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WESTERN WATER BULLETIN 1974

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

COLORADO RIVER

TIJUANA RIVER

SANTA CRUZ RIVER

SAN PEDRO RIVER

WHITEWATER DRAW

1974

CONTENTS

CONTENTS

FOREWORD

This bulletin is the fifteenth 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 1974.

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

Colorado River below Imperial Dam

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

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

At Imperial Dam, diversions are made to Gila Gravity Main Canal and All-American Canal for irrigation projects in Arizona, including the Yuma Valley, Gila and Wellton-Mohawk projects, and in California, including the Imperial Valley, Coachella Valley and Reservation Division of Yuma Project. Also, under the provisions of the 1944 Water Treaty, there may be diverted to the All-American Canal at Imperial Dam for delivery to Mexico in the Alamo Canal, or substitute canal, at the northerly boundary, a portion of Mexico's guaranteed annual allotment of waters of the Colorado River. No such diversions were made in 1974.

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

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

Tijuana River Basin

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

Whitewater Draw near Douglas, Arizona

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

FOREWORD

San Pedro River at Palominas, Arizona

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

Santa Cruz River near Nogales and Lochiel, Arizona

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

Acknowledgments

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

Units of Measure

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

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

GENERAL HYDROLOGIC CONDITIONS FOR 1974

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 1974. The average seasonal (October 1973-September 1974) rainfall over the upper basin, as gaged at 13 index stations, was about 10.6 inches compared to a seasonal average of about 13.8 inches for the 52 seasons (1923-1974). In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation (1974) measured at 6 index stations was 2.01 inches compared to an average of 2.52 inches during the last 16 years (1959-1974).

The flow of the Colorado River reaching Imperial Dam was 6,213,600 acre-feet, about 76% of the 40-year average (1935-1974) of 8,163,310 acre-feet. At the northerly international boundary, the total flow of the river during 1974 was 1,336,355 acre-feet, about 36% of the 1935-1974 average of 3,667,980 acre-feet. At the southerly international boundary, the flow during 1974 was only 148,003 acre-feet, or about 5% of the 1935-1974 average of 2,831,124 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 63,475 acre-feet in 1974, about 6% of the 1951-1974 average of 1,061,611 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1974 amounted to 1,665,358 acre-feet, 39% of the 1935-1974 average of 4,278,978 acre-feet, as measured 1) in the Colorado River at the northerly international boundary, 2) in the Wellton-Mohawk Main Outlet Drain Extension near Morelos Dam, 3) in the wasteways that discharge into the limitrophe section of the river from the United States bank, 4) in the canal which discharges waste and drainage waters from the Yuma Project across the southerly land boundary into Mexico near San Luis, Arizona, and 5) emergency delivery of Colorado River water for use in Tijuana, Baja California.

No flood peaks of importance occurred in streams of the lower Colorado River basin during 1974. A maximum instantaneous flow of 3,590 second-feet occurred in the Colorado River at the northerly boundary station on April 9, 1974.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 21,814,300 acre-feet, 76% of the usable capacity of 28,588,400 acre-feet. The greater part (19,721,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1974 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1974 was 1,140,772 acres; 673,051 acres in the United States and 467,721 acres in Mexico. An estimated 38% of acreage in Mexico is served by pumping from ground water.

The suspended sediment load passing the northerly boundary station in 1974 was 69.6 acre-feet, about 28% of the 1956-1974 average of 253 acre-feet.

Tijuana River Basin

During 1974, the temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 60.4 degrees, 0.8 degrees below the 44-year mean. In the extreme upper portion of the basin in Mexico at San Juan de Dios, Baja California (elevation 3,280 feet), the recorded temperatures during the year averaged 54 degrees, equal to the long-term average, and at Rodriguez Dam, Baja California (elevation 459 feet), the recorded temperatures averaged 64 degrees, 2 degrees above the normal for many years.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 14.12 inches, 82% of normal, and at Chula Vista near the lower end of the basin, 6.13 inches, or 65% of normal. The recorded precipitation at San Juan de Dios in the upper portion of the basin in Mexico, was 15.91 inches, approximately 109% of the normal during the 19-year period, and at Rodriguez Dam in the lower portion of the basin in Mexico, 6.73 inches, 85% of the 37-year average.

Runoff in the basin during 1974 averaged less than 5% of normal. Above Morena Reservoir the runoff was 406 acre-feet, or about 7% of the 38-year 1937-1974 mean of 5,529 acre-feet. At Rodriguez Reservoir, the runoff was 309 acre-feet, or about 2% of the 37-year mean of 13,134 acre-feet.

The flow of the Tijuana River at the international boundary was 781 acre-feet during 1974, and the flow in the Tijuana River near Nestor was 54.3 acre-feet.

Whitewater Draw

During 1974, the average annual temperature over the watershed was slightly above normal, while the annual precipitation was below normal. Runoff for the year at the gaging station near Douglas, Arizona, of 3,888 acre-feet was about 56% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1974

San Pedro River

During 1974, the average annual temperature was below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 84% of the 1961-1974 mean of 19.46 inches. The stream flow at the international boundary was 22,020 acre-feet, 104% of the 1951-1974 normal.

Santa Cruz River

During 1974, the average annual temperature over the watershed was somewhat below normal, and the annual precipitation was about 98% of the 36-year 1939-1974 mean. Runoff measured at the Nogales gaging station where the stream re-enters the United States was 16,457 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 1,226 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 15,231 acre-feet from the loop of the river lying in Mexico, or approximately 93% of the flow reaching the Nogales station.

Alamo and New Rivers

During 1974 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 below normal; and over the drainage area of the New River, as recorded at Mexicali, Baja California, it was 72.0 degrees, equal to the 49-year average.

At El Centro, the precipitation was 1.56 inches, about 65% of the 44-year average, and in Mexicali, the annual precipitation was 1.97 inches, 68% of the 49-year average. The total flow of the New River at the international boundary in 1974 was 111,836 acre-feet, which was about 143% of the 1943-1974 normal.

Salton Sea

During 1974, 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 107% of the long-term mean of 2.31 inches. The water surface of the Salton Sea remained more or less the same during the year. The maximum stage, 230.8 feet below mean sea level, was recorded on April 17, 18, April 27 to May 17, inclusive, and May 23 to June 16, inclusive. The minimum stage, 231.7 feet below mean sea level, was recorded on January 1-6.

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

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

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

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

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.8	13.7	13.8	13.7	13.7	13.5	11.2	14.0	14.0	14.1	14.1	14.0
2	13.6	13.8	13.8	13.8	13.9	13.3	11.2	14.1	14.0	14.1	14.1	14.0
3	13.8	13.9	13.8	13.8	13.8	13.3	11.2	14.1	14.0	14.2	14.0	14.0
4	13.8	13.9	13.8	14.0	13.8	13.1	11.3	14.3	13.8	14.1	14.0	13.9
5	13.6	13.8	13.8	13.9	13.9	13.2	11.3	14.1	13.9	14.2	14.0	14.0
6	13.8	13.8	13.8	13.8	13.9	13.2	11.3	14.0	13.9	14.5	13.8	14.0
7	13.9	13.8	13.8	13.8	13.9	13.2	11.3	14.0	13.9	14.4	13.9	14.0
8	13.8	13.9	13.8	13.8	13.8	13.3	11.3	13.9	13.1	14.2	13.8	14.0
9	13.6	13.8	13.8	13.8	13.8	12.4	11.3	14.0	5.9	14.1	13.9	14.1
10	13.8	13.8	13.8	13.8	13.8	11.9	11.3	14.0	9.8	8.8	14.0	13.8
11	13.6	13.7	13.9	13.8	13.6	12.1	11.3	14.3	11.1	9.9	13.9	14.0
12	13.8	13.7	13.9	13.8	13.9	11.9	12.4	14.0	11.9	11.9	13.7	13.9
13	13.7	13.7	13.9	13.9	13.8	11.9	13.9	13.3	13.3	12.0	13.7	13.9
14	13.8	13.7	13.8	13.9	13.6	11.9	14.1	14.0	14.3	11.8	13.7	14.0
15	13.7	13.7	13.9	13.9	13.8	11.9	14.0	14.0	14.6	11.6	13.6	14.0
16	13.8	13.9	13.8	13.8	13.7	11.9	14.1	14.1	12.8	11.8	13.7	13.8
17	13.8	13.9	13.8	13.8	13.7	11.4	13.9	13.7	10.5	13.3	13.8	4.9
18	13.8	13.8	13.7	13.9	13.6	8.7	13.9	14.3	10.5	13.8	13.8	7.4
19	13.7	13.8	13.6	13.8	13.8	7.9	13.9	14.0	10.5	13.8	13.8	13.3
20	13.8	13.8	13.6	13.9	13.8	11.2	13.9	14.0	10.6	14.0	13.7	13.4
21	13.7	13.8	13.7	14.0	13.6	11.1	14.2	13.9	12.8	13.6	13.7	13.4
22	13.7	13.8	13.7	13.9	13.7	11.3	13.9	13.8	14.5	13.6	13.7	13.4
23	13.7	13.8	13.8	13.9	13.4	11.1	13.9	13.9	14.2	13.6	13.7	13.4
24	13.7	13.8	13.8	13.9	13.3	11.1	14.0	14.1	14.2	13.6	13.8	13.5
25	13.8	13.7	13.8	13.9	13.2	11.1	14.0	14.3	14.2	13.6	13.7	13.5
26	13.7	13.7	13.8	14.0	13.3	11.2	13.8	14.0	14.5	13.8	13.6	13.5
27	13.8	13.7	13.8	13.9	13.2	11.2	14.0	14.0	13.8	13.8	13.7	13.5
28	13.7	13.6	13.8	14.0	13.3	11.3	14.1	13.9	14.2	13.8	13.7	13.5
29	13.9		13.9	13.9	13.2	11.2	13.8	13.9	14.4	13.7	13.7	13.4
30	13.8		13.9	13.9	13.3	11.3	9.7	13.9	14.2	14.1	14.4	13.4
31	13.9		13.9		13.4		11.2	13.8		13.7		13.4
Sum	426.4	385.8	427.8	416.0	422.5	353.1	394.7	433.7	387.4	411.5	414.7	410.3

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	* ∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second * Feet	* Total Acre Feet	Period 1973-1974 Acre Feet Average	Maximum	Minimum
Jan.			† 7	13.9	† 2	13.5	13.8	846	724	846	603
Feb.			† 3	13.9	28	13.6	13.8	765	696	765	626
Mar.			†11	13.9	†19	13.6	13.8	849	766	849	683
Apr.			† 4	14.0	1	13.7	13.9	825	796	825	768
May			† 2	13.9	†25	13.2	13.6	838	827	838	816
June			1	13.5	19	7.9	11.8	700	843	986	700
July			21	14.2	30	9.7	12.7	783	902	1,021	783
Aug.			† 4	14.3	13	13.3	14.0	860	884	907	860
Sept.			15	14.6	9	5.9	12.9	768	758	768	747
Oct.			6	14.5	10	8.8	13.3	816	834	852	816
Nov.			30	14.4	†15	13.6	13.8	823	804	823	786
Dec.			9	14.1	17	4.9	13.2	814	712	814	610
Yearly				14.6		4.9	13.4	9,687	9,546	9,687	9,405

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

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

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

RECORDS: Based on current meter measurements and a continuous record of gage heights. Records are computed and furnished by the U. S. Geological Survey. Records available: Monthly discharge, January 1913 to April 1920, October 1921 to March 1925, and January 1934 to September 1947; daily and monthly discharge, October 1947 through 1974.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	49	42	53	56	53	55	57	62	50	61	61	88
2	48	42	47	56	51	61	52	65	51	57	59	88
3	51	39	47	54	50	57	52	63	56	57	62	66
4	47	44	47	51	53	55	51	81	51	63	62	72
5	50	43	48	55	51	54	52	58	50	67	66	65
6	52	46	51	51	50	54	56	59	54	73	59	58
7	56	45	48	51	55	62	55	59	52	67	61	68
8	54	42	56	52	54	65	55	59	53	58	60	62
9	46	42	52	53	55	55	52	57	52	54	63	55
10	57	47	52	55	54	53	52	58	53	54	62	56
11	50	45	52	52	55	53	54	55	50	54	58	58
12	42	45	52	53	60	51	53	51	53	54	60	57
13	44	45	52	58	59	52	54	54	53	58	59	65
14	40	44	55	57	58	53	57	54	59	59	56	70
15	42	49	52	58	64	54	58	54	65	59	58	64
16	42	51	52	51	54	55	57	51	68	55	58	67
17	45	47	52	51	57	57	59	51	58	66	58	56
18	39	47	51	51	54	60	56	52	61	62	60	51
19	39	52	52	52	59	57	57	55	62	65	60	52
20	42	52	53	53	55	54	55	54	60	74	58	52
21	41	48	52	50	58	55	58	51	56	72	59	55
22	42	58	53	51	58	53	54	50	57	68	60	54
23	41	50	52	50	55	51	56	51	60	60	63	50
24	41	52	56	51	54	52	59	53	61	63	60	49
25	40	52	59	53	52	49	58	50	58	68	61	56
26	40	50	60	53	50	50	60	50	56	62	61	49
27	48	56	55	59	49	49	69	50	54	57	61	48
28	45	62	55	57	57	50	67	55	53	56	64	56
29	40		54	53	54	51	67	52	55	69	64	48
30	39		54	54	49	54	60	53	51	67	76	57
31	42		56		48		60	51		70		62
Sum	1,394	1,337	1,630	1,601	1,685	1,631	1,762	1,718	1,672	1,929	1,829	1,854

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1937-1974 Acre Feet Average	Maximum	Minimum
Jan.			10	57	†18	39	45.0	2,765	3,195	4,780	877
Feb.			28	62	3	39	47.8	2,652	3,040	4,320	563
Mar.			26	60	† 2	47	52.6	3,233	3,695	5,240	1,240
Apr.			27	59	†21	50	53.4	3,176	3,743	5,250	1,160
May			15	64	31	48	54.4	3,342	3,865	5,590	992
June			8	65	†25	49	54.4	3,235	3,734	5,580	885
July			27	69	4	51	56.8	3,495	4,020	6,550	816
Aug.			4	81	†22	50	55.4	3,408	3,981	6,810	861
Sept.			16	68	† 1	50	55.7	3,316	3,766	6,220	889
Oct.			20	74	† 9	54	62.2	3,826	3,793	5,740	1,040
Nov.			30	76	14	56	61.0	3,628	3,538	5,490	994
Dec.			† 1	88	†27	48	59.8	3,677	3,420	4,960	966
Yearly				88		39	54.9	39,753	43,790	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. 1974 records good except those below 125 second-feet, which are fair. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 1974.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36	771	16	16	15	361	19	18	627	165	30	103
2	418	757	16	17	15	17	19	18	620	202	36	240
3	341	748	16	16	15	22	19	18	233	166	41	224
4	265	586	16	16	40	18	19	18	230	161	41	192
5	359	610	16	16	549	21	19	18	212	134	43	160
6	416	584	16	17	88	22	19	18	148	110	43	219
7	445	529	16	17	141	20	19	18	130	130	50	250
8	507	509	16	17	168	21	19	18	147	171	63	214
9	454	486	16	17	167	21	19	18	150	159	57	254
10	190	510	16	17	187	20	19	18	178	180	70	322
11	8.4	729	16	17	163	20	19	20	205	120	74	278
12	13	742	16	17	178	20	19	18	222	153	77	260
13	11	789	16	17	192	21	19	18	189	175	77	154
14	13	817	16	17	186	21	19	28	125	168	96	124
15	385	689	16	17	172	20	19	18	111	188	106	120
16	363	16	16	17	76	19	19	18	72	110	101	131
17	538	16	16	17	164	19	19	18	125	85	70	18
18	805	16	16	17	112	19	19	18	92	104	7.3	18
19	803	16	16	17	92	25	19	18	84	122	8.5	18
20	860	16	16	17	87	19	19	18	102	126	12	18
21	739	16	16	17	48	19	19	18	99	138	11	18
22	414	16	16	17	69	19	19	18	110	122	70	18
23	557	16	16	17	112	19	19	18	101	105	123	18
24	722	16	16	17	123	19	19	18	106	100	188	18
25	734	16	16	17	93	19	19	18	145	91	183	18
26	759	16	16	16	115	19	19	18	257	108	192	18
27	787	16	16	15	90	19	19	18	542	126	177	18
28	777	16	16	15	139	19	19	18	634	128	170	18
29	17		16	15	189	19	19	23	688	163	81	18
30	17		16	15	352	19	19	218	583	138	96	18
31	110		16		384		19	1,060		113		18
Sum	10,064		497		936			1,817		4,261		3,515
	12,863.4		496		4,526		589		7,267		2,393.8	

Month	Current Year 1974 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 1935-1974 Acre Feet Average	Maximum	Minimum
Jan.			20	860	11	8.4	415	25,514	58,249	110,700	3,230
Feb.			14	817	†16	16	359	19,962	51,087	89,140	2,856
Mar.			† 1	16	† 1	16	16	934	52,223	90,190	469
Apr.			† 2	17	† 1	16	16.6	986	52,764	86,580	986
May			5	549	† 1	15	146	8,977	60,967	88,280	5,480
June			1	361	2	17	31.2	1,857	53,102	86,960	1,857
July			† 1	19	† 1	19	19	1,168	51,695	91,220	452
Aug.			31	1,060	† 1	18	58.6	3,604	52,283	89,890	456
Sept.			29	688	16	72	242	14,414	54,845	83,660	12,419
Oct.			2	202	17	85	137	8,452	51,266	90,050	2,176
Nov.			26	192	18	7.3	79.8	4,748	51,186	101,500	3,850
Dec.			10	322	†17	18	113	6,972	57,066	108,300	918
Yearly				1,060		7.3	136	97,638	646,733	1,042,350	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. 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 1974. 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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	552	1,100	476	615	684	1,300	563	585	1,130	601	616	642
2	1,190	1,100	492	606	687	606	571	578	1,230	612	625	834
3	928	1,100	650	529	672	475	592	583	1,170	604	627	957
4	707	922	655	496	769	475	583	613	1,180	591	615	946
5	761	952	631	503	1,830	482	652	676	1,180	580	615	923
6	798	950	610	519	1,280	589	1,140	1,020	1,160	574	637	913
7	814	948	596	523	1,220	571	680	760	1,150	581	628	952
8	1,020	935	653	664	1,230	458	604	781	1,170	605	643	920
9	1,460	932	596	619	1,240	421	561	814	1,160	592	640	956
10	1,750	940	596	539	1,260	383	550	774	1,150	619	629	1,160
11	1,360	1,170	619	519	1,250	493	559	714	1,190	597	634	1,270
12	924	1,190	685	518	1,230	558	570	558	1,210	601	624	1,360
13	1,090	1,270	1,020	523	1,240	569	636	546	1,200	614	636	1,270
14	882	1,310	783	542	1,220	555	769	603	1,170	609	630	1,270
15	784	1,200	611	553	1,160	499	725	594	1,170	622	630	1,260
16	684	499	601	551	911	498	578	604	1,150	642	610	877
17	861	499	583	546	1,250	672	561	627	1,160	620	652	571
18	1,140	485	576	536	1,240	679	552	633	1,150	632	561	556
19	1,130	486	582	534	1,220	640	589	625	1,150	649	585	556
20	1,150	491	570	518	1,240	600	592	583	1,150	635	614	545
21	1,150	468	556	509	1,230	577	582	594	1,130	640	614	566
22	1,080	484	547	659	1,230	560	554	606	1,130	673	622	566
23	1,110	436	556	647	1,250	564	700	782	1,130	652	635	572
24	1,110	468	570	568	1,310	544	1,060	793	1,130	656	622	557
25	1,090	472	556	539	1,270	541	738	735	1,120	654	619	571
26	1,130	480	534	526	1,310	548	611	645	1,110	654	621	551
27	1,140	480	542	538	1,290	560	593	583	1,180	659	642	533
28	1,180	464	630	590	1,320	547	578	596	1,160	670	624	553
29	387		620	725	1,330	552	564	565	1,200	714	612	564
30	299		610	730	1,380	553	562	610	1,100	721	578	566
31	409		620		1,340		570	1,750		694		630
Sum	30,070	22,231	18,926	16,984	37,093	17,069	19,739	21,530	34,770	19,567	18,640	24,967

Month	Current Year 1974								Period 1951-1974		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			10	1,750	30	299	970	59,643	219,300	979,890	29,857
Feb.			14	1,310	23	436	794	44,095	164,668	826,600	33,790
Mar.			13	1,020	1	476	611	37,539	180,563	1,073,270	35,002
Apr.			30	730	4	496	566	33,687	170,870	843,010	33,687
May			5	1,830	3	672	1,197	73,573	165,124	863,860	56,493
June			1	1,300	10	383	569	33,856	153,547	833,970	33,856
July			6	1,140	10	550	637	39,152	164,699	640,820	34,413
Aug.			31	1,750	13	546	695	42,704	170,263	670,050	36,426
Sept.			2	1,230	30	1,100	1,159	68,965	145,850	775,930	43,182
Oct.			30	721	6	574	631	38,811	119,807	802,210	34,965
Nov.			17	652	18	561	621	36,972	139,752	911,370	34,832
Dec.			12	1,300	27	533	805	49,521	178,223	1,114,550	33,023
Yearly				1,830		299	771	558,518	1,972,671	10,220,870	513,755

∅ Mean daily

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

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.71	10.76	9.41	9.79	9.96	11.21	9.85	9.98	11.03	10.02	9.94	10.03
2	10.92	10.75	9.45	9.79	9.99	9.95	9.87	9.96	11.20	10.04	9.96	10.40
3	10.46	10.74	9.79	9.61	9.96	9.66	9.93	9.96	11.10	10.02	9.96	10.63
4	10.05	10.42	9.80	9.55	10.15	9.65	9.91	10.01	11.12	10.00	9.95	10.61
5	10.16	10.47	9.73	9.57	11.97	9.66	10.05	10.12	11.11	9.96	9.95	10.57
6	10.23	10.47	9.70	9.61	11.07	9.91	10.93	10.75	11.08	9.95	9.99	10.54
7	10.26	10.46	9.66	9.62	10.98	9.87	10.12	10.27	11.07	9.95	9.97	10.61
8	10.61	10.44	9.78	9.91	11.01	9.60	9.96	10.30	11.09	10.00	10.01	10.54
9	11.37	10.43	9.66	9.83	11.03	9.51	9.87	10.36	11.07	9.98	10.01	10.60
10	11.85	10.44	9.66	9.66	11.08	9.42	9.86	10.28	11.06	10.03	9.99	10.94
11	11.19	10.84	9.71	9.61	11.06	9.69	9.88	10.17	11.12	9.98	10.00	11.13
12	10.46	10.87	9.84	9.61	11.03	9.84	9.91	9.84	11.16	9.99	9.99	11.26
13	10.74	11.00	10.46	9.62	11.06	9.87	10.05	9.82	11.15	10.00	10.01	11.12
14	10.38	11.07	10.03	9.66	11.03	9.84	10.32	9.94	11.10	9.99	10.00	11.11
15	10.20	10.87	9.70	9.69	10.94	9.71	10.24	9.92	11.09	10.01	10.00	11.08
16	10.01	9.57	9.67	9.69	10.51	9.70	9.94	9.94	11.06	10.05	9.96	10.39
17	10.34	9.57	9.63	9.67	11.10	10.08	9.90	9.99	11.09	10.01	10.03	9.82
18	10.83	9.53	9.62	9.65	11.09	10.10	9.89	10.01	11.06	10.02	9.85	9.78
19	10.80	9.54	9.63	9.65	11.06	10.02	9.97	9.99	11.05	10.06	9.90	9.78
20	10.84	9.55	9.61	9.61	11.11	9.93	9.98	9.90	11.06	10.03	9.96	9.75
21	10.84	9.48	9.59	9.59	11.10	9.89	9.97	9.92	11.03	10.03	9.97	9.80
22	10.72	9.51	9.58	9.91	11.10	9.85	9.90	9.95	11.03	10.10	9.99	9.80
23	10.78	9.38	9.61	9.89	11.14	9.86	10.20	10.30	11.03	10.04	10.02	9.81
24	10.78	9.45	9.64	9.72	11.22	9.81	10.86	10.32	11.02	10.05	9.99	9.78
25	10.75	9.45	9.62	9.66	11.17	9.80	10.29	10.21	11.01	10.05	9.98	9.81
26	10.82	9.46	9.57	9.62	11.23	9.82	10.04	10.03	11.00	10.04	9.99	9.77
27	10.82	9.46	9.61	9.66	11.20	9.85	10.00	9.90	11.10	10.05	10.03	9.73
28	10.89	9.41	9.79	9.77	11.25	9.82	9.97	9.93	11.08	10.07	10.00	9.77
29	9.33		9.79	10.05	11.27	9.83	9.94	9.86	11.14	10.15	9.97	9.80
30	9.09		9.77	10.05	11.35	9.83	9.93	9.96	10.98	10.16	9.90	9.80
31	9.36		9.80		11.28		9.95	11.98		10.10		9.94
Avg.	10.50	10.12	9.71	9.71	10.98	9.85	10.05	10.12	11.08	10.03	9.98	10.27

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 1974.
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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.2	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.9	3.2	3.5
2	2.2	1.5	1.4	1.8	1.6	1.7	1.8	2.1	2.9	2.9	3.2	3.4
3	2.1	1.5	1.4	1.7	1.6	1.7	1.8	2.2	2.9	3.0	3.2	3.4
4	2.1	1.4	1.4	1.6	1.6	1.7	1.8	2.2	2.9	3.1	3.2	3.3
5	2.1	1.4	1.4	1.6	1.6	1.7	1.8	2.2	2.8	3.1	3.3	3.3
6	2.1	1.3	1.5	1.6	1.6	1.7	1.9	2.3	2.8	3.2	3.3	3.2
7	2.0	1.3	1.5	1.6	1.6	1.8	1.9	2.3	2.8	3.2	3.3	3.1
8	2.0	1.3	1.5	1.6	1.6	1.8	1.9	2.4	2.8	3.2	3.3	3.1
9	2.0	1.3	1.6	1.6	1.6	1.8	1.9	2.4	2.8	3.2	3.3	3.0
10	2.0	1.3	1.6	1.6	1.7	1.8	1.9	2.5	2.8	3.2	3.4	3.0
11	1.9	1.3	1.6	1.6	1.7	1.8	1.9	2.5	2.8	3.2	3.4	2.9
12	1.9	1.3	1.7	1.6	1.7	1.8	1.9	2.6	2.8	3.2	3.4	2.8
13	1.9	1.3	1.7	1.6	1.7	1.8	1.9	2.6	2.8	3.2	3.4	2.8
14	1.9	1.3	1.7	1.6	1.7	1.8	1.9	2.6	2.8	3.2	3.4	2.7
15	1.8	1.3	1.8	1.6	1.7	1.8	1.9	2.7	2.8	3.2	3.4	2.7
16	1.8	1.3	1.8	1.6	1.7	1.8	1.9	2.7	2.8	3.2	3.4	2.6
17	1.8	1.3	1.8	1.6	1.7	1.8	1.9	2.8	2.8	3.2	3.5	2.5
18	1.7	1.3	1.8	1.6	1.7	1.8	1.9	2.8	2.8	3.2	3.5	2.5
19	1.7	1.3	1.9	1.6	1.7	1.8	1.9	2.9	2.8	3.2	3.5	2.5
20	1.7	1.3	1.9	1.6	1.7	1.8	1.9	2.9	2.8	3.2	3.5	2.5
21	1.7	1.3	1.9	1.6	1.7	1.8	1.9	2.9	2.8	3.2	3.5	2.5
22	1.6	1.3	1.9	1.6	1.7	1.8	1.9	2.9	2.8	3.2	3.5	2.5
23	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
24	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
25	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
26	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
27	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
28	1.6	1.3	1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
29	1.6		1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
30	1.6		1.9	1.6	1.7	1.8	2.0	2.9	2.8	3.2	3.5	2.5
31	1.6		1.9		1.7		2.0	2.9		3.2		2.5
Sum	56.6	37.3	53.2	48.6	51.8	53.4	59.3	81.6	84.4	98.2	102.0	86.3

Month	Current Year 1974								Period 1948-1974		
	Extreme Gage Feet		ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			† 1	2.2	†22	1.6	1.83	112	349	899	39.3
Feb.			1	1.6	† 6	1.3	1.33	74.0	302	746	40.5
Mar.			†19	1.9	1	1.3	1.72	106	369	853	73.8
Apr.			1	1.9	† 4	1.6	1.62	96.4	390	1,000	66.8
May			†10	1.7	† 1	1.6	1.67	103	391	966	61.5
June			† 7	1.8	† 1	1.7	1.78	106	407	1,030	67.4
July			†23	2.0	† 1	1.8	1.91	118	463	1,260	72.8
Aug.			†19	2.9	1	2.0	2.63	162	515	1,350	73.8
Sept.			† 1	2.9	† 5	2.8	2.81	167	494	1,370	53.6
Oct.			† 6	3.2	† 1	2.9	3.17	195	503	1,220	55.3
Nov.			†17	3.5	† 1	3.2	3.40	202	455	1,240	57.7
Dec.			† 1	3.5	†17	2.5	2.78	171	411	1,050	51.0
Yearly				3.5		1.3	2.22	1,612	5,049	12,429	834

ø Mean daily † And other days

PILOT KNOB POWER PLANT AND WASTEWAY NEAR PILOT KNOB, CALIFORNIA

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

RECORDS: Daily discharge is computed from flowmeter equipment and head and openings on wasteway gates or from head and gate opening on wicket and wasteway gates. Records furnished by the U. S. Geological Survey. Records available: July 1944 through 1974. 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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,010	0	1,250	2,460	1,160	0	2,070	2,260	0	0	0	0
2	0	0	1,530	2,500	1,140	1,010	2,080	2,460	0	0	0	0
3	0	0	1,650	2,600	1,090	1,270	2,060	2,460	0	0	0	0
4	0	0	1,370	2,590	1,060	1,310	2,050	2,410	0	0	0	0
5	0	0	1,450	2,610	0	1,350	1,990	2,480	0	0	0	0
6	0	0	1,430	2,610	0	1,190	1,610	2,210	0	0	0	0
7	0	0	1,470	2,570	0	1,120	1,870	2,350	0	0	0	0
8	0	0	1,540	2,440	0	1,150	2,250	2,340	0	0	0	0
9	0	0	1,510	2,450	0	1,140	2,260	2,300	0	0	0	0
10	0	0	1,560	2,530	0	1,100	2,250	2,320	0	0	0	0
11	0	0	1,800	2,590	0	1,150	2,260	2,370	0	0	0	0
12	0	0	1,770	2,610	0	1,160	2,380	2,240	0	0	0	0
13	0	0	1,560	2,640	0	1,200	2,320	2,140	0	0	0	0
14	0	0	1,720	2,640	0	1,090	2,140	2,040	0	0	0	0
15	0	0	1,890	2,590	0	1,070	2,190	2,060	0	0	0	0
16	0	1,010	1,950	2,630	0	1,080	2,320	2,050	0	0	0	623
17	0	1,050	2,170	2,400	0	1,030	2,360	2,020	0	0	0	1,000
18	0	1,050	2,240	2,180	0	1,010	2,380	2,000	0	0	0	1,020
19	0	1,020	2,260	1,990	0	1,100	2,340	2,020	0	0	0	1,010
20	0	1,040	2,310	2,000	0	1,150	2,180	2,080	0	0	0	1,000
21	0	1,250	2,260	2,000	0	1,400	2,170	2,090	0	0	0	1,000
22	0	1,160	2,450	1,690	0	1,420	2,200	2,080	0	0	0	1,000
23	0	998	2,460	1,680	0	1,420	2,110	1,950	0	0	0	998
24	0	998	2,440	1,750	0	1,570	1,760	1,870	0	0	0	1,000
25	0	1,000	2,540	1,750	0	1,870	1,900	1,870	0	0	0	1,080
26	0	999	2,580	1,740	0	1,960	1,990	1,930	0	0	0	1,200
27	0	998	2,600	1,720	0	2,230	2,060	1,990	0	0	0	1,180
28	0	1,000	2,470	1,680	0	2,240	2,090	1,750	0	0	0	1,180
29	995		2,480	1,520	0	2,240	2,140	1,450	0	0	0	1,250
30	1,000		2,520	1,550	0	2,220	2,130	1,250	0	0	0	1,190
31	1,000		2,460		0		2,100	0		0		1,050
Sum	4,005	13,573	61,690	66,710	4,450	40,300	66,010	62,840	0	0	0	16,791

Month	Current Year 1974 — Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1944-1974 — Acre Feet		
			High		Low						
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			1	1,010	† 2	0	129	7,944	42,515	400,200	0
Feb.			21	1,250	† 1	0	485	26,922	20,432	149,500	0
Mar.			27	2,600	1	1,250	1,990	122,360	73,546	279,300	0
Apr.			†13	2,640	29	1,520	2,224	132,317	97,520	260,900	0
May			1	1,160	† 5	0	144	8,826	18,163	165,400	0
June			†28	2,240	1	0	1,343	79,934	62,876	204,300	0
July			†12	2,380	6	1,610	2,129	130,929	113,994	260,000	0
Aug.			5	2,480	31	0	2,027	124,641	116,158	270,100	0
Sept.				0		0	0	0	50,592	173,300	0
Oct.				0		0	0	0	10,453	51,460	0
Nov.				0		0	0	0	14,327	182,600	0
Dec.			29	1,250	† 1	0	542	33,304	38,169	319,700	0
Yearly				2,640		0	918	667,177	658,745	1,944,700	0

Ø 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 269 current meter measurements during the year, 204 by the United States Section, 53 by the Mexican Section of the Commission, 12 by the U. S. Geological Survey, and a continuous record of gage heights. Discharges are computed on the basis of a water-stage recorder 1,680 feet 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 1974; daily discharge records available January 1, 1950 through 1974.

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 1974, the flow at this point, and the emergency deliveries for Tijuana, Baja California shown on page 8, represented the total amount of the Colorado River water which crossed the northerly international boundary.

EXTREMES: Prior to January 1935: Maximum instantaneous discharge estimated about 250,000 second-feet, January 22, 1916; minimum discharge, no flow several days during August and September 1934; average annual flow 13,443,000 acre-feet; maximum annual flow 25,480,000 acre-feet, 1907; minimum annual flow 1,174,000 acre-feet, 1934. Since January 1935: Maximum mean daily discharge, about 33,000 second-feet, February 7, 1942; minimum discharge, no flow during April 1935.

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,820	1,280	1,920	3,270	1,930	1,350	2,840	3,040	1,360	771	752	752
2	1,400	1,250	2,190	3,320	1,910	1,790	2,840	3,280	1,350	753	752	898
3	1,190	1,240	2,470	3,360	1,830	1,830	2,840	3,300	1,320	753	752	1,040
4	920	1,100	2,200	3,330	1,830	1,880	2,860	3,260	1,340	744	752	1,090
5	931	1,100	2,260	3,350	1,660	1,910	2,840	3,300	1,310	726	743	1,050
6	1,000	1,120	2,220	3,350	1,440	1,890	2,830	3,320	1,350	717	770	1,030
7	1,000	1,100	2,250	3,350	1,300	1,900	2,830	3,320	1,340	717	752	1,070
8	1,110	1,100	2,350	3,300	1,290	1,780	3,100	3,320	1,340	735	761	1,050
9	1,510	1,100	2,270	3,310	1,300	1,710	3,110	3,310	1,320	735	770	1,060
10	1,790	1,090	2,300	3,350	1,330	1,670	3,100	3,300	1,300	735	761	1,210
11	1,590	1,310	2,580	3,360	1,320	1,910	3,080	3,320	1,350	726	770	1,360
12	1,070	1,330	2,570	3,360	1,290	1,870	3,110	3,010	1,380	726	761	1,450
13	1,210	1,390	2,730	3,350	1,300	1,910	3,120	2,860	1,390	735	761	1,450
14	1,020	1,470	2,720	3,360	1,300	1,800	3,100	2,810	1,350	735	761	1,410
15	890	1,440	2,720	3,370	1,280	1,730	3,100	2,820	1,340	726	770	1,400
16	845	1,750	2,720	3,370	1,060	1,730	3,120	2,820	1,340	753	761	1,650
17	958	1,770	2,980	3,100	1,290	1,890	3,110	2,800	1,350	735	775	1,730
18	1,220	1,770	3,030	2,820	1,330	1,900	3,120	2,800	1,350	735	709	1,720
19	1,230	1,750	3,030	2,620	1,320	1,920	3,120	2,800	1,340	753	725	1,720
20	1,250	1,750	3,060	2,610	1,300	1,920	2,930	2,820	1,340	753	752	1,700
21	1,280	1,920	3,030	2,580	1,330	2,130	2,930	2,830	1,320	744	761	1,710
22	1,220	1,860	3,210	2,450	1,320	2,130	2,930	2,830	1,310	762	752	1,710
23	1,240	1,640	3,230	2,450	1,290	2,160	2,940	2,840	1,320	753	770	1,710
24	1,250	1,660	3,220	2,450	1,350	2,270	2,930	2,860	1,310	753	761	1,710
25	1,250	1,680	3,320	2,420	1,330	2,570	2,870	2,780	1,310	753	761	1,770
26	1,280	1,690	3,300	2,360	1,340	2,720	2,780	2,770	1,300	735	752	1,900
27	1,290	1,690	3,320	2,360	1,340	3,040	2,820	2,750	1,320	744	779	1,860
28	1,410	1,650	3,290	2,360	1,340	3,040	2,850	2,520	1,360	753	761	1,880
29	1,590		3,270	2,330	1,360	3,050	2,870	2,260	1,350	790	756	1,960
30	1,490		3,290	2,370	1,390	3,030	2,870	1,980	1,310	800	709	1,900
31	1,530		3,270		1,410		2,850	1,670		780		1,800
Sum	38,784	41,000	86,320	88,740	43,410	62,430	91,740	89,700	40,070	23,130	22,672	45,750

Month	Current Year 1974 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 1935-1974 Acre Feet Average	Maximum	Minimum
Jan.	104.79	102.29	10	1,890	15	745	1,250	76,927	417,269	1,644,000	31,900
Feb.	103.57	102.69	21	1,970	4	1,080	1,464	81,322	349,024	1,378,000	60,400
Mar.	104.78	103.30	30	3,390	1	1,690	2,785	171,213	354,285	1,120,000	19,400
Apr.	104.90	103.81	9	3,590	29	2,220	2,960	176,013	277,402	823,850	0
May	103.89	102.61	1	2,280	16	1,010	1,400	86,102	278,180	1,151,000	71,405
June	104.59	103.02	28	3,150	2	1,300	2,031	123,828	264,484	1,175,000	8,500
July	104.72	104.14	†12	3,250	6	2,660	2,960	181,964	258,971	763,800	24,400
Aug.	104.90	102.83	† 6	3,480	31	1,260	2,890	177,917	274,175	791,600	43,800
Sept.	103.36	102.73	1	1,850	† 1	1,190	1,336	79,478	243,545	1,029,000	53,851
Oct.	102.82	101.98	1	1,180	1	674	746	45,878	245,517	1,186,000	42,956
Nov.	102.76	102.11	17	935	30	685	756	44,969	307,022	1,422,000	41,403
Dec.	103.54	102.15	29	1,990	1	725	1,476	90,744	398,106	1,832,000	42,000
Yearly	104.90	101.93		3,590		674	1,842	1,336,355	3,667,930	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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.43	102.96	103.51	104.68	103.59	103.06	104.31	104.50	102.90	102.35	102.18	102.18
2	103.03	102.93	103.72	104.72	103.57	103.48	104.31	104.72	102.90	102.25	102.18	102.40
3	102.81	102.93	103.95	104.75	103.50	103.53	104.31	104.75	102.87	102.25	102.19	102.54
4	102.49	102.75	103.75	104.72	103.50	103.58	104.31	104.71	102.88	102.25	102.19	102.57
5	102.50	102.74	103.79	104.74	103.33	103.60	104.29	104.74	102.87	102.22	102.18	102.54
6	102.59	102.75	103.77	104.73	103.12	103.57	104.28	104.75	102.87	102.20	102.20	102.52
7	102.58	102.74	103.79	104.74	102.97	103.52	104.28	104.75	102.86	102.19	102.23	102.58
8	102.69	102.74	103.91	104.70	102.97	103.41	104.51	104.74	102.87	102.22	102.21	102.54
9	103.12	102.73	103.86	104.69	102.97	103.35	104.52	104.72	102.86	102.20	102.22	102.56
10	104.44	102.73	103.89	104.72	103.00	103.29	104.50	104.71	102.85	102.22	102.20	102.78
11	103.54	102.97	104.10	104.74	103.00	103.53	104.50	104.71	102.89	102.20	102.20	102.95
12	102.69	102.99	104.11	104.74	102.98	103.49	104.59	104.44	102.94	102.19	102.19	103.07
13	102.85	103.07	104.23	104.73	102.99	103.53	104.60	104.29	102.95	102.20	102.21	103.08
14	102.65	103.13	104.24	104.74	102.99	103.42	104.58	104.25	102.91	102.20	102.20	103.05
15	102.48	103.12	104.24	104.74	102.96	103.37	104.59	104.26	102.91	102.18	102.22	103.04
16	102.44	103.37	104.24	104.76	102.69	103.36	104.61	104.26	102.91	102.23	102.22	103.29
17	102.57	103.42	104.46	104.53	102.97	103.51	104.58	104.23	102.90	102.20	102.25	103.37
18	102.86	103.40	104.49	104.31	103.01	103.51	104.59	104.24	102.91	102.21	102.13	103.36
19	102.89	103.39	104.51	104.14	103.02	103.52	104.58	104.24	102.90	102.24	102.14	103.38
20	102.91	103.38	104.53	104.14	103.00	103.53	104.42	104.25	102.90	102.22	102.18	103.35
21	102.93	103.52	104.50	104.12	103.02	103.73	104.41	104.26	102.88	102.22	102.19	103.37
22	102.87	103.48	104.64	104.02	103.00	103.73	104.41	104.26	102.88	102.22	102.20	103.38
23	102.91	103.26	104.66	104.02	102.99	103.74	104.42	104.26	102.89	102.23	102.21	103.37
24	102.91	103.28	104.66	104.00	103.05	103.83	104.41	104.28	102.89	102.22	102.20	103.37
25	102.93	103.30	104.73	103.99	103.01	104.10	104.36	104.20	102.88	102.23	102.19	103.43
26	102.96	103.31	104.72	103.95	103.03	104.22	104.27	104.20	102.87	102.23	102.19	103.56
27	102.96	103.31	104.72	103.95	103.03	104.49	104.31	104.17	102.91	102.23	102.20	103.53
28	103.10	103.28	104.70	103.95	103.04	104.49	104.34	103.97	102.94	102.23	102.20	103.53
29	103.24		104.71	103.92	103.07	104.50	104.36	103.74	102.93	102.29	102.19	103.61
30	103.16		104.70	103.96	103.09	104.47	104.35	103.49	102.90	102.29	102.13	103.56
31	103.19		104.69		103.13		104.33	103.19		102.27		103.46
Avg.	102.93	103.11	104.27	104.42	103.08	103.68	104.43	104.33	102.89	102.23	102.19	103.07

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 1974.

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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102.69	102.36	102.72	103.54	102.89	102.56	103.31	103.51	102.33	101.94	101.90	101.90
2	102.40	102.33	102.89	103.54	102.85	102.85	103.31	103.58	102.33	101.94	101.90	102.07
3	102.26	102.33	103.08	103.58	102.82	102.89	103.31	103.61	102.30	101.94	101.94	102.17
4	102.07	102.20	102.92	103.58	102.82	102.92	103.31	103.61	102.30	101.94	101.94	102.17
5	102.07	102.20	102.95	103.58	102.69	102.92	103.28	103.61	102.30	101.90	101.90	102.17
6	102.13	102.20	102.92	103.58	102.56	102.92	103.28	103.61	102.30	101.90	101.94	102.17
7	102.10	102.20	102.92	103.58	102.43	102.85	103.28	103.61	102.30	101.90	102.00	102.20
8	102.20	102.20	103.02	103.54	102.43	102.79	103.44	103.61	102.30	101.90	101.94	102.17
9	102.46	102.20	102.99	103.54	102.43	102.76	103.44	103.61	102.30	101.90	101.94	102.17
10	104.17	102.20	103.02	103.58	102.46	102.66	103.44	103.61	102.30	101.90	101.94	102.30
11	102.99	102.36	103.15	103.58	102.46	102.79	103.44	103.58	102.30	101.90	101.94	102.40
12	102.17	102.40	103.15	103.58	102.46	102.76	103.48	103.38	102.33	101.90	101.94	102.46
13	102.26	102.43	103.22	103.58	102.46	102.79	103.48	103.28	102.33	101.94	101.90	102.46
14	102.13	102.49	103.22	103.58	102.46	102.69	103.48	103.22	102.33	101.90	101.90	102.43
15	102.03	102.46	103.22	103.61	102.43	102.69	103.51	103.22	102.30	101.90	101.94	102.40
16	102.00	102.66	103.22	103.61	102.26	102.66	103.51	103.18	102.30	101.94	101.94	102.59
17	102.10	102.69	103.35	103.51	102.46	102.79	103.48	103.15	102.30	101.94	101.94	102.69
18	102.30	102.66	103.38	103.38	102.49	102.79	103.51	103.15	102.30	101.94	101.87	102.69
19	102.30	102.66	103.38	103.25	102.49	102.79	103.51	103.15	102.30	101.94	101.87	102.69
20	102.30	102.66	103.41	103.25	102.49	102.79	103.41	103.18	102.30	101.94	101.90	102.66
21	102.33	102.76	103.38	103.25	102.49	102.92	103.38	103.18	102.26	101.90	101.90	102.66
22	102.30	102.72	103.48	103.15	102.49	102.92	103.41	103.18	102.30	101.94	101.90	102.66
23	102.33	102.56	103.48	103.18	102.49	102.92	103.44	103.18	102.30	101.94	101.94	102.66
24	102.33	102.59	103.48	103.18	102.53	102.99	103.44	103.18	102.30	101.94	101.90	102.66
25	102.33	102.59	103.54	103.15	102.53	103.15	103.41	103.15	102.30	101.94	101.90	102.69
26	102.36	102.59	103.54	103.15	102.53	103.22	103.35	103.22	102.30	101.94	101.90	102.76
27	102.36	102.59	103.54	103.12	102.53	103.38	103.38	103.25	102.33	101.97	101.90	102.76
28	102.43	102.56	103.54	103.12	102.53	103.41	103.38	103.12	102.36	101.97	101.90	102.72
29	102.53		103.54	103.08	102.56	103.41	103.38	102.99	102.33	102.00	101.90	102.79
30	102.49		103.54	103.12	102.56	103.38	103.38	102.82	102.33	102.00	101.84	102.76
31	102.49		103.54		102.62		103.38	102.59		101.97		102.72
Avg.	102.36	102.46	103.25	103.41	102.53	102.92	103.41	103.31	102.30	101.94	101.90	102.46

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 1974. 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 1974 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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,820	1,270	1,920	3,260	1,920	1,320	2,840	3,040	1,350	766	745	742
2	1,390	1,240	2,190	3,310	1,910	1,750	2,830	3,270	1,350	745	749	890
3	1,190	1,200	2,470	3,350	1,830	1,820	2,840	3,300	1,310	749	749	1,030
4	915	1,070	2,200	3,330	1,830	1,880	2,850	3,260	1,330	738	749	1,080
5	929	1,080	2,260	3,340	1,660	1,910	2,840	3,290	1,310	717	738	1,040
6	1,000	1,100	2,220	3,340	1,440	1,890	2,830	3,320	1,350	713	770	1,020
7	996	1,080	2,250	3,340	1,300	1,900	2,820	3,320	1,330	713	749	1,060
8	1,110	1,090	2,330	3,290	1,290	1,780	3,090	3,320	1,330	727	756	1,050
9	1,430	1,100	2,270	3,300	1,300	1,710	3,100	3,310	1,310	727	766	1,060
10	1,230	1,090	2,300	3,350	1,330	1,670	3,090	3,290	1,290	735	759	1,200
11	1,330	1,310	2,580	3,350	1,320	1,900	3,070	3,320	1,340	720	766	1,360
12	1,060	1,330	2,570	3,360	1,290	1,870	3,100	3,010	1,370	720	756	1,440
13	1,210	1,390	2,730	3,350	1,300	1,910	3,110	2,850	1,370	731	756	1,440
14	1,020	1,470	2,720	3,360	1,300	1,800	3,100	2,800	1,330	731	752	1,400
15	893	1,440	2,720	3,370	1,280	1,740	3,090	2,810	1,320	720	759	1,390
16	840	1,750	2,720	3,360	1,060	1,730	3,110	2,810	1,320	745	756	1,640
17	957	1,770	2,980	3,090	1,290	1,890	3,100	2,790	1,340	731	766	1,720
18	1,220	1,770	3,030	2,810	1,330	1,900	3,110	2,780	1,330	735	699	1,710
19	1,230	1,750	3,030	2,620	1,330	1,920	3,120	2,780	1,330	752	717	1,710
20	1,250	1,750	3,060	2,600	1,300	1,920	2,930	2,810	1,330	749	742	1,690
21	1,280	1,920	3,030	2,580	1,330	2,120	2,930	2,820	1,310	742	752	1,710
22	1,210	1,860	3,210	2,450	1,320	2,120	2,930	2,820	1,300	756	745	1,710
23	1,240	1,640	3,230	2,450	1,290	2,150	2,930	2,830	1,310	745	763	1,700
24	1,250	1,660	3,220	2,450	1,350	2,260	2,930	2,850	1,300	749	756	1,710
25	1,250	1,680	3,320	2,420	1,330	2,560	2,860	2,770	1,300	749	756	1,770
26	1,280	1,690	3,300	2,360	1,330	2,710	2,780	2,760	1,300	731	742	1,890
27	1,290	1,690	3,320	2,360	1,330	3,030	2,810	2,740	1,310	745	766	1,850
28	1,400	1,650	3,290	2,360	1,330	3,030	2,860	2,510	1,350	749	749	1,870
29	1,590		3,270	2,330	1,360	3,040	2,860	2,260	1,350	784	745	1,950
30	1,480		3,280	2,370	1,380	3,020	2,870	1,970	1,310	795	699	1,890
31	1,530		3,260		1,400		2,850	1,660		777		1,790
Sum	37,783	40,827	86,242	88,619	43,335	62,221	91,550	89,449	39,800	22,986	22,471	45,506

Month	Current Year 1974 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 1950-1974 Acre Feet Average	Maximum	Minimum
Jan.	101.84	99.97	1	1,820	16	840	1,218	74,941	64,351	116,737	966
Feb.	102.33	100.79	21	1,920	4	1,070	1,458	80,979	60,152	101,685	9,232
Mar.	102.82	100.92	†25	3,320	1	1,920	2,783	171,057	168,913	216,994	97,902
Apr.	102.59	101.28	15	3,370	29	2,330	2,952	175,772	192,689	264,127	153,792
May	102.20	99.74	1	1,920	16	1,060	1,398	85,952	93,340	159,010	66,207
June	102.46	100.49	29	3,040	1	1,320	2,073	123,413	158,916	269,632	102,000
July	102.56	101.61	19	3,120	26	2,780	2,952	181,585	225,407	304,263	141,807
Aug.	102.46	100.16	† 6	3,320	31	1,660	2,885	177,418	223,878	341,044	130,298
Sept.	101.71	99.93	†12	1,370	10	1,290	1,328	78,941	125,201	198,095	53,633
Oct.	101.61	100.39	30	795	† 6	713	742	45,593	49,104	90,639	10,453
Nov.	102.59	100.46	6	770	†18	699	749	44,570	37,872	103,954	7,516
Dec.	101.97	100.46	29	1,950	1	742	1,466	90,260	65,478	131,440	8,825
Yearly	102.82	99.74		3,370		699	1,833	1,330,482	1,467,906	1,961,556	1,272,332

Ø Mean daily † And other days

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

Mean Daily Gage Height in Feet 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101.48	101.25	101.35	102.36	101.05	101.84	101.77	102.00	100.20	100.92	101.08	100.56
2	101.21	101.21	101.84	102.43	100.98	101.80	101.77	102.20	100.07	101.35	101.12	100.62
3	100.49	101.25	102.07	102.43	100.85	102.36	101.77	102.26	100.07	101.44	101.08	100.75
4	100.33	101.48	101.77	102.43	100.85	102.40	101.74	102.26	100.07	101.48	101.05	100.95
5	100.10	101.44	101.44	102.43	100.62	102.33	101.74	102.30	100.07	101.54	101.15	101.15
6	100.30	101.48	101.21	102.43	100.46	102.03	101.71	102.33	100.07	101.35	101.28	101.18
7	100.72	101.38	101.18	102.43	100.16	101.44	101.71	102.33	100.07	101.12	101.51	101.35
8	101.31	101.15	101.44	102.40	100.20	100.82	101.94	102.30	100.07	101.12	101.21	101.25
9	101.48	100.95	101.80	102.40	100.26	100.59	101.97	102.30	100.07	101.08	101.18	101.05
10	101.57	101.44	102.00	102.43	100.26	100.52	101.97	102.30	100.03	101.15	101.12	101.12
11	101.31	101.67	102.26	102.46	100.30	100.82	101.97	102.30	100.10	101.12	101.05	101.28
12	100.75	101.51	102.30	102.49	100.30	100.82	102.07	102.03	100.13	101.08	101.05	101.57
13	101.25	101.41	102.33	102.46	100.33	101.05	102.10	101.87	100.13	101.12	101.08	101.87
14	101.12	101.21	102.30	102.46	100.36	101.31	102.10	101.80	100.10	101.08	101.05	101.84
15	101.18	101.08	102.30	102.49	100.30	100.95	102.13	101.84	100.10	101.02	100.89	101.54
16	101.02	101.77	102.26	102.49	99.87	100.66	102.23	101.80	100.13	100.92	101.08	101.84
17	101.12	102.23	102.53	102.30	100.10	100.75	102.30	101.77	100.10	100.10	101.08	101.84
18	101.12	101.94	102.49	102.07	100.13	100.72	102.40	101.80	100.13	100.07	101.08	101.80
19	101.25	101.64	102.49	101.97	100.23	100.72	102.43	101.80	100.10	100.79	101.02	101.67
20	101.18	101.38	102.46	101.94	100.36	100.72	102.30	101.80	100.10	101.05	100.92	101.61
21	101.25	101.54	102.53	101.90	100.92	100.98	102.00	101.84	100.07	101.02	100.92	101.41
22	101.18	101.61	102.59	101.74	101.31	101.02	101.90	101.84	100.07	100.89	100.85	101.44
23	101.25	100.98	102.49	101.64	101.57	101.05	101.90	101.84	100.07	100.89	100.69	101.44
24	101.12	100.85	102.43	101.57	101.84	101.08	101.90	101.80	100.07	100.62	100.62	101.51
25	101.05	100.92	102.43	101.57	101.80	101.51	101.84	101.80	100.07	100.89	100.62	101.64
26	100.75	101.02	102.36	101.48	101.71	101.67	101.71	101.87	100.20	101.12	100.59	101.84
27	101.15	101.12	102.33	101.44	101.80	101.94	101.74	101.84	100.72	101.12	100.59	101.84
28	101.31	100.98	102.30	101.44	101.94	101.97	101.80	101.57	101.38	101.21	100.66	101.87
29	101.38		102.30	101.41	102.03	101.97	101.80	101.44	101.05	101.28	100.66	101.90
30	101.31		102.33	101.51	102.00	101.94	101.80	100.98	101.12	101.25	100.56	101.87
31	101.31		102.33		102.13		101.84	100.52		101.25		101.74
Avg.	101.08	101.35	102.13	102.10	100.89	101.31	101.94	101.90	100.23	101.05	100.95	101.48

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 1974.

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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.72	100.72	100.79	100.79	100.95	100.49	101.18	101.21	101.05	101.25	101.18	101.15
2	100.72	100.72	100.82	100.79	100.92	99.54	101.21	101.21	101.08	101.18	101.21	101.15
3	100.66	100.20	100.79	100.72	100.92	99.28	101.18	101.18	101.12	101.18	101.21	101.15
4	100.66	99.15	100.75	100.75	100.95	99.15	101.15	101.21	101.12	101.15	101.21	101.18
5	100.75	98.85	100.79	100.79	100.95	99.05	101.15	101.21	101.08	101.08	101.21	101.21
6	100.72	98.79	100.82	100.79	100.98	99.02	101.18	101.18	101.12	101.08	101.18	101.25
7	100.79	98.75	100.79	100.82	100.98	99.02	101.18	101.18	101.12	101.12	101.21	101.21
8	100.82	98.75	100.33	100.85	100.95	99.70	101.18	101.15	101.12	101.15	101.12	101.15
9	101.41	99.41	100.72	100.85	100.95	100.20	101.15	101.18	101.12	101.18	101.08	101.15
10	104.07	100.23	100.72	100.79	100.95	100.20	101.18	101.18	101.15	101.18	101.08	101.15
11	102.49	100.52	100.72	100.79	100.95	100.00	101.18	101.18	101.21	101.18	101.15	101.12
12	100.79	100.59	100.75	100.79	100.92	100.00	101.18	101.21	101.21	101.18	101.15	101.15
13	100.72	100.66	100.75	100.82	100.92	100.07	101.18	101.21	101.21	101.21	101.15	101.25
14	100.72	100.66	100.75	100.85	100.89	100.75	101.15	101.21	101.18	101.18	101.15	101.21
15	100.72	100.72	100.75	100.89	100.89	101.02	101.18	101.18	101.12	101.21	101.12	101.18
16	100.72	100.72	100.79	100.89	100.92	101.05	101.18	101.21	100.98	101.21	101.12	101.18
17	100.72	100.72	100.82	100.89	100.95	101.05	101.15	101.18	100.95	101.21	101.15	101.18
18	100.72	100.72	100.85	100.89	100.95	101.02	101.08	101.15	101.12	101.21	101.12	101.18
19	100.72	100.72	100.79	100.89	100.92	101.02	101.12	101.12	101.05	101.21	101.08	101.21
20	100.72	100.75	100.79	100.85	100.92	101.08	101.12	101.15	101.12	101.21	101.12	101.21
21	100.72	100.75	100.85	100.85	100.95	101.12	101.12	101.18	101.15	101.21	101.12	101.15
22	100.72	100.75	100.82	100.92	100.98	101.08	101.18	101.18	101.12	101.21	101.12	101.18
23	100.69	100.75	100.85	100.92	100.98	101.08	101.21	101.18	101.02	101.15	101.08	101.18
24	100.69	100.72	100.85	100.92	100.98	101.15	101.21	101.18	101.08	101.15	101.08	101.15
25	100.72	100.72	100.85	100.92	100.98	101.12	101.21	101.15	101.12	101.18	101.12	101.12
26	100.72	100.72	100.82	100.92	101.02	101.08	101.21	101.15	101.15	101.18	101.08	101.15
27	100.69	100.75	100.82	100.92	101.02	101.15	101.18	101.18	101.25	101.18	101.12	101.18
28	100.69	100.79	100.82	100.92	101.05	101.12	101.18	101.18	101.21	101.18	101.18	101.18
29	100.69		100.82	100.92	101.05	101.18	101.21	101.15	101.21	101.18	101.18	101.18
30	100.72		100.82	100.95	101.05	101.18	101.21	101.15	101.21	101.15	101.15	101.18
31	100.75		100.82		101.05		101.21	101.12		101.18		101.08
Avg.	100.92	100.30	100.79	100.85	100.95	100.46	101.18	101.18	101.12	101.18	101.15	101.18

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 1974.

REMARKS: Pursuant to Minute 218 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 12 miles, and placed in operation on November 16, 1965. Drainage flows may be discharged to the Gila River and thence to the Colorado River at the diversion structure, Main Outlet Drain Extension No. 1, at the upstream end of the extension; directly to the Colorado River at Main Outlet Drain Extension No. 2, 1.9 miles upstream from Morelos Dam; and directly to the Colorado River immediately below Morelos Dam at this station, Main Outlet Drain Extension No. 3. On July 14, 1972, Minute 241 of the Commission became effective. The Minute called for discharge of all Wellton-Mohawk drainage waters to be made below Morelos Dam.

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	295	305	304	296	309	210	314	307	283	307	307	298
2	292	305	308	295	307	63.9	316	304	288	304	309	298
3	287	205	306	284	307	41.2	309	305	292	307	310	297
4	288	58.3	305	297	312	33.0	305	309	292	304	309	298
5	297	37.8	309	295	314	30.1	309	305	288	295	305	304
6	297	31.6	309	295	314	30.8	312	305	290	300	307	305
7	307	29.2	309	304	316	30.4	312	302	292	305	305	304
8	310	25.5	231	310	312	149	310	300	287	305	295	302
9	309	128	300	304	310	194	305	307	287	309	297	300
10	302	234	295	300	314	192	310	304	292	312	298	298
11	300	278	295	300	310	165	312	309	300	312	302	292
12	298	285	297	300	305	167	310	310	297	312	304	292
13	298	292	297	305	304	177	310	309	292	314	305	302
14	298	295	295	307	304	284	310	304	285	310	300	305
15	298	302	297	307	300	309	307	304	278	312	298	305
16	300	300	302	297	304	312	310	305	259	310	300	304
17	297	302	307	300	309	309	305	304	263	312	302	302
18	302	304	310	300	309	302	295	295	286	314	297	304
19	304	302	304	304	305	310	300	295	275	314	295	305
20	298	309	302	300	304	312	302	297	283	314	298	305
21	300	307	305	302	307	314	302	302	292	314	298	304
22	297	312	302	309	310	305	309	300	280	310	298	302
23	293	314	307	314	310	305	307	300	275	304	298	304
24	293	310	309	314	307	307	307	304	283	309	297	300
25	302	309	307	312	305	306	305	298	280	314	298	298
26	305	310	304	314	309	302	307	298	292	312	286	298
27	302	310	304	310	309	307	309	302	304	314	295	302
28	300	310	304	312	310	304	307	298	302	312	305	302
29	302		304	309	312	311	307	300	302	310	304	302
30	302		302	310	310	310	309	297	305	305	300	302
31	310		300		309		309	285		302		293
Sum	9,283	6,810.4	9,330	9,106	9,567	6,692.4	9,541	9,364	8,624	9,578	9,022	9,327

Month	Current Year 1974						Period 1966-1974			
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	3.24	3.02	† 7	314	4	276	299	18,413	15,352	18,413	11,029
Feb.	3.31	.57	†24	317	9	18.6	243	13,508	12,011	16,721	6,978
Mar.	3.35	1.01	18	314	8	41.4	301	18,506	6,537	18,506	6.9
Apr.	3.38	2.38	26	321	3	172	304	18,061	5,097	18,061	247
May	3.33	3.18	† 6	319	14	293	309	18,976	10,027	18,976	3,160
June	3.34	.70	20	321	7	23.5	223	13,274	6,607	18,756	2,098
July	3.32	3.17	11	317	18	292	308	18,924	7,022	18,924	0
Aug.	3.29	3.13	4	312	31	283	302	18,573	7,483	18,573	34.9
Sept.	3.27	2.94	30	307	†16	248	287	17,105	12,317	18,006	3,575
Oct.	3.32	3.18	†10	316	5	292	309	18,998	18,338	18,998	17,599
Nov.	3.31	3.12	† 2	312	26	280	301	17,895	17,954	18,478	17,234
Dec.	3.30	3.16	† 7	307	†11	287	301	18,500	15,770	18,500	11,050
Yearly	3.38	0.57		321		18.6	291	210,733	134,515	214,781	100,028

† And other days

COOPER WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

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

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, March 1950 through 1974, 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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.2	6.4	0	0	4.7	1.8	2.5	0	0	0.3	0
2	0	0	.9	0	6.4	2.4	0	0	0	0	.6	0
3	0	0	.5	0	.9	.7	3.8	0	0	0	.8	0
4	0	0	.1	0	.8	1.7	.7	.8	1.5	0	* .4	0
5	0	.9	0	0	0	.3	.1	.2	.6	0	2.2	0
6	7.2	0	0	0	.1	.1	0	.1	2.0	0	1.4	0
7	.1	0	.1	0	0	0	0	0	1.6	0	0	0
8	.1	0	0	0	0	1.1	1.6	0	.2	0	.2	0
9	0	0	1.0	0	0	.1	.3	0	0	.3	.1	0
10	0	0	1.7	0	1.4	0	0	0	0	4.3	‼ 0	0
11	1.0	0	1.0	0	3.0	0	0	0	0	0	* 0	0
12	.5	.7	2.1	0	2.8	0	0	0	1.7	0	0	3.5
13	.1	3.0	0	4.0	.1	0	0	0	.5	0	0	5.1
14	.7	0	3.7	2.0	2.2	0	6.0	1.5	.2	0	0	.2
15	7.0	1.3	2.9	.1	.1	10.5	.7	.2	.1	0	0	.2
16	0	1.6	.3	0	0	.1	.4	.2	0	0	2.9	.2
17	1.3	2.5	.2	0	0	.4	.7	1.6	3.0	0	.4	3.0
18	1.4	.6	0	0	0	.1	1.1	0	.9	3.9	.1	1.2
19	0	0	0	0	10.8	0	6.1	0	.3	1.3	0	3.8
20	0	0	0	0	1.2	0	1.5	0	.1	.1	0	.3
21	0	3.5	0	0	1.0	.2	2.0	0	0	0	0	3.1
22	0	1.9	0	0	.3	2.3	.9	0	1.9	0	0	5.5
23	3.3	.3	0	0	.5	1.4	.3	0	3.1	0	0	.2
24	1.3	0	4.0	0	2.2	2.1	3.2	0	1.6	0	0	1.9
25	0	0	.5	0	1.8	0	0	0	.4	0	* 2.7	.3
26	6.0	0	.6	0	.3	0	0	0	2.5	0	* 5.5	.4
27	.7	2.6	0	0	.5	0	0	0	.3	2.4	* .2	2.7
28	.2	3.8	2.1	0	2.8	0	12.8	0	0	1.9	0	.2
29	.1		7.7	6.5	7.7	0	1.4	1.6	0	1.3	1.6	.1
30	0		3.4	1.4	2.9	0	1.2	.8	0	1.8	.6	.1
31	.9		1.8		0		4.7	.1		2.5		.1
Sum	31.9	22.9	41.0	14.0	49.8	28.2	51.3	9.6	22.5	19.8	20.0	32.1

Month	Current Year 1974 Extreme Gage Feet High	Low	Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1935-1974 Acre Feet Average	Maximum	Minimum
Jan.	2.16	0	15	39.0	† 1	0	1.0	63.3	178	914	0
Feb.	1.80	0	28	31.0	† 2	0	.8	45.4	156	400	6.0
Mar.	1.63	0	24	27.3	† 4	0	1.3	81.3	169	517	0
Apr.	1.42	0	†13	22.8	† 1	0	.5	27.8	179	425	27.8
May	1.88	0	19	32.8	† 1	0	1.6	98.8	173	440	40.3
June	2.15	0	23	38.8	† 6	0	.9	55.9	163	595	43.8
July	1.85	0	28	32.1	† 1	0	1.7	102	149	516	0
Aug.	1.57	0	29	26.0	† 1	0	.3	19.0	114	617	0
Sept.	1.62	0	4	27.0	† 1	0	.8	44.6	114	462	0
Oct.	1.72	0	9	29.2	† 1	0	.6	39.3	142	490	0
Nov. ‼	1.53	0	26	‼ 25.1	† 1	0	.7	39.7	164	462	9.0
Dec.	1.68	0	†12	28.4	† 1	0	1.0	63.7	189	592	33.7
Yearly	2.16	0		39.0		0	0.9	680.8	1,890	4,500	638

‼ Estimated † And other days * Partly estimated

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 1974; continuous record of gage heights, July 20, 1952 through 1974.

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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	299	311	307	306	313	* 239	322	314	292	311	313	307
2	300	313	310	303	310	* 108	323	311	293	311	314	307
3	292	*240	308	294	310	* 55.0	319	308	299	311	314	306
4	292	" 87.2	306	297	314	* 39.8	313	313	297	311	313	306
5	300	" 59.8	307	301	317	* 32.8	313	314	293	303	311	314
6	301	" 50.0	307	301	317	* 33.8	318	311	297	304	310	316
7	310	" 43.4	307	310	314	* 32.7	321	308	299	310	310	311
8	314	" 35.5	246	316	313	* 105	321	303	299	311	301	306
9	394	"106	297	311	308	193	317	310	297	316	301	304
10	866	223	296	301	311	193	318	308	301	316	301	303
11	558	270	294	306	311	170	323	310	311	317	306	296
12	306	282	296	303	308	168	323	316	306	316	308	301
13	301	292	300	307	303	175	322	318	308	317	310	318
14	301	294	300	310	297	268	320	316	303	314	308	318
15	301	300	300	310	297	303	321	314	294	317	308	314
16	301	300	306	307	299	308	322	317	280	318	308	311
17	300	300	311	307	301	308	317	316	273	316	310	313
18	303	301	314	307	306	307	304	311	303	316	306	317
19	304	301	307	307	303	309	308	311	289	317	304	317
20	301	304	304	306	301	316	308	311	294	316	307	317
21	303	303	310	304	306	322	307	313	299	316	306	313
22	301	307	307	313	313	318	314	313	293	317	306	311
23	300	307	310	317	313	316	316	310	283	311	306	311
24	299	303	308	317	313	320	314	313	293	314	303	306
25	307	306	308	317	308	318	314	310	293	318	307	303
26	310	308	307	316	316	311	313	308	298	317	301	307
27	308	310	307	314	318	315	313	310	311	317	307	313
28	307	311	308	314	318	311	310	308	311	317	316	313
29	307		310	311	318	317	313	307	308	318	316	313
30	310		310	314	318	320	314	306	310	311	311	314
31	314		308		317		314	296		308		304
Sum	10,310	6,867.9	9,416	9,247	9,611	6,832.1	9,795	9,634	8,927	9,732	9,242	9,610

Month	Current Year 1974								Period 1954-1974		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	103.69	100.22	10	955	4	286	333	20,450	150,592	969,540	949
Feb.	100.39	98.10	28	314	9	27	245	13,622	77,450	414,310	977
Mar.	100.42	98.97	18	316	8	120	304	18,676	50,222	630,230	659
Apr.	100.50	99.89	† 8	320	3	238	308	18,341	38,772	532,320	804
May	100.57	100.40	†29	320	†14	296	310	19,063	46,932	375,970	460
June	100.74	98.19	21	335	7	27	228	13,551	12,549	119,980	834
July	100.80	100.63	16	328	18	303	316	19,428	12,579	89,430	654
Aug.	100.80	100.66	†13	322	31	294	311	19,109	19,841	125,590	702
Sept.	100.82	100.50	13	314	17	269	298	17,706	18,061	87,830	113
Oct.	100.82	100.68	†11	320	5	299	314	19,303	45,194	172,940	9,750
Nov.	100.81	100.62	28	320	† 8	297	308	18,331	77,446	356,390	4,869
Dec.	100.85	100.65	†14	322	11	293	310	19,061	104,500	643,850	1,111
Yearly	103.69	98.10		955		27	299	216,641	654,138	3,957,730	101,758

* Partly estimated " Estimated † And other days

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.30	100.33	100.35	100.36	100.47	100.00	100.72	100.77	100.65	100.79	100.79	100.72
2	100.32	100.34	100.37	100.35	100.45	98.99	100.73	100.75	100.67	100.79	100.80	100.73
3	100.26	* 99.85	100.36	100.28	100.45	98.50	100.70	100.73	100.71	100.79	100.81	100.74
4	100.26	" 98.72	100.35	100.32	100.48	98.34	100.66	100.76	100.70	100.78	100.81	100.74
5	100.32	" 98.47	100.37	100.35	100.50	98.26	100.66	100.77	100.67	100.71	100.80	100.80
6	100.32	" 98.37	100.38	100.35	100.52	98.27	100.70	100.75	100.70	100.71	100.79	100.81
7	100.37	" 98.29	100.38	100.41	100.51	98.26	100.72	100.73	100.70	100.75	100.78	100.78
8	100.40	" 98.20	99.94	100.45	100.50	98.95	100.71	100.69	100.69	100.76	100.71	100.74
9	100.85	" 98.86	100.32	100.43	100.48	99.73	100.68	100.74	100.68	100.79	100.70	100.73
10	103.29	99.79	100.32	100.36	100.50	99.74	100.68	100.72	100.71	100.79	100.70	100.72
11	101.88	100.08	100.31	100.39	100.50	99.56	100.72	100.72	100.79	100.80	100.73	100.67
12	100.38	100.16	100.31	100.38	100.48	99.55	100.72	100.76	100.75	100.78	100.74	100.71
13	100.35	100.22	100.33	100.41	100.45	99.60	100.71	100.78	100.78	100.79	100.75	100.83
14	100.34	100.24	100.32	100.43	100.41	100.28	100.70	100.76	100.74	100.77	100.74	100.83
15	100.34	100.28	100.32	100.44	100.41	100.54	100.72	100.74	100.69	100.79	100.73	100.80
16	100.33	100.28	100.35	100.43	100.43	100.58	100.73	100.76	100.59	100.80	100.73	100.78
17	100.31	100.28	100.39	100.43	100.45	100.58	100.72	100.75	100.53	100.78	100.73	100.79
18	100.32	100.29	100.41	100.42	100.48	100.56	100.64	100.71	100.70	100.78	100.70	100.82
19	100.32	100.29	100.36	100.42	100.46	100.57	100.68	100.71	100.64	100.79	100.69	100.81
20	100.30	100.31	100.34	100.40	100.45	100.62	100.68	100.72	100.68	100.78	100.71	100.81
21	100.31	100.30	100.39	100.39	100.48	100.65	100.68	100.74	100.71	100.78	100.70	100.77
22	100.29	100.33	100.38	100.45	100.52	100.62	100.73	100.75	100.67	100.79	100.69	100.76
23	100.27	100.34	100.40	100.48	100.52	100.60	100.74	100.73	100.60	100.74	100.69	100.75
24	100.25	100.31	100.40	100.49	100.52	100.64	100.74	100.76	100.67	100.76	100.66	100.71
25	100.30	100.33	100.40	100.49	100.49	100.64	100.74	100.74	100.67	100.79	100.69	100.69
26	100.31	100.35	100.39	100.48	100.54	100.61	100.74	100.73	100.70	100.78	100.65	100.72
27	100.30	100.36	100.39	100.47	100.56	100.66	100.74	100.74	100.79	100.78	100.69	100.76
28	100.29	100.37	100.39	100.47	100.56	100.65	100.73	100.74	100.79	100.78	100.75	100.76
29	100.29		100.40	100.45	100.56	100.69	100.75	100.73	100.77	100.79	100.76	100.76
30	100.31		100.39	100.48	100.56	100.71	100.77	100.73	100.78	100.76	100.73	100.77
31	100.34		100.38		100.55		100.77	100.67		100.76		100.70
Avg.	100.48	99.87	100.35	100.42	100.49	99.93	100.71	100.74	100.70	100.78	100.73	100.76

* 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 1974, 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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	* 0.4	0.4	0.1	18.8	0.2	0	0.2	0.2	0.1	0.2	0.2	75.9
2	.4	.4	.1	4.1	.1	26.2	.2	.2	.2	.2	.2	15.0
3	.3	.4	28.8	3.5	.1	9.1	.2	.2	.2	.3	.1	2.3
4	.3	.4	13.6	.1	.1	.5	.2	28.8	.1	.2	.1	.4
5	.2	.4	3.4	.1	.1	0	.2	16.4	.1	.2	.2	0
6	.3	.4	1.9	0	.2	0	.1	1.3	.1	.2	.1	.1
7	.3	.4	.2	0	.1	.1	.1	.5	.1	.3	.2	.1
8	.2	.3	.2	.2	.1	.1	.1	.2	.1	.3	.2	.2
9	.2	.3	2.9	.2	0	.1	.2	.4	.1	.2	.2	.3
10	.2	.4	.2	.1	.1	.1	.2	.4	0	.2	.1	.2
11	.2	.4	.2	.1	.2	.1	.2	.4	0	.3	.1	.1
12	.2	.3	.2	.1	.2	.2	.3	.4	.1	.3	.2	.2
13	.3	.2	.2	.2	.2	.1	.3	.3	.1	.3	.1	.2
14	.3	.1	.2	.2	.3	.1	.2	.2	.1	.3	.1	.3
15	.3	.2	.2	.2	.2	.2	.2	.3	.1	.2	.1	.4
16	.3	.2	.4	.2	.2	.2	.2	.3	.1	.2	3.5	.3
17	.2	.1	.4	.3	.3	.2	.2	.4	.1	.2	65.8	.2
18	.2	.2	.4	.3	.3	.3	.1	.3	.2	.4	5.8	.1
19	.4	.2	.3	.4	.3	.2	.3	.4	.1	23.4	.7	.2
20	.4	.2	.2	.4	.4	.3	.2	.3	.1	.2	.4	.2
21	.4	.2	.3	.5	.3	.3	.2	.2	.2	.2	.2	.2
22	.4	.2	.3	.4	.2	.3	8.1	.2	.1	.2	.2	.2
23	.4	.2	.3	.3	.2	.3	.3	.2	.1	.2	.3	.3
24	.4	.2	.4	.1	.2	.3	.2	.3	.1	.2	.3	.2
25	.4	.2	.2	.1	.1	.3	.2	.4	.1	.2	.3	.2
26	.4	.2	.2	.1	.2	.3	.1	.3	0	.2	.3	.3
27	.4	.1	.1	.1	.1	.3	.2	.2	0	.2	.2	.3
28	.5	.1	.1	.2	.2	.3	.2	.1	.1	.2	.2	.3
29	.4		.1	.2	.2	.2	.3	.1	.1	.2	.3	.2
30	.4		.1	.2	.2	.3	.2	6.2	.1	.1	.2	.3
31	.4		35.7		.1		.2	.2		.1		.3
Sum	10.1	7.3	91.9	31.7	5.7	41.0	14.1	60.3	3.0	30.1	80.9	99.5

Month	Current Year 1974						Period 1935-1974		
	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.	111.79	111.74	28	0.5	†10	0.1	0.3	20.0	3,348	9,570	20.0
Feb.	111.78	111.72	† 1	.4	†27	0	.3	14.5	2,694	8,430	14.5
Mar.	115.19	111.73	31	209	† 1	.1	3.0	182	2,539	6,230	145
Apr.	113.17	111.72	1	81.4	† 4	0	1.1	62.9	2,344	6,300	0
May	111.77	111.72	20	.4	† 9	0	.2	11.3	2,808	9,320	11.3
June	114.44	111.72	2	154	† 1	0	1.4	81.3	2,666	7,440	81.3
July	114.56	111.73	22	162	† 7	.1	.5	28.0	2,692	8,320	20
Aug.	114.98	111.73	30	192	† 7	.1	1.9	120	2,303	9,740	120
Sept.	111.78	111.72	21	.4	† 9	0	.1	6.0	1,679	6,140	6.0
Oct.	115.08	111.72	19	199	†30	0	1.0	59.7	2,287	5,680	36.9
Nov.	115.84	111.72	17	286	†15	0	2.7	160	2,723	8,220	18.8
Dec.	116.06	111.72	1	319	† 4	0	3.2	197	3,610	9,430	164
Yearly	116.06	111.72		319		0	1.3	942.7	31,693	82,900	942.7

† And other days * Partly 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 1974; 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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97.30	97.29	97.24	97.34	97.23	96.97	97.28	97.37	97.43	97.55	97.44	97.33
2	97.28	97.29	97.25	97.26	97.21	96.36	97.29	97.36	97.44	97.54	97.45	97.33
3	97.26	97.00	97.35	97.22	97.21	96.03	97.28	97.36	97.47	97.55	97.45	97.32
4	97.26	*96.13	97.34	97.18	97.24	95.87	97.26	97.47	97.47	97.54	97.46	97.30
5	97.29	95.95	97.28	97.21	97.25	95.83	97.26	97.48	97.45	97.50	97.45	97.32
6	97.28	95.85	97.27	97.20	97.25	95.82	97.29	97.38	97.46	97.50	97.44	97.32
7	97.31	95.80	97.25	97.23	97.24	95.81	97.29	97.38	97.46	97.53	97.44	97.30
8	97.32	95.76	96.95	97.24	97.24	96.32	97.29	97.35	97.45	97.52	97.43	97.28
9	97.51	96.20	97.24	97.27	97.22	96.73	97.27	97.39	97.44	97.53	97.42	97.26
10	99.23	96.92	97.21	97.23	97.24	96.74	97.28	97.38	97.45	97.53	97.43	97.26
11	98.75	97.11	97.20	97.24	97.24	96.61	97.30	97.38	97.50	97.54	97.41	97.22
12	97.36	97.15	97.20	97.22	97.22	96.60	97.30	97.41	97.51	97.51	97.36	97.23
13	97.31	97.20	97.20	97.23	97.21	96.65	97.30	97.42	97.50	97.52	97.37	97.30
14	97.30	97.21	97.19	97.25	97.20	97.02	97.30	97.41	97.48	97.50	97.36	97.31
15	97.30	97.23	97.18	97.24	97.20	97.19	97.32	97.41	97.46	97.50	97.37	97.29
16	97.29	97.22	97.20	97.23	97.21	97.22	97.31	97.42	97.42	97.49	97.38	97.28
17	97.28	97.24	97.22	97.23	97.22	97.21	97.32	97.42	97.34	97.49	97.39	97.28
18	97.28	97.25	97.24	97.23	97.24	97.20	97.27	97.40	97.44	97.51	97.37	97.31
19	97.29	97.24	97.21	97.23	97.25	97.20	97.30	97.40	97.45	97.61	97.38	97.31
20	97.28	97.27	97.21	97.22	97.23	97.22	97.30	97.41	97.47	97.48	97.38	97.31
21	97.28	97.26	97.24	97.21	97.24	97.23	97.30	97.44	97.49	97.47	97.35	97.29
22	97.29	97.27	97.23	97.23	97.26	97.22	97.38	97.44	97.47	97.46	97.35	97.29
23	97.29	97.26	97.25	97.25	97.25	97.21	97.34	97.44	97.43	97.44	97.34	97.29
24	97.27	97.26	97.25	97.25	97.26	97.22	97.35	97.45	97.47	97.44	97.36	97.28
25	97.29	97.26	97.25	97.25	97.23	97.22	97.34	97.45	97.47	97.46	97.64	97.27
26	97.30	97.26	97.24	97.25	97.26	97.20	97.35	97.45	97.50	97.47	97.56	97.27
27	97.30	97.25	97.24	97.24	97.26	97.23	97.35	97.47	97.55	97.47	97.35	97.29
28	97.30	97.26	97.25	97.24	97.26	97.23	97.35	97.47	97.55	97.47	97.32	97.30
29	97.29		97.25	97.22	97.26	97.25	97.35	97.47	97.54	97.47	97.33	97.30
30	97.29		97.24	97.23	97.27	97.27	97.37	97.50	97.55	97.44	97.33	97.31
31	97.31		97.35		97.27		97.37	97.44		97.43		97.27
Avg.	97.41	96.94	97.23	97.24	97.24	96.83	97.31	97.42	97.47	97.50	97.40	97.29

* Partly 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 1974, obtained by the United States Section; monthly discharge, March 1939 through 1950, by Bureau of Reclamation.

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

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

Mean Daily Discharge in Second Feet 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.1	0	0	0	0.1	0	0	0	0	0
2	0	0	.1	0	0	0	.1	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	.2	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	.2	0	0	0	0	0	0
11	0	.2	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	.2	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	.4	0	0	0	0	0	0	0	0	0	0
21	0	.1	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
30	0		.3	0	0	0	0	0	0	0	0	0
31	0		.4		0		0	0		0		0
Sum	0	1.1	0.9	0	0	0.2	0.2	0	0	0	0	0

Month	Current Year 1974								Period 1939-1974		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	0	0		0		0	0	0	837	2,860	0
Feb.	0.92	0	11	20.7	† 1	0	0	2.2	721	2,510	0
Mar.	.72	0	31	13.7	† 1	0	0	1.8	664	1,660	1.8
Apr.	0	0		0		0	0	0	715	1,940	0
May	0	0	1	0		0	0	0	870	2,470	0
June	.50	0	10	7.0	† 1	0	0	.4	760	2,350	0
July	.94	0	1	17.9	† 1	0	0	.4	656	1,950	.4
Aug.	0	0		0		0	0	0	688	2,530	0
Sept.	.07	0	9	.4	† 1	0	0	0	618	2,180	0
Oct.	0	0		0		0	0	0	750	2,100	0
Nov.	0	0		0		0	0	0	865	2,380	0
Dec.	0	0		0		0	0	0	955	2,680	0
Yearly	0.92	0		20.7		0	0	4.8	9,099	24,370	4.8

† 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 1974. 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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	7.1	12.8	13.5	5.5	13.8	22.6	7.5	6.9	5.0	9.0	6.8
2	5.2	12.3	10.5	17.8	12.3	3.8	13.9	5.9	2.7	1.7	5.1	5.6
3	1.5	12.4	8.6	4.4	7.8	4.1	5.9	20.2	8.7	5.0	1.3	4.9
4	16.2	5.8	9.0	11.3	9.4	.7	2.8	8.2	7.1	10.1	1.4	9.3
5	20.8	2.0	5.1	4.9	11.2	7.4	2.5	5.1	7.2	5.1	13.0	21.2
6	8.3	10.2	4.7	9.0	7.6	13.3	1.5	7.5	2.3	10.9	.8	10.6
7	1.5	7.3	2.1	17.0	4.0	2.2	15.3	1.4	5.3	5.8	.9	18.7
8	8.6	12.2	3.0	2.7	.4	1.2	20.7	0	2.8	.9	2.5	8.9
9	14.2	8.9	8.8	11.0	5.2	5.4	19.5	.2	.2	1.6	7.6	.5
10	7.7	13.3	3.0	4.5	1.4	1.4	5.6	11.6	0	3.8	9.3	.5
11	2.2	15.8	2.2	7.9	0	6.5	3.0	3.6	6.4	4.9	1.7	7.6
12	.3	* 14.0	.8	4.1	.2	9.6	4.5	7.3	7.7	7.1	.8	15.1
13	2.0	‼ 13.0	1.5	4.1	8.3	5.4	8.5	12.5	25.7	5.9	4.1	10.9
14	1.0	‼ 12.0	12.0	13.4	4.5	14.5	11.9	8.1	4.8	9.6	23.5	10.0
15	0	* 8.4	14.1	13.8	9.8	1.0	2.9	4.4	6.0	2.1	13.2	7.6
16	4.3	9.2	21.5	1.0	20.5	5.3	6.7	7.4	10.0	15.0	15.3	24.4
17	3.9	4.5	13.7	0	10.3	2.5	7.0	3.4	11.2	24.0	19.8	3.3
18	6.7	8.5	0	1.1	10.2	0	12.0	15.5	6.6	21.7	17.0	.2
19	8.6	17.4	0	2.1	2.0	0	7.2	.7	7.9	13.2	3.7	0
20	3.5	7.9	0	4.5	.4	0	3.1	0	8.0	9.4	.4	1.4
21	7.3	5.6	.8	6.7	5.8	1.7	3.0	0	10.0	6.6	0	17.6
22	8.7	9.7	5.1	1.6	14.0	.4	10.1	0	16.9	7.4	0	17.5
23	2.9	5.6	5.7	3.1	5.5	13.2	8.5	0	11.4	20.0	3.2	14.2
24	.4	3.2	18.8	2.5	4.2	9.9	4.8	0	8.3	6.7	13.5	22.8
25	4.3	5.7	10.1	2.5	4.2	1.5	14.6	9.5	.8	6.2	19.8	4.2
26	10.5	3.4	23.2	2.8	7.3	2.7	9.0	8.8	12.0	16.4	9.3	0
27	6.3	7.4	11.4	* 10.5	10.0	24.8	2.9	.1	18.5	24.6	8.1	0
28	6.0	15.4	8.3	‼ 6.2	11.1	15.8	.1	8.8	14.4	8.3	11.1	11.6
29	3.2		3.1	‼ 10.5	10.7	14.5	10.8	6.0	5.0	1.4	10.2	10.0
30	3.2		3.5	* 8.2	16.2	27.1	15.2	5.3	19.0	5.1	6.3	14.7
31	7.9		7.3		8.3		10.8	6.9		12.7		26.0
Sum	177.2	258.2	230.7	202.7	228.3	209.7	266.9	175.9	253.8	278.2	231.9	306.1

Current Year 1974 — **Period 1935-1974**

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day	High	Day	Low					
Jan.	90.74	90.15	22	36.6	† 1	0	5.7	351	1,183	3,360	280
Feb.	90.69	90.15	27	29.7	† 5	0	9.2	512	997	3,170	298
Mar.	90.80	90.15	16	45.0	†12	0	7.4	458	1,152	2,920	190
Apr.	90.82	90.15	9	47.8	† 8	0	6.8	402	1,116	3,170	197
May	90.75	90.15	27	38.0	† 1	0	7.4	453	1,229	3,040	245
June	90.90	90.15	27	59.0	† 7	0	7.0	416	1,056	3,660	175
July	90.92	90.15	30	61.8	† 5	0	8.6	529	1,139	3,590	182
Aug.	91.07	90.15	25	82.8	† 2	0	5.7	349	1,156	3,960	169
Sept.	90.97	90.15	11	68.8	† 3	0	8.5	503	1,059	3,170	159
Oct.	90.76	90.15	17	39.4	† 1	0	9.0	552	1,118	3,280	357
Nov.	90.72	90.15	17	33.8	† 1	0	7.7	460	1,227	3,570	313
Dec.	90.89	90.15	16	57.6	† 9	0	9.9	607	1,201	3,080	292
Yearly	91.07	90.15		82.8		0	7.7	5,592	13,633	38,310	3,967

* Partly estimated ‼ Estimated † And other days

YUMA MAIN DRAIN (VALLEY DIVISION, YUMA PROJECT)

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

RECORDS: Main Drain discharges are lifted 10 to 12 feet at the pumping plant. Prior to April 1, 1969, discharges were computed from pump ratings and the differential head measured by the two gages. Beginning April 1, 1969 discharges were computed from flow meter charts. Pump ratings and flow meter discharges are checked by current meter measurents. Records obtained and computed by the United States Section of the Commission. Records available: Monthly discharges, June 1919 through 1951; daily discharges January 1952 through 1974.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	124	119	128	140	* 145	154	134	135	133	147	135	135
2	122	125	127	122	146	148	142	140	140	148	139	111
3	120	125	127	132	149	130	135	139	125	155	137	125
4	132	121	135	139	149	136	137	139	141	152	142	116
5	129	124	122	122	146	133	138	144	140	160	135	98.6
6	117	122	119	135	146	138	158	132	136	121	135	124
7	123	117	129	129	133	127	144	128	130	146	134	116
8	130	115	122	128	141	135	148	137	125	144	135	123
9	136	126	138	132	149	149	148	143	116	154	140	120
10	111	118	144	148	150	138	141	122	118	171	132	118
11	110	121	122	140	143	134	143	126	129	146	128	120
12	114	124	123	138	152	148	136	140	138	131	139	121
13	118	124	130	148	147	135	135	147	136	148	131	116
14	111	122	137	143	150	146	144	130	133	149	136	115
15	111	122	126	140	140	132	139	143	136	144	132	131
16	116	112	116	139	144	134	134	130	138	138	138	134
17	118	125	145	131	153	155	139	132	129	139	149	116
18	121	120	146	136	140	126	136	152	138	137	150	113
19	123	119	127	138	143	133	145	174	148	147	125	108
20	113	122	125	149	141	126	142	132	134	145	124	114
21	111	128	127	146	140	129	142	127	158	138	124	128
22	111	114	130	137	135	142	137	133	148	140	116	122
23	113	124	130	140	140	146	149	123	136	136	123	116
24	115	121	138	155	138	130	137	135	133	131	127	122
25	110	107	146	140	127	146	144	134	139	135	132	128
26	112	122	131	156	137	128	141	132	139	139	129	124
27	119	128	136	148	133	137	145	132	139	138	123	108
28	112	124	135	148	135	136	141	122	139	145	133	111
29	112		134	151	132	141	138	135	138	153	133	122
30	117		134	151	144	151	143	133	140	142	124	111
31	118		135		150		131	147		145		128
Sum	3,649	3,391	4,064	4,201	4,418	4,143	4,366	4,218	4,072	4,464	3,980	3,694.6

Month	Current Year 1974								Period 1935-1974		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			9	136	†11	110	118	7,238	7,882	11,203	1,740
Feb.			†21	128	25	107	121	6,726	7,787	11,988	1,640
Mar.			†18	146	16	116	131	8,061	8,904	12,430	1,940
Apr.			26	156	† 2	122	140	8,333	8,690	11,890	1,920
May			17	153	25	127	143	8,763	8,875	13,140	1,950
June			17	155	†18	126	138	8,218	8,216	12,040	2,290
July			6	158	31	131	141	8,660	8,041	11,830	2,530
Aug.			19	174	†10	122	136	8,366	7,960	11,960	2,560
Sept.			21	158	9	116	136	8,077	7,986	11,568	2,280
Oct.			10	171	6	121	144	8,854	8,986	12,385	2,940
Nov.			18	150	22	116	133	7,894	8,662	12,010	2,800
Dec.			1	135	5	98.6	119	7,328	8,340	11,480	2,450
Yearly				174		98.6	133	96,518	100,329	139,380	27,040

† And other days * Partly estimated ∅ Mean daily

WEST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder located about 150 feet upstream from outlet to Yuma Main Drain, which is 175 feet upstream from East Main Canal Wasteway and 0.4 mile west of San Luis, Arizona.
RECORDS: Wasteway discharges computed by United States Section of the Commission beginning February 23, 1971, from water-stage recorder and ratings as determined by current meter measurements. Records available: March 1971 through 1974.
REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal.

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	5.6	8.7	31.6	5.7	4.6	15.3	2.0	1.9	3.5	12.7	7.8
2	.7	1.1	7.9	5.8	0	12.4	.3	.2	.2	5.2	2.1	29.1
3	1.5	1.3	15.5	1.0	2.5	* 42.2	* 13.1	1.2	6.2	1.3	.8	3.3
4	2.5	8.1	27.3	6.5	2.4	* 5.7	‼ 8.6	31.3	26.8	9.7	2.5	.4
5	.6	3.0	2.5	16.9	.3	.4	* 9.4	23.0	13.5	.7	6.9	.3
6	6.3	3.9	.6	6.8	1.9	.2	1.6	10.2	10.3	2.3	3.0	.1
7	1.3	2.0	3.2	1.3	6.9	2.1	15.5	.8	15.8	13.9	* 2.6	8.8
8	15.8	5.5	4.1	1.9	3.5	.4	10.9	1.8	.2	3.0	* .2	5.0
9	12.5	6.4	25.0	.1	16.4	.1	4.1	10.1	1.9	.1	8.9	11.3
10	.9	13.3	21.3	4.5	8.8	19.4	20.5	.6	.1	3.6	13.9	10.9
11	.4	* 9.3	6.8	5.5	1.4	10.4	11.5	12.6	.9	1.6	7.2	3.2
12	.1	* 7.4	7.9	5.4	.2	.5	3.0	1.8	.1	5.5	1.3	9.8
13	19.9	10.8	6.6	1.6	4.4	1.8	5.7	3.3	0	2.9	* 2.8	1.8
14	12.3	2.3	16.3	1.7	2.4	14.4	11.2	22.7	1.1	1.2	* .8	3.1
15	5.9	7.2	11.5	.1	6.5	9.0	15.5	14.6	12.3	2.3	4.0	5.4
16	6.4	21.3	11.0	0	6.7	2.3	5.1	5.4	1.4	.2	6.5	.7
17	.7	19.9	9.1	.7	1.7	2.9	4.4	1.2	7.9	.1	39.4	2.6
18	1.4	10.5	9.7	2.0	6.7	.3	2.8	17.9	22.5	2.4	21.0	8.4
19	.6	6.1	5.3	.1	15.0	9.8	5.5	14.1	10.4	3.7	.8	2.8
20	.7	10.9	.9	3.9	7.3	5.3	8.2	9.6	19.1	2.8	.3	11.1
21	1.1	2.3	.7	12.5	1.4	8.1	27.0	.6	1.5	9.0	.1	5.5
22	2.2	6.2	10.0	2.9	4.2	4.8	15.9	6.5	4.2	7.3	0	4.8
23	1.1	10.2	9.4	1.4	2.2	9.9	4.6	9.1	4.9	17.0	1.4	3.2
24	5.2	20.5	6.0	7.3	7.4	8.4	2.3	5.5	10.5	6.8	7.1	6.7
25	.1	18.1	12.5	2.8	7.5	1.2	10.4	3.2	7.7	15.2	* 2.7	1.2
26	5.5	3.3	4.3	8.6	* 16.6	.2	2.0	14.9	17.7	1.3	* 1.1	1.2
27	2.6	6.0	2.1	.1	‼ 1.2	9.5	6.2	2.9	1.9	.4	7.5	17.9
28	9.2	10.2	6.8	0	* 1.5	13.0	5.7	.8	4.2	.2	17.9	7.2
29	3.5		6.7	1.6	7.6	16.5	10.0	2.1	10.3	.6	14.7	6.3
30	1.2		10.4	.7	1.6	25.9	3.2	3.9	7.3	4.5	6.4	1.8
31	3.8		.8		.3		20.8	23.1		7.9		7.4
Sum	127.0	232.7	270.9	135.3	152.2	242.2	280.3	257.0	222.8	136.2	196.6	189.1

Current Year 1974

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet
				High		Low		
	High	Low	Day		Day			
Jan.	1.50	0.04	8	34.4	†25	0	4.1	252
Feb.	1.52	.07	16	35.2	† 4	.1	8.3	462
Mar.	1.62	.06	† 4	39.2	29	.1	8.7	537
Apr.	1.65	.03	1	40.4	† 9	0	4.5	268
May	1.65	.03	26	40.4	† 1	0	4.9	302
June	1.86	.04	2	49.3	12	0	8.1	480
July	1.76	.10	21	45.0	† 3	.20	9.0	556
Aug.	1.75	.06	4	44.6	3	.1	8.3	510
Sept.	1.64	.04	† 4	40.0	† 3	0	7.4	442
Oct.	1.43	.04	7	31.6	†10	0	4.4	270
Nov.	1.76	.04	17	45.0	†22	0	6.6	390
Dec.	1.55	.05	2	36.4	† 6	0	6.1	375
Yearly	1.86	0.03		49.3		0	6.7	4,844

Period 1971-1974

	Acre Feet		
	Average	Maximum	Minimum
Jan.	332	506	237
Feb.	512	563	462
Mar.	448	652	203
Apr.	356	639	175
May	307	376	217
June	363	480	253
July	370	556	242
Aug.	362	536	166
Sept.	402	568	190
Oct.	443	728	270
Nov.	486	541	390
Dec.	368	518	188
Yearly	4,750	5,240	# 3,070

* Partly estimated ‼ Estimated † And other days # Not for full year

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

DESCRIPTION: The tabulated data below are the combined flows of the East Main Canal Wasteway, West Main Canal Wasteway, and the Yuma Main Drain and represent the total water crossing the international land boundary into the Sanchez Mejorada Canal near San Luis, Arizona. The Mexican Section maintains a water-stage recorder in Mexico on right bank of Sanchez Mejorada Canal and obtains check measurements on a bridge located 0.2 mile 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 1974. West Main Canal Wasteway from February 23, 1971 through 1974.

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 28, 30, and 29.

Mean Daily Discharge in Second Feet 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	125	132	150	185	156	172	172	144	142	156	157	150
2	128	138	145	146	158	164	156	146	143	155	146	146
3	123	139	151	137	159	176	154	160	140	161	139	133
4	151	135	171	157	161	142	148	178	175	172	146	126
5	150	129	130	144	158	141	150	172	161	166	155	120
6	132	136	124	151	156	152	161	150	149	134	139	135
7	126	126	134	147	144	131	175	130	151	166	138	144
8	154	133	129	133	145	137	180	139	128	148	138	137
9	163	141	172	143	171	154	172	153	118	156	156	132
10	120	145	168	157	160	159	167	134	118	178	155	129
11	113	146	131	153	144	151	158	142	136	152	137	131
12	114	145	132	148	152	158	144	149	146	144	141	146
13	140	148	138	154	160	142	149	163	162	157	138	129
14	124	136	165	158	157	175	167	161	139	160	160	128
15	117	138	152	154	156	142	157	162	154	148	149	144
16	127	142	148	140	171	142	146	143	149	153	160	159
17	123	149	168	132	165	160	150	137	148	163	208	122
18	129	139	156	139	157	127	151	185	167	161	188	122
19	132	142	132	140	160	143	158	189	166	164	130	111
20	117	141	126	157	149	131	153	142	161	157	125	126
21	119	136	128	165	147	139	172	128	170	154	124	151
22	122	130	145	142	153	147	163	140	169	155	116	144
23	117	140	145	144	148	169	162	132	152	173	128	133
24	121	145	163	165	150	148	144	140	152	144	148	152
25	114	131	169	145	139	149	169	147	148	156	154	133
26	128	129	158	167	161	131	152	156	169	157	139	125
27	128	141	150	159	144	171	154	135	159	163	139	126
28	127	150	150	154	148	165	147	132	158	154	162	130
29	119		144	163	150	172	159	143	153	155	158	138
30	121		148	160	162	204	161	142	166	152	137	128
31	130		143		159		163	177		166		161
Sum	3,954	3,882	4,565	4,539	4,800	4,594	4,914	4,651	4,549	4,880	4,410	4,191

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1935-1974 Acre Feet Average	Maximum	Minimum
Jan.			9	163	11	113	128	7,841	9,314	12,131	* 2,123
Feb.			28	150	7	126	139	7,700	9,170	12,970	* 2,023
Mar.			9	172	6	124	147	9,056	10,504	13,704	* 2,322
Apr.			1	185	17	132	151	9,003	10,162	12,982	2,117
May			† 9	171	25	139	155	9,518	10,411	13,900	2,473
June			30	204	18	127	153	9,114	9,635	12,570	2,525
July			8	180	†12	144	159	9,745	9,550	12,420	2,927
Aug.			19	189	21	128	150	9,225	9,478	12,657	2,980
Sept.			4	175	† 9	118	152	9,022	9,447	12,450	2,602
Oct.			10	178	6	134	157	9,676	10,547	13,898	3,444
Nov.			17	208	22	116	147	8,744	10,375	12,712	3,407
Dec.			31	161	19	111	135	8,310	9,909	12,050	2,888
Yearly				208		111	148	106,954	118,502	149,010	31,840

∅ Mean daily † And other days * Partly estimated

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

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

RECORDS: Records obtained and furnished by the United States Section of the Commission. Computations by shifting control methods. Records available: Daily discharges, January 1950 through 1974; continuous record of gage heights, January 1947 through 1974. 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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	230	239	228	250	217	213	211	196	173	192	207	222
2	226	239	226	232	215	126	213	192	171	192	207	266
3	224	232	226	220	213	67.1	213	190	171	192	207	232
4	224	145	243	207	215	43.2	211	186	171	194	211	222
5	230	75.0	239	209	220	31.7	205	204	171	194	213	222
6	237	58.1	232	211	224	24.7	207	198	171	192	213	224
7	243	50.0	228	211	230	17.6	207	190	173	192	217	224
8	252	43.6	223	215	230	13.6	205	188	173	194	222	222
9	252	39.9	183	217	228	81.5	202	188	171	194	217	220
10	319	103	222	215	226	110	200	192	167	198	217	220
11	523	167	217	217	226	112	204	190	169	198	222	220
12	437	200	213	217	224	95.2	198	190	173	200	224	213
13	264	209	215	215	220	95.2	204	188	173	200	222	217
14	248	217	215	220	213	108	200	188	171	200	224	222
15	245	224	213	217	211	166	204	186	169	200	222	226
16	245	226	215	217	209	184	202	186	167	202	224	224
17	245	226	220	220	207	190	204	186	157	202	226	226
18	243	228	220	220	207	196	200	186	155	204	264	224
19	245	230	222	217	209	194	198	182	169	207	230	226
20	243	224	217	222	207	196	200	182	166	215	222	228
21	241	224	222	217	207	204	198	184	169	207	222	226
22	237	226	224	215	209	205	196	188	175	207	220	224
23	237	228	224	217	211	204	204	186	173	209	217	222
24	234	226	228	220	209	204	200	188	169	202	217	222
25	234	224	230	222	209	205	198	186	175	204	213	220
26	237	224	230	222	209	205	198	184	177	205	215	222
27	234	226	228	222	209	204	198	182	182	207	209	222
28	232	226	228	220	213	205	200	182	190	207	211	222
29	232		230	220	211	205	198	184	192	209	220	226
30	232		228	215	211	209	200	184	192	211	222	222
31	232		224		213		196	184		207		222
Sum	7,957	5,179.6	6,913	6,559	6,662	4,314.8	6,274	5,820	5,175	6,237	6,577	6,950

Month	Current Year 1974								Period 1935-1974		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	77.06	75.76	11	579	† 3	222	257	15,782	383,844	1,672,000	1,821
Feb.	75.81	74.41	† 1	239	9	39.2	185	10,274	319,470	1,385,000	2,040
Mar.	75.80	75.23	4	254	9	142	223	13,712	256,896	1,127,000	798
Apr.	75.85	75.50	1	268	4	196	219	13,010	163,845	700,900	36.7
May	75.58	75.49	† 7	230	†17	207	215	13,214	225,139	1,160,000	1,045
June	75.59	73.92	1	215	8	8.0	144	8,558	173,091	1,180,000	143
July	75.55	75.42	2	215	31	194	202	12,444	126,817	772,800	0
Aug.	75.66	75.48	5	217	31	179	188	11,544	141,243	796,000	0
Sept.	75.63	75.39	†28	192	†17	149	172	10,264	171,328	1,033,000	0
Oct.	75.84	75.64	†19	217	7	190	201	12,371	219,362	1,192,000	9,120
Nov.	75.98	75.65	18	278	1	205	219	13,045	287,763	1,428,000	7,180
Dec.	75.98	75.64	2	280	†12	211	224	13,785	362,326	1,839,000	2,320
Yearly	77.06	73.92		579		8.0	204	148,003	2,831,124	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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75.83	75.81	75.68	75.77	75.56	75.58	75.44	75.52	75.50	75.64	75.80	75.72
2	75.81	75.80	75.67	75.69	75.55	75.10	75.45	75.51	75.49	75.64	75.80	75.92
3	75.79	75.77	75.67	75.63	75.54	74.67	75.46	75.50	75.50	75.65	75.80	75.77
4	75.77	75.29	75.75	75.56	75.54	74.40	75.45	75.49	75.50	75.66	75.82	75.71
5	75.78	74.82	75.72	75.56	75.55	74.27	75.43	75.59	75.50	75.67	75.82	75.70
6	75.79	74.64	75.69	75.57	75.56	74.18	75.44	75.56	75.50	75.66	75.81	75.70
7	75.80	74.55	75.67	75.56	75.58	74.08	75.45	75.52	75.51	75.67	75.81	75.70
8	75.84	74.47	75.64	75.57	75.58	74.01	75.44	75.52	75.51	75.68	75.82	75.69
9	75.84	74.42	75.45	75.57	75.57	74.74	75.43	75.52	75.50	75.68	75.78	75.68
10	76.12	74.99	75.65	75.56	75.56	74.91	75.42	75.54	75.48	75.70	75.77	75.68
11	76.86	75.38	75.64	75.57	75.56	74.91	75.45	75.54	75.49	75.71	75.77	75.68
12	76.60	75.54	75.62	75.57	75.55	74.79	75.43	75.54	75.51	75.72	75.77	75.65
13	75.96	75.58	75.63	75.56	75.53	74.79	75.46	75.54	75.52	75.73	75.76	75.67
14	75.88	75.61	75.63	75.58	75.50	74.88	75.45	75.54	75.51	75.73	75.76	75.69
15	75.86	75.64	75.63	75.57	75.49	75.22	75.47	75.53	75.50	75.73	75.75	75.71
16	75.85	75.64	75.64	75.57	75.49	75.32	75.47	75.53	75.49	75.74	75.75	75.70
17	75.84	75.64	75.66	75.57	75.49	75.35	75.48	75.53	75.43	75.75	75.76	75.70
18	75.82	75.64	75.67	75.57	75.50	75.37	75.47	75.53	75.42	75.76	75.92	75.69
19	75.83	75.65	75.68	75.56	75.52	75.36	75.46	75.51	75.50	75.79	75.77	75.70
20	75.82	75.63	75.66	75.58	75.53	75.37	75.48	75.51	75.49	75.83	75.73	75.71
21	75.81	75.64	75.67	75.56	75.54	75.40	75.48	75.52	75.51	75.79	75.73	75.70
22	75.79	75.66	75.68	75.55	75.55	75.41	75.47	75.54	75.54	75.80	75.72	75.69
23	75.78	75.67	75.67	75.56	75.56	75.40	75.52	75.54	75.53	75.81	75.70	75.68
24	75.77	75.67	75.69	75.57	75.55	75.40	75.50	75.55	75.51	75.77	75.70	75.68
25	75.78	75.66	75.69	75.58	*75.55	75.41	75.50	75.55	75.54	75.78	75.68	75.67
26	75.80	75.67	75.69	75.58	‼75.55	75.41	75.50	75.54	75.55	75.79	75.69	75.68
27	75.79	75.68	75.68	75.58	‼75.56	75.40	75.51	75.54	75.58	75.80	75.66	75.68
28	75.78	75.68	75.68	75.57	*75.58	75.41	75.52	75.54	75.62	75.80	75.67	75.68
29	75.78		75.69	75.57	75.57	75.41	75.52	75.55	75.63	75.81	75.71	75.70
30	75.79		75.68	75.55	75.57	75.43	75.53	75.55	75.63	75.82	75.72	75.68
31	75.79		75.66		75.58		75.52	75.55		75.80		75.68
Avg.	75.88	75.42	75.66	75.58	75.55	75.05	75.47	75.53	75.52	75.74	75.76	75.70

* Partly estimated ‼ Estimated

WASTEWAY TO COLORADO RIVER AT KILOMETER 27 IN MEXICO

DESCRIPTION: Water-stage recorder and cableway located on the left bank of the canal wasteway immediately upstream from where it discharges into the Colorado River, 0.6 mile 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. Records available: April 1956 through 1974.

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 23, 1963. As part of the rehabilitation works, started in 1968, of the Colorado River Irrigation District, the Canal de Conexion was enlarged and lined, and is now known as the Central Feeder Canal.

Monthly Discharge in Acre-Feet

Month	Current Year 1974	Period 1956-1974		
		Average	Maximum	Minimum
January	9,386	6,006	69,527	0
February	701	1,334	8,679	0
March	0	6,423	35,492	0
April	0	13,930	68,714	0
May	0	6,010	22,072	0
June	0	9,597	28,915	0
July	0	15,057	46,139	0
August	0	16,407	55,497	0
September	0	9,815	37,194	0
October	0	4,220	20,512	0
November	0	8,457	69,415	0
December	961	5,409	70,213	0
Yearly	11,048	95,973	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 1974.

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. There has been no discharge to the Colorado River since February 1966.

Monthly Discharge in Acre-Feet

Month	Current Year 1974	Period 1957-1974		
		Average	Maximum	Minimum
January	0	439	3,201	0
February	0	289	4,097	0
March	0	461	6,850	0
April	0	356	3,707	0
May	0	81.1	1,163	0
June	0	42.1	625	0
July	0	238	4,296	0
August	0	229	1,926	0
September	0	276	1,548	0
October	0	82.7	791	0
November	0	199	1,891	0
December	0	244	3,047	0
Yearly	0	2,938	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 25 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 1974.

REMARKS: Because of the discharge of drainage waters to the Colorado River immediately below Morelos Dam, the diversion by pumps along both banks of the river has been suspended. Since the use of irrigation waters has reduced the waste returns to a minimum, the flow at Rodriguez station consists mostly of the drainage waters mentioned above, and seepage from canals which run parallel and adjacent to the river at a higher elevation. Rainfall occurs during the months of December and January, which may increase the normal flow of the river, making discharge measurements from the cable necessary. The rest of the year the flow is low and discharge measurements are made by wading.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	177	106	126	116	103	73.1	61.4	54.4	45.9	43.4	76.3	97.1
2	181	96.8	126	115	103	72.4	63.2	54.4	45.6	43.8	78.0	97.8
3	186	87.9	125	113	104	71.7	62.9	54.7	45.2	44.5	79.5	98.5
4	190	79.1	125	112	105	69.2	62.9	54.7	44.5	44.8	81.2	99.2
5	195	70.6	124	111	105	66.4	62.5	54.7	44.1	45.2	81.9	99.9
6	199	61.8	124	109	106	63.9	62.5	55.1	43.8	45.9	82.3	101
7	203	53.0	123	108	104	61.4	62.2	55.1	43.4	46.3	83.0	101
8	208	44.1	123	107	102	59.0	61.8	55.4	42.7	47.0	83.7	102
9	212	35.3	123	106	100	56.2	61.8	55.4	42.4	48.0	84.0	103
10	216	26.5	122	106	98.5	53.7	61.4	55.4	42.0	48.7	84.8	104
11	221	17.7	121	105	96.8	51.2	61.1	55.8	42.0	49.4	85.1	105
12	225	25.4	122	105	95.0	48.4	61.1	55.8	41.7	50.5	85.8	105
13	230	33.5	122	104	92.9	45.9	60.7	55.4	41.7	51.2	86.5	106
14	234	41.3	122	103	91.1	43.4	60.7	54.7	41.3	51.9	86.9	107
15	227	49.1	123	102	89.3	41.0	60.4	54.4	41.3	53.0	87.6	107
16	221	56.9	123	102	87.6	38.1	60.0	53.7	41.0	53.7	88.3	108
17	214	65.0	123	101	85.8	35.7	59.3	53.3	40.6	54.7	88.6	112
18	208	72.7	123	100	84.0	37.4	59.0	52.6	40.6	55.4	89.3	115
19	201	80.5	124	99.9	82.3	39.2	58.6	52.3	40.3	56.2	90.1	118
20	194	88.6	124	99.2	80.5	41.3	58.3	51.9	40.3	57.2	90.4	123
21	188	96.4	124	98.5	79.8	43.1	57.6	51.2	39.9	57.9	91.1	126
22	181	104	124	97.8	79.1	44.8	57.2	50.9	39.9	59.7	91.8	130
23	174	112	125	98.5	78.8	46.6	56.9	50.1	39.6	61.1	92.5	134
24	167	120	125	98.9	78.0	48.4	56.2	49.8	39.9	62.9	92.9	137
25	161	128	125	99.6	77.3	50.5	55.8	49.1	40.6	64.6	93.6	141
26	154	127	124	99.9	76.6	52.3	55.4	48.7	41.0	66.4	94.3	145
27	148	127	123	101	75.9	54.0	55.1	48.4	41.3	67.8	94.6	149
28	141	126	121	101	75.6	55.8	54.4	47.7	42.0	69.6	95.3	152
29	132		120	102	74.9	57.6	54.0	47.3	42.4	71.3	96.1	156
30	123		119	102	74.2	59.7	54.0	47.0	42.7	72.7	96.8	160
31	114		117		73.5		54.4	46.6		74.5		156
Sum	5,826	2,132.6	3,812	3,123.9	2,758.8	1,581.4	1,832.8	1,626.2	1,259.7	1,719.5	2,632.4	3,695.7

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1951-1974 Acre Feet Average	Maximum	Minimum
Jan.	43.93	41.47	14	234	31	114	188	11,555	210,777	1,047,732	426
Feb.	42.19	39.93	25	128	11	17.7	76.3	4,230	132,794	696,461	317
Mar.	41.11	40.72	1	126	31	117	123	7,560	93,637	807,342	0
Apr.	41.14	40.88	1	116	22	97.8	104	6,196	61,487	588,983	0
May	41.11	40.94	6	106	31	73.5	89.0	5,472	85,344	732,815	0
June	41.11	39.73	1	73.1	17	35.7	52.6	3,137	37,492	555,460	0
July	40.55	40.35	2	63.2	†29	54.0	59.0	3,635	20,267	264,561	0
Aug.	40.35	40.26	†11	55.8	31	46.6	52.6	3,229	29,900	309,320	0
Sept.	40.49	40.29	1	45.9	23	39.6	42.0	2,499	46,578	572,551	0
Oct.	42.75	40.42	31	74.5	1	43.4	55.4	3,411	77,561	769,939	2,459
Nov.	41.04	40.81	30	96.8	1	76.3	87.6	5,221	127,708	909,399	5,185
Dec.	41.37	40.98	30	160	1	97.1	119	7,330	172,224	1,060,767	687
Yearly	43.93	39.73		234		17.7	87.2	63,475	1,061,611	7,923,600	25,036

∅ Mean daily † And other days

COLORADO RIVER AT MIGUEL C. RODRIGUEZ IN MEXICO – STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	42.78	42.03	41.01	40.98	41.01	41.11	40.55	40.32	40.29	40.42	40.81	40.98
2	43.04	41.80	41.01	41.08	41.01	41.08	40.49	40.32	40.29	40.42	40.81	40.98
3	42.03	41.63	40.98	41.08	41.01	40.81	40.49	40.35	40.29	40.42	40.81	41.04
4	41.60	41.57	40.98	41.01	40.98	40.29	40.49	*40.32	40.29	40.42	40.81	41.08
5	41.50	41.21	41.04	40.98	41.01	40.03	40.49	40.26	40.29	40.45	40.85	41.01
6	41.47	40.58	41.08	40.94	41.01	39.90	40.45	40.26	40.32	40.45	40.88	41.01
7	41.47	40.29	41.01	40.98	41.08	39.83	40.42	40.29	40.32	40.45	40.85	41.01
8	41.57	40.12	40.98	40.94	41.08	39.80	40.42	40.29	40.32	40.45	40.88	41.04
9	41.67	40.03	40.98	40.98	41.08	39.80	40.45	40.29	40.32	40.45	41.01	41.04
10	42.49	39.93	40.98	40.94	41.08	39.76	40.45	40.29	40.29	40.49	40.94	41.01
11	43.54	40.03	40.91	40.98	41.11	39.76	40.42	40.29	40.29	40.49	40.88	41.01
12	43.90	40.39	40.94	41.01	41.08	39.73	40.42	40.29	40.32	40.49	40.85	41.01
13	43.64	40.62	40.91	41.01	41.08	39.73	40.42	40.32	40.32	40.49	40.88	41.01
14	42.88	40.72	40.91	40.98	41.04	39.73	40.39	40.32	40.32	40.49	40.88	41.01
15	42.98	40.78	40.91	41.01	41.01	39.76	40.35	40.29	40.32	40.49	40.88	41.01
16	42.36	40.81	40.88	41.04	41.01	39.99	40.35	40.29	40.32	40.52	40.88	41.01
17	42.09	40.88	40.88	41.04	40.98	40.29	40.39	40.29	40.35	40.52	40.91	41.01
18	41.99	40.91	40.88	41.01	41.01	40.39	40.45	40.29	40.35	40.52	40.94	41.01
19	42.32	40.91	40.91	40.98	41.01	40.45	40.45	40.26	40.39	40.52	41.01	41.01
20	42.88	40.91	40.91	40.98	41.01	40.52	40.45	40.26	40.39	40.52	41.04	41.01
21	43.24	40.88	40.91	41.04	41.08	40.52	40.42	40.29	40.39	40.52	41.01	41.01
22	43.24	40.91	40.91	40.94	41.08	40.55	40.42	40.29	40.42	41.67	40.98	41.04
23	42.98	40.94	40.91	40.94	41.08	40.58	40.35	40.29	40.42	41.04	40.98	41.04
24	42.59	40.98	40.94	40.98	41.08	40.55	40.49	40.29	40.42	40.81	40.94	41.04
25	42.29	41.01	40.94	40.98	41.08	40.52	40.42	40.22	40.49	40.81	40.94	41.08
26	41.90	41.01	40.98	40.98	41.11	40.55	40.45	40.22	40.49	40.78	40.98	41.08
27	41.77	41.01	41.01	41.01	41.08	40.55	40.45	40.29	40.45	40.78	40.98	41.31
28	41.67	41.01	41.01	41.04	41.08	40.52	40.45	40.29	40.42	40.81	40.98	41.31
29	41.96		41.01	41.01	41.08	40.52	40.49	40.29	40.42	40.81	40.98	41.31
30	42.49		41.01	41.01	41.08	40.55	40.45	40.29	40.42	*40.81	41.01	41.37
31	42.49		40.98		41.08		40.45	40.29		40.88		41.37
Avg.	42.42	40.85	40.94	41.01	41.04	40.29	40.45	40.29	40.35	40.62	40.91	41.08

* Recorder out of order from August 4 to October 30; data from daily readings

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 1974.

REMARKS: The wasteway structure has 3 manually operated rectangular gates which discharge from the Barrote Canal into a wasteway leading to the Colorado River. There has been no discharge to the Colorado River since February 1966.

Monthly Discharge in Acre-Feet

Month	Current Year 1974	Period 1957-1974		
		Average	Maximum	Minimum
January	0	663	3,166	0
February	0	360	2,788	0
March	0	896	7,074	0
April	0	653	4,462	0
May	0	806	4,413	0
June	0	168	1,505	0
July	0	365	4,296	0
August	0	195	1,857	0
September	0	274	1,800	0
October	0	597	6,997	0
November	0	192	3,413	0
December	0	223	1,205	0
Yearly	0	5,391	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 1974.

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 1974: 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 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.65	15.91	15.75	15.55	15.26	15.09	15.03	15.03	14.96	14.50	14.90	14.90
2	15.65	15.91	15.75	15.55	15.26	15.09	15.03	15.03	14.93	14.50	14.90	14.90
3	15.65	15.88	15.75	15.52	15.26	15.09	15.03	15.03	14.90	14.50	14.90	14.93
4	15.65	15.88	15.75	15.52	15.26	15.09	15.03	15.03	14.90	14.50	14.90	14.93
5	15.65	15.88	15.75	15.52	15.26	15.09	15.03	15.03	14.86	14.50	14.86	14.93
6	15.65	15.88	15.75	15.49	15.26	15.09	15.03	15.03	14.83	14.50	14.86	14.96
7	15.65	15.85	15.75	15.49	15.26	15.09	15.03	15.03	14.83	14.50	14.86	14.96
8	15.65	15.85	15.75	15.49	15.26	15.09	15.03	15.03	14.80	14.50	14.86	14.96
9	15.68	15.85	15.72	15.49	15.22	15.09	15.03	15.03	14.76	14.50	14.86	14.96
10	15.68	15.81	15.72	15.45	15.22	15.09	15.03	15.03	14.76	14.50	14.83	14.99
11	15.72	15.81	15.72	15.45	15.22	15.09	15.03	15.03	14.73	14.50	14.83	14.99
12	15.72	15.78	15.72	15.45	15.22	15.09	15.06	15.03	14.73	14.50	14.83	14.99
13	15.75	15.78	15.72	15.45	15.22	15.06	15.06	15.03	14.73	14.50	14.83	14.99
14	15.75	15.78	15.72	15.45	15.22	15.06	15.06	15.03	14.70	14.50	14.83	14.99
15	15.75	15.78	15.72	15.42	15.19	15.06	15.06	15.03	14.70	14.50	14.83	14.99
16	15.75	15.78	15.72	15.42	15.19	15.06	15.06	15.06	14.67	14.50	14.83	15.03
17	15.75	15.78	15.72	15.42	15.19	15.06	15.06	15.06	14.63	14.50	14.83	15.03
18	15.75	15.78	15.72	15.42	15.19	15.06	15.06	15.06	14.63	14.50	14.80	15.03
19	15.75	15.78	15.72	15.39	15.19	15.06	15.06	15.06	14.60	14.50	14.80	15.03
20	15.78	15.78	15.68	15.39	15.19	15.06	15.06	15.06	14.60	14.50	14.80	15.03
21	15.78	15.78	15.68	15.39	15.16	15.03	15.09	15.06	14.57	14.50	14.80	15.03
22	15.78	15.78	15.68	15.35	15.16	15.03	15.09	15.06	14.57	14.50	14.76	15.06
23	15.78	15.78	15.68	15.35	15.16	15.03	15.09	15.06	14.57	14.63	14.76	15.06
24	15.78	15.78	15.65	15.32	15.16	15.03	15.09	15.06	14.53	14.67	14.76	15.06
25	15.81	15.78	15.65	15.32	15.16	15.03	15.09	15.06	14.53	14.70	14.76	15.06
26	15.81	15.78	15.62	15.29	15.16	15.03	15.09	15.06	14.50	14.70	14.76	15.06
27	15.85	15.78	15.62	15.29	15.16	15.03	15.09	15.06	14.50	14.73	14.76	15.06
28	15.85	15.78	15.62	15.29	15.16	15.03	15.09	15.06	14.50	14.76	14.76	15.06
29	15.88		15.58	15.29	15.16	14.99	15.09	15.06	14.50	14.80	14.76	15.06
30	15.88		15.58	15.26	15.16	14.99	15.09	15.06	14.50	14.83	14.76	15.09
31	15.91		15.58		15.16		15.09	15.06		14.83		15.09
Avg.	15.75	15.81	15.68	15.42	15.19	15.06	15.06	15.06	14.70	14.57	14.83	14.99

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)	
	1974	Average 1935-1974	1974	Average 1951-1974	1974	Average 1939-1974	1974	Estimated Average
Jan.	20,160	16,661	1,624	1,649	536.2	554.7	22,320.2	18,864.7
Feb.	19,888	16,371	1,629	1,676	551.2	558.7	22,068.2	18,605.7
Mar.	19,482	16,087	1,638	1,674	569.2	573.7	21,689.2	18,334.7
Apr.	19,022	16,252	1,564	1,685	606.2	603.6	21,192.2	18,540.6
May	18,811	17,265	1,637	1,740	609.8	603.0	21,057.8	19,608.0
June	18,801	18,674	1,582	1,626	608.4	605.6	20,991.4	20,905.6
July	19,088	18,874	1,445	1,488	584.2	593.5	21,117.2	20,955.5
Aug.	19,270	18,626	1,423	1,418	574.9	576.1	21,267.9	20,620.1
Sept.	19,358	18,304	1,380	1,400	562.5	570.4	21,300.5	20,274.4
Oct.	19,338	18,020	1,449	1,425	570.5	573.3	21,357.5	20,018.3
Nov.	19,575	17,771	1,577	1,506	548.1	561.9	21,700.1	19,838.9
Dec.	19,721	17,481	1,560	1,598	533.3	556.6	21,814.3	19,635.6
Avg.	19,376	17,532	1,542	1,574	571.2	577.6	21,489.7	19,683.5
Max.	20,160	27,780	1,638	1,808	609.8	688.7	22,320.2	28,235.0
Min.	18,801	* 10,727	1,380	1,186	533.3	76.9	20,991.4	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	1974						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 1956-1974

Jan.	104,544,000	6,000	5	0.0057	0.0085	0.0039	3.2	30.7	336	1.6
Feb.	110,517,000	5,700	4	.0051	.0061	.0034	3.1	14.2	116	1.6
Mar.	232,678,000	34,700	4	.0149	.0208	.0061	18.8	46.4	499	8.8
Apr.	239,202,000	29,300	3	.0122	.0189	.0050	15.9	42.1	434	7.9
May	117,013,000	4,700	5	.0040	.0047	.0034	2.5	15.5	201	2.3
June	168,282,000	8,500	4	.0050	.0074	.0035	4.6	15.8	92.6	4.4
July	247,289,000	17,600	5	.0071	.0088	.0052	9.5	21.6	89.3	6.1
Aug.	241,789,000	12,300	4	.0051	.0065	.0040	6.7	20.7	103	6.2
Sept.	108,011,000	3,600	4	.0033	.0047	.0020	1.9	8.8	43.6	1.6
Oct.	62,348,000	900	5	.0014	.0019	.0011	.5	4.2	20.0	.5
Nov.	61,113,000	1,600	4	.0026	.0057	.0014	.9	11.1	89.9	.5
Dec.	123,321,000	3,700	5	.0030	.0041	.0025	2.0	21.7	174	.6
Yearly	1,816,107,000	128,600	52	0.0071	0.0208	0.0011	69.6	252.8	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 1952-1974

Jan.	101,897,000	7,191	4	0.0071	0.0085	0.0058	3.9	5.5	22.3	0.2
Feb.	110,107,000	6,277	4	.0057	.0068	.0045	3.4	5.8	19.4	.9
Mar.	232,584,000	12,317	4	.0053	.0064	.0041	6.6	43.4	154	6.6
Apr.	238,994,000	13,976	5	.0058	.0067	.0050	7.5	39.2	121	7.5
May	116,868,000	6,494	5	.0056	.0090	.0043	3.5	10.7	51.2	1.5
June	167,803,000	8,449	4	.0050	.0060	.0040	4.5	30.2	109	4.5
July	246,899,000	10,605	5	.0043	.0056	.0033	5.8	43.5	156	5.8
Aug.	241,233,000	14,148	5	.0059	.0163	.0039	7.6	40.3	135	6.8
Sept.	107,335,000	4,318	4	.0040	.0096	.0030	2.4	16.5	64.7	1.9
Oct.	61,992,000	2,144	4	.0035	.0044	.0021	1.1	4.1	12.0	.3
Nov.	60,601,000	2,244	4	.0037	.0055	.0024	1.2	2.2	9.3	.2
Dec.	122,726,000	7,065	5	.0058	.0072	.0046	3.8	4.7	14.8	1.1
Yearly	1,809,038,000	95,229	53	0.0051	0.0163	0.0021	51.4	246	696	51.4

Samples and analyses by Mexican Section, Method B

SUSPENDED SILT

Colorado River at Southerly International Boundary

Period 1946-1974

Month	1974							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
Jan.	21,448,000	2,900	0	0.0135	0.0146	0.0126	1.6			
Feb.	13,962,000	1,500	2	.0107	.0126	.0091	.8			
Mar.	18,635,000	2,500	1	.0134	.0150	.0108	1.4			
Apr.	17,681,000	2,200	1	.0124	.0140	.0116	1.2			
May	17,958,000	2,300	1	.0128	.0136	.0122	1.2			
June	11,630,000	1,700	1	.0146	.0150	.0136	.9			
July	16,911,000	1,900	1	.0112	.0140	.0084	1.0			
Aug.	15,688,000	900	1	.0057	.0082	.0041	.5			
Sept.	13,949,000	700	0	.0050	.0060	.0047	.4			
Oct.	16,812,000	1,100	1	.0065	.0075	.0061	.6			
Nov.	17,728,000	2,200	1	.0124	.0150	.0079	1.2			
Dec.	18,734,000	3,000	1	.0160	.0165	.0149	1.6			
Yearly	201,136,000	22,900	11	0.0114	0.0165	0.0041	12.4			

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

Colorado River at Miguel C. Rodriguez Gaging Station

Period 1960-1974

Jan.	15,711,000	763	3	0.0049	0.0052	0.0043	0.4	18.9	251	0
Feb.	5,752,000	249	2	.0043	.0061	.0030	.2	2.8	13.9	0
Mar.	10,279,000	494	2	.0048	.0053	.0037	.2	.6	4.2	0
Apr.	8,425,000	312	2	.0037	.0041	.0031	.2	.2	1.1	0
May	7,441,000	247	2	.0033	.0045	.0020	.2	.3	1.5	0
June	4,265,000	215	2	.0050	.0061	.0034	.1	.1	.1	0
July	4,943,000	130	3	.0026	.0032	.0020	.1	*	.2	0
Aug.	4,386,000	147	2	.0033	.0051	.0020	.1	.1	.2	0
Sept.	3,397,000	126	2	.0037	.0052	.0020	.1	.4	4.5	0
Oct.	4,637,000	79	2	.0017	.0025	.0010	.1	2.2	20.8	.1
Nov.	7,099,000	190	2	.0027	.0031	.0022	.1	3.3	36.0	.1
Dec.	9,967,000	346	3	.0035	.0040	.0030	.2	3.2	13.0	0
Yearly	86,302,000	3,297	27	0.0036	0.0061	0.0010	1.8	32.1	289	1.6

Samples and analyses by Mexican Section, Method C * Less than 0.1 acre-foot

CHEMICAL ANALYSES OF WATER SAMPLES
1974

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

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20.04; Mg, 12.16; Na, 22.99; (CO_3 plus HCO_3) expressed 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 ECx10^6 at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	ECx10^6 @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
Colorado River at Northerly International Boundary															
Jan.	5	1.47	113,000	1,725		8.1	51	33	5.60	3.06	8.99	3.58	8.39	5.78	
Feb.	4	1.39	113,000	1,628		8.1	50	33	5.30	3.04	8.24	3.35	7.87	5.54	
Mar.	4	1.28	219,000	1,476		8.1	48	30	5.05	2.80	7.19	3.14	7.51	4.53	
Apr.	5	1.22	215,000	1,411		8.0	46	28	4.97	2.75	6.66	3.09	7.33	4.10	
May	4	1.29	111,000	1,520		8.1	48	30	5.22	2.81	7.51	3.32	7.64	4.67	
June	4	1.31	162,000	1,514		8.1	48	30	5.14	2.88	7.50	3.21	7.66	4.74	
July	5	1.24	225,000	1,437		8.0	47	29	4.84	2.90	6.91	3.04	7.42	4.30	
Aug.	4	1.23	213,000	1,430		8.0	48	29	4.71	2.88	6.94	2.99	7.45	4.23	
Sept.	5	1.36	108,000	1,583		8.0	50	31	5.07	2.97	8.06	3.29	7.89	5.09	
Oct.	4	1.55	71,000	1,797		8.0	51	34	5.75	3.23	9.40	3.74	8.54	6.29	
Nov.	4	1.60	72,100	1,874		8.0	52	35	5.87	3.27	10.04	3.87	8.74	6.73	
Dec.	5	1.44	131,000	1,661		8.0	50	32	5.39	3.04	8.54	3.45	8.15	5.51	
Mean ●	Ø53	1.36	Ø1,758,100	1,588		8.0	49	31	5.24	2.97	8.00	3.34	7.88	5.13	
Period Avg.		1.66	2,401,000	2,005		7.9			6.01	3.70	10.43	3.33	8.47	8.37	
Tons of Constituents				1974					190,000	65,600	334,000	182,000	687,000	331,000	
Avg. Tons				Period 1962-1974					237,000	88,800	475,000	194,000	796,000	595,000	

** Percent of total cations *** Percent of total anions ● Weighted mean Ø Total

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1974

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

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

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

Colorado River at Northerly International Boundary

January		February		April		May		July		August		October		November	
1	1,640	15	1,630	1	1,430	16	1,590	1	1,450	16	1,420	1	1,900	15	1,860
2	1,740	16	1,620	2	1,390	17	1,500	2	1,440	17	1,410	2	1,760	16	1,810
3	1,740	17	1,650	3	1,380	18	1,490	3	1,440	18	1,450	3	1,760	17	1,670
4	1,820	18	1,590	4	1,410	19	1,520	4	1,420	19	1,460	4	1,760	18	1,820
5	1,710	19	1,600	5	1,400	20	1,530	5	1,440	20	1,460	5	1,750	19	1,840
6	1,690	20	1,590	6	1,390	21	1,500	6	1,440	21	1,440	6	1,770	20	1,830
7	1,700	21	1,570	7	1,400	22	1,510	7	1,420	22	1,450	7	1,790	21	1,790
8	1,660	22	1,600	8	1,390	23	1,510	8	1,420	23	1,460	8	1,780	22	1,800
9	1,520	23	1,620	9	1,400	24	1,510	9	1,410	24	1,450	9	1,760	23	1,840
10	1,490	24	1,650	10	1,390	25	1,510	10	1,420	25	1,470	10	1,780	24	1,850
11	1,600	25	1,640	11	1,390	26	1,530	11	1,460	26	1,480	11	1,780	25	1,860
12	1,610	26	1,610	12	1,400	27	1,560	12	1,440	27	1,470	12	1,780	26	1,880
13	1,630	27	1,600	13	1,430	28	1,510	13	1,410	28	1,460	13	1,800	27	1,870
14	1,720	28	1,580	14	1,390	29	1,490	14	1,420	29	1,460	14	1,810	28	1,840
15	1,810	March		15	1,390	30	1,530	15	1,430	30	1,510	15	1,800	29	1,850
16	1,890	1	1,570	16	1,390	31	1,540	16	1,410	31	1,580	16	1,790	30	1,880
17	1,940	2	1,550	17	1,400	June		17	1,400	September		17	1,780	December	
18	1,920	3	1,550	18	1,420	1	1,510	18	1,420	1	1,650	18	1,780	1	1,860
19	1,870	4	1,530	19	1,490	2	1,500	19	1,410	2	1,620	19	1,760	2	1,820
20	1,850	5	1,560	20	1,430	3	1,530	20	1,400	3	1,600	20	1,780	3	1,840
21	1,810	6	1,570	21	1,440	4	1,540	21	1,430	4	1,560	21	1,810	4	1,790
22	1,860	7	1,570	22	1,430	5	1,510	22	1,450	5	1,540	22	1,770	5	1,790
23	1,840	8	1,550	23	1,420	6	1,530	23	1,470	6	1,550	23	1,780	6	1,800
24	1,800	9	1,530	24	1,440	7	1,520	24	1,460	7	1,550	24	1,800	7	1,770
25	1,710	10	1,550	25	1,430	8	1,560	25	1,470	8	1,570	25	1,790	8	1,780
26	1,710	11	1,500	26	1,450	9	1,560	26	1,480	9	1,580	26	1,800	9	1,760
27	1,690	12	1,510	27	1,440	10	1,530	27	1,500	10	1,580	27	1,790	10	1,750
28	1,670	13	1,500	28	1,450	11	1,570	28	1,470	11	1,550	28	1,840	11	1,810
29	1,540	14	1,480	29	1,440	12	1,540	29	1,440	12	1,560	29	1,860	12	1,730
30	1,510	15	1,510	30	1,440	13	1,550	30	1,430	13	1,560	30	1,860	13	1,660
31	1,550	16	1,510	May		14	1,540	31	1,430	14	1,550	31	1,860	14	1,660
February		17	1,510	1	1,440	15	1,580	August		15	1,600	November		15	1,650
1	1,560	18	1,500	2	1,430	16	1,630	1	1,410	16	1,560	1	1,910	16	1,630
2	1,600	19	1,490	3	1,450	17	1,560	2	1,400	17	1,550	2	1,930	17	1,640
3	1,610	20	1,460	4	1,470	18	1,560	3	1,400	18	1,550	3	1,930	18	1,620
4	1,660	21	1,410	5	1,540	19	1,540	4	1,400	19	1,570	4	1,950	19	1,620
5	1,650	22	1,400	6	1,530	20	1,580	5	1,380	20	1,570	5	1,970	20	1,610
6	1,650	23	1,420	7	1,510	21	1,530	6	1,380	21	1,570	6	1,940	21	1,630
7	1,690	24	1,470	8	1,500	22	1,510	7	1,350	22	1,570	7	1,890	22	1,640
8	1,660	25	1,420	9	1,500	23	1,540	8	1,410	23	1,570	8	1,860	23	1,620
9	1,670	26	1,390	10	1,500	24	1,490	9	1,390	24	1,550	9	1,900	24	1,650
10	1,680	27	1,400	11	1,510	25	1,470	10	1,400	25	1,560	10	1,870	26	1,710
11	1,620	28	1,410	12	1,530	26	1,450	11	1,380	26	1,590	11	1,880	27	1,650
12	1,610	29	1,400	13	1,540	27	1,450	12	1,380	27	1,600	12	1,890	28	1,610
13	1,620	30	1,490	14	1,500	28	1,430	13	1,360	28	1,640	13	1,880	29	1,610
14	1,620	31	1,480	15	1,510	29	1,390	14	1,390	29	1,620	14	1,850	30	1,580
						30	1,450	15	1,440	30	1,630			31	1,560

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1974

Intake Canal at Morelos Diversion Structure

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
1	1,660	15	1,630	1	1,430	16	1,580	1	1,450	16	1,420	1	1,840	16	1,810
2	1,750	16	1,620	2	1,400	17	1,520	2	1,450	17	1,440	2	1,830	17	1,660
3	1,740	17	1,640	3	1,390	18	1,500	3	1,450	18	1,450	3	1,770	18	1,820
4	1,820	18	1,570	4	1,410	19	1,530	4	1,450	19	1,460	4	1,780	19	1,860
5	1,730	19	1,620	5	1,400	20	1,540	5	1,450	20	1,450	5	1,760	20	1,840
6	1,670	20	1,600	6	1,400	21	1,510	6	1,450	21	1,460	6	1,790	21	1,800
7	1,680	21	1,570	7	1,400	22	1,520	7	1,440	22	1,460	7	1,810	22	1,820
8	1,670	22	1,600	8	1,390	23	1,510	8	1,440	23	1,450	8	1,780	23	1,850
9	1,520	23	1,620	9	1,400	24	1,510	9	1,430	24	1,460	9	1,790	24	1,860
10	1,490	24	1,650	10	1,400	25	1,520	10	1,420	25	1,500	10	1,770	25	1,860
11	1,600	25	1,650	11	1,420	26	1,520	11	1,480	26	1,490	11	1,790	26	1,880
12	1,620	26	1,610	12	1,410	27	1,560	12	1,440	27	1,500	12	1,780	27	1,870
13	1,630	27	1,610	13	1,400	28	1,520	13	1,430	28	1,500	13	1,810	28	1,850
14	1,720	28	1,600	14	1,410	29	1,500	14	1,420	29	1,560	14	1,820	29	1,860
15	1,810	March		15	1,410	30	1,530	15	1,440	30	1,550	15	1,800	30	1,880
16	1,890	1	1,560	16	1,400	31	1,550	16	1,420	31	1,570	16	1,810	December	
17	1,940	2	1,550	17	1,400	June		17	1,420	September		17	1,790	1	1,870
18	1,910	3	1,540	18	1,410	1	1,500	18	1,410	1	1,670	18	1,780	2	1,840
19	1,870	4	1,540	19	1,490	2	1,500	19	1,410	2	1,630	19	1,750	3	1,840
20	1,870	5	1,570	20	1,440	3	1,530	20	1,430	3	1,630	20	1,780	4	1,800
21	1,820	6	1,570	21	1,440	4	1,540	21	1,430	4	1,590	21	1,820	5	1,800
22	1,870	7	1,570	22	1,440	5	1,500	22	1,450	5	1,570	22	1,780	6	1,790
23	1,850	8	1,560	23	1,430	6	1,520	23	1,480	6	1,560	23	1,770	7	1,710
24	1,800	9	1,550	24	1,450	7	1,510	24	1,450	7	1,570	24	1,790	8	1,790
25	1,720	10	1,550	25	1,440	8	1,540	25	1,470	8	1,590	25	1,780	9	1,780
26	1,710	11	1,500	26	1,440	9	1,550	26	1,480	9	1,590	26	1,820	10	1,760
27	1,700	12	1,500	27	1,450	10	1,550	27	1,500	10	1,580	27	1,850	11	1,800
28	1,670	13	1,510	28	1,450	11	1,570	28	1,470	11	1,570	28	1,850	12	1,750
29	1,550	14	1,500	29	1,440	12	1,530	29	1,450	12	1,580	29	1,860	13	1,670
30	1,520	15	1,500	30	1,440	13	1,550	30	1,460	13	1,570	30	1,880	14	1,650
31	1,560	16	1,510	May		14	1,550	31	1,450	14	1,530	31	1,870	15	1,650
February		17	1,510	1	1,450	15	1,570	August		15	1,630	November		16	1,670
1	1,560	18	1,520	2	1,440	16	1,640	1	1,420	16	1,600	1	1,930	17	1,650
2	1,560	19	1,500	3	1,450	17	1,570	2	1,420	17	1,590	2	1,940	18	1,640
3	1,600	20	1,460	4	1,470	18	1,550	3	1,400	18	1,570	3	1,950	19	1,620
4	1,660	21	1,420	5	1,540	19	1,550	4	1,420	19	1,600	4	1,950	20	1,610
5	1,660	22	1,420	6	1,550	20	1,580	5	1,410	20	1,570	5	1,960	21	1,620
6	1,670	23	1,430	7	1,500	21	1,530	6	1,400	21	1,600	6	1,960	22	1,610
7	1,680	24	1,460	8	1,500	22	1,510	7	1,380	22	1,590	7	1,890	23	1,620
8	1,680	25	1,440	9	1,500	23	1,550	8	1,400	23	1,590	8	1,860	24	1,650
9	1,680	26	1,400	10	1,500	24	1,500	9	1,410	24	1,570	9	1,890	25	1,660
10	1,670	27	1,410	11	1,500	25	1,470	10	1,410	25	1,570	10	1,910	26	1,700
11	1,620	28	1,410	12	1,520	26	1,460	11	1,410	26	1,600	11	1,880	27	1,690
12	1,610	29	1,400	13	1,540	27	1,450	12	1,400	27	1,620	12	1,890	28	1,610
13	1,630	30	1,500	14	1,500	28	1,440	13	1,400	28	1,620	13	1,880	29	1,620
14	1,620	31	1,500	15	1,510	29	1,400	14	1,400	29	1,630	14	1,860	30	1,600
						30	1,440	15	1,460	30	1,630	15	1,850	31	1,610

Colorado River at Southerly International Boundary

January		March		April		June		July		September		October		November	
8	5,670	5	5,890	16	5,730	4	3,720	16	5,680	3	5,540	22	5,510	19	5,620
February		19	5,890	May		18	5,950	August		17	5,660	31	5,550	December	
5	4,990	April		7	5,920	25	6,000	6	5,660	October		November		3	5,500
19	6,120	2	5,920	21	5,840	July		20	5,680	8	5,550	8	5,730	17	5,760
						2	5,830							24	5,730

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1974

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		October	
15	2,490	18	2,380	26	2,040	7	2,320	25	2,050	6	2,130	17	2,460	28	2,510
22	2,400	22	2,400	April		21	2,100	28	2,000	13	2,140	24	2,560	November	
25	2,460	26	2,100	2	2,160	27	2,220	July		20	2,010	27	2,430	5	2,460
29	2,410	March		9	2,010	31	2,300	4	2,010	27	2,430	October		12	2,500
February		5	2,200	16	2,000	June		9	2,200	30	2,410	2	2,610	19	2,300
4	2,400	12	2,220	23	2,300	4	2,000	16	2,000	September		8	2,590	30	2,390
12	2,420	19	2,000	26	2,100	11	2,150	23	2,410	2	2,460	14	2,500	December	
				30	2,420	18	2,200	29	2,200	10	2,640	22	2,420	3	2,420
														10	2,400

Colorado River at Miguel C. Rodriguez Gaging Station

January		February		April		May		July		August		October		November	
2	5,500	25	5,300	8	5,400	20	5,050	2	5,000	26	5,330	8	5,510	18	5,300
14	5,400	March		22	5,200	June		15	5,140	September		21	5,600	December	
28	5,760	11	5,500	May		3	5,300	29	5,320	9	5,620	November		2	5,330
February		25	5,100	6	5,000	17	5,400	August		23	5,670	4	5,500	16	5,150
11	5,500							12	5,060						

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 48 in this bulletin.

In United States

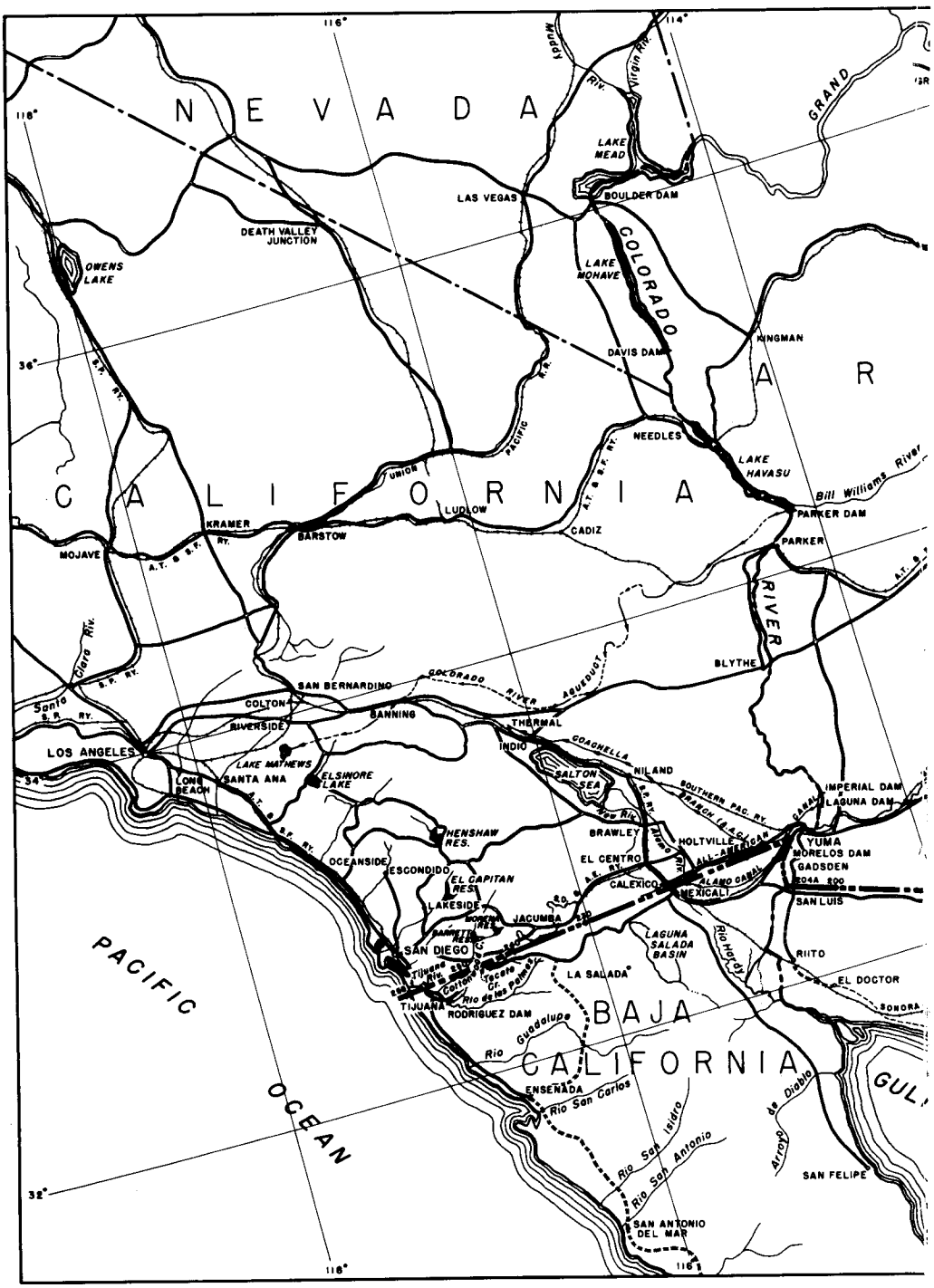
Month	Brawley, California		El Centro, California		Blythe, California		Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1974	Average 1931-1974	1974	Average 1931-1974	1974	Average 1931-1974	1974	Average 1955-1974	1974	Average 1931-1974
Jan.	1.25	0.32	0.98	0.34	0.63	0.43	1.31	0.40	0.77	0.36
Feb.	0	.29	0	.32	0	.39	T	.43	0	.33
Mar.	.20	.17	.05	.17	.40	.40	.28	.46	.28	.23
Apr.	0	.07	0	.10	0	.14	0	.29	0	.11
May	0	.01	0	0	0	.01	0	.12	0	.01
June	0	.01	0	.01	0	.05	0	.06	0	.02
July	.03	.04	T	.09	.10	.17	.41	.20	0	.16
Aug.	0	.29	0	.30	.57	.77	.19	.47	0	.42
Sept.	.40	.32	.02	.24	T	.31	.30	.28	.16	.37
Oct.	.12	.23	.14	.25	.37	.31	.90	.33	.21	.44
Nov.	0	.15	0	.17	0	.26	.34	.51	0	.19
Dec.	.47	.41	.37	.42	.56	.51	.65	.51	.18	.38
Yearly	2.47	2.31	1.56	2.41	2.63	3.75	4.38	4.06	1.60	3.02

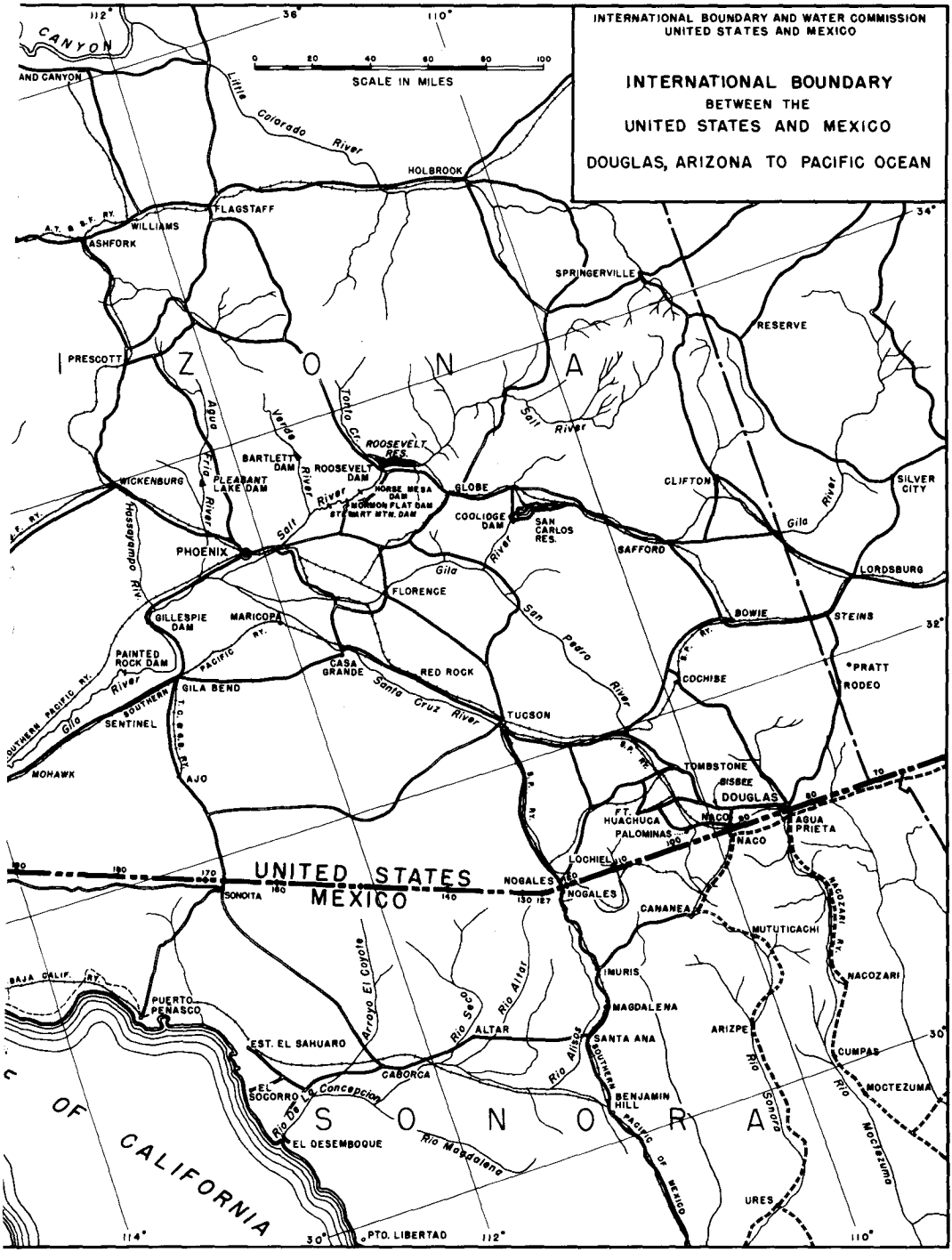
In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora		Delta, Baja California	
	1974	Average 1948-1974	1974	Average 1926-1974	1974	Average 1948-1974	1974	Average 1949-1974	1974	Average 1948-1974
Jan.	0.39	0.35	0.71	0.35	0.91	0.31	0.39	0.28	0.71	0.31
Feb.	0	.16	0	.31	0	.08	0	.20	0	.12
Mar.	.16	.12	.24	.20	.16	.08	.24	.16	.08	.12
Apr.	0	.08	0	.08	0	.08	0	.04	0	.04
May	0	T	0	T	0	0	T	0	0	0
June	0	T	0	T	0	.04	0	.04	0	T
July	.04	.08	.24	.12	.16	.04	.24	.20	.24	.04
Aug.	0	.20	0	.28	0	.12	0	.47	0	.16
Sept.	0	.20	.20	.35	T	.04	.04	.20	.12	.16
Oct.	.20	.35	.24	.31	.24	.31	.98	.43	.16	.31
Nov.	0	.16	0	.16	0	.16	0	.59	0	.16
Dec.	.16	.28	.35	.75	.04	.20	.16	.51	.20	.28
Yearly	0.94	2.01	1.97	2.91	1.50	1.46	2.05	2.44	1.50	1.69

Month	Colonia Juarez, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California		Santa Clara, Sonora	
	1974	Average 1964-1974	1974	Average 1959-1974	1974	Average 1949-1974	1974	Average 1948-1972	1974	Average 1971-1974
Jan.	0.63	0.51	0.39	0.20	0.55	0.20	*	0.28	0	T
Feb.	0	.24	0	.12	0	.12	*	.08	0	.16
Mar.	.59	.28	.04	.12	.08	.12	*	.16	0	.08
Apr.	0	.12	0	.04	0	.04	*	.08	0	.08
May	0	.04	0	0	0	T	*	.04	0	0
June	0	T	0	.04	*	T	*	.08	0	T
July	.28	.16	.04	.08	*	.08	*	.16	0	0
Aug.	0	.31	0	.20	*	.35	*	.35	0	.08
Sept.	.16	.24	.08	.51	*	.51	.39	.43	.24	.16
Oct.	.12	.55	2.28	.55	*	.43	0	.28	.51	.87
Nov.	T	.31	0	.28	*	.16	0	.16	0	T
Dec.	.59	.31	.04	.31	*	.31	.28	.35	.35	.12
Yearly	2.36	2.24	2.87	2.60		2.32		2.48	1.10	1.61

T Trace * Data missing


NEVADA
CALIFORNIA
ARIZONA
BAJA CALIFORNIA
PACIFIC OCEAN
GULF
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
LUDLOW
CADIZ
KRAMER
BARSTOW
MOJAVE
BLYTHE
SAN BERNARDINO
COLTON
RIVERSIDE
BANNING
THERMAL
INDIO
LOS ANGELES
LONG BEACH
SANTA ANA
LAKE MATHEWS
ELSINORE LAKE
SALTON SEA
NILAND
IMPERIAL DAM
LAGUNA DAM
YUMA
MORELOS DAM
GADSDEN
SAN LUIS
BRAWLEY
HOLTVILLE
EL CENTRO
CALEXICO
MEXICALI
OCEANSIDE
ESCONDIDO
HENSHAW RES.
EL CAPITAN RES.
LAKESIDE
JACUMBA
SAN DIEGO
TIJUANA
RODRIGUEZ DAM
LA SALADA
LAGUNA SALADA BASIN
RIITO
EL DOCTOR
SONORA
ENSENADA
SAN FELIPE
SAN ANTONIO DEL MAR
Rio Hardy
Rio Colorado
Rio Guadalupe
Rio San Carlos
Rio San Isidro
Rio San Antonio
Arroyo de Diablo
Santa Ana Riv.
Virgin Riv.
Muddy Riv.
Colorado River Aqueduct
Southern Pac. Ry.
All-American Canal
Coachella Canal
Yuma Main Canal
116°
118°
114°
36°
34°
32°


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
CANYON
AND CANYON
Little Colorado River
HOLBROOK
FLAGSTAFF
WILLIAMS
ASHFORK
A.T. & S.F. RY.
SPRINGERVILLE
RESERVE
PRESCOTT
Z O N A
Agua Fria River
Verde River
Tonto Cr.
ROOSEVELT RES.
Salt River
BARTLETT DAM
PLEASANT LAKE DAM
ROOSEVELT DAM
HORSE MESA DAM
MORMON FLAT DAM
STEWART MTN. DAM
WICKENBURG
GLOBE
CLIFTON
SILVER CITY
Gila River
COOLIDGE DAM
SAN CARLOS RES.
SAFFORD
LORDSBURG
Hassayampa Riv.
PHOENIX
FLORENCE
GILLESPIE DAM
MARICOPA
San Pedro River
BOWIE
STEINS
PAINTED ROCK DAM
PACIFIC RY.
CASA GRANDE
RED ROCK
COCHISE
*PRATT
RODEO
SOUTHERN PACIFIC RY.
GILA BEND
SENTINEL
Santa Cruz River
TUCSON
T.C.&S.F. RY.
AJO
MOHAWK
TOMBSTONE
BISBEE
DOUGLAS
FT. HUACHUCA
PALOMINAS
NACO
AGUA PRIETA
LOCHIEL
UNITED STATES
MEXICO
NOGALES
SONOITA
CANANEA
MUTUTICACHI
NACOZARI
IMURIS
MAGDALENA
ARIZPE
CUMPAS
MOCTEZUMA
BAJA CALIF. RY.
PUERTO PENASCO
Arroyo El Coyote
Rio Sasabe
Rio Altar
ALTAR
SANTA ANA
EST. EL SAHUARO
CABORCA
Rio Asuncion
Rio Concepcion
EL SOCORRO
BENJAMIN HILL
SOUTHERN PACIFIC OF MEXICO
Rio Sonora
Rio Moctezuma
EL DESEMBOQUE
Rio Magdalena
URES
OF CALIFORNIA
PTO. LIBERTAD
112°
110°
114°
30°
34°
32°

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 1974.

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
Colonia Juarez, Baja California	32° 15'	115° 03'	49	1964	Hydraulic Resources
Los Algodones, Baja California	32° 42'	114° 44'	115	1948	Hydraulic Resources
Mexicali, Baja California	32° 40'	115° 28'	13	1926	Hydraulic Resources
Riito, Sonora	32° 10'	114° 57'	** 39	1959	Hydraulic Resources
* San Felipe, Baja California	31° 02'	114° 53'	33	1948	Hydraulic Resources
San Luis, R.C., Sonora	32° 28'	114° 47'	131	1949	Hydraulic Resources
Santa Clara, Sonora	31° 42'	114° 29'	49	1971	Hydraulic Resources

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

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

EVAPORATION IN THE COLORADO RIVER BASIN IN INCHES

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

In United States

Month	Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1974	Average 1955-1974	1974	Average 1931-1974
Jan.	* 5.44	7.32	3.65	3.92
Feb.	8.33	7.58	5.18	4.88
Mar.	9.78	10.23	6.33	♀ 7.62
Apr.	15.02	13.49	10.04	10.26
May	17.36	♀ 16.33	12.91	13.25
June	20.74	19.67	12.63	14.42
July	19.38	20.27	12.10	15.59
Aug.	16.41	18.05	13.11	13.81
Sept.	13.80	14.95	10.12	10.96
Oct.	* 10.53	12.08	7.06	7.71
Nov.	8.28	8.62	* 4.50	5.01
Dec.	6.37	7.74	3.57	3.68
Yearly	151.44	♀ 156.33	101.20	♀ 111.11

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora	
	1974	Avg. 1949-55 1961-1974	1974	Average 1926-1974	1974	Average 1963-1974	1974	Average 1953-1974
Jan.	4.29	4.29	2.83	2.64	3.74	3.82	3.46	3.39
Feb.	7.05	5.20	4.41	3.50	5.12	4.88	4.96	4.06
Mar.	7.28	7.36	6.50	5.87	6.57	7.20	6.73	6.34
Apr.	12.32	10.08	9.25	7.95	9.25	9.21	9.72	8.46
May	14.09	12.60	10.79	10.55	11.93	11.97	11.57	11.06
June	15.16	13.23	12.64	11.57	12.87	12.28	13.74	12.64
July	13.03	13.27	11.22	11.77	11.57	12.56	12.36	14.09
Aug.	13.03	12.05	10.24	10.12	11.50	10.63	11.81	12.68
Sept.	11.10	10.00	8.50	8.19	9.72	9.09	9.76	9.92
Oct.	8.07	7.83	5.75	5.59	6.14	6.14	6.38	6.54
Nov.	5.67	4.96	3.70	3.39	5.12	4.65	2.95	4.25
Dec.	4.84	4.09	2.68	2.48	3.31	3.46	3.07	3.27
Yearly	115.94	106.50	88.50	83.62	96.85	95.87	96.54	97.76

Month	Delta, Baja California		Colonia Juarez, Baja California		Riito, Sonora		San Felipe, Baja California	
	1974	Average 1959-1974	1974	Average 1970-1974	1974	Average 1963-1974	1974	Average 1952-1974
Jan.	3.50	3.19	3.23	3.31	3.35	3.19	†	5.08
Feb.	5.39	4.37	4.76	4.06	5.08	4.17	†	5.83
Mar.	5.35	6.30	6.57	6.26	6.65	5.98	†	7.09
Apr.	8.94	8.19	8.46	7.72	9.25	7.60	†	8.43
May	10.04	10.28	10.28	9.96	11.81	10.00	†	10.55
June	11.69	11.26	11.77	10.98	12.09	11.18	†	10.94
July	11.42	11.50	11.30	11.34	11.57	12.13	†	11.81
Aug.	11.22	10.35	11.18	10.24	11.57	10.04	†	10.94
Sept.	8.90	8.27	9.06	8.50	9.45	8.03	8.27	9.84
Oct.	5.87	5.83	5.94	5.71	5.87	5.28	7.13	8.46
Nov.	4.13	3.74	4.33	4.06	4.09	3.46	5.08	6.18
Dec.	5.28	2.99	3.70	3.27	2.72	2.87	3.98	5.08
Yearly	91.73	87.09	90.59	85.39	93.50	86.81		101.81

* Adjusted to a full month ♀ One year missing † No data

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

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

In United States

Month	Blythe, California				Davis Dam No. 2, Arizona				Yuma Citrus Station, Arizona			
	1974			Average 1931-74	1974			Average 1955-74	1974			Average 1931-74
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	* 52.8	* 74	* 21	52.5	† 48.4	65	31	52.3	53.4	78	29	53.0
Feb.	† 55.9	83	29	57.3	† 53.9	80	35	56.6	55.4	83	32	57.0
Mar.	64.5	95	36	63.1	† 64.0	89	42	62.3	63.5	93	34	
Apr.	69.9	95	42	70.2	† 69.3	92	48	69.5	68.7	96	43	68.8
May	† 78.6	110	47	77.5	† 79.7		50	78.7	77.0	110	47	76.0
June	† 89.7	119	58	85.1	92.5	117	67	88.5	87.7	118	55	83.4
July	92.0	114	65	92.2	93.7	116	71	94.9	† 88.2	111	60	91.1
Aug.	90.9	112	65	91.1	† 90.5	111	68	93.3	† 87.9	110	58	90.5
Sept.	87.5	112	64	85.0	† 87.4	111	63	85.7	† 87.3	111	61	85.0
Oct.	74.0	104	45	73.1	74.8	101	46		73.9	105	44	73.6
Nov.	60.0	84	33	60.2	60.4	78	41		58.9	85	35	61.4
Dec.	48.8	74	25	53.1	† 50.4	69	30	53.6	50.9	76	26	54.5
Yearly	72.0	119	21	71.7	72.1		30		† 71.1	118	26	

Month	Brawley, California				El Centro, California							
	1974			Average 1931-74	1974			Average 1931-74				
	Mean	Max.	Min.		Mean	Max.	Min.					
Jan.	54.0	78	27	53.6	55.3	87	27	53.6				
Feb.	56.0	80	31	58.0	† 57.0	# 80	32	57.9				
Mar.	62.9	90	34	63.4	† 64.2	93	37	63.2				
Apr.	68.8	93	43	70.2	68.9	# 96	# 43	69.8				
May	75.7	109	49	77.6	77.3	111	46	77.4				
June	86.9	117	56	85.0	88.9	118	56	84.9				
July	89.2	113	64	92.0	† 90.3	114	60	91.9				
Aug.	88.3	112	63	91.6	89.7	112	65	91.2				
Sept.	86.6	110	63	86.4	88.0	112	66	85.7				
Oct.	74.4	103	46	75.0	# 74.4	# 103	# 49	74.6				
Nov.	61.9	87	36	62.4	61.5	87	34	62.2				
Dec.	51.3	78	25	55.0	50.6	75	23	54.7				
Yearly	71.3	117	25	72.5	72.2	118	23	72.3				

In Mexico

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	1974		1948-1974		1974		1926-1974		1974		1948-1974	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	77	36	88	23	79	28	93	19	75	32	113	16
Feb.	73	36	95	28	82	34	93	23	81	32	99	21
Mar.	91	39	100	32	93	37	100	30	86	36	113	25
Apr.	93	48	109	37	97	46	106	34	91	45	118	16
May	108	54	117	43	109	48	117	43	99	50	124	34
June	115	64	126	52	115	59	120	48	118	59	135	43
July	111	68	118	61	111	63	118	55	115	63	133	45
Aug.	109	64	120	61	111	66	118	54	113	68	129	46
Sept.	109	63	122	54	109	66	122	48	113	63	135	39
Oct.	100	45	111	32	102	46	109	32	104	45	118	32
Nov.	86	37	100	27	88	36	99	28	86	36	115	32
Dec.	75	34	90	28	81	27	90	23	77	27	97	25
Yearly	115	34	126	23	115	27	122	19	118	27	135	16

* Blythe FAA AP † One or more days missing # Imperial FAA AP

TEMPERATURE IN THE COLORADO RIVER BASIN
IN DEGREES FAHRENHEIT

In Mexico

Month	San Luis, R. C., Sonora				Delta, Baja California				Colonia Juarez, Baja California			
	1974		1949-1974		1974		1948-1974		1974		1964-1974	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	82	34	100	19	84	32	104	27	79	28	91	19
Feb.	86	32	109	27	88	36	104	28	82	36	97	21
Mar.	97	36	108	28	95	39	113	28	91	39	99	25
Apr.	97	43	115	37	99	50	118	32	99	43	115	30
May	113	50	115	41	115	52	129	32	109	43	117	36
June	120	57	126	45	120	61	133	36	117	57	122	39
July	115	66	126	59	115	63	135	45	115	63	122	45
Aug.	115	68	122	55	113	68	140	52	111	64	118	50
Sept.	113	64	118	50	113	66	135	39	113	64	122	39
Oct.	106	50	118	32	106	48	117	34	104	48	118	36
Nov.	88	36	113	30	91	39	120	32	84	36	104	25
Dec.	75	28	102	23	81	30	104	27	73	28	97	19
Yearly	120	28	126	19	120	30	140	27	117	28	122	19

Month	Riito, Sonora				El Mayor, Baja California				San Felipe, Baja California			
	1974		1949-1974		1974		1949-1974		1974		1948-1972	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	81	32	91	19	68	39	108	18	*	*	99	30
Feb.	84	30	95	21	82	36	93	27	*	*	102	32
Mar.	93	34	100	25	90	36	102	32	*	*	104	32
Apr.	97	41	109	37	93	41	108	36	*	*	113	34
May	113	45	115	43	104	50	113	37	*	*	120	41
June	117	55	124	45	*	*	122	37	*	*	124	50
July	115	59	140	52	*	*	122	39	*	*	124	50
Aug.	113	64	122	46	*	*	122	41	*	*	135	41
Sept.	113	61	118	39	*	*	120	34	97	66	126	37
Oct.	104	46	115	30	*	*	120	37	90	55	117	41
Nov.	84	34	118	27	*	*	120	34	79	50	118	21
Dec.	75	27	86	21	*	*	106	19	68	34	97	28
Yearly	117	27	140	19			122	18			135	21

Month	Santa Clara, Sonora			
	1974		1971-1974	
	Max.	Min.	Max.	Min.
Jan.	77	37	90	18
Feb.	79	25	88	23
Mar.	82	41	90	37
Apr.	93	50	102	46
May	95	55	104	50
June	117	64	117	57
July	99	72	106	64
Aug.	100	68	106	68
Sept.	100	70	102	63
Oct.	97	55	100	41
Nov.	91	46	91	43
Dec.	75	36	81	25
Yearly	117	25	117	18

* Missing record

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

1974

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	43,527
Reservation Division	11,527
Yuma Mesa	18,452
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,116
South Gila Valley	10,159
North Gila Valley	6,037
Wellton-Mohawk	64,884
Coachella Valley	54,731
Imperial Valley	450,438
Warren Act	80
Non-Project lands adjacent to Colorado River	10,100
Total in United States	673,051
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 467,721
Total in United States and Mexico	1,140,772

* An estimated 38% of total acreage is served by pumping from ground water in Mexicali Valley

ALAMO RIVER AT INTERNATIONAL BOUNDARY

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

RECORDS: Computed on the basis of head on the Cipolletti weir from daily staff gage readings, and weir ratings as determined by monthly current meter measurements. Records obtained and furnished by Imperial Irrigation District. Records available: June 1942 through 1974.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.68	1.68	1.03	1.12	1.68	1.30	1.58	0.86	1.12	1.68	1.79	2.79
2	1.58	2.00	1.03	1.12	1.68	1.30	1.39	.94	1.20	2.00	1.20	3.03
3	1.58	3.03	1.39	4.76	1.68	1.30	1.03	.71	1.03	2.10	1.79	3.03
4	1.49	2.00	1.20	3.80	1.68	1.30	1.03	.78	.94	2.00	1.68	3.67
5	1.79	2.00	1.49	3.67	1.68	1.79	1.03	1.03	.94	1.68	1.58	3.67
6	1.58	1.20	1.20	3.67	1.68	1.79	1.20	.94	1.58	1.68	2.55	3.03
7	1.79	1.03	1.20	2.55	1.68	1.68	.63	1.20	1.39	1.58	2.67	2.91
8	1.79	1.03	1.30	2.55	1.68	1.68	1.12	1.12	1.39	1.49	2.44	2.32
9	1.89	1.20	1.68	2.21	1.58	1.58	1.03	1.20	1.20	1.49	2.32	2.44
10	1.89	1.20	1.49	3.03	1.58	1.58	1.20	1.20	1.58	1.49	2.21	1.79
11	1.89	1.20	1.49	2.91	1.58	1.58	1.12	1.68	1.39	1.58	2.55	2.21
12	2.00	1.20	1.39	2.44	1.58	1.79	1.20	1.58	1.39	.78	2.21	2.21
13	1.89	1.79	1.89	2.44	1.79	1.79	1.12	1.30	1.30	.94	4.76	2.32
14	1.89	1.79	2.00	2.00	1.79	1.79	1.30	1.03	1.30	.94	2.21	2.32
15	2.00	1.58	2.00	2.00	2.44	1.12	1.89	1.03	.94	1.12	2.21	2.44
16	1.58	1.49	2.44	2.10	1.20	1.20	1.89	1.12	.86	1.30	2.21	2.44
17	1.49	1.68	2.21	2.44	1.49	1.30	1.68	1.12	1.12	1.20	2.44	2.44
18	1.49	1.68	1.39	1.58	1.49	2.79	1.03	1.20	1.58	2.44	2.55	2.32
19	1.68	1.39	1.49	1.58	1.49	1.49	1.03	.86	1.49	2.21	2.44	2.44
20	1.58	1.39	1.68	1.20	1.49	1.49	1.03	.86	1.30	2.21	2.44	2.44
21	1.49	2.00	1.68	1.20	1.20	1.49	1.20	.86	1.39	2.21	2.44	2.10
22	1.20	1.79	1.20	1.20	1.20	1.39	1.12	.86	1.39	2.00	2.55	2.00
23	1.20	2.00	1.20	1.58	1.20	1.58	1.49	.86	1.49	1.79	1.58	2.21
24	1.20	1.79	1.20	1.49	1.30	1.58	1.58	.86	2.67	2.00	1.49	2.21
25	1.20	1.79	1.20	1.49	1.49	1.58	1.39	.71	2.44	2.00	2.10	3.15
26	1.20	1.79	1.49	1.39	1.39	1.58	1.49	.71	2.21	3.03	3.15	2.67
27	1.20	1.39	.94	1.39	1.49	1.58	1.49	.71	2.21	2.79	2.44	2.67
28	1.58	1.39	.94	1.49	1.49	1.58	1.39	1.39	1.79	2.67	2.44	2.21
29	2.00		1.03	1.49	1.39	1.68	1.30	1.58	1.89	2.00	2.79	2.21
30	2.21		1.03	1.68	1.39	1.58	.86	1.79	1.89	1.79	2.79	2.21
31	1.68		1.03		1.39		.86	1.03		1.79		1.39
Sum	50.71	45.50	43.93	63.57	47.87	47.26	38.70	33.12	44.41	55.98	70.02	77.29

Month	Current Year 1974								Period 1943-1974		
	Extreme Gage Height ∅ Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	0.30	0.20	30	2.21	†22	1.20	1.64	101	363	2,790	99
Feb.	.37	.18	3	3.03	† 7	1.03	1.62	90.2	330	2,822	90.2
Mar.	.32	.17	16	2.44	†27	.94	1.42	87.1	370	3,154	87.1
Apr.	.50	.19	3	4.76	† 1	1.12	2.12	126	395	2,222	97
May	.32	.20	15	2.44	†16	1.20	1.54	94.9	304	1,799	73
June	.35	.19	18	2.79	15	1.12	1.58	93.7	302	1,686	61
July	.27	.13	†15	1.89	7	.63	1.25	76.8	278	1,712	59
Aug.	.26	.14	30	1.79	† 3	.71	1.07	65.7	332	1,672	65.7
Sept.	.34	.16	24	2.67	16	.86	1.48	88.1	314	1,406	83.5
Oct.	.37	.15	26	3.03	12	.78	1.81	111	340	1,845	91.2
Nov.	.50	.20	13	4.76	2	1.20	2.33	139	349	2,080	86
Dec.	.42	.22	† 4	3.67	31	1.39	2.49	153	322	1,686	80
Yearly	0.50	0.13		4.76		0.63	1.70	1,226.5	3,999	22,146	1,226

∅ Mean daily † And other days

NEW RIVER AT INTERNATIONAL BOUNDARY

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

RECORDS: Based on a continuous record of gage heights and weekly current meter measurements, supplemented by additional measurements during periods of high flow by the Imperial Irrigation District. Measurements are also made quarterly by the United States Section of the Commission. Records computed and furnished by the District. 1974 records good. Records available: June 1942 through 1974.

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

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

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	215	174	163	159	166	137	111	141	142	125	138	152
2	223	169	167	174	163	133	114	139	141	128	141	148
3	203	162	164	182	163	128	119	139	138	125	125	151
4	192	160	164	186	169	139	116	141	127	121	127	147
5	186	159	163	188	173	148	115	149	126	124	149	151
6	186	166	160	178	170	152	125	146	132	130	141	155
7	202	162	159	186	171	156	126	145	133	132	140	155
8	237	158	164	193	174	156	129	145	135	134	143	155
9	288	159	173	191	168	157	136	145	137	136	141	149
10	215	159	177	191	162	158	132	145	128	133	143	149
11	208	165	176	187	154	151	130	145	124	132	146	154
12	202	168	176	188	151	145	131	153	130	131	144	158
13	200	169	162	187	149	145	134	151	137	132	139	149
14	201	176	161	186	156	143	139	144	139	131	133	160
15	189	177	162	184	162	141	144	143	143	132	139	161
16	186	179	165	180	159	143	147	143	147	131	130	165
17	183	175	167	173	157	141	149	154	135	133	134	158
18	204	174	170	181	151	131	141	148	123	133	135	154
19	179	169	165	177	145	129	139	151	125	132	137	161
20	174	161	165	178	146	122	137	153	125	133	139	156
21	176	162	168	177	150	123	138	153	129	136	141	155
22	177	162	170	184	149	128	141	151	136	140	141	151
23	171	162	175	180	145	133	141	150	136	145	142	151
24	172	168	175	177	140	133	140	155	124	141	145	155
25	169	169	179	176	137	139	136	152	113	161	149	170
26	169	170	184	177	137	151	133	151	125	154	152	195
27	167	169	189	177	143	138	135	149	132	155	165	168
28	169	167	184	177	154	131	137	146	120	145	162	170
29	169		179	178	186	127	141	147	120	145	162	166
30	173		171	170	158	120	142	147	123	142	161	169
31	177		162		143		140	147		130		187
Sum	5,962	4,670	5,259	5,422	4,851	4,178	4,138	4,568	3,925	4,202	4,284	4,925

Month	Current Year 1974								Period 1943-1974		
	ø Extreme Gage ** Feet		ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	40.44	41.74	9	288	27	167	192	11,825	7,405	20,160	1,751
Feb.	41.58	41.80	16	179	8	158	167	9,263	6,167	17,845	1,258
Mar.	41.36	41.79	27	189	7	159	170	10,431	6,879	12,960	1,008
Apr.	41.36	41.66	8	193	1	159	181	10,754	7,076	14,489	1,390
May	41.68	42.07	29	186	†25	137	156	9,622	6,263	10,618	629
June	41.90	42.27	10	158	30	120	139	8,287	5,408	9,689	1,087
July	41.89	42.33	17	149	1	111	133	8,208	5,357	9,390	817
Aug.	41.77	41.97	24	155	† 2	139	147	9,060	6,363	11,145	1,139
Sept.	41.83	42.12	16	147	25	113	131	7,785	6,520	12,688	1,795
Oct.	41.76	42.19	25	161	4	121	136	8,335	6,902	13,902	2,081
Nov.	41.78	42.05	27	165	3	125	143	8,497	6,533	12,323	2,483
Dec.	41.32	41.89	26	195	4	147	159	9,769	7,161	21,205	1,763
Yearly	40.44	42.33		288		111	154	111,836	78,034	138,906	24,573

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

WASTES FROM MEXICALI POTABLE WATER PLANT TO NEW RIVER IN MEXICO

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

RECORDS: No current meter measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Data available: January 1968 through 1974.

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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.2	3.2	6.0	4.9	10.9	8.8	8.1	6.0	10.9	4.9	7.8	10.6
2	8.1	3.5	4.6	5.7	10.2	5.7	4.9	6.0	10.6	4.9	6.4	9.9
3	6.4	4.2	6.0	6.0	9.5	7.8	4.9	5.7	10.6	6.0	6.4	10.6
4	8.1	4.2	7.1	6.4	8.8	6.0	4.9	8.1	9.9	6.4	7.8	10.9
5	11.7	3.2	3.5	7.1	9.2	3.5	6.0	7.1	9.9	5.7	8.1	9.2
6	10.9	3.5	4.9	7.4	8.5	4.9	4.9	4.2	10.9	8.8	6.0	9.2
7	10.6	3.5	4.2	7.8	7.4	6.0	6.0	6.0	11.7	8.1	6.0	9.2
8	10.6	3.2	7.1	8.1	6.7	7.1	7.1	4.9	10.9	7.1	7.1	9.2
9	9.2	4.6	9.2	8.8	5.7	10.6	4.9	6.0	9.9	6.4	9.9	9.2
10	8.8	6.4	6.0	9.2	4.9	9.2	4.9	6.4	9.2	6.4	7.1	9.2
11	8.8	4.9	7.1	7.8	3.9	4.6	6.4	9.2	9.2	6.0	7.1	8.8
12	9.2	4.6	8.1	9.2	3.2	3.5	5.7	8.1	9.9	7.1	8.1	9.2
13	8.1	5.7	6.4	14.1	4.9	3.5	7.1	8.1	10.6	8.8	7.1	8.8
14	7.8	5.7	4.9	7.8	7.8	3.2	9.9	8.1	10.6	7.8	7.8	7.1
15	8.1	4.6	4.9	7.4	7.8	3.2	7.1	7.8	10.6	7.1	10.6	9.2
16	8.1	6.4	5.7	6.7	7.1	4.6	6.4	7.8	10.2	7.8	7.1	8.1
17	9.9	9.2	6.0	6.4	8.8	4.9	4.2	7.8	9.5	4.9	10.6	8.8
18	7.8	7.8	5.7	5.7	7.8	6.0	4.6	7.8	9.2	6.0	9.2	8.8
19	8.8	7.1	5.7	5.3	10.6	6.0	6.0	7.1	8.8	6.0	9.2	8.8
20	8.8	6.0	5.7	4.6	9.9	7.1	7.1	7.1	8.5	6.0	9.2	7.1
21	10.6	5.7	6.4	4.2	8.8	7.1	9.2	7.1	7.8	6.4	9.2	8.8
22	6.0	6.0	9.2	3.5	8.1	5.7	8.1	8.8	7.4	6.4	9.9	8.8
23	7.1	4.6	6.0	3.2	7.8	7.8	7.1	7.8	7.1	8.1	7.8	10.9
24	7.8	6.4	7.1	4.2	5.7	7.1	6.0	7.1	6.7	8.8	8.1	10.9
25	6.4	5.7	4.2	4.9	3.5	7.1	7.8	7.1	6.0	10.6	10.9	14.8
26	6.4	5.7	4.9	8.1	4.2	7.1	7.8	8.8	5.7	10.9	9.2	13.4
27	11.7	4.9	5.7	9.9	3.5	5.7	6.4	7.8	5.7	14.1	9.2	11.7
28	7.1	7.1	4.9	9.9	4.2	6.4	8.1	8.1	5.7	11.7	9.2	10.9
29	5.7		4.2	11.7	6.4	5.7	9.2	10.6	4.9	7.8	10.9	10.9
30	8.1		3.9	11.7	6.0	6.4	10.6	9.9	6.0	8.8	11.7	6.4
31	6.4		4.6		7.8		7.8	10.9		6.4		11.7
Sum	262.0	147.3	179.8	217.5	219.7	181.9	209.1	233.1	264.5	232.0	254.3	301.2

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
	Current Year 1974								Period 1968-1974		
Jan.	2.07	0.33	5	35.3	29	2.5	8.5	520	276	520	166
Feb.	1.41	.20	11	21.9	10	1.4	5.3	292	221	311	157
Mar.	1.64	.23	4	27.5	7	1.4	5.7	357	340	871	132
Apr.	1.48	.30	13	23.3	24	2.1	7.4	431	270	431	135
May	1.71	.23	19	28.6	24	1.4	7.1	435	334	435	238
June	1.35	.26	2	20.5	15	1.8	6.0	361	286	403	116
July	1.41	.30	20	21.9	11	2.1	6.7	414	327	414	198
Aug.	1.25	.30	12	18.4	6	2.1	7.4	462	394	596	200
Sept.	1.35	.36	8	20.5	11	2.8	8.8	525	405	549	131
Oct.	1.57	.33	30	25.8	18	2.5	7.4	460	363	507	139
Nov.	1.74	.33	9	29.3	9	2.5	8.5	504	309	504	151
Dec.	1.67	.30	† 4	28.3	20	2.1	9.9	597	332	597	149
Yearly	2.07	0.20		35.3		1.4	7.4	5,359	3,857	5,359	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 check measurements and observations of zero flow during the year at various locations by the Mexican Section of the Commission. Records computed and furnished by the Mexican Section of the Commission. Records available: January 1951 through 1974. 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 1974 —— Annual and Period Summary

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

Current Year 1974									Period 1951-1974		
Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.				0		0	0	0	1,488	8,735	0
Feb.				0		0	0	0	910	7,218	0
Mar.				0		0	0	0	665	2,568	0
Apr.				0		0	0	0	642	4,433	0
May				0		0	0	0	452	1,892	0
June				0		0	0	0	268	1,450	0
July				0		0	0	0	209	2,040	0
Aug.				0		0	0	0	406	1,926	0
Sept.				0		0	0	0	563	2,915	0
Oct.				0		0	0	0	893	2,993	0
Nov.				0		0	0	0	902	3,768	0
Dec.				0		0	0	0	1,271	8,669	0
Yearly				0		0	0	0	8,667	27,083	0

WASTE WATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1974, 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 1974; Sifon Wasteway, January 1952 through April 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through 1974.

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

Monthly Discharge in Acre-Feet

Month	Current Year 1974	Period 1956-1974		
		Average	Maximum	Minimum
January	520	1,450	8,758	15.4
February	292	961	7,281	19.6
March	357	613	2,610	21.7
April	431	460	2,843	16.1
May	435	346	1,141	9.1
June	361	266	1,477	0
July	414	206	414	0
August	462	391	1,413	0
September	525	450	2,081	21.0
October	460	724	3,474	8.4
November	504	820	3,784	0
December	597	1,343	8,691	0
Yearly	5,359	8,030	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 1974. 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, 230.8 feet below mean sea level. Minimum elevation during year, 231.7 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 - 1974

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	231.7	231.5	231.3	231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.5	231.4
2	231.7	231.5	231.3	231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.6	231.4
3	231.7	231.5	231.2	230.9	230.8	230.8	231.0	231.0	231.4	231.4	231.6	231.4
4	231.7	231.5	231.2	230.9	230.8	230.8	231.0	231.0	231.4	231.4	231.6	231.4
5	231.7	231.5	231.2	230.9	230.8	230.8	231.0	231.0	231.4	231.4	231.6	231.4
6	231.7	231.5	231.2	230.9	230.8	230.8	231.0	231.1	231.4	231.4	231.6	231.4
7	231.6	231.5	231.2	230.9	230.8	230.8	231.1	231.1	231.4	231.4	231.6	231.3
8	231.6	231.4	231.2	230.9	230.8	230.8	231.1	231.1	231.4	231.4	231.6	231.4
9	231.6	231.4	231.2	230.9	230.8	230.8	231.1	231.1	231.4	231.4	231.5	231.4
10	231.6	231.4	231.2	230.9	230.8	230.8	231.1	231.1	231.4	231.4	231.5	231.4
11	231.6	231.4	231.2	230.9	230.8	230.8	231.1	231.2	231.4	231.4	231.5	231.4
12	231.6	231.4	231.1	230.9	230.8	230.8	231.1	231.2	231.4	231.4	231.5	231.4
13	231.6	231.4	231.1	230.9	230.8	230.8	231.1	231.2	231.4	231.5	231.5	231.4
14	231.6	231.4	231.1	230.9	230.8	230.8	231.1	231.2	231.4	231.5	231.5	231.4
15	231.6	231.4	231.1	230.9	230.8	230.8	231.1	231.2	231.4	231.5	231.5	231.3
16	231.6	231.4	231.1	230.9	230.8	230.8	231.1	231.2	231.4	231.5	231.5	231.3
17	231.6	231.4	231.1	230.8	230.8	230.9	231.1	231.3	231.4	231.4	231.5	231.3
18	231.6	231.4	231.0	230.8	230.9	230.9	231.1	231.3	231.4	231.4	231.5	231.3
19	231.6	231.4	231.0	230.9	230.9	230.9	231.1	231.3	231.4	231.4	231.5	231.3
20	231.6	231.4	231.0	230.9	230.9	230.9	231.1	231.3	231.4	231.4	231.5	231.3
21	231.6	231.3	231.0	230.9	230.9	230.9	231.1	231.3	231.4	231.4	231.5	231.3
22	231.6	231.3	231.0	230.9	230.9	230.9	231.1	231.4	231.4	231.4	231.5	231.3
23	231.6	231.3	231.0	230.9	230.8	230.9	231.1	231.4	231.4	231.4	231.5	231.3
24	231.6	231.3	231.0	230.9	230.8	230.9	231.1	231.4	231.4	231.4	231.5	231.3
25	231.6	231.3	231.0	230.9	230.8	230.9	231.0	231.4	231.4	231.4	231.5	231.3
26	231.5	231.3	231.0	230.9	230.8	231.0	231.0	231.4	231.4	231.5	231.5	231.3
27	231.5	231.3	231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.5	231.5	231.3
28	231.5	231.3	231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.5	231.5	231.4
29	231.5		231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.5	231.5	231.4
30	231.5		231.0	230.8	230.8	231.0	231.0	231.4	231.4	231.5	231.5	231.4
31	231.5		231.0		230.8		231.0	231.4		231.5		231.3
Avg.	231.6	231.4	231.1	230.9	230.8	230.9	231.1	231.2	231.4	231.4	231.5	231.4

Current Year 1974			Period 1935-1974		
Month	ø Extreme Elevation Feet		Elevation Feet		
	High	Low	# Average	# Maximum	‡ Minimum
Jan.	231.5	231.7	238.14	231.6	249.3
Feb.	231.3	231.5	237.82	231.4	248.8
Mar.	231.0	231.3	237.55	231.1	248.6
Apr.	230.8	231.0	237.36	230.9	248.7
May	230.8	230.9	237.35	230.8	248.5
June	230.8	231.0	237.52	230.9	248.8
July	231.0	231.1	237.68	231.1	249.1
Aug.	231.0	231.4	237.87	231.2	249.4
Sept.	231.4	231.4	238.08	231.4	249.4
Oct.	231.4	231.5	238.15	231.4	249.8
Nov.	231.5	231.6	238.14	231.5	250.0
Dec.	231.3	231.4	237.99	231.4	249.6
Yearly	230.8	231.7	237.80	231.2	250.0

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

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

CHEMICAL ANALYSES OF WATER SAMPLES
1974

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

Samples from the Alamo River are taken north of the international boundary at upstream end of box culvert under the All-American Canal. Flow at this point includes drainage flows across international boundary and flows from drain intercepts along toe of south bank of All-American Canal. Samples from New River are taken from the right bank at road bridge 450 feet north of international boundary. Records of sampling extend from April 1951 through 1974.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20.04; Mg, 12.16; Na, 22.99; (CO_3 plus HCO_3) expressed as CO_3, 30.00; SO_4, 48.03; Cl, 35.45; NO_3, 62.00. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5. Electrical conductivity, reported in the tables as EC x 10^6 at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	ECx10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Alamo River															
Jan.															
Feb.															
Mar.	1	3.76	327	4,000		7.7							17.59	20.87	
Apr.															
May															
June	1	3.10	290	3,150		7.4							14.62	16.64	
July															
Aug.															
Sept.	1	3.13	276	3,200		7.8							14.84	16.64	
Oct.															
Nov.															
Dec.	1	3.50	536	3,650		7.8							16.16	19.71	
	4														
New River															
Jan.	1	5.33	63,000	5,740		8.1	66	68	11.98	9.05	40.89	5.03	15.20	42.31	
Feb.															
Mar.	1			7,220		7.3						4.98			
Apr.	1	5.82	62,600	6,900		7.3	66	69	12.48	9.87	43.50	4.51	17.07	47.95	
May															
June															
July	1	5.73	47,000	6,740		7.8	67	66	11.98	9.87	43.50	4.15	18.74	45.13	
Aug.	1	5.70	51,600	6,600		7.6	67	69	11.48	9.87	42.63	4.52	15.41	45.13	
Sept.	1	5.71	44,500	6,560		7.9	74	69	11.98		42.19	4.13	15.20	42.31	
Oct.	1	5.34	44,500	6,490		7.7	68	72	11.48	9.05	43.50	5.05	13.74	47.95	
Nov.	1	5.33	45,300	6,530		7.5	69	72	11.48	7.89	43.50	4.70	13.53	47.95	
Dec.	1	4.91	48,000	5,830		7.2	64	69	12.97	8.22	37.41	4.85	14.16	42.31	
	9														

** Percent of total cations *** Percent of total anions

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1974

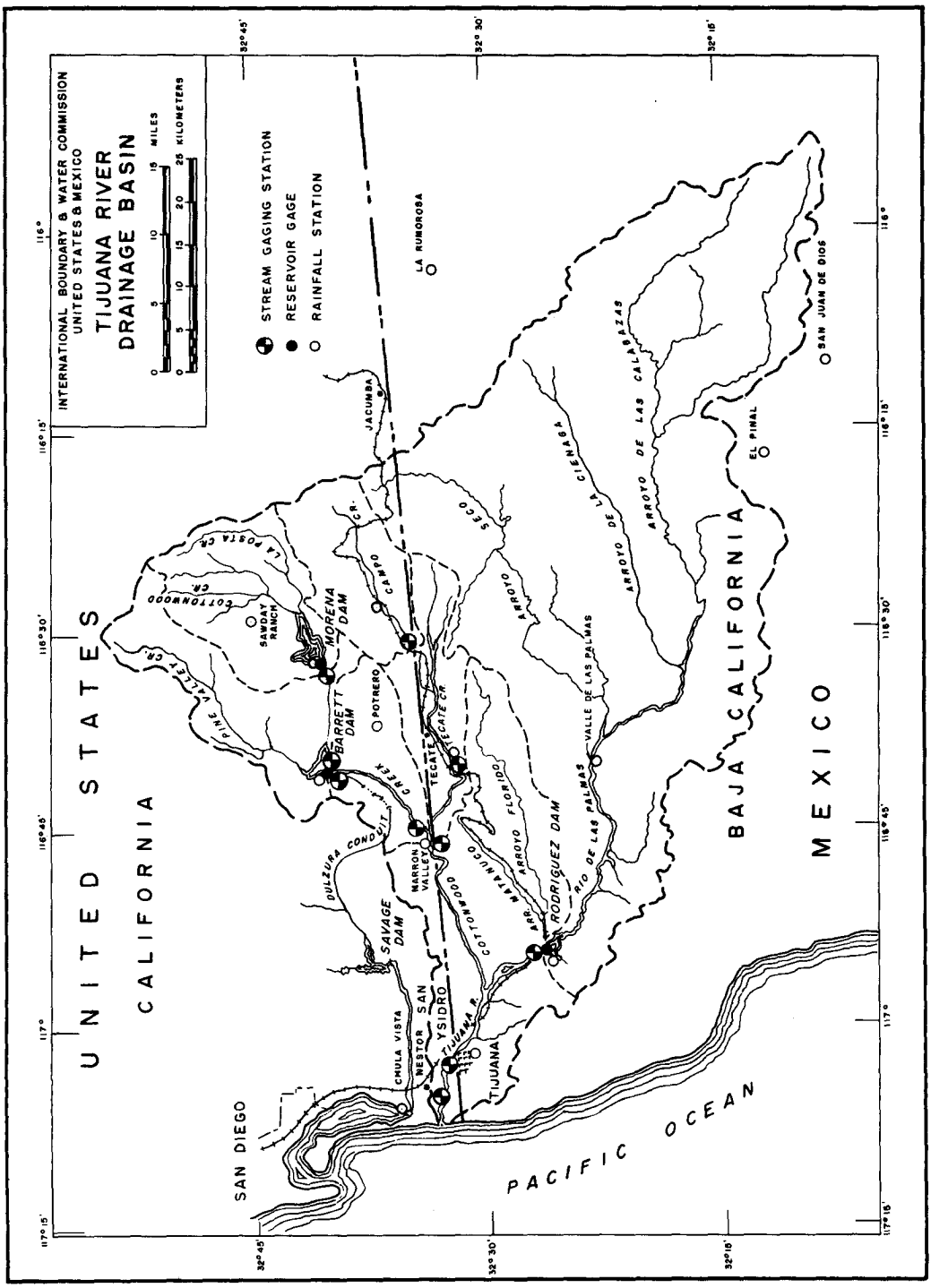
The following table shows electrical conductivity, expressed in mhos per centimeter x 10^6 at 25°C, of individual water samples from the New River in Mexico at the international boundary. Samples were taken by the Mexican Section of the Commission, who also made the determinations.

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

Date	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

New River at International Boundary

January		February		April		May		July		August		October		November	
2	6,800	18	6,910	2	7,000	20	7,100	2	7,300	20	7,400	2	6,350	18	6,960
15	7,000	26	7,000	9	7,100	June		15	7,100	26	6,080	7	6,550	28	7,200
22	6,920	March		16	6,970	4	7,200	23	6,380	September		14	7,000	December	
28	6,900	5	6,800	22	6,990	11	7,000	29	7,200	2	6,150	21	6,820	3	6,800
February		11	7,180	May		17	7,210	August		9	6,260	November		10	7,000
4	6,860	20	7,080	2	7,000	25	7,150	6	6,930	17	6,490	5	6,610	16	6,740
12	6,800	26	6,900	7	6,300			12	7,100	23	6,590	12	6,890		


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
BAJA CALIFORNIA
MEXICO
PACIFIC OCEAN
SAN DIEGO
CHULA VISTA
NESTOR
SAN YSIDRO
TIJUANA
TECATE
MARRON VALLEY
DULZURA CONDUIT
SAVAGE DAM
MORENA DAM
BARRETT DAM
SAWDAY RANCH
POTRERO
CAMPO
JACUMBA
LA RUMOROSA
EL PINAL
SAN JUAN DE DIOS
VALLE DE LAS PALMAS
RIO DE LAS PALMAS
RODRIGUEZ DAM
ARROYO FLORIDO
ARROYO SECO
ARROYO DE LA CIENAGA
ARROYO DE LAS CALABAZAS
COTTONWOOD
PINE VALLEY
LA POSTA
32° 45'
32° 30'
32° 15'
117° 15'
117°
116° 45'
116° 30'
116° 15'
116°

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 1974.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1974 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 1974	Period 1937-1974		
		Average	Maximum	Minimum
January	183	429	3,520	0
February	35.9	1,048	16,700	8.0
March	30.8	1,584	13,220	19.3
April	33.4	993	11,490	3.3
May	11.0	350	3,550	0
June	0	179	1,660	0
July	11.3	126	1,010	0
August	1.3	92.0	1,260	0
September	18.3	63.0	1,070	0
October	40.2	75.0	1,270	0
November	7.6	137	1,380	0
December	32.8	453	3,590	4.4
Yearly	405.6	5,529.0	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 1974.

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, no flow during several months of various years.

Monthly Discharge in Acre-Feet

Month	Current Year 1974	Period 1937-1974		
		Average	Maximum	Minimum
January	0	115	1,700	0
February	0	321	4,260	0
March	0	260	1,731	0
April	0	795	12,950	0
May	0	217	3,040	0
June	0	298	7,360	0
July	0	170	2,340	0
August	0	141	1,550	0
September	0	277	5,880	0
October	0	82.8	529	0
November	0	111	1,260	0
December	0	308	5,350	0
Yearly	0	3,095.8	24,825	0

COTTONWOOD CREEK ABOVE BARRETT DAM, CALIFORNIA

DESCRIPTION: Staff gage located immediately upstream from face of dam on west side of outlet tower. Barrett Dam is located on Cottonwood Creek 8.5 miles 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 1974. 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 1974	Period 1937-1974		
		Average	Maximum	Minimum
January	365	564	3,430	5.2
February	55.6	1,533	26,790	7.6
March	162	2,589	18,860	14.1
April	57.4	1,682	21,630	10.2
May	14.5	519	5,130	0
June	2.6	217	1,730	0
July	5.4	142	1,010	0
August	0	80.8	579	0
September	.7	91.3	759	0
October	18.1	59.2	645	.1
November	7.6	126	1,200	0
December	27.9	461	3,380	1.7
Yearly	716.8	8,064.3	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 1974.
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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	18.0	0	0	0	0	0	0	0	0
2	0	0	0	16.2	0	0	0	0	0	0	0	0
3	0	0	0	14.4	0	0	0	0	0	0	0	0
4	0	0	0	10.3	0	0	0	0	0	0	0	0
5	0	0	0	7.80	0	0	0	0	0	0	0	0
6	0	0	0	6.22	0	0	0	0	0	0	0	0
7	0	0	0	5.15	0	0	0	0	0	0	0	0
8	0	0	0	4.12	0	0	0	0	0	0	0	0
9	0	0	0	3.48	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	23.9	0	0	0	0	0	0	0	0	0
23	0	0	22.3	0	0	0	0	0	0	0	0	0
24	0	0	20.4	0	0	0	0	0	0	0	0	0
25	0	0	19.8	0	0	0	0	0	0	0	0	0
26	0	0	18.5	0	0	0	0	0	0	0	0	0
27	0	0	17.3	0	0	0	0	0	0	0	0	0
28	0	0	16.4	0	0	0	0	0	0	0	0	0
29	0		15.0	0	0	0	0	0	0	0	0	0
30	0		14.1	0	0	0	0	0	0	0	0	0
31	0		24.3		0		0	0		0		0
Sum	0	0	192.0	85.67	0	0	0	0	0	0	0	0

Month	Current Year 1974 — Extreme Gage Feet			∅ Extreme Second Feet			Average Second Feet	Total Acre Feet	Period 1937-1974 — Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.				0		0	0	0	374	2,350	0
Feb.				0		0	0	0	382	2,130	0
Mar.			31	24.3	† 1	0	6.2	381	546	2,330	0
Apr.			1	18.0	†10	0	2.9	170	851	2,860	0
May				0		0	0	0	967	3,040	0
June				0		0	0	0	985	2,920	0
July				0		0	0	0	805	2,920	0
Aug.				0		0	0	0	673	2,820	0
Sept.				0		0	0	0	436	2,320	0
Oct.				0		0	0	0	333	2,450	0
Nov.				0		0	0	0	459	2,760	0
Dec.				0		0	0	0	424	2,305	0
Yearly				24.3		0	0.8	551	7,235	27,170	0

∅ Mean daily † And other days

COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

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

RECORDS: Data furnished by the city of San Diego, California. Prior to January 1953, the records were furnished by the city of San Diego and reviewed and revised by the United States Section of the Commission. The recorder is to be operated only when Barrett Reservoir is near or above spillway level. There have been no spillway discharges since May 1943. Spillway discharges included in the period record below were computed by the city of San Diego from the head on the spillway crest, read on the reservoir gage, and applied to a broad-crested weir formula. Records available: January 1921 through 1974. 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 1974	Period 1937-1974		
		Average	Maximum	Minimum
January	0	15.9	590	0
February	0	27.1	990	0
March	0	728	13,390	0
April	0	1,070	33,400	0
May	0	242	7,520	0
June	0	34.1	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	1.4	21	0
Yearly	0	2,125.6	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 1974.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 10 and 18 miles, respectively, upstream from this station. During 1974, 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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.10	0.06	0.03	0	0	0	0	0	0	0	0
2	0	.09	.16	.16	0	0	0	0	0	0	0	0
3	0	.08	.26	.16	0	0	0	0	0	0	0	0
4	0	.07	.23	.07	0	0	0	0	0	0	0	0
5	.08	.07	.14	0	0	0	0	0	0	0	0	0
6	0	.04	.10	0	0	0	0	0	0	0	0	0
7	.70	.04	.18	0	0	0	0	0	0	0	0	0
8	4.2	.04	.82	0	0	0	0	0	0	0	0	0
9	1.9	.03	.47	0	0	0	0	0	0	0	0	0
10	1.2	.03	.26	0	0	0	0	0	0	0	0	0
11	.94	.04	.20	0	0	0	0	0	0	0	0	0
12	.76	.06	.16	0	0	0	0	0	0	0	0	0
13	.60	.06	.14	0	0	0	0	0	0	0	0	0
14	.55	.06	.14	0	0	0	0	0	0	0	0	0
15	.47	.06	.12	0	0	0	0	0	0	0	0	0
16	.43	.07	.10	0	0	0	0	0	0	0	0	0
17	.35	.12	.09	0	0	0	0	0	0	0	0	0
18	.35	.14	.09	0	0	0	0	0	0	0	0	0
19	.29	.10	.09	0	0	0	0	0	0	0	0	0
20	.29	.10	.10	0	0	0	0	0	0	0	0	0
21	.26	.08	.10	0	0	0	0	0	0	0	0	0
22	.23	.07	.12	0	0	0	0	0	0	0	0	0
23	.20	.07	.12	0	0	0	0	0	0	0	0	0
24	.18	.04	.10	0	0	0	0	0	0	0	0	0
25	.16	.02	.09	0	0	0	0	0	0	0	0	0
26	.16	.01	.08	0	0	0	0	0	0	0	0	0
27	.16	.02	.18	0	0	0	0	0	0	0	0	0
28	.14	.05	.26	0	0	0	0	0	0	0	0	0
29	.12		.12	0	0	0	0	0	0	0	0	0
30	.12		.08	0	0	0	0	0	0	0	0	0
31	.10		.05		0		0	0		0		0
Sum	14.94	1.76	5.21	0.42	0	0	0	0	0	0	0	0

Month	Current Year 1974 — 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 1937-1974 — Acre Feet Average	Maximum	Minimum
Jan.			8	4.2	† 1	0	0.48	29.6	185	1,190	0
Feb.			18	.14	26	.01	.06	3.5	595	9,940	0
Mar.			8	.82	31	.05	.17	10.3	1,598	20,880	0
Apr.			† 2	.16	† 5	0	.01	.8	1,487	40,240	0
May				0		0	0	0	344	10,040	0
June				0		0	0	0	66.1	1,590	0
July				0		0	0	0	7.4	206	0
Aug.				0		0	0	0	.4	7.7	0
Sept.				0		0	0	0	2.0	72	0
Oct.				0		0	0	0	3.8	101	0
Nov.				0		0	0	0	20.9	440	0
Dec.				0		0	0	0	134	1,316	0
Yearly				4.2		0	0.06	44.2	4,443.6	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 1974.

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 1974, 9.9 c. f. s. on July 19 (gage height 1.78 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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.06	0.02	0.05	0.09	0.06	0.03	0.05	0.05	0.02	0	0.04	0.01
2	.02	.02	.07	.11	.07	.03	.05	.05	.02	0	.01	.01
3	.02	.02	.07	.09	.08	.03	.04	.05	.02	0	0	.01
4	.05	.02	.06	.07	.09	.05	.05	.04	.02	0	0	.07
5	.07	.02	.06	.05	.10	.05	.04	.04	.02	0	0	.04
6	.05	.02	.06	.05	.09	.07	.04	.03	.02	0	0	.04
7	.11	.03	.06	.08	.09	.03	.04	.03	.02	0	0	.04
8	.12	.03	.10	.06	.10	.06	.04	.03	.02	0	0	.04
9	.06	.03	.07	.06	.09	.06	.04	.02	.02	0	0	.03
10	.05	.03	.07	.06	.08	.06	.04	.02	.01	0	0	.03
11	.05	.03	.07	.06	.07	.06	.04	.02	.01	0	0	.03
12	.04	.03	.07	.05	.07	.04	.04	.02	.01	0	0	.02
13	.03	.03	.07	.04	.06	.04	.03	.02	.01	0	0	.01
14	.03	.03	.07	.04	.06	.03	.03	.02	0	0	.01	.01
15	.04	.03	.07	.05	.06	.03	.03	.02	0	0	.01	.01
16	.04	.03	.07	.06	.05	.04	.02	.02	0	0	.01	.01
17	.05	.05	.07	.05	.05	.05	.02	.01	0	0	.01	.01
18	.03	.05	.08	.05	.05	.05	.02	.01	0	0	.01	.01
19	.03	.05	.08	.05	.05	.05	.62	.01	0	.01	.01	.01
20	.03	.05	.08	.05	.05	.05	.11	.02	0	.01	.01	.01
21	.03	.03	.09	.04	.05	.04	.07	.02	0	.02	.01	.01
22	.03	.03	.09	.04	.03	.05	.06	.02	0	.02	.01	.01
23	.03	.03	.09	.04	.03	.04	.06	.01	0	.02	.01	.01
24	.03	.03	.09	.05	.03	.05	.05	.01	.01	.02	.01	.01
25	.03	.03	.09	.06	.03	.05	.05	.01	.01	.02	.01	.01
26	.03	.03	.11	.06	.03	.03	.04	.02	.01	.01	.01	.02
27	.03	.03	.11	.06	.03	.03	.04	.02	.01	.02	.01	.03
28	.03	.05	.08	.06	.03	.03	.06	.02	0	.03	.01	.04
29	.03		.08	.06	.03	.03	.08	.02	0	.06	.01	.03
30	.02		.07	.06	.03	.04	.06	.02	0	.03	.01	.02
31	.02		.08		.03		.05	.02		.03		.02
Sum	1.29	0.88	2.38	1.75	1.77	1.35	2.01	0.72	0.26	0.30	0.22	0.66

Month	Current Year 1974 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 1937-1974 Acre Feet Average	Maximum	Minimum
Jan.			8	0.12	† 2	0.02	0.042	2.6	124	906	0
Feb.			†17	.05	† 1	.02	.031	1.7	218	1,730	0
Mar.			†26	.11	1	.05	.077	4.7	312	2,360	0
Apr.			2	.11	†13	.04	.058	3.5	220	3,250	0
May			† 5	.10	†22	.03	.057	3.5	101	1,540	0
June			7	.08	† 1	.03	.045	2.7	39.8	719	0
July			19	.62	†16	.02	.065	4.0	16.3	361	0
Aug.			† 1	.05	†17	.01	.023	1.4	11.8	321	0
Sept.			† 1	.02	†14	0	.009	.5	11.1	264	0
Oct.			29	.06	† 1	0	.010	.6	19.3	543	0
Nov.			1	.04	† 3	0	.007	.4	35.6	542	0
Dec.			4	.07	† 1	.01	.021	1.3	98.8	808	0
Yearly				0.62		0	0.037	26.9	1,207.7	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. 1974 records good. Records available: October 1936 through 1974.
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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.2	1.8	1.8	1.5	0.39	0.18	0.12	0.25	0.11	0.13	0.34	0.18
2	2.0	1.8	1.9	1.8	.39	.15	.10	.20	.10	.13	.39	.18
3	2.0	1.8	2.0	1.8	.34	.15	.05	.18	.12	.12	.34	.18
4	2.2	1.4	1.9	2.1	.34	.18	.05	.17	.12	.11	.29	1.0
5	2.4	1.4	1.8	2.0	.39	.18	.07	.16	.11	.11	.29	1.4
6	2.0	1.3	1.8	2.0	.29	.18	.07	.15	.12	.13	.29	1.6
7	2.5	1.3	1.9	2.0	.29	.21	.04	.14	.12	.12	.29	1.5
8	6.2	1.2	2.4	1.9	.29	.21	.03	.14	.12	.15	.25	1.3
9	4.4	1.1	2.4	1.8	.29	.21	.03	.13	.12	.12	.18	.84
10	3.1	1.2	2.2	1.8	.29	.23	.04	.13	.11	.12	.18	.88
11	2.9	1.2	1.9	1.8	.29	.25	.05	.12	.11	.12	.18	1.4
12	2.6	1.2	1.8	1.8	.29	.22	.05	.13	.12	.12	.16	1.4
13	2.7	1.3	1.9	1.8	.29	.21	.03	.12	.12	.12	.15	1.3
14	2.4	1.5	1.9	1.6	.29	.23	.02	.12	.12	.12	.15	1.4
15	2.4	1.5	1.9	1.5	.29	.20	.01	.11	.12	.10	.15	1.0
16	2.4	1.6	1.9	1.2	.29	.14	0	.11	.12	.10	.15	.98
17	2.4	1.8	1.9	.69	.29	.18	0	.11	.12	.10	.15	1.4
18	2.4	1.8	1.6	.56	.25	.19	0	.14	.11	.10	.21	1.3
19	2.4	1.8	1.5	.56	.25	.21	0	.14	.11	.10	.44	1.3
20	2.4	1.9	1.5	.56	.25	.25	0	.13	.11	.12	.69	1.4
21	2.0	1.9	1.8	.50	.21	.25	0	.13	.11	.12	.44	1.5
22	1.9	1.8	1.6	.44	.18	.21	0	.14	.10	.12	.21	1.4
23	2.0	1.8	1.5	.44	.21	.18	0	.14	.10	.12	.21	1.3
24	2.0	1.7	1.8	.44	.21	.12	0	.14	.12	.12	.21	1.4
25	2.0	1.6	1.6	.44	.15	.15	0	.13	.12	.12	.18	1.2
26	2.0	1.6	1.5	.50	.15	.12	0	.12	.14	.15	.15	1.1
27	2.0	1.5	1.9	.50	.18	.10	0	.11	.14	.15	.10	1.1
28	1.8	1.6	1.9	.50	.18	.10	0	.11	.13	.19	.15	1.5
29	1.8		1.8	.50	.18	.12	0	.12	.13	.41	.17	1.6
30	1.8		1.7	.44	.18	.12	7.0	.12	.13	.39	.19	1.3
31	1.8		1.6		.18		.40	.12		.39		1.1
Sum	75.1	43.4	56.6	35.47	8.09	5.43	8.16	4.26	3.53	4.62	7.28	36.44

Month	Current Year 1974								Period 1937-1974		
	Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			8	6.2	†28	1.8	2.42	149	398	2,750	0
Feb.			†20	1.9	9	1.1	1.55	86.1	1,073	13,680	0
Mar.			† 8	2.4	†19	1.5	1.83	112	2,558	27,140	0
Apr.			4	2.1	†22	.44	1.18	70.4	2,038	51,060	0
May			† 1	.39	†25	.15	.26	16.0	515	14,110	0
June			†11	.25	†27	.10	.18	10.8	107	2,630	0
July			30	7.0	†16	0	.26	16.2	17.8	312	0
Aug.			1	.25	†15	.11	.14	8.4	6.5	171	0
Sept.			†26	.14	† 2	.10	.12	7.0	9.0	152	0
Oct.			29	.41	†15	.10	.15	9.2	22.6	705	0
Nov.			20	.69	27	.10	.24	14.4	56.2	839	0
Dec.			† 6	1.6	† 1	.18	1.18	72.3	335	3,330	0
Yearly				7.0		0	0.79	572	7,136	97,900	0

∅ Mean daily † And other days

INFLOWS TO RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Rodriguez Dam is located in Mexico on Rio de las Palmas, the principal tributary to the Tijuana River, about 5.5 miles upstream from its confluence with Cottonwood Creek, 11 miles upstream from the point where the Tijuana River crosses the international boundary between the United States and Mexico, and 10 miles southeast of Tijuana, Baja California.

RECORDS: Computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, rainfall and including Emergency Deliveries of Colorado River Water to Tijuana beginning in August 1972. The Emergency Deliveries of Colorado River Water to Tijuana are made pursuant to Minute 240 of this Commission. Records obtained by the Ministry of Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano of Tijuana, Baja California, and from April 1966 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1974. 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 1974			Period 1938-1974		
	Natural Inflow	Otay Aqueduct	Total	Average	Maximum	Minimum
January	115	208	323	806	6,569	0
February	34.3	193	227	2,203	41,295	5.8
March	69.5	226	296	5,522	68,321	4.2
April	23.2	159	182	2,863	77,790	0
May	13.9	134	148	371	9,962	0
June	.4	70.9	71.3	73.4	891	0
July	.9	87.6	88.4	81.1	326	0
August	0	143	143	58.2	770	0
September	0	203	203	59.4	466	0
October	16.9	150	167	71.3	344	0
November	13.5	139	152	159	1,940	0
December	20.8	187	208	867	15,686	12.8
Yearly	309	1,902	2,211	13,134	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 1974.
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 1974, 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 1974	Period 1938-1974		
		Average	Maximum	Minimum
January	8.2	225	782	1.5
February	1.9	251	1,132	.8
March	2.5	302	1,223	0
April	2.2	426	1,602	0
May	7.1	582	1,676	1.8
June	22.5	675	1,857	1.9
July	8.9	716	1,963	1.9
August	2.4	617	1,859	0
September	4.5	498	1,420	1.9
October	2.6	430	1,187	1.9
November	2.0	328	1,037	1.9
December	2.2	289	981	0
Yearly	66.9	5,336	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 1974.
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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.1	* 0	0.2	0.1	* 0	0	0	0.1	0.4	0.9	0.6
2	0	.1	.2	2.0	.2	.1	0	0	.1	.4	3.5	.7
3	0	.1	.7	1.0	.2	.1	0	0	.2	.4	1.3	.8
4	5.9	.1	.1	.4	.1	* 0	0	.1	.2	.4	.7	26.4
5	15.4	* 0	.1	.6	.1	.3	0	.1	.1	.3	4.5	12.4
6	1.7	0	* 0	.5	.2	1.7	0	.1	.1	.4	4.0	1.9
7	16.0	0	3.8	.2	.9	1.7	0	.1	.1	.4	3.1	1.3
8	34.1	0	37.3	.2	.6	1.7	0	.1	.2	.4	2.1	.9
9	16.2	0	.6	1.0	1.2	* 0	0	.1	.2	.4	1.6	.6
10	19.5	0	.1	1.8	1.3	.6	0	.1	.1	.4	1.3	.5
11	4.7	0	.3	.3	1.1	1.5	0	.1	.2	.4	1.0	.5
12	.2	0	1.1	.4	1.1	2.0	0	.1	.2	.4	.8	.6
13	.1	0	4.1	1.0	1.0	.1	0	.1	.2	.4	.7	.6
14	.1	0	1.8	.7	.3	* 0	0	.1	.2	.4	.7	.6
15	* 0	0	.5	.3	.2	0	0	.1	.2	.4	.8	.6
16	* 0	* 0	.9	.2	.1	0	0	* 0	.2	.4	.8	.6
17	.1	* 0	1.0	.7	.1	0	0	* 0	.1	.3	.7	.6
18	.1	* 0	.1	.8	.1	0	0	* 0	.2	.3	.7	.7
19	.1	* 0	.5	.6	.1	0	0	* 0	.2	.3	.6	.7
20	.1	.1	1.2	.6	.1	0	0	* 0	.2	.3	.7	.6
21	.1	.1	.4	.5	.1	0	0	* 0	.2	.3	.8	.6
22	.1	* 0	.1	.4	.1	0	0	* 0	.2	.4	1.0	.7
23	.1	* 0	.1	.3	.1	0	0	.1	.3	.4	1.1	.9
24	.1	* 0	.1	.2	.1	0	0	.1	.3	.4	.9	1.0
25	* 0	* 0	.1	.1	.1	0	0	.1	.3	.4	.9	.8
26	* 0	* 0	.1	.1	.1	0	0	.1	.3	.4	.9	.6
27	* 0	* 0	13.8	.1	.1	0	0	.1	.3	.4	1.0	.6
28	* 0	* 0	5.1	.1	.1	0	0	.1	.4	2.0	.9	6.0
29	.1		2.0	.1	* 0	0	0	.1	.5	16.6	.6	11.6
30	.1		1.0	.1	* 0	0	0	.1	.4	5.5	.6	1.9
31	.1		.7		* 0		0	.1		1.4		4.2
Sum	115.0	0.6	77.9	15.5	9.9	9.8	0	2.1	6.5	35.7	39.2	81.1

Month	Current Year 1974 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 1947-1974 Acre Feet Average	Maximum	Minimum
Jan.	48.32	45.95	8	60.2	† 1	0	3.7	228	384	4,603	0
Feb.	46.12	45.95	4	.3	† 5	0	0	1.2	268	1,496	0
Mar.	48.44	46.01	8	67.4	† 1	* 0	2.5	155	809	13,309	0
Apr.	46.54	46.00	2	3.7	16	* 0	.5	30.7	225	2,926	0
May	46.27	46.02	† 9	1.4	†29	* 0	.3	19.6	38.5	312	0
June	46.57	45.95	12	4.1	† 9	0	.3	19.4	24.6	309	0
July	45.95	45.95		0		0	0	0	18.8	239	0
Aug.	46.11	46.00	† 5	.1	† 1	0	.1	4.2	16.5	193	0
Sept.	46.25	46.08	†29	.5	† 1	.1	.2	12.9	21.7	216	0
Oct.	47.83	46.18	29	38.0	19	.3	1.2	70.8	36.3	305	0
Nov.	46.91	46.17	5	6.5	13	.2	1.3	77.8	102	1,084	0
Dec.	48.23	46.25	4	70.4	†10	.5	2.6	161	274	2,725	0
Yearly	48.44	45.95		70.4		0	1.1	781	2,218	19,882	0

* Flow between 0 and .05 c.f.s. † 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 1974 (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 1974 —— 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	5.2	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	.27	0	0	0	0	0	0	0	0	0	0	0
8	16	0	5.2	0	0	0	0	0	0	0	0	0
9	.67	0	.03	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	22.14	0	5.23	0	0	0	0	0	0	0	0	0

Month	Current Year 1974 — Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1937-1974 — Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			8	16	† 1	0	0.71	43.9	680	4,070	0
Feb.				0		0	0	0	3,734	66,920	0
Mar.			8	5.2	† 1	0	.17	10.4	6,527	107,000	0
Apr.				0		0	0	0	5,580	181,900	0
May				0		0	0	0	623	18,340	0
June				0		0	0	0	105	3,060	0
July				0		0	0	0	20.9	523	0
Aug.				0		0	0	0	14.9	242	0
Sept.				0		0	0	0	21.8	234	0
Oct.				0		0	0	0	74.5	1,340	0
Nov.				0		0	0	0	127	1,490	0
Dec.				0		0	0	0	684	7,930	0
Yearly				16		0	0.07	54.3	18,192	332,749	0

Ø 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)	
	1974	Average 1937-1974	1974	Average 1937-1974	1974	Average 1937-1974	1974	Average 1937-1974
Jan.	3,670	15,153	1,146	10,666	3,300	29,695	8,116	55,514
Feb.	3,649	15,790	1,188	12,026	3,430	30,390	8,267	58,206
Mar.	3,628	16,974	957	13,514	3,641	33,239	8,226	63,727
Apr.	3,565	16,974	823	13,975	3,698	33,245	8,086	64,194
May	3,460	16,822	812	13,276	3,714	33,367	7,986	63,465
June	3,301	16,358	782	12,510	3,608	32,330	7,691	61,198
July	3,187	15,916	757	11,728	3,527	31,259	7,471	58,903
Aug.	3,026	15,511	725	11,016	3,511	30,291	7,262	56,818
Sept.	2,958	15,013	701	10,749	3,584	29,471	7,243	55,233
Oct.	2,924	14,793	705	10,423	3,649	28,782	7,278	53,998
Nov.	2,898	14,688	703	10,095	3,706	28,317	7,307	53,100
Dec.	2,907	14,744	725	10,376	3,811	28,629	7,443	53,749
Average	3,264	15,728	835	11,696	3,598	30,749	7,698	58,173
Maximum	3,670	# 61,670	1,188	♀ 45,920	3,811	109,608	8,267	213,600
Minimum	2,898	10	701	106	3,300	0	7,243	1,264

March 31, 1941 - Prior to removal of spillway gates
♀ April 30, 1937 - Sand bags were placed on crest of spillway

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

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

In United States

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California		Sawday Ranch, California	
	1974	Average 1906-1974	1974	Average 1907-1974	1974	Average 1951-1974	1974	Average 1914-1974	1974	Average 1950-1974
Jan.	5.01	3.74	4.90	3.30	Q4.05	2.53	4.70	3.34	5.62	2.98
Feb.	.21	3.69	.17	3.31	.31	1.85	.14	3.59	T	2.18
Mar.	1.62	3.33	1.89	2.87	1.71	2.24	2.67	2.92	1.67	2.68
Apr.	.44	1.74	.81	1.57	.86	1.33	.83	1.80	.41	1.66
May	.13	.61	.22	.56	.08	.39	.10	.64	.10	.41
June	0	.14	0	.07	0	.06	0	.10	0	.07
July	.71	.37	.93	.10	.09	.03	.80	.20	.21	.42
Aug.	.09	.52	0	.19	0	.10	0	.18	.63	.75
Sept.	.46	.34	0	.24	0	.19	0	.24	.50	.35
Oct.	2.91	.90	2.65	.73	2.43	.44	2.51	.76	3.11	.55
Nov.	.56	1.56	.37	1.36	.28	1.53	.39	1.48	.27	1.75
Dec.	1.74	3.25	2.18	2.90	1.68	2.28	1.50	3.17	2.09	2.43
Yearly	13.88	20.19	14.12	17.20	Q11.49	12.97	13.64	18.42	14.61	16.23

Month	Campo, California		Chula Vista, California							
	1974	Average 1900-1974	1974	Average 1930-1974						
Jan.	4.29	2.96	2.13	1.75						
Feb.	.07	3.23	.10	1.66						
Mar.	1.24	2.71	1.60	1.46						
Apr.	.24	1.45	.02	.32						
May	.16	.52	.02	.23						
June	0	.07	.02	.05						
July	1.28	.53	.14	.02						
Aug.	.13	.51	0	.07						
Sept.	.31	.32	0	.16						
Oct.	2.32	.65	.80	.40						
Nov.	.39	1.35	.13	1.05						
Dec.	1.24	2.57	1.17	1.70						
Yearly	11.67	16.87	6.13	9.37						

In Mexico

Month	La Rumorosa, Baja California		Tecate, Baja California		Tijuana, Baja California		Rodriguez Dam, Baja California		Valle de Las Palmas, Baja Calif.	
	1974	Average 1945-1974	1974	Average 1946-1959 1961-1974	1974	Average 1948-1959 1961-1974	1974	Average 1938-1974	1974	Average 1948-1974
Jan.	2.40	0.71	3.94	2.28	2.87	1.73	2.64	1.46	2.60	1.42
Feb.	0	.39	.28	1.46	0	1.22	.12	1.22	T	.94
Mar.	0	.51	Q1.22	1.97	1.69	1.22	1.34	1.34	.91	1.10
Apr.	0	.31	Q .12	1.10	.08	.59	.24	.75	T	.55
May	0	.08	0	.28	T	.20	T	.12	0	.12
June	0	.04	0	.12	T	.04	.04	.04	0	.04
July	1.38	.31	Q1.50	.12	T	.04	.04	T	.31	.04
Aug.	0	.59	0	.12	0	.04	0	.04	0	.03
Sept.	T	.24	†	.12	0	.12	T	.20	0	.12
Oct.	.94	.43	Q1.54	.35	.79	.31	.94	.31	.16	.20
Nov.	0	.47	.47	1.22	.20	1.06	.28	.87	0	.75
Dec.	1.02	.67	Q .75	2.09	2.09	1.38	1.10	1.61	.91	1.02
Yearly	5.75	4.76		11.81	7.72	8.31	6.73	7.91	4.88	6.57

Q Partly estimated † Recorder inoperative T Trace

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

In Mexico

Month	El Pinal, Baja California		San Juan de Dios, Baja California							
	1974	Average 1964-1974	1974	Average 1956-1974						
Jan.	0.63	1.89	4.09	2.01						
Feb.	.39	2.05	.28	1.85						
Mar.	1.93	2.32	1.42	1.73						
Apr.	.20	1.61	.20	1.06						
May	1.73	.39	.03	.28						
June	0	.08	0	.16						
July	3.39	.87	4.69	1.18						
Aug.	0	.63	.28	.71						
Sept.	.28	.47	1.50	.47						
Oct.	0	.28	1.89	.63						
Nov.	.71	1.77	.31	1.30						
Dec.	1.10	3.39	1.18	1.93						
Yearly	10.35	15.39	15.91	14.53						

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

In United States

NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	1,750	1907	City of San Diego
Campo, California	32° 37'	116° 28'	2,630	1877	Archie C. Leach
Chula Vista, California	32° 36'	117° 05'	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. R. Lavin
Sawday Ranch, California	32° 45'	116° 29'	3,200	1950	William Tulloch

In Mexico

NAME OF STATION	LATITUDE	LONGITUDE	ϑ ELEV. (FT.)	RECORD BEGAN	OBSERVER
El Pinal, Baja California	"32° 12'	"116° 17'	" 4,429	1964	Hydraulic Resources
La Rumorosa, Baja California	32° 33'	116° 03'	3,937	1946	Hydraulic Resources
Rodriguez Dam, Baja California	32° 26'	116° 55'	459	1938	Hydraulic Resources
San Juan de Dios, Baja California	32° 08'	116° 10'	" 3,280	1956	Hydraulic Resources
Tecate, Baja California	32° 32'	116° 39'	1,690	1946	Hydraulic Resources
Tijuana, Baja California	32° 31'	117° 02'	180	1948	Hydraulic Resources
Valle de las Palmas, Baja California	32° 23'	116° 40'	148	1948	Hydraulic Resources

ϑ Elevation above mean sea level " Estimated from topographic maps

EVAPORATION IN THE TIJUANA RIVER BASIN IN INCHES

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

Types of pans used:

1. Barrett Reservoir: January 1921 through September 1926, square 3-foot by 3-foot by 18-inch deep floating pan. October 1926 through 1974, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

2. Chula Vista: September 1918 through 1974, 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 1974, 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	
	1974	Average 1916-1974	1974	Average 1921-1974	1974	Average 1919-1974
Jan.	0.74	2.23	1.32	1.85	2.69	2.83
Feb.	2.78	2.30	2.65	2.22	4.22	3.36
Mar.	2.55	3.55	2.72	3.55	4.40	4.99
Apr.	4.84	4.86	5.14	4.84	6.68	5.95
May	6.04	6.80	6.18	6.89	6.62	6.84
June	7.69	8.68	8.06	8.39	6.66	6.94
July	6.98	10.12	7.65	10.04	7.68	7.61
Aug.	6.84	9.39	7.81	9.48	7.06	7.33
Sept.	5.53	7.59	6.48	7.70	5.53	6.09
Oct.	2.51	5.34	3.70	5.42	4.61	4.91
Nov.	1.98	3.47	2.51	3.39	3.47	3.62
Dec.	1.56	2.49	1.51	2.07	3.07	2.75
Yearly	50.04	66.82	55.73	65.84	62.69	63.22

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	
	1974	Average 1961-74	1974	Av.1952-59 1961-1974	1974	Av.1939-42 1946-1974	1974	Average 1948-74	1974	Average 1956-74
Jan.	*	3.27	2.36	2.87	2.36	4.76	3.07	3.58		2.72
Feb.	*	3.31	4.45	3.50	4.92	3.82	4.96	3.54		2.60
Mar.	*	4.29	3.15	3.94	3.54	4.88	2.91	5.12	3.70	4.13
Apr.	*	5.20	4.88	4.80	6.46	5.83	8.39	6.57	5.79	4.84
May	*	6.14	5.63	5.71	6.42	7.20	8.70	7.60	7.83	6.69
June	*	6.38	6.02	5.71	7.91	7.83	10.12	9.25	11.34	7.68
July	*	8.62	6.97	6.69	8.31	8.90	11.50	10.87		8.94
Aug.	*	8.27	6.26	6.97	7.24	8.23	9.49	10.12		7.87
Sept.	*	6.81	5.12	5.91	5.79	6.93	9.53	8.74		7.95
Oct.	*	6.38	Q 3.94	Q 4.76	4.37	5.83	6.42	6.34		5.24
Nov.	*	3.86	3.43	3.31	4.33	4.80	5.20	4.45		3.62
Dec.	*	3.54	3.50	2.95	3.50	3.98	3.78	3.86		3.07
Yearly		67.87	55.71	55.94	65.16	72.09	84.06	79.76		60.71

* Recorder inoperative Q Partly estimated

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

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

In United States

Month	Barrett Dam, California				Chula Vista, California				Campo, California			
	1974			Average 1931-1974	1974			Average 1931-1974	1974			Average 1951-1974
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	* 48.1	78	28	48.5	53.2	71	39	52.4	46.6	80	23	46.7
Feb.	48.7	77	24	50.4	53.0	81	38	53.8	47.6	76	18	47.9
Mar.	53.7	84	28	53.2	55.1	69	40	55.2	51.0	85	20	49.5
Apr.	56.0	85	32	57.7	57.2	75	44	57.9	53.7	85	21	
May	61.5	100	36	62.7	* 60.1	68	46	60.6	58.7	99	27	58.2
June	71.5	107	42	68.1	63.4	75	51	62.9	68.4	102	32	64.8
July	74.8	99	48	76.1	67.9	80	57		72.4	99	40	73.3
Aug.	72.9	99	41	76.2	67.4	74	59		70.5	99	39	73.4
Sept.	73.9	100	48	72.2	66.8	76	56		71.4	97	42	68.8
Oct.	62.1	96	41	63.8	63.7	87	53	62.8	59.7	90	31	60.6
Nov.	54.5	86	28	55.8	58.7	92	40		52.3	85	24	52.5
Dec.	46.5	74	18	50.3	52.7	72	31	54.2	44.6	74	12	
Yearly	* 60.4	107	18	61.2	59.9	92	31		58.1	102	12	

In Mexico

Month	La Rumorosa, Baja California				Tecate, Baja California				Tijuana, Baja California			
	1974		1946-1974		1974		1946-59 & 61-74		1974		1948-59 & 61-74	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	70	27	81	5	79	21	100	16	77	32	93	27
Feb.	68	28	82	10	86	32	100	18	84	39	102	32
Mar.	77	25	88	16	#	#	97	25	75	39	90	34
Apr.	79	34	91	23	#	#	100	28	84	46	97	34
May	93	32	97	28	88	37	100	36	97	50	97	43
June	100	50	113	34	95	50	104	32	97	50	99	41
July	95	52	104	39	#	#	115	36	93	54	120	46
Aug.	95	59	102	46	91	41	113	34	93	61	106	52
Sept.	95	55	104	34	#	#	115	36	95	54	120	46
Oct.	86	37	93	25	#	#	106	27	97	50	117	41
Nov.	79	34	88	14	79	34	97	27	102	41	108	34
Dec.	64	21	81	10	#	#	97	23	82	34	99	25
Yearly	100	21	113	5			115	16	102	32	120	25

Month	Rodriguez Dam, Baja California				Valle de Las Palmas, Baja California				El Pinal, Baja California			
	1974		1938-1974		1974		1948-1974		1974		1964-1974	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	79	37	88	27	84	34	91	12	73	23	73	12
Feb.	86	36	91	32	82	28	99	23	70	21	75	21
Mar.	81	39	88	32	90	28	100	28	66	36	82	19
Apr.	88	41	93	36	91	36	104	32	77	36	82	18
May	90	43	99	37	106	39	108	36	66	36	90	27
June	97	54	108	46	111	50	118	39	95	41	99	28
July	95	54	104	48	102	50	120	45	91	37	102	36
Aug.	88	57	106	52	100	48	111	48	91	37	104	36
Sept.	97	54	109	48	100	48	117	43	91	43	102	25
Oct.	99	48	108	34	100	45	108	32	73	36	95	30
Nov.	93	41	99	30	88	37	100	19	81	28	84	23
Dec.	79	34	93	27	79	32	91	21	64	21	79	18
Yearly	99	34	109	27	111	28	120	12	95	21	104	12

* One or more days of record missing # Incomplete record

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Juan de Dios, Baja California											
	1974		1956-1974									
	Max.	Min.	Max.	Min.								
Jan.	72	19	88	7								
Feb.	70	19	84	16								
Mar.	72	21	84	14								
Apr.	77	19	102	19								
May	90	25	91	19								
June	97	34	106	28								
July	93	36	120	36								
Aug.	95	39	106	32								
Sept.	91	41	100	25								
Oct.	86	28	100	18								
Nov.	81	23	99	12								
Dec.	68	12	88	12								
Yearly	97	12	120	7								

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

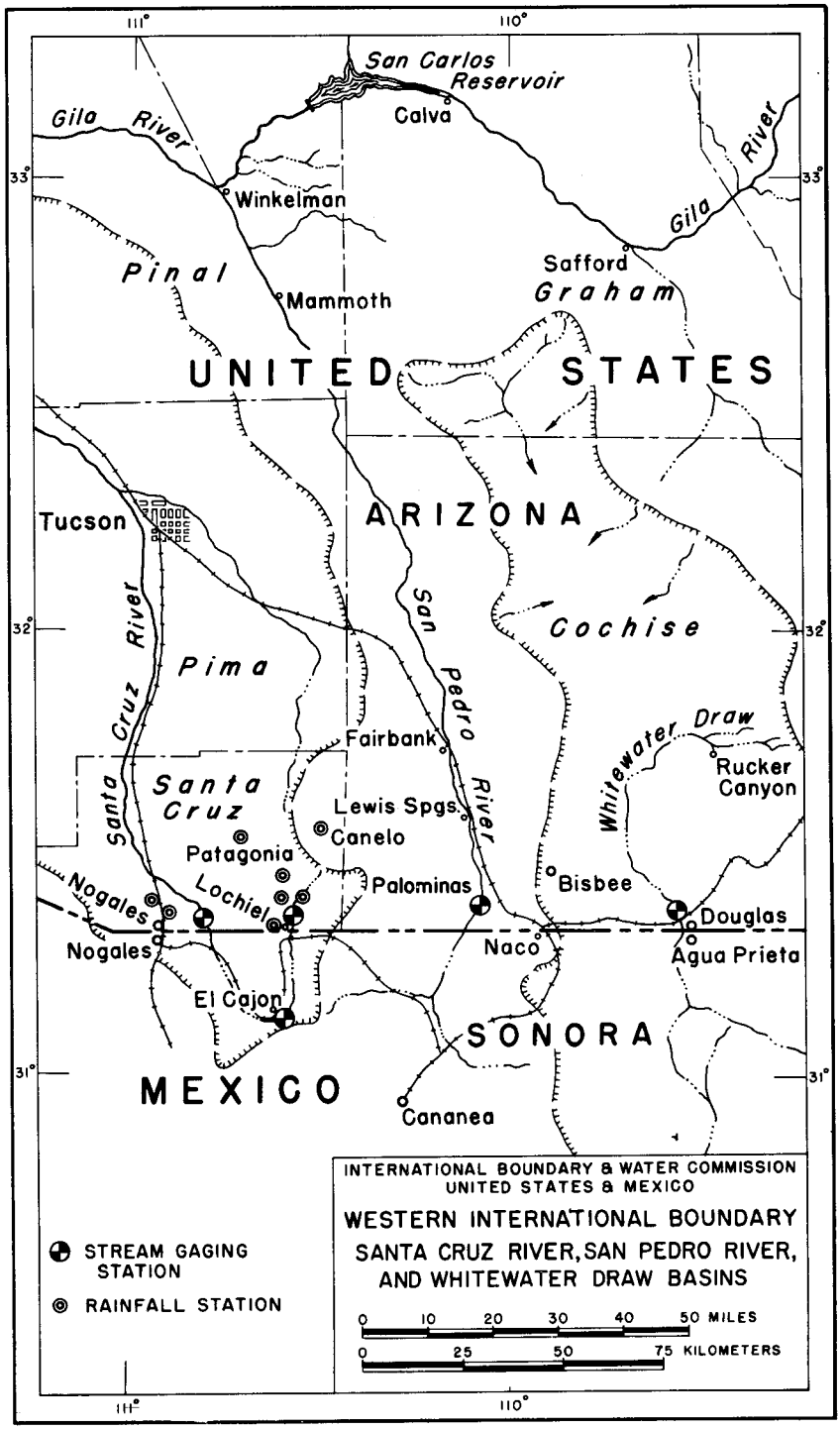
1974

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 1974 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 1974 in the Tijuana Irrigation District, Tijuana Valley, Baja California, Mexico, from the Rodriguez Reservoir.


111°
110°
San Carlos Reservoir
Calva
Gila River
Gila River
33°
Winkelman
Gila
Safford
Pinal
Graham
Mammoth
UNITED STATES
Tucson
ARIZONA
San Pedro River
Cochise
32°
Pima
Cruz River
Fairbank
Whitewater Draw
Rucker Canyon
Santa Cruz
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. Location April 26, 1972 to April 10, 1974 was 200 feet upstream from bridge. Datum 4.40 feet higher.

RECORDS: Based on current meter measurements or observations of no flow during the year. Computations by shifting control methods. Records obtained and furnished by the U. S. Geological Survey. Records 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 1974 (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 1974 — 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	0.79	0.44	0	0
2	0	0	0	0	0	0	0	373	.56	.31	0	0
3	0	0	0	0	0	0	1.4	52	.28	.25	0	.60
4	0	0	0	0	0	0	.01	36	.07	.19	0	.30
5	0	0	0	0	0	0	0	56	0	.10	0	0
6	0	0	0	0	0	0	0	24	.05	.01	0	0
7	0	0	0	0	0	0	19	3.6	.09	3.5	0	0
8	0	0	0	0	0	0	9.2	.95	0	22	0	0
9	0	0	0	0	0	0	1.3	.50	0	1.3	0	0
10	0	0	0	0	0	0	.20	.20	0	.67	0	0
11	0	0	0	0	0	0	0	.10	0	.40	0	0
12	0	0	0	0	0	0	0	0	0	36	0	0
13	0	0	0	0	0	0	0	0	0	81	0	0
14	0	0	0	0	0	0	1.1	9.0	0	2.4	0	0
15	0	0	0	0	0	0	9.2	3.0	5.8	.70	0	0
16	0	0	0	0	0	0	2.4	.50	1.2	.30	0	0
17	0	0	0	0	0	0	.10	0	.37	0	0	0
18	0	0	0	0	0	0	2.2	0	.02	0	0	0
19	0	0	0	0	0	0	16	2.0	0	0	0	0
20	0	0	0	0	0	0	587	.20	23	0	.80	0
21	0	0	0	0	0	0	131	0	175	0	2.0	0
22	0	0	0	0	0	0	42	0	14	44	2.2	0
23	0	0	0	0	0	0	17	0	1.5	1.4	.70	0
24	0	0	0	0	0	0	4.7	0	2.5	.50	.20	0
25	0	0	0	0	0	0	0	0	1.2	.30	0	0
26	0	0	0	0	0	0	0	9.0	.75	0	0	0
27	0	0	0	0	0	0	0	2.0	60	0	0	0
28	0	0	0	0	0	0	0	1.8	2.1	0	0	0
29	0		0	0	0	0	0	1.7	.97	0	0	0
30	0		0	0	0	0	44	1.4	.61	0	0	0
31	0		0		0		1.1	1.1		0		0
Sum	0	0	0	0	0	0	888.91	578.05	290.86	195.77	5.90	0.90

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1936-1974 Acre Feet Average	Maximum	Minimum
Jan.				0		0	0	0	41.3	451	0
Feb.				0		0	0	0	22.0	132	0
Mar.				0		0	0	0	32.0	295	0
Apr.				0		0	0	0	21.9	173	0
May				0		0	0	0	15.9	138	0
June				0		0	0	0	139	1,590	0
July			20	587	† 1	0	28.7	1,763	# 2,116	8,110	39
Aug.			2	373	† 1	0	18.6	1,147	# 3,397	14,480	0
Sept.			21	175	† 5	0	9.70	577	# 756	3,170	0
Oct.			13	81	†17	0	6.32	388	181	2,210	0
Nov.			22	2.2	† 1	0	.20	11.7	40.9	352	0
Dec.			3	.60	† 1	0	.029	1.8	132	2,363	0
Yearly				587		0	5.30	3,888	6,895	22,321	900

∅ 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 1974.

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 1974			Period 1952-1974		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	33.150	0	33.150	1.600	0.710	1.069	1.618	0.619	1.058
Feb.	32.435	0	32.435	1.335	1.010	1.158	1.784	.584	1.064
Mar.	38.530	0	38.530	1.430	1.090	1.243	1.598	.590	1.070
Apr.	38.120	0	38.120	1.480	1.115	1.271	1.536	.619	1.069
May	34.989	0	34.989	1.251	.970	1.129	1.595	.619	1.071
June	35.510	0	35.510	1.335	.950	1.184	1.784	.626	1.128
July	36.820	0	36.820	1.506	1.063	1.188	3.209	.619	1.179
Aug.	38.290	0	38.290	1.520	1.070	1.235	1.985	.619	1.201
Sept.	35.520	0	35.520	1.370	.940	1.184	1.884	.626	1.160
Oct.	37.319	0	37.319	1.460	.930	1.204	1.667	.626	1.107
Nov.	35.266	0	35.266	1.480	1.080	1.176	1.586	.619	1.081
Dec.	32.550	0	32.550	1.176	.870	1.050	1.736	.619	1.076
Yearly	428.499	0	428.499	1.600	0.710	1.174	3.209	0.584	1.105

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 1974.

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 1974			Period 1968-1974		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	13.561	13.561	0.507	0.394	0.437	0.640	0.394	0.490
Feb.	0	12.971	12.971	.507	.394	.463	.726	.394	.511
Mar.	0	14.449	14.449	.507	.394	.466	.666	.394	.486
Apr.	0	13.541	13.541	.507	.394	.451	.666	.394	.491
May	0	14.916	14.916	.507	.394	.481	.666	.394	.508
June	0	14.846	14.846	.507	.394	.495	.617	.394	.493
July	0	15.273	15.273	.691	.394	.492	.691	.259	.494
Aug.	0	14.407	14.407	.507	.394	.465	.967	0	.422
Sept.	0	13.994	13.994	.589	.394	.466	.617	0	.436
Oct.	0	14.319	14.319	.589	.394	.462	.595	0	.461
Nov.	0	14.265	14.265	.589	.394	.475	.717	.394	.506
Dec.	0	13.921	13.921	.589	.394	.449	.709	.394	.476
Yearly	0	170.408	170.408	0.691	0.394	0.467	0.967	0	0.481

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

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

RECORDS: Based on current meter measurements or observations of no flow during the year. Records available: May 1930 to October 1933, May 1935 to July 1941, and July 1950 through 1974. 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 flood marks; discharge not determined).

Mean Daily Discharge in Second Feet 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.40	0.80	0.10	0.10	0.80	2.3	6.6	306	0	0.20	3.9	2.6
2	.80	1.3	.20	.20	.80	2.2	1.6	546	.10	.10	3.1	2.6
3	0	2.0	.50	.20	.70	2.2	23	462	137	0	3.1	2.8
4	0	2.5	.90	.50	.60	.90	1.0	1,150	18	0	3.0	2.5
5	0	.70	.80	.40	.70	2.0	.20	789	5.2	0	3.0	2.5
6	0	.10	.80	.70	.80	1.9	50	640	.90	0	3.0	2.6
7	0	.20	.60	.80	.90	2.3	269	159	12	0	3.0	3.1
8	0	.20	.60	.90	1.1	1.1	209	170	.60	0	3.1	3.1
9	28	.30	.10	1.0	1.5	.60	.40	19	.10	0	3.1	3.1
10	22	.20	.10	1.0	1.1	0	.10	10	0	.10	3.1	3.1
11	.70	.40	.40	1.3	.90	.30	0	5.8	.50	.10	2.8	3.1
12	0	.10	.50	.70	1.0	.70	0	4.1	.30	83	2.8	3.6
13	0	.10	.50	.80	.50	1.6	0	3.1	20	30	2.8	3.3
14	0	.20	1.1	.30	.40	1.5	0	2.5	14	6.7	3.0	2.6
15	0	.20	0	.30	.30	1.0	0	39	6.7	3.4	3.1	2.6
16	0	.20	0	.40	.40	2.2	0	33	.40	3.0	3.0	2.5
17	0	.20	0	.50	.80	1.4	.10	3.1	.20	2.3	3.1	2.3
18	0	.40	0	.80	1.0	.50	57	30	.10	2.0	3.1	2.3
19	0	.40	.10	.50	.90	.40	693	31	0	1.8	3.0	2.3
20	0	.60	.40	.50	.60	1.8	1,320	5.2	0	1.7	2.8	2.3
21	0	1.1	.40	1.0	1.1	1.2	95	1.9	0	1.7	2.8	2.1
22	0	1.6	.30	1.2	1.0	1.9	27	110	0	2.3	2.8	2.1
23	0	1.9	.20	1.0	1.3	1.8	10	13	0	3.0	2.8	2.1
24	0	2.2	.30	1.0	.30	1.0	3.6	3.3	0	2.6	2.5	2.1
25	0	2.4	.20	1.0	.20	.70	1.7	1.9	.40	2.0	2.5	2.5
26	0	1.8	0	1.0	1.0	.50	58	1.0	12	1.9	2.5	2.5
27	0	.70	.20	.30	.60	.40	229	.50	28	1.9	2.6	2.0
28	0	.10	.70	.30	1.1	.60	15	.40	1.5	2.2	2.6	2.0
29	0		.80	.40	1.2	.80	17	.30	.50	3.3	2.5	2.0
30	0		1.0	.60	1.2	1.3	2,520	.10	.40	4.1	2.6	2.0
31	.10		0		2.0		196	0		4.1		2.0
Sum	52.00	22.90	11.80	19.70	26.80	37.10	5,803.30	4,540.20	258.90	163.50	87.1	78.3

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1951-1974 Acre Feet Average	Maximum	Minimum
Jan.			9	28	† 3	0	1.68	103	623	7,813	2.6
Feb.			4	2.5	† 6	.10	.82	45.4	442	2,767	3.0
Mar.			14	1.1	†15	0	.38	23.4	369	2,512	13.3
Apr.			11	1.3	1	.10	.66	39.1	94.0	373	0
May			31	2.0	25	.20	.86	53.2	28.5	183	0
June			† 1	2.3	10	0	1.24	73.6	159	1,391	0
July			30	2,520	†11	0	187	11,511	6,307	17,238	184
Aug.			4	1,150	31	0	146	9,005	10,287	36,309	155
Sept.			3	137	† 1	0	8.63	514	1,697	16,344	1.3
Oct.			12	83	† 3	0	5.27	324	255	2,166	0
Nov.			1	3.9	†24	2.5	2.90	173	143	609	0
Dec.			12	3.6	†27	2.0	2.53	155	799	10,959	0.2
Yearly				2,520		0	20.8	22,020	21,203	55,364	4,400

† And other days ∅ Mean daily

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 1974.
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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.35	0.33	0.18	0.07	0.06	0.03	21	3.5	3.4	0.25	0.22	0.53
2	.37	.33	.14	.07	.06	.03	.40	.27	.35	.23	.22	.51
3	.40	.32	.10	.08	.07	.03	.05	.22	.22	.22	.23	.50
4	.39	.32	.14	.09	.06	.03	.03	191	2.0	.20	.24	.50
5	.44	.32	.14	.09	.04	.04	.01	4.4	2.8	.21	.25	.56
6	.43	.32	.15	.10	.05	.03	0	.25	.27	.21	.26	.54
7	.41	.30	.16	.10	.06	.03	.51	.22	.20	.20	.26	.55
8	.48	.29	.18	.09	.05	.03	25	.20	.19	.19	.30	.55
9	.66	.30	.19	.07	.06	.04	.05	.19	.18	.19	.30	.55
10	.44	.30	.18	.07	.06	.03	.01	.18	.16	.18	.28	.60
11	.41	.30	.19	.07	.06	.03	0	.17	.16	.20	.29	.60
12	.40	.30	.18	.07	.07	.02	0	.17	.18	.23	.29	.61
13	.40	.29	.16	.06	.07	.02	0	.16	.30	.20	.32	.61
14	.40	.27	.14	.05	.05	0	0	.16	.24	.18	.32	.65
15	.40	.29	.14	.05	.03	0	0	5.8	.44	.15	.33	.65
16	.40	.25	.15	.03	0	0	0	84	.22	.15	.34	.65
17	.43	.24	.15	.04	0	0	1.3	3.7	.20	.14	.35	.66
18	.41	.25	.16	.03	0	0	.05	.31	.27	.14	.38	.70
19	.40	.24	.16	.03	0	0	.30	.26	.29	.14	.37	.65
20	.40	.25	.18	.04	0	0	1.9	.23	.25	.14	.35	.61
21	.39	.22	.19	.04	0	0	14	16	.33	.16	.38	.61
22	.38	.20	.17	.04	.02	.16	.17	7.5	19	.18	.40	.66
23	.40	.22	.18	.04	.01	.19	.09	.35	.32	.17	.42	.69
24	.41	.22	.19	.03	.01	.02	.09	.25	45	.17	.39	.66
25	.41	.24	.19	.10	.01	.01	.09	.22	2.8	.16	.40	.65
26	.38	.25	.20	.04	.02	.02	.08	.20	.38	.14	.41	.67
27	.41	.24	.19	.04	.02	0	5.2	.18	.33	.12	.45	.63
28	.38	.20	.17	.05	.02	0	.20	.18	.29	.14	.46	.62
29	.38		.14	.05	.01	0	.37	.17	.27	.40	.46	.60
30	.38		.09	.06	.01	0	81	.16	.24	.56	.47	.55
31	.35		.07		.02		.17	.15		.26		.56
Sum	12.69	7.60	4.95	1.79	1.01	0.79	152.08	320.72	81.28	6.21	10.14	18.68

Month	Current Year 1974 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 1949-1974 Acre Feet Average	Maximum	Minimum
Jan.			9	0.66	† 1	0.35	0.41	25.2	45.8	226	1.3
Feb.			† 1	.33	†22	.20	.27	15.1	39.3	261	1.8
Mar.			26	.20	31	.07	.16	9.8	34.9	250	.7
Apr.			† 6	.10	†16	.03	.050	3.6	19.9	148	0
May			† 3	.07	†16	0	.033	2.0	9.1	49.5	0
June			23	.19	†14	0	.026	1.6	9.5	169	0
July			30	81.0	† 6	0	4.91	302	469	4,270	1.6
Aug.			4	191	31	.15	10.3	636	1,032	10,120	.08
Sept.			24	45	†10	.16	2.71	161	316	2,634	0
Oct.			30	.56	27	.12	.20	12.3	84.5	448	0
Nov.			30	.47	† 1	.22	.34	20.1	41.8	182	0
Dec.			15	.70	† 3	.50	.50	37.1	67.5	693	0
Yearly				191		0	1.67	1,226	2,169	12,633	126

∅ Mean daily † And other days

SANTA CRUZ RIVER AT EL CAJON, SONORA

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

RECORDS: Data is based on river stages and on current meter measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 14, 1954 through August 1959, October 1, 1959 through June 14, 1960; July 1960; January 6, 1961 through September 5, 1963; October 15, 1963 through August 3, 1964; January 9 through February 11 and April 1 through December 1965; January 1, 1966 through November 1967; February 8 through October 23 and December 13 through 31, 1968; January 1 through April 9, June 5 through July 30, August 15 through 24, and October 17 through December 1969; 1970; February 1 through May 23 and June 18 through November 1971; July 1, 1972 through July 2, 1974.

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 1974 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.8	1.8	2.8	1.1	1.8	1.8	35.3	0	0	0	0	0
2	1.8	1.8	3.5	1.4	1.8	1.8	54.7	0	0	0	0	0
3	1.8	1.8	3.2	1.8	1.8	1.8	0	0	0	0	0	0
4	1.8	1.8	3.2	1.8	1.8	1.8	0	0	0	0	0	0
5	1.8	1.8	2.5	1.8	1.8	1.8	0	0	0	0	0	0
6	1.8	1.8	1.4	2.1	1.8	1.8	0	0	0	0	0	0
7	1.8	1.8	1.4	1.8	1.8	1.8	0	0	0	0	0	0
8	1.8	1.8	1.4	1.8	1.8	1.8	0	0	0	0	0	0
9	1.8	1.8	1.8	1.8	1.8	2.1	0	0	0	0	0	0
10	2.5	1.8	1.8	1.8	1.8	2.5	0	0	0	0	0	0
11	3.2	1.8	1.8	1.8	1.8	2.8	0	0	0	0	0	0
12	3.2	1.8	1.8	1.8	1.8	2.8	0	0	0	0	0	0
13	3.2	1.8	2.1	1.8	1.8	3.2	0	0	0	0	0	0
14	3.2	1.8	1.8	1.8	1.8	3.5	0	0	0	0	0	0
15	3.2	1.8	1.8	1.8	1.8	3.9	0	0	0	0	0	0
16	2.5	1.8	1.8	1.8	1.8	3.9	0	0	0	0	0	0
17	1.8	1.8	1.8	1.8	1.8	3.9	0	0	0	0	0	0
18	1.8	1.8	2.8	1.8	1.8	4.2	0	0	0	0	0	0
19	1.8	1.8	2.5	1.8	1.8	4.2	0	0	0	0	0	0
20	1.8	1.8	2.1	1.8	1.8	4.2	0	0	0	0	0	0
21	1.8	1.8	3.2	1.8	1.8	4.2	0	0	0	0	0	0
22	1.8	3.2	3.5	1.8	1.8	4.6	0	0	0	0	0	0
23	2.5	3.2	2.1	1.8	1.8	4.9	0	0	0	0	0	0
24	3.2	3.2	3.2	1.8	1.8	4.9	0	0	0	0	0	0
25	3.2	3.2	3.2	1.8	1.8	4.9	0	0	0	0	0	0
26	3.2	3.2	2.8	1.8	1.8	4.9	0	0	0	0	0	0
27	2.5	3.2	2.8	1.8	1.8	4.9	0	0	0	0	0	0
28	1.8	2.8	2.5	1.8	1.8	4.9	0	0	0	0	0	0
29	1.8		2.5	1.8	1.8	4.9	0	0	0	0	0	0
30	1.8		2.5	1.8	1.8	4.9	0	0	0	0	0	0
31	1.8		1.4		1.8		0	0		0		0
Sum	68.9	59.0	72.7	52.3	54.7	103.8						

Month	Current Year 1974								Period 1954-1974		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	0.07	0.03	† 1	3.2	† 1	1.8	2.1	136	493	1,486	136
Feb.	.07	.03	† 1	3.2	† 1	1.8	2.1	117	416	1,598	84.3
Mar.	.13	.03	21	7.1	31	1.1	2.5	144	410	978	76.4
Apr.	.07	.03	† 1	3.5	† 1	1.1	1.8	104	251	713	74.9
May	.03	.03	† 1	1.8	† 1	1.8	1.8	109	180	512	56.0
June	.10	.03	† 1	4.9	† 1	1.8	3.5	206	157	486	63.1
July	2.13	.03	2	272	† 1	1.8	0	0	611	1,227	83.5
Aug.	0	0		0		0	0	0	3,553	32,608	229
Sept.	0	0		0		0	0	0	858	3,000	101
Oct.	0	0		0		0	0	0	383	1,165	78.5
Nov.	0	0		0		0	0	0	366	838	134
Dec.	0	0		0		0	0	0	424	831	109
Yearly									9,995	38,895	2,317

0 Recorder inoperative † And other days

SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

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

RECORDS: Based on current meter measurements or observation of no flow during the year. Records obtained and furnished by the U. S. Geological Survey. 1974 records fair. Records available: March to November 1907 and April 1909 to December 1912 (discharge measurements and fragmentary gage height record); January 1913 to June 1922 (October 1915 to September 1916, monthly discharges only); May 1930 to December 1933; and July 1935 through 1974.

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 1974.

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 1974 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0.60	2,100	71	1.4	1.1	0.40
2	0	0	0	0	0	0	.30	2,320	16	1.1	.80	.40
3	0	0	0	0	0	0	62	50	12	1.0	.80	.40
4	0	0	0	0	0	0	61	35	2.5	1.0	.80	.50
5	0	0	0	0	0	0	0	30	4.6	.90	.80	.60
6	0	0	0	0	0	0	0	25	2.3	.80	.70	.60
7	0	0	0	0	0	0	0	20	1.1	.80	.70	.60
8	0	0	0	0	0	0	0	18	.50	.80	.80	.60
9	0	0	0	0	0	0	0	15	.20	.70	.80	.70
10	0	0	0	0	0	0	0	12	.10	.60	.70	.70
11	0	0	0	0	0	0	0	9.5	0	.60	.60	.80
12	0	0	0	0	0	0	0	7.4	0	.70	.50	1.0
13	0	0	0	0	0	0	404	5.1	0	.60	.50	1.1
14	0	0	0	0	0	0	776	4.8	.40	.50	.40	1.3
15	0	0	0	0	0	0	5.0	3.0	0	.40	.40	1.4
16	0	0	0	0	0	0	1.0	35	0	.40	.40	1.6
17	0	0	0	0	0	0	0	50	0	.40	.40	1.8
18	0	0	0	0	0	0	0	16	4.5	.40	.40	1.8
19	0	0	0	0	0	0	1,020	8.0	6.8	.40	.40	2.1
20	0	0	0	0	0	0	5.0	34	.50	.40	.40	2.2
21	0	0	0	0	0	0	1.0	9.5	.80	.40	.40	2.2
22	0	0	0	0	0	0	1.0	5.8	65	.60	.40	2.3
23	0	0	0	0	0	0	1.0	5.4	10	.50	.40	2.3
24	0	0	0	0	0	0	.60	3.5	35	.40	.40	2.0
25	0	0	0	0	0	0	.20	2.2	26	.40	.40	2.3
26	0	0	0	0	0	0	.10	1.4	20	.40	.40	2.3
27	0	0	0	0	0	0	.10	.50	12	.40	.40	2.1
28	0	0	0	0	0	0	600	.40	3.9	.40	.40	2.0
29	0		0	0	0	0	150	.40	2.2	.80	.40	1.4
30	0		0	0	0	0	1.0	.40	1.7	1.7	.30	1.3
31	0		0		0		1.0	.30		1.3		1.4
Sum	0	0	0	0	0	0	3,090.90	4,827.60	299.10	21.20	16.30	42.20

Month	Current Year 1974 Extreme Gage Feet High	Extreme Gage Feet Low	∅ Extreme Second Feet High Day	High	∅ Extreme Second Feet Low Day	Low	Average Second Feet	Total Acre Feet	Period 1936-1974 Acre Feet Average	Maximum	Minimum
Jan.				0		0	0	0	1,145	16,710	0
Feb.				0		0	0	0	936	11,129	0
Mar.				0		0	0	0	905	12,454	0
Apr.				0		0	0	0	238	1,308	0
May				0		0	0	0	68.3	338	0
June				0		0	0	0	64.8	1,020	0
July			19	1,020	† 5	0	99.7	6,131	2,441	15,610	45
Aug.			2	2,320	31	.30	156	9,575	6,247	45,790	91
Sept.			1	71	†11	0	9.97	593	1,319	7,507	0
Oct.			30	1.7	†15	.40	.68	42.0	374	2,616	0
Nov.			1	1.1	30	.30	.54	32.3	282	1,213	0
Dec.			†22	2.3	† 1	.40	1.36	83.7	1,759	28,559	0
Yearly				2,320		0	22.4	16,457	15,779	57,671	3,499

† And other days ∅ Mean daily

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 1974.

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 1974			Period 1952-1974		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	54.521	53.040	107.561	4.547	2.952	3.470	* 4.800	0.650	2.407
Feb.	45.513	45.976	91.489	3.620	2.631	3.267	* 6.130	.650	2.459
Mar.	50.714	54.839	105.553	3.646	2.974	3.405	5.342	.750	2.398
Apr.	45.251	51.628	96.879	3.570	2.876	3.229	4.572	.700	2.357
May	46.991	53.720	100.711	3.711	2.624	3.249	4.697	.550	2.277
June	44.314	51.208	95.522	3.475	2.758	3.184	4.055	.700	2.142
July	48.225	54.941	103.166	4.059	2.816	3.328	4.059	.700	2.187
Aug.	53.505	59.180	112.685	4.308	3.103	3.635	4.928	.750	2.466
Sept.	57.545	62.444	119.989	4.367	3.547	4.000	4.541	.800	2.767
Oct.	57.924	60.898	118.822	4.125	3.492	3.833	4.149	.700	2.624
Nov.	58.075	52.762	110.837	4.101	3.108	3.695	4.402	.800	2.444
Dec.	59.585	49.313	108.898	3.776	3.022	3.513	* 5.200	.350	2.448
Yearly	622.163	649.949	1,272.112	4.547	2.624	3.484	* 6.130	0.350	2.415

* Partially estimated

RAINFALL ON THE SANTA CRUZ RIVER WATERSHED IN INCHES

Tabulated below are the monthly records of rainfall with averages for their periods of record at stations located in Arizona and one in Sonora, Mexico. Three stations are operated and maintained by the United States Section of the Commission, three by the National Weather Service and one by the Mexican Section of the Commission. For location, elevation, period of record, type of gage in use, and the observer, see alphabetical listing of stations on page 93.

In United States

Month	Meigs Ranch, Arizona		Canelo, Arizona		Patagonia, Arizona		Jones Ranch, Arizona		Nogales, Arizona	
	1974	Average 1952-1974	1974	Average 1930-1974	1974	Average 1930-1974	1974	Average 1952-1974	1974	Average 1914-1974
Jan.	1.51	0.79	1.36	1.08	1.98	1.16	2.00		1.52	1.01
Feb.	0	.53	T	1.06	0	1.02	0		T	.84
Mar.	.28	.84	.29	.77	.57	.85	0		.37	.76
Apr.	.04	.19	.01	.34	0	.31	0		T	.28
May	* .09	.09	.10	.14	.08	.16	0		.10	.14
June	.14	.64	.06	.85	.97	.53	.25		.36	.46
July	5.65	4.70	5.09	4.30	6.79	4.51	4.30		5.48	4.24
Aug.	1.24	4.51	2.00	4.43	2.32	4.17	1.95		2.34	3.94
Sept.	2.93	1.53	3.68	1.71	2.77	1.82	4.95		3.83	1.62
Oct.	1.96	.85	2.06	.91	2.96	.91	2.35		3.04	.78
Nov.	.06	.50	.21	.73	.19	.78	0		.05	.68
Dec.	.11	1.11	.16	1.36	.27	1.38	.25		.10	1.28
Yearly	*14.01	16.28	15.02	17.68	18.90	17.60	16.05		17.19	16.03

Month	Nogales Sanitation Plant 6N, Arizona	
	1974	Average 1953-1974
Jan.	1.15	0.87
Feb.	0	.65
Mar.	.22	.77
Apr.	0	.12
May	.02	.09
June	.09	.43
July	5.98	4.75
Aug.	1.30	3.99
Sept.	2.60	1.45
Oct.	2.15	1.02
Nov.	.23	.59
Dec.	.04	1.28
Yearly	13.78	16.01

In Mexico

Month	San Lazaro, Sonora	
	1974	Average 1961-1974
Jan.	1.26	0.67
Feb.	0	.63
Mar.	.28	.71
Apr.	0	.39
May	0	.12
June	0	.55
July	5.47	4.45
Aug.	2.56	3.27
Sept.	4.25	1.61
Oct.	1.42	.91
Nov.	0	.51
Dec.	0	1.34
Yearly	15.24	13.54

T Trace * Estimated

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 1974.

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
Canelo, Arizona	S	31° 33'	110° 32'	4,985	1930	R. E. Ewing
Jones Ranch, Arizona	S	31° 22'	110° 36'	4,960	Mar. 1952	I. B. & W. C.
Meigs Ranch, Arizona	S	31° 26'	110° 36'	4,836	Mar. 1952	I. B. & W. C.
Nogales, Arizona	R	31° 21'	110° 55'	3,808	1914	Milford L. Noon
Nogales Sanitation Plant 6N Arizona	S	31° 25'	110° 57'	3,560	June 1952	I. B. & W. C.
Patagonia, Arizona	S	31° 33'	110° 45'	4,044	1930	O. J. Rothrock

In Mexico

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

S Standard 8" rain gage R Recording rain gage * Unavailable

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

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

For specific location of these two stations, refer to data opposite same station name shown in "Location of Rainfall Stations", page 93 of this bulletin.

In United States

Temperature - Degrees Fahrenheit

Month	Nogales Sanitation Plant - 6N		
	1974		
	Mean	Max.	Min.
Jan.	45.7	63.4	27.9
Feb.	47.8	67.5	28.1
Mar.	55.9	74.1	37.7
Apr.	65.1	80.6	49.6
May	69.7	87.0	52.3
June	81.5	100.0	63.0
July	78.8	93.0	64.5
Aug.	77.1	93.2	61.0
Sept.	72.1	88.6	55.5
Oct.	63.2	46.4	63.2
Nov.	50.6	70.6	30.5
Dec.	40.1	61.1	19.1
Yearly	62.3	100.0	19.1

Mean Relative Humidity-Percent

Month	Nogales Sanitation Plant - 6N	
	1974	
	Max.	Min.
Jan.	100	41
Feb.	100	0
Mar.	100	23
Apr.	100	14
May	96	38
June	100	48
July	100	33
Aug.	96	65
Sept.	100	60
Oct.	100	53
Nov.	100	29
Dec.	100	0
Yearly	100	0

Evaporation - Inches

Month	Nogales Sanitation Plant - 6N	
	1974	Average # 1953-1974
Jan.	* 3.67	3.53
Feb.	* 4.77	4.66
Mar.	8.65	7.04
Apr.	8.54	9.72
May	11.54	12.54
June	15.56	13.91
July	16.02	10.32
Aug.	9.48	7.92
Sept.	9.02	7.94
Oct.	7.49	7.01
Nov.	4.94	4.48
Dec.	3.08	3.13
Yearly	102.76	92.20

Mean Wind Speed - Miles Per Hour

Month	Nogales Sanitation Plant - 6N	
	1974	Average 1953-1974
Jan.	2.5	2.0
Feb.	† 2.4	2.3
Mar.	2.8	2.6
Apr.	2.7	2.6
May	2.8	2.5
June	3.1	2.4
July	2.6	1.6
Aug.	2.0	1.0
Sept.	2.1	1.2
Oct.	2.4	1.6
Nov.	1.9	1.6
Dec.	2.0	1.8
Yearly	2.4	1.9

In Mexico

Temperature - Degrees Fahrenheit

Month	San Lazaro, Sonora			
	1974		1961-1974	
	Max.	Min.	Max.	Min.
Jan.	81	23	93	10
Feb.	79	19	88	16
Mar.	82	27	99	19
Apr.	86	32	106	27
May	97	37	117	28
June	104	50	124	41
July	97	54	126	52
Aug.	95	57	117	52
Sept.	99	50	115	39
Oct.	88	32	111	32
Nov.	81	28	102	21
Dec.	77	10	95	10
Yearly	104	10	126	10

Evaporation - Inches

Month	San Lazaro, Sonora	
	1974	Average 1961-1974
Jan.	3.43	3.70
Feb.	5.83	4.49
Mar.	7.52	7.05
Apr.	10.63	9.80
May	13.39	11.97
June	13.94	12.64
July	7.40	8.46
Aug.	7.95	7.24
Sept.	6.46	7.32
Oct.	6.06	6.97
Nov.	4.25	4.57
Dec.	4.41	3.54
Yearly	91.26	88.31

\# Some months missing * Estimated - 10-year average † Estimated

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

1974

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	200	2,352	2,552
Above Nogales, Arizona Gaging Station	185	348	533	200	2,696	2,896
San Pedro River:						
Above Palominas, Arizona Gaging Station	92	649 *	741	413	3,459	3,872
Whitewater Draw:						
Above Douglas, Arizona Gaging Station	1,023	0	1,023	16,373	0	16,373

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

CORRECTIONS TO PREVIOUS WATER BULLETINS

Water Bulletin and Page Numbers	Heading	Reference	Published As	Correction
1970-16 1971-16 1972-17	Colorado River at Northerly International Boundary - Discharges	Period Summary Table Minimum Acre-Feet September	60,000	53,851

1971-33 1972-33	Total Flows Crossing International Boundary into Mexico near San Luis, Sonora	Period Summary Table Averages				
			1971	1972	1971	1972
		January	9,076	9,123	9,076	9,353
		February	8,808	8,868	8,808	9,361
		March	10,092	10,140	10,289	10,426
		April	9,821	9,871	9,991	10,116
		May	10,093	10,152	10,304	10,413
		June	9,243	9,299	9,543	9,565
		July	9,120	9,181	9,355	9,444
		August	9,069	9,132	9,230	9,464
		September	9,001	9,048	9,397	9,510
		October	10,096	10,134	10,507	10,680
		November	9,955	9,957	10,482	10,449
		December	9,622	9,622	10,001	10,052
		Yearly	113,996	114,527	116,984	118,833

1972-78	Stored Water in Reservoirs, Tijuana River Basin	Rodriguez Reservoir, Baja California Period of Record Average December	36,029	30,029