

Month	Current Year 1972 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 1936-1972 Acre Feet Average	Maximum	Minimum
Jan.				0		0	0	0	43.4	451	0
Feb.				0		0	0	0	23.2	132	0
Mar.				0		0	0	0	25.8	130	0
Apr.				0		0	0	0	23.1	173	0
May				0		0	0	0	16.8	138	0
June				0		0	0	0	146	1,590	0
July			16	500	† 1	0	30.1	1,849	#2,166	8,110	39
Aug.			30	734	†24	0	59.1	3,632	#3,554	14,480	.3
Sept.			3	230	†29	.10	27.6	1,645	# 782	3,170	.8
Oct.			19	300	† 1	0	15.5	955	180	2,210	0
Nov.			† 1	.30	† 1	.30	.30	17.9	42.8	352	0
Dec.			28	1.0	†16	.15	.23	13.9	139	2,363	0
Yearly				734		0	11.2	8,113	7,142.1	22,321	900

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

SEWAGE INFLUENT, DOUGLAS, ARIZONA
INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Parshall flume in influent line to the international treatment plant, equipped with Simplex digital meter for measuring combined sewage flows from Douglas, Arizona and Agua Prieta, Sonora; and Parshall flume with recorder for measuring the sewage from Douglas. Flows from Agua Prieta are deduced from total flows and the city of Douglas flows; however, since April 8, 1968, all sewage flows from Agua Prieta have been diverted to new oxidation ponds located in Mexico, 1.6 miles 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 1972.

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 1972			Period 1952-1972		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	33.925	0	33.925	1.270	0.960	1.094	1.618	0.619	1.059
Feb.	31.420	0	31.420	1.200	1.010	1.083	1.784	.584	1.061
Mar.	33.660	0	33.660	1.220	1.000	1.086	1.598	.590	1.063
Apr.	32.070	0	32.070	1.130	.970	1.069	1.536	.619	1.060
May	34.210	0	34.210	1.190	1.000	1.104	1.595	.619	1.068
June	33.180	0	33.180	1.170	.930	1.106	1.784	.626	1.126
July	35.890	0	35.890	1.250	1.030	1.160	3.209	.619	1.181
Aug.	38.360	0	38.360	1.350	1.120	1.237	1.985	.619	1.202
Sept.	34.748	0	34.748	1.280	.990	1.158	1.884	.626	1.182
Oct.	34.680	0	34.680	1.240	1.000	1.119	1.667	.626	1.119
Nov.	32.710	0	32.710	1.220	.940	1.090	1.586	.619	1.080
Dec.	32.880	0	32.880	1.150	1.000	1.061	1.736	.619	1.083
Yearly	407.733	0	407.733	1.350	0.930	1.114	3.209	.584	1.107

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 1972.

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 1972			Period 1968-1972		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	14.642	14.642	0.472	0.472	0.472	0.640	0.472	0.519
Feb.	0	13.607	13.607	.472	.454	.469	.726	.454	.537
Mar.	0	13.851	13.851	.470	.436	.447	.666	.399	.501
Apr.	0	12.803	12.803	.454	.399	.427	.666	.399	.502
May	0	Q					.666	.472	.536
June	0	Q					.617	.414	.495
July	0	Q					.617	.259	.503
Aug.	0	Q					.967	0	.399
Sept.	0	Q					.617	0	.415
Oct.	0	12.185	12.185	.507	.394	.420	.595	0	.460
Nov.	0	13.418	13.418	.507	.394	.447	.717	.394	.524
Dec.	0	13.503	13.503	.507	.394	.436	.709	.394	.523
Yearly	0						0.967	0	0.493

Q Data missing

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

DESCRIPTION: Water-stage recorder located near left bank on the downstream side of pier on bridge 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 1972. 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 1972 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.7	3.8	0.20	0	0.90	1.7	0	1.0	89	0	7.0	6.5
2	7.3	3.5	.20	0	.60	.50	0	.20	243	0	7.0	6.5
3	7.3	3.0	.20	0	.60	.10	0	.10	486	0	7.0	6.5
4	6.9	3.3	.20	.10	.50	.10	0	.10	77	42	7.0	6.5
5	6.5	3.5	.20	1.7	.30	.20	0	1.2	50	9.3	7.0	6.1
6	6.9	3.5	.20	2.1	1.0	.40	0	80	30	5.4	7.0	6.5
7	7.3	3.8	.20	4.4	.50	.60	0	20	10	3.8	7.0	6.5
8	7.3	3.3	.20	6.5	.90	1.1	0	14	10	2.5	7.0	6.5
9	6.9	2.5	.20	4.7	1.2	1.7	0	10	10	1.6	7.0	6.1
10	6.9	1.6	.20	2.8	.60	3.5	0	6.5	10	1.0	7.0	5.8
11	6.9	.70	.20	2.1	.90	3.3	0	3.5	5.0	.50	7.0	5.8
12	6.9	.50	.20	1.9	.90	3.0	0	2.5	5.0	0	7.0	5.4
13	6.9	.30	.20	1.9	3.8	3.5	0	1.0	5.0	0	7.0	5.4
14	6.9	.30	.20	1.6	3.5	2.8	0	.50	270	0	7.0	5.4
15	6.1	.30	.20	1.4	3.5	1.6	288	.40	46	0	7.0	5.1
16	5.8	.20	.20	2.1	3.8	.60	743	.40	30	0	7.0	4.7
17	6.1	.20	.20	1.9	3.3	0	408	.30	20	43	7.0	4.7
18	6.1	.20	.20	1.6	2.8	0	191	.30	10	569	7.0	4.7
19	5.8	.20	.20	3.0	1.2	0	19	.30	5.0	203	7.0	4.7
20	5.4	.20	.20	2.5	.40	0	19	.20	4.0	108	7.0	4.4
21	5.1	.20	.20	1.9	.10	0	17	.20	3.0	20	7.0	4.4
22	5.1	.20	.20	1.0	.10	0	99	.20	3.0	11	7.0	4.4
23	4.7	.20	.20	.90	0	0	117	.10	3.0	9.6	7.0	4.4
24	4.4	.20	.20	.90	0	0	14	.10	2.0	8.6	7.0	4.1
25	4.1	.20	.20	.50	0	0	25	.10	1.5	8.6	7.0	4.1
26	4.4	.20	.20	.50	0	0	15	375	1.4	8.2	7.0	4.1
27	3.8	.20	.20	.50	0	0	9.6	101	1.2	7.7	6.9	4.1
28	3.5	.20	.20	.50	0	0	8.6	15	.20	7.3	6.9	6.9
29	3.8	.20	.20	.70	0	0	6.9	14	0	7.3	6.9	7.3
30	3.8		.60	1.1	.10	0	4.4	11	0	7.3	6.5	5.1
31	4.1		.30		.40		2.3	15		7.3		4.4
Sum	180.7	36.70	6.70	50.80	31.90	24.70	1,986.8	674.20	1,430.30	1,092.00	209.2	167.1

Month	Current Year 1972 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1951-1972 Acre Feet Average	Maximum	Minimum
Jan.			1	7.7	28	3.5	5.8	358	662	7,813	2.6
Feb.			†1	3.8	†16	.20	1.3	72.8	354	1,577	3.0
Mar.			30	.60	†1	.20	.22	13.3	287	2,043	13.3
Apr.			8	6.5	†1	0	1.7	101	83.9	330	0
May			†13	3.8	†23	0	1.0	63.3	20.5	68.8	0
June			†10	3.5	†17	0	.82	49.0	171	1,391	0
July			16	743	†1	0	64.1	3,941	6,315	17,238	184
Aug.			26	375	†3	.10	21.7	1,337	10,787	36,369	165
Sept.			3	486	†29	0	47.7	2,837	1,828	16,344	28.4
Oct.			18	569	†1	0	35.2	2,166	264	2,166	0
Nov.			†1	7.0	30	6.5	7.0	415	153	609	0
Dec.			29	7.3	†24	4.1	5.4	331	863	10,959	6.2
Yearly				743		0	16.1	11,685	21,788	55,364	4,400

∅ 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 1972.
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 1972 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	0.85	0.85	0.41	0.44	0.23	0.19	0.19	0.51	0.21	0.32	0.32
2	1.0	.82	.84	.44	.39	.22	.19	.18	53	.20	.33	.32
3	1.0	.81	.89	.47	.34	.23	.21	.20	8.6	.29	.33	.32
4	.98	.82	.95	.47	.33	.22	.21	.22	.34	.35	.33	.32
5	.98	.81	.95	.44	.31	.22	.22	.21	.32	.35	.33	.33
6	1.0	.80	.99	.44	.30	.21	.23	.24	.32	.32	.33	.33
7	1.0	.81	1.0	.47	.32	.25	.26	.23	.32	.30	.33	.33
8	1.1	.79	.98	.47	.29	.25	.28	.44	.32	.29	.32	.33
9	1.1	.77	.97	.44	.24	.23	.28	.53	.39	.30	.32	.35
10	1.0	.71	.95	.44	.18	.21	.30	.29	.35	.29	.33	.35
11	1.0	.72	.89	.44	.16	.23	.29	.23	.30	.29	.33	.35
12	.99	.71	.88	.41	.15	.25	.33	.23	.30	.29	.35	.34
13	1.0	.72	.78	.41	.15	.26	.36	.23	.30	.30	.33	.37
14	1.0	.71	.72	.41	.15	.26	.37	.22	.32	.30	.33	.35
15	.98	.68	.68	.41	.15	.22	.46	.21	.30	.30	.32	.34
16	.94	.68	.52	.44	.16	.21	102	.21	.29	.30	.32	.38
17	.93	.69	.45	.47	.16	.21	5.2	.20	.27	.32	.57	.38
18	.90	.68	.42	.47	.16	.19	.25	.21	.28	.50	.35	.38
19	.93	.68	.48	.50	.16	.18	.26	.23	.27	.82	.33	.38
20	.91	.70	.55	.50	.18	.18	.22	.23	.27	1.6	.32	.41
21	.89	.73	.56	.54	.19	.21	.21	.22	.25	.50	.32	.41
22	.89	.73	.51	.57	.20	.20	.22	.21	.25	.47	.32	.41
23	.88	.77	.40	.57	.20	.19	.24	.19	.24	.44	.30	.39
24	.93	.73	.35	.54	.21	.18	.24	.19	.23	.44	.30	.38
25	.91	.68	.32	.54	.20	.18	.25	.19	.23	.44	.29	.38
26	.89	.71	.31	.54	.21	.20	.27	.19	.24	.44	.30	.35
27	.87	.79	.35	.54	.22	.21	.25	.22	.23	.41	.30	.35
28	.86	.80	.40	.52	.22	.20	.42	.20	.22	.35	.30	.44
29	.87	.83	.41	.47	.27	.19	.26	.22	.22	.33	.31	.42
30	.87		.38	.47	.25	.19	.21	.19	.21	.35	.31	.37
31	.86		.41		.24		.20	.19		.33		.36
Sum	29.46	21.73	20.14	14.25	7.13	6.41	114.88	7.14	69.69	12.42	9.87	11.24

Current Year 1972 — **Period** 1949-1972

Month	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	Acre Feet Average	Acre Feet Maximum	Acre Feet Minimum
Jan.			† 8	1.1	†28	0.86	0.95	58.4	47.6	226	1.3
Feb.			1	.85	†15	.68	.75	43.1	40.9	261	1.8
Mar.			7	1.0	26	.31	.65	39.9	36.0	250	.7
Apr.			†22	.57	† 1	.41	.48	28.3	20.5	148	0
May			1	.44	†12	.15	.23	14.1	9.3	49.5	0
June			†13	.26	†19	.18	.21	12.7	3.2	22.3	0
July			16	102	† 1	.19	3.71	228	491	4,270	1.6
Aug.			9	.53	2	.18	.23	14.2	1,087	10,120	.08
Sept.			2	53	30	.21	2.32	138	335	2,634	0
Oct.			20	1.6	2	.20	.40	24.6	90.6	448	0
Nov.			17	.57	25	.29	.33	19.6	43.9	182	0
Dec.			28	.44	† 1	.32	.36	22.3	70.7	693	0
Yearly				102		0.15	0.88	643	2,276	12,633	126

† And other days ∅ Mean daily

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 through December 1972.

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 1972 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	2.8	3.2	7.8	1.8	6.4	5.7
2	0	0	0	0	0	0	2.8	2.1	32.5	1.4	6.4	5.7
3	0	0	0	0	0	0	2.8	1.8	22.6	2.8	6.4	5.7
4	0	0	0	0	0	0	2.8	1.4	11.3	3.5	6.4	5.7
5	0	0	0	0	0	0	3.9	2.5	10.9	2.5	6.4	6.0
6	0	0	0	0	0	0	5.3	37.8	10.9	.7	6.4	7.1
7	0	0	0	0	0	0	6.0	5.7	10.9	.7	6.4	6.7
8	0	0	0	0	0	0	5.3	29.7	8.5	.7	6.4	6.4
9	0	0	0	0	0	0	5.7	38.8	22.2	.7	6.4	6.7
10	0	0	0	0	0	0	6.0	11.3	6.0	.7	6.4	7.1
11	0	0	0	0	0	0	6.0	5.7	3.9	1.1	6.4	7.1
12	0	0	0	0	0	0	5.7	20.4	3.5	1.8	6.4	6.7
13	0	0	0	0	0	0	4.9	6.0	26.5	2.5	6.4	6.7
14	0	0	0	0	0	0	5.3	5.7	32.8	2.1	6.4	6.7
15	0	0	0	0	0	0	9.9	6.7	8.5	1.8	6.4	7.1
16	0	0	0	0	0	0	31.8	6.0	7.8	2.1	6.4	6.0
17	0	0	0	0	0	0	32.8	6.0	7.8	4.9	6.4	5.7
18	0	0	0	0	0	0	7.4	5.7	7.8	8.5	6.4	6.0
19	0	0	0	0	0	0	12.0	4.9	7.8	29.0	6.4	5.7
20	0	0	0	0	0	0	7.4	4.6	7.8	12.7	6.4	5.3
21	0	0	0	0	0	0	4.9	4.6	7.8	5.7	6.4	5.3
22	0	0	0	0	0	0	4.9	4.2	7.8	5.3	6.4	4.9
23	0	0	0	0	0	0	4.9	2.8	7.8	4.9	6.4	4.6
24	0	0	0	0	0	0	4.6	2.1	7.8	4.9	6.4	4.6
25	0	0	0	0	0	0	7.1	2.5	4.9	4.6	6.4	4.9
26	0	0	0	0	0	0	4.9	3.2	3.2	3.9	6.4	3.9
27	0	0	0	0	0	0	3.2	4.2	2.8	4.6	6.4	4.6
28	0	0	0	0	0	0	5.7	3.5	2.5	4.6	6.4	4.9
29	0	0	0	0	0	0	6.7	3.5	1.8	4.2	6.0	5.3
30	0		0	0	0	0	3.5	3.5	.7	6.4	6.0	5.3
31	0		0		0		3.2	3.5		6.4		4.9
Sum	0	0	0	0	0	0	220.2	243.6	304.9	137.5	191.2	179.0

Month	Current Year 1972 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 ø 1954-1972 Acre Feet Average	Maximum	Minimum
Jan.	0								538	1,486	203
Feb.	0								435	1,598	80.6
Mar.	0								392	885	74.4
Apr.	0								255	711	74.9
May	0								188	512	50.3
June	0								148	486	63.1
July	2.20	.07	16	291	† 1	2.8	7.1	436	619	1,227	83.5
Aug.	1.84	.03	6	221	2	1.4	7.9	485	4,405	32,608	229
Sept.	1.84	0	13	186	29	.4	10.2	605	911	3,000	106
Oct.	.98	0	19	91.1	5	.4	4.2	272	404	1,165	78.5
Nov.	.13		† 1	6.4	†29	6.0	6.4	377	379	838	134
Dec.	.16	.10	† 6	7.4	26	3.9	5.7	355	447	831	186
Yearly									10,904	38,895	2,317

ø Period includes only months and years completed † And other days 0 Recorder inoperative

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. 1972 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. July 1935 through 1972.

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 1972.

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 1972 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17	11	5.3	5.7	1.8	0	0	0	1.6	0.20	2.2	3.0
2	15	12	4.9	4.5	1.6	0	0	0	1.3	.20	3.8	3.0
3	15	11	5.7	4.9	1.3	0	0	0	48	.90	5.7	3.4
4	15	11	5.7	5.3	1.1	0	0	0	7.7	1.8	3.4	3.4
5	15	11	6.6	4.5	.90	.10	0	0	1.3	1.8	3.4	3.4
6	15	11	6.1	4.2	.90	.10	0	30	1.6	1.6	.70	3.4
7	15	11	5.7	3.4	.90	.20	0	27	.90	1.1	.60	3.0
8	14	11	6.1	3.4	.70	.20	0	2.0	.60	.60	.70	3.0
9	14	11	6.1	3.0	.70	.20	0	39	.40	.50	3.4	3.4
10	12	10	5.3	3.0	.60	.10	0	26	4.4	.40	3.8	3.4
11	10	11	5.3	3.0	.70	.10	0	5.3	3.0	.40	3.4	3.4
12	11	10	5.7	3.4	.70	.10	0	21	1.3	.40	4.5	3.0
13	12	9.4	5.7	3.4	.60	.20	0	20	1.1	.50	3.8	3.0
14	11	8.3	5.3	3.4	.50	.50	0	4.0	44	.40	3.4	3.4
15	11	7.7	5.3	3.4	.40	.10	.80	3.0	5.3	.30	3.4	3.0
16	13	7.1	4.9	3.8	.30	.10	0	2.0	1.9	.30	3.4	2.6
17	13	7.1	4.5	3.0	.30	0	24	2.0	19	.40	23	3.0
18	12	7.7	3.8	3.0	.30	0	.20	1.9	49	1.6	13	3.8
19	12	6.1	4.2	2.6	.30	0	.10	1.8	5.7	5.7	6.1	4.9
20	12	6.6	4.5	3.0	.30	0	.10	1.7	4.2	92	3.8	3.8
21	12	6.1	3.4	3.4	.30	0	0	1.6	1.8	11	3.4	3.0
22	12	6.6	3.4	3.0	.20	0	0	1.5	1.3	5.7	3.0	3.4
23	12	6.6	3.8	3.0	.20	0	0	1.4	1.1	3.4	3.0	3.4
24	12	6.6	4.2	3.0	.20	0	3.0	1.3	.50	3.0	2.2	3.4
25	13	6.1	4.5	2.6	.10	0	20	1.3	.40	1.3	2.2	3.4
26	12	7.1	4.5	2.0	.20	0	.20	1.3	.30	.90	2.6	3.0
27	11	6.6	4.9	1.8	.10	0	.10	1.1	.40	1.6	2.6	3.4
28	11	6.6	4.9	.90	.10	0	.10	1.1	.30	2.2	2.6	6.1
29	11	5.7	5.3	.70	.20	0	0	1.3	.20	1.6	2.5	6.1
30	12		5.3	1.6	1.4	0	0	16	.20	1.8	2.6	4.9
31	11		6.1		.10		0	1.3		1.8		5.3
Sum	393	249.0	157.0	95.90	18.00	2.00	48.60	215.9	208.80	145.40	122.30	111.7

Month	Current Year 1972 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 1936-1972 Acre Feet Average	Maximum	Minimum
Jan.			1	17	11	10	12.7	780	1,197	16,710	62
Feb.			2	12	29	5.7	8.59	494	858	11,129	59
Mar.			5	6.6	†21	3.4	5.06	311	617	2,692	95
Apr.			1	5.7	29	.70	3.20	190	215	1,186	19
May			1	1.8	†25	.10	.58	35.7	67.8	338	2
June			14	.50	† 1	0	.067	4	68.2	1,020	0
July			17	24	† 1	0	1.57	96.4	2,404	15,610	45
Aug.			9	39	† 1	0	6.96	428	6,322	45,790	91
Sept.			18	49	†29	.20	6.96	414	1,375	7,507	17
Oct.			20	92	† 1	.20	4.69	288	394	2,616	1.2
Nov.			17	23	7	.60	4.08	243	296	1,218	1.2
Dec.			†28	6.1	16	2.6	3.60	222	1,852	28,559	27
Yearly				92		0	4.84	3,506	15,666	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 1972.

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 1972			Period 1952-1972		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	58.272	61.183	119.455	4.146	3.346	3.853	‡ 4.800	0.650	2.317
Feb.	46.988	48.535	95.523	3.721	3.000	3.294	‡ 6.130	.650	2.366
Mar.	48.981	54.184	103.165	3.475	3.108	3.328	4.610	.750	2.264
Apr.	45.492	54.607	100.099	3.527	3.100	3.337	4.301	.700	2.224
May	47.631	55.361	102.992	3.692	2.888	3.322	4.000	.550	2.139
June	48.572	51.444	100.016	3.762	2.862	3.334	3.800	.700	2.024
July	43.241	57.009	100.250	3.729	2.807	3.234	3.729	.700	2.076
Aug.	43.880	53.380	97.260	3.609	2.588	3.137	4.928	.750	2.348
Sept.	41.806	52.688	94.494	3.538	2.761	3.150	4.541	.800	2.645
Oct.	46.828	54.529	101.357	3.849	2.802	3.270	3.999	.700	2.512
Nov.	52.284	56.408	108.692	4.402	2.817	3.623	4.402	.800	2.327
Dec.	57.022	50.900	107.922	3.867	3.072	3.481	‡ 5.200	.350	2.357
Yearly	580.997	650.228	1,231.225	4.402	2.588	3.364	‡ 6.130	0.350	2.300

‡ 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. Two 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 95.

In United States

Month	Meigs Ranch, Arizona		Canelo, Arizona		Patagonia, Arizona		Nogales, Arizona		Nogales Sanitation Plant 6N, Arizona	
	1972	Average 1952-1972	1972	Average 1930-1972	1972	Average 1930-1972	1972	Average 1914-1972	1972	Average 1953-1972
Jan.	0	0.76	0.03	1.08	0.07	1.15	0	1.02	0	0.86
Feb.	0	.47	0	1.05	0	1.01	0	.82	0	.57
Mar.	0	.80	0	.74	.05	.79	T	.73	0	.71
Apr.	0	.21	0	.36	0	.33	0	.29	0	.13
May	.29	.10	.48	.13	.23	.16	.43	.14	.40	.10
June	1.04	.48	1.55	.85	2.59	.51	1.03	.47	1.01	.45
July	4.77	4.82	1.82	4.30	2.38	4.48	4.39	4.20	3.78	4.65
Aug.	2.66	4.83	2.35	4.53	2.15	4.25	2.94	3.99	2.69	4.29
Sept.	.87	1.52	2.27	1.70	3.51	1.84	1.32	1.61	1.17	1.46
Oct.	3.33	.84	2.81	.91	3.92	.88	3.12	.76	4.33	1.02
Nov.	1.14	.53	1.32	.75	1.64	.80	1.35	.70	1.37	.58
Dec.	.83	1.21	.84	1.42	1.08	1.44	.78	1.32	.81	1.40
Yearly	14.93	16.57	13.47	17.82	17.62	17.64	15.36	16.05	15.56	16.22

In Mexico

Month	San Lazaro, Sonora	
	1972	Average 1961-1972
Jan.	0	0.63
Feb.	0	.51
Mar.	0	.59
Apr.	0	.47
May	0	.16
June	1.97	.55
July	.59	4.53
Aug.	2.28	3.46
Sept.	1.46	1.73
Oct.	3.23	.94
Nov.	.86	.59
Dec.	.55	1.54
Yearly	10.94	13.74

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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 1972.

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
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 95 of this bulletin.

In United States

Temperature - Degrees Fahrenheit

Month	Nogales Sanitation Plant - 6N		
	1972		
	Mean	Max.	Min.
Jan.	44.0	64	24
Feb.	48.6	69	28
Mar.	59.2	80	38
Apr.	59.7	82	38
May	65.5	87	44
June	74.9	93	56
July	79.6	96	63
Aug.	79.5	93	66
Sept.	75.6	92	59
Oct.	66.4	79	54
Nov.	50.8	66	35
Dec.	46.1	63	30
Yearly	62.5	96	24

Mean Relative Humidity - Percent

Month	Nogales Sanitation Plant - 6N	
	1972	
	Max.	Min.
Jan.	100	43
Feb.	100	33
Mar.	100	35
Apr.	100	26
May	100	18
June	91	30
July	100	42
Aug.	100	63
Sept.	100	50
Oct.	100	41
Nov.	100	26
Dec.	100	2
Yearly	100	2

Evaporation - Inches

Month	Nogales Sanitation Plant - 6N	
	1972	Average # 1953-1972
Jan.	* 3.47	3.52
Feb.	* 4.82	4.67
Mar.	7.92	7.32
Apr.	9.21	9.80
May	12.48	12.60
June	9.84	13.82
July	* 10.08	9.96
Aug.	10.17	7.66
Sept.	8.24	7.69
Oct.	5.89	6.82
Nov.	4.61	4.40
Dec.	3.55	3.29
Yearly	* 90.28	91.55

Mean Wind Speed - Miles Per Hour

Month	Nogales Sanitation Plant - 6N	
	1972	Average 1953-1972
Jan.	* 2.0	2.0
Feb.	* 2.3	2.3
Mar.	2.6	2.6
Apr.	2.8	2.5
May	2.9	2.5
June	2.6	2.3
July	2.4	1.5
Aug.	1.9	.9
Sept.	1.7	1.0
Oct.	1.8	1.5
Nov.	1.8	1.5
Dec.	2.3	1.7
Yearly	* 2.3	1.8

In Mexico

Temperature - Degrees Fahrenheit

Month	San Lazaro, Sonora			
	1972		1961-1972	
	Max.	Min.	Max.	Min.
Jan.	73	23	93	10
Feb.	82	23	88	16
Mar.	86	25	99	19
Apr.	90	30	106	27
May	91	37	117	28
June	102	68	124	41
July	100	63	126	52
Aug.	99	68	117	52
Sept.	95	50	115	39
Oct.	93	63	111	34
Nov.	77	27	102	21
Dec.	73	21	95	14
Yearly	102	21	126	10

Evaporation - Inches

Month	San Lazaro, Sonora	
	1972	Average 1961-1972
Jan.	4.45	3.78
Feb.	5.83	4.45
Mar.	8.46	7.17
Apr.	10.94	9.84
May	11.06	11.97
June	9.57	12.52
July	10.98	8.43
Aug.	8.66	7.09
Sept.	7.99	7.24
Oct.	5.83	6.85
Nov.	3.46	4.53
Dec.	3.43	3.39
Yearly	90.67	87.80

Some months missing * Estimated

DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG SANTA CRUZ RIVER, SAN PEDRO RIVER, AND WHITEWATER DRAW 1972

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	Station	Reference	Published as	Correction
1960 through 1970 54, 59, 59, 60, 62, 63, 58, 58, 58, 57, 57	New River at International Boundary	Textual heading, DESCRIPTION, first line	right (east) bank	left (west) bank
1970-67	Cottonwood Creek above Barrett Dam, California	Textual heading, REMARKS, fourth line	(gage height 58.88 feet) is not included in	(gage height 58.88 feet) is included in
		Period of record, minimum for April	.2	10.2
1960 through 1970 Page 3	Table of Contents	IV-Whitewater Draw, San Pedro and Santa Cruz Rivers - Quantity of Water	Sewage Effluent, Nogales International Treatment Plant	Sewage Influent, Nogales International Treatment Plant
1960 through 1970 87, 95, 95, 95, 101, 99, 95, 93, 93, 92, 92	Sewage Influent, Nogales International Treatment Plant	Station Name	Sewage Effluent, Nogales International Treatment Plant	Sewage Influent, Nogales International Treatment Plant