INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

UNITED STATES SECTION

JOSEPH F. FRIEDKIN, *Commissioner*
El Paso, Texas
WALDEMAR A. VON SCHOELER, *Resident Engineer*
Yuma, Arizona
WILLARD L. ERICSON, *Resident Engineer*
San Diego, California

MEXICAN SECTION

DAVID HERRERA JORDAN, *Commissioner*
Cd. Juárez, Chihuahua

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

WESTERN WATER BULLETIN 1965

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

COLORADO RIVER

TIJUANA RIVER

SANTA CRUZ RIVER

WHITEWATER DRAW

1965

CONTENTS

CONTENTS

FOREWORD

This bulletin is the sixth 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. The compilation was prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission, solely for the purpose of presenting statistical data relating to stream flow and kindred subjects for the Colorado River from Imperial Dam to the Gulf of California, the Tijuana River and its important tributaries in the United States and Mexico, and other streams, including the Alamo and New Rivers which cross the California-Baja California boundary, and the Santa Cruz River and Whitewater Draw which cross the Arizona-Sonora boundary. This volume contains the information for the year 1965.

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

Colorado River below Imperial Dam

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

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

At Imperial Dam, diversions are made to Gila Gravity Main Canal and All-American Canal for irrigation projects in Arizona, including the Yuma Valley, Gila and Wellton-Mohawk projects, and in California, including the Imperial Valley, Coachella Valley and Reservation Division of Yuma Project. Also, under the provisions of the 1944 Water Treaty, there may be diverted to the All-American Canal at Imperial Dam for delivery to Mexico in the Alamo Canal, or substitute canal, at the northerly boundary, a portion of Mexico's guaranteed annual allotment of waters of the Colorado River. No such diversions were made in 1965.

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

In the limitrophe section of the river, 1.1 miles downstream from the northerly boundary, Morelos Dam, the principal diversion structure for Mexico, was completed and placed in operation on November 8, 1950. Since that date all of Mexico's guaranteed treaty allotment of Colorado River water has been delivered in the limitrophe section of the river. The greater portion of such deliveries has been diverted to the Alamo Canal at Morelos Dam.

Tijuana River Basin

The total drainage area of the Tijuana River basin is 1,731 square miles of which 27 percent lies in the United States and 73 percent in Mexico. This river is formed by the principal tributaries, Cottonwood Creek, which rises in the United States and Río de las Palmas, which rises in Mexico. Cottonwood Creek crosses the international land boundary 21 miles from the Pacific Ocean to join the Río 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 Río de las Palmas is partially controlled by Rodríguez 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.

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.

FOREWORD

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, 349 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 U. S. Weather Bureau, Department of Commerce; the Yuma County Water Users' Association, the Imperial Irrigation District, the city of San Diego, California, and the Ministry of Hydraulic Resources of Mexico. Specific notation is made of each of the above-named agencies, where the data appear. The courtesy and cooperation of those who have made these contributions are acknowledged with our 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. The following factors have been used for data in this bulletin:

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

GENERAL HYDROLOGIC CONDITIONS FOR 1965

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 1965. The average seasonal (October 1964-September 1965) rainfall over the upper basin, as gaged at 13 index stations, was about 18.80 inches compared to a seasonal average of about 13.85 inches for the 43 seasons (1923-1965). In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation (1965) measured at 6 index stations was 2.95 inches compared to an average of 1.85 inches during the last 7 years (1959-1965).

The flow of the Colorado River reaching Imperial Dam was 5,723,000 acre-feet, about 65% of the 31-year average (1935-1965) of 8,848,109 acre-feet. At the northerly international boundary, the total flow of the river during 1965 was 1,524,179 acre-feet or about 35% of the 1935-1965 average of 4,347,047 acre-feet. At the southerly international boundary, the flow during 1965 was only 101,868 acre-feet, or about 3% of the 1935-1965 average of 3,620,825 acre-feet. The total flow of the Colorado River reaching the El Marítimo Gaging Station, 47.9 miles downstream from the southerly international boundary, and 18.6 miles downstream from the Sonora-Baja California railroad bridge, was 76,622 acre-feet in 1965, about 33% of the 1960-1965 average of 233,660 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1965 amounted to 1,687,661 acre-feet, 33% of the 1935-1965 average of 5,057,020 acre-feet, as measured 1) in the Colorado River at the northerly international boundary, 2) in the Wellton-Mohawk Main Outlet Drain Extension near Morelos Dam, 3) in the wasteways that discharge into the limitrophe section of the river from the United States bank, and 4) in the canal which discharges waste and drainage waters from the Yuma Project across the southerly land boundary into Mexico near San Luis, Arizona, less diversions in the United States by pumps in the limitrophe section.

No flood peaks of importance occurred in streams of the lower Colorado River basin during 1965. A maximum instantaneous flow of 8,040 second-feet occurred in the Colorado River at the northerly boundary station on April 5.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 17,527,700 acre-feet, 59% of the usable capacity of 29,636,000 acre-feet. The greater part (15,233,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1965 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1965 was 1,092,015 acres; 650,245 acres in the United States and 441,770 acres in Mexico. An estimated one-third of acreage in Mexico is served by pumping from ground water.

The suspended sediment load passing the northerly boundary station in 1965 was 91.1 acre-feet, about 22% of the 1956-1965 average of 415 acre-feet.

Tijuana River Basin

During 1965, heavy storms in November and December produced excessive runoff in the latter part of the year. The temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 1.9 degrees below the 35-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, 4 degrees below the long-term average and at Rodríguez Dam, Baja California (elevation 459 feet), the recorded temperatures during the year averaged 63 degrees, equal to the 20-year normal.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 24.08 inches, 137% of normal, and at Chula Vista near the lower end of the basin, 17.09 inches, or 173% of normal. The recorded precipitation at San Juan de Dios in the upper portion of the basin in Mexico, was 21.18 inches, approximately 122% of the normal during the 10-year period, and at Rodríguez Dam in the lower portion of the basin in Mexico, 16.26 inches, 200% of the 28-year average.

Runoff in the basin during 1965 averaged 24% of normal. Above Morena Reservoir, the runoff was 461 acre-feet, or about 7% of the 29-year 1937-1965 mean of 6,796 acre-feet. At Rodríguez Reservoir, the runoff was 4,965 acre-feet, or about 30% of the 28-year mean of 16,498 acre-feet.

During 1965, the flow in the Tijuana River at the international boundary was 2,566 acre-feet, 100% of the 19-year 1947-1965 average of 2,561 acre-feet. The flow in the Tijuana River near Nestor was 553 acre-feet, 2.3% of the 29-year 1937-1965 average of 23,615 acre-feet.

Whitewater Draw

During 1965, the average annual temperature over the watershed was normal and the annual precipitation was also about normal. Runoff for the year at the gaging station near Douglas, Arizona, of 4,069 acre-feet was about 57% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1965

San Pedro River

During 1965, the average annual temperature was below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 118% of the 1961-1965 mean of 19.98 inches. The stream flow at the international boundary was 10,565 acre-feet, 45% of the 1951-1965 normal.

Santa Cruz River

During 1965, the average annual temperature over the watershed was somewhat below normal and the annual precipitation was about 114% of the 27-year 1939-1965 mean. Runoff measured at the Nogales Gaging Station where the stream re-enters the United States was 23,938 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 1,416 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 22,522 acre-feet from the loop of the river lying in Mexico, or approximately 94% of the flows reaching the Nogales station.

Alamo and New Rivers

During 1965, the average annual temperature over the drainage areas of the Alamo and New Rivers, as recorded at El Centro, California, and at Mexicali, Baja California, was 71 and 72 degrees, respectively, 1.7 and 2.0 degrees below the respective normals.

At El Centro, the precipitation was about 121% of the long-term mean and in Mexicali the annual precipitation was 61% of the 40-year average. The total flow of the New River at the international boundary in 1965 was 111,339 acre-feet which was about 166% of the 1943-1965 normal.

Salton Sea

During 1965, the average annual temperature around the Salton Sea was about 97% of the long-term average while the annual precipitation recorded at Brawley, California, was approximately 149% of the long-term mean of 2.26 inches. The water surface of the Salton Sea lowered approximately 0.2 foot during the year. The maximum stage, 232.1 feet below mean sea level, was recorded on several days during April and May 1965. The minimum stage, 233.3 feet below mean sea level, was recorded on several days during September and October 1965.

COLORADO RIVER AT YUMA, ARIZONA - STAGES

DESCRIPTION: Water-stage recorder 500 feet upstream from lower highway bridge, 7.0 miles upstream from the northerly international land boundary, 1,800 feet downstream from the upper highway and railroad bridges at Yuma, Arizona, 4.6 miles downstream from the mouth of the Gila River, 19 miles downstream from Imperial Dam, and 0.4 mile upstream from the mouth of the Yuma Main Canal Wasteway. Zero of gage is 102.86 feet above mean sea level, U. S. C. & G. S. datum. Beginning August 11, 1965, water-stage recorder moved 300 feet downstream. Zero of gage is at mean sea level, U. S. C. & G. S. datum.

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

EXTREMES: Prior to 1935: Maximum gage height 34.00 feet on January 22, 1916; minimum gage height 12.70 feet on September 17, 1917. Since 1935: Maximum gage height 24.57 feet on September 7, 1939; minimum gage height 8.36 feet on July 16, 1947.

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.18	10.64	10.69	10.96	10.91	11.06	10.89	11.14	113.80	113.53	113.57	113.63
2	11.20	10.62	10.69	10.94	10.94	11.48	10.89	11.09	113.78	113.68	113.57	113.88
3	11.35	10.51	10.72	11.07	10.97	11.13	10.89	10.85	113.75	113.97	113.53	113.60
4	11.31	10.56	10.72	11.50	10.93	10.99	10.89	10.81	113.77	113.87	113.29	113.51
5	10.94	10.60	10.70	11.09	10.94	10.99	11.10	11.01	113.93	113.63	113.48	113.50
6	10.78	10.66	10.73	11.14	10.96	11.02	11.29	11.47	114.29	113.60	113.58	113.50
7	10.80	10.69	10.80	10.97	11.30	11.11	10.90	11.11	114.20	113.62	113.58	113.48
8	10.76	10.72	10.87	10.99	11.06	11.05	10.83	11.06	113.94	113.37	113.55	113.52
9	10.73	10.64	10.86	11.00	10.86	11.06	10.86	11.04	113.88	113.50	113.59	113.59
10	10.77	10.62	10.87	10.98	10.85	11.31	10.82	11.05	114.16	113.53	113.59	113.49
11	10.78	10.69	10.85	11.00	11.10	11.54	10.83	113.90	113.90	113.52	113.57	113.33
12	10.80	10.68	10.90	11.02	10.99	10.99	10.87	113.98	113.93	113.50	113.56	113.30
13	10.75	10.77	10.90	11.54	10.93	10.96	10.98	113.90	113.89	113.47	113.57	113.28
14	10.81	11.06	10.92	11.14	10.90	11.04	11.02	113.87	113.91	113.45	113.56	113.27
15	11.13	10.80	10.93	11.01	10.94	11.02	10.95	113.89	113.92	113.52	113.53	113.25
16	10.85	10.68	10.93	11.18	10.94	10.86	10.96	113.85	113.91	113.51	113.48	113.25
17	10.57	10.67	10.80	10.99	10.94	10.83	10.91	113.81	113.92	113.50	113.57	113.33
18	10.50	10.73	10.77	10.88	10.96	10.89	10.96	113.80	113.90	113.49	114.08	113.46
19	10.45	10.94	10.80	10.91	10.92	11.33	10.96	113.78	113.92	113.56	114.78	114.49
20	10.43	11.10	10.79	10.90	10.95	11.50	10.90	113.76	113.93	113.61	114.40	116.33
21	10.44	10.74	10.84	10.88	11.31	11.00	11.12	113.74	113.79	113.54	114.09	116.77
22	10.44	10.70	10.93	10.80	11.45	10.98	11.35	113.80	113.82	113.54	114.34	114.36
23	10.45	10.69	10.90	10.79	11.13	10.92	10.90	113.90	113.80	113.59	114.35	113.63
24	10.50	10.68	10.78	11.49	11.04	10.88	10.98	113.91	113.82	113.52	114.56	113.50
25	10.51	10.70	10.79	11.22	11.13	10.89	11.03	113.89	113.82	113.53	114.80	113.41
26	10.52	10.69	10.78	11.06	11.18	10.90	11.03	113.91	113.78	113.56	114.65	113.38
27	10.48	10.70	11.28	10.97	11.16	10.91	10.96	113.93	113.79	113.51	114.46	113.33
28	10.53	10.73	10.97	10.85	11.20	10.95	10.96	113.92	113.82	113.52	114.49	113.29
29	10.52		10.87	10.83	11.53	10.87	10.94	113.92	113.74	113.53	113.72	113.28
30	10.52		10.90	10.88	11.07	10.84	11.22	113.95	113.78	113.54	113.61	113.22
31	10.55		10.94		10.96		11.44	113.85		113.54		113.21
Avg.	10.72	10.71	10.85	11.03	11.05	11.04	10.99	113.89	113.89	113.56	113.88	113.69

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder located 500 feet upstream from the U. S. Highway No. 80 crossing and one mile northwest of Yuma, Arizona. Discharge measurements are made from a footbridge immediately below the gage. The drainage canal discharges into the outfall channel of the Yuma Main Canal Wasteway 200 feet downstream from the spillway structure, and thence into the Colorado River on the right bank, 1,000 feet upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles upstream from the northerly international land boundary. Prior to October 1955, published as "California Drainage Canal near Yuma, Arizona."

RECORDS: Based on 40 current meter measurements during the year 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 December 1965.

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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46	44	59	67	52	65	61	55	61	50	46	42
2	46	44	67	69	49	58	66	52	61	49	47	41
3	44	44	60	59	46	52	69	54	56	45	56	41
4	43	45	59	52	48	52	61	55	65	44	50	41
5	48	46	67	53	58	61	61	55	68	45	51	49
6	60	55	58	60	68	68	61	53	55	45	49	41
7	51	50	54	63	67	59	63	54	66	47	52	41
8	44	44	58	51	62	59	64	54	53	50	46	51
9	42	55	57	49	52	60	64	61	54	56	48	57
10	41	64	60	46	54	58	67	61	51	59	54	80
11	42	41	62	47	62	55	74	54	49	44	48	47
12	48	39	70	51	51	52	57	51	49	50	54	45
13	46	40	64	50	48	52	59	53	51	57	45	45
14	47	40	59	51	56	51	58	54	57	52	47	43
15	43	40	57	52	57	57	59	55	61	42	44	41
16	50	44	64	48	52	55	60	55	52	46	47	42
17	45	57	67	53	49	55	58	56	49	46	48	41
18	42	54	63	52	49	56	58	53	49	41	47	40
19	43	46	65	55	52	59	57	51	47	45	52	40
20	48	44	66	48	62	58	57	51	46	57	49	40
21	44	41	62	45	58	55	55	61	55	49	54	40
22	43	42	70	50	58	52	55	61	49	45	55	40
23	53	59	72	58	54	57	62	59	48	41	54	40
24	48	45	74	56	59	60	55	62	50	42	46	39
25	48	50	70	48	69	61	55	62	59	52	43	39
26	46	50	60	48	62	61	55	63	54	43	42	39
27	48	53	65	56	57	58	55	61	51	40	42	38
28	47	52	66	65	67	56	62	64	65	44	47	39
29	45		64	56	63	60	57	64	61	48	42	39
30	44		64	56	54	65	57	60	57	49	43	37
31	44		72		55		55	61		45		36
Sum	1,429	1,328	1,975	1,614	1,750	1,727	1,857	1,765	1,649	1,468	1,448	1,334

Current Year 1965									Period 1937-1965		
Month	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			6	60	10	41	46.1	2,834	3,355	4,780	877
Feb.			10	64	12	39	47.4	2,634	3,190	4,320	563
Mar.			24	74	7	54	63.7	3,917	3,881	5,240	1,240
Apr.			2	69	21	45	53.8	3,201	3,907	5,250	1,160
May			25	69	3	46	56.5	3,471	4,010	5,590	992
June			6	68	14	51	57.6	3,425	3,888	5,580	885
July			11	74	†21	55	59.9	3,683	4,210	6,550	816
Aug			†28	64	†12	51	56.9	3,501	4,163	6,810	861
Sept.			5	68	20	46	55.0	3,271	3,966	6,220	889
Oct.			10	59	27	40	47.3	2,912	3,925	5,740	1,040
Nov.			3	56	†26	42	48.3	2,872	3,684	5,490	994
Dec.			10	80	31	36	43.0	2,646	3,582	4,960	966
Yearly				80		36	53.0	38,367	45,761	63,700	12,840

† And other days Ø Mean daily

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. 1965 records good, except those below 100 second-feet, which are poor. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through December 1965.

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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	966	222	35	34	591	406	19	52	24	328	19	592
2	1,020	159	17	23	570	55	16	27	40	326	19	1,040
3	1,280	206	44	83	562	337	32	16	40	58	20	598
4	949	220	46	73	525	474	35	30	37	53	86	510
5	459	202	33	38	604	504	24	16	42	226	462	512
6	57	168	56	29	539	518	32	16	32	26	391	522
7	61	134	102	42	349	552	27	16	27	19	301	491
8	54	92	61	37	362	627	47	16	30	19	296	540
9	67	54	35	52	638	703	32	19	123	24	384	448
10	61	193	62	56	621	870	24	16	722	19	337	26
11	54	357	63	26	771	544	32	24	442	24	339	21
12	64	365	49	23	614	40	19	22	490	24	345	22
13	50	347	34	23	450	30	19	45	457	19	340	36
14	42	64	47	34	498	32	37	58	474	21	321	56
15	30	210	42	42	502	16	37	40	474	24	340	83
16	16	314	37	40	481	42	35	37	536	24	437	63
17	21	354	17	23	454	24	35	58	510	24	431	38
18	42	373	27	22	432	37	30	42	543	26	102	32
19	67	580	46	17	477	35	16	47	486	22	130	33
20	105	800	27	14	462	37	30	47	499	20	39	27
21	102	31	17	23	212	40	40	54	655	19	39	30
22	74	22	11	20	38	24	27	79	577	19	39	26
23	74	34	30	34	359	18	27	61	650	19	39	30
24	71	11	35	752	387	27	22	52	614	22	30	27
25	61	11	30	644	321	36	22	50	563	22	19	28
26	95	11	21	391	263	37	19	61	613	19	45	25
27	102	11	38	460	216	32	30	45	639	19	39	19
28	88	24	65	743	238	20	30	45	692	24	154	24
29	42		41	805	490	20	32	76	641	22	315	37
30	42		46	728	308	20	27	58	689	19	383	31
31	119		21		461		16	40		24		21
Sum	6,335	5,569	1,235	5,331	13,795	6,157	870	1,265	12,361	1,554	6,241	5,988

Month	Current Year 1965								Period 1935-1965		
	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.			3	1,280	16	16	204	12,565	71,804	110,700	3,230
Feb.			20	800	†24	11	199	11,046	62,426	89,140	2,856
Mar.			7	102	22	11	39.8	2,450	66,847	90,190	2,253
Apr.			29	805	20	14	178	10,574	66,702	86,580	2,500
May			11	771	22	38	445	27,362	69,477	88,280	5,480
June			10	870	15	16	205	12,212	64,618	86,960	3,330
July			8	47	† 2	16	28.1	1,726	66,407	91,220	1,726
Aug			22	79	† 3	16	40.8	2,509	66,780	89,890	2,390
Sept.			10	722	1	24	412	24,518	64,178	83,660	17,240
Oct.			1	328	† 7	19	50.1	3,082	62,789	90,050	2,176
Nov.			5	462	† 1	19	208	12,379	63,566	101,500	3,850
Dec.			2	1,040	27	19	193	11,877	70,706	108,800	2,440
Yearly				1,280		11	183	132,300	796,300	1,042,850	75,950

Ø Mean daily † And other days

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

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

RECORDS: Based on 23 current meter measurements during the year, 18 by the United States Geological Survey, 5 by the United States Section of the Commission, 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 December 1965. 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, including Lake Mead where storage began in 1935, 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,710	891	758	996	1,160	1,310	863	1,030	912	940	722	1,100
2	1,700	828	764	982	1,180	1,320	856	982	905	996	734	1,500
3	1,910	794	788	1,100	1,220	1,310	863	828	884	989	734	1,140
4	1,740	814	782	1,410	1,230	1,310	870	828	877	919	644	1,030
5	1,210	821	758	1,080	1,260	1,330	982	926	982	926	989	1,040
6	884	842	794	1,100	1,260	1,360	1,160	1,180	1,200	734	1,010	1,040
7	849	835	877	975	1,290	1,440	919	919	1,130	752	961	1,010
8	807	794	891	975	1,280	1,430	884	905	919	596	933	1,060
9	776	734	863	996	1,310	1,470	891	912	919	710	996	1,090
10	788	807	898	982	1,320	1,760	870	905	1,640	728	982	776
11	776	982	912	947	1,610	1,730	891	912	1,290	716	954	644
12	794	975	926	947	1,450	961	884	975	1,330	704	975	608
13	752	1,020	919	1,290	1,300	926	933	961	1,300	680	968	602
14	776	1,000	940	1,060	1,310	968	982	954	1,300	686	954	614
15	954	954	947	989	1,360	947	940	961	1,300	734	947	626
16	800	947	947	1,050	1,310	870	961	919	1,310	728	968	608
17	668	982	856	940	1,300	821	919	919	1,300	716	1,000	620
18	656	1,010	828	842	1,310	870	933	891	1,300	710	1,100	698
19	656	1,260	849	856	1,290	1,140	919	877	1,300	734	1,720	1,590
20	698	1,490	828	828	1,280	1,320	905	870	1,300	764	1,320	3,660
21	692	788	856	828	1,290	975	1,030	884	1,290	710	1,070	4,240
22	680	758	919	776	1,310	940	1,200	933	1,260	716	1,260	1,320
23	674	758	919	758	1,310	905	884	989	1,270	740	1,270	716
24	698	740	856	1,600	1,300	891	919	975	1,270	704	1,410	650
25	680	758	842	1,370	1,300	912	947	947	1,260	716	1,660	608
26	704	752	821	1,130	1,290	919	940	982	1,250	716	1,580	578
27	686	752	1,190	1,080	1,230	912	905	989	1,270	686	1,430	548
28	710	764	1,020	1,140	1,280	919	912	989	1,320	704	1,560	542
29	674		919	1,180	1,730	863	898	1,030	1,240	710	1,050	548
30	680		954	1,200	1,240	856	1,050	1,050	1,300	710	1,000	518
31	764		982		1,300		1,220	968		716		518
Sum	24,850		31,407		33,685		29,390		23,290			31,842
	27,546	27,403		40,610		29,320		36,128		32,901		

Current Year 1965									Period 1951-1965		
Month	Ø Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	11.76	10.22	3	1,910	†18	656	889	54,637	326,144	979,890	54,637
Feb.	11.33	10.33	20	1,490	9	734	888	49,289	239,228	826,600	49,289
Mar.	10.97	10.33	27	1,190	† 1	758	884	54,353	261,395	1,073,270	54,353
Apr.	11.63	10.55	24	1,600	23	758	1,047	62,295	246,794	843,010	62,295
May	11.51	10.97	29	1,730	1	1,160	1,310	80,549	224,166	863,860	77,650
June	11.57	10.46	10	1,760	17	821	1,123	66,813	215,914	833,970	66,813
July	11.14	10.56	31	1,220	2	856	946	58,155	238,105	649,820	58,155
Aug	11.08	10.60	6	1,180	† 3	828	948	58,294	246,268	670,050	58,294
Sept.	11.59	10.72	10	1,640	4	877	1,204	71,659	199,915	775,930	69,465
Oct.	10.83	10.21	2	996	8	596	751	46,195	166,020	802,210	46,195
Nov.	11.65	10.26	19	1,720	4	644	1,097	65,258	199,494	911,370	53,690
Dec.	13.73	10.24	21	4,240	†30	518	1,027	63,158	259,677	1,114,550	53,120
Yearly	13.73	10.21		4,240		518	1,009	730,655	2,823,120	10,220,870	730,655

† And other days Ø Mean daily

COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.56	10.53	10.34	10.68	11.10	11.08	10.57	10.89	10.73	10.75	10.39	11.02
2	11.55	10.44	10.34	10.66	11.11	11.09	10.56	10.82	10.74	10.83	10.41	11.49
3	11.76	10.40	10.38	10.83	11.14	11.09	10.57	10.60	10.72	10.82	10.41	11.06
4	11.59	10.43	10.37	11.22	11.12	11.09	10.58	10.60	10.73	10.72	10.26	10.93
5	11.01	10.45	10.33	10.83	11.14	11.11	10.74	10.74	10.89	10.73	10.79	10.95
6	10.58	10.48	10.39	10.87	11.12	11.14	10.98	11.08	11.19	10.44	10.82	10.94
7	10.55	10.48	10.51	10.72	11.13	11.23	10.65	10.73	11.12	10.47	10.75	10.90
8	10.50	10.42	10.53	10.72	11.10	11.22	10.60	10.71	10.84	10.21	10.71	10.97
9	10.46	10.33	10.49	10.76	11.11	11.27	10.62	10.72	10.84	10.39	10.80	11.01
10	10.49	10.45	10.54	10.75	11.10	11.57	10.59	10.71	11.59	10.42	10.78	10.57
11	10.49	10.70	10.56	10.71	11.39	11.54	10.62	10.72	11.21	10.40	10.74	10.35
12	10.53	10.69	10.58	10.72	11.19	10.64	10.61	10.81	11.26	10.38	10.77	10.29
13	10.47	10.76	10.57	11.18	11.02	10.59	10.68	10.79	11.23	10.34	10.76	10.29
14	10.50	10.73	10.60	10.89	11.04	10.65	10.75	10.78	11.22	10.34	10.74	10.31
15	10.75	10.66	10.61	10.80	11.09	10.63	10.70	10.79	11.22	10.42	10.73	10.33
16	10.52	10.65	10.61	10.90	11.05	10.52	10.73	10.73	11.24	10.41	10.76	10.30
17	10.28	10.70	10.48	10.75	11.04	10.46	10.68	10.73	11.22	10.39	10.81	10.32
18	10.25	10.74	10.44	10.62	11.05	10.53	10.70	10.69	11.22	10.37	10.96	10.45
19	10.24	11.07	10.48	10.66	11.02	10.92	10.69	10.67	11.22	10.41	11.65	11.36
20	10.30	11.33	10.45	10.63	11.01	11.14	10.67	10.66	11.22	10.46	11.24	13.25
21	10.28	10.42	10.50	10.64	11.02	10.69	10.84	10.68	11.21	10.37	10.93	13.73
22	10.26	10.37	10.59	10.57	11.06	10.65	11.08	10.75	11.17	10.38	11.18	11.25
23	10.25	10.37	10.60	10.55	11.06	10.60	10.66	10.83	11.19	10.42	11.19	10.60
24	10.29	10.34	10.51	11.63	11.04	10.59	10.71	10.81	11.19	10.36	11.36	10.49
25	10.26	10.36	10.50	11.40	11.05	10.62	10.76	10.77	11.17	10.38	11.62	10.42
26	10.30	10.35	10.47	11.11	11.04	10.63	10.75	10.82	11.16	10.38	11.55	10.37
27	10.26	10.34	10.97	11.06	10.97	10.63	10.71	10.83	11.19	10.33	11.39	10.32
28	10.29	10.36	10.74	11.14	11.03	10.64	10.72	10.83	11.25	10.36	11.54	10.31
29	10.22		10.59	11.16	11.51	10.56	10.70	10.89	11.15	10.37	10.94	10.32
30	10.22		10.63	11.17	10.98	10.55	10.92	10.92	11.22	10.37	10.87	10.27
31	10.35		10.66		11.05		11.14	10.80		10.38		10.24
Avg.	10.56	10.55	10.53	10.88	11.09	10.86	10.72	10.77	11.12	10.45	10.93	10.82

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: Daily discharge records are furnished by Bureau of Reclamation from 71 current meter measurements during the year, 51 by Imperial Irrigation District at a footbridge one-fourth mile above the mouth, 19 by Bureau of Reclamation, and 1 by U. S. Geological Survey. Monthly records furnished by the U. S. Geological Survey. Records available: May 1948 through December 1965.

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, less than 1 second-foot during March and April 1948.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3	3	2	3	2	3	3	4	4	4	3	2
2	3	3	2	3	2	3	3	4	4	4	3	2
3	3	2	3	3	2	4	3	4	6	4	3	2
4	4	2	3	3	2	4	3	4	6	4	3	2
5	4	2	3	3	2	4	3	4	6	4	3	2
6	4	2	3	4	2	4	3	4	6	3	3	2
7	4	2	3	4	2	4	3	5	6	3	3	2
8	4	2	3	4	2	4	4	5	6	3	3	2
9	4	2	3	4	2	4	4	5	4	3	3	3
10	4	2	4	4	3	4	4	5	4	3	2	3
11	4	2	4	4	3	4	4	5	4	3	2	3
12	4	2	4	3	3	4	4	5	4	3	2	3
13	3	2	4	3	3	4	4	5	4	3	2	3
14	3	2	4	3	3	4	4	5	4	3	2	3
15	3	2	4	3	3	4	4	5	4	3	2	3
16	3	2	4	3	3	4	4	3	4	3	3	2
17	3	2	4	3	3	4	4	3	4	3	3	2
18	3	2	4	3	3	4	4	3	4	3	3	2
19	2	2	4	3	3	4	4	3	4	3	3	2
20	2	2	4	3	3	4	4	3	4	3	3	2
21	2	2	4	3	3	4	4	3	4	2	3	2
22	2	2	4	3	3	4	4	3	4	2	3	2
23	2	2	5	3	3	4	4	3	4	2	3	2
24	2	2	5	3	3	4	4	3	4	2	3	2
25	2	2	5	3	3	4	4	3	4	2	3	2
26	2	2	4	3	3	4	4	3	4	3	2	2
27	2	2	4	2	3	4	4	3	4	3	2	2
28	3	2	3	2	3	4	5	3	4	3	2	2
29	3		3	2	3	4	5	3	4	3	2	2
30	3		3	2	3	4	5	3	4	3	2	2
31	3		3		3		5	3		3		2
Sum	93	58	112	92	84	118	121	117	132	93	79	69

Month	Current Year 1965								Period May 1948-1965		
	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.			† 4	4	† 19	2	3.0	184	490	899	184
Feb.			† 1	3	† 3	2	2.1	115	426	746	115
Mar.			† 23	5	† 1	2	3.6	222	513	853	222
Apr.			† 6	4	† 27	2	3.1	182	538	1,000	182
May			† 10	3	† 1	2	2.7	167	534	966	61
June			† 3	4	† 1	3	3.9	234	560	1,030	89
July			† 28	5	† 1	3	3.9	240	640	1,260	139
Aug			† 7	5	† 16	3	3.8	232	709	1,350	228
Sept.			† 3	6	† 1	4	4.4	262	673	1,370	258
Oct.			† 1	4	† 21	2	3.0	185	683	1,220	185
Nov.			† 1	3	† 10	2	2.6	156	612	1,240	156
Dec.			† 9	3	† 1	2	2.2	138	560	1,050	138
Yearly				6		2	3.2	2,317	6,938	12,429	2,317

† And other days Ø Mean daily

PILOT KNOB POWER PLANT AND WASTEWAY NEAR PILOT KNOB, CALIFORNIA

DESCRIPTION: The Pilot Knob power plant and wasteway is located on the All-American Canal, 20.8 miles downstream from the intake at Imperial Dam, 6 miles west of Yuma, about one mile north of the northerly international boundary and empties into the Alamo Canal in the United States and thence into Colorado River through Rockwood gates, about one mile upstream from the northerly international boundary. Water-stage recorder is located 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 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 December 1965. 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	1,480	2,040	0	0	2,130	2,360	1,390	0	0	0
2	0	0	1,470	2,290	0	0	2,140	2,720	1,210	0	0	0
3	0	0	1,480	4,210	0	0	2,250	2,950	1,270	0	0	0
4	0	0	1,470	5,530	0	0	2,290	2,960	1,340	0	0	0
5	563	0	1,480	6,040	0	0	2,180	2,840	1,200	0	0	0
6	1,060	0	1,450	5,290	0	0	1,880	2,500	838	0	0	0
7	1,300	0	1,830	3,890	0	0	2,210	2,820	870	0	0	0
8	1,280	556	1,370	3,040	0	0	2,230	2,880	1,060	0	0	0
9	960	883	1,350	3,260	0	0	2,330	2,680	872	0	0	208
10	1,070	0	1,360	2,670	0	0	2,300	2,640	0	0	0	1,670
11	978	0	2,110	2,590	0	0	2,450	2,640	0	0	0	1,430
12	1,100	0	2,290	2,440	0	1,000	2,460	2,700	0	0	0	1,540
13	1,130	0	2,230	2,060	0	928	2,410	3,550	0	0	0	1,230
14	962	0	2,740	2,310	0	1,130	2,310	3,320	0	0	0	1,210
15	962	0	1,990	2,430	0	1,160	2,460	3,510	0	0	0	1,290
16	560	0	2,460	2,300	0	1,210	2,400	3,210	0	0	0	1,310
17	0	0	2,700	2,180	0	1,240	2,410	3,010	0	0	0	1,460
18	0	0	2,560	2,300	0	1,190	2,390	3,060	0	0	0	1,550
19	0	0	2,120	2,220	0	1,050	2,460	2,830	0	0	0	1,350
20	0	0	1,880	1,860	0	939	2,530	2,730	0	0	0	1,690
21	0	1,110	1,920	1,710	0	1,600	2,410	2,920	0	0	0	1,010
22	0	1,110	1,850	1,470	0	1,980	2,120	3,410	0	0	0	1,920
23	0	1,040	1,860	1,150	0	2,150	2,550	2,650	0	0	0	2,060
24	0	1,060	1,960	0	0	2,190	2,550	2,490	0	0	0	1,640
25	0	1,150	1,960	0	0	2,160	2,510	2,660	0	0	0	1,890
26	0	1,150	1,960	0	0	2,100	2,520	2,440	0	0	0	3,340
27	0	1,150	1,710	0	0	2,120	2,480	2,440	0	0	0	3,860
28	0	1,160	1,880	0	0	2,030	2,440	2,380	0	0	0	2,430
29	0		2,030	0	0	2,150	2,530	2,420	0	0	0	1,360
30	0		1,950	0	0	2,170	2,460	1,690	0	0	0	1,130
31	0		2,020		0		2,310	1,680		0		1,000
Sum	11,925	10,369	58,920	65,280	0	30,497	73,100	85,090	10,050	0	0	37,578*

Current Year 1965									Period 1944-1965		
Month	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.			7	1,300	† 1	0	385	23,653	43,066	400,200	0
Feb.			28	1,160	† 1	0	370	20,567	13,874	149,500	0
Mar.			14	2,740	9	1,350	1,900	116,866	53,714	279,300	0
Apr.			5	6,040	† 24	0	2,180	129,481	87,882	260,900	0
May				0		0	0	0	25,192	165,400	0
June			24	2,190	† 1	0	1,020	60,490	67,418	204,300	0
July			† 23	2,550	6	1,880	2,360	144,992	113,717	260,000	0
Aug			13	3,550	31	1,680	2,740	168,774	117,445	270,100	0
Sept.			1	1,390	† 10	0	335	19,934	65,005	173,300	0
Oct.				0		0	0	0	13,643	51,460	0
Nov.				0		0	0	0	19,874	182,600	0
Dec.			27	3,860	† 1	0	1,210	74,535	38,552	319,700	0
Yearly				6,040		0	1,050	759,292	659,382	1,944,700	0

Ø Mean daily † And other days

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

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

RECORDS: Partial diversions of the Extension Channel flow at M. O. D. E. No. 1 were determined from the gate openings, rated by discharge measurements below the outlet. Diversions of the total Extension Channel flow were determined at an upstream measuring station at channel station 9+00. Flows diverted at M. O. D. E. No. 2 were based on 4 discharge measurements during the year and a continuous record of gage heights. Records furnished by Bureau of Reclamation. The record shown below is the combination of diversions at M. O. D. E. No. 1 and M. O. D. E. No. 2. Records available: February 10, 1961 through December 1965.

REMARKS: Pursuant to Minute No. 218 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 12 miles, and placed in operation on November 16, 1965. Drainage flows may be discharged to the Gila River and thence to the Colorado River at the diversion structure, M. O. D. E. No. 1, at the upstream end of the extension; and directly to the Colorado River at the structure above Morelos Dam, M. O. D. E. No. 2, and at the structure immediately below Morelos Dam, M. O. D. E. No. 3, the record of which is shown on page 24. For data not previously published see following two pages.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	243	116	266	311	213	209	325	324	298	166	291	0
2	244	119	266	308	209	212	324	315	308	173	292	0
3	242	122	271	315	206	212	328	268	307	169	152	0
4	240	126	274	314	194	210	328	266	306	161	37	0
5	240	129	277	310	202	206	328	304	294	214	62	0
6	254	140	277	308	221	201	327	304	291	314	156	11
7	252	135	279	304	230	237	318	308	284	313	158	31.9
8	250	131	279	302	217	231	310	313	262	312	158	37.3
9	252	133	277	301	220	227	311	312	241	308	158	39.3
10	250	137	266	301	216	251	302	308	226	303	158	35.0
11	247	155	271	301	213	288	302	304	223	298	158	35.0
12	247	155	302	301	216	295	306	295	220	298	157	35.0
13	242	156	308	295	217	290	313	302	223	307	157	35.0
14	221	162	313	297	217	290	315	307	213	313	155	31.2
15	210	164	317	308	220	306	304	312	214	313	122	35.8
16	159	157	311	302	220	310	310	308	231	310	90	36.3
17	108	156	304	304	221	304	322	306	244	308	0	35.8
18	108	161	304	304	216	295	325	297	247	306	0	35.3
19	107	195	310	301	214	299	324	307	244	304	0	34.8
20	106	212	308	299	212	302	313	312	243	310	0	0
21	107	242	308	286	234	302	301	308	241	312	0	0
22	106	245	308	230	233	299	306	312	234	302	0	0
23	106	240	306	213	231	293	308	314	223	297	0	0
24	105	245	302	194	226	290	299	318	214	301	0	0
25	106	250	304	206	220	314	308	318	211	301	0	0
26	105	250	299	201	210	337	311	318	213	298	0	0
27	108	248	302	194	201	325	313	318	217	302	0	0
28	114	247	297	200	205	322	317	317	218	301	0	0
29	114		295	206	212	310	310	311	216	302	0	0
30	113		297	216	210	310	293	311	174	297	0	0
31	111		306		220		327	305		297		0
Sum	5,417	4,928	9,104	8,232	6,696	8,277	9,728	9,522	7,280	8,810	2,461	468.7

Month	Current Year 1965								Period 1961-1965		
	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			6	254	†24	105	175	10,744	13,205	19,450	0
Feb.			†25	250	1	116	176	9,775	12,225	16,780	2,740
Mar.			15	317	† 1	266	294	18,058	15,902	18,740	8,430
Apr.			3	315	†24	194	274	16,328	15,936	18,570	11,950
May			21	234	4	194	216	13,281	16,092	19,780	12,970
June			26	337	6	201	276	16,417	15,871	19,190	12,830
July			† 3	328	30	293	314	19,295	17,855	19,295	15,070
Aug			1	324	4	266	307	18,887	17,339	18,887	15,100
Sept.			2	308	25	211	243	14,440	15,672	18,310	13,810
Oct.			6	314	4	161	284	17,474	14,209	18,620	4,130
Nov.			2	292	†17	0	82.0	4,881	13,590	17,630	4,881
Dec.			9	39.3	† 1	0	15.0	930	11,512	18,990	930
Yearly				337		0	222	160,510	179,408	215,080	139,720

† And other days Ø Mean daily

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

1964

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	229	308	294	300	260	245	300	282	249	99	295	156
2	267	303	288	302	257	236	300	267	242	97	293	159
3	266	297	268	300	270	227	292	260	286	98	292	151
4	255	278	262	288	277	225	287	270	290	98	292	152
5	259	264	270	298	277	245	285	285	305	95	307	154
6	255	264	286	300	258	255	284	291	302	94	305	155
7	264	264	274	297	265	258	282	291	296	95	303	157
8	257	244	296	277	267	248	285	298	291	95	302	151
9	258	244	297	268	257	248	282	298	275	108	300	154
10	264	250	292	257	255	243	289	296	223	107	293	155
11	274	263	291	255	254	242	291	290	225	110	296	154
12	275	268	290	255	258	244	291	278	201	108	302	154
13	277	269	294	254	263	148	302	273	196	103	293	151
14	277	269	293	260	267	18	291	270	199	108	280	152
15	286	275	295	280	255	12	305	275	196	247	187	152
16	290	266	295	290	251	18	309	280	199	310	178	154
17	308	269	295	287	251	93	276	283	215	308	187	158
18	307	268	295	280	255	155	55	283	220	306	196	156
19	277	272	293	286	254	230	38	282	224	307	202	157
20	274	267	276	270	255	288	267	282	228	304	202	195
21	279	267	290	265	238	304	305	300	228	305	200	197
22	304	272	292	253	245	304	304	298	218	292	187	190
23	301	286	292	253	248	297	298	298	218	312	187	188
24	292	283	294	247	246	296	289	297	227	307	188	195
25	295	277	303	238	241	296	290	280	229	303	157	210
26	302	267	290	240	226	296	288	245	228	302	152	213
27	306	262	289	247	218	296	287	260	224	302	148	225
28	313	267	292	240	218	297	281	266	217	301	143	221
29	306	266	291	241	213	296	290	272	200	304	147	223
30	306		288	257	220	293	276	260	112	293	147	223
31	310		290		238		287	260		293		220
Sum	8,733	7,849	8,955	8,085	7,757	6,853	8,506	8,670	6,963	6,511	6,961	5,432
Avg.	282	271	289	270	250	228	274	280	232	210	232	175
A.F.	17,322	15,568	17,762	16,036	15,386	13,593	16,871	17,197	13,811	12,914	13,807	10,774

1963

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	309	302	302	312	312	330	322	305	269	187	237	277
2	302	310	296	312	312	332	325	304	291	23	260	274
3	273	308	296	310	319	328	322	242	292	5	272	271
4	269	308	288	310	322	320	322	273	296	5	271	271
5	305	304	290	307	313	317	320	308	297	4	272	268
6	305	302	293	318	322	320	323	312	292	4	272	277
7	310	301	296	318	326	322	325	293	295	0	274	274
8	304	308	298	311	315	322	322	292	296	0	272	274
9	297	311	305	310	320	325	325	291	297	0	277	271
10	297	310	311	312	325	306	322	290	291	0	279	268
11	302	306	308	311	330	323	322	289	298	0	277	274
12	308	306	304	312	320	319	322	287	306	0	274	274
13	310	296	302	318	326	322	325	284	304	0	270	271
14	308	297	296	310	330	322	325	274	312	0	276	263
15	304	304	297	309	319	323	313	272	310	0	263	249
16	301	304	305	310	320	325	306	273	310	0	259	267
17	305	306	306	304	327	322	295	277	296	0	264	271
18	306	304	305	311	320	325	296	273	# 176	0	264	262
19	310	298	304	313	325	320	288	274	# 67	0	259	258
20	301	299	310	312	320	322	289	277	# 25	0	275	262
21	304	302	313	319	322	322	299	287	# 164	0	277	258
22	302	302	310	319	322	325	306	295	284	49	277	264
23	298	289	315	319	320	322	288	295	289	133	277	259
24	295	291	317	310	313	322	297	292	290	181	276	268
25	298	296	317	313	317	325	298	296	280	214	276	260
26	302	299	313	319	320	320	298	299	287	214	276	242
27	302	297	310	308	332	322	298	293	284	203	277	243
28	301	302	310	305	330	322	299	291	287	200	280	242
29	301		313	310	327	323	305	284	284	208	280	244
30	301		309	312	325	325	306	286	277	222	280	252
31	304		310		323		305	288		230		250
Sum	9,334	8,462	9,449	9,364	9,974	9,673	9,608	8,896	8,046	2,082	8,143	8,158
Avg.	301	302	305	312	322	322	310	287	268	67	271	263
A.F.	18,514	16,784	18,742	18,573	19,783	19,186	19,057	17,645	15,959	4,130	16,151	16,181

Break in channel

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

1962

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	224	308	302	202	304	307	294	299	317	295	256	305
2	233	302	302	278	301	308	306	302	319	284	286	308
3	316	302	300	275	295	305	309	294	320	280	272	302
4	334	303	293	286	295	288	304	294	323	287	274	319
5	337	303	295	295	300	299	306	292	320	295	290	315
6	337	302	280	243	300	297	311	286	319	298	287	313
7	334	289	275	286	304	288	312	273	317	305	295	312
8	324	298	304	292	302	298	321	273	327	304	288	319
9	307	284	305	293	307	296	325	277	327	298	286	320
10	310	296	295	290	310	303	325	271	320	298	298	322
11	320	302	305	290	305	302	332	280	310	304	305	319
12	308	298	302	295	305	298	327	286	311	302	302	317
13	310	290	300	292	309	285	332	291	306	308	301	317
14	317	289	295	295	318	285	326	292	306	308	296	313
15	322	280	292	278	327	280	332	274	306	302	295	313
16	312	286	300	273	329	284	330	269	311	299	289	313
17	333	289	302	277	325	286	317	275	315	295	290	311
18	321	287	300	277	318	287	315	284	310	295	302	305
19	331	291	302	275	315	289	312	284	287	291	302	299
20	326	275	300	277	307	285	312	287	313	291	298	298
21	323	282	300	289	315	280	304	293	306	293	287	298
22	323	288	300	292	315	278	299	302	301	274	302	306
23	322	290	278	288	318	282	293	304	302	284	305	305
24	319	293	255	275	320	286	280	298	299	311	310	305
25	313	295	267	279	316	284	289	301	297	308	313	302
26	312	295	273	288	319	290	294	306	290	295	312	301
27	319	288	205	302	315	292	287	295	290	286	312	298
28	327	293	95	300	292	290	288	280	288	268	312	304
29	328		58	294	302	288	293	313	286	256	311	305
30	333		147	290	292	296	295	320	290	252	311	304
31	332		204		320		299	315		264		305
Sum	9,807	8,198	8,331	8,466	9,600	8,736	9,569	9,010	9,233	9,030	8,887	9,573
Avg.	316	293	269	282	310	291	309	291	308	291	296	309
A.F.	19,452	16,260	16,524	16,792	19,041	17,328	18,980	17,871	18,313	17,911	17,627	18,988

1961

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			100	157	201	206	246	18	249	258	301	0
2			116	187	199	193	247	218	248	267	316	0
3			155	184	208	200	250	281	255	282	299	0
4			150	187	213	203	235	213	257	297	314	0
5			150	198	206	203	227	283	260	294	309	0
6			155	188	204	198	220	296	261	298	306	0
7			157	198	203	202	235	279	266	304	304	0
8			158	193	197	217	257	280	267	308	302	16
9			155	181	201	205	263	253	263	301	304	219
10		55	160	185	198	199	263	248	261	297	300	315
11		100	160	197	195	205	260	257	260	297	305	293
12		96	161	207	195	205	260	273	259	302	305	314
13		0	160	213	198	214	268	263	268	310	306	323
14		40	160	209	191	218	270	252	270	314	301	323
15		49	154	204	193	219	272	235	273	316	296	255
16		98	154	224	196	206	252	237	260	314	313	224
17		78	151	228	196	225	243	242	267	305	313	216
18		90	155	220	195	219	229	242	270	307	314	212
19		100	152	227	207	217	241	238	263	302	315	210
20		50	140	226	206	206	255	241	242	298	323	205
21		0	150	205	215	223	263	251	264	310	327	202
22		25	94	200	218	231	254	245	280	314	315	202
23		100	93	200	232	232	259	254	273	311	310	200
24		100	88	198	235	232	249	236	277	316	318	200
25		100	88	199	244	226	261	243	278	317	256	204
26		100	90	196	235	221	264	247	284	318	106	205
27		100	91	205	243	226	266	252	286	302	11	206
28		100	97	211	241	228	263	260	288	313	8	210
29			152	199	237	245	230	262	273	311	5	209
30			151	198	222	244	224	263	265	304	1	211
31			155		217		73	252		303		215
Sum		1,381	4,252	6,024	6,541	6,468	7,599	7,614	7,987	9,390	7,803	5,389
Avg.		‡ 73	137	201	211	216	245	246	266	303	260	174
A.F.		2,739	8,434	11,948	12,974	12,829	15,072	15,102	15,842	18,625	15,477	10,689

‡ 19 day average

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, 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 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 448 current meter measurements during the year, 178 by the United States Section, 258 by the Mexican Section of the Commission, 12 by the U. S. Geological Survey, and a continuous record of gage heights. Computations by shifting control methods. Discharges are computed on the basis of a water-stage recorder located 1,680 feet upstream from the northerly international boundary where the remains of an old weir serve as a partial controlling section. A continuous gage height record is available November 15, 1948 through December 1965; daily discharge records available January 1, 1950 through December 1965.

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 1965, the flow at this point represented the total amount of 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,690	940	2,200	3,090	1,300	1,350	3,060	3,440	2,330	999	798	1,070
2	1,770	912	2,170	3,300	1,300	1,400	3,080	3,720	2,200	1,040	807	1,530
3	2,000	864	2,290	4,920	1,320	1,400	3,140	3,760	2,150	1,030	814	1,300
4	1,840	872	2,240	6,860	1,290	1,390	3,190	3,800	2,170	995	638	1,070
5	1,920	918	2,250	7,240	1,330	1,420	3,200	3,750	2,220	1,010	968	1,080
6	1,960	935	2,230	6,380	1,310	1,450	3,130	3,720	2,200	795	1,090	1,090
7	2,300	894	2,650	5,110	1,330	1,500	3,130	3,780	2,190	802	1,010	1,130
8	2,170	1,300	2,330	4,180	1,320	1,490	3,140	3,790	2,090	666	940	1,140
9	1,830	1,760	2,210	4,310	1,300	1,510	3,230	3,640	1,940	733	1,060	1,320
10	1,980	881	2,260	3,800	1,320	1,790	3,200	3,530	1,610	791	1,010	2,550
11	1,920	1,050	3,030	3,620	1,560	1,870	3,340	3,590	1,330	784	996	1,980
12	2,040	1,040	3,210	3,510	1,430	2,070	3,370	3,680	1,310	786	1,000	2,090
13	2,040	1,160	3,150	3,450	1,300	1,970	3,360	4,490	1,320	752	1,060	1,830
14	1,810	1,140	3,620	3,480	1,290	2,130	3,320	4,310	1,300	734	998	1,720
15	2,020	1,040	2,980	3,510	1,350	2,190	3,330	4,440	1,310	762	1,020	2,020
16	1,580	1,010	3,350	3,510	1,320	2,160	3,400	4,190	1,330	781	1,040	1,910
17	770	1,050	3,540	3,290	1,310	2,150	3,400	3,960	1,310	767	1,090	2,120
18	742	1,110	3,390	3,250	1,310	2,150	3,390	3,960	1,340	743	1,130	2,190
19	725	1,310	2,990	3,210	1,310	2,270	3,410	3,660	1,300	777	1,740	2,620
20	788	1,580	2,570	2,840	1,320	2,440	3,480	3,630	1,350	810	1,500	4,820
21	800	1,980	2,760	2,720	1,270	2,610	3,480	3,670	1,310	742	1,190	5,420
22	739	1,930	2,770	2,420	1,330	2,940	3,410	4,310	1,310	734	1,320	3,790
23	750	1,830	2,760	2,080	1,310	3,040	3,440	3,780	1,300	799	1,410	2,840
24	762	1,780	2,790	1,710	1,310	3,070	3,480	3,400	1,340	746	1,450	2,340
25	752	1,910	2,820	1,590	1,330	3,040	3,480	3,580	1,300	749	1,710	2,420
26	765	1,920	2,770	1,350	1,330	3,070	3,550	3,470	1,290	751	1,660	3,630
27	762	1,910	2,880	1,280	1,230	3,100	3,490	3,460	1,330	732	1,490	4,510
28	794	1,930	2,870	1,330	1,290	3,060	3,420	3,360	1,390	754	1,600	3,050
29	757		2,920	1,340	1,730	3,050	3,470	3,530	1,290	766	1,120	2,040
30	719		2,910	1,370	1,330	3,090	3,510	2,780	1,350	750	1,070	1,810
31	791		2,980		1,330		3,600	2,680		780		1,660
Sum	42,286	36,956	85,890	100,050	41,410	66,170	103,630	114,860	47,510	24,860	34,729	70,090

Month	Current Year 1965 Extreme Gage Feet		Extreme Second Feet			Average Second Feet	Total Acre Feet	Period 1935-1965 Acre Feet		
			High		Low					
	High	Low	Day		Day			Average	Maximum	Minimum
Jan.	103.98	102.28	7	2,510	30	695	1,360	83,873	512,471	1,644,000	31,900
Feb.	103.95	102.49	21	2,520	1	788	1,320	73,301	426,129	1,378,000	60,400
Mar.	105.30	103.68	14	3,960	1	1,920	2,770	170,360	404,776	1,120,000	19,400
Apr.	108.33	102.90	5	8,040	26	1,200	3,340	198,446	306,170	823,850	0
May	103.59	102.80	29	1,940	13	1,080	1,340	82,136	336,493	1,151,000	77,400
June	104.81	102.99	24	3,160	1	1,300	2,210	131,246	308,185	1,175,000	8,500
July	105.25	104.72	31	3,650	1	3,040	3,340	205,547	284,680	763,800	24,400
Aug	106.08	104.24	13	4,710	31	2,540	3,710	227,821	304,272	791,600	43,800
Sept.	104.24	102.91	1	2,420	11	1,120	1,580	94,235	290,751	1,029,000	60,000
Oct.	104.07	102.35	4	1,130	8	616	802	49,309	301,952	1,186,000	49,309
Nov.	103.79	102.54	19	2,050	4	566	1,160	68,884	382,911	1,422,000	56,200
Dec.	109.39	102.61	20	6,530	1	922	2,260	139,021	488,257	1,832,000	42,000
Yearly	109.39	102.28		8,040		566	2,110	1,524,179	4,347,047	10,596,900	722,100

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103.35	102.70	103.91	104.52	102.99	103.00	104.74	105.11	104.12	102.70	103.54	102.75
2	103.43	102.64	103.92	104.70	103.00	103.02	104.76	105.29	103.96	102.75	103.52	103.19
3	103.63	102.58	103.94	105.72	103.00	103.03	104.85	105.33	103.91	102.81	103.56	102.97
4	103.50	102.62	103.96	106.46	102.99	103.01	104.88	105.36	103.94	102.68	103.20	102.77
5	103.54	102.64	103.93	106.93	103.01	103.04	104.86	105.33	103.93	102.70	102.90	102.77
6	103.55	102.68	103.90	107.07	103.00	103.06	104.81	105.29	103.94	103.22	102.68	102.78
7	103.82	102.66	104.23	105.98	103.02	103.13	104.82	105.33	103.92	104.03	102.65	102.77
8	103.76	103.06	104.00	105.20	103.01	103.13	104.84	105.34	103.85	103.60	102.61	102.79
9	103.50	103.55	103.87	105.32	103.00	103.18	104.89	105.22	103.69	103.71	102.69	102.96
10	103.61	102.63	103.90	104.99	103.02	103.37	104.85	105.15	103.38	103.83	102.66	104.00
11	103.54	102.81	104.50	104.85	103.23	103.49	104.96	105.17	103.07	103.83	102.63	103.65
12	103.64	102.83	104.79	104.72	103.12	103.63	104.96	105.24	103.06	103.78	102.64	103.72
13	103.66	102.91	104.67	104.69	103.03	103.62	104.94	105.93	103.05	103.66	102.67	103.49
14	103.51	102.90	105.11	104.72	102.94	103.72	104.93	105.75	103.02	103.58	102.64	103.39
15	103.70	102.82	104.56	104.77	103.03	103.80	104.96	105.87	103.03	103.60	102.63	103.63
16	103.27	102.77	104.83	104.75	103.01	103.70	104.98	105.63	103.05	103.62	102.67	103.51
17	102.34	102.82	104.96	104.57	102.99	103.71	104.97	105.46	103.06	103.57	102.73	103.73
18	102.31	102.84	104.86	104.56	102.96	103.76	105.01	105.44	103.06	103.51	102.78	103.80
19	102.30	103.07	104.59	104.49	102.92	103.96	105.03	105.31	103.07	103.60	103.33	104.34
20	102.35	103.34	104.29	104.25	102.94	104.09	105.08	105.22	103.08	103.72	103.18	107.62
21	102.35	103.66	104.35	104.12	102.90	104.30	105.06	105.24	103.04	103.59	102.84	108.70
22	102.32	103.65	104.35	103.89	102.99	104.62	105.04	105.67	103.05	103.51	102.99	106.44
23	102.35	103.57	104.35	103.65	102.99	104.71	105.08	105.33	103.04	103.65	103.03	104.78
24	102.41	103.55	104.37	103.41	102.97	104.74	105.11	105.05	103.07	103.55	103.11	104.20
25	102.43	103.65	104.39	103.25	102.98	104.72	105.13	105.19	103.03	103.55	103.34	104.30
26	102.46	103.66	104.39	103.06	102.98	104.70	105.14	105.08	103.02	103.56	103.33	106.22
27	102.46	103.66	104.44	102.95	102.90	104.71	105.09	105.08	103.05	103.48	103.14	107.66
28	102.48	103.67	104.48	103.01	102.94	104.70	105.03	104.94	103.11	103.51	103.26	106.06
29	102.44		104.49	103.02	103.36	104.74	105.05	105.10	103.04	103.56	102.79	103.88
30	102.42		104.44	103.04	103.01	104.74	105.12	104.47	103.07	103.51	102.71	103.50
31	102.52		104.51		102.97		105.21	104.40		103.56		103.34
Avg.	103.00	103.07	104.36	104.56	103.01	103.84	104.97	105.27	103.32	103.47	102.95	104.18

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 8 miles downstream from the Yuma Gaging Station. Zero of gage is 0.16 foot below mean sea level, U. S. C. & G. S. datum.

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 December 1965.

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 gage height, 112.70 feet on January 2, 1958; minimum mean daily gage height, 101.51 feet on February 17, 1957.

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102.23	101.90	102.79	103.05	102.03	102.07	103.74	104.13	103.15	102.17	103.41	102.13
2	102.30	101.87	102.79	103.18	102.00	102.07	103.77	104.30	103.02	102.17	103.44	102.43
3	102.46	101.84	102.82	103.84	102.03	102.07	103.81	104.33	102.92	102.13	103.51	102.30
4	102.36	101.87	102.79	104.33	102.03	102.07	103.87	104.36	102.89	102.13	103.12	102.13
5	102.40	101.87	102.72	105.28	102.03	102.07	103.84	104.33	102.89	102.13	102.43	102.10
6	102.40	101.90	102.69	105.71	102.03	102.10	103.81	104.30	102.89	103.05	102.07	102.13
7	102.62	101.90	102.92	104.30	102.07	102.13	103.81	104.36	102.85	103.97	102.03	102.10
8	102.59	102.17	102.72	103.64	102.03	102.10	103.84	104.36	102.82	103.58	102.00	102.13
9	102.36	102.53	102.62	103.71	102.03	102.13	103.87	104.27	102.69	103.64	102.07	102.23
10	102.43	101.87	102.66	103.51	102.07	102.30	103.84	104.20	102.46	103.74	102.03	103.08
11	102.40	102.00	103.08	103.41	102.23	102.40	103.90	104.20	102.13	103.71	102.03	102.79
12	102.46	102.00	103.25	103.35	102.13	102.53	103.94	104.27	102.13	103.67	102.03	102.85
13	102.49	102.07	103.15	103.31	102.07	102.49	103.90	104.89	102.13	103.58	102.03	102.66
14	102.36	102.07	103.44	103.31	102.03	102.59	103.90	104.79	102.10	103.51	102.03	102.59
15	102.49	102.00	103.08	103.35	102.03	102.62	103.94	104.89	102.13	103.54	102.03	102.82
16	102.20	101.94	103.25	103.35	102.00	102.59	103.97	104.69	102.13	103.54	102.07	102.69
17	101.57	101.97	103.35	103.22	102.00	102.59	103.97	104.49	102.13	103.48	102.10	102.89
18	101.54	101.94	103.28	103.22	102.00	102.72	104.04	104.46	102.13	103.41	102.10	102.85
19	101.54	102.10	103.12	103.18	102.00	102.95	104.07	104.36	102.13	103.51	102.53	103.41
20	101.57	102.30	102.92	102.99	102.00	103.05	104.13	104.27	102.17	103.64	102.43	107.22
21	101.57	102.53	102.95	102.92	101.97	103.25	104.10	104.23	102.13	103.51	102.17	108.43
22	101.57	102.56	102.92	102.76	102.03	103.54	104.10	104.56	102.13	103.41	102.30	106.14
23	101.57	102.53	102.95	102.59	102.03	103.64	104.13	104.33	102.13	103.54	102.33	104.20
24	101.67	102.49	102.95	102.33	102.00	103.64	104.17	104.10	102.13	103.41	102.40	103.58
25	101.71	102.56	102.95	102.23	102.00	103.64	104.17	104.23	102.13	103.44	102.56	103.64
26	101.74	102.59	102.92	102.07	102.00	103.64	104.17	104.13	102.10	103.44	102.56	105.61
27	101.74	102.56	102.99	102.00	101.94	103.67	104.13	104.13	102.13	103.35	102.40	107.28
28	101.77	102.59	103.02	102.03	102.00	103.71	104.07	103.97	102.20	103.38	102.49	105.71
29	101.74		103.02	102.03	102.43	103.74	104.07	104.04	102.13	103.44	102.17	103.18
30	101.71		102.99	102.07	102.00	103.74	104.17	103.51	102.13	103.38	102.10	102.72
31	101.77		103.05		102.00		104.23	103.41		103.41		102.59
Avg.	102.04	102.16	102.97	103.21	102.04	102.80	103.98	104.29	102.37	103.29	102.37	103.50

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - DISCHARGES

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

RECORDS: The diversions are computed from the sum of the flows of the Conexión, Alamo, and del Norte Canals below Matamoros Check. Discharges for 1965 based on a continuous record of gage heights and generally daily measurements of the canals described above. Records available: November 8, 1950 through December 1965. 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 do not permit measuring 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 1965 and consequently the records reported below show the total water diverted from the Colorado River to the Alamo Canal during those years. Other diversions from the Colorado River are made by Mexico downstream from Morelos Dam by means of pumps.

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

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,670	925	2,190	3,070	1,280	1,330	3,040	3,420	2,320	989	0	1,050
2	1,760	893	2,150	3,280	1,320	1,380	3,060	3,710	2,190	1,030	0	1,510
3	1,980	851	2,270	4,770	1,310	1,380	3,120	3,740	2,130	1,020	0	1,280
4	1,830	858	2,220	5,370	1,270	1,370	3,170	3,780	2,160	985	0	1,050
5	1,900	904	2,230	6,360	1,310	1,410	3,180	3,740	2,210	999	703	1,050
6	1,940	925	2,210	6,290	1,300	1,440	3,110	3,710	2,180	249	1,050	1,050
7	2,280	883	2,630	5,090	1,320	1,490	3,110	3,740	2,170	0	975	1,100
8	2,150	1,290	2,310	4,170	1,300	1,480	3,120	3,780	2,080	0	908	1,120
9	1,820	1,740	2,190	4,270	1,280	1,500	3,210	3,640	1,920	0	1,030	1,300
10	1,970	865	2,240	3,780	1,310	1,770	3,180	3,510	1,600	0	982	2,520
11	1,900	1,030	3,010	3,600	1,540	1,850	3,320	3,570	1,320	0	975	1,960
12	2,020	1,020	3,190	3,500	1,410	2,050	3,350	3,670	1,300	0	985	2,070
13	2,020	1,140	3,130	3,430	1,280	1,950	3,340	4,450	1,310	0	1,040	1,820
14	1,800	1,130	3,600	3,460	1,260	2,110	3,300	4,270	1,290	0	978	1,710
15	2,000	1,020	2,960	3,490	1,330	2,170	3,310	4,410	1,300	0	1,010	2,010
16	1,570	992	3,330	3,490	1,310	2,140	3,380	4,170	1,310	0	1,020	1,890
17	752	1,030	3,520	3,270	1,300	2,130	3,380	3,960	1,290	0	1,070	2,100
18	731	1,090	3,370	3,230	1,300	2,130	3,370	3,960	1,330	0	1,100	1,700
19	713	1,290	2,970	3,190	1,300	2,250	3,390	3,640	1,290	0	1,710	1,840
20	777	1,560	2,560	2,820	1,300	2,420	3,460	3,600	1,340	0	1,460	2,100
21	788	1,960	2,750	2,700	1,260	2,590	3,460	3,670	1,300	0	1,160	1,700
22	724	1,910	2,750	2,400	1,310	2,920	3,390	4,310	1,300	0	1,290	1,780
23	735	1,820	2,740	2,060	1,290	3,020	3,420	3,740	1,290	0	1,370	1,820
24	752	1,760	2,770	1,700	1,300	3,050	3,460	3,380	1,330	0	1,410	1,740
25	738	1,890	2,800	1,580	1,320	3,020	3,460	3,570	1,290	0	1,670	1,690
26	752	1,900	2,750	1,330	1,320	3,050	3,530	3,450	1,280	0	1,630	1,880
27	749	1,890	2,860	1,260	1,220	3,080	3,470	3,440	1,310	0	1,470	1,670
28	780	1,910	2,850	1,310	1,280	3,040	3,400	3,350	1,380	0	1,580	1,190
29	745		2,900	1,320	1,720	3,030	3,450	3,510	1,280	0	1,090	1,540
30	706		2,890	1,350	1,320	3,070	3,490	2,770	1,340	0	1,050	1,560
31	777		2,960		1,320		3,570	2,670		0		1,580
Sum	41,829	36,476	85,300	96,940	40,990	65,620	103,000	114,330	47,140	5,272	30,716	50,380

Current Year 1965 — **Period** Nov. 1950-1965

Month	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.	101.67	99.93	7	2,280	30	706	1,350	82,983	50,021	114,523	966
Feb.	101.21	100.03	21	1,960	3	851	1,300	72,406	46,801	101,685	9,232
Mar.	102.92	100.92	14	3,600	2	2,150	2,750	169,279	163,543	216,994	97,902
Apr.	105.51	99.93	5	6,360	27	1,260	3,230	192,282	201,641	264,127	164,908
May	102.92	99.74	29	1,720	27	1,220	1,320	81,266	103,160	159,010	66,207
June	102.30	100.10	27	3,080	1	1,330	2,190	130,263	186,129	269,632	121,865
July	102.69	102.23	31	3,570	1	3,040	3,320	204,231	258,766	304,263	196,351
Aug	103.38	101.31	13	4,450	31	2,670	3,670	226,765	256,486	341,044	185,235
Sept.	101.31	99.84	1	2,320	†26	1,280	1,570	93,489	152,913	198,095	93,489
Oct.	102.33	96.95	2	1,030	† 7	0	170	10,453	49,859	90,639	10,453
Nov.	101.38	96.95	19	1,710	† 1	0	1,020	60,947	33,759	103,954	7,516
Dec.	102.92	99.67	10	2,520	1	1,050	1,620	99,899	53,211	131,440	8,825
Yearly	105.51	96.95		6,360		0	1,960	1,424,263	1,559,371	1,961,556	1,380,630

† And other days Ø Mean daily

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	100.98	100.13	101.31	102.33	99.93	100.13	102.26	102.46	101.25	99.67	96.95	99.90
2	100.85	100.10	101.28	102.46	99.90	100.16	102.26	102.62	101.15	99.57	96.95	100.95
3	101.05	100.07	101.41	103.28	99.87	100.16	102.33	102.66	101.18	99.57	96.95	101.08
4	100.79	100.07	101.41	104.13	99.87	100.16	102.36	102.72	101.25	99.51	96.95	100.36
5	100.85	100.07	101.41	104.66	99.87	100.16	102.33	102.69	101.25	100.10	98.69	100.33
6	100.82	100.10	101.41	105.09	99.87	100.20	102.30	102.62	101.21	101.12	99.48	100.36
7	101.35	100.07	101.94	103.94	99.90	100.23	102.30	102.69	101.21	99.67	99.44	100.46
8	101.25	100.43	101.61	103.15	99.93	100.20	102.30	102.72	101.18	98.43	99.44	100.39
9	100.79	100.82	101.41	103.25	99.93	100.26	102.33	102.56	101.08	97.70	99.51	100.82
10	100.89	100.10	101.41	103.12	99.97	100.56	102.33	102.43	100.92	97.34	99.51	101.64
11	100.82	100.13	102.17	102.99	100.33	100.69	102.40	102.46	100.49	97.15	99.44	101.64
12	101.05	100.16	102.59	102.82	100.13	100.92	102.40	102.49	100.03	97.05	99.48	101.71
13	101.08	100.23	102.49	102.79	100.03	100.89	102.40	103.15	99.97	96.95	99.51	101.48
14	100.89	100.20	102.72	102.76	99.93	101.05	102.40	103.15	99.93	96.95	99.48	101.48
15	101.12	100.16	102.26	102.82	100.10	101.21	102.40	103.25	99.97	96.95	99.48	101.61
16	100.75	100.13	102.53	102.82	100.16	101.12	102.43	103.08	99.97	96.95	99.51	101.61
17	100.03	100.16	102.69	102.69	100.10	101.15	102.40	102.85	99.97	96.95	99.57	102.26
18	100.07	100.20	102.56	102.69	100.10	101.15	102.36	102.79	99.97	96.95	99.61	102.23
19	100.03	100.33	102.40	102.62	100.07	101.25	102.40	102.66	99.97	96.95	100.56	102.17
20	100.10	100.49	102.17	102.46	100.10	101.48	102.43	102.49	100.00	96.95	100.13	102.03
21	100.10	100.79	102.23	102.20	100.07	101.64	102.40	102.62	99.97	96.95	99.64	101.97
22	100.07	100.72	102.23	101.71	100.16	101.97	102.40	103.15	99.97	96.95	100.03	101.94
23	100.10	100.59	102.20	101.28	100.13	102.10	102.43	102.89	99.97	96.95	100.30	102.03
24	100.10	100.56	102.23	100.72	100.13	102.20	102.46	102.40	100.00	96.95	100.36	101.97
25	100.07	100.79	102.26	100.52	100.13	102.20	102.46	102.53	99.97	96.95	100.66	101.94
26	100.10	100.89	102.23	100.13	100.13	102.20	102.46	102.40	99.93	96.95	100.95	102.10
27	100.07	100.89	102.26	99.93	100.03	102.23	102.43	102.40	99.97	96.95	100.85	101.97
28	100.07	100.89	102.26	99.97	100.07	102.20	102.40	102.40	100.00	96.95	100.98	101.90
29	100.03		102.26	99.97	102.00	102.26	102.43	102.66	99.93	96.95	100.49	102.00
30	100.03		102.23	99.97	100.75	102.26	102.46	101.90	99.97	96.95	99.84	101.97
31	100.07		102.33		100.13		102.53	101.57		96.95		101.97
Avg.	100.53	100.37	102.06	102.31	100.12	101.15	102.39	102.63	100.39	97.71	99.49	101.49

COLORADO RIVER IMMEDIATELY BELOW MORELOS DAM - STAGES

DESCRIPTION: Gage painted on sloping concrete apron immediately downstream from Morelos Dam, on the right bank of the river, 1.1 miles downstream from the northerly international boundary, and about 8.0 miles downstream from the Yuma Gaging Station. Zero of gage is 0.16 foot below mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily gage heights obtained from hourly gage readings. Records obtained and furnished by the Mexican Section of the Commission. Records available: Gage heights only, February 20, 1951 through December 1965.

EXTREMES: Maximum mean daily gage height, 112.63 feet, January 2, 1958; minimum mean daily gage height, 98.49 feet, several days in December 1963 and January 1964.

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	98.59	98.56	98.52	98.56	98.79	98.59	98.72	98.75	99.11	99.11	103.35	100.85
2	98.59	98.59	98.56	98.56	98.79	98.59	98.72	98.75	99.18	99.11	103.38	100.75
3	98.59	98.56	98.52	99.38	98.79	98.62	98.72	98.79	99.15	99.15	103.41	100.82
4	98.62	98.52	98.52	104.04	98.79	98.75	98.72	98.79	99.08	99.11	103.05	100.82
5	98.59	98.52	98.52	102.07	98.79	98.59	98.72	98.75	99.05	99.18	101.21	100.79
6	98.62	98.52	98.52	99.31	98.75	98.59	98.72	98.75	99.15	102.30	99.41	100.72
7	98.62	98.52	98.52	98.92	98.72	98.59	98.72	98.88	99.08	103.94	99.25	100.62
8	98.62	98.56	98.52	98.92	98.72	98.59	98.72	98.88	99.08	103.51	99.11	100.56
9	98.59	98.52	98.52	98.92	98.72	98.59	98.72	98.85	99.11	103.61	98.98	100.62
10	98.59	98.52	98.52	98.92	98.72	98.59	98.75	98.88	99.08	103.74	98.88	100.69
11	98.59	98.56	98.56	98.92	98.69	98.62	98.75	98.85	99.05	103.71	98.85	100.66
12	98.62	98.56	98.56	98.92	98.69	98.59	98.79	98.92	99.05	103.64	98.79	100.66
13	98.59	98.52	98.56	98.88	98.69	98.59	98.79	99.02	99.02	103.54	98.72	100.69
14	98.59	98.52	98.56	98.85	98.75	98.59	98.75	98.98	99.05	103.44	98.75	100.69
15	98.59	98.56	98.56	98.85	98.69	98.59	98.75	99.05	99.02	103.48	98.79	100.69
16	98.59	98.56	98.59	98.85	98.59	98.59	98.79	99.02	99.18	103.48	99.84	100.69
17	98.62	98.52	98.56	98.85	98.62	98.62	98.75	99.05	99.18	103.41	100.59	100.69
18	98.59	98.52	98.56	98.85	98.62	98.62	98.75	99.08	99.11	103.38	100.92	102.46
19	98.56	98.56	98.59	98.85	98.62	98.59	98.75	99.08	99.11	103.44	101.02	103.31
20	98.52	98.52	98.56	98.82	98.62	98.59	98.75	99.05	99.11	103.58	101.02	107.25
21	98.56	98.52	98.56	98.75	98.59	98.62	98.75	98.98	99.11	103.48	101.02	108.46
22	98.59	98.52	98.56	98.75	98.59	98.65	98.79	98.98	99.11	103.38	101.02	106.04
23	98.59	98.52	98.56	98.75	98.59	98.65	98.79	99.05	99.08	103.48	101.02	104.10
24	98.59	98.52	98.56	98.72	98.59	98.69	98.75	99.08	99.08	103.38	100.92	102.79
25	98.59	98.52	98.56	98.72	98.59	98.72	98.75	99.11	99.08	103.38	100.98	103.31
26	98.59	98.52	98.56	98.72	98.59	98.69	98.79	99.11	99.18	103.38	100.92	105.71
27	98.59	98.52	98.56	98.72	98.59	98.72	98.79	99.11	99.18	103.28	100.89	107.19
28	98.56	98.52	98.56	98.72	98.59	98.72	98.79	99.08	99.18	103.35	100.85	105.74
29	98.52		98.56	98.72	98.59	98.72	98.79	99.08	99.15	103.38	100.85	102.53
30	98.52		98.56	98.75	98.59	98.72	98.79	99.05	99.15	103.31	100.85	101.54
31	98.52		98.56		98.59		98.75	99.05		103.38		100.75
Avg.	98.58	98.53	98.55	99.12	98.67	98.63	98.75	98.96	99.11	102.74	100.55	102.36

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 11 discharge measurements and a continuous record of gage heights. Station is operated by the United States Section of the Commission. Records available: November 16 through December 1965.

REMARKS: Pursuant to Minute No. 218 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 12 miles, and placed in operation on November 16, 1965. Drainage flows may be discharged to the Gila River and thence to the Colorado River at the diversion structure, Main Outlet Drain Extension No. 1, at the upstream end of the extension; directly to the Colorado River at Main Outlet Drain Extension No. 2, 1.9 miles upstream from Morelos Dam; and immediately below Morelos Dam at this station, Main Outlet Drain Extension No. 3. The combined 1965 record of discharges to the river above Morelos Dam through M. O. D. E. No. 1 and No. 2 is shown on page 15.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												274
2												265
3												272
4												280
5												274
6												259
7												244
8												235
9												249
10												253
11												253
12												249
13												248
14												251
15											⊕ 16.5	246
16											95.3	249
17											197	252
18											252	245
19											269	239
20											274	266
21											280	281
22											280	292
23											280	282
24											272	272
25											280	275
26											278	276
27											278	275
28											275	274
29											278	280
30											276	287
31												292
Sum											3,880.8	8,189

Month	Current Year 1965								Period		
	∅ Extreme Gage Feet		∅ Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.											
Feb.											
Mar.											
Apr.											
May											
June											
July											
Aug											
Sept.											
Oct.											
Nov.	2.99	0.32	† 21	280	15	16.5	243	7,697			
Dec.	3.07	2.68	† 22	292	8	235	264	16,243			
Yearly											

∅ Mean daily † And other days ⊕ Station placed in operation. Flow began this date.

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 1.5 miles downstream from the northerly international boundary and 0.4 mile downstream from Morelos Diversion Dam. This is one 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 monthly meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, March 1950 through December 1965, 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, January 1940; minimum monthly discharge, zero for various months. Since March 1950, maximum instantaneous discharge, 79.3 second-feet, June 19, 1965, at maximum gage height of 114.13 feet; minimum instantaneous discharge, zero during parts of each month.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.1	0.2	0.3	0.4	1.8	0.8	0.6	3.7	1.0	0.7	2.1
2	0	0	0	3.9	.3	2.4	.3	.4	7.1	1.0	1.6	1.4
3	0	0	0	3.7	5.2	.7	1.4	.3	1.5	1.2	.8	1.2
4	0	0	1.9	6.1	2.0	.1	5.5	.3	1.1	1.5	1.8	2.3
5	.8	0	.5	.2	.8	2.9	1.8	.6	2.0	2.1	2.0	1.4
6	2.1	0	2.0	0	1.4	2.9	1.6	2.4	2.2	.6	2.0	.4
7	.2	0	3.1	0	5.7	4.0	1.5	4.2	.5	.5	1.9	0
8	.1	0	1.2	0	.5	3.7	6.8	1.6	3.6	1.0	.7	0
9	0	0	.8	0	.4	4.1	1.4	1.2	1.0	3.7	3.4	.1
10	0	0	1.4	.2	5.2	.9	.5	.8	.9	1.8	2.2	1.0
11	.3	3.2	.2	1.8	4.2	.2	.4	.9	1.2	.8	3.6	.4
12	3.0	.1	3.6	6.7	.7	3.7	1.1	1.3	.6	.4	.3	.2
13	0	0	5.0	4.0	.7	.6	.7	1.1	.5	.4	.3	0
14	.4	0	2.1	0	.1	.7	.9	.6	4.8	.4	1.7	0
15	0	4.0	3.9	0	1.6	1.5	.6	4.8	.5	.4	2.4	.6
16	2.2	2.4	1.1	.1	2.7	.8	4.0	1.8	.5	1.0	.8	.7
17	.1	.3	1.5	.2	1.8	6.2	2.0	1.1	.6	2.0	3.9	.6
18	0	3.2	.6	0	1.7	1.0	2.5	4.9	.4	.8	1.2	.4
19	.1	1.7	.6	0	4.6	4.1	.7	1.0	3.7	.9	.6	.4
20	.7	.5	.7	0	.6	.8	.6	.6	.5	.8	.4	.3
21	1.3	2.2	.7	0	0	.6	.6	.6	.6	2.3	.2	.8
22	1.9	3.7	.8	.3	0	.4	.6	.5	.6	3.8	.1	5.2
23	.3	2.2	.8	0	.3	2.0	1.4	.5	.5	1.7	0	5.0
24	.2	3.5	.7	4.6	3.0	1.4	0	2.0	.4	.4	0	4.6
25	1.1	2.7	.7	5.1	1.5	.2	0	3.1	.4	.4	0	3.0
26	4.6	2.7	.6	.5	5.4	.9	.3	.8	3.9	.2	.1	1.4
27	2.5	2.3	.6	3.0	2.7	7.9	.6	.8	1.8	0	2.1	1.8
28	0	6.1	.5	.1	3.4	.4	.5	5.6	1.6	.7	2.1	1.8
29	0		2.8	3.1	4.3	.5	.4	.7	3.4	6.0	2.0	1.4
30	.9		3.0	2.6	.7	2.4	1.2	0	1.8	6.9	2.1	.8
31	6.9		1.2		1.1		.6	1.3		4.0		.5
Sum	29.7	40.9	42.8	46.5	63.0	59.8	41.3	46.4	51.9	48.7	41.0	39.8

Month	Current Year 1965								Period 1935-1965		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	112.36	111.00	21	22.1	† 1	0	1.0	58.9	207	914	0
Feb.	112.50	111.00	15	25.6	† 1	0	1.5	81.1	181	400	6
Mar.	112.28	111.00	10	20.1	† 1	0	1.4	84.9	191	517	0
Apr.	112.90	111.00	25	36.1	† 1	0	1.6	92.2	209	425	40
May	112.51	111.00	26	25.8	† 3	0	2.0	125	197	440	76
June	114.13	111.00	19	79.3	4	0	2.0	119	185	595	47
July	112.53	111.00	8	26.4	2	0	1.3	81.9	168	516	0
Aug	112.58	111.00	15	27.6	28	0	1.5	92.0	129	617	0
Sept.	112.50	111.00	2	25.6	7	0	1.7	103	132	462	0
Oct.	112.33	111.00	29	21.4	16	0	1.6	96.6	160	490	0
Nov.	112.36	111.00	2	22.1	23	0	1.4	81.3	187	462	9
Dec.	112.19	111.00	4	17.9	7	0	1.3	78.9	222	592	71.4
Yearly	114.13	111.00		79.3		0	1.5	1,095	2,168	4,500	1,095

† And other days

COLORADO RIVER AT MORELOS GAGING STATION - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of the river, and cableway 1.8 miles downstream from the northerly international boundary, 0.7 mile downstream from Morelos Diversion Dam, and about 9 miles downstream from Yuma, Arizona, along the river levee. The cableway and recorder are 1,260 feet and 1,300 feet, respectively, below the mouth of Cooper Wasteway. Zero of gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 127 current meter measurements during the year, 93 by the United States Section, 34 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: Daily discharges, January 1, 1954 through December 1965; continuous record of gage heights, July 20, 1952 through December 1965.

REMARKS: Reservoirs, diversions in United States and Mexico, drainage returns, and waste flows modify the river flow at this station. The record at this station, less that of Cooper Wasteway and 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.0	14.0	14.0	23.0	17.8	15.3	21.8	20.4	16.7	12.3	764	298
2	14.0	17.5	15.0	27.8	17.4	14.8	21.8	20.4	20.4	12.3	756	287
3	14.0	14.0	16.0	161	20.4	15.5	22.2	20.0	18.8	12.0	778	292
4	16.0	13.0	19.4	1,510	20.8	17.0	27.3	21.3	15.6	11.4	655	300
5	17.0	13.0	19.4	890	17.4	15.3	24.4	20.0	15.3	13.0	312	302
6	20.6	11.0	18.2	109	15.4	14.3	23.6	22.6	17.9	438	42.7	295
7	16.0	11.0	20.6	26.6	18.2	16.0	21.8	24.4	16.3	756	36.2	271
8	21.8	14.0	19.4	22.6	16.6	18.1	25.7	21.8	16.7	609	33.7	259
9	15.0	16.0	19.4	21.2	16.6	18.0	21.3	19.2	16.3	674	32.6	268
10	14.0	15.0	18.2	20.4	20.4	17.1	20.4	20.0	14.6	767	29.9	283
11	16.0	19.4	20.6	20.4	20.8	17.1	20.4	21.3	14.6	777	23.5	268
12	19.4	19.5	21.8	22.3	19.7	19.6	21.8	21.8	14.0	799	16.2	268
13	16.0	15.0	21.8	22.2	21.2	16.7	22.2	28.3	14.6	767	17.8	264
14	15.0	15.0	17.0	20.4	23.6	17.4	23.1	22.2	17.7	736	20.8	266
15	17.0	19.4	20.6	20.4	17.8	18.4	22.2	24.4	14.7	778	30.2	261
16	15.0	19.4	18.2	19.9	18.2	19.2	24.4	22.2	17.4	753	111	266
17	16.6	23.0	17.0	19.0	15.8	23.1	21.3	22.2	18.8	736	219	271
18	12.0	19.4	17.0	19.9	14.6	21.3	21.8	23.1	15.0	733	285	741
19	12.0	20.6	20.6	19.9	19.4	20.8	22.2	19.6	15.3	802	302	1,020
20	13.0	19.4	16.0	19.9	17.4	18.8	21.3	18.8	14.0	830	312	2,980
21	14.0	17.0	15.0	19.0	15.8	17.9	23.6	15.0	15.0	795	310	4,000
22	17.0	20.6	17.0	19.0	17.0	17.9	24.4	15.6	14.3	762	315	2,310
23	14.0	15.0	18.2	17.4	17.4	20.0	23.6	18.8	13.7	795	318	1,310
24	12.0	21.8	18.2	18.2	18.2	20.0	20.4	19.6	13.7	756	308	874
25	14.0	21.8	19.4	17.0	16.2	19.6	18.8	21.3	14.6	742	315	1,010
26	18.2	23.0	20.6	15.8	17.8	16.5	20.4	18.8	18.4	753	310	2,030
27	15.0	20.6	20.6	17.4	14.6	23.7	20.8	19.2	19.2	750	305	3,120
28	12.0	24.2	18.2	16.6	13.6	19.6	23.6	17.9	15.6	765	300	2,140
29	12.0		23.0	18.6	15.4	20.4	25.5	18.8	13.7	770	305	784
30	12.0		27.8	19.4	13.6	22.2	24.9	14.6	12.7	788	300	540
31	21.8		25.4		13.2		20.4	15.7		771		374
Sum	478.4	492.6	593.6	3,194.3	542.3	551.6	697.4	629.3	475.6	19,463.0	7,863.6	27,952

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1954-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	98.56	97.85	17	95.0	17	6.0	15.4	949	251,088	969,540	949
Feb.	98.42	97.89	2	74.0	6	10.0	17.6	977	125,725	414,310	977
Mar.	98.27	97.90	19	53.0	1	11.0	19.1	1,177	81,074	630,230	780
Apr.	104.03	97.98	5	1,843	26	14.3	106	6,336	63,642	532,320	899
May	98.88	98.05	14	47.6	28	10.6	17.5	1,076	74,347	375,970	460
June	98.54	98.11	27	31.0	3	13.1	18.4	1,094	16,659	119,980	834
July	98.75	98.35	16	46.6	25	17.9	22.5	1,383	16,221	89,430	654
Aug	99.24	98.54	13	53.8	22	13.0	20.3	1,248	28,325	125,590	702
Sept.	99.41	98.87	16	32.8	30	12.0	15.9	943	20,936	87,830	113
Oct.	103.40	99.04	20	854	4	10.7	628	38,604	62,869	172,940	9,750
Nov.	102.87	98.24	5	820	12	15.0	262	15,597	121,695	356,390	4,869
Dec.	108.65	99.83	21	4,680	9	249	902	55,442	170,751	643,850	1,111
Yearly	108.65	97.85		4,680		6.0	17.2	124,826	1,033,332	3,957,730	101,758

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	97.96	97.93	97.93	98.00	98.07	98.24	98.36	98.55	99.02	99.09	102.70	100.11
2	97.94	97.96	97.94	98.04	98.06	98.21	98.36	98.60	99.11	99.09	102.70	100.06
3	97.94	97.93	97.95	98.67	98.12	98.25	98.37	98.65	99.07	99.08	102.75	100.07
4	97.96	97.92	97.98	103.34	98.13	98.36	98.48	98.66	98.99	99.06	102.39	100.08
5	97.97	97.92	97.98	101.78	98.08	98.30	98.44	98.61	98.98	99.11	100.76	100.07
6	97.99	97.91	97.97	98.86	98.06	98.24	98.43	98.65	99.05	101.67	98.96	100.02
7	97.95	97.91	97.99	98.27	98.12	98.25	98.39	98.72	99.01	103.38	98.75	99.89
8	98.00	97.94	97.98	98.20	98.06	98.24	98.48	98.69	99.02	102.97	98.61	99.85
9	97.95	97.96	97.98	98.17	98.05	98.31	98.42	98.66	99.03	103.02	98.53	99.91
10	97.94	97.94	97.97	98.15	98.12	98.24	98.40	98.71	99.00	103.15	98.42	99.99
11	97.97	97.98	97.98	98.14	98.12	98.24	98.40	98.78	99.00	103.12	98.40	99.93
12	98.00	97.97	97.99	98.18	98.31	98.29	98.43	98.82	98.97	103.07	98.31	99.93
13	97.97	97.93	98.00	98.18	98.47	98.22	98.44	98.95	98.99	102.94	98.27	99.91
14	97.95	97.92	97.96	98.14	98.49	98.23	98.46	98.89	99.05	102.86	98.26	99.92
15	97.97	97.96	98.00	98.14	98.35	98.25	98.43	98.97	98.93	102.87	98.38	99.89
16	97.94	97.95	97.98	98.13	98.35	98.27	98.48	98.96	99.10	102.88	99.08	99.91
17	97.95	97.98	97.97	98.11	98.27	98.36	98.41	98.99	99.15	102.81	99.76	99.92
18	97.90	97.96	97.97	98.12	98.22	98.32	98.42	99.04	99.05	102.74	100.11	101.86
19	97.90	97.97	98.00	98.12	98.29	98.31	98.43	98.98	99.07	102.80	100.23	102.66
20	97.91	97.96	97.95	98.12	98.19	98.26	98.41	98.97	99.03	102.92	100.26	106.59
21	97.92	97.95	97.94	98.12	98.18	98.24	98.48	98.88	99.06	102.82	100.24	107.92
22	97.96	97.98	97.96	98.14	98.24	98.24	98.52	98.91	99.04	102.72	100.25	105.59
23	97.93	97.93	97.97	98.10	98.29	98.29	98.53	99.00	99.03	102.84	100.24	103.53
24	97.92	97.98	97.97	98.13	98.34	98.29	98.49	99.02	99.02	102.72	100.18	102.24
25	97.94	97.98	97.97	98.10	98.32	98.28	98.48	99.08	99.03	102.73	100.21	102.70
26	97.98	97.99	97.98	98.08	98.35	98.20	98.54	99.05	99.12	102.73	100.18	105.02
27	97.95	97.98	97.98	98.12	98.26	98.41	98.57	99.06	99.13	102.66	100.16	106.76
28	97.92	98.01	97.96	98.08	98.22	98.32	98.59	99.03	99.03	102.68	100.13	105.18
29	97.92		98.00	98.11	98.27	98.34	98.59	99.05	99.08	102.77	100.15	101.99
30	97.91		98.04	98.11	98.21	98.38	98.54	98.94	99.10	102.69	100.13	100.95
31	98.00		98.02		98.19		98.49	98.94		102.72		100.26
Avg.	97.95	97.95	97.98	98.46	98.22	98.28	98.46	98.86	99.04	102.22	99.93	101.70

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 monthly current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through December 1965, obtained by the United States Section; monthly discharge, January 1924 through December 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June*	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.7	68.1	40.9	1.8	1.8	2.9	3.4	* 49.1	1.4	1.5	1.6	2.1
2	1.6	12.8	1.8	6.7	6.6	1.7	4.8	40.2	1.6	1.9	3.1	5.0
3	1.5	2.3	1.7	15.5	1.4	2.1	13.6	2.7	1.3	1.5	1.5	23.2
4	6.6	26.4	2.3	55.7	1.5	1.7	12.2	16.4	1.3	1.5	2.4	11.9
5	2.5	1.7	1.6	33.1	12.5	1.8	2.0	4.7	5.9	1.6	1.3	51.1
6	10.3	2.4	1.6	4.1	13.6	6.2	3.8	1.5	7.6	1.5	1.2	46.9
7	35.8	8.3	1.6	3.7	1.8	20.7	1.2	1.2	1.3	1.9	7.3	2.8
8	35.0	16.7	3.3	2.0	2.1	1.6	1.5	1.2	1.2	5.5	5.6	1.9
9	21.0	13.8	1.6	10.2	4.9	1.6	1.2	1.3	1.2	6.9	1.6	1.6
10	18.0	2.6	22.0	1.8	10.6	1.8	4.2	1.3	1.2	16.2	1.5	14.6
11	20.9	1.7	18.9	2.0	1.6	3.7	7.0	11.5	1.2	1.5	1.5	6.4
12	12.6	1.7	2.2	2.0	1.3	1.5	8.1	1.8	1.2	5.5	1.6	1.5
13	1.8	1.7	1.5	1.7	1.9	11.3	2.4	2.0	1.2	10.8	5.3	1.6
14	1.6	6.8	2.2	3.0	13.2	12.5	1.5	2.8	1.2	3.4	1.5	1.5
15	1.5	4.3	1.5	16.5	14.8	2.2	19.1	15.8	1.2	1.6	1.5	1.5
16	1.3	9.0	1.5	3.8	1.5	1.4	1.7	1.7	1.2	1.7	3.2	3.1
17	4.2	1.7	3.5	11.9	1.3	3.6	1.3	1.5	3.1	10.5	11.4	7.8
18	13.0	1.7	11.0	2.2	3.6	1.9	7.6	1.5	1.5	1.6	2.6	1.7
19	1.5	2.4	4.8	2.2	2.0	4.4	9.7	1.6	11.3	1.6	75.6	1.6
20	1.5	1.8	1.9	2.2	4.3	13.4	32.1	5.1	1.5	2.0	45.7	1.6
21	2.6	4.9	1.8	2.2	5.8	21.0	2.6	9.0	1.3	4.5	17.6	1.6
22	1.6	12.5	2.0	2.2	1.5	3.1	1.6	20.6	1.3	1.4	25.1	1.6
23	2.1	1.6	1.8	2.1	1.5	1.6	1.6	1.4	1.3	8.0	9.6	1.7
24	6.9	2.8	11.0	2.0	6.4	6.7	1.5	1.9	1.5	3.1	6.3	1.7
25	11.4	1.7	2.2	2.0	1.6	3.7	4.7	1.7	1.3	7.9	1.5	1.7
26	1.8	1.7	2.8	1.8	2.4	2.1	15.6	1.3	1.3	1.5	1.3	1.7
27	1.8	1.9	13.5	1.8	2.5	5.6	3.2	7.5	1.2	1.5	1.8	1.5
28	2.1	43.2	25.1	1.7	5.1	8.0	1.4	53.6	1.2	45.3	2.0	1.6
29	10.3		10.3	1.8	3.2	1.9	1.3	24.6	5.2	25.9	2.2	1.6
30	6.5		1.8	1.9	8.7	3.3	1.0	3.7	2.7	5.1	2.0	1.6
31	58.9		1.8		11.9		18.9	3.2		3.4		1.6
Sum	299.9	258.2	201.5	201.6	152.9	155.0	191.8	293.4	66.9	187.8	246.4	207.3

Month	Current Year 1965								Period 1935-1965		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
				High		Low					
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	112.87	111.81	7	62.9	16	1.3	9.7	595	4,261	9,570	263
Feb.	116.27	111.78	1	354	3	.9	9.2	512	3,405	8,430	512
Mar.	114.71	111.78	1	173	3	.9	6.5	400	3,198	6,230	400
Apr.	115.71	111.83	4	266	7	1.6	6.7	400	2,954	6,300	0
May	112.85	111.80	5	61.5	† 12	1.2	4.9	303	3,589	9,320	101
June	112.91	111.78	7	65.6	15	.4	5.2	307	3,396	7,440	307
July	114.64	111.79	20	168	7	.5	6.2	380	3,433	8,320	221
Aug	115.35	111.76	28	225	31	.3	9.5	582	2,890	9,740	457
Sept.	112.58	111.80	19	42.5	1	.5	2.2	133	2,131	6,140	133
Oct.	115.15	111.79	28	206	31	.5	6.1	372	2,868	5,680	372
Nov.	115.26	111.76	19	216	23	.3	8.2	489	3,417	8,220	489
Dec.	115.04	111.78	5	196	8	.4	6.7	411	4,581	9,430	411
Yearly	116.27	111.76		354		0.3	6.7	4,884	40,123	82,900	4,884

† And other days * Partly estimated

COLORADO RIVER AT ELEVEN MILE GAGE - STAGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of 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. Zero of 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 December 1965; 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, January 2, 1958; minimum mean daily gage height, 95.36 feet, May 19-20, 1965.

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	95.62	96.01	95.86	95.55	95.44	95.43	95.63	96.14	96.16	96.17	99.85	97.38
2	95.62	95.68	95.54	95.63	95.47	95.40	95.63	96.30	96.25	96.17	99.85	97.34
3	95.61	95.57	95.55	96.07	95.46	95.41	95.70	95.90	96.25	96.14	99.89	97.43
4	95.66	95.73	95.56	100.46	95.50	95.49	95.78	96.00	96.22	96.13	99.57	97.41
5	95.64	95.55	95.55	99.36	95.52	95.45	95.66	95.92	96.27	96.14	98.21	97.58
6	95.70	95.58	95.54	96.84	95.56	95.46	95.69	95.87	96.34	98.31	96.26	97.51
7	95.86	95.61	95.52	95.81	95.49	95.62	95.64	95.95	96.26	100.48	96.11	97.18
8	95.91	95.64	95.50	95.68	95.42	95.41	95.68	95.96	96.25	100.20	95.99	97.14
9	95.77	95.67	95.48	95.73	95.44	95.48	95.65	95.98	96.26	100.16	95.89	97.19
10	95.71	95.56	95.64	95.63	95.56	95.44	95.70	96.00	96.25	100.32	95.79	97.31
11	95.77	95.57	95.69	95.61	95.48	95.44	95.76	96.21	96.26	100.26	95.76	97.25
12	95.70	95.56	95.54	95.61	95.38	95.45	95.79	96.13	96.24	100.23	95.69	97.22
13	95.59	95.53	95.55	95.61	95.40	95.54	95.76	96.18	96.24	100.14	95.69	97.21
14	95.59	95.58	95.52	95.56	95.52	95.56	95.74	96.20	96.28	100.04	95.65	97.22
15	95.59	95.57	95.57	95.65	95.52	95.50	95.94	96.37	96.20	100.04	95.71	97.20
16	95.58	95.63	95.55	95.56	95.42	95.47	95.77	96.21	96.27	100.05	96.29	97.21
17	95.61	95.53	95.56	95.57	95.40	95.56	95.74	96.25	96.41	100.00	97.00	97.25
18	95.66	95.55	95.66	95.50	95.39	95.54	95.81	96.27	96.32	99.94	97.34	98.92
19	95.52	95.57	95.62	95.52	95.36	95.56	95.84	96.27	96.43	99.98	97.76	99.82
20	95.53	95.54	95.55	95.52	95.36	95.61	96.07	96.29	96.27	100.11	97.68	103.25
21	95.56	95.56	95.54	95.51	95.37	95.67	95.75	96.30	96.24	100.04	97.51	104.86
22	95.57	95.67	95.55	95.50	95.37	95.53	95.76	96.41	96.23	99.92	97.58	102.96
23	95.56	95.54	95.55	95.46	95.40	95.51	95.78	96.25	96.19	100.04	97.52	100.92
24	95.60	95.56	95.61	95.47	95.48	95.56	95.77	96.27	96.19	99.93	97.44	99.71
25	95.64	95.56	95.56	95.45	95.41	95.54	95.81	96.28	96.19	99.94	97.47	100.05
26	95.60	95.56	95.56	95.43	95.46	95.48	95.96	96.27	96.20	99.92	97.44	101.94
27	95.57	95.57	95.64	95.45	95.44	95.62	95.86	96.33	96.22	99.83	97.42	103.69
28	95.55	95.82	95.73	95.41	95.42	95.64	95.85	96.68	96.15	99.94	97.40	102.57
29	95.62		95.65	95.44	95.45	95.57	95.82	96.50	96.22	100.02	97.40	99.54
30	95.57		95.58	95.49	95.46	95.61	95.83	96.19	96.23	99.84	97.40	98.44
31	95.93		95.57		95.49		96.04	96.18		99.86		97.55
Avg.	95.65	95.61	95.58	95.90	95.45	95.52	95.78	96.20	96.25	99.36	97.22	98.98

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. 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 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 monthly current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through December 1965, obtained by the United States Section; monthly discharge, March 1939 through December 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, September 1950. Since January 1, 1951, maximum instantaneous discharge, 102 second-feet, January 24, 1954 at maximum gage height of 95.46 feet (present datum); minimum instantaneous discharge, zero during a part of most months.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.7	0.2	30.4	8.5	2.1	0.1	0	0.9	1.7	4.6	0.1	2.0
2	2.4	5.5	1.7	.7	6.1	4.4	4.2	8.5	6.4	6.1	.2	.1
3	1.0	.6	.4	16.2	5.2	13.6	3.3	.6	5.3	8.8	4.8	0
4	1.2	4.4	4.2	31.1	1.7	5.5	1.9	.1	0	3.6	1.0	2.7
5	1.0	10.0	8.7	11.6	.1	7.3	.9	1.1	1.3	* 1.7	2.2	18.8
6	2.0	10.2	10.0	1.5	7.9	1.8	3.7	6.8	3.5	* 1.1	4.2	.5
7	7.0	12.7	.3	.7	2.6	1.4	2.5	6.8	3.7	4.0	.4	.1
8	4.9	10.2	.4	.3	13.1	7.5	2.0	1.6	.9	* 10.6	3.0	0
9	1.6	11.3	1.3	2.7	.9	0	0	11.0	5.1	5.3	3.0	0
10	6.0	10.5	7.8	1.9	2.1	1.5	0	4.1	7.9	9.4	7.0	.1
11	6.6	.7	12.4	5.7	4.8	1.3	4.8	.4	0	9.1	.1	ᵠ 0
12	1.7	.3	11.8	0	4.1	0	15.8	.4	2.5	.8	.1	ᵠ 0
13	2.8	2.1	8.8	1.7	.6	7.5	12.0	5.3	7.0	17.9	0	* 0
14	6.4	6.2	.6	5.2	1.8	3.7	.4	.3	0	5.6	0	6.2
15	12.1	4.2	1.6	4.0	1.8	4.9	8.9	16.3	1.9	.1	0	4.8
16	3.8	.6	12.5	.2	.1	* 3.8	.1	5.6	5.9	2.2	4.3	5.1
17	.8	.8	5.6	.1	2.4	* .1	.2	11.7	2.6	.3	17.9	2.3
18	4.1	.2	6.3	.7	3.9	.1	3.1	4.4	1.7	.2	1.8	2.2
19	6.3	6.1	6.6	.8	0	3.8	3.2	6.5	7.7	1.3	7.7	3.4
20	.9	2.0	.2	.6	3.1	6.0	1.0	1.3	15.5	.2	14.3	1.7
21	5.8	5.5	.2	.3	3.5	4.8	.1	2.0	8.2	.2	4.2	.1
22	2.4	2.4	6.0	5.5	3.0	4.2	1.8	2.5	3.8	.1	.5	.1
23	.5	1.8	2.9	.8	11.0	0	4.9	2.9	2.7	.4	.2	.2
24	5.0	5.2	9.4	.1	6.2	0	2.1	1.0	5.6	1.7	0	.4
25	.9	2.3	6.2	.2	12.9	8.0	.6	4.1	.4	.5	2.2	1.5
26	.3	6.3	15.2	8.5	14.1	1.2	3.6	.4	9.3	.2	6.2	2.7
27	3.2	3.6	5.8	6.0	3.8	2.9	5.1	.4	8.0	.2	3.7	* 4.0
28	6.4	17.3	4.6	1.1	7.8	8.1	.6	.9	4.7	1.4	8.0	* 0
29	8.7		2.1	.6	6.1	1.1	0	6.1	11.1	25.7	.6	3.8
30	3.4		5.4	2.3	4.3	1.0	2.0	1.8	11.0	1.4	0	.2
31	.4		14.8		0		.5	.3		.3		.2
Sum	110.3	143.2	204.2	119.6	137.1	105.6	89.3	116.1	145.4	125.0	97.7	63.2

Month	Current Year 1965								Period 1939-1965		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	94.48	92.94	18	41.1	25	0.1	3.6	219	1,078	2,860	219
Feb.	94.41	92.93	10	38.6	† 4	.1	5.1	284	915	2,510	284
Mar.	94.76	92.94	1	51.0	20	.1	6.6	405	843	1,660	293
Apr.	95.22	92.92	14	68.8	† 10	0	4.0	237	907	1,940	237
May	94.71	92.92	8	49.2	† 3	0	4.4	272	1,132	2,470	183
June	95.26	92.92	16	70.2	9	0	3.5	209	984	2,350	209
July	94.48	92.92	12	37.7	6	0	2.9	177	850	1,950	127
Aug	94.42	92.92	17	35.3	1	0	3.7	230	885	2,530	200
Sept.	95.10	92.92	27	63.0	3	0	4.8	288	790	2,180	122
Oct.	94.86	92.93	29	52.9	1	0	4.0	248	946	2,100	217
Nov.	94.34	92.92	20	32.4	4	0	3.3	194	1,100	2,380	194
Dec.	94.71	92.92	5	46.9	3	0	2.0	125	1,250	2,680	125
Yearly	95.26	92.92		70.2		0	4.0	2,888	11,680	24,370	2,888

† And other days * Partly estimated ᵠ Estimated

DIVERSIONS BY PUMPS IN THE UNITED STATES - LIMITROPHE SECTION

DESCRIPTION: Approximately 9 pumps located along the left bank of the Colorado River in the limitrophe section operated by individuals to pump water for irrigating land in the river floodway in the United States.

RECORDS: Quantities of water pumped are estimated by the United States Section of the Commission from weekly readings of running time meters attached to the pumps and pump capacities. Records available: January 1956 through December 1965.

REMARKS: These records are used in the computations of water delivered to Mexico.

Mean Daily Discharge in Second Feet 1965 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	8.8	1.0	15.4	23.4	3.2	5.4	0	0	0	0
2	0	0	16.6	10.2	9.5	26.9	3.8	8.1	13.9	2.6	0	0
3	0	0	5.1	0	25.7	23.2	2.5	2.8	13.0	4.2	3.6	0
4	0	0	0	0	15.4	1.1	11.3	0	7.3	10.9	0	0
5	0	0	6.2	9.2	4.6	7.8	9.7	0	0	13.8	0	0
6	0	0	4.0	12.3	2.2	17.0	16.7	0	2.0	6.6	0	0
7	0	0	0	11.2	2.8	14.7	8.3	0	2.7	6.6	1.4	0
8	0	0	3.0	0	0	13.2	17.4	0	4.2	9.4	0	0
9	0	3.8	16.2	0	0	20.7	11.6	2.2	3.6	0	0	0
10	0	0	1.0	0	17.1	9.5	11.4	2.2	4.4	0	11.3	0
11	0	0	0	17.5	26.7	20.5	7.3	2.2	2.1	7.3	12.3	0
12	0	0	0	12.4	18.0	2.8	17.4	0	0	0	12.3	0
13	0	0	4.9	14.7	21.2	0	12.3	2.2	0	0	3.8	0
14	0	0	2.7	10.2	17.9	7.9	20.6	2.2	7.5	0	.7	0
15	1.5	0	4.1	3.6	8.1	12.8	19.3	2.1	8.4	0	0	0
16	12.3	0	0	0	0	1.0	4.4	9.1	6.4	3.3	0	0
17	12.3	0	0	0	8.0	0	0	13.5	0	0	0	0
18	12.4	0	0	0	7.0	7.8	5.1	13.1	0	9.4	0	0
19	13.1	5.7	0	0	7.6	20.4	3.0	13.1	5.7	6.6	0	0
20	4.4	16.4	7.3	19.6	16.6	13.3	4.3	16.3	5.4	1.8	2.1	0
21	14.3	0	0	11.8	16.8	11.8	10.2	16.3	6.0	0	0	0
22	20.3	6.7	35.7	12.3	4.0	12.3	14.5	4.4	15.3	0	0	0
23	8.8	12.3	23.3	9.5	0	12.2	22.9	2.1	11.7	5.7	0	0
24	0	8.2	22.1	7.0	9.7	13.3	11.7	0	10.2	0	0	0
25	0	11.7	23.1	1.9	14.0	11.6	6.5	3.3	9.5	0	0	0
26	14.9	17.5	10.2	3.3	11.1	12.1	8.0	0	5.4	0	0	0
27	5.6	17.5	0	9.1	0	2.0	1.7	0	11.7	0	0	0
28	4.5	3.3	0	23.1	0	13.3	11.4	3.9	19.8	0	0	0
29	11.3		10.5	16.2	0	0	7.6	7.2	3.6	0	0	0
30	1.5		1.3	11.6	7.3	1.4	18.4	3.0	0	3.6	0	0
31	0		0		26.4		10.9	1.5		0		0
Sum	137.2	103.1	206.1	227.7	313.1	334.0	313.4	136.2	179.8	91.8	47.5	0

Current Year 1965 — Period 1956-1965

Month	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.			22	20.3	† 1	0	4.4	272	176	280	80
Feb.			†26	17.5	† 1	0	3.7	204	307	500	204
Mar.			22	35.7	† 4	0	6.6	409	404	600	317
Apr.			28	23.1	† 3	0	7.6	452	490	670	389
May			11	26.7	† 8	0	10.1	621	554	770	400
June			2	26.9	†13	0	11.1	662	599	800	385
July			23	22.9	17	0	10.1	622	606	820	460
Aug			†20	16.3	† 4	0	4.4	270	414	800	270
Sept.			28	19.8	† 1	0	6.0	357	390	940	194
Oct.			5	13.8	† 1	0	3.0	182	273	390	98.4
Nov.			†11	12.3	† 1	0	1.6	94.2	207	330	83.7
Dec.				0		0	0	0	151	230	0
Yearly				35.7		0	5.7	4,145	4,571	6,480	3,941

† And other days Ø Mean daily

EAST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir located about 300 feet north of the southerly international land boundary 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 December 1965. Records of monthly discharges also are available for the periods January 1924 through June 1928, January 1932 through December 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 river.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.0	9.2	0	16.7	10.3	3.7	5.1	8.8	5.7	21.9	5.4	7.4
2	8.7	6.4	2.1	11.3	1.0	6.1	12.5	5.3	11.7	5.9	4.3	7.1
3	9.4	10.9	0	6.5	12.9	.7	4.9	1.9	11.3	8.8	4.6	6.5
4	10.4	1.9	0	8.4	11.9	.6	0	4.6	7.9	1.4	9.8	.8
5	3.4	.4	1.6	6.1	4.2	0	.2	2.9	4.1	3.2	6.8	0
6	12.8	3.7	4.2	10.0	3.5	1.6	0	2.9	16.8	7.7	2.8	5.3
7	16.9	8.9	5.6	6.3	7.0	13.3	1.2	3.3	12.5	11.6	2.6	1.1
8	9.7	.8	7.5	5.8	5.2	6.7	2.0	4.9	.1	18.5	2.9	5.7
9	16.5	23.3	8.2	4.8	2.5	.1	13.8	3.4	8.6	23.4	.3	7.2
10	21.3	10.3	3.9	6.9	4.8	16.6	1.0	4.2	13.2	16.5	.6	5.1
11	14.4	.2	1.4	3.9	4.6	6.2	.4	3.8	15.6	8.8	11.0	25.5
12	25.6	0	5.2	1.7	7.1	4.9	.2	3.5	21.8	17.2	4.4	25.4
13	3.0	14.8	6.5	1.4	9.7	13.4	.1	3.0	2.9	11.0	3.9	21.9
14	0	25.5	9.2	1.2	10.4	19.8	1.2	10.9	12.5	14.7	5.2	9.1
15	0	30.2	11.4	.3	16.1	10.7	1.9	4.3	3.4	3.3	8.5	5.9
16	9.3	4.9	10.4	3.7	7.4	0	6.6	2.0	1.2	8.4	4.6	7.8
17	.4	.5	2.3	2.1	3.2	2.4	.6	4.5	7.0	5.3	6.5	20.0
18	0	0	.4	3.4	11.2	.2	* 0	2.5	7.3	16.2	1.5	38.4
19	2.0	9.6	1.5	24.3	8.3	3.9	* 3.6	6.2	15.4	7.0	2.3	30.7
20	2.5	1.1	2.4	.6	5.2	3.2	5.0	4.8	7.5	1.3	29.1	13.6
21	4.4	7.1	3.2	0	4.1	.2	7.6	2.1	16.5	.1	32.3	3.5
22	1.8	16.2	.7	0	0	0	7.4	6.7	11.0	2.3	30.1	3.0
23	.1	17.8	6.6	4.0	6.3	0	7.3	2.3	6.5	0	26.1	8.2
24	2.0	4.2	3.4	.2	9.5	0	.6	0	4.2	8.2	25.4	17.2
25	2.9	0	25.9	5.2	12.1	0	1.5	0	13.8	11.4	17.5	28.0
26	.1	0	10.5	.5	4.6	1.4	.1	.6	11.6	4.8	11.5	24.0
27	0	0	11.3	1.1	7.3	5.4	0	2.7	22.6	.3	9.1	26.6
28	1.8	0	3.7	.1	6.9	4.0	0	4.4	8.6	0	14.8	26.8
29	6.1		6.7	0	5.1	6.5	2.3	6.3	4.8	0	9.9	17.8
30	1.9		1.1	4.5	7.5	0	3.0	4.4	7.3	0	11.8	23.2
31	1.8		3.9		1.8		1.5	.1		1.0		20.5
Sum	199.2	207.9	160.8	141.0	211.7	131.6	91.6	117.3	293.4	240.2	305.6	443.3*

Month	Current Year 1965 Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1935-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	90.85	90.15	12	30.7	† 5	0	6.4	395	1,419	3,360	¤ 383
Feb.	91.18	90.15	15	60.5	† 3	0	7.4	412	1,176	3,170	¤ 383
Mar.	90.94	90.15	25	38.2	† 1	0	5.2	319	1,367	2,920	190
Apr.	90.97	90.15	19	40.8	† 7	0	4.7	280	1,335	3,170	197
May	90.94	90.15	15	38.2	† 2	0	6.8	420	1,476	3,040	385
June	91.08	90.15	27	50.8	† 1	0	4.4	261	1,258	3,660	175
July	91.30	90.15	23	73.0	1	0	3.0	182	1,357	3,590	182
Aug	91.22	90.15	17	64.6	3	0	3.8	233	1,375	3,960	169
Sept.	91.26	90.15	22	68.8	1	0	9.8	582	1,240	3,170	159
Oct.	91.27	90.15	6	69.8	4	0	7.7	476	1,296	3,280	432
Nov.	90.96	90.15	1	39.9	6	0	10.2	606	1,441	3,570	430
Dec.	91.02	90.15	18	45.2	1	0	14.3	879	1,415	3,080	438
Yearly	91.30	90.15		73.0		0	7.0	5,045	16,155	38,310	* 4,800

† And other days ¤ Estimated * Partly estimated

YUMA MAIN DRAIN (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorders located in the forebay and afterbay of 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 and are computed from pump ratings and the differential head measured by the two gages. Pump ratings are checked by monthly current meter measurements. During the year, 11 measurements were made by the United States Section of the Commission. Records obtained and computed by the United States Section of the Commission. Records available: Monthly discharges June 1919 through December 1951; daily discharges January 1952 through December 1965.

REMARKS: Flows in the Main Drain are principally drainage waters from the Valley Division of the Yuma Project. Both the Main Drain and the East 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	162	167	192	186	185	193	173	188	195	184	173	159
2	154	173	167	185	184	191	173	190	189	189	166	171
3	162	173	172	198	178	182	180	184	183	190	157	182
4	162	155	180	202	191	181	169	194	183	197	174	182
5	165	159	182	196	187	193	179	173	181	189	168	189
6	165	171	196	181	183	182	175	178	176	186	179	173
7	167	165	197	179	188	184	182	183	175	191	180	173
8	171	167	195	182	177	188	179	182	173	198	179	172
9	152	165	193	184	189	185	183	175	179	196	182	176
10	160	171	209	168	188	186	179	179	183	191	182	177
11	159	176	206	185	190	179	175	180	181	191	179	169
12	158	190	203	166	198	170	187	192	178	189	189	157
13	168	189	204	167	189	181	178	193	181	192	188	164
14	160	188	198	178	193	181	184	183	176	189	187	158
15	152	187	206	167	203	174	178	184	178	190	184	156
16	161	170	188	176	175	177	180	196	178	199	191	158
17	164	152	191	182	190	176	180	185	175	206	191	166
18	161	167	186	182	182	172	182	187	181	188	190	159
19	145	180	196	180	188	174	179	183	188	176	192	157
20	142	184	177	176	185	183	172	188	191	183	180	164
21	158	178	182	187	178	192	178	188	197	169	174	164
22	150	189	191	170	178	184	173	187	194	183	168	161
23	146	178	196	179	183	167	173	189	186	165	171	158
24	155	188	196	186	176	178	176	183	190	171	177	153
25	163	179	190	179	179	* 185	182	191	185	178	166	144
26	157	181	192	183	196	* 185	176	188	193	180	176	151
27	159	190	194	186	188	* 176	182	185	179	183	176	153
28	165	198	198	180	193	* 185	178	179	178	184	171	150
29	160		199	196	184	180	188	195	185	182	167	151
30	* 156		217	189	191	187	176	186	185	176	163	152
31	* 148		197		184		178	192		169		145
Sum	4,907	4,930	5,990	5,455	5,773	5,451	5,527	5,760	5,496	5,754	5,340	5,044

Current Year 1965 — **Period** 1935-1965

Month	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.			8	171	20	142	158	9,733	7,473	11,203	1,740
Feb.			28	198	17	152	176	9,779	7,415	11,988	1,640
Mar.			30	217	2	167	193	11,881	8,490	12,430	1,940
Apr.			4	202	12	166	182	10,820	8,217	11,890	1,920
May			15	203	16	175	186	11,451	8,288	13,140	1,950
June			† 1	193	23	167	182	10,812	7,616	12,040	2,290
July			29	188	4	169	178	10,963	7,361	11,830	2,530
Aug			16	196	5	173	186	11,425	7,275	11,960	2,560
Sept.			21	197	8	173	183	10,901	7,354	11,560	2,280
Oct.			17	206	23	165	186	11,413	8,415	12,385	2,940
Nov.			19	192	3	157	178	10,592	8,266	12,010	2,800
Dec.			5	189	25	144	163	10,005	8,008	11,480	2,450
Yearly				217		142	179	129,775	94,178	139,380	27,040

* Partly estimated † And other days Ø Mean daily

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

DESCRIPTION: The tabulated data below is the combined flows of the East Main Canal Wasteway and the Yuma Main Drain and represents the total water crossing the international land boundary into the Sánchez Mejorada Canal near San Luis, Arizona. The Mexican Section maintains a water-stage recorder in Mexico on right bank of Sánchez 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: January 1935 through 1965.

REMARKS: Descriptions and flows of the individual stations, East Main Canal Wasteway and the Yuma Main Drain, are published separately in this bulletin on pages 32 and 33.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	172	176	192	203	195	197	178	197	201	206	178	166
2	163	179	169	196	185	197	186	195	201	195	170	178
3	171	184	172	205	191	183	185	186	194	199	162	188
4	172	157	180	210	203	182	169	199	191	198	184	183
5	168	159	184	202	191	193	179	176	185	192	195	189
6	178	175	200	191	187	184	175	181	193	194	182	178
7	184	174	203	185	195	197	183	186	188	203	183	174
8	181	168	203	188	182	195	181	187	173	216	182	178
9	169	188	201	189	192	185	197	178	188	219	182	183
10	181	181	213	175	193	203	180	183	196	208	183	182
11	173	176	207	189	195	185	175	184	197	200	190	194
12	184	190	208	168	205	175	187	196	200	206	193	182
13	171	204	211	168	199	194	178	196	184	203	192	186
14	160	214	207	179	203	201	185	194	188	204	192	167
15	152	217	217	167	219	185	180	188	181	193	192	162
16	170	175	198	180	182	177	187	198	179	207	196	166
17	164	153	193	184	193	178	181	190	182	211	198	186
18	161	167	186	185	193	172	* 182	190	188	204	192	197
19	147	190	198	204	196	178	* 183	189	203	183	194	188
20	145	185	179	177	190	186	177	193	198	184	209	178
21	162	185	185	187	182	192	186	190	214	169	206	168
22	152	205	192	170	178	184	180	194	205	185	198	164
23	146	196	203	183	189	167	180	191	192	165	197	166
24	157	192	199	186	186	178	177	183	194	179	202	170
25	166	179	216	184	191	* 185	184	191	199	189	184	172
26	157	181	203	184	201	* 186	176	189	205	185	188	175
27	159	190	205	187	195	* 181	182	188	202	183	185	180
28	167	198	202	180	200	* 189	178	183	187	184	186	177
29	166		206	196	189	186	190	201	190	182	177	169
30	* 158		218	194	199	187	179	190	192	176	175	175
31	* 150		201		186		180	192		170		166
Sum	5,106	5,138	6,151	5,596	5,985	5,582	5,620	5,878	5,790	5,992	5,647	5,487

Current Year 1965									Period 1935-1965		
Month	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			† 7	184	20	145	164	10,128	8,892	12,131	* 2,123
Feb.			15	217	17	153	183	10,191	8,590	12,970	* 2,023
Mar.			30	218	2	169	198	12,200	9,857	13,704	* 2,322
Apr.			4	210	15	167	187	11,100	9,552	12,982	2,117
May			15	219	22	178	193	11,871	9,764	13,900	2,473
June			10	203	23	167	186	11,073	8,874	12,570	2,525
July			9	197	4	169	181	11,145	8,718	12,420	2,927
Aug			29	201	5	176	190	11,658	8,650	12,657	2,989
Sept.			21	214	8	173	193	11,483	8,594	12,450	2,602
Oct.			9	219	23	165	194	11,889	9,711	13,898	3,444
Nov.			20	209	3	162	188	11,198	9,707	12,712	3,407
Dec.			18	197	15	162	177	10,884	9,424	12,050	2,888
Yearly				219		145	186	134,820	110,333	149,010	31,840

* Partly estimated Ø Mean daily † And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

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

RECORDS: During the period January 20 through June 11, 1965, a diversion dike across the river channel 2.8 miles below the southerly international boundary caused backwater at this station, and discharges are based on the summation of flows in the Colorado River at R. S. 18-S, 4.7 miles upstream from the southerly international boundary, and the Twenty-one Mile Wasteway, 2.2 miles upstream from the southerly international boundary. Computations by shifting control methods. Records available: Daily discharges, January 1950 through December 1965; continuous record of gage heights, January 1947 through December 1965. Monthly flows for this station have been derived for the period January 1935 through December 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. The river flow past this station is depleted by numerous pumps and gravity diversions before it reaches the Gulf of California.

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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.0	107	81.6	28.6	20.9	11.7	0	0	0	0	666	233
2	27.9	62.0	29.9	18.4	19.1	6.4	0	0	0	0	686	237
3	25.7	35.7	17.1	35.5	15.8	8.5	0	0	0	0	718	240
4	25.7	44.6	21.4	678	8.9	17.4	0	0	0	0	637	247
5	26.8	46.0	30.5	973	7.6	9.5	0	0	0	0	587	268
6	29.0	40.6	30.1	440	35.4	6.5	0	0	0	0	331	282
7	34.5	45.9	18.6	88.5	28.5	.7	0	0	0	54.6	146	254
8	45.3	43.4	17.1	59.3	33.2	1.6	0	0	0	400	109	227
9	48.0	49.3	8.8	57.1	18.1	7.1	0	0	0	456	77.4	223
10	44.0	45.6	9.1	54.0	14.5	2.3	0	0	0	497	72.6	240
11	42.6	27.4	51.9	43.7	12.5	.3	0	0	0	553	47.7	244
12	39.9	27.0	30.6	30.4	11.8	0	0	0	0	561	42.0	237
13	38.6	28.8	26.0	35.9	7.3	0	0	0	0	587	37.0	230
14	31.2	32.9	19.4	36.5	9.0	0	0	0	0	596	39.0	227
15	32.3	36.4	18.3	42.0	19.5	0	0	0	0	574	37.0	240
16	23.5	33.8	30.8	43.5	14.2	0	0	0	0	596	36.0	227
17	12.6	33.0	23.9	41.3	21.7	0	0	0	0	609	104	237
18	16.7	27.7	25.1	39.8	23.2	0	0	0	0	618	182	272
19	31.2	35.5	30.0	33.0	10.6	0	0	0	0	605	220	593
20	18.6	31.4	21.1	31.9	7.7	0	0	0	0	605	296	930
21	26.7	18.5	13.2	21.2	7.1	0	0	0	0	628	275	2,300
22	20.1	33.7	12.7	22.2	15.7	0	0	0	0	661	261	2,870
23	16.2	26.8	5.1	15.4	23.4	0	0	0	0	618	264	1,810
24	23.3	18.2	11.3	26.8	19.2	0	0	0	0	651	250	1,140
25	31.3	21.1	7.7	27.7	20.9	0	0	0	0	656	244	882
26	26.2	24.6	16.7	31.9	20.8	0	0	0	0	641	244	1,020
27	22.5	19.3	22.0	25.3	13.8	0	0	0	0	641	240	1,880
28	36.8	32.4	25.5	8.6	22.4	0	0	0	0	628	244	2,430
29	37.1		30.0	5.2	19.5	0	0	0	0	651	240	1,670
30	31.8		30.4	22.4	15.6	0	0	0	0	628	244	752
31	23.0		36.6		9.2		0	0		628		482
Sum	918.1	1,028.6	752.5	3,017.1	527.1	72.0	0	0	0	14,342.6	7,576.7	23,124

Current Year 1965 — **Period** 1935-1965

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	76.60	74.61	9	48.0	18	10.8	29.6	1,821	491,238	1,672,000	1,821
Feb.	77.29	74.81	1	146	21	5.9	36.7	2,040	408,897	1,385,000	2,040
Mar.	76.80	74.43	1	134	10	1.6	24.3	1,493	329,142	1,127,000	1,493
Apr.	77.47	74.37	5	1,150	29	3.6	101	5,984	210,196	700,900	977
May	75.74	74.28	8	69.3	21	1.1	17.0	1,045	288,357	1,160,000	1,045
June	75.03	73.90	3	23.3	† 12	0	2.4	143	221,992	1,180,000	143
July				0		0	0	0	162,328	772,800	0
Aug				0		0	0	0	180,891	796,000	0
Sept.				0		0	0	0	218,582	1,033,000	0
Oct.	76.79	74.40	29	681	† 1	0	463	28,448	278,521	1,192,000	9,120
Nov.	76.75	74.93	3	723	13	35.1	253	15,028	367,046	1,428,000	7,180
Dec.	79.60	75.83	22	3,024	9	220	746	45,866	463,63[illegible]	1,839,000	2,320
Yearly	79.60	73.90		3,024		0	141	101,868	3,620,825	10,688,800	98,204

† And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	74.77	76.61	75.95	75.51	74.80	*74.85				74.40	76.70	75.89
2	74.76	77.10	76.36	75.23	75.08	74.51				74.40	76.70	75.86
3	74.74	76.36	75.07	75.26	74.94	74.63				74.40	76.72	75.87
4	74.74	75.81	74.84	76.59	74.85	74.84				74.40	76.73	75.90
5	74.75	75.52	75.11	77.27	74.81	74.76				74.40	76.64	75.96
6	74.79	75.09	75.43	76.40	75.05	74.50				74.40	76.04	76.01
7	74.86	75.19	75.42	75.39	75.44	74.04				74.90	75.51	75.93
8	74.94	75.08	75.18	75.09	75.56	74.45				76.13	75.37	75.85
9	74.95	75.09	74.85	74.99	75.54	74.62				76.27	75.28	75.84
10	74.92	75.03	74.88	74.94	75.23	74.22				76.37	75.24	75.89
11	74.90	74.91	75.42	74.86	74.75	74.01				76.50	75.08	75.90
12	74.88	74.84	75.98	74.75	74.85					76.52	75.00	75.88
13	74.87	74.83	75.94	74.70	74.87					76.58	74.95	75.86
14	74.81	74.88	75.76	74.98	75.04					76.59	74.99	75.85
15	74.83	75.04	75.51	75.71	74.90					76.54	74.99	75.89
16	74.76	74.98	75.26	75.99	75.21					76.58	74.99	75.85
17	74.63	75.07	75.38	75.07	74.87					76.60	75.36	75.88
18	74.70	75.32	75.26	74.96	75.03					76.60	75.64	75.98
19	74.86	75.46	75.45	74.86	74.72					76.57	75.78	76.66
20	74.70	75.67	75.47	74.85	74.89					76.60	76.00	77.18
21	75.39	75.75	75.14	74.59	74.39					76.68	75.95	78.91
22	75.53	75.44	74.79	74.85	74.82					76.65	75.91	79.49
23	75.31	75.72	74.82	74.84	74.92					76.63	75.92	78.42
24	75.05	75.44	74.94	74.64	74.83					76.67	75.89	77.53
25	75.19	75.22	75.17	74.74	74.82					76.64	75.87	77.16
26	75.98	75.26	75.11	74.74	75.36					76.65	75.88	77.36
27	76.26	75.12	74.87	75.14	74.77					76.65	75.87	78.52
28	76.50	75.07	75.41	74.80	75.01					76.62	75.88	79.14
29	76.39		75.32	74.68	*74.83					76.73	75.87	78.24
30	76.38		75.36	74.85	¤75.28					76.72	75.88	76.94
31	76.26		74.28		¤74.63					76.68		76.45
Avg.	75.17	75.39	75.31	75.18	74.97					76.10	75.75	76.71

* 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 de Conexión wasteway, immediately upstream from where it discharges into the Colorado River, 0.6 mile downstream from the wasteway gates on Canal de Conexión, 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. 1965 records good. Records available: April 1956 through December 1965.

REMARKS: The Colorado River Irrigation District transports water for irrigation of land on the left bank of the Colorado River by the Canal de Conexión 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 Sánchez Mejorada Siphon, which was placed in operation on June 28, 1963.

Mean Daily Discharge in Second Feet 1965 — 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	21.9
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	122
24	0	0	0	0	0	0	0	0	0	0	0	147
25	0	0	0	0	0	0	0	0	0	0	0	159
26	0	0	0	0	0	0	0	0	0	0	0	255
27	0	0	0	0	0	0	0	0	0	0	0	290
28	0	0	0	0	0	0	0	0	0	0	0	292
29	0		0	0	0	0	0	0	0	0	0	424
30	0		0	0	0	0	0	0	0	0	0	185
31	0		0		0		0	0		0		256
Sum	0	0	0	0	0	0	0	0	0	0	0	2,151.9

Month	Current Year 1965								Period 1956-1965		
	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.				0		0	0	0	10,145	69,527	0
Feb.				0		0	0	0	1,300	8,679	0
Mar.				0		0	0	0	12,129	35,492	0
Apr.				0		0	0	0	26,466	68,714	0
May				0		0	0	0	11,419	22,072	0
June				0		0	0	0	18,234	28,915	0
July				0		0	0	0	28,608	46,139	0
Aug				0		0	0	0	30,909	55,497	0
Sept.				0		0	0	0	18,618	37,194	0
Oct.				0		0	0	0	6,742	20,512	0
Nov.				0		0	0	0	15,847	69,415	0
Dec.			29	424	† 1	0	69.6	4,268	10,055	70,213	0
Yearly				424		0	5.7	4,268	185,758	346,339	4,268

† And other days Ø Mean daily

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 Río 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 December 1965.

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.

Mean Daily Discharge in Second Feet 1965 — 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	79.5	0
22	0	0	0	0	0	0	0	0	0	0	40.6	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	120.1	0

Current Year 1965								Period 1957-1965		
Month	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.				0		0	0	0	839	3,201	0
Feb.				0		0	0	0	578	4,097	0
Mar.				0		0	0	0	923	6,850	0
Apr.				0		0	0	0	712	3,707	0
May				0		0	0	0	162	1,163	0
June				0		0	0	0	84.3	625	0
July				0		0	0	0	478	4,296	0
Aug				0		0	0	0	459	1,926	0
Sept.				0		0	0	0	553	1,548	0
Oct.				0		0	0	0	165	791	0
Nov.			21	79.5	† 1	0	3.9	238	397	1,891	0
Dec.				0		0	0	0	489	3,047	0
Yearly				79.5		0	0.4	238	5,839	13,429	191

† And other days Ø Mean daily

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. Zero of gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 62 current meter measurements made during the year, 57 double and 5 single, 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 December 1965.

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

EXTREMES: Since January 1, 1952: Maximum mean daily gage height, 53.28 feet on January 4, 1958 with a discharge of 18,500 second-feet; minimum mean daily gage height, 37.96 feet on January 8, 1964 with a discharge of 19.4 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.9	3.9	8.1	¤ 9.9	7.1	2.1	0.7	8.5	6.4	4.9	367	139
2	9.9	3.9	8.1	¤ 9.9	6.4	2.1	.7	8.5	6.4	5.3	357	135
3	9.5	3.9	8.1	¤ 9.9	5.7	2.1	.7	8.5	6.7	5.3	378	127
4	9.5	3.9	8.1	¤ 9.9	6.0	2.1	.7	8.1	6.7	4.9	385	123
5	9.5	3.5	7.8	¤ 9.9	6.7	2.5	.7	7.8	7.1	5.7	399	123
6	9.2	3.5	7.8	178	7.1	2.5	.7	7.1	7.1	6.0	360	135
7	8.8	3.5	7.8	298	7.4	2.5	.7	6.7	7.4	5.3	194	150
8	8.8	3.5	7.8	91.1	7.8	2.5	.7	6.0	7.8	5.3	90.1	149
9	8.5	3.5	7.4	29.0	8.5	2.1	.4	5.7	7.4	4.9	58.3	121
10	8.5	3.5	7.4	¤ 9.9	8.8	1.8	.4	5.3	7.4	4.6	45.2	115
11	8.1	3.9	7.4	¤ 9.9	8.8	1.4	.4	4.6	7.4	6.4	33.5	133
12	8.1	4.2	7.4	9.9	8.8	1.4	0	5.3	7.4	7.4	26.8	135
13	7.8	4.6	7.4	9.9	8.8	1.1	0	5.7	7.4	10.6	21.9	126
14	7.4	4.9	7.4	9.9	8.8	.7	1.4	6.0	7.4	13.1	20.5	119
15	7.1	5.3	7.4	9.5	8.8	.4	2.5	6.4	7.4	20.5	19.4	115
16	7.1	5.7	7.4	9.5	8.5	.4	3.9	7.1	7.4	91.8	18.4	126
17	6.7	6.0	6.7	9.5	8.5	.7	5.3	7.4	7.1	131	18.4	130
18	6.4	6.7	6.0	9.5	8.5	.7	6.4	7.8	7.4	173	18.4	120
19	6.4	7.1	5.3	9.2	7.8	.7	7.8	7.8	7.4	208	17.7	143
20	6.0	7.4	4.9	9.5	7.4	.7	9.2	7.4	7.8	230	34.6	367
21	5.7	8.1	4.2	9.5	6.7	1.1	8.8	7.4	7.8	244	87.6	738
22	5.3	8.5	3.5	9.9	6.0	1.1	8.8	7.1	8.5	278	144	1,620
23	5.3	8.5	3.5	9.9	5.3	1.1	8.8	7.1	9.5	301	114	2,040
24	4.9	8.5	3.5	9.9	4.6	1.1	8.5	7.1	10.2	300	108	1,490
25	4.6	8.5	3.5	10.2	3.9	1.1	8.5	6.7	10.9	317	107	1,220
26	4.6	8.5	3.5	10.2	3.9	1.1	8.1	6.7	12.0	320	114	1,010
27	4.6	8.5	3.5	9.5	3.5	1.1	8.1	6.7	12.7	329	99.2	1,150
28	4.2	8.1	3.5	8.8	3.2	.7	8.1	6.7	13.4	334	95.3	1,970
29	4.2		3.9	8.5	2.8	.7	8.1	6.7	14.5	332	94.6	2,520
30	4.2		3.9	7.8	2.5	.7	8.5	6.7	13.1	353	94.6	1,950
31	3.9		3.9		2.1		8.5	6.7		385		1,090
Sum	214.7	159.6	186.1	846.0	200.7	40.3	136.1	213.3	257.1	4,437.0	3,921.5	19,629

Month	Current Year 1965 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 June 1951-1965 Acre Feet Average	Maximum	Minimum
Jan.	38.39	38.12	† 1	Ø 9.9	31	Ø 3.9	7.1	426	340,453	1,047,732	426
Feb.	38.16	38.09	†22	Ø 8.5	† 5	Ø 3.5	5.7	317	213,970	696,461	317
Mar.	38.16	37.83	† 1	Ø 8.1	†22	Ø 3.5	6.0	370	150,755	807,342	0
Apr.	41.86	38.06	7	685	30	Ø 7.8	28.3	1,678	99,878	588,983	0
May	38.42	37.96	†10	Ø 8.8	31	Ø 2.1	6.4	398	139,109	732,815	0
June	38.48	37.83	† 5	Ø 2.5	†15	Ø .4	1.4	79.1	59,134	555,460	0
July	38.35	37.89	20	Ø 9.2	†12	Ø 0	4.2	270	31,743	264,561	0
Aug	38.85	38.09	† 1	Ø 8.5	11	Ø 4.6	6.7	422	47,133	309,320	352
Sept.	38.85	38.29	29	Ø 14.5	† 1	Ø 6.4	8.5	510	73,691	572,551	0
Oct.	41.80	38.62	31	396	10	4.2	143	8,800	120,596	769,939	2,859
Nov.	41.80	39.01	5	403	†19	17.7	131	7,777	200,155	909,399	7,777
Dec.	46.52	40.03	29	2,570	† 9	115	632	38,960	271,353	1,060,767	687
Yearly	46.52	37.83		2,570		0	81.6	60,007	1,712,735	7,923,600	60,007

† And other days Ø Mean daily ¤ Estimated

COLORADO RIVER AT MIGUEL C. RODRIGUEZ IN MEXICO - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	38.16	38.12	38.09	38.12	38.09	38.45	38.16	38.16	38.29	38.62	41.70	40.12
2	38.19	38.12	38.09	38.12	38.09	38.42	38.16	38.19	38.45	38.62	41.73	40.09
3	38.16	38.12	38.09	38.12	38.09	38.35	38.16	38.19	38.75	38.62	41.73	40.09
4	38.19	38.12	38.09	38.16	38.09	38.35	38.16	38.12	38.65	38.62	41.77	40.06
5	38.19	38.12	38.09	38.16	38.02	38.35	38.16	38.16	38.48	38.62	41.80	40.06
6	38.22	38.16	38.09	39.50	38.06	38.19	38.12	38.16	38.48	38.62	41.67	40.09
7	38.22	38.16	38.09	40.29	38.02	38.02	38.12	38.29	38.52	38.62	40.85	40.16
8	38.32	38.12	38.09	38.94	38.06	38.02	38.09	38.62	38.52	38.62	40.03	40.16
9	38.22	38.09	38.09	38.42	38.09	38.02	37.99	38.68	38.48	38.62	39.70	40.06
10	38.19	38.09	38.12	38.25	38.09	37.96	38.09	38.25	38.48	38.62	39.53	40.03
11	38.19	38.09	38.12	38.16	38.09	37.86	37.93	38.12	38.55	38.65	39.34	40.09
12	38.19	38.09	38.12	38.16	38.09	37.96	38.02	38.09	38.52	38.71	39.21	40.09
13	38.19	38.09	38.12	38.19	38.06	38.06	37.93	38.19	38.55	38.78	39.11	40.06
14	38.19	38.12	38.12	38.19	38.09	37.96	38.16	38.19	38.58	38.88	39.04	40.06
15	38.22	38.12	38.12	38.16	38.09	37.96	38.19	38.19	38.58	39.07	39.04	40.03
16	38.19	38.12	38.12	38.19	38.09	38.09	38.16	38.22	38.62	40.09	39.04	40.06
17	38.19	38.12	38.12	38.16	38.09	37.99	38.22	38.42	38.58	40.45	39.04	40.09
18	38.19	38.12	38.09	38.16	38.09	38.02	38.29	38.45	38.58	40.81	39.07	40.06
19	38.19	38.12	38.02	38.16	38.06	38.02	38.25	38.55	38.55	41.01	39.07	40.16
20	38.19	38.12	37.99	38.16	38.06	38.06	38.32	38.65	38.55	41.11	39.37	40.88
21	38.19	38.12	37.96	38.19	38.06	38.09	38.29	38.78	38.55	41.21	40.03	42.16
22	38.19	38.12	37.96	38.16	38.06	38.09	38.25	38.58	38.52	41.37	40.55	41.27
23	38.19	38.12	37.96	38.16	37.99	38.02	38.22	38.45	38.55	41.47	40.32	45.47
24	38.16	38.12	37.96	38.16	37.99	38.02	38.19	38.39	38.68	41.47	40.26	44.65
25	38.16	38.12	37.99	38.16	37.96	38.02	38.19	38.39	38.68	41.50	40.26	43.60
26	38.16	38.09	37.99	38.16	37.96	38.02	38.19	38.39	38.65	41.54	40.32	43.01
27	38.12	38.09	37.99	38.12	37.99	38.12	38.22	38.39	38.71	41.57	40.19	43.47
28	38.12	38.09	37.83	38.12	38.12	38.16	38.19	38.39	38.81	41.60	40.16	45.31
29	38.12		37.96	38.16	38.25	38.16	38.19	38.39	38.75	41.57	40.16	46.39
30	38.12		38.09	38.16	38.32	38.16	38.12	38.39	38.65	41.67	40.16	45.24
31	38.12		38.12		38.39		38.09	38.29		41.77		43.24
Avg.	38.18	38.11	38.05	38.31	38.08	38.10	38.16	38.35	38.58	40.02	40.14	41.49

DIVERSIONS FROM COLORADO RIVER TO ZACATECAS CANAL IN MEXICO

DESCRIPTION: Pumping plant, operated by the Ministry of Hydraulic Resources, located on the left bank of the Colorado River in the Colonia Sánchez Corral about 1.2 miles upstream from the Sonora-Baja California railroad bridge and about 29 miles downstream from the southerly international boundary. Plant discharge is into Zacatecas Canal. Pumping equipment consists of 6 pumps, 4 of 36-inch diameter, 1 of 42-inch diameter, and 1 of 48-inch diameter.

RECORDS: Data obtained by the Ministry of Hydraulic Resources and furnished by the Mexican Section of the Commission are based on pump capacities and operation time. Records available: August 1958 through December 1965.

REMARKS: The flows of the Colorado River arriving at this pumping plant consist of the flows which pass Miguel C. Rodriguez Gaging Station, 4.5 miles upstream from the pumping plant.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.9	6.4	0	5.3	0	0	0	2.1	0	0	0	0
2	9.9	6.4	0	6.4	0	0	0	0	0	0	0	0
3	9.9	6.4	0	4.6	0	0	0	0	8.8	0	0	0
4	9.9	6.4	6.4	0	0	0	0	0	7.1	0	0	0
5	9.9	3.5	6.4	12.4	0	12.4	0	0	7.1	0	0	0
6	0	0	6.4	7.1	0	10.6	10.6	0	7.1	0	0	0
7	9.9	6.4	6.4	12.4	0	8.8	10.6	0	7.1	0	0	0
8	9.9	6.4	3.5	7.1	0	10.6	2.1	0	6.4	0	0	0
9	9.9	0	1.8	0	0	8.8	0	10.6	0	0	0	0
10	9.9	0	0	0	0	0	0	8.8	0	0	0	0
11	9.9	6.4	5.3	0	0	0	0	7.1	0	0	0	0
12	9.9	6.4	6.4	0	0	0	0	7.1	0	0	0	0
13	9.9	6.4	6.4	0	0	0	0	0	7.1	0	0	0
14	9.9	6.4	0	0	0	0	10.6	0	7.1	0	0	0
15	9.9	3.2	0	0	0	0	8.8	0	0	0	0	0
16	9.9	0	0	0	0	8.8	0	0	0	0	0	0
17	7.1	6.4	6.4	0	0	8.8	0	0	6.4	0	0	0
18	7.1	6.4	6.4	0	0	8.8	0	0	7.1	0	0	0
19	7.1	6.4	3.5	0	0	6.4	0	0	7.1	0	0	0
20	6.4	6.4	0	0	0	0	8.8	0	7.1	0	0	0
21	0	4.2	0	0	0	0	10.6	8.8	7.1	0	0	0
22	6.4	6.4	0	0	0	8.1	10.6	8.8	0	0	0	0
23	6.4	6.4	0	0	0	8.8	8.8	7.1	0	0	0	0
24	6.4	2.5	0	0	0	6.4	7.1	7.1	7.1	0	0	0
25	0	0	0	0	0	0	0	7.1	7.1	0	0	0
26	4.9	6.4	0	0	0	0	0	0	5.3	0	0	0
27	6.4	4.6	4.6	0	0	0	0	0	7.1	0	0	0
28	6.4	0	4.2	0	0	0	0	0	6.4	0	0	0
29	6.4		0	0	0	10.6	0	0	7.1	0	0	0
30	6.4		0	0	0	8.8	10.6	0	7.1	0	0	0
31	6.4		0		0		9.9	0		0		0
Sum	232.3	126.8	74.1	55.3	0	126.7	109.1	74.6	139.8	0	0	0

Month	Current Year 1965								Period 1958-1965		
	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			† 1	9.9	† 6	0	7.4	460	4,574	10,045	460
Feb.			† 1	6.4	† 6	0	4.6	250	3,043	8,063	0
Mar.			† 4	6.4	† 1	0	2.5	147	2,829	6,641	147
Apr.			† 5	12.4	† 9	0	1.8	109	2,139	5,884	109
May				0		0	0	0	523	2,459	0
June			5	12.4	† 1	0	4.2	251	1,102	2,259	251
July			† 6	10.6	† 1	0	3.5	216	1,486	2,606	216
Aug			9	10.6	† 2	0	2.5	148	2,552	6,144	148
Sept.			3	8.8	† 1	0	4.6	276	1,983	5,104	276
Oct.				0		0	0	0	1,366	6,461	0
Nov.				0		0	0	0	150	1,054	0
Dec.				0		0	0	0	2,650	9,512	0
Yearly				12.4		0	2.5	1,857	22,517	43,674	1,857

† And other days Ø Mean daily

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 December 1965.

REMARKS: The wasteway structure has 3 manually operated rectangular gates which discharge from the Barrote Canal into a wasteway leading to the Colorado River.

Mean Daily Discharge in Second Feet 1965 — 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	13.1	0
22	0	0	0	0	0	0	0	0	0	0	7.1	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	17.7
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	24.7
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	20.2	42.4

Month	Current Year 1965								Period 1957-1965		
	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.				0		0	0	0	1,288	3,166	0
Feb.				0		0	0	0	720	2,788	0
Mar.				0		0	0	0	1,792	7,074	0
Apr.				0		0	0	0	1,305	4,462	0
May				0		0	0	0	1,613	4,413	0
June				0		0	0	0	336	1,505	0
July				0		0	0	0	730	4,296	0
Aug				0		0	0	0	390	1,857	0
Sept.				0		0	0	0	549	1,800	0
Oct.				0		0	0	0	1,194	6,997	0
Nov.			21	13.1	† 1	0		39.7	383	3,413	0
Dec.			29	24.7	† 1	0	.4	84.3	445	1,205	0
Yearly				24.7		0	0.4	124	10,744	24,526	124

† And other days Ø Mean daily

DIVERSIONS BY INDIVIDUAL PUMPS IN MEXICO

DESCRIPTION: Pumps operated by private individuals under the control and supervision of the Ministry of Hydraulic Resources, located along the Colorado River, 8 pumps being on the right bank in the limitrophe section and the others along both banks of the river 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 pump capacities and operation time. Records available: August 1958 through December 1965.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	6.0	6.7	7.8	6.4	17.0	3.9	0	0	0	0
2	0	0	6.0	3.9	13.4	10.6	14.5	3.9	0	0	0	0
3	0	0	6.0	0	13.4	12.0	14.5	7.1	0	0	0	0
4	2.1	0	14.1	6.0	13.4	14.1	14.5	8.1	0	0	0	0
5	3.9	0	14.1	6.0	13.4	11.7	14.8	4.2	0	0	0	0
6	3.9	0	6.0	6.0	13.4	11.7	10.2	4.2	0	0	0	0
7	3.9	0	9.9	6.0	13.4	15.9	6.0	6.0	7.8	0	0	0
8	3.9	2.1	9.9	8.5	9.5	16.2	10.2	6.0	9.9	0	0	0
9	3.9	2.8	7.8	4.6	6.0	13.8	10.2	9.5	12.0	0	0	0
10	3.9	3.9	6.0	2.5	2.8	9.5	10.2	9.5	14.1	0	0	0
11	3.9	3.9	6.0	7.4	0	9.5	8.1	13.1	14.1	0	0	0
12	3.9	3.9	7.8	3.9	0	9.5	4.6	14.1	12.0	0	0	0
13	3.9	3.9	9.9	3.9	0	9.5	7.8	14.1	9.5	0	0	0
14	3.9	2.1	9.9	3.9	0	9.5	9.5	8.1	10.6	0	0	0
15	3.9	3.9	9.9	3.9	0	9.5	6.0	3.5	10.6	0	0	0
16	3.9	3.9	6.0	3.9	0	9.5	0	0	4.6	0	0	0
17	3.9	3.9	0	3.9	0	11.3	0	0	.7	0	0	0
18	3.9	7.1	2.5	0	0	13.4	2.8	0	0	0	0	0
19	2.1	9.9	4.2	0	0	13.1	3.9	0	0	0	0	0
20	2.1	9.9	7.8	0	0	12.4	3.9	0	0	0	0	0
21	3.9	7.1	7.8	4.2	6.0	6.4	3.9	0	0	0	0	0
22	3.9	9.9	7.8	4.2	6.0	3.5	3.9	0	0	0	0	0
23	3.9	9.9	7.4	3.9	6.0	3.5	3.9	0	0	0	0	0
24	3.9	9.9	12.0	6.0	9.9	6.7	3.9	3.9	0	0	0	0
25	3.9	9.9	18.0	9.9	9.9	7.4	3.9	3.9	0	0	0	0
26	2.8	9.9	18.0	9.9	9.9	9.5	0	10.9	0	0	0	0
27	7.8	9.9	17.0	9.9	13.1	14.8	4.2	12.0	0	0	0	0
28	9.9	9.9	18.0	9.9	14.1	19.8	10.2	12.0	0	0	0	0
29	6.0		12.7	9.9	14.1	22.2	12.4	15.9	0	0	0	0
30	6.0		9.9	7.1	10.2	15.5	14.8	13.8	0	0	0	0
31	6.0		9.9		6.0		12.4	13.8		0		0
Sum	118.9	137.6	288.3	155.9	211.7	338.4	242.2	201.5	105.9	0	0	0

Current Year 1965									Period 1958-1965		
Month	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			28	9.9	† 1	0	3.9	235	159	358	0
Feb.			†19	9.9	† 1	0	4.9	272	235	791	0
Mar.			†25	18.0	17	0	9.2	572	252	572	0
Apr.			†25	9.9	† 3	0	5.3	309	271	486	0
May			†28	14.1	†11	0	6.7	420	313	440	112
June			29	22.2	†22	3.5	11.3	672	474	792	175
July			1	17.0	†16	0	7.8	481	489	651	371
Aug			29	15.9	†16	0	6.4	400	617	1,648	322
Sept.			†10	14.1	† 1	0	3.5	210	386	1,240	199
Oct.				0		0	0	0	90	186	0
Nov.				0		0	0	0	28	112	0
Dec.				0		0	0	0	87	255	0
Yearly				22.2		0	4.9	3,570	3,107	4,382	2,022

Ø Mean daily † And other days

COLORADO RIVER AT EL MARITIMO IN MEXICO - DISCHARGES

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. Zero of gage is 9.84 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 34 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. Records available: Mean daily stages and discharges from January 1, 1960 through December 1965. 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. When affected by tides in the Gulf of California, the discharge is deduced from stage-discharge curves based on measurements at low tide and the discharge at Miguel C. Rodríguez, taking into consideration the pumps and wasteways between the two stations.

REMARKS: The flow past this station is affected by the tides in the Gulf of California. Measurements for basic computations are taken near the date of the first or third quarter moon (neap tide).

EXTREMES: Maximum discharge, 4,410 second-feet, January 21, 1960; minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36.4	55.4	66.7	84.4	90.4	73.5	85.5	51.6	84.0	19.4	334	43.1
2	34.3	59.7	66.7	87.9	92.5	73.8	71.7	52.6	82.6	19.1	353	41.0
3	36.4	51.2	66.4	86.2	95.0	83.7	76.3	49.8	71.3	27.5	360	34.3
4	38.1	52.6	66.0	94.3	85.8	78.0	77.7	47.0	61.1	36.4	345	40.6
5	43.1	54.4	63.9	102	89.7	78.4	79.5	47.0	71.0	35.3	315	38.5
6	41.0	62.9	61.4	111	85.8	80.5	80.5	51.9	80.9	35.3	297	36.4
7	56.2	60.7	66.0	101	77.7	82.6	81.6	50.9	72.4	33.2	266	35.3
8	50.1	59.0	70.6	95.7	79.8	78.8	78.4	56.5	66.0	30.7	225	37.1
9	44.1	54.4	74.9	92.2	81.2	84.0	73.1	61.8	65.3	30.7	187	34.3
10	45.6	57.6	75.9	89.3	83.0	85.5	78.8	60.4	69.6	23.0	147	37.4
11	47.3	59.7	76.6	91.5	79.1	78.0	73.1	56.9	62.5	15.5	107	37.1
12	45.6	62.5	78.8	93.6	81.2	78.8	67.1	55.1	62.5	16.2	67.5	37.4
13	53.3	59.3	80.9	96.8	84.4	75.9	69.9	52.3	62.5	14.8	27.5	37.8
14	54.7	59.7	80.9	81.2	76.6	73.5	61.4	50.5	60.0	15.2	29.0	40.6
15	51.9	59.7	81.2	83.3	73.8	77.3	63.2	50.1	62.9	17.0	30.0	40.3
16	57.6	66.4	81.2	85.5	74.9	81.9	64.3	49.8	57.2	18.7	29.7	42.7
17	60.4	63.9	81.6	87.9	75.9	83.7	62.5	49.8	48.7	20.5	29.7	57.6
18	63.6	58.6	81.6	90.1	71.7	92.2	62.5	57.9	48.4	22.2	29.0	111
19	65.3	57.2	81.9	92.2	74.5	82.3	62.2	55.4	42.4	21.2	28.3	120
20	63.6	55.4	81.9	87.9	71.7	82.3	52.6	64.3	36.7	27.5	25.4	129
21	57.9	59.3	82.3	102	62.2	82.6	55.4	63.2	34.6	56.5	39.6	388
22	57.6	62.9	82.3	106	67.1	76.3	56.5	65.0	42.7	85.8	53.7	576
23	60.0	66.7	82.6	84.8	66.4	82.3	48.7	66.7	41.7	115	46.3	890
24	56.9	66.4	72.7	84.0	66.0	74.9	45.6	67.1	29.0	127	39.6	1,220
25	53.7	66.0	82.6	83.3	67.1	71.3	46.6	83.0	27.5	140	35.7	1,490
26	55.8	66.0	74.2	83.0	72.4	67.1	48.0	81.2	25.4	146	32.1	1,100
27	53.3	66.0	77.0	82.3	71.3	71.0	47.7	95.0	23.0	172	29.0	883
28	43.1	66.0	78.0	81.6	78.0	75.2	54.0	82.6	21.9	193	32.1	1,110
29	42.7		79.5	87.2	75.9	80.2	52.3	90.1	19.4	223	35.3	1,760
30	45.9		78.8	87.9	77.3	86.9	50.1	97.5	19.8	253	38.5	1,850
31	50.5		74.9		78.4		50.5	93.9		285		1,850
Sum	1,566.0	1,689.6	2,350.0	2,716.1	2,406.8	2,372.5	1,977.3	1,956.9	1,553.0	2,275.7	3,614.0	14,148.5

Month	Current Year 1965 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Ø Low Day	Extreme Second Feet Ø Low	Average Second Feet	Total Acre Feet	Period 1960-1965 Acre Feet Average	Maximum	Minimum
Jan.	14.76	14.63	19	Ø 65.3	2	34.3	50.5	3,106	58,149	225,224	1,111
Feb.	14.70	14.50	23	Ø 66.7	3	51.2	60.4	3,351	29,648	55,735	3,351
Mar.	14.73	14.44	23	Ø 82.6	6	61.4	75.9	4,662	7,889	16,226	98.9
Apr.	14.83	14.57	6	Ø 111	14	81.2	90.4	5,388	5,080	9,978	269
May	14.67	14.40	3	Ø 95.0	21	62.2	77.7	4,774	14,813	31,886	128
June	14.50	14.37	18	Ø 92.2	26	67.1	79.1	4,705	2,754	6,600	0
July	14.47	14.27	1	Ø 85.5	24	45.6	63.9	3,922	1,336	4,096	0
Aug	14.37	13.98	30	Ø 97.5	† 4	47.0	63.2	3,881	1,445	4,787	0
Sept.	14.40	14.11	1	Ø 84.0	29	19.4	51.9	3,081	6,588	23,532	0
Oct.	14.86	14.04	31	300	13	14.8	73.5	4,514	18,866	57,672	1,549
Nov.	15.06	14.76	2	410	20	25.4	120	7,173	49,791	94,442	7,173
Dec.	16.83	14.93	31	2,020	† 3	34.3	445	28,065	37,302	97,155	2,174
Yearly	16.83	13.98		2,020		14.8	104	76,622	233,660	503,260	76,622

† And other days Ø Mean daily

COLORADO RIVER AT EL MARITIMO IN MEXICO - STAGES

(See Preceding Page For Description)

Mean Daily Gage Height in Feet 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.67	14.67	14.53	14.63	14.60	14.47	14.40	14.30	14.34	14.14	14.90	14.93
2	14.67	14.67	14.50	14.63	14.60	14.47	14.40	14.30	14.37	14.14	14.90	14.93
3	14.67	14.67	14.53	14.63	14.57	14.44	14.40	14.30	14.37	14.14	14.96	14.93
4	14.67	14.63	14.53	14.63	14.57	14.47	14.40	14.30	14.34	14.14	14.99	14.93
5	14.63	14.63	14.53	14.67	14.60	14.47	14.40	14.30	14.34	14.14	14.99	14.93
6	14.67	14.67	14.57	14.70	14.60	14.47	14.40	14.30	14.30	14.14	15.03	14.93
7	14.70	14.67	14.57	14.73	14.57	14.47	14.40	14.27	14.30	14.14	15.03	14.96
8	14.70	14.63	14.57	14.80	14.57	14.44	14.40	14.30	14.30	14.14	14.99	14.96
9	14.70	14.67	14.57	14.76	14.57	14.44	14.44	14.27	14.27	14.14	14.96	14.99
10	14.67	14.63	14.57	14.73	14.57	14.47	14.37	14.24	14.30	14.14	14.93	14.99
11	14.70	14.63	14.60	14.73	14.60	14.47	14.37	14.24	14.30	14.11	14.90	15.03
12	14.70	14.63	14.60	14.73	14.60	14.47	14.37	14.24	14.30	14.14	14.90	15.03
13	14.70	14.63	14.60	14.70	14.63	14.47	14.44	14.21	14.27	14.14	14.86	15.03
14	14.70	14.63	14.60	14.73	14.60	14.47	14.44	14.21	14.27	14.11	14.86	15.03
15	14.70	14.60	14.60	14.70	14.57	14.44	14.44	14.21	14.27	14.11	14.83	15.03
16	14.70	14.60	14.63	14.70	14.57	14.44	14.44	14.21	14.24	14.07	14.83	15.03
17	14.70	14.60	14.63	14.70	14.60	14.44	14.44	14.17	14.21	14.07	14.86	15.03
18	14.70	14.60	14.63	14.70	14.57	14.44	14.44	14.14	14.17	14.11	14.83	15.03
19	14.70	14.60	14.63	14.70	14.57	14.44	14.44	14.14	14.21	14.17	14.80	15.06
20	14.70	14.60	14.63	14.67	14.53	14.44	14.34	14.17	14.21	14.24	14.80	15.06
21	14.70	14.60	14.63	14.67	14.53	14.44	14.34	14.17	14.17	14.30	14.80	15.32
22	14.73	14.63	14.67	14.67	14.50	14.44	14.37	14.21	14.17	14.37	14.83	15.52
23	14.73	14.53	14.67	14.63	14.50	14.44	14.34	14.17	14.17	14.44	14.90	15.85
24	14.73	14.57	14.63	14.63	14.53	14.44	14.34	14.17	14.17	14.50	14.90	16.17
25	14.70	14.57	14.63	14.63	14.47	14.40	14.34	14.07	14.21	14.57	14.93	16.24
26	14.70	14.57	14.67	14.60	14.47	14.40	14.30	14.07	14.24	14.60	14.93	16.17
27	14.70	14.60	14.63	14.60	14.44	14.40	14.30	14.01	14.24	14.67	14.93	16.14
28	14.70	14.57	14.63	14.60	14.44	14.40	14.30	14.01	14.21	14.70	14.93	16.24
29	14.67		14.63	14.60	14.44	14.40	14.30	13.98	14.17	14.76	14.93	16.54
30	14.67		14.63	14.60	14.44	14.40	14.30	14.07	14.14	14.80	14.93	16.80
31	14.70		14.67		14.44		14.30	14.30		14.83		16.73
Avg.	14.69	14.62	14.60	14.67	14.54	14.44	14.38	14.20	14.25	14.30	14.91	15.41

SANTA CLARA ESTUARY AT RAILROAD CROSSING IN MEXICO

DESCRIPTION: A measuring section was located at the entrance to a road culvert approximately 100 feet downstream from the Sonora-Baja California railroad bridge at Kilometer 66.2, 400 feet west of Monument C.I.L.A. F.C. 49, and 1.2 miles to the southwest along the road from the village of Riito. Beginning August 31, 1964, measurements obtained at a new drain constructed by the Ministry of Hydraulic Resources at a road which crosses the railroad at Kilometer 66, approximately 800 feet below the old station. The measuring site is located between the railroad culvert (Kilometer 66-A) and the highway culvert. No gage has been installed.

RECORDS: Based on 50 double current meter measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 1958 through December 1965.

REMARKS: The flow at this station consists of return flows from the wasteways on the left bank of the Colorado River and from the Bolsa Drain through an old channel of the Colorado River into the Gulf of California.

EXTREMES: Maximum discharge, 91.8 second-feet on November 10, 1958; minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.3	3.2	4.2	4.2	3.5	4.9	2.8	3.2	3.2	4.2	8.5	9.9
2	5.3	3.2	4.2	4.6	3.5	4.9	2.8	3.2	3.2	3.9	8.5	9.5
3	5.3	3.2	4.2	4.6	3.5	4.9	2.8	3.2	2.8	3.5	8.5	9.2
4	5.3	3.2	4.2	4.6	4.2	4.6	2.8	3.2	2.8	3.2	8.1	9.2
5	5.3	3.2	4.2	4.9	4.6	4.6	2.8	3.2	2.8	2.8	8.1	8.8
6	4.9	3.2	4.2	4.9	4.9	4.2	2.5	2.8	2.8	2.8	7.8	8.8
7	4.9	3.5	4.6	4.9	5.3	4.2	2.5	2.8	2.8	2.5	7.8	8.5
8	4.9	3.5	4.6	4.9	5.7	4.2	2.8	2.8	2.5	2.5	7.4	8.8
9	4.9	3.5	4.6	4.9	6.0	4.2	2.8	2.5	2.8	2.1	7.4	9.2
10	4.9	3.2	4.6	4.9	6.4	4.2	2.8	2.5	2.8	2.1	7.1	9.5
11	4.9	3.2	4.6	4.6	6.4	4.2	2.8	2.1	2.8	2.1	7.1	9.9
12	4.9	3.2	4.2	4.6	6.4	4.2	2.8	2.1	2.8	1.8	7.1	9.9
13	4.6	3.2	4.2	4.6	6.4	4.2	2.8	2.5	2.8	1.8	6.7	10.2
14	4.6	3.2	4.2	4.2	6.0	3.9	2.8	2.5	2.8	2.8	6.7	10.6
15	4.6	3.2	4.2	4.2	6.0	3.9	3.2	2.5	2.8	3.9	6.4	10.2
16	4.6	3.5	4.2	4.2	6.0	3.9	3.2	2.5	3.2	4.9	6.4	9.9
17	4.2	3.5	4.2	3.9	6.0	3.9	3.5	2.5	3.2	6.4	6.7	9.2
18	4.2	3.9	4.2	3.9	5.7	3.9	3.5	2.5	2.8	7.4	7.1	8.8
19	4.2	4.2	4.2	3.9	6.0	3.9	3.9	2.8	2.8	8.5	7.1	8.5
20	4.2	4.6	4.2	3.5	6.0	3.9	3.9	2.8	2.8	8.5	7.4	8.1
21	4.2	4.9	3.9	3.5	6.4	3.9	3.9	3.2	2.8	8.1	7.8	7.4
22	3.9	4.9	3.9	3.5	6.4	3.9	3.5	3.2	2.8	8.1	7.8	7.4
23	3.9	4.9	3.9	3.5	6.7	3.9	3.5	3.5	3.2	8.1	8.1	7.8
24	3.9	4.9	3.9	3.5	6.7	3.5	3.5	3.5	3.5	7.8	8.5	7.8
25	3.9	4.6	3.9	3.5	7.1	3.5	3.2	3.5	3.5	7.8	8.8	7.8
26	3.9	4.6	3.9	3.5	6.7	3.5	3.2	3.5	3.9	7.8	8.8	7.8
27	3.5	4.2	3.9	3.5	6.4	3.2	3.2	3.5	4.2	7.8	9.2	7.8
28	3.5	4.2	3.9	3.5	6.4	3.2	3.2	3.5	4.6	8.1	9.5	7.8
29	3.5		3.9	3.5	6.0	2.8	3.2	3.5	4.6	8.1	9.9	7.8
30	3.5		3.9	3.5	5.7	2.8	3.2	3.2	4.2	8.1	9.9	7.8
31	3.2		4.2		5.3		3.2	3.2		8.5		7.4
Sum	136.9	105.8	129.2	124.0	178.3	119.0	96.6	91.5	94.6	166.0	236.2	271.3

Month	Current Year 1965 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 1958-1965 Acre Feet Average	Maximum	Minimum
Jan.			† 1	5.3	31	3.2	4.6	272	674	1,981	0
Feb.			†21	4.9	† 1	3.2	3.9	210	532	1,892	0
Mar.			† 7	4.6	†21	3.9	4.2	257	603	2,031	0
Apr.			† 5	4.9	†20	3.5	4.2	247	1,060	2,706	0
May			25	7.1	† 1	3.5	5.7	353	1,214	2,615	0
June			† 1	4.9	†29	2.8	3.9	237	755	1,677	0
July			†19	3.9	† 6	2.5	3.2	192	146	683	0
Aug			†23	3.5	†11	2.1	2.8	182	277	998	0
Sept.			†28	4.6	8	2.5	3.2	188	691	2,058	0
Oct.			†19	8.5	†12	1.8	5.3	329	1,287	4,610	0
Nov.			29	9.9	†15	6.4	7.8	468	937	4,088	122
Dec.			14	10.6	†21	7.4	8.8	538	400	1,089	73.5
Yearly				10.6		1.8	4.9	3,473	8,577	24,595	1,107

Ø Mean daily † And other days

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 United States Geological Survey.

In Thousands of Acre-Feet

Month	LAKE MEAD (Capacity 27,207.0)		LAKE MOHAVE (Capacity 1,810.0)		HAVASU LAKE (Capacity 619.4)		TOTAL IN UNITED STATES RESERVOIRS (Capacity 29,636.4)	
	1965	Average 1935-1965	1965	Average 1951-1965	1965	Average 1939-1965	1965	Estimated Average
Jan.	11,279.0	16,592.5	1,680.0	1,642.9	542.7	558.6	13,501.7	18,794.0
Feb.	11,352.0	16,228.4	1,682.0	1,679.7	517.5	563.4	13,551.5	18,471.5
Mar.	11,148.0	15,903.3	1,665.0	1,677.4	535.1	578.4	13,348.1	18,159.1
Apr.	11,726.0	16,126.1	1,715.0	1,697.7	550.6	605.4	13,991.6	18,429.2
May	13,218.0	17,433.3	1,790.0	1,738.6	599.4	600.7	15,607.4	19,772.6
June	14,798.0	19,245.3	1,723.0	1,608.7	589.3	604.6	17,110.3	21,458.6
July	14,660.0	19,501.5	1,554.0	1,465.8	581.3	594.7	16,795.3	21,562.0
Aug.	14,662.0	19,175.0	1,420.0	1,393.7	560.2	577.4	16,642.2	21,146.1
Sept.	14,708.0	18,742.2	1,374.0	1,398.3	550.4	572.9	16,632.4	20,713.4
Oct.	14,824.0	18,365.2	1,398.0	1,422.6	556.5	579.3	16,778.5	20,367.1
Nov.	15,040.0	18,005.7	1,513.0	1,505.2	546.7	566.4	17,099.7	20,077.3
Dec.	15,233.0	17,572.1	1,738.0	1,619.7	556.7	562.0	17,527.7	19,753.8
Avg.	13,554.0	17,740.9	1,604.3	1,570.9	557.2	580.3	15,715.5	19,892.1
Max.	15,233.0	27,780.0	1,790.0	1,808.0	599.4	688.7	17,527.7	28,235.0
Min.	11,148.0	* 10,727.0	1,374.0	1,186.0	517.5	76.9	13,348.1	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	1965							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 1956-1965

Jan.	113,983,000	4,400	12	0.0039	0.0062	0.0024	2.4	55.5	336	1.6
Feb.	99,616,000	6,100	11	.0061	.0108	.0027	3.3	23.6	116	1.6
Mar.	231,519,000	47,000	14	.0203	.0513	.0089	25.5	74.0	499	8.8
Apr.	269,688,000	36,600	13	.0135	.0314	.0052	19.8	69.5	434	9.4
May	111,623,000	7,100	12	.0064	.0100	.0049	3.8	26.3	201	3.8
June	178,363,000	9,400	14	.0053	.0078	.0034	5.1	24.3	92.6	5.1
July	279,338,000	13,700	12	.0049	.0067	.0034	7.4	33.0	89.3	7.4
Aug.	309,609,000	14,600	13	.0047	.0069	.0030	7.9	30.4	103	7.9
Sept.	128,065,000	9,200	11	.0072	.0206	.0027	5.0	13.9	43.6	2.9
Oct.	67,011,000	1,500	13	.0022	.0099	.0007	.8	6.5	20.0	.8
Nov.	93,613,000	5,500	13	.0059	.0140	.0014	3.0	19.9	89.9	1.0
Dec.	188,930,000	13,100	12	.0069	.0176	.0011	7.1	38.6	174	.6
Yearly	2,071,358,000	168,200	150	0.0081	0.0513	0.0007	91.1	415.5	2,198	91.1

Samples by U. S. Section, and Analyses by Mexican Section, Method A

Colorado River at Southerly International Boundary

Period 1946-1965

Jan.	2,475,000		0							
Feb.	2,772,000		0							
Mar.	2,029,000		0							
Apr.	8,132,000	700	1	0.0086	0.0141	0.0020	0.4			
May	1,420,000		0							
June	194,000		0							
July	0		0							
Aug.	0		0							
Sept.	0		0							
Oct.	38,661,000	900	7	.0023	.0043	.0010	.5			
Nov.	20,423,000	300	4	.0015	.0017	.0007	.2			
Dec.	62,332,000	5,100	7	.0082	.0172	.0015	2.8			
Yearly	138,438,000		19							

Samples by U. S. Section, and Analyses by Mexican Section, Method A

SUSPENDED SILT

Intake Canal at Morelos Diversion Structure

Period 1952-1965

Month	1965 Tons Water	1965 Tons Silt	1965 No. of Samples	1965 Gravimetric Percentages Average	1965 Gravimetric Percentages Maximum Sample	1965 Gravimetric Percentages Minimum Sample	1965 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Average	Period of Record Maximum	Period of Record Minimum
Jan.	112,829,000	3,742	4	0.0033	0.0049	0.0015	2.0	6.7	22.3	0.2
Feb.	98,449,000	5,928	4	.0060	.0080	.0040	3.2	7.0	19.4	.9
Mar.	230,164,000	37,062	5	.0161	.0503	.0076	20.0	60.1	154.0	11.1
Apr.	261,440,000	35,474	6	.0136	.0314	.0068	19.1	54.8	121.2	16.1
May	110,496,000	6,200	4	.0056	.0073	.0028	3.3	15.6	51.2	3.3
June	177,115,000	13,969	4	.0079	.0098	.0062	7.5	45.7	108.6	7.4
July	277,687,000	22,077	5	.0079	.0102	.0059	11.9	64.0	155.9	11.9
Aug.	308,325,000	26,235	4	.0085	.0109	.0061	14.2	58.2	135.3	14.2
Sept.	127,115,000	10,850	5	.0085	.0160	.0008	5.8	24.5	64.7	2.8
Oct.	14,213,000	676	1	.0048	.0053	.0043	.3	5.4	12.0	.3
Nov.	82,868,000	10,164	4	.0123	.0203	.0058	5.5	2.7	9.3	.2
Dec.	135,830,000	16,772	5	.0123	.0254	.0047	9.1	5.7	14.8	1.1
Yearly	1,936,531,000	189,149	51	0.0098	0.0503	0.0008	101.9	350.4	696.3	101.9

Samples and Analyses by Mexican Section, Method B

Colorado River at Miguel C. Rodriguez Gaging Station

Period 1960-1965

Month	1965 Tons Water	1965 Tons Silt	1965 No. of Samples	1965 Gravimetric Percentages Average	1965 Gravimetric Percentages Maximum Sample	1965 Gravimetric Percentages Minimum Sample	1965 Acre-Feet at 1,847 Tons Per Acre Foot	Period of Record Average	Period of Record Maximum	Period of Record Minimum
Jan.	579,000	31	3	0.0053	0.0121	0.0011	0	46.2	251	0
Feb.	431,000	24	4	.0056	.0190	.0010	0	6.5	13.9	0
Mar.	503,000	41	5	.0081	.0297	.0030	0	1.0	4.1	0
Apr.	2,282,000	620	4	.0271	.0574	.0204	.3	.2	1.1	0
May	541,000	39	4	.0071	.0310	.0020	0	.7	1.5	0
June	108,000	27	5	.0246	.0495	.0110	0	0	.1	0
July	367,000	25	4	.0069	.0402	.0010	0	0	.1	0
Aug.	574,000	101	4	.0177	.0629	.0021	.1	.1	.2	0
Sept.	693,000	63	5	.0091	.0201	.0050	0	.8	4.5	0
Oct.	11,965,000	474	8	.0040	.0248	.0010	.2	4.6	20.8	.1
Nov.	10,574,000	564	7	.0053	.0310	.0060	.3	7.6	36.0	.3
Dec.	52,973,000	19,925	7	.0376	.1080	.0020	10.8	7.3	13.0	0
Yearly	81,590,000	21,934	60	0.0269	0.1080	0.0010	11.7	75.0	289	7.3

Samples and Analyses by Mexican Section, Method C

CHEMICAL ANALYSES OF WATER SAMPLES
1965

The tables below are based on chemical analyses of weekly samples from the Colorado River at the Northerly International Boundary taken by the United States Section of this Commission and analyzed by the United States Geological Survey. Samples from the Intake Canal at Morelos Diversion Structure were taken by the Mexican Section of this Commission and analyzed by the Ministry of Hydraulic Resources.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20; Mg, 12.16; Na, 23; (CO_3 plus HCO_3) expressed as CO_3, 30; SO_4, 48; Cl, 35.5; NO_3, 62. 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		ECx10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3

Colorado River at Northerly International Boundary

Jan.	4	1.90	159,000	2,340		8.0	53	47	6.83	4.28	12.64	3.51	9.01	11.24	
Feb.	4	1.92	141,000	2,390		8.0	53	49	7.22	4.10	12.82	3.49	8.65	11.74	
Mar.	5	1.91	326,000	2,380		8.0	53	49	6.88	4.27	12.79	3.21	8.88	11.83	
Apr.	4	1.79	355,000	2,050		7.9	53	46	6.25	3.67	11.11	3.05	8.39	9.60	
May	4	1.94	159,000	2,430		7.9	52	50	7.24	4.47	12.66	3.52	8.78	12.07	
June	5	1.86	244,000	2,260		7.9	52	47	6.79	4.13	11.78	3.24	8.77	10.67	
July	4	1.86	383,000	2,260		7.7	53	46	6.52	4.04	12.02	3.06	9.33	10.56	
Aug.	5	1.77	404,000	2,200		7.9	52	46	6.46	3.94	11.42	3.10	8.70	10.02	
Sept.	4	1.89	178,000	2,350		8.0	51	47	6.86	4.31	11.70	3.46	8.72	10.69	
Oct.	5	2.60	128,000	3,190		7.8	56	55	8.47	5.59	17.70	4.20	10.01	17.41	
Nov.	5	1.83	126,000	2,360		7.9	52	48	6.73	4.31	12.06	3.64	8.44	11.02	
Dec.	4	1.32	184,000	1,670		7.7	48	40	5.06	3.24	7.65	3.14	6.41	6.40	
Mean ⊕	Ø53	1.83	Ø2,787,000	2,240		7.9	52	47	6.59	4.06	11.75	3.26	8.61	10.55	
Period Avg.		1.91	3,193,000	2,320		7.8	53	48	6.78	4.21	12.32	3.26	8.88	11.18	
Tons of Constituents 1965									273,000	102,000	560,000	203,000	857,000	776,000	
Avg. Tons Period 1962-1965									308,000	116,000	644,000	222,000	968,000	904,000	

Intake Canal at Morelos Diversion Structure

Jan.	31	1.90	158,000	2,247		8.0	50		6.43	4.73	11.14	3.59	8.23	10.49	
Feb.	28	1.94	141,000	2,261		8.0	50		6.51	4.73	11.19	3.48	8.15	10.79	
Mar.	31	1.90	322,000	2,232		8.0	50		6.25	4.90	10.95	3.23	8.08	10.80	
Apr.	30	1.77	340,000	2,118		8.0	50		5.85	4.60	10.47	3.18	7.87	9.89	
May	31	1.97	160,000	2,306		7.9	50		6.40	5.07	11.36	3.43	8.42	10.98	
June	30	1.89	247,000	2,228		7.7	49		6.25	4.91	10.93	3.20	8.31	10.56	
July	31	1.88	383,000	2,189		7.8	50		6.02	4.79	10.85	3.01	8.21	10.45	
Aug.	31	1.81	411,000	2,117		7.9	50		5.83	4.65	10.45	2.99	8.21	9.76	
Sept.	30	1.96	183,000	2,295		8.6	51		6.37	4.73	11.52	3.31	8.61	10.71	
Oct.	6	2.04	21,300	2,417		8.0	52		6.30	5.30	12.38	3.53	8.78	11.67	
Nov.	26	1.86	114,000	2,188		8.1	50		6.13	4.58	10.91	3.48	8.48	9.66	
Dec.	31	1.52	153,000	1,782		8.5	49		5.12	3.75	8.67	3.20	7.13	7.21	
Mean ⊕	Ø336	1.88	Ø2,633,000	2,198		8.0	50		6.12	4.73	10.90	3.30	8.21	10.25	
Period Avg.		1.93	2,740,000	2,277		8.0	50		6.24	4.95	11.54	3.40	8.29	11.04	
Tons of Constituents 1965									235,000	109,000	477,000	379,000	756,000	697,000	
Avg. Tons Period 1962-1965									243,000	116,000	509,000	386,000	782,000	745,000	

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

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

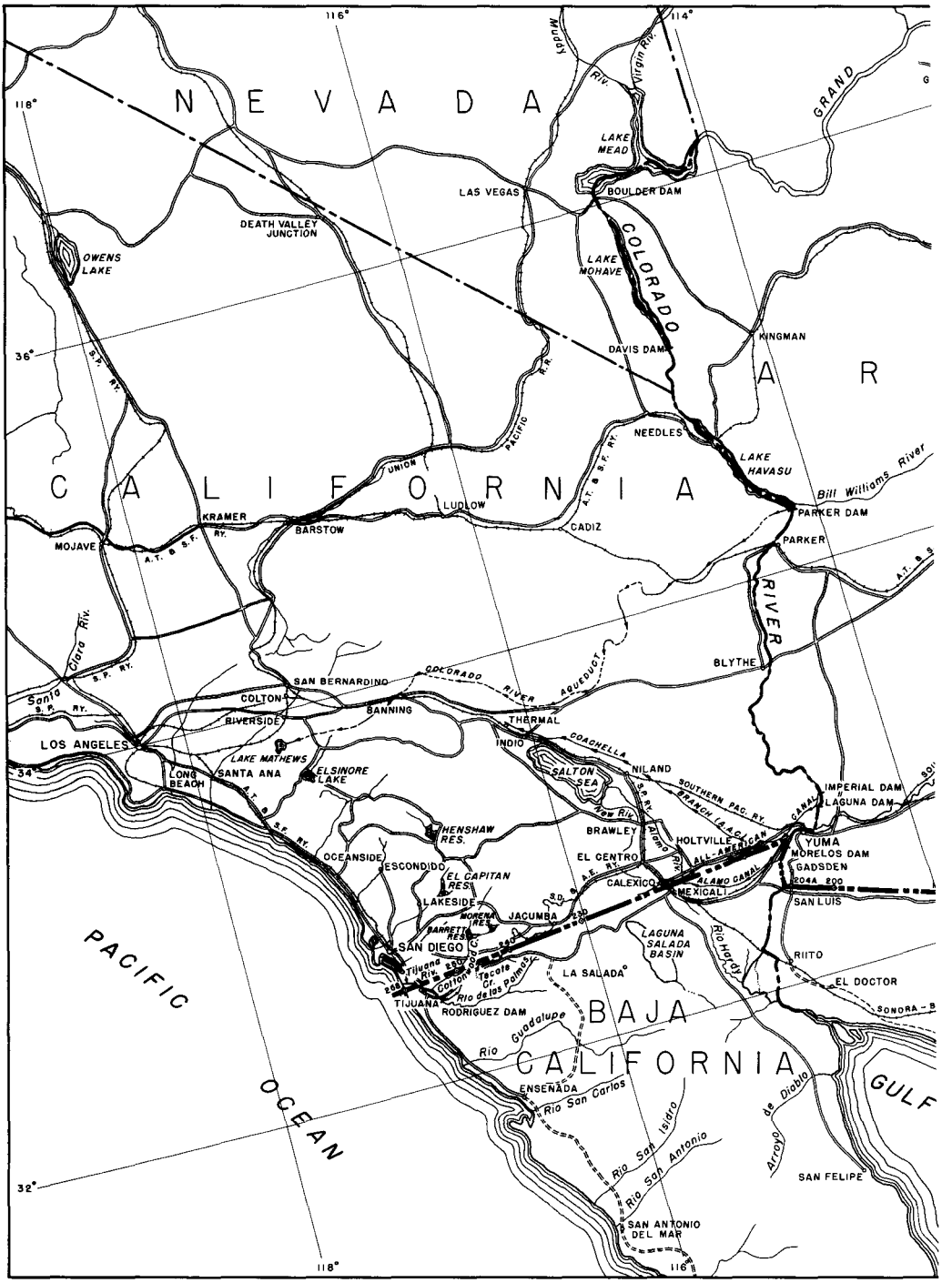
1965

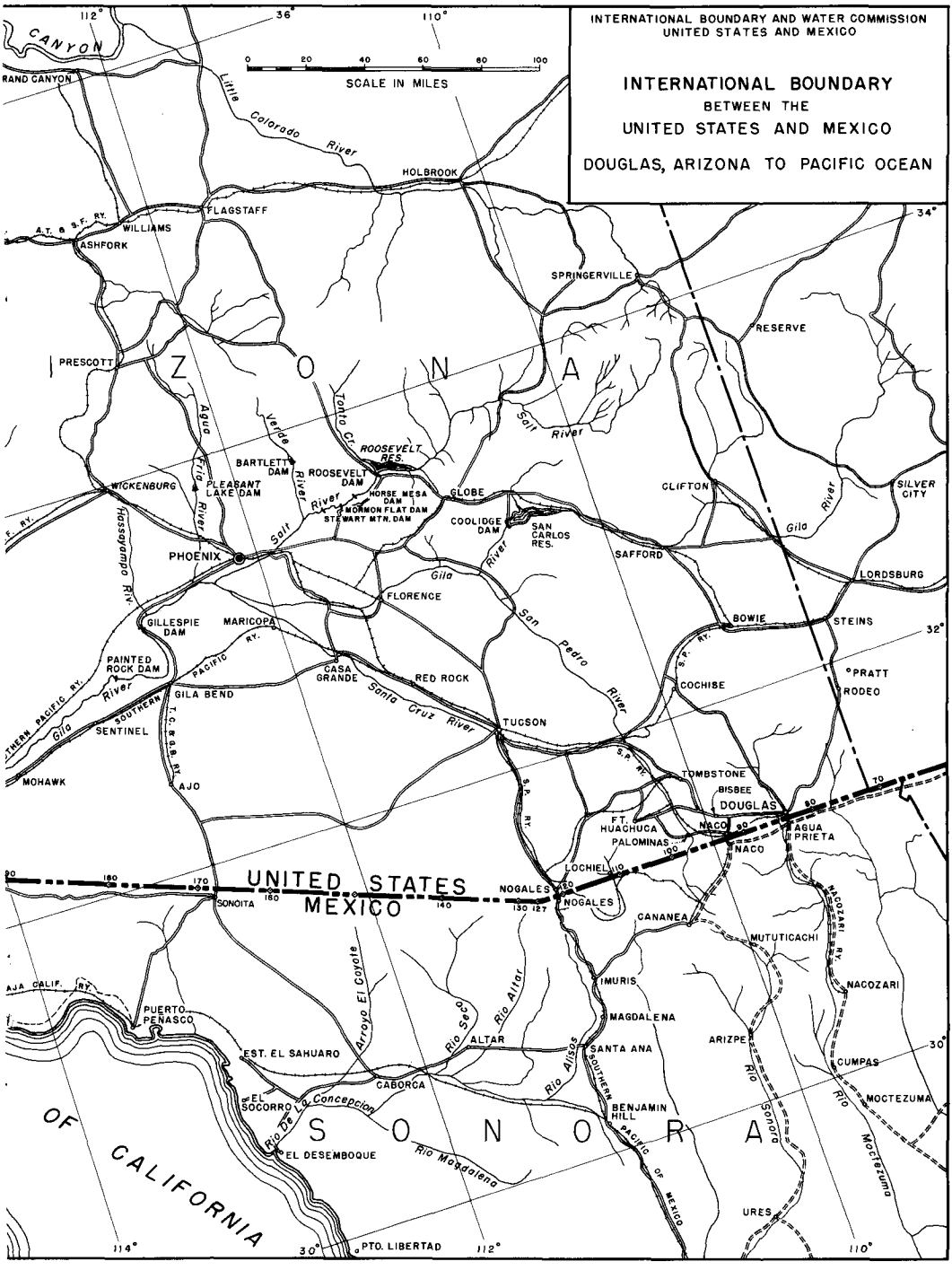
The following tables show electrical conductivity, expressed in mhos per centimeter cube x 10^6 at 25°C, of individual water samples taken at Colorado River stations. Samples were taken at the Northerly and Southerly International Boundary stations by the United States Section of this Commission and conductivity determinations were made by the United States Geological Survey. Samples for the Intake Canal at Morelos Dam station were taken by the Mexican Section of the Commission and determinations were made by the Ministry of Hydraulic Resources.

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	
4	2,310	15	2,420	1	2,230	17	2,370	1	2,370	18	2,170	1	2,490	15	2,410
5	2,320	16	2,430	2	2,250	18	2,400	2	2,270	19	2,230	2	2,420	16	2,180
6	2,300	17	2,220	5	1,800	19	2,390	6	2,290	20	2,160	4	2,420	17	2,010
7	2,050	18	2,200	6	1,820	20	2,380	7	2,300	23	2,070	5	2,430	18	2,090
8	2,090	19	2,130	7	1,970	21	2,530	8	2,220	24	2,280	5	2,400	19	1,980
11	2,280	23	2,420	8	2,230	24	2,510	9	2,210	25	2,160	6	2,720	22	2,070
12	2,350	24	2,420	9	2,080	25	2,530	12	2,230	26	2,320	7	3,360	23	2,060
13	2,210	25	2,410	12	2,240	26	2,390	13	2,250	27	2,300	8	3,400	24	2,010
14	2,350	26	2,370	13	2,320	27	2,460	14	2,250	30	2,410	11	3,370	26	2,040
15	2,110	March		14	2,100	28	2,280	15	2,210	31	2,410	12	3,390	29	2,130
18	2,490	1	2,160	15	2,150	June		16	2,250	September		13	3,410	30	2,300
19	2,460	2	2,440	16	2,090	1	2,490	19	2,280	1	2,340	14	3,450	December	
20	2,330	3	2,410	19	2,150	2	2,340	20	2,270	2	2,390	15	3,460	1	2,220
21	2,280	4	2,380	20	2,240	3	2,350	21	2,250	3	2,420	18	3,450	2	2,010
22	2,360	5	2,410	21	2,400	4	2,350	22	2,250	7	2,350	19	3,470	3	2,000
25	2,380	8	2,420	22	2,420	7	2,300	23	2,140	8	2,300	20	3,340	6	1,970
26	2,330	9	2,400	23	2,180	8	2,480	26	2,240	9	2,330	21	3,520	7	2,150
27	2,300	10	2,390	26	2,330	9	2,400	27	2,190	10	2,320	22	3,570	8	2,240
28	2,370	11	2,150	27	2,430	10	2,210	28	2,260	13	2,390	25	3,500	9	2,130
29	2,400	12	2,060	28	2,240	11	2,340	29	2,220	14	2,440	26	3,430	10	1,780
February		15	2,450	29	2,210	14	2,310	30	2,250	15	2,390	27	3,460	13	1,840
1	2,230	16	2,110	30	2,280	15	2,260	August		16	2,340	28	3,520	14	1,940
2	2,300	17	2,140	May		16	2,450	2	2,240	17	2,340	31	3,490	15	1,900
3	2,420	18	2,200	3	2,410	17	2,330	3	2,060	20	2,380	November		16	1,960
4	2,420	19	2,380	4	2,420	18	2,350	4	1,970	21	2,370	1	3,490	17	1,900
5	2,380	20	2,410	5	2,320	21	2,150	5	1,990	22	2,410	2	3,500	20	1,530
8	2,350	22	2,420	6	2,360	22	2,100	6	2,100	23	2,370	3	3,400	21	1,290
9	1,900	23	2,420	7	2,400	23	2,090	9	2,170	24	2,290	4	2,960	22	1,430
10	2,330	24	2,400	10	2,380	24	2,030	10	2,160	27	2,260	5	2,160	23	1,460
11	2,320	25	2,400	11	2,130	25	2,060	11	2,160	28	2,290	8	2,490	27	1,550
12	2,460	26	2,400	12	2,230	28	2,240	12	2,210	29	2,230	9	2,400	28	1,500
13	2,400	29	2,340	13	2,250	29	2,250	13	1,970	30	2,300	10	2,480	29	1,720
14	2,320	30	2,310	14	2,300	30	2,350	16	2,170			12	2,460	30	1,640
		31	2,340					17	2,140						


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


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

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1965

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		March		May		June		July		September		November	
1	2,250	13	2,250	27	2,200	7	2,250	18	2,325	30	2,200	10	2,250	19	1,950
2	2,275	14	2,250	28	2,100	8	2,325	19	2,300	31	2,200	11	2,350	20	1,900
3	2,100	15	2,300	29	2,250	9	2,300	20	2,200	August		12	2,350	21	2,050
4	2,200	16	2,350	30	2,200	10	2,325	21	2,100	1	2,250	13	2,300	22	1,950
5	2,000	17	2,150	31	2,200	11	2,150	22	2,100	2	2,150	14	2,400	23	2,025
6	2,200	18	2,100	April		12	2,250	23	2,050	3	1,950	15	2,300	24	2,000
7	2,000	19	2,100	1	2,200	13	2,200	24	2,100	4	1,950	16	2,300	25	1,950
8	2,000	20	2,250	2	2,250	14	2,300	25	2,000	5	2,000	17	2,250	26	2,000
9	2,275	21	2,200	3	1,800	15	2,300	26	2,150	6	2,025	18	2,400	27	2,000
10	2,200	22	2,300	4	1,750	16	2,300	27	2,200	7	2,100	19	2,400	28	2,000
11	2,300	23	2,300	5	1,650	17	2,275	28	2,200	8	2,050	20	2,350	29	2,200
12	2,200	24	2,350	6	1,825	18	2,250	29	2,150	9	2,150	21	2,300	30	2,200
13	2,200	25	2,350	7	2,050	19	2,350	30	2,150	10	2,100	22	2,300	December	
14	2,350	26	2,300	8	2,100	20	2,300	July		11	2,100	23	2,300	1	2,150
15	2,050	27	2,350	9	2,050	21	2,450	1	2,200	12	2,150	24	2,250	2	2,000
16	2,050	28	2,400	10	2,100	22	2,400	2	2,150	13	1,950	25	2,300	3	2,050
17	2,600	March		11	2,200	23	2,400	3	2,150	14	2,000	26	2,300	4	2,000
18	2,400	1	2,100	12	2,150	24	2,400	4	2,100	15	1,950	27	2,300	5	1,975
19	2,400	2	2,450	13	2,150	25	2,400	5	2,200	16	2,150	28	2,200	6	1,950
20	2,200	3	2,350	14	2,100	26	2,350	6	2,200	17	2,150	29	2,250	7	2,150
21	2,150	4	2,300	15	2,150	27	2,400	7	2,200	18	2,100	30	2,250	8	2,225
22	2,300	5	2,350	16	2,050	28	2,200	8	2,200	19	2,100	October		9	2,100
23	2,250	6	2,200	17	2,100	29	2,050	9	2,175	20	2,150	1	2,450	10	1,725
24	2,300	7	2,150	18	2,200	30	2,300	10	2,300	21	2,150	2	2,300	11	1,725
25	2,250	8	2,300	19	2,150	31	2,300	11	2,200	22	1,950	3	2,300	12	1,825
26	2,300	9	2,300	20	2,200	June		12	2,200	23	2,200	4	2,300	13	1,825
27	2,250	10	2,200	21	2,300	1	2,400	13	2,200	24	2,250	5	2,400	14	1,950
28	2,300	11	2,050	22	2,350	2	2,300	14	2,200	25	2,150	6	2,750	15	1,900
29	2,400	12	2,025	23	2,050	3	2,300	15	2,150	26	2,225	November		16	1,950
30	2,500	13	2,200	24	2,150	4	2,300	16	2,200	27	2,200	5	2,150	17	1,900
31	2,400	14	2,150	25	2,250	5	2,250	17	2,175	28	2,300	6	2,400	18	1,800
February		15	2,350	26	2,250	6	2,300	18	2,225	29	2,075	7	2,450	19	1,800
1	2,150	16	2,050	27	2,350	7	2,250	19	2,200	30	2,300	8	2,500	20	1,550
2	2,250	17	2,050	28	2,200	8	2,400	20	2,250	31	2,300	9	2,350	21	1,300
3	2,350	18	2,100	29	2,200	9	2,300	21	2,200	September		10	2,450	22	1,350
4	2,300	19	2,250	30	2,200	10	2,125	22	2,200	1	2,300	11	2,400	23	1,450
5	2,350	20	2,400	May		11	2,250	23	2,150	2	2,250	12	2,400	24	1,625
6	2,300	21	2,400	1	2,350	12	2,200	24	2,150	3	2,300	13	2,350	25	1,600
7	2,200	22	2,300	2	2,400	13	2,300	25	2,150	4	2,300	14	2,400	26	1,500
8	2,300	23	2,300	3	2,350	14	2,250	26	2,150	5	2,300	15	2,400	27	1,500
9	1,850	24	2,300	4	2,300	15	2,250	27	2,175	6	2,250	16	2,150	28	1,425
10	2,250	25	2,325	5	2,250	16	2,300	28	2,200	7	2,200	17	2,050	29	1,700
11	2,300	26	2,300	6	2,300	17	2,325	29	2,200	8	2,250	18	2,200	30	1,625
12	2,400									9	2,300			31	1,625

Colorado River at Southerly International Boundary

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		April		May		October		November		December	
8	2,060	9	1,870	1	1,710	6	1,750	17	1,920	8	3,180	4	3,420	7	8,150
14	2,100	19	1,940	11	2,410	12	2,020	24	1,810	13	3,390	9	2,850	14	8,220
19	2,170	23	2,110	15	1,980	19	1,990	June		19	3,410	15	2,770	20	3,660
25	2,670			22	1,840	May		1	1,890	26	3,510	19	7,710	23	2,720
29	2,070			29	1,950	3	1,980	21	1,690			22	8,580	28	2,320
						10	2,030								

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 this Commission. For location, elevation, period of record, and the observer, see alphabetical listings of these stations on page 56 in this bulletin.

In United States

Month	Brawley, California		El Centro, California		Blythe, California		Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1965	Average 1931-1965	1965	Average 1931-1965	1965	Average 1931-1965	1965	Average 1955-1965	1965	Average 1931-1965
Jan.	0.05	0.31	T	0.36	0.17	0.46	0.09	0.42	0.71	0.39
Feb.	.15	.33	.16	.37	.12	.43	.88	.45	.45	.36
Mar.	.17	.12	.20	.18	.48	.37	.83	.33	.14	.20
Apr.	.75	.09	.61	.12	1.91	.17	3.34	.45	1.19	.13
May	0	.01	0	0	.02	.02	T	.08	0	.01
June	0	.01	0	.01	0	.03	0	0	.22	.02
July	T	.02	T	.09	.02	.19	.23	.21	.01	.17
Aug.	0	.29	0	.34	.06	.79	.46	.58	.08	.44
Sept.	0	.28	0	.25	.07	.34	.11	.31	0	.34
Oct.	0	.22	0	.23	0	.27	T	.34	0	.43
Nov.	.38	.11	.24	.11	.85	.24	2.29	.53	.69	.15
Dec.	1.87	.47	1.88	.49	2.31	.58	3.13	.51	1.60	.42
Yearly	3.37	2.26	3.09	2.55	6.01	3.89	11.36	4.21	5.09	3.06

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Ampac, Baja California		Bataques, Baja California		San Luis, R. C., Sonora	
	1965	Average 1948-1965	1965	Average 1926-1965	1965	Average 1949-1965	1965	Average 1948-1965	1965	Average 1949-1965
Jan.	0.59	0.43	0.12	0.35	0.16	0.24	0	0.39	0.71	0.31
Feb.	.63	.20	.24	.35	.20	.16	.20	.08	.31	.12
Mar.	.04	.08	.08	.20	.12	.12	0	.04	0	.08
Apr.	1.10	.08	.39	.12	.39	.08	1.14	.08	T	.04
May	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0
July	.04	.04	T	.08	0	.04	T	0	0	.12
Aug.	.04	.20	.20	.31	0	.39	0	.08		.43
Sept.	0	.16	0	.31	0	.04	0	.04		.16
Oct.	0	.31	0	.28	0	.20	0	.24		.16
Nov.	.55	.16	.28	.12	.20	.04	.20	.08		.04
Dec.	2.24	.31	2.01	.87	2.40	.31	1.89	.24	1.81	.31
Yearly	5.23	1.97	3.32	3.03	3.47	1.65	3.43	1.22		# 1.54

Month	Delta, Baja California		Kilometer 50, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California	
	1965	Average 1948-1965	1965	Average 1952-1965	1965	Average 1959-1965	1965	Average 1949-1965	1965	Average 1948-1965
Jan.	0.59	0.39	0.67	0.75	0.39	0.31	0	0.20	0.28	0.28
Feb.	.24	.08	.31	.24	0	0	.04	.08	0	.08
Mar.	.08	.08	.08	.28	.04	0	0	.12	0	.20
Apr.	.16	.04	.51	.16	.08	0	0	.04	0	.12
May	0	0	0	.04	0	0	0	0	0	0
June	0	0	0	0	0	0	.04	0	0	.08
July	.12	.04	0	.16	.08	0	0	.08	0	.12
Aug.	0	.12	0	.43	0	.12	0	.39	0	.31
Sept.	0	.12	0	.20	0	.20	0	.39	0	.20
Oct.	0	.20	0	.47	0	.08	0	.24	0	.39
Nov.	.20	.04	.71	.24	.47	.20	.31	.08	.04	.08
Dec.	.79	.31	2.20	.39	.59	.55	.79	.31	.87	.39
Yearly	2.18	1.38	4.48	1.85	1.65	1.18	1.18	1.97	1.19	2.24

T Trace # 1949-1961 Average

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 1965. The state in which each station is located follows the name of the station.

In United States

NAME OF STATION	LATITUDE	LONGITUDE	ð 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	ð ELEV. (FT.)	RECORD BEGAN	OBSERVER
Ampac, Baja California	32° 34'	115° 26'	16	1949	Jabonera del Pacífico
Bataques, Baja California	32° 33'	115° 04'	** 66	1948	Hydraulic Resources
Delta, Baja California	32° 21'	115° 11'	** 39	1948	Hydraulic Resources
El Mayor, Baja California	32° 08'	115° 15'	** 33	1949	Hydraulic Resources
Kilometer 50, Baja California	32° 15'	115° 03'	49	1952	Hydraulic Resources
Los Algodones, Baja California	32° 42'	114° 44'	115	1948	Hydraulic Resources
Mexicali, Baja California	32° 40'	115° 28'	13	1926	Hydraulic Resources
Riito, Sonora	32° 10'	114° 57'	** 39	1959	Hydraulic Resources
San Felipe, Baja California *	31° 02'	114° 53'	33	1948	Hydraulic Resources
San Luis, R. C., Sonora	32° 28'	114° 47'	131	1949	Hydraulic Resources

* Not shown on map

ð 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 nine stations in Baja California and Sonora, Mexico. The stations in the United States are operated by the U. S. Bureau of Reclamation and by the University of Arizona Experimental Farm. The stations in Mexico are operated by the Ministry of Hydraulic Resources with the exception of Ampac, which is operated by the Jabonera del Pacífico. The type of pan used at all these stations was the U. S. Weather Bureau standard pan, four feet in diameter. For specific location of these stations, refer to data opposite the same station name shown in "Location of Rainfall Stations," page 56 in this bulletin.

In United States

Month	Davis Dam No. 2, Arizona		Yuma Citrus Station, Arizona	
	1965	Average 1955-1965	1965	Average 1931-1965
Jan.	7.45	7.49	2.92	3.91
Feb.	8.68	7.67	4.79	4.94
Mar.	9.09	10.38	7.14	
Apr.	10.37	13.47	9.44	10.33
May	16.06	17.13	13.30	13.45
June	17.12	20.11	13.48	14.67
July	19.30	20.86	13.91	15.96
Aug.	16.96	18.45	13.25	14.01
Sept.	14.60	14.96	10.57	11.20
Oct.	13.38	12.13	8.92	8.05
Nov.	4.88	8.98	3.78	5.12
Dec.	6.42	8.42	2.69	3.71
Total	144.31	160.05	104.19	

In Mexico

Month	Los Algodones, Baja California		Mexicali, Baja California		Ampac, Baja California		Bataques, Baja California	
	1965	Av. 1949-55 1961-1965	1965	Average 1926-1965	1965	Average 1953-1965	1965	Average 1963-1965
Jan.	4.49	4.21	2.60	2.60	2.87	2.80	5.28	4.33
Feb.	5.12	5.28	3.78	3.46	3.62	3.74	3.70	5.04
Mar.	7.01	7.05	5.28	5.83	4.72	5.87	6.14	7.52
Apr.	9.45	9.49	7.20	7.91	7.24	8.58	8.70	9.49
May	13.66	12.24	10.51	10.51	12.17	11.57	13.23	12.56
June	12.24	12.56	11.02	11.46	11.14	11.61	11.57	12.28
July	13.23	12.80	11.50	11.73	11.89	11.69	11.22	12.32
Aug.	11.57	11.61	10.55	9.96	10.67	9.84	8.07	8.27
Sept.	10.98	9.61	8.31	8.11	8.90	7.60	7.36	8.82
Oct.	8.50	7.76	6.10	5.59	6.42	5.08	6.85	5.39
Nov.	4.61	4.69	2.87	3.35	2.91	3.31	3.82	4.13
Dec.	2.72	3.94	1.89	2.44	1.57	2.87	1.54	3.54
Total	103.58	103.23	81.61	82.99	84.12	83.39	87.48	92.36

Month	San Luis, R. C., Sonora		Delta, Baja California		Riito, Sonora		El Mayor, Baja California		San Felipe, Baja California	
	1965	Average 1953-1965	1965	Average 1959-1965	1965	Average 1963-1965	1965	Average 1953-1965	1965	Average 1952-1965
Jan.	4.49	3.43		3.50	3.50	3.11	4.72	3.70	5.00	5.16
Feb.	4.49	4.13	4.02	4.45	3.50	4.96	5.20	4.37	6.38	5.91
Mar.	7.48	6.26	5.67	6.30	5.16	6.22	5.12	6.30	6.34	6.85
Apr.	7.09	8.46	6.85	8.11	*5.71	6.93	7.17	8.27	9.17	8.50
May	10.08	10.94	10.20	10.31	7.36	8.35	11.97	10.16	11.18	10.71
June	9.02	12.56	10.08	11.06	9.09	10.12	11.18	11.61	10.71	11.06
July	13.31	14.49	10.12	11.50		10.94	10.91	12.83	10.98	11.73
Aug.		13.15	9.09	9.57	2.20	6.65	11.34	11.97	10.31	10.67
Sept.		10.31	7.68	7.76	6.81	6.46	11.14	10.79	10.71	10.20
Oct.		6.89	6.26	5.71	5.47	4.53	9.33	8.19	9.41	8.58
Nov.	1.57	4.25	2.32	3.54	3.27	3.54	1.73	4.84	5.31	6.22
Dec.	2.83	3.58	2.24	2.95	2.40	2.87	5.39	3.86	4.88	5.24
Total		#101.54		85.55	*73.38		95.20	96.57	100.38	101.18

1953-1961 * 1964

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 maximums and minimums 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 56 in this bulletin.

In United States

Month	Blythe, California				Davis Dam No. 2, Arizona				Yuma Citrus Station, Arizona			
	1965			Average 1931-65	1965			Average 1955-65	1965			Average 1931-65
	Mean	Max.	Min.		Mean	# Max.	#Min.		Mean	Max.	Min.	
Jan.	54.4	82	27	52.5	54.7	72	34	52.9	53.4	80	28	53.1
Feb.	56.8	86	24	57.1	56.1	82	35	56.6	55.5	87	23	57.0
Mar.	59.9	86	29	63.0	59.6	83	36	62.0	58.9	84	29	
Apr.	67.6	104	41	70.7	65.9	97	43	70.3	66.9	103	41	69.3
May	74.9	105	45	77.3	75.4	102	51	78.3	72.7	104	45	76.0
June	80.0	108	55	84.9	82.1	106	60	88.5	76.9	107	51	83.5
July	90.3	113	67	91.9	93.5	114	72	94.8	88.3	113	64	91.3
Aug.	90.6	114	66	90.9	92.0	114	70	93.2	89.3	110	63	90.6
Sept.	79.9	105	47	85.1	80.5	105	58	85.8	79.7	107	46	85.4
Oct.	74.1	103	47	73.5	76.5	101	52	75.4	74.8	105	45	74.1
Nov.	62.6	93	34	60.1	63.7	90	42	61.5	62.8	93	36	61.5
Dec.	52.7	76	30	53.6	53.2	71	35	55.3	52.7	79	32	55.0
Yearly	70.3	114	24	71.7	71.1	114	34	72.9	69.3	113	23	

Month	Brawley, California				El Centro, California			
	1965			Average 1931-65	1965			Average 1931-65
	Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	54.8	83	29	53.7	55.1	82	29	53.6
Feb.	57.4	88	25	58.1	57.0	88	24	57.7
Mar.	60.4	84	30	63.5	60.0	85	31	63.1
Apr.	68.1	102	40	71.1	68.0	103	40	70.5
May	74.9	105	47	78.0	74.3	105	41	77.5
June	78.1	106	51	85.4	78.6	108	51	85.0
July	88.7	113	64	92.5	89.6	114	63	91.9
Aug.	89.2	112	64	92.0	90.3	114	64	91.1
Sept.	80.1	110	53	86.9	80.7	110	51	85.9
Oct.	75.5	105	48	75.7	76.6	105	50	75.0
Nov.	64.6	95	38	62.5	64.5	94	35	62.0
Dec.	53.5	79	33	55.5	53.8	82	32	55.0
Yearly	70.4	113	25	72.9	70.7	114	24	72.4

In Mexico

Month	Los Algodones, Baja California				Mexicali, Baja California				Ampac, Baja California			
	1965		1949-1965		1965		1926-1965		1965		1949-1965	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	82	23	86	23	82	30	93	19	86	30	88	21
Feb.	88	34	95	28	88	27	93	23	88	28	91	23
Mar.	86	34	100	32	86	34	100	32	88	32	95	28
Apr.	109	46	109	37	102	41	106	34	102	41	106	27
May	111	50	117	43	104	46	117	43	106	43	115	41
June	108	57	126	52	106	54	120	52	108	50	120	50
July	115	70	118	61	111	64	118	55	115	61	120	54
Aug.	109	70	120	61	111	64	118	54	117	64	118	55
Sept.	108	54	122	54	109	54	122	48	111	52	118	48
Oct.	106	50	111	32	106	50	109	39	106	46	108	32
Nov.	93	41	100	27	91	39	99	28	91	37	93	21
Dec.	82	37	88	28	79	34	90	25	81	32	88	21
Yearly	115	23	126	23	111	27	122	19	117	28	120	21

One or more days missing

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	Bataques, Baja California				San Luis, R. C., Sonora				Delta, Baja California			
	1965		1948-1965		1965		1949-1965		1965		1948-1965	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	84	32	113	25	86	32	100	19	88	34	97	30
Feb.	90	32	97	19	91	34	109	27	93	32	99	28
Mar.	88	41	109	25	90	36	102	32	88	37	108	28
Apr.	118	36	118	16	115	37	115	37	108	45	115	32
May	120	43	124	34	106	46	115	41	109	52	124	32
June	117	52	135	43	102	55	126	45	109	54	133	36
July	131	66	133	45	111	68	124	59	117	61	135	45
Aug.	122	64	129	46			122	59	113	68	140	52
Sept.	113	54	135	39			118	52	113	54	124	39
Oct.	113	50	118	41			118	43	111	46	113	36
Nov.	104	46	115	32			102	30	95	39	120	32
Dec.	93	25	95	25			102	23	82	36	104	27
Yearly	131	25	135	16			126	19	117	32	140	27

Month	Kilometer 50, Baja California				Riito, Sonora				El Mayor, Baja California			
	1965		1950-59&61-65		1965		1949-1965		1965		1949-1965	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	72	28	91	21	88	28	91	19	90	39	108	25
Feb.	84	27	97	21	90	27	95	21	91	37	93	27
Mar.	73	30	99	28	88	34	100	25	99	39	100	34
Apr.	88	30	106	30	109	39	109	37	102	41	108	36
May	100	39	117	36	108	43	115	43	102	41	113	37
June	99	48	117	39	108	52	124	45	102	39	122	37
July	111	59	120	45	120	52	140	52	104	41	122	39
Aug.	108	61	117	52	117	66	122	46	106	41	122	41
Sept.	106	46	115	39	111	48	118	39	120	34	120	34
Oct.	108	39	108	36	108	43	115	34	108	43	120	37
Nov.	100	30	104	25	93	37	102	27	104	43	120	34
Dec.	82	30	95	21	81	28	86	21	102	34	102	19
Yearly	111	27	120	21	120	27	140	19	120	34	122	19

Month	San Felipe, Baja California			
	1965		1948-1965	
	Max.	Min.	Max.	Min.
Jan.	79	36	99	32
Feb.	79	34	102	32
Mar.	77	37	104	32
Apr.	97	43	113	37
May	106	48	120	41
June	99	57	124	50
July	108	63	124	50
Aug.	99	66	135	41
Sept.	97	59	126	37
Oct.	97	50	117	41
Nov.	97	46	118	21
Dec.	79	36	97	28
Yearly	108	34	135	21

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM
1965

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	46,345
Reservation Division	10,594
Yuma Mesa	16,976
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,110
South Gila Valley	9,347
North Gila Valley	5,956
Wellton-Mohawk	58,040
Coachella Valley	59,890
Imperial Valley	432,612
Warren Act	1,475
Non-Project lands adjacent to Colorado River	5,900
Total in United States	650,245
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 442,400
Total in United States and Mexico	1,092,645

* An estimated one-third of total acreage is served by pumping from ground water in Mexicali Valley.

MESA DRAIN NEAR CUDAHY IN MEXICO

DESCRIPTION: Staff gage located at Kilometer 18.0, about 0.9 mile upstream from the pumping plant on the Alamo Canal above the Cudahy check. Measurements are made at Kilometer 1+500.

RECORDS: Based on 49 current meter measurements, 38 double and 11 single, made during the year from the bridge or by wading. Data obtained and furnished by the Mexican Section of the Commission. Records available: July 25, 1956 through December 1965.

REMARKS: Mesa Drain is located immediately south of the sand hills. Flow in the drain, consisting of ground water and agricultural returns, is modified by pumping for agricultural and domestic use in Mexico above the station.

EXTREMES: Maximum measured discharge, 78.0 second-feet on February 22, 1960; minimum measured discharge, zero several days in August 1965.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.8	43.1	38.5	39.9	27.5	18.7	29.0	9.2	32.8	34.6	30.7	30.0
2	43.8	44.8	38.8	40.3	28.6	18.7	29.3	9.2	37.1	32.5	30.4	29.3
3	43.8	45.2	39.6	40.6	29.7	18.7	29.7	9.5	35.3	30.4	30.4	29.0
4	43.8	45.6	39.9	40.6	30.7	19.1	30.0	8.8	33.2	28.3	30.0	28.6
5	43.4	45.9	40.6	41.0	31.8	21.9	30.4	8.5	31.4	26.5	29.7	27.9
6	43.1	46.3	41.0	41.3	32.8	24.4	30.4	7.8	29.7	26.8	29.7	27.5
7	42.7	46.6	41.7	41.7	33.5	27.2	30.7	7.1	27.9	27.2	29.7	27.2
8	42.4	47.0	42.0	41.7	34.3	26.8	31.1	6.7	26.1	27.5	29.3	26.5
9	41.7	47.3	41.3	42.7	34.6	26.5	31.8	6.0	24.7	28.3	29.0	27.5
10	41.3	47.3	41.0	43.8	35.3	26.1	31.8	5.7	23.7	28.6	28.6	28.3
11	41.0	47.3	40.3	44.8	36.0	25.8	32.5	4.9	22.6	29.0	28.3	29.3
12	40.6	46.6	39.6	45.9	36.7	25.4	32.8	4.6	21.5	29.3	28.3	30.4
13	40.3	46.3	38.8	45.6	37.4	24.7	33.2	3.9	20.1	29.7	27.9	31.1
14	39.6	45.9	38.1	45.2	37.8	24.4	30.4	3.5	19.1	30.4	27.5	32.1
15	39.2	45.6	37.8	44.8	36.7	24.0	27.2	2.8	20.1	31.4	27.2	32.8
16	38.8	45.2	37.1	44.5	36.0	23.7	24.4	2.1	21.2	32.5	28.3	33.9
17	38.5	44.8	36.7	44.1	35.0	23.3	21.5	1.8	21.9	33.5	29.3	34.6
18	38.1	44.5	36.7	43.8	33.9	23.0	18.7	1.1	23.0	35.0	30.4	35.7
19	37.4	44.1	36.7	43.4	31.8	22.6	15.9	.7	24.0	34.3	31.1	36.7
20	37.1	43.8	36.7	43.1	29.7	22.2	13.1	0	24.7	33.5	32.1	37.4
21	36.7	43.4	36.4	42.7	27.2	21.9	12.4	0	25.8	33.2	33.2	38.5
22	36.4	43.1	36.4	42.4	25.1	21.5	11.7	0	27.5	32.5	34.3	39.2
23	36.0	42.4	36.7	39.9	23.0	22.6	10.9	0	29.0	31.8	35.3	40.3
24	35.7	41.7	37.1	37.4	20.5	23.7	10.6	0	30.7	31.1	36.4	41.0
25	35.3	41.3	37.4	35.0	18.4	24.4	9.9	4.2	32.1	31.1	37.4	42.0
26	35.3	40.6	38.1	32.5	18.4	25.4	9.2	8.1	33.9	31.1	38.5	43.1
27	35.0	39.9	38.5	30.0	18.4	26.5	8.5	12.4	35.3	31.1	36.7	43.8
28	36.4	39.2	38.8	27.5	18.4	27.5	8.8	16.6	37.1	31.1	35.0	44.8
29	38.1		39.2	25.4	18.7	28.3	8.8	20.5	38.8	30.7	33.2	44.1
30	39.9		39.6	26.5	18.7	28.6	8.8	24.7	36.7	30.7	31.8	43.4
31	41.3		39.6		18.7		9.2	29.0		30.7		42.7
Sum	1,244.8		1,198.1		717.6		219.4		954.4		1,078.7	
	1,226.5		1,200.7		895.3		662.7		847.0		939.7	

Current Year 1965 — **Period** 1956-1965

Month	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	43.8	27	35.0	39.6	2,434	2,752	3,072	2,434
Feb.			† 9	47.3	28	39.2	44.5	2,468	2,654	3,439	2,269
Mar.			8	42.0	†21	36.4	38.8	2,382	2,722	3,225	2,382
Apr.			12	45.9	29	25.4	39.9	2,376	2,597	3,381	2,054
May			14	37.8	†25	18.4	29.0	1,775	2,603	3,365	1,775
June			30	28.6	† 1	18.7	24.0	1,424	1,986	3,324	1,231
July			13	33.2	27	8.5	21.2	1,313	1,795	2,688	803
Aug			31	29.0	†20	0	7.1	434	1,940	3,468	434
Sept.			29	38.8	14	19.1	28.3	1,679	2,159	2,720	1,679
Oct.			18	35.0	5	26.5	30.7	1,893	2,418	3,414	1,893
Nov.			26	38.5	15	27.2	31.4	1,863	2,384	3,416	1,708
Dec.			28	44.8	8	26.5	34.6	2,139	2,687	3,155	2,139
Yearly				47.3		0	30.7	22,180	27,805	34,661	22,180

Ø Mean daily † And other days

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. 1965 records excellent. Records available: June 1942 through December 1965.

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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.00	2.67	2.44	2.21	2.00	2.44	2.55	1.89	2.32	2.79	1.49	1.89
2	2.21	2.55	2.44	2.10	2.00	2.21	2.21	2.00	2.32	2.67	1.49	1.89
3	2.00	3.80	4.34	2.21	2.10	2.21	2.32	2.00	2.44	2.67	1.58	1.89
4	2.10	3.41	4.07	2.21	2.10	2.67	2.79	2.00	2.44	2.91	1.49	1.89
5	2.10	2.55	4.20	2.21	2.00	2.55	2.67	2.00	2.44	2.79	1.58	1.79
6	2.21	2.44	4.34	2.32	2.00	2.44	2.55	2.00	2.44	3.15	1.58	1.79
7	2.32	2.32	3.67	2.21	2.00	2.32	2.91	1.89	2.32	3.03	2.21	1.79
8	3.15	2.44	3.54	2.32	3.15	2.32	2.79	2.00	2.21	2.91	2.21	1.89
9	3.03	2.44	3.67	2.91	3.28	3.03	2.67	2.00	2.32	3.15	2.10	1.89
10	2.91	2.55	3.03	2.79	2.79	2.91	2.67	1.89	3.15	3.41	1.89	1.89
11	2.91	2.67	3.15	2.44	2.91	3.15	3.15	2.44	3.41	3.15	2.21	2.10
12	3.03	2.79	3.28	2.55	2.67	3.41	3.41	2.67	3.91	3.41	2.00	2.00
13	3.28	3.15	2.91	3.15	2.67	3.15	3.15	2.55	3.28	3.03	2.10	1.89
14	3.28	3.03	3.41	2.55	2.79	2.91	1.89	2.67	3.41	2.91	2.00	1.89
15	3.03	3.03	3.41	2.55	2.79	3.15	2.21	2.55	3.67	3.15	1.79	2.00
16	2.44	3.28	3.41	2.44	2.79	2.67	1.79	2.44	3.54	3.03	1.68	2.21
17	2.32	3.03	3.28	2.32	2.67	2.55	1.68	2.32	3.67	3.15	2.10	2.32
18	2.21	2.91	3.41	2.55	2.79	2.79	1.89	2.67	3.54	3.03	2.10	2.32
19	2.21	2.91	2.55	2.44	2.32	2.67	1.89	2.55	3.03	3.15	2.32	2.21
20	2.32	2.32	2.44	2.44	2.21	2.79	1.79	2.55	3.03	3.28	2.21	2.21
21	2.21	2.55	2.67	2.44	2.44	2.67	1.79	2.44	2.91	3.15	2.10	2.21
22	2.21	2.55	2.55	2.44	2.44	2.55	1.68	2.44	2.91	3.15	2.10	2.21
23	2.21	2.44	2.55	2.32	2.21	2.55	1.79	2.55	2.91	3.15	2.21	2.21
24	2.32	2.79	2.00	2.32	2.32	2.44	1.89	2.67	2.79	2.55	1.89	2.00
25	2.21	2.67	1.89	2.55	2.55	2.79	1.79	2.21	2.91	2.55	1.89	2.00
26	2.32	2.79	2.21	2.44	2.32	2.67	1.89	2.32	2.79	2.44	1.89	2.10
27	2.32	2.67	2.10	2.44	2.21	2.79	2.00	2.21	2.91	1.49	1.89	2.10
28	2.21	2.55	2.55	2.00	2.21	2.67	1.89	2.32	2.91	1.49	1.89	2.10
29	2.55		2.44	2.10	2.32	2.55	1.79	2.32	2.67	1.39	1.89	2.00
30	2.44		2.32	1.89	2.44	2.44	2.00	2.32	2.79	1.39	2.00	2.00
31	2.67		2.21		2.32		1.89	2.44		1.39		2.00
Sum	76.73	77.30	92.48	71.86	75.81	80.46	69.38	71.32	86.39	84.91	57.88	62.68

Month	Current Year 1965 — Ø Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1943-1965 — Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	0.39	0.28	†13	3.28	† 1	2.00	2.48	152	454	2,790	99
Feb.	.43	.31	3	3.80	† 7	2.32	2.76	153	411	2,822	100
Mar.	.47	.27	† 3	4.34	25	1.89	2.98	183	460	3,154	111
Apr.	.38	.27	13	3.15	30	1.89	2.40	143	501	2,222	97
May	.39	.28	9	3.28	† 1	2.00	2.45	150	379	1,799	73
June	.40	.30	12	3.41	† 2	2.21	2.68	160	379	1,686	61
July	.40	.25	12	3.41	†17	1.68	2.24	138	343	1,712	59
Aug	.34	.27	†12	2.67	† 1	1.89	2.30	141	418	1,672	83
Sept.	.42	.30	†15	3.67	8	2.21	2.88	171	390	1,406	91
Oct.	.40	.22	†10	3.41	†29	1.39	2.74	168	422	1,845	102
Nov.	.31	.23	19	2.32	† 1	1.49	1.93	115	431	2,080	86
Dec.	.31	.26	†17	2.32	† 5	1.79	2.02	124	395	1,686	80
Yearly	0.47	0.22		4.34		1.39	2.49	1,798	4,983	22,146	1,251

Ø Mean daily † And other days

NEW RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder located on the right (east) bank of the river in the limits of the city of Calexico, California, 1,400 feet downstream (north) of 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 generally once each month by the United States Section of the Commission. Records computed and furnished by the District. 1965 records good. Records available: June 1942 through December 1965.

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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	104	134	144	142	116	134	138	139	195	136	105	144
2	104	134	152	145	120	138	135	145	195	136	103	145
3	100	133	158	151	123	137	144	147	195	133	106	143
4	100	137	157	148	121	167	144	148	197	135	105	143
5	109	137	157	151	122	198	148	151	198	141	107	145
6	116	144	157	163	112	171	145	147	205	147	104	154
7	116	146	152	177	120	149	151	145	207	141	104	149
8	120	148	151	181	124	135	155	144	205	137	107	148
9	120	151	150	177	131	132	157	143	202	127	116	146
10	120	149	158	169	127	131	159	139	202	122	128	147
11	122	147	165	166	127	132	157	159	196	118	127	143
12	124	147	158	162	128	125	157	143	194	113	128	143
13	125	148	166	158	134	120	145	142	196	108	131	148
14	132	149	179	157	140	116	140	145	189	112	130	157
15	136	146	180	152	141	122	141	143	185	113	130	171
16	130	145	169	149	141	130	142	144	178	106	134	370
17	129	142	159	149	142	130	137	150	178	107	141	556
18	127	141	154	153	144	127	139	164	174	105	141	424
19	131	144	154	156	148	126	143	169	163	108	141	323
20	139	145	155	162	149	126	141	177	162	108	146	295
21	149	147	156	176	149	126	148	181	165	109	142	380
22	149	148	153	169	155	122	146	188	163	104	146	400
23	146	147	148	164	158	117	143	190	162	107	150	457
24	145	146	144	154	165	120	139	190	159	99	152	436
25	151	145	140	139	156	121	135	186	157	115	144	320
26	145	144	136	116	149	122	136	187	158	103	141	401
27	142	147	132	120	151	128	142	195	152	96	141	509
28	139	145	130	126	150	133	145	205	144	100	142	347
29	137		132	129	141	131	144	201	140	103	151	227
30	140		134	122	139	136	141	203	135	107	144	239
31	133		137		137		141	199		108		216
Sum	3,980	4,036	4,717	4,583	4,260	4,002	4,478	5,109	5,351	3,604	3,887	8,126

Current Year 1965 — **Period 1943-1965**

Month	Ø 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.	41.06	41.49	25	151	† 3	100	128	7,894	6,502	20,160	1,751
Feb.	41.05	41.23	9	151	3	133	144	8,005	5,257	17,845	1,258
Mar.	40.62	41.21	15	180	28	130	152	9,356	5,574	12,960	1,008
Apr.	40.67	41.35	8	181	26	116	153	9,090	5,761	14,489	1,390
May	40.97	41.48	24	165	6	112	137	8,450	5,081	10,618	629
June	40.48	41.37	5	198	14	116	133	7,938	4,539	9,689	1,087
July	41.08	41.29	10	159	† 2	135	144	8,882	4,385	9,086	817
Aug	40.68	41.23	28	205	† 1	139	165	10,134	5,427	10,921	1,139
Sept.	40.72	41.24	7	207	30	135	178	10,614	5,725	12,688	1,795
Oct.	41.22	41.65	6	147	27	96	116	7,148	6,091	11,710	2,081
Nov.	41.07	41.56	24	152	2	103	130	7,710	5,894	12,323	2,483
Dec.	37.08	41.19	17	556	† 3	143	262	16,118	6,754	21,205	1,763
Yearly	37.08	41.65		556		96	154	111,339	66,990	138,906	24,573

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

VOLCANO DRAIN TO NEW RIVER IN MEXICO

DESCRIPTION: Volcano Drain is measured at a point about 1,000 feet downstream from the highway bridge at the junction of the Tijuana-San Felipe highway, 5.8 miles upstream from the international boundary and 3.7 miles south of Mexicali, Baja California. Measurements obtained at a point near the crossing of the siphon of the West Main Canal and Volcano Drain.

RECORDS: Based on 46 current meter measurements, 26 double and 20 single, made by wading during the year. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 1957 through December 1965.

REMARKS: Volcano Drain carries agricultural return flow from a large part of the Mexicali Valley. Cofferdams and other structures in the Laguna Mexico and other points upstream which are not subject to control affect the return flows, which results in an irregular discharge.

EXTREMES: Maximum measured discharge, 249 second-feet on July 22, 1964; minimum measured discharge, 8.1 second-feet on May 16, 1964.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	83.3	96.8	116	84.0	92.2	101	91.5	118	133	114	74.2	90.1
2	84.4	98.2	117	83.0	91.1	99.2	90.8	121	133	110	74.5	89.7
3	85.1	99.2	119	86.9	89.7	97.1	90.4	124	132	107	74.9	88.6
4	86.2	101	121	90.8	88.6	97.8	90.1	126	132	103	75.2	87.6
5	86.9	103	121	94.3	87.2	98.9	89.7	125	132	99.9	75.2	86.5
6	87.9	106	122	98.2	86.2	99.6	89.0	123	131	96.4	75.6	85.8
7	88.6	108	122	102	89.3	100	88.6	121	131	95.7	75.6	84.8
8	89.7	110	123	106	92.5	101	90.1	120	131	95.0	75.9	83.7
9	90.4	112	123	104	95.7	102	91.1	118	129	94.3	75.9	82.6
10	91.5	114	119	102	98.5	100	92.5	117	126	93.6	76.3	85.5
11	92.2	114	116	99.6	102	98.2	93.9	115	124	92.9	76.3	88.3
12	93.2	113	112	97.5	105	96.4	95.3	114	123	92.2	77.3	90.8
13	93.9	113	108	97.1	108	94.6	96.4	115	120	91.5	78.4	93.6
14	95.7	112	104	97.1	111	92.9	97.8	117	118	92.5	79.5	96.4
15	97.5	112	101	96.8	112	90.8	98.2	119	118	93.9	80.2	99.2
16	99.2	111	96.8	96.8	112	89.0	98.5	120	118	95.0	81.2	102
17	101	111	96.1	96.4	113	87.2	98.9	122	118	96.1	82.3	105
18	102	109	95.3	96.4	114	87.6	99.6	124	118	97.1	83.3	107
19	104	109	94.6	96.1	114	87.9	99.9	125	118	98.5	84.4	110
20	106	108	93.9	96.1	114	88.3	100	127	117	99.6	85.5	113
21	104	107	93.2	95.7	114	88.6	101	129	117	95.7	86.5	116
22	102	106	92.2	95.7	114	89.0	102	131	117	91.8	87.2	118
23	99.6	106	91.5	95.7	114	89.3	103	132	117	87.9	88.3	121
24	97.5	107	90.8	95.3	114	89.7	104	134	117	83.7	89.3	124
25	95.3	109	90.1	95.3	114	90.1	105	136	117	79.8	90.4	127
26	93.2	111	89.3	95.0	114	90.4	106	135	117	75.9	91.5	130
27	91.1	112	88.6	95.0	112	90.8	107	135	117	72.0	91.1	132
28	92.2	114	87.6	94.6	110	91.1	108	135	117	72.4	90.8	135
29	93.6		86.9	94.6	108	91.5	111	134	117	72.7	90.4	138
30	94.6		85.8	93.9	106	91.8	113	134	117	73.1	90.4	135
31	95.7		84.8		103		116	133		73.5		132
Sum	2,917.5	3,032.2	3,199.5	2,871.9	3,239.0	2,811.8	3,057.3	3,880	3,672	2,836.7	2,457.6	3,278.2

Month	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1957-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
				Current Year 1965							
Jan.			20	106	1	83.3	93.9	5,786	6,642	9,142	4,076
Feb.			10	114	1	96.8	108	6,018	6,143	8,165	3,536
Mar.			9	123	31	84.8	103	6,350	7,130	9,347	4,491
Apr.			8	106	2	83.0	95.7	5,694	7,899	11,914	4,373
May			†23	114	6	86.2	105	6,422	7,101	8,971	4,675
June			9	102	17	87.2	93.9	5,580	6,135	7,676	3,547
July			31	116	7	88.6	98.5	6,064	6,131	7,996	2,809
Aug			25	136	12	114	125	7,694	6,499	8,367	3,647
Sept.			1	133	†21	117	123	7,283	7,029	9,027	4,912
Oct.			1	114	27	72.0	91.5	5,627	6,435	8,118	4,570
Nov.			26	91.5	1	74.2	81.9	4,875	5,769	7,511	3,570
Dec.			29	138	9	82.6	106	6,500	6,402	7,528	4,511
Yearly				138		72.0	102	73,893	79,315	95,812	50,244

† And other days Ø Mean daily

WISTERIA WASTEWAY TO NEW RIVER IN MEXICO

DESCRIPTION: Water-stage recorder, staff gage, and control weir located approximately 160 feet downstream from the wasteway gates of the Cerro Prieto and West Main Canals, 1,000 feet downstream from their confluence 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, and 3.0 miles west of the highway to San Felipe.

RECORDS: Based on 48 meter measurements made by wading during the year, a continuous record of gage heights, and rating curve for the weir and wasteway gate openings. The measurements include the flows from Wisteria Drain which are subtracted in order to obtain the discharge of the wasteway. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 1951 through December 1965. 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 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	0.4	0.4	0.4	0.4	0.4	1.1	0.7	0.4	0.4	0	0.4
2	.4	.4	.4	.4	.4	.4	1.1	.7	.4	.4	0	.4
3	.4	.4	.4	.4	.4	.4	1.1	.7	.4	.4	0	.4
4	.4	.4	.4	.4	.4	.4	.7	.7	.4	.4	0	.4
5	.4	.4	.4	.4	.4	.4	.7	.7	.4	.4	0	.4
6	.4	.4	.4	.4	.4	.4	.7	.7	.4	.4	.4	.4
7	.4	.4	.4	.4	.4	.4	.7	.7	.4	.4	.4	.4
8	.4	.4	.4	.4	.4	.4	.7	.7	.4	.4	.4	.4
9	0	.4	.4	.4	.4	.4	.7	.7	.4	.4	.4	.4
10	0	.4	.4	.4	.4	.4	.7	.7	.4	.4	.7	.4
11	0	.4	.4	0	.4	.7	.7	.7	.4	.4	.7	.4
12	0	.4	.4	0	.4	.7	.7	.7	.4	.4	.7	.4
13	0	.4	.4	0	.4	.7	.7	.7	.4	.4	.4	.4
14	0	.4	.4	0	.4	.7	.7	.7	.4	.4	.4	.4
15	0	.4	.4	0	.4	1.1	.7	.7	.4	.4	.4	.4
16	0	.4	.4	0	.4	1.1	.7	.7	.4	.4	.4	202
17	0	.4	.4	0	.4	.7	.7	.7	.4	.4	0	345
18	.4	.4	.4	.4	.4	.7	.7	.7	.4	0	0	226
19	.4	.4	.4	.4	.4	.7	.7	.7	.4	0	0	51.6
20	.4	.4	.4	.4	.4	.4	.7	.7	.4	0	0	48.0
21	.4	.4	.4	.4	.4	.4	.7	.7	.4	0	0	104
22	.4	.4	.4	.4	.4	.4	.7	.7	.4	0	0	145
23	.4	.4	.4	.4	.4	.4	.7	.7	.4	0	.4	258
24	.4	.4	.4	.4	.4	.4	.7	.7	.4	0	.4	194
25	.4	.4	.4	.4	.4	.7	1.1	.7	.4	0	.4	66.4
26	.4	.4	.4	.4	.4	.7	1.1	.7	.4	0	.4	255
27	.4	.4	.4	.4	.4	.7	1.1	.7	.4	0	.4	385
28	.4	.4	.4	.4	.4	.7	1.1	.7	.4	0	.4	155
29	.4		.4	.4	.4	1.1	1.1	.7	.4	0	.4	72.4
30	.4		.4	.4	.4	1.1	1.1	.7	.4	0	.4	39.9
31	.4		.4		.4		1.1	.7		0		32.8
Sum	8.8	11.2	12.4	9.2	12.4	18.1	25.7	21.7	12.0	6.8	8.5	2,586.1

Month	Current Year 1965								Period 1951-1965		
	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	0.4	† 9	0	0.4	15.4	2,289	8,735	15.4
Feb.			† 1	.4	† 1	.4	.4	19.6	1,394	7,218	7.0
Mar.			† 1	.4	† 1	.4	.4	21.7	1,039	2,568	0
Apr.			† 1	.4	†11	0	.4	16.1	1,021	4,433	0
May			† 1	.4	† 1	.4	.4	21.7	708	1,892	0
June			†15	1.1	† 1	.4	.7	34.3	422	1,450	0
July			† 1	1.1	† 4	.7	.7	50.4	326	2,040	0
Aug			† 1	.7	† 1	.7	.7	43.5	647	1,926	22.4
Sept.			† 1	.4	† 1	.4	.4	21.0	890	2,915	21.0
Oct.			† 1	.4	†18	0	.4	11.9	1,217	2,993	11.9
Nov.			†10	.7	† 1	0	.4	15.4	1,361	3,768	15.4
Dec.			27	385	† 1	.4	83.3	5,129	2,019	8,669	21.7
Yearly				385		0	7.4	5,399	13,331	27,083	412

Ø Mean daily † And other days

WISTERIA DRAIN TO NEW RIVER IN MEXICO

DESCRIPTION: Wisteria Drain discharges into the stilling basin above the weir of Wisteria Wasteway immediately downstream from the spillway structure of Cerro Prieto and West Main Canals through a 20-inch pipe and thence into New River. The pipe outlet is located in the right bank of the basin in Colonia Wisteria, 4.3 miles upstream from the international boundary, and about 1.9 miles east of the Tijuana highway from the Tijuana-San Felipe junction.

RECORDS: Based on weekly readings of water surface elevation, discharges are computed from horizontal pipe formula. Data furnished by the Mexican Section of the Commission. Records available: January 1957 through 1965.

EXTREMES: Maximum mean daily discharge, 2.1 second-feet, January 23, 1964; minimum, no flow on various occasions. Maximum monthly volume, 58.1 acre-feet, January 1964; minimum monthly volume, 1.4 acre-feet, October 1965.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.7	0.4	0.4	0	0.7	0	0	0	0	0	0.4
2	0	.7	.4	.4	0	.4	0	0	0	0	0	.4
3	0	.7	.4	.4	0	0	0	0	0	0	0	.4
4	0	.7	.4	.4	0	0	0	0	0	0	0	0
5	0	.7	.4	.4	0	0	0	0	0	0	0	0
6	0	.7	.4	.4	0	0	0	0	0	0	0	0
7	0	.7	.4	.4	0	0	0	0	0	0	0	0
8	0	.7	.4	.4	0	0	0	0	0	0	0	0
9	0	.7	.4	.4	0	0	0	0	0	0	0	0
10	0	.7	.4	.4	0	0	0	0	0	0	0	0
11	0	.4	.4	0	0	0	0	0	0	0	0	0
12	0	.4	.4	0	0	0	0	0	0	.4	0	0
13	0	.4	.4	0	0	0	0	0	0	.4	.4	0
14	0	.4	.4	0	0	0	0	0	.4	0	.4	.4
15	0	.4	.4	0	0	0	0	.4	.4	0	.4	.4
16	0	.4	.4	0	0	0	0	.4	.4	0	.7	.4
17	0	.4	.4	0	0	0	0	.4	.4	0	.7	.4
18	0	.4	.4	0	0	0	0	.4	.4	0	.7	.4
19	.4	.4	.4	0	.4	0	0	.4	0	0	.7	.4
20	.4	0	.4	0	.4	0	.4	.4	0	0	.7	.4
21	.4	0	.4	0	.7	0	.4	.4	0	0	.4	.4
22	.4	0	0	.4	1.1	0	.4	.4	0	0	.4	.4
23	.4	0	0	.4	1.1	0	0	.4	0	0	.4	.4
24	0	0	0	0	1.4	0	0	.4	0	0	.4	.4
25	0	0	0	0	1.8	0	0	0	0	0	.4	.4
26	0	.4	0	0	1.8	0	0	0	0	0	0	.4
27	0	.4	0	0	1.8	0	0	0	0	0	0	.4
28	.4	.4	0	0	1.4	0	0	0	0	0	0	.4
29	.4		0	0	1.1	0	0	0	0	0	0	.4
30	.4		0	0	1.1	0	0	0	0	0	.4	.4
31	.7		0		.7		0	0		0		.4
Sum	3.9	11.8	8.4	4.8	14.8	1.1	1.2	4.0	2.0	0.8	7.1	8.4

Month	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1957-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
				Current Year 1965							
Jan.			31	0.7	† 1	0	0	7.0	27.5	58.1	7.0
Feb.			† 1	.7	†20	0	.4	22.4	20.8	32.2	12.2
Mar.			† 1	.4	†22	0	.4	14.7	25.9	52.5	8.4
Apr.			† 1	.4	†11	0	0	8.4	30.1	47.7	8.4
May			†25	1.8	† 1	0	.4	28.7	17.0	28.7	13.0
June			1	.7	† 3	0	0	2.1	17.2	27.6	2.1
July			†20	.4	† 1	0	0	2.1	18.0	35.7	2.1
Aug			†15	.4	† 1	0	0	7.0	21.6	55.9	7.0
Sept.			†14	.4	† 1	0	0	3.5	16.1	31.5	3.5
Oct.			†12	.4	† 1	0	0	1.4	15.1	26.6	1.4
Nov.			†16	.7	† 1	0	.4	13.3	20.3	46.2	9.1
Dec.			† 1	.4	† 4	0	.4	14.7	24.1	49.0	13.0
Yearly				1.8		0	0.2	125	254	357	125

Ø Mean daily † And other days

RIVERA DRAIN TO NEW RIVER IN MEXICO

DESCRIPTION: Parshall flume located 5.0 miles from the confluence of the drain with the New River and 328 feet south of the point where the Mexicali-Compuertas highway crosses the drain.

RECORDS: Based on 47 double measurements made during the year. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 1957 through December 1965. Prior to January 1963, measurements were obtained at a rectangular control section in the channel of the drain between "K" and "L" Streets in the city of Mexicali.

REMARKS: Rivera Drain begins near the right bank of the West Main Canal, 0.9 mile south of Sharpe Heading, and runs westward across Mexicali, Baja California, and discharges into New River 0.9 mile upstream from the international boundary. Flow at the station consists mainly of agricultural drainage with a small amount of sewage from Mexicali, Baja California.

EXTREMES: Since January 1963: Maximum measured discharge, 3.9 second-feet on March 6, 1963; minimum measured discharge, zero on several days during October 1965.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	2.1	2.5	2.1	1.8	2.1	1.8	1.8	1.8	1.4	0.4	1.4
2	1.4	1.8	2.8	2.1	1.8	2.1	1.8	1.8	1.8	1.4	.4	1.4
3	1.4	1.8	2.8	2.1	1.8	2.1	1.8	1.8	1.8	1.4	.4	1.4
4	1.8	2.1	2.8	2.5	1.8	2.1	1.4	1.8	1.8	1.4	.4	1.4
5	1.8	2.1	2.8	2.5	1.8	2.1	1.4	1.8	1.8	1.4	.4	1.4
6	1.8	2.1	3.2	2.5	1.8	2.1	1.4	1.8	1.8	1.8	.4	1.4
7	1.8	2.1	3.2	2.5	1.8	2.1	1.4	1.8	1.8	1.4	.7	1.1
8	1.8	2.1	3.2	2.5	1.8	1.8	1.4	1.8	1.8	1.1	.7	1.1
9	1.8	2.1	3.5	2.8	2.1	1.8	1.4	1.8	1.8	1.1	.7	1.1
10	1.8	2.5	3.2	2.8	2.1	1.8	1.4	1.8	1.8	.7	.7	1.1
11	1.8	2.5	3.2	3.2	2.1	1.8	1.4	2.1	1.8	.7	.7	1.4
12	1.8	2.5	3.2	3.5	2.5	1.8	1.4	2.1	1.8	.4	1.1	1.4
13	1.8	2.5	3.2	3.5	2.5	1.8	1.4	2.1	1.8	.4	1.1	1.4
14	2.1	2.5	3.2	3.2	2.5	1.8	1.4	2.1	1.8	.4	1.1	1.4
15	2.1	2.8	3.2	3.2	2.5	1.8	1.4	2.1	1.8	.4	1.4	1.4
16	2.5	2.8	2.8	3.2	2.1	1.8	1.4	2.1	1.4	0	1.4	1.4
17	2.5	2.8	2.8	3.2	2.1	1.8	1.4	2.1	1.4	0	1.4	1.4
18	2.5	2.5	2.8	3.2	1.8	1.8	1.4	2.1	1.4	0	1.4	1.4
19	2.8	2.5	2.8	3.2	2.1	1.8	1.4	2.1	1.4	0	1.8	1.4
20	2.8	2.5	2.8	2.8	2.1	1.8	1.1	2.1	1.4	0	1.8	1.4
21	2.8	2.1	2.8	2.8	2.1	1.8	1.1	2.1	1.4	0	1.8	1.4
22	2.8	2.1	2.8	2.8	2.1	1.4	1.1	2.1	1.4	.4	1.8	1.4
23	2.5	2.1	2.8	2.8	2.1	1.4	1.4	1.8	1.4	.4	1.8	1.4
24	2.5	2.1	2.5	2.5	2.1	1.4	1.4	1.8	1.4	.4	1.8	1.4
25	2.5	2.1	2.5	2.5	2.1	1.8	1.4	1.8	1.4	.4	1.8	1.4
26	2.1	2.1	2.5	2.5	2.1	1.8	1.4	1.8	1.4	.7	1.8	1.8
27	2.1	2.5	2.5	2.1	2.1	1.8	1.4	1.8	1.4	.7	1.8	1.8
28	2.1	2.5	2.5	2.1	2.1	1.8	1.4	1.8	1.4	.7	1.8	1.8
29	2.1		2.5	2.1	2.1	1.8	1.4	1.8	1.4	.7	1.8	1.8
30	2.1		2.5	2.1	2.1	1.8	1.4	1.8	1.4	.7	1.8	1.8
31	2.1		2.1		2.1		1.8	1.8		.7		1.8
Sum	65.2	64.3	88.0	80.9	64.0	54.9	44.1	59.4	48.0	21.2	36.4	44.6

Month	Current Year 1965								Period 1963-1965		
	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			†19	2.8	† 1	1.4	2.1	129	115	129	98.1
Feb.			†15	2.8	† 2	1.8	2.1	127	118	127	110
Mar.			9	3.5	31	2.1	2.8	174	150	174	129
Apr.			†12	3.5	† 1	2.1	2.8	161	120	161	88.4
May			†12	2.5	† 1	1.8	2.1	126	104	126	90.0
June			† 1	2.1	†22	1.4	1.8	108	85.9	108	67.9
July			† 1	1.8	†20	1.1	1.4	87.6	79.1	87.6	72.2
Aug			†11	2.1	† 1	1.8	1.8	117	89.2	117	74.9
Sept.			† 1	1.8	†16	1.4	1.4	94.9	75.7	94.9	56.0
Oct.			6	1.8	†16	0	.7	41.3	65.9	83.5	41.3
Nov.			†19	1.8	† 1	.4	1.1	70.8	81.9	88.4	70.8
Dec.			†26	1.8	† 7	1.1	1.4	88.4	98.9	108	88.4
Yearly				3.5		0	1.8	1,325	1,184	1,325	1,103

Ø Mean daily † And other days

PUEBLO NUEVO WASTEWAY TO NEW RIVER IN MEXICO

DESCRIPTION: Staff gage and control weir located in Mexicali, Baja California on the south side of International Avenue between Morelia and Chilpancingo Streets in Colonia Pueblo Nuevo, about 1,000 feet west of New River and 80 feet south of the international land boundary.

RECORDS: Discharges are computed from head on the control weir based on staff gage readings. Data obtained and furnished by the Mexican Section of the Commission. Records available: January 1956 through 1965. 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.

REMARKS: The discharges of this wasteway are usually small and consist of overflow from the canal leading to the city pumping plant. Operation of this station discontinued after December 31, 1965.

EXTREMES: Maximum monthly volume, 136 acre-feet, January 1956; minimum monthly volume, zero during some months of each year. Estimated maximum discharge, 3.5 second-feet, June 9, 1958; minimum discharge, no flow on numerous occasions.

Mean Daily Discharge in Second Feet 1965 — 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	.4	0	0	0	0	0	0	0
18	0	0	0	0	.4	0	0	0	0	0	0	0
19	0	0	0	0	.4	0	0	0	0	0	0	0
20	0	0	0	0	.4	0	0	0	0	0	0	0
21	0	0	0	0	.4	0	0	0	0	0	0	0
22	0	0	0	0	.4	0	0	0	0	0	0	0
23	0	0	0	0	.4	0	0	0	0	0	0	0
24	0	0	0	0	.4	0	0	0	0	0	0	0
25	0	0	0	0	.4	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	3.6	0	0	0	0	0	0	0

Month	Current Year 1965								Period 1956-1965		
	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.				0		0	0	0	36.0	136	0
Feb.				0		0	0	0	35.2	92.4	0
Mar.				0		0	0	0	25.1	62.5	0
Apr.				0		0	0	0	22.6	60.0	0
May			†17	.4	† 1	0	0	6.3	22.8	69.7	0
June				0		0	0	0	16.3	63.7	0
July				0		0	0	0	20.3	48.3	0
Aug				0		0	0	0	17.4	49.0	0
Sept.				0		0	0	0	10.5	32.2	0
Oct.				0		0	0	0	22.8	50.4	0
Nov.				0		0	0	0	30.2	61.6	0
Dec.				0		0	0	0	19.3	44.8	0
Yearly				0.4		0	0	6.3	278	640	6.3

Ø Mean daily † And other days

WASTE WATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1965, the discharge to New River in Mexico was from Wisteria Wasteway, located 2.9 miles upstream from the international boundary in Colonia Wisteria, and from Pueblo Nuevo Wasteway, located immediately south of the international boundary. Operation of Sifón Wasteway was discontinued in May 1964.

RECORDS: Computations of flows from Wisteria Wasteway are based on gate openings and water surface 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 this Commission. The discharges from Pueblo Nuevo Wasteway are computed from head on the control weir based on staff gage readings. Data obtained and furnished by the Mexican Section of this Commission. Records available: Wisteria Wasteway, January 1951 through 1965; Sifón Wasteway, January 1952 through April 1964; Pueblo Nuevo Wasteway, January 1956 through 1965.

REMARKS: Mean daily discharges for Wisteria and Pueblo Nuevo Wasteways are shown on pages 65 and 68 in this bulletin.

Monthly Discharge in Acre-Feet

Month	Current Year 1965	Period 1956-1965		
		Average	Maximum	Minimum
January	15.4	2,426	8,758	15.4
February	19.6	1,577	7,281	19.6
March	21.7	889	2,610	21.7
April	16.1	676	2,843	16.1
May	28.1	401	1,141	10.5
June	34.3	295	1,477	0
July	50.4	150	348	0
August	43.5	463	1,413	43.5
September	21.0	556	2,081	21.0
October	11.9	803	2,024	11.9
November	15.4	1,219	3,784	15.4
December	5,129	2,296	8,691	21.7
Yearly	5,406	11,754	27,430	741

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, California. The Salton Sea is situated in Imperial and Riverside counties of California in the United States, 125 miles northwest of the Gulf of California, 18 miles northwest of Brawley, California, and 42 miles north of the international boundary between the United States and Mexico. The sea lies in the bottom of a closed basin known as the Salton Sink, which has a drainage area of 8,360 square miles. Zero of 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 December 1965. From January 1925 to October 22, 1951, records were collected by Imperial Irrigation District and based generally upon one water surface reading each month, determined 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, therefore to make the records comparable it is necessary to subtract one foot from the elevations of the records obtained at the old station. All records reported below and the area and capacity table are adjusted to the datum of the present station. The area and capacity table, dated January 8, 1965, is based on resurveys made in 1957 above elevation -240 feet and in 1962 below elevation -236 feet.

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 River 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 232.1 feet below mean sea level. Minimum elevation during year 233.3 feet below mean sea level. Prior to 1935 and since the sea was filled by flood waters of the Colorado River 1905-1906, maximum elevation 195.9 feet below mean sea level (present datum), February 10 to March 29, 1907; minimum elevation 251.6 feet below mean sea level in November 1924.

Mean Daily Water Surface in Feet Below Mean Sea Level 1965

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	232.7	232.5	232.3	232.2	232.1	232.3	232.6	232.7	232.9	233.3	233.1	233.1
2	232.7	232.5	232.3	232.2	232.1	232.4	232.6	232.7	233.0	233.3	233.1	233.1
3	232.7	232.5	232.3	232.2	232.1	232.4	232.6	232.7	233.0	233.3	233.1	233.1
4	232.7	232.5	232.4	232.2	232.1	232.4	232.6	232.7	233.0	233.3	233.1	233.1
5	232.7	232.5	232.3	232.2	232.1	232.4	232.6	232.7	233.0	233.2	233.1	233.1
6	232.7	232.5	232.3	232.2	232.2	232.4	232.6	232.7	233.1	233.2	233.1	233.1
7	232.7	232.4	232.3	232.2	232.2	232.4	232.6	232.7	233.1	233.2	233.1	233.1
8	232.7	232.4	232.3	232.2	232.2	232.4	232.6	232.7	233.1	233.2	233.1	233.1
9	232.7	232.4	232.3	232.2	232.2	232.4	232.6	232.7	233.1	233.2	233.1	233.0
10	232.6	232.4	232.3	232.2	232.2	232.4	232.6	232.7	233.1	233.2	233.1	233.0
11	232.6	232.4	232.3	232.2	232.2	232.5	232.6	232.7	233.1	233.2	233.1	233.0
12	232.6	232.5	232.3	232.2	232.2	232.5	232.6	232.7	233.1	233.2	233.1	233.0
13	232.6	232.5	232.3	232.2	232.2	232.5	232.6	232.8	233.1	233.2	233.1	233.0
14	232.6	232.4	232.3	232.2	232.2	232.5	232.6	232.8	233.1	233.2	233.1	233.0
15	232.6	232.4	232.3	232.2	232.2	232.5	232.6	232.8	233.1	233.2	233.1	233.0
16	232.6	232.4	232.2	232.2	232.2	232.5	232.6	232.8	233.2	233.2	233.1	233.0
17	232.6	232.4	232.2	232.2	232.2	232.5	232.6	232.8	233.2	233.2	233.1	233.0
18	232.6	232.4	232.2	232.1	232.2	232.5	232.6	232.8	233.2	233.2	233.1	233.0
19	232.6	232.4	232.2	232.1	232.2	232.5	232.6	232.8	233.2	233.2	233.1	233.0
20	232.6	232.4	232.2	232.1	232.2	232.5	232.6	232.8	233.3	233.2	233.1	233.0
21	232.6	232.4	232.2	232.1	232.3	232.5	232.7	232.8	233.3	233.2	233.1	233.0
22	232.6	232.4	232.2	232.1	232.3	232.5	232.7	232.8	233.3	233.2	233.1	233.0
23	232.5	232.4	232.2	232.1	232.3	232.5	232.7	232.9	233.3	233.2	233.1	232.9
24	232.5	232.4	232.2	232.1	232.3	232.5	232.7	232.9	233.2	233.2	233.0	232.9
25	232.5	232.4	232.2	232.1	232.3	232.5	232.7	232.9	233.2	233.2	233.1	232.9
26	232.5	232.4	232.2	232.1	232.3	232.6	232.7	232.9	233.2	233.2	233.0	232.8
27	232.5	232.4	232.3	232.1	232.3	232.6	232.7	232.9	233.3	233.1	233.1	232.8
28	232.5	232.4	232.3	232.1	232.3	232.6	232.7	232.9	233.3	233.1	233.1	232.8
29	232.5		232.3	232.1	232.3	232.6	232.7	232.9	233.3	233.1	233.1	232.9
30	232.5		232.3	232.1	232.3	232.6	232.7	232.9	233.3	233.1	233.1	232.9
31	232.5		232.3		232.3		232.7	232.9		233.1		232.9
Avg.	232.60	232.43	232.27	232.16	232.22	232.48	232.64	232.79	233.16	233.20	233.09	232.99

Current Year 1965			Period 1935-1965		
Month	Ø Extreme Elev. Feet		Elevation Feet		
	High	Low	# Average	# Maximum	‡ Minimum
Jan.	232.5	232.7	239.82	232.05	249.3
Feb.	232.4	232.5	239.49	231.79	248.8
Mar.	232.2	232.4	239.22	231.57	248.6
Apr.	232.1	232.2	239.03	231.39	248.7
May	232.1	232.3	239.01	231.54	248.5
June	232.3	232.6	239.18	231.71	248.8
July	232.6	232.7	239.35	231.92	249.1
Aug.	232.7	232.9	239.55	232.17	249.4
Sept.	232.9	233.3	239.74	232.49	249.4
Oct.	233.1	233.3	239.81	232.49	249.8
Nov.	233.0	233.1	239.80	232.30	250.0
Dec.	232.8	233.1	239.62	232.23	249.6
Yearly	232.1	233.3	239.47	232.06	250.0

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

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

CHEMICAL ANALYSES OF WATER SAMPLES

1965

The tables below are based on bi-monthly samples from the Alamo and New Rivers taken and analyzed by the State of California Department of Water Resources.

Samples from the Alamo River are taken near the international boundary upstream from seepage pipes from the All-American Canal. Samples from New River are taken from the right bank at road bridge 150 yards north of international boundary. Records of sampling extend from April 1951 through December 1965.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20; Mg, 12.16; Na, 23; (CO_3 plus HCO_3) expressed as CO_3, 30; SO_4, 48; Cl, 35.5; NO_3, 62. 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.

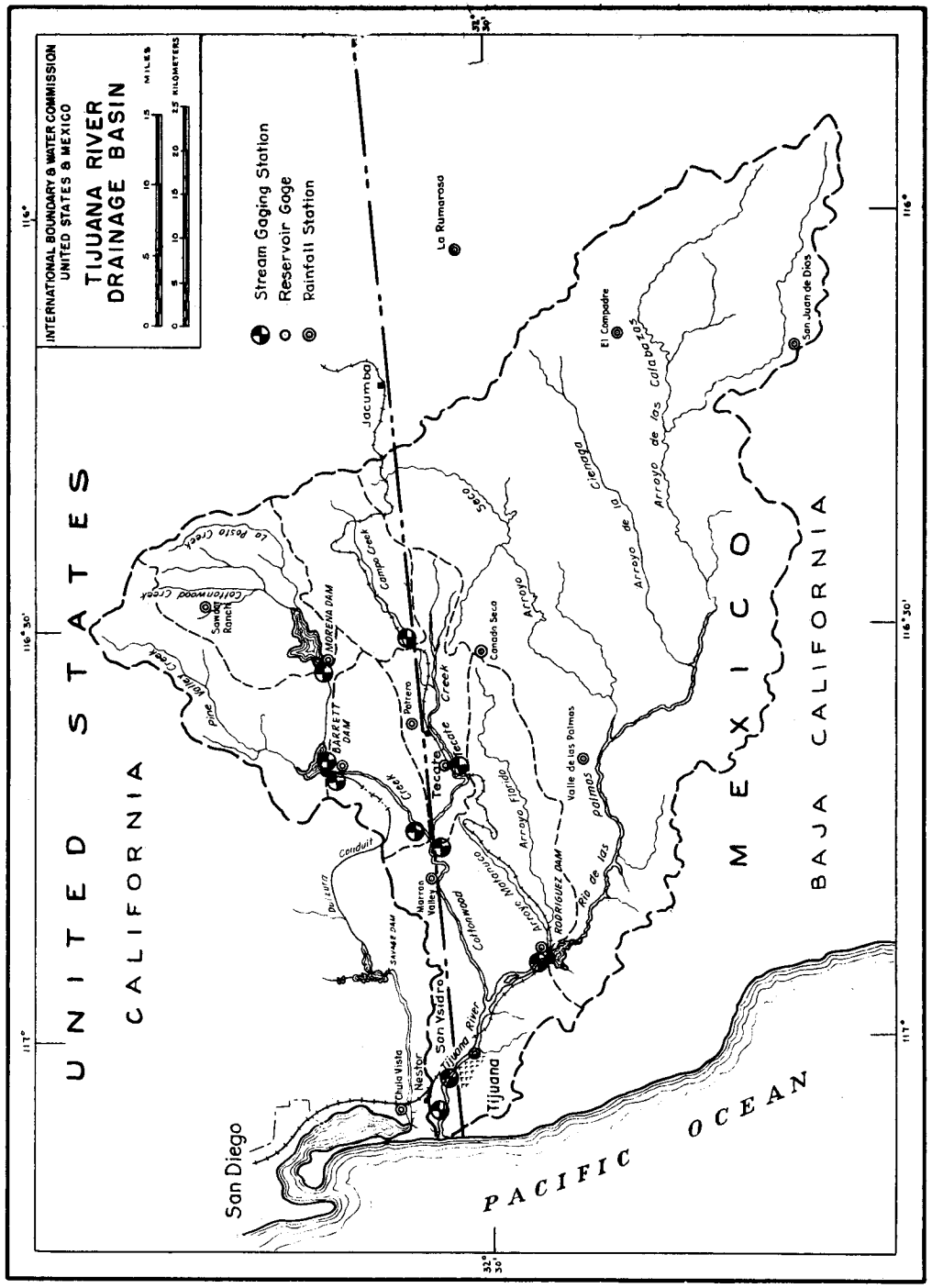
Alamo River

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
Jan.	1	3.43		3,648	0.98	7.7	58	49	8.93	7.07	22.19	4.92	14.68	19.09	0.31
Feb.															
Mar.	1	3.49		3,745	1.0	7.6	58	48	8.28	8.71	23.92	4.88	16.28	19.46	.16
Apr.															
May	1	4.51		4,890	1.65	7.2	62	51	10.13	9.38	32.02	5.40	19.50	26.79	.38
June															
July	1	5.61		5,942	1.9	7.7	62	54	12.08	12.09	40.37	5.28	24.38	34.40	.08
Aug.															
Sept.	1	5.25		5,525	1.8	7.6	61	52	11.83	11.84	37.41	5.60	23.56	32.15	.16
Oct.															
Nov.	1	4.79		5,100	1.4	7.9	62	52	11.08	10.11	34.80	5.82	20.82	29.61	.12
Dec.															
Total	6														

New River

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
Jan.	1	7.72		8,921	2.55	7.2	72	80	13.27	8.80	65.25	4.68	13.42	73.32	0.21
Feb.															
Mar.	1	6.16		7,013	1.75	7.3	68	74	11.83	8.72	48.94	4.46	13.73	52.62	.46
Apr.															
May	1	7.03		8,078	2.0	7.0	69	75	12.52	11.18	56.38	3.43	16.70	60.86	.50
June															
July	1	6.46		7,194	1.90	7.0	68	70	12.33	10.93	52.20	4.44	17.91	53.58	.24
Aug.															
Sept.	1	8.24		7,634	2.0	7.3	67	71	13.17	11.92	53.94	4.76	18.25	57.53	.19
Oct.															
Nov.	1	7.65		8,696	1.9	7.3	71	76	12.67	10.11	63.08	4.96	15.89	68.53	.20
Dec.															
Total	6														

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


INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
TIJUANA RIVER
DRAINAGE BASIN
MILES
KILOMETERS
Stream Gaging Station
Reservoir Gage
Rainfall Station
UNITED STATES
CALIFORNIA
MEXICO
BAJA CALIFORNIA
PACIFIC OCEAN
San Diego
Chula Vista
Nestor
San Ysidro
Tijuana
Tijuana River
Jacumba
La Rumorosa
El Compadre
San Juan de Dios
Arroyo de los Calabazas
Arroyo de la Ciénaga
Arroyo Seco
Arroyo
Cañada Seca
Valle de las Palmas
Río de las Palmas
Arroyo Florido
Arroyo Matadero
Rodriguez Dam
Morena Dam
Barrett Dam
Potrero
Campo Creek
Tecate Creek
Tecate
Marron Valley
Conduit
Savage Dam
Cottonwood
Cottonwood Creek
Pine Valley Creek
La Posta Creek
Sweetwater Ranch
116°
117°
116° 30'
32° 30'
35° 30'

COTTONWOOD CREEK ABOVE MORENA DAM, CALIFORNIA

DESCRIPTION: Staff gage located on east side of outlet tower immediately upstream from face of Morena Dam. The dam is located on Cottonwood Creek 1.8 miles upstream from the mouth of Hauser Creek, 8.5 miles upstream from Barrett Dam, and about 20 miles upstream from the international boundary. Zero of 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 December 1965.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1965 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 1965	Period 1937-1965		
		Average	Maximum	Minimum
January	13.0	521	3,520	4.8
February	25.1	1,257	16,700	8
March	19.3	1,943	13,220	19.3
April	97.3	1,251	11,490	3.3
May	.8	440	3,550	0
June	7.8	228	1,660	0
July	1.3	162	1,010	0
August	.4	115	1,260	0
September	1.4	79.8	1,070	0
October	.6	93.4	1,270	0
November	178	170	1,380	0
December	116	536	3,590	4.4
Yearly	461	6,796	39,439	121

Note: For months when inflow to the reservoir was small and other quantities were large, discordant figures of inflow may appear. This arises primarily from the difficulty of computing inflow as the residual of several larger quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

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 December 1965.

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

EXTREMES: Prior to 1937, maximum monthly discharge, 21,400 acre-feet, February 1916; minimum, zero during December 1936.

Monthly Discharge in Acre-Feet

Month	Current Year 1965	Period 1937-1965		
		Average	Maximum	Minimum
January	1.7	149	1,700	1
February	1.6	407	4,260	1.5
March	1.7	281	1,490	1.7
April	1.7	1,041	12,950	1
May	2.0	284	3,040	1
June	1.7	390	7,360	0
July	1.1	222	2,340	.8
August	.6	184	1,550	.6
September	.6	361	5,880	0
October	.6	108	529	0
November	.6	145	1,260	0
December	1.7	403	5,350	1
Yearly	15.6	3,975	24,825	15.6

COTTONWOOD CREEK ABOVE BARRETT DAM, CALIFORNIA

DESCRIPTION: Staff gage located immediately upstream from face of dam on west side of outlet tower. Barrett Dam is located on Cottonwood Creek 8.5 miles downstream from Morena Dam, one 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 December 1965. 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. 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 1965	Period 1937-1965		
		Average	Maximum	Minimum
January	8.1	624	3,430	5.2
February	18.0	1,735	26,790	7.6
March	14.1	3,025	18,860	14.1
April	546	2,078	21,630	10.2
May	0	629	5,130	0
June	.2	256	1,730	0
July	.6	167	1,010	0
August	.9	102	579	0
September	2.7	117	759	0
October	.1	73.5	645	.1
November	771	151	1,200	0
December	463	472	3,380	5.5
Yearly	1,825	9,430	59,387	129

Note: For months when inflow to the reservoir was small and other quantities were large, discordant figures of inflow may appear. This arises primarily from the difficulty of computing inflow as the residual of several larger quantities, which are not susceptible to measurement with a precision necessary to produce a final answer within desirable limits of accuracy.

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 U. S. Geological Survey. Records at present location are good. Records available: January 1909 through December 1965. Records January 1909 to April 1940 from city of San Diego, California.

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 1965 — 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

Month	Current Year 1965								Period 1937-1965		
	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.								0	446	2,350	0
Feb.								0	450	2,130	0
Mar.								0	600	2,330	0
Apr.								0	945	2,860	0
May								0	1,051	3,040	0
June								0	1,012	2,920	0
July								0	891	2,920	0
Aug								0	823	2,820	0
Sept.								0	571	2,320	0
Oct.								0	437	2,450	0
Nov.								0	602	2,760	0
Dec.								0	525	2,305	0
Yearly								0	8,353	27,170	0

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 this 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 December 1965. 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 1965	Period 1937-1965		
		Average	Maximum	Minimum
January	0	20.8	590	0
February	0	35.5	990	0
March	0	954	13,390	0
April	0	1,401	33,400	0
May	0	318	7,520	0
June	0	44.7	890	0
July	0	2.5	21	0
August	0	2.2	21	0
September	0	1.8	21	0
October	0	1.6	21	0
November	0	1.2	15	0
December	0	1.8	21	0
Yearly	0	2,785	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 December 1965.

REMARKS: Flow is largely controlled by Barrett and Morena reservoirs, 10 and 18 miles, respectively, upstream from this station. During 1965 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 1965 — 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	2.8
2	0	0	0	0	0	0	0	0	0	0	0	2.2
3	0	0	0	0	0	0	0	0	0	0	0	1.7
4	0	0	0	1.4	0	0	0	0	0	0	0	1.5
5	0	0	0	1.9	0	0	0	0	0	0	0	1.5
6	0	0	0	1.3	0	0	0	0	0	0	0	1.3
7	0	0	0	1.5	0	0	0	0	0	0	0	1.2
8	0	0	0	3.3	0	0	0	0	0	0	0	1.1
9	0	0	0	10	0	0	0	0	0	0	0	1.2
10	0	0	0	17	0	0	0	0	0	0	0	1.5
11	0	0	0	10	0	0	0	0	0	0	0	1.1
12	0	0	0	7.0	0	0	0	0	0	0	0	1.1
13	0	0	0	5.1	0	0	0	0	0	0	0	1.3
14	0	0	0	3.4	0	0	0	0	0	0	0	3.0
15	0	0	0	2.3	0	0	0	0	0	0	0	3.9
16	0	0	0	1.7	0	0	0	0	0	0	0	15
17	0	0	0	1.2	0	0	0	0	0	0	0	16
18	0	0	0	1.0	0	0	0	0	0	0	0	11
19	0	0	0	.8	0	0	0	0	0	0	0	8.0
20	0	0	0	.6	0	0	0	0	0	0	0	6.1
21	0	0	0	.6	0	0	0	0	0	0	0	5.1
22	0	0	0	.5	0	0	0	0	0	0	3.1	8.0
23	0	0	0	.4	0	0	0	0	0	0	127	6.4
24	0	0	0	.3	0	0	0	0	0	0	28	5.6
25	0	0	0	.2	0	0	0	0	0	0	23	4.9
26	0	0	0	.1	0	0	0	0	0	0	16	4.4
27	0	0	0	.1	0	0	0	0	0	0	10	3.7
28	0	0	0	.1	0	0	0	0	0	0	6.4	3.5
29	0		0	.1	0	0	0	0	0	0	4.7	6.8
30	0		0	0	0	0	0	0	0	0	3.5	16
31	0		0		0		0	0		0		8.3
Sum	0	0	0	71.9	0	0	0	0	0	0	221.7	155.2

Month	Current Year 1965 Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1937-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.				0		0	0	0	220	1,190	0
Feb.				0		0	0	0	686	9,940	0
Mar.				0		0	0	0	1,991	20,880	0
Apr.			10	17	† 1	0	2.40	143	1,936	40,240	0
May				0		0	0	0	450	10,040	0
June				0		0	0	0	86.5	1,590	0
July				0		0	0	0	9.6	206	0
Aug				0		0	0	0	.5	7.7	0
Sept.				0		0	0	0	2.6	72	0
Oct.				0		0	0	0	4.9	101	0
Nov.			23	127	† 1	0	7.39	440	27.3	440	0
Dec.			† 17	16	† 8	1.1	5.01	308	121	1,110	0
Yearly				127		0	1.23	890	5,535	66,700	0

† And other days Ø Mean daily

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 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 December 1965.

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 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 most months since 1960.

Mean Daily Discharge in Second Feet 1965 — 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	.10	0	0	0	0	0	0	0	0
3	0	0	0	.10	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	.10	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	.10	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	.10
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	.30	0
23	0	0	0	0	0	0	0	0	0	0	.10	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	.10
30	0		0	0	0	0	0	0	0	0	0	0
31	0		.10		0		0	0		0		0
Sum	0	0.10	0.10	0.30	0	0	0	0	0	0	0.40	0.20

Month	Current Year 1965								Period 1937-1965		
	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.				0		0	0	0	161	906	0
Feb.			6	.10	† 1	0	.003	.2	284	1,730	0
Mar.			31	.10	† 1	0	.003	.2	407	2,360	0
Apr.			† 2	.10	† 1	0	.01	.6	285	3,250	0
May				0		0	0	0	130	1,540	0
June				0		0	0	0	50.6	719	0
July				0		0	0	0	20.3	361	0
Aug				0		0	0	0	14.7	321	0
Sept.				0		0	0	0	13.9	264	0
Oct.				0		0	0	0	25.0	543	0
Nov.			22	.30	† 1	0	.01	.8	46.3	542	0
Dec.			† 16	.10	† 1	0	.006	.4	129	808	0
Yearly				0.30		0	0.003	2.2	1,567	11,141	0

† And other days Ø Mean daily

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. Zero of 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 generally made twice each month. Records obtained and furnished by the U. S. Geological Survey. 1965 records good. Records available: October 1936 through December 1965.

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 1965 —— 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	3.1
2	0	0	0	0	0	0	0	0	0	0	0	2.4
3	0	0	0	0	0	0	0	0	0	0	0	1.9
4	0	0	0	0	0	0	0	0	0	0	0	1.6
5	0	0	0	0	0	0	0	0	0	0	0	1.2
6	0	0	0	0	0	0	0	0	0	0	0	.80
7	0	0	0	0	0	0	0	0	0	0	0	.70
8	0	0	0	0	0	0	0	0	0	0	0	.60
9	0	0	0	4.5	0	0	0	0	0	0	0	1.1
10	0	0	0	14	0	0	0	0	0	0	0	1.3
11	0	0	0	8.2	0	0	0	0	0	0	0	.80
12	0	0	0	6.0	0	0	0	0	0	0	0	.70
13	0	0	0	3.5	0	0	0	0	0	0	0	1.1
14	0	0	0	1.9	0	0	0	0	0	0	0	3.4
15	0	0	0	1.2	0	0	0	0	0	0	0	5.1
16	0	0	0	.7	0	0	0	0	0	0	0	14
17	0	0	0	.5	0	0	0	0	0	0	0	15
18	0	0	0	.3	0	0	0	0	0	0	0	11
19	0	0	0	.2	0	0	0	0	0	0	0	8.1
20	0	0	0	.2	0	0	0	0	0	0	0	6.9
21	0	0	0	.1	0	0	0	0	0	0	0	5.5
22	0	0	0	.1	0	0	0	0	0	0	0	7.8
23	0	0	0	.1	0	0	0	0	0	0	142	6.9
24	0	0	0	0	0	0	0	0	0	0	28	5.5
25	0	0	0	0	0	0	0	0	0	0	21	4.8
26	0	0	0	0	0	0	0	0	0	0	16	4.2
27	0	0	0	0	0	0	0	0	0	0	11	3.7
28	0	0	0	0	0	0	0	0	0	0	7.2	3.4
29	0		0	0	0	0	0	0	0	0	5.1	5.7
30	0		0	0	0	0	0	0	0	0	3.9	20
31	0		0		0		0	0		0		9.4
Sum	0	0	0	41.5	0	0	0	0	0	0	234.2	157.70

Month	Current Year 1965 Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Period 1937-1965 Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.				0			0	0	472	2,750	0
Feb.				0			0	0	1,240	13,680	0
Mar.				0			0	0	3,155	27,140	0
Apr.	2.60		10	27	† 1	0	1.38	82	2,641	51,060	0
May				0			0	0	667	14,110	0
June				0			0	0	136	2,630	0
July				0			0	0	21.2	312	0
Aug				0			0	0	7.3	171	0
Sept.				0			0	0	10.5	152	0
Oct.				0			0	0	27.3	705	0
Nov.	3.67		23	251	† 1	0	7.81	465	69.8	839	0
Dec.			30	Ø 20	8	Ø .60	5.09	313	322	3,330	0
Yearly	3.67			251		0	1.19	860	8,769	97,900	0

† And other days Ø Mean daily

INFLOWS TO RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Rodríguez Dam is located in Mexico on Río 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 and rainfall. Records obtained by the Ministry of Hydraulic Resources through May 1961 and from June 1961 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano of Tijuana, Baja California, which agency took over operation of Rodríguez Dam. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1965. Storage began in Rodríguez Reservoir on September 22, 1936.

REMARKS: Records of runoff represent all water reaching Rodríguez 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 1965	Period 1938-1965		
		Average	Maximum	Minimum
January	44.5	970	6,569	0
February	40.4	2,649	41,295	5.8
March	21.6	7,140	68,321	4.2
April	481	3,737	77,790	0
May	5.8	460	9,962	0
June	.2	81.9	891	0
July	0	88.4	326	0
August	29.7	55.7	770	0
September	31.5	55.2	466	0
October	32.6	68.0	344	0
November	1,940	178	1,940	0
December	2,624	1,012	15,686	12.8
Yearly	5,251	16,498	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 Rodríguez 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 and from June 1961, by the Junta de Agua Potable y Alcantarillado del Distrito Urbano of Tijuana, Baja California. Records furnished through the Mexican Section of the Commission. Records available: May 1937 through 1965.

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 Río de las Palmas and the South Canal delivers water to lands in the valley south of the Río de las Palmas and the Tijuana River. During 1965, 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 1965	Period 1938-1965		
		Average	Maximum	Minimum
January	44.5	266	782	2.3
February	40.4	298	1,132	1.9
March	21.4	362	1,223	0
April	8.4	526	1,602	0
May	19.6	731	1,676	1.8
June	47.5	854	1,857	1.9
July	62.3	897	1,963	1.9
August	30.7	767	1,859	0
September	31.5	619	1,420	1.9
October	32.6	530	1,187	1.9
November	84.3	406	1,037	2.3
December	114	353	981	0
Yearly	538	6,609	15,317	59.6

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. Zero of gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 8 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 December 1965.

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 1965 — 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	.4	0	0	0	0	0	0	0	0
3	0	0	0	25.8	0	0	0	0	0	0	0	0
4	0	0	0	8.1	0	0	0	0	0	0	0	0
5	0	0	0	2.4	0	0	0	0	0	0	0	0
6	0	0	0	.2	0	0	0	0	0	0	0	0
7	0	0	0	9.4	0	0	0	0	0	0	0	0
8	0	0	0	50.5	0	0	0	0	0	0	0	0
9	0	0	0	44.4	0	0	0	0	0	0	0	74.5
10	0	0	0	28.1	0	0	0	0	0	0	0	40.7
11	0	0	0	4.4	0	0	0	0	0	0	0	8.3
12	0	0	0	5.7	0	0	0	0	0	0	0	13.3
13	0	0	0	.9	0	0	0	0	0	0	0	22.4
14	0	0	0	0	0	0	0	0	0	0	0	91.0
15	0	0	4.0	0	0	0	0	0	0	0	19.0	51.4
16	0	0	0	0	0	0	0	0	0	0	35.0	108
17	0	0	0	0	0	0	0	0	0	0	31.3	13.2
18	0	0	0	0	0	0	0	0	0	0	3.2	3.0
19	0	0	0	0	0	0	0	0	0	0	1.4	1.1
20	0	0	0	0	0	0	0	0	0	0	.5	.1
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	89.5	44.0
23	0	0	0	0	0	0	0	0	0	0	304	11.0
24	0	0	0	0	0	0	0	0	0	0	22.4	2.1
25	0	0	0	0	0	0	0	0	0	0	32.1	.1
26	0	0	0	0	0	0	0	0	0	0	7.0	0
27	0	0	0	0	0	0	0	0	0	0	1.1	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	30.6
30	0		0	0	0	0	0	0	0	0	0	42.3
31	0		0		0		0	0		0		5.6
Sum	0	0	4.0	180.3	0	0	0	0	0	0	546.5	562.7

Month	Current Year 1965								Period 1947-1965		
	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	503	4,603	0
Feb.				0		0	0	0	182	1,496	0
Mar.	46.20		15	24.8	† 1	0	.1	7.9	1,007	13,309	0
Apr.	47.93		8	173	† 1	0	6.0	358	324	2,926	0
May				0		0	0	0	53.7	312	0
June				0		0	0	0	35.1	309	0
July				0		0	0	0	27.7	239	0
Aug				0		0	0	0	24.0	193	0
Sept.				0		0	0	0	31.2	216	0
Oct.				0		0	0	0	46.3	305	0
Nov.	ᵘ49.18		23	ᵘ455	† 1	0	18.2	1,084	128	1,084	0
Dec.	48.22		9	270	† 1	0	18.2	1,116	199	1,447	0
Yearly	ᵘ49.18			ᵘ455		0	3.5	2,566	2,561	19,882	0

† And other days ᵘ Estimated

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. Zero of 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. There are no significant inflows to the river between the old and new locations of the gage.

RECORDS: Based on current meter measurements or observation of no flow generally made twice a month. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1914 to September 1915, and October 1922 to December 1965 (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 Rodríguez Reservoir on Río 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. 1965 records good.

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 1965 — 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	.7	0	0	0	0	0	0	0	8.7
10	0	0	0	1.0	0	0	0	0	0	0	0	3.5
11	0	0	0	0	0	0	0	0	0	0	0	1.6
12	0	0	0	0	0	0	0	0	0	0	0	.10
13	0	0	0	0	0	0	0	0	0	0	0	2.8
14	0	0	0	0	0	0	0	0	0	0	0	14
15	0	0	0	0	0	0	0	0	0	0	0	46
16	0	0	0	0	0	0	0	0	0	0	0	69
17	0	0	0	0	0	0	0	0	0	0	0	16
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	1.2
23	0	0	0	0	0	0	0	0	0	0	91	.50
24	0	0	0	0	0	0	0	0	0	0	16	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	.20	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	.10
30	0		0	0	0	0	0	0	0	0	0	6.3
31	0		0		0		0	0		0		.10
Sum	0	0	0	1.7	0	0	0	0	0	0	107.20	169.90

Current Year 1965 — **Period** 1937-1965

Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.				0		0	0	0	886	4,070	0
Feb.				0		0	0	0	4,805	66,920	0
Mar.				0		0	0	0	8,508	107,000	0
Apr.	2.80		10	3.3	† 1	0	.06	3.4	7,312	181,900	0
May				0		0	0	0	816	18,340	0
June				0		0	0	0	138	3,060	0
July				0		0	0	0	27.5	523	0
Aug				0		0	0	0	19.5	242	0
Sept.				0		0	0	0	28.7	234	0
Oct.				0		0	0	0	97.7	1,340	0
Nov.	5.75		23	267	† 1	0	3.57	213	163	1,490	0
Dec.			16	Ø 69	† 1	0	5.48	337	814	7,930	0
Yearly	5.75			267		0	0.764	553	23,615	332,749	0

† And other days Ø Mean daily

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 Rodríguez 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 Rodríguez Reservoirs are based on the capacities as determined by the following surveys: Morena 1948; Barrett 1948, 1951, and 1955; and Rodríguez 1927, when the reservoir area was initially surveyed.

Records for Morena and Barrett Reservoirs are obtained and furnished by the city of San Diego, California, the U. S. Geological Survey, and the U. S. Weather Bureau. Records for Rodríguez Reservoir obtained and furnished by the Ministry of Hydraulic Resources, Government of Mexico, through May 1961, and beginning June 1961 through December 1965, records obtained and furnished by the Junta de Agua Potable y Alcantarillado del Distrito Urbano of Tijuana, Baja California.

In Acre-Feet

Month	Morena Reservoir, California (Capacity 50,210)		Barrett Reservoir, California (Capacity 44,760)		Rodríguez Reservoir, Baja California (Capacity 111,880)		Total in Tijuana River Basin Reservoirs (Capacity 206,850)	
	1965	Average 1937-1965	1965	Average 1937-1965	1965	Average 1937-1965	1965	Average 1937-1965
Jan.	248	19,058	1,043	13,219	0	38,494	1,291.0	70,771
Feb.	265	19,799	1,050	14,770	0	39,214	1,315.0	73,783
Mar.	265	21,293	1,043	16,418	0	42,895	1,308.0	80,606
Apr.	357	21,267	1,576	17,084	351	42,908	2,284.0	81,259
May	332	21,082	1,539	16,351	253	42,782	2,124.0	80,215
June	312	20,506	1,504	15,610	154	41,515	1,970.0	77,631
July	280	19,967	1,452	14,757	36.5	40,189	1,768.5	74,913
Aug.	243	19,469	1,401	13,903	0	38,989	1,644.0	72,361
Sept.	222	18,846	1,367	13,563	0	37,962	1,589.0	70,371
Oct.	203	18,577	1,335	13,140	0	37,101	1,538.0	68,818
Nov.	374	18,446	2,094	12,701	1,785	36,510	4,253.0	67,657
Dec.	476	18,472	2,477	12,969	4,122	36,838	7,075.0	68,279
Avg.	298	19,732	1,490	14,540	559	39,616	2,346.6	73,888
Max.	476	# 61,670	2,477	θ 45,920	4,122	109,608	7,075.0	213,600
Min.	203	10	1,043	106	0	0	1,291.0	1,264.0

March 31, 1941 - Prior to removal of spillway gates
θ April 30, 1937 - Sandbags were placed on crest of spillway

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

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

In United States

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California	
	1965	Average 1906-1965	1965	Average 1907-1965	1965	Average 1951-1965	1965	Average 1914-1965
Jan.	0.85	3.89	0.65	3.40	0.68	2.70	0.69	3.46
Feb.	2.04	3.99	1.92	3.53	1.30	2.05	1.95	3.91
Mar.	2.39	3.50	.66	2.96	1.15	2.35	1.06	3.01
Apr.	5.39	1.86	6.59	1.63	5.65	1.55	7.22	1.90
May	.04	.66	T	.59	0	.50	0	.69
June	0	.14	0	.06	0	.04	0	.08
July	.14	.39	.09	.09	0	.02	.20	.20
Aug.	.11	.52	.13	.20	0	.16	0	.18
Sept.	.35	.35	.38	.27	.36	.26	.51	.27
Oct.	0	.92	0	.73	0	.33	0	.75
Nov.	8.23	1.53	8.79	1.30	7.60	1.58	10.24	1.44
Dec.	5.26	3.28	4.87	2.83	4.08	1.72	4.74	3.17
Yearly	24.80	21.03	24.08	17.59	20.82	13.26	26.61	19.06

Month	Campo, California		Sawday Ranch, California		Chula Vista, California	
	1965	Average 1900-1965	1965	Average 1950-1965	1965	Average 1930-1965
Jan.	0.80	3.07	0.57	3.11	0.42	1.86
Feb.	2.00	3.47	1.96	2.39	.50	1.84
Mar.	1.20	2.81	.81	2.91	1.04	1.50
Apr.	6.03	1.53	6.97	1.96	3.84	.88
May	.05	.56	.05	.52	T	.26
June	0	.07	0	.05	.05	.05
July	.36	.54	.10	.51	.02	.01
Aug.	.13	.51	1.69	.82	T	.08
Sept.	.37	.33	.45	.44	.18	.19
Oct.	T	.65	0	.42	0	.42
Nov.	9.03	1.34	9.43	1.82	6.00	.99
Dec.	4.31	2.52	4.70	1.91	5.04	1.78
Yearly	24.28	17.40	26.73	16.86	17.09	9.86

In Mexico

Month	La Rumorosa, Baja California		Tecate, Baja California		Tijuana, Baja California	
	1965	Average 1946-1965	1965	Av. 1946-59 & 1961-1965	1965	Av. 1948-59 & 1961-1965
Jan.	0	0.83	0.83	2.36	0.31	1.85
Feb.	0	.39	1.85	1.26	.47	1.22
Mar.	0	.51	2.83	1.85	2.13	1.18
Apr.	4.88	.43	5.12	1.14	2.24	.71
May	0	.04	.08	.35	0	.24
June	0	.04	0	.08	0	.04
July	.39	.24	.12	.08	.16	0
Aug.	.43	.79	0	.16	0	.08
Sept.	0	.20	.31	.12	.28	.16
Oct.	0	.39	0	.31	0	.28
Nov.	.28	.28	4.49	1.06	5.04	1.02
Dec.	1.81	.67	4.69	1.69	6.38	1.14
Yearly	7.79	4.69	20.32	11.18	17.01	8.62

T Trace

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

In Mexico

Month	Rodríguez Dam, Baja California		Valle de las Palmas, Baja California		El Pinal, Baja California		San Juan de Dios, Baja California	
	1965	Average 1938-1965	1965	Average 1948-1965	1965	Average 1964-1965	1965	Average 1956-1965
Jan.	0.28	1.46	0.31	1.65	0.63		0.59	2.17
Feb.	.55	1.30	1.34	1.02	2.52		2.05	2.17
Mar.	1.26	1.42	1.14	1.18	2.17		.51	1.85
Apr.	4.57	.83	1.97	.63	6.42		6.06	1.77
May	T	.12	0	.12	T		0	.31
June	.08	0	0	0	0		0	.31
July	T	0	.12	.08	.31		.12	.79
Aug.	0	.08	.08	.04	2.17		1.02	.67
Sept.	.20	.28	.16	.20	.47	.08	.31	.47
Oct.	T	.31	0	.20	0	.08	0	.55
Nov.	6.06	.83	3.54	.83	3.66	2.91	4.41	1.30
Dec.	3.27	1.61	3.78	1.02	7.05	4.72	6.10	1.34
Yearly	16.27	8.11	12.44	7.17	25.40		21.17	17.36

T Trace

LOCATION OF RAINFALL STATIONS

In United States

NAME OF STATION	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	1,750	1907	City of San Diego
Campo, California	32° 37'	116° 28'	2,630	1877	Archie C. Leach
Chula Vista, California	32° 36'	117° 06'	9	1930	Western Salt Company
Marron Valley, California	32° 34'	116° 46'	550	1951	Fred Mellor
Morena Dam, California	32° 41'	116° 32'	3,010	1906	City of San Diego
* Potrero, California	32° 37'	116° 37'	2,390	1914	Thor Nelson
Sawday Ranch, California	32° 45'	116° 29'	3,200	1950	William Tulloch

In Mexico

NAME OF STATION	LATITUDE	LONGITUDE	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
Rodríguez 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

* September 30, 1965 station moved 75' south of General Store on store property - L. W. Whitehouse, observer.

EVAPORATION IN THE TIJUANA RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at four stations in California and at four 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 this 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 87 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 December 1965, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

2. Chula Vista: September 1918 through December 1965, U.S. Weather Bureau 4-foot diameter pan, 10 inches deep, set on 2-inch by 4-inch timber grill.

3. Marron Valley: February 1951 to April 30, 1956, 2-foot diameter screened pan, 36 inches deep with automatic level attachment. From April 30, 1956 through April 29, 1963, same type of pan 22.5 inches in diameter. From April 30, 1963 to date, 2-foot diameter screened pan, same type.

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 December 1965, 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		Marron Valley, California		Chula Vista, California	
	1965	Average 1916-1965	1965	Average 1921-1965	1965	Average 1951-1965	1965	Average 1919-1965
Jan.	1.74	2.31	1.70	1.89			2.97	2.81
Feb.	1.77	2.35	2.30	2.24			3.83	3.33
Mar.	2.30	3.67	2.96	3.63			5.46	4.99
Apr.	2.99	4.95	3.81	4.93			5.43	5.86
May	5.55	6.95	5.75	7.09	6.98	6.94	7.07	6.89
June	6.31	8.94	5.92	8.69	6.84		6.31	7.01
July	8.54	10.49	8.11	10.37	8.78		7.11	7.63
Aug.	8.42	9.73	8.88	9.71	9.88		7.34	7.27
Sept.	5.21	7.91	5.80	7.98	7.38	8.24	6.07	6.06
Oct.	5.07	5.53	5.84	5.61	7.96	6.65	6.23	4.85
Nov.	1.48	3.70	1.94	3.56			2.74	3.62
Dec.	.91	2.66	1.18	2.21			2.49	2.75
Total	50.29	69.19	54.19	67.91			63.05	63.07

In Mexico

Month	Tecate, Baja California		Tijuana, Baja California		Rodríguez Dam, Baja California		Valle de las Palmas, Baja California	
	1965	Average 1961-1965	1965	Av. 1952-59 1961-1965	1965	Av. 1939-42 1946-1965	1965	Average 1952-1965
Jan.	3.07	3.27	3.07	2.83	3.50	3.90	4.29	3.62
Feb.	3.31	3.23	3.66	3.31	3.70	3.98	3.66	3.58
Mar.	4.37	3.82	4.29	4.06	4.21	5.12	5.51	5.16
Apr.	5.08	5.47		4.76	4.41	5.87		6.81
May	6.50	6.34	7.17	5.83	6.34	7.48	8.03	7.95
June	6.34	5.75	5.83	5.63	5.59	8.15	8.62	9.65
July	9.02	9.49	7.72	6.61	7.52	9.17	11.50	11.22
Aug.	9.37	8.82	9.21	6.81	8.43	8.35	12.09	10.47
Sept.	5.63	6.97	5.59	5.91	5.98	7.17	9.57	8.82
Oct.	6.54	6.34	6.57	4.49	7.20	6.02	8.86	6.54
Nov.	2.87	3.54	1.34	3.35	2.24	5.28	3.03	4.57
Dec.	3.90	3.27		2.95	1.85	4.41	2.95	4.13
Total	66.00	68.74		# 55.51	60.97	75.51		* 80.75

1955-1963 Average * 1952-1963 Average

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 maximums and minimums 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 87 in this bulletin.

In United States

Month	Barrett Dam, California				Campo, California				* Chula Vista, California			
	1965			Average 1931-1965	1965			Average 1951-1965	1965			Average 1931-1965
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	49.5	81	24	48.5	48.9	75	22	46.6	53.4	79	35	52.3
Feb.	48.7	82	21	50.3	47.1	78	20	47.8	52.6	75	33	53.6
Mar.	51.2	81	25	53.2	48.2	76	23	48.9	55.4	72	38	55.1
Apr.	56.4	92	32	58.2	53.3	88	28	ò53.8	57.8	77	42	58.0
May	60.2	92	33	62.8	56.8	90	27	57.8	59.8	70	46	60.6
June	62.1	91	42	68.1	59.1	90	35	64.5	60.6	66	49	62.9
July	72.3	104	47	76.1	71.3	102	41	73.1	64.1	71	55	
Aug.	#76.6	106	46	76.1	74.1	102	41	73.0	68.7	83	59	
Sept.	65.7	97	41	72.4	63.6	96	34	69.1	64.8	77	52	
Oct.	65.4	96	36	64.4	64.5	96	30	61.3	66.2	101	47	62.8
Nov.	56.3	88	33	55.9	54.0	85	26	52.3	60.6	72	44	
Dec.	49.4	84	28	50.9	47.1	75	27	48.3	54.8	85	39	54.4
Yearly	59.5	106	21	61.4	57.3	102	20	ò58.1	59.9	101	33	

In Mexico

Month	La Rumorosa, Baja California				Tecate, Baja California				Tijuana, Baja California			
	1965		1946-1965		1965		1946-59&61-65		1965		1948-59&61-65	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	66	32	81	5	81	27	86	21	91	36	91	30
Feb.	73	32	82	10	79	27	90	21	82	36	102	32
Mar.	66	34	88	16	79	36	88	27	81	43	90	34
Apr.	90	32	91	23	93	32	99	32	90	43	90	34
May	86	32	97	28	93	36	100	36	91	46	97	43
June	91	41	113	30	84	41	104	37	97	48	99	41
July	99	52	104	50	97	45	115	36	91	54	120	46
Aug.	97	45	102	45	102	45	113	34	106	57	106	52
Sept.	100	48	104	34	95	41	115	37	97	52	120	46
Oct.	93	43	93	25	99	36	106	34	115	48	117	43
Nov.	81	36	88	14	88	36	97	27	100	45	100	34
Dec.	68	23	81	10	82	27	90	23	86	36	99	25
Yearly	100	23	113	5	102	27	115	21	115	36	120	25

Month	Rodrfguez Dam, Baja California				Valle de las Palmas, Baja California				El Pinal, Baja California			
	1965		1946-1965		1965		1948-1965		1965		1964-1965	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	86	36	88	27	86	30	88	12	72	27		
Feb.	84	32	91	32	79	23	99	23	73	23		
Mar.	82	41	88	32	82	32	93	28	70	23		
Apr.	88	39	93	36	97	37	104	32	82	28		
May	86	37	99	37	97	39	100	39	81	27		
June	77	46	108	46	91	46	108	43	90	30		
July	88	52	104	50	102	50	120	48	95	43	95	43
Aug.	97	52	104	52	108	50	108	48	93	39	102	39
Sept.	90	48	108	48	100	45	117	43	88	39	102	39
Oct.	99	45	108	43	102	39	108	37	90	34	95	34
Nov.	82	43	99	30	93	37	95	19	79	30	79	28
Dec.	86	37	93	27	91	30	91	21	79	28	79	28
Yearly	99	32	108	27	108	23	120	12	95	23		

* Chula Vista temperature not read on most week ends or holidays
\# One day missing ò 1956 Record missing

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

In Mexico

Month	San Juan de Dios, Baja California											
	1965		1956-1965									
	Max.	Min.	Max.	Min.								
Jan.	72	21	88	7								
Feb.	73	19	84	16								
Mar.	68	19	84	18								
Apr.	82	27	102	19								
May	82	21	91	21								
June	88	27	106	28								
July	97	41	120	36								
Aug.	99	41	106	32								
Sept.	88	34	100	25								
Oct.	91	27	99	19								
Nov.	79	21	99	12								
Dec.	79	23	88	16								
Yearly	99	19	120	7								

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

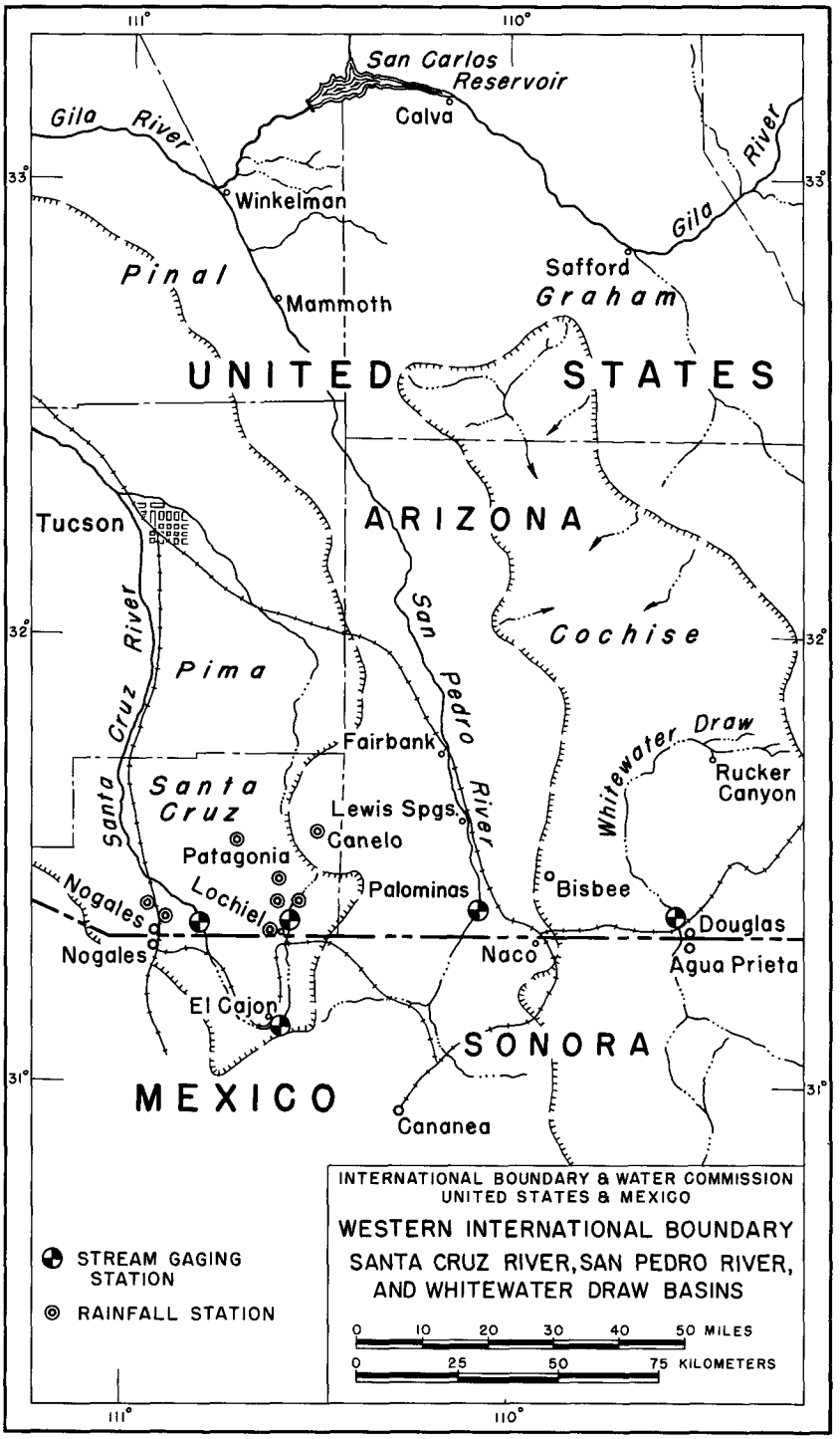
1965

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 1965 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 (does not include Campo Creek)	19	64	83	0	0	0
Cottonwood Creek						
above International Boundary Station	413	68	481	a) 540	0	a) 540
Río de las Palmas						
above Rodríguez 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) 350	3,350

a) Estimated as of 1948. 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 1965 in the Tijuana Irrigation District, Tijuana Valley, Baja California, Mexico, from the Rodríguez Reservoir, but an estimated area of about 350 acres was irrigated by pumping from ground water. Depending upon the availability of water this acreage varies considerably from year to year.


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

WHITEWATER DRAW NEAR DOUGLAS, ARIZONA

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

RECORDS: Based on 24 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 except for periods of fragmentary or no gage height record, which are poor. Records available: August to October 1911 (gage heights and discharge measurements only), July to October 1912, January to June 1913, October 1913, December 1913 to June 1914, February to June 1915, October 1915 to September 1919, October 1919 to April 1922 (gage heights and discharge measurements only), June 1930 to December 1933, May 1935 to July 1947, October 1947 through December 1965 (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 14.93 feet July 27, 1959; minimum daily discharge, no flow at times during most years.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	u 0.1	0.1	0.1	0.1	0	0	0.2	0.2	0.2	0.2	0.1
2	.1	u .1	.1	.1	0	0	0	269	.2	.2	.2	.1
3	.1	u .1	.1	.1	0	0	0	13	63	.2	.2	.1
4	.1	u .1	.1	.1	0	0	0	4.6	619	.2	.2	.1
5	.1	u .1	.1	.1	0	0	0	1.4	129	.2	.1	.1
6	.2	u .1	.1	.1	0	0	0	.8	18	.2	.1	.1
7	4.9	u .3	.1	.1	0	0	0	.6	6.7	.2	.1	.1
8	3.8	u .1	.1	0	0	0	0	.4	4.2	.2	.1	.1
9	.7	u .1	.1	0	0	0	.8	.4	6.0	.2	.1	.2
10	.3	u .2	.1	0	0	0	281	.3	2.1	.2	.1	33
11	.2	u .1	.1	0	0	0	13	.2	215	.2	.1	1.9
12	.2	u .1	.1	0	0	0	2	.2	20	.2	.1	.3
13	.2	u .1	.1	0	0	0	25	.2	6.0	.2	.1	.2
14	.2	u .1	.1	.1	0	0	2.2	.1	7.3	.2	.1	.2
15	.2	u .1	.1	.1	0	0	.1	.1	.6	.2	.1	13
16	.2	u .1	.1	.1	0	0	6.9	.1	u .5	.2	.1	2.0
17	.1	.1	.1	.1	0	0	68	38	u .5	.2	.1	14
18	.1	.1	.1	.1	0	0	5.3	9.7	u .3	.2	.1	1.8
19	.1	.1	.1	.1	0	0	.7	1.1	u .3	.2	.1	.2
20	.2	.1	.1	u .1	0	0	3.6	.6	u .2	.2	.1	.1
21	40	.1	.1	u .1	0	0	3.9	.3	.2	.2	.1	.1
22	4.2	.1	.1	u .1	0	0	1.5	4.4	.2	.2	.1	.3
23	.8	.1	.1	.1	0	0	9.0	6.3	.2	.2	.1	.6
24	.2	.1	.1	0	0	0	.9	.4	.2	.2	.1	.3
25	u .2	.1	.1	0	0	0	.3	.3	.2	.2	.1	.1
26	u .1	.1	.1	.1	0	0	8.3	9.3	.2	.2	.1	.1
27	.1	.1	.1	.1	0	0	1.6	1.1	.2	.2	.1	.1
28	.1	.1	.1	.1	0	0	3.4	.5	.2	.2	.1	.1
29	.1		.1	.1	0	0	1.8	.3	.2	.2	.1	.1
30	.1		.1	.1	0	0	.5	.2	.2	.2	.1	.1
31	.1		.1		0		.3	.2		.2		.1
Sum	58.1	* 3.1	3.1	2.2	0.1	0	440.1	364.3	1,101.1	6.2	3.4	69.7

Month	Current Year 1965 Extreme Gage Feet High	Extreme Gage Feet Low	Ø Extreme Second Feet High Day	High	Low Day	Low	Average Second Feet	Total Acre Feet	Period 1936-1965 Acre Feet Average	Maximum	Minimum
Jan.			21	40	† 1	0.1	1.87	115	52.4	451	1.0
Feb.			7	u .3	† 1	u .1	* .11	* 6.1	27.8	132	0
Mar.			† 1	.1	† 1	.1	.10	6.1	30.2	130	0
Apr.			† 1	.1	† 8	0	.07	4.4	27.8	173	0
May			1	.1	† 2	0	.003	.2	20.6	138	0
June				0		0	0	0	177	1,590	0
July			10	281	† 1	0	14.2	873	# 2,201	8,110	39
Aug			2	269	† 14	.1	11.8	723	# 3,491	14,480	.3
Sept.			4	619	† 1	.2	36.7	2,184	# 801	3,170	.8
Oct.			† 1	.2	† 1	.2	.20	12.3	171	2,210	.4
Nov.			† 1	.2	† 5	.1	.11	6.7	51.0	352	.2
Dec.			10	33	† 1	.1	2.25	138	92.3	1,050	.4
Yearly				619		0	5.62	4,069		22,321	900

u Estimated Ø Mean daily # 1947 Records not available † And other days

* Partly estimated

SEWAGE EFFLUENT, DOUGLAS, ARIZONA AND AGUA PRIETA, SONORA INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Flume in influent line at treatment plant, equipped with stilling well and staff gage, for measuring combined flows of Douglas, Arizona and Agua Prieta, Sonora, and Parshall flume with recording flow meter for measuring flows from the city of Douglas. Flows from Mexico are deduced from total flows and city of Douglas flows.

RECORDS: Combined discharges are computed from daily 11:00 a.m. readings of the staff gages by applying an 11:00 a.m. index determined from 7 days of hourly measurements during which the relationship between mean daily readings and 11:00 a.m. readings was developed. Records available: Continuous monthly records since March 1948; daily records March 18, 1948 through December 1950 and January 1952 through December 1965.

REMARKS: 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 and is located in the United States adjacent to the international boundary about one mile west of the Douglas-Agua Prieta Port of Entry. The effluent from the plant is treated in oxidation ponds in Mexico.

Month	Total Monthly Flows Millions of Gallons			Mean Daily Flows-Millions of Gallons Per Day					
				Current Year 1965			Period 1952-1965		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	27.341	10.643	37.984	1.351	1.129	1.225	1.368	0.619	0.991
Feb.	24.528	10.985	35.513	1.416	1.084	1.268	1.784	.584	1.000
Mar.	28.308	12.628	40.936	1.455	1.151	1.321	1.455	.590	.999
Apr.	28.414	13.040	41.454	1.514	1.275	1.382	1.514	.619	1.019
May	29.905	12.627	42.532	1.478	1.105	1.372	1.478	.619	1.025
June	29.951	11.193	41.144	1.549	1.040	1.371	1.692	.626	1.086
July	33.026	13.259	46.285	1.751	1.178	1.493	1.751	.619	1.142
Aug.	32.915	12.015	44.930	1.592	1.194	1.449	1.829	.619	1.163
Sept.	33.121	9.107	42.228	1.505	1.257	1.408	1.884	.626	1.154
Oct.	29.175	13.033	42.208	1.558	1.095	1.362	1.667	.626	1.092
Nov.	27.067	13.149	40.216	1.481	1.126	1.340	1.481	.619	1.053
Dec.	28.787	15.288	44.075	1.650	1.216	1.422	1.650	.619	1.054
Yearly	352.538	146.967	499.505	1.751	1.040	1.368	1.884	0.584	1.065

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

DESCRIPTION: Water-stage recorder located near left bank on the downstream side of pier on bridge on State Highway No. 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 December 1965. Records obtained and furnished by U. S. Geological Survey.

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

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

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.3	7.9	5.9	4.1	0	0	0	7.9	0.1	0	0	0
2	3.7	7.4	6.3	5.0	0	0	0	8.1	3.6	0	0	0
3	4.1	7.4	5.9	5.9	0	0	0	24	4.1	0	0	0
4	3.7	6.8	5.4	5.9	0	0	0	7.4	18	0	0	0
5	3.3	6.8	5.4	5.9	0	0	0	1.8	11	0	0	0
6	4.1	7.4	5.4	5.9	0	0	0	1.0	1.0	0	0	0
7	10	7.9	5.0	5.4	0	0	0	3.3	.1	0	0	0
8	13	7.9	5.0	4.5	0	0	0	17.0	31	0	0	0
9	13	7.4	5.0	5.0	0	0	0	18.0	51	0	0	4.8
10	13	6.8	6.8	5.4	0	0	12	3.6	231	0	0	32
11	12	5.9	9.0	5.4	0	0	91	.3	47	0	0	22
12	11	5.9	9.6	5.0	0	0	8.8	.1	16	0	0	13
13	9.6	6.8	9.6	4.1	0	0	.3	.1	5	0	0	10
14	9.6	6.3	8.4	3.3	0	0	1.0	15	2.0	0	0	13
15	9.6	6.3	7.4	3.7	0	0	19	16	1.3	0	0	29
16	8.4	6.3	6.8	2.6	0	0	23	17	1.3	0	0	27
17	8.4	6.3	6.3	1.8	0	0	227	19	1.0	0	0	147
18	8.4	6.3	6.3	.2	0	0	14	17	.8	0	0	88
19	8.4	6.3	5.9	.1	0	0	1.4	11	.6	0	0	52
20	9.0	6.3	5.4	.1	0	0	.1	8	.4	0	0	38
21	11	5.9	5.4	.1	0	0	.1	103	.3	0	0	30
22	10	5.9	5.4	.1	0	0	53	17	.3	0	0	103
23	9.6	5.0	5.0	.1	0	0	5.2	.5	.3	0	0	698
24	9.0	5.0	4.5	.1	0	0	81	.4	.3	0	0	350
25	7.9	5.4	4.5	.1	0	0	20	.3	.3	0	0	140
26	7.4	5.9	4.5	.1	0	0	13	.2	.3	0	0	80
27	7.4	5.9	4.1	0	0	0	3.0	.2	.2	0	0	45
28	7.4	5.9	4.1	0	0	0	1,140	.1	.1	0	0	30
29	7.4		4.1	0	0	0	115	.1	.1	0	0	25
30	7.4		4.1	0	0	0	29	.1	.1	0	0	18
31	7.9		4.1		0		14	.1		0		15
Sum	258.0	181.3	180.6	79.9	0	0	1,870.9	317.6	428.6	0	0	2,009.8

Current Year 1965									Period 1951-1965		
Month	Extreme Gage Feet		Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
			High		Ø Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			† 8	Ø 13	† 1	3.3	8.3	512	795	7,813	2.6
Feb.			† 1	Ø 7.9	†23	5.0	6.5	360	280	1,367	3.0
Mar.			†12	Ø 9.6	†27	4.1	5.8	358	239	580	39.3
Apr.			† 3	Ø 5.9	†27	0	2.7	158	96.4	330	8.1
May				0		0	0	0	21.2	68.8	0
June				0		0	0	0	243	1,391	0
July	9.70		28	4,530	† 1	0	60.4	3,711	7,097	17,238	523
Aug			21	Ø 103	†12	.1	10.2	630	11,755	36,369	165
Sept.			10	Ø 231	† 1	.1	14.3	850	1,958	16,344	28.4
Oct.				0		0	0	0	170	1,201	0
Nov.				0		0	0	0	144	609	0
Dec.			23	Ø 698	† 1	0	64.8	3,986	458	3,986	6.2
Yearly				4,530		0	14.6	10,565	23,257	55,364	4,400

Ø Mean daily † And other days

SANTA CRUZ RIVER NEAR LOCHIEL, ARIZONA

DESCRIPTION: Water-stage recorder located in the United States near left bank on the downstream side of concrete bridge pier of county highway bridge, 2.5 miles northeast of Lochiel, Arizona, and 1.5 miles upstream from the international 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 18 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 good except above 3 second-feet and for periods of fragmentary or no gage height record, which are poor. Records available: January 1949 through December 1965.

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

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

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.1	0.6	0.5	0.3	0.4	0	0	0.2	0.2	0.3	0.1	0
2	1.1	.6	.4	.3	.4	0	.1	.4	.6	.3	0	0
3	1.1	.6	.5	.4	.4	0	.1	.5	.2	.1	0	0
4	1.1	.6	.5	.6	.3	0	.1	.3	.2	.1	0	0
5	1.0	.6	.5	.6	.3	0	.2	.4	.2	.1	0	0
6	.9	.7	.5	.5	.4	0	.1	.2	.1	0	0	0
7	1.0	.7	.5	.5	.4	0	.1	.4	.1	0	0	0
8	.9	.7	.5	.3	.3	0	.3	.2	.1	0	0	0
9	.9	.7	.6	.4	.1	0	.2	.2	.2	0	0	.4
10	.9	.7	.6	.5	0	0	20	.1	.1	0	0	4.7
11	.9	.7	.6	.5	.1	0	1.3	.2	.1	0	0	1.0
12	.9	.6	.6	.5	.3	0	.1	.2	344	0	0	.4
13	.9	.6	.5	.5	.3	0	.2	94	7.0	0	0	.4
14	.9	.6	.5	.6	.1	0	.4	2.4	34	0	0	.5
15	.9	.6	.5	.6	.1	0	.6	.2	1.9	0	0	.7
16	.9	.7	.6	.6	.1	0	.5	.2	1.0	0	0	.7
17	.9	.7	.6	.6	.1	0	1.4	.2	1.0	0	0	1.7
18	.9	.7	.5	.5	.1	0	5.2	.2	1.0	0	0	.7
19	.9	.7	.5	.5	.1	0	.4	.2	.9	0	0	.7
20	.9	.7	.4	.5	.1	0	.4	.5	.6	.1	0	.6
21	.9	.7	.5	.5	.1	0	.3	.3	.5	.2	0	.6
22	1.0	.7	.6	.4	0	0	.2	.3	.5	.2	0	26
23	1.0	.7	.7	.4	0	.2	.3	.3	.4	.2	0	40
24	.9	.7	.6	.4	.1	.1	.2	.2	.4	.2	0	5.5
25	.8	.6	.6	.4	0	.1	.3	.2	.4	.2	0	2.1
26	.7	.5	.6	.5	0	0	.2	.2	.4	.2	0	1.4
27	.7	.4	.6	.4	0	0	.2	.1	.4	.1	0	1.3
28	.7	.4	.6	.4	0	0	.5	.1	.3	.1	0	1.2
29	.7		.5	.4	0	0	.2	.2	.3	.1	0	1.2
30	.7		.4	.4	0	0	.2	.3	.2	.1	0	1.4
31	.6		.4		0		.2	.2		.1		1.4
Sum	27.7	17.8	16.5	14.0	4.6	0.4	34.5	103.6	397.3	2.7	0.1	94.6

Month	Current Year 1965								Period 1949-1965		
	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	1.1	31	0.6	0.89	54.9	28.4	70	1.3
Feb.			† 6	.7	†27	.4	.64	35.3	21.6	62	1.8
Mar.			23	.7	† 2	.4	.53	32.7	18.1	57	.7
Apr.			† 4	.6	† 1	.3	.47	27.8	10.1	29	0
May			† 1	.4	†10	0	.15	9.1	3.1	10	0
June			23	.2	† 1	0	.01	.8	.3	4.4	0
July			10	20	1	0	1.11	68.4	618	4,270	1.6
Aug			13	94	†10	.1	3.34	205	1,240	10,120	.08
Sept.			12	344	† 6	.1	13.2	788	386	2,634	0
Oct.			† 1	.3	† 6	0	.09	5.4	83.3	448	0
Nov.			1	.1	† 2	0	.003	.2	36.2	182	0
Dec.			23	40	† 1	0	3.05	188	40.1	188	0
Yearly				344		0	1.96	1,416	2,485	12,633	126

† And other days Ø Mean daily

SANTA CRUZ RIVER AT EL CAJON, SONORA

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

RECORDS: Data obtained and furnished by the Mexican Section of the Commission. Records available: January 14, 1954 through August 1959; October 1, 1959 to June 14, 1960; July 1960; January 6, 1961 to September 5, 1963; October 15, 1963 to August 3, 1964; January 9, 1965 to February 11, 1965; and April 1, through December 1965.

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, 0.2 second-foot several days during April 1961 with stage of 0.03 foot.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		2.5		3.2	‡ 7.8	‡ 8.5	7.4	‡ 13.1	20.1	4.6	1.8	3.5
2		3.2		2.1	‡ 7.8	‡ 8.5	7.4	‡ 11.7	19.8	4.9	1.8	3.5
3		2.8		3.8	‡ 7.8	‡ 8.5	7.4	‡ 10.2	19.4	5.3	2.1	3.5
4		2.8		3.2	‡ 7.8	‡ 8.5	7.4	‡ 8.8	19.1	5.3	2.8	3.5
5		2.8		3.2	‡ 8.1	‡ 8.5	7.4	‡ 7.8	19.1	5.3	2.5	3.5
6		3.2		3.5	‡ 8.1	‡ 8.5	7.4	7.8	18.7	4.6	1.8	3.2
7		4.9		3.2	‡ 8.1	‡ 8.5	7.8	7.1	18.4	3.5	1.4	3.2
8		4.2		3.5	‡ 8.1	‡ 8.5	18.7	4.9	18.0	2.5	1.4	3.2
9	2.1	3.9		3.5	‡ 8.1	‡ 8.8	4.9	2.1	18.0	1.8	1.4	6.4
10	2.5	3.5		3.2	‡ 8.1	‡ 8.8	1.8	2.5	17.7	2.1	1.4	47.0
11	2.5	3.5		2.8	‡ 8.1	‡ 8.8	4.6	4.2	17.3	3.5	1.4	23.7
12	2.1			2.8	‡ 8.1	‡ 8.8	6.0	6.7	17.0	3.9	1.4	11.3
13	2.1			2.8	‡ 8.1	‡ 8.8	7.1	8.5	17.0	3.9	1.8	12.0
14	2.8			2.8	‡ 8.1	‡ 8.8	8.5	1.8	9.5	4.2	1.8	12.4
15	2.1			3.5	‡ 8.1	‡ 8.8	5.3	2.8	3.5	4.2	1.8	13.1
16	1.8			3.5	‡ 8.1	‡ 8.8	3.5	8.1	3.9	3.5	1.8	13.4
17	1.8			3.9	‡ 8.1	‡ 8.8	9.9	12.0	7.1	3.5	1.8	12.0
18	2.1			4.6	‡ 8.1	8.8	17.3	14.8	9.2	3.2	1.8	14.1
19	3.2			5.7	‡ 8.1	8.8	21.2	15.9	10.6	3.2	1.8	14.8
20	3.2			5.7	‡ 8.1	8.5	21.2	16.6	10.6	3.2	2.1	15.2
21	3.2			6.4	‡ 8.5	8.5	21.2	18.0	11.3	2.5	2.1	15.5
22	3.5			5.3	‡ 8.5	7.8	21.2	18.7	9.5	1.1	2.5	15.9
23	3.5			4.9	‡ 8.5	6.7	21.2	19.8	7.4	.7	2.8	16.6
24	2.1			5.7	‡ 8.5	6.4	21.2	21.2	7.1	.7	3.2	17.0
25	2.5			6.0	‡ 8.5	7.1	21.2	21.2	7.1	.7	3.5	17.3
26	2.1			6.0	‡ 8.5	7.1	‡ 21.2	21.2	6.7	.7	3.5	18.0
27	2.1			6.0	‡ 8.5	7.1	‡ 19.8	21.2	6.0	.7	3.5	18.4
28	1.8			6.4	‡ 8.5	7.1	‡ 18.4	21.2	6.0	.7	3.5	18.7
29	2.1			7.1	‡ 8.5	7.1	‡ 17.0	20.8	5.7	1.1	3.5	19.1
30	2.5			7.8	‡ 8.5	7.4	‡ 15.9	20.5	4.9	1.1	3.5	19.8
31	2.1				‡ 8.5		‡ 14.5	20.5		1.4		20.1
Sum				132.1	254.3	245.6	395.0	391.7	365.7	87.6	67.5	418.9

Month	Current Year 1965 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second Feet High Day	Extreme Second Feet High	Extreme Second Feet Low Day	Extreme Second Feet Low	Average Second Feet	Total Acre Feet	Period #1954-1965 Acre Feet Average	Maximum	Minimum
Jan.									473	1,486	208
Feb.									349	1,087	98.1
Mar.									307	499	176
Apr.	0.20	0.03	30	8.5	2	2.1	4.2	260	223	528	74.9
May	.20	.16	†21	8.5	† 1	7.8	8.1	504	202	512	101
June	.20	.13	† 9	8.8	†23	6.4	8.1	486	145	486	63.1
July	.85	.03	8	73.8	10	1.4	12.7	783	745	1,227	83.5
Aug	.39	.03	†24	21.2	9	1.4	12.7	777	4,952	32,608	229
Sept.	.36	.03	1	20.1	15	1.8	12.0	725	1,018	3,000	106
Oct.	.13	0	5	5.7	23	.4	2.8	173	325	883	78.5
Nov.	.07	.03	†24	3.5	† 1	1.4	2.1	134	358	696	134
Dec.	1.21	.07	10	122	† 1	2.8	13.4	831	420	831	186
Yearly									11,178	38,895	2,317

‡ Estimated # Some months and years incomplete † 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, 0.75 mile downstream from the international boundary and 6 miles upstream from the Santa Cruz River bridge on State Highway No. 82. Zero of gage is 3,702.54 feet above mean sea level, U. S. C. & G. S. datum (levels by International Boundary and Water Commission).

RECORDS: Based on 18 current meter measurements or observation of no flow during the year. Computations by shifting control methods. Records obtained and furnished by the U. S. Geological Survey. Records fair except for periods of fragmentary or no gage height record, which are poor. Records available: March to November 1907 and April 1909 to December 1912 (discharge measurements and fragmentary gage height record), January 1913 to June 1922 (October 1915 to September 1916, monthly discharges only), May 1930 to December 1933, July 1935 through December 1965.

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 1965.

EXTREMES: Prior to 1936: Maximum discharge, 12,000 second-feet, August 31, 1935 (gage height 12.3 feet); minimum discharge, no flow for several days each year. Since 1936: Maximum discharge, 10,600 second-feet, July 10, 1954 (gage height 13.27 feet); minimum discharge, no flow for several days of many years.

Mean Daily Discharge in Second Feet 1965 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.5	7.4	7.9	5.2	0.7	0	0	0	4.4	0.2	0	0.2
2	8.5	7.9	6.8	5.2	.5	0	0	13	.2	.2	0	.2
3	7.9	8.5	7.4	5.2	.5	0	0	0	.1	.1	0	.2
4	8.5	8.5	6.2	6.2	.4	0	0	0	.1	.1	0	.2
5	9.2	8.5	6.2	5.7	.4	0	0	0	.1	0	0	.2
6	9.8	9.8	6.2	5.7	.4	0	0	0	.1	0	0	.2
7	11	13	6.2	5.7	.4	0	0	0	.1	0	0	.2
8	12	9.8	6.8	5.7	.5	0	.2	0	0	0	0	.3
9	10	9.2	6.8	5.7	.5	0	7.5	0	.1	0	0	.6
10	9.8	11	7.4	5.7	.5	0	36	0	.1	0	0	643
11	9.8	9.2	9.8	5.7	.4	0	5.4	0	0	0	0	472
12	9.8	9.2	9.8	5.7	.4	0	.1	0	0	0	0	40
13	9.2	9.8	9.8	5.2	.4	0	.1	0	192	0	0	19
14	9.2	9.8	9.8	5.2	.4	0	.1	100	64	0	0	32
15	9.2	9.8	9.2	4.7	.4	0	0	10	12	0	0	729
16	8.5	10	8.5	4.7	.4	0	42	5	.4	0	0	489
17	7.9	10	7.9	3.9	.4	0	11	1	.2	0	0	1,340
18	7.9	9.8	6.8	3.4	.4	0	7.0	.5	.2	0	0	471
19	7.9	9.2	6.2	3.4	.3	0	.3	.5	.2	0	0	250
20	8.5	9.2	5.7	3.4	.3	0	.2	.5	.2	0	0	171
21	8.5	8.5	5.2	3.1	.3	0	.1	.2	.2	0	0	126
22	7.9	8.5	4.3	2.0	.3	0	.1	.2	.2	0	0	1,580
23	7.9	7.4	3.9	2.3	.3	0	.3	.2	.2	0	0	2,640
24	7.9	7.9	3.9	1.7	.3	0	0	.2	.2	0	0	722
25	7.4	9.2	4.3	2.0	.3	0	0	.2	.2	0	.1	341
26	7.4	8.5	4.7	2.3	.3	0	0	.2	.2	0	.1	184
27	7.4	7.9	5.2	2.7	.3	0	0	.1	.2	0	.1	118
28	7.9	7.9	5.2	2.3	.2	0	0	.1	.2	0	.1	88
29	7.4		5.2	1.4	.1	0	0	.1	.2	0	.1	63
30	7.4		4.7	1.2	.1	0	0	.1	.2	0	.1	58
31	7.9		4.7		.1		0	.1		0		110
Sum	268.1	255.4	202.7	122.3	11.2	0	110.4	132.2	276.5	0.6	0.6	10,688.3

Month	Current Year 1965								Period 1936-1965		
	Extreme Gage Feet		Ø Extreme Second Feet				Average Second Feet	Total Acre Feet	Acre Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			8	12	†25	7.4	8.65	532	1,132	16,710	62
Feb.			7	13	† 1	7.4	9.12	507	559	2,710	59
Mar.			†11	9.8	†23	3.9	6.54	402	427	1,580	95
Apr.			4	6.2	30	1.2	4.08	243	174	475	19
May			1	.7	†29	.1	.36	22.2	60.0	180	2
June				0		0	0	0	74.7	1,020	0
July			16	42	† 1	0	3.56	219	2,585	15,610	45
Aug			14	100	† 1	0	4.26	262	6,143	45,790	91
Sept.			13	192	† 8	0	9.21	548	1,312	7,507	17
Oct.			† 1	.2	† 5	0	.02	1.2	302	1,550	1.2
Nov.			†25	.1	† 1	0	.02	1.2	245	1,140	1.2
Dec.			23	2,640	† 1	.2	345	21,200	1,214	21,200	27
Yearly				2,640		0	33.1	23,938	14,228	57,671	3,499

† And other days Ø Mean daily

SEWAGE EFFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Two 12-inch Parshall flumes, each with a recording flow meter and continuous totalizer, one located at the international boundary for measuring effluent coming from Nogales, Sonora and the second located at the treatment plant in the influent line of secondary settling tank; and two calibrated sludge pumps of which pumping times are recorded. One pumps from primary settling tank into digester and the other recirculates sludge from secondary tank to primary tank. Bypass of raw sewage may be made to Nogales Wash, the quantity being estimated on basis of head in a control box in influent line ahead of primary tank. Nogales international sewage treatment plant is located near the north edge of Nogales, Arizona on right bank of Nogales Wash, approximately 2 miles downstream from the international boundary.

RECORDS: Total effluent is computed by adding to the flow measured in the flume from primary to secondary tank, the sludge pumped from primary tank into digester, which does not pass through this flume; subtracting the sludge recirculated from secondary to primary tank, which passes through this flume twice; and adding those flows of bypassed raw sewage into Nogales Wash. Flows from the United States are deduced from total measured flows less measured flows from Mexico. Records available: Continuous monthly record since the plant was placed in operation in August 1951, daily record January 1952 through December 1965.

REMARKS: 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 1965			Period 1952-1965		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	37.700	29.200	66.900	2.400	1.700	2.158	4.162	0.650	1.774
Feb.	32.300	25.400	57.700	2.200	1.700	2.061	3.762	.650	1.855
Mar.	31.900	29.800	61.700	2.200	1.700	1.990	3.662	.750	1.814
Apr.	26.600	30.600	57.200	2.200	1.700	1.907	3.962	.700	1.767
May	28.700	34.200	62.900	2.200	1.700	2.029	3.634	.550	1.699
June	30.500	33.500	64.000	2.400	1.800	2.133	3.317	.700	1.597
July	33.900	35.600	69.500	2.500	1.900	2.242	3.502	.700	1.651
Aug.	33.600	35.500	69.100	2.400	2.000	2.229	3.587	.750	1.977
Sept.	33.200	33.800	67.000	2.300	2.000	2.233	4.112	.800	2.237
Oct.	31.600	35.400	67.000	2.300	1.900	2.161	3.761	.700	2.126
Nov.	30.500	33.400	63.900	2.300	1.600	2.130	3.510	.800	1.895
Dec.	* 43.000	47.200	* 90.200	* 5.200	2.100	2.910	* 5.200	.350	1.921
Yearly	393.500	403.600	797.100	* 5.200	1.600	2.182	* 5.200	0.350	1.860

* Partly estimated (bypassing 8 days)

RAINFALL ON THE SANTA CRUZ RIVER WATERSHED IN INCHES

Tabulated below are monthly records of rainfall with averages for their periods of record at stations located in Arizona. Four stations are operated and maintained by the United States Section of this Commission and four by the U. S. Weather Bureau. For location, elevation, period of record, type of gage in use, and the observer, see alphabetical listing of stations at bottom of page following the monthly record.

Month	Meigs Ranch, Arizona		Jones Ranch, Arizona		Greene Cattle Company, Arizona		Nogales Sanitation Plant 2N, Arizona	
	1965	Average 1952-1965	1965	Average 1952-1965	1965	Average 1953-1965	1965	Average 1953-1965
Jan.	0.44	# 1.02	0.50		0.43	0.91	0.15	1.07
Feb.	.57	# .41	1.00		.48	.47	.61	.45
Mar.	.44	# .92	.90		.35	.78	.23	.83
Apr.	0	# .26	T	0.27	.30	.12	.34	.15
May	.33	.07	T	.03	.60	.10	.02	.06
June	T	.49	T		.13	.44	.01	.32
July	5.44	4.70	8.60	5.98	3.20	4.40	5.37	4.34
Aug.	5.79	4.72	4.90		3.80	# 3.23	2.45	4.39
Sept.	2.85	1.41	.75		1.51	1.24	.40	1.06
Oct.	0	.83	0		0	.83	.06	1.05
Nov.	.37	.50	.35		0	.46	.24	.58
Dec.	6.87	1.05	7.35	1.21	7.00	1.02	8.14	1.30
Yearly	23.10	16.38	24.35		17.80	14.00	18.02	15.60

Month	Nogales, Arizona		San Rafael Ranch, Arizona		Canelo, Arizona		Patagonia, Arizona	
	1965	Average 1914-1965	1965	Average 1924-1965	1965	Average 1930-1965	1965	Average 1930-1965
Jan.	0.23	1.09	0.47		0.44	1.20	0.20	1.27
Feb.	.74	.82	.38		.68	1.07	.66	.99
Mar.	.29	.77	.39		.49	.77	.41	.82
Apr.	.34	.31	.30	0.40	.49	.38	.50	.35
May	.01	.13	.15	.11	.19	.12	T	.16
June	.01	.43	.06	.76	.14	.93	.09	.48
July	5.16	4.02	3.91	4.49	3.46	4.27	4.30	4.49
Aug.	2.25	3.98	3.30	4.05	4.03	4.56	2.30	4.24
Sept.	.45	1.54	1.27	1.78	.69	1.64	3.18	1.80
Oct.	.06	.75	T		T	.88	.19	.83
Nov.	.33	.71	.21	.64	.35	.77	.70	.79
Dec.	7.98	1.27	5.89	1.19	8.21	1.40	8.62	1.35
Yearly	17.85	15.82	16.33		19.17	17.99	21.15	17.57

Some months missing T Trace

LOCATION OF RAINFALL STATIONS

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
Canelo	S	31° 33'	110° 32'	4,985	1930	R. E. Ewing
Greene Cattle Company (San Rafael)	R	31° 22'	110° 35'	4,644	June 1952	I. B. & W. C.
Jones Ranch	S	31° 22'	110° 36'	4,960	Mar. 1952	I. B. & W. C.
Meigs Ranch	S	31° 26'	110° 36'	4,836	Mar. 1952	I. B. & W. C.
Nogales	R	31° 21'	110° 55'	3,800	1914	Milford L. Noon
Nogales Sanitation Plant 2N	S	31° 21'	110° 56'	3,757	June 1952	I. B. & W. C.
Patagonia	S	31° 33'	110° 45'	4,044	1930	O. J. Rothrock
San Rafael Ranch	S	31° 21'	110° 37'	4,741	1924	San Rafael Ranch

S Standard 8" rain gage R Recording rain gage

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

Tabulated below are the monthly records of temperature, humidity, evaporation, and wind at the station two miles north of the Nogales Sanitation Plant in Arizona. The station is operated and maintained by the United States Section of this Commission. The equipment consists of: standard 8-inch rain gage, 48-inch diameter evaporation pan with stillwell and hook gage, maximum and minimum thermometer, anemometer, hygrothermograph, and psychrometer, hand turbine type.

For specific location of this station, refer to data on the preceding page opposite same station name shown in "Location of Rainfall Stations."

Temperature - Degrees Fahrenheit

Month	Nogales Sanitation Plant - 2N		
	1965		
	Mean	Max.	Min.
Jan.	ò 47.0	75	15
Feb.	ò 44.6	80	15
Mar.	ò 48.1	79	14
Apr.	ò 56.7	96	28
May	61.0	93	28
June	68.3	102	40
July	77.3	102	59
Aug.	76.3	103	55
Sept.	70.1	95	30
Oct.	62.2	96	29
Nov.	55.8	84	24
Dec.	46.0	78	21
Yearly	ò 59.5	103	14

ò One or more days missing

Mean Relative Humidity - Percent

Month	Nogales Sanitation Plant - 2N	
	1965	
	Max.	Min.
Jan.	96	66
Feb.	93	72
Mar.	93	56
Apr.	93	45
May	83	44
June	81	44
July	97	43
Aug.	97	49
Sept.	93	68
Oct.	96	65
Nov.	100	68
Dec.	100	82
Yearly	100	43

Evaporation - Inches

Month	Nogales Sanitation Plant - 2N	
	1965	Average #1953-1965
Jan.	3.74	3.45
Feb.	4.59	4.57
Mar.	6.18	7.17
Apr.	9.35	9.72
May	12.93	12.47
June	14.46	13.61
July	9.96	9.75
Aug.	8.61	7.26
Sept.	9.55	7.54
Oct.	9.09	6.75
Nov.	4.33	4.26
Dec.	3.04	3.14
Total	95.83	89.69

Some months missing

Mean Wind Speed - Miles per Hour

Month	Nogales Sanitation Plant - 2N	
	1965	Average 1953-1965
Jan.	1.6	2.1
Feb.	2.2	2.4
Mar.	2.3	2.7
Apr.	2.6	2.5
May	2.2	2.4
June	2.5	2.2
July	1.2	1.5
Aug.	.9	.8
Sept.	1.9	1.1
Oct.	2.0	1.5
Nov.	1.9	1.4
Dec.	2.4	1.6
Yearly	2.0	1.8

DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG SANTA CRUZ RIVER AND WHITEWATER DRAW 1965

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
Lochiel Station to Nogales Station	103	348	451	0	2,300	2,300
Above Nogales, Arizona Gaging Station	185	348	533	200	2,300	2,500
Whitewater Draw:						
Above Douglas, Arizona Gaging Station	1,023	0	1,023	24,477	0	24,477