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WESTERN WATER BULLETIN 1995

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

COLORADO RIVER

TIJUANA RIVER

SANTA CRUZ RIVER

SAN PEDRO RIVER

WHITEWATER DRAW

1995

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FOREWORD

This bulletin is the thirty-sixth annual compilation of stream discharges and other hydrographic data relating to international aspects of the Colorado River below Imperial Dam, the Tijuana River, and other streams crossing the western land boundary of the United States and Mexico. The compilation was prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission, solely for the purpose of presenting statistical data relating to stream flow and kindred subjects for the Colorado River from Imperial Dam to the Gulf of California, the Tijuana River and its important tributaries in the United States and Mexico, and other streams, including the Alamo and New Rivers which cross the California-Baja California boundary, and the Santa Cruz River and Whitewater Draw which cross the Arizona-Sonora boundary. This bulletin contains information for the year 1995.

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

COLORADO RIVER BELOW IMPERIAL DAM

Below Imperial Dam, the Colorado River flows southward 16 kilometers to the mouth of the Gila River, thence westward 18 kilometers to Pilot Knob Mountain, and south 1.6 kilometers 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 35 kilometers 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 145 kilometers 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 28,200 square kilometers along the river from Hoover Dam to the mouth of the Gila River. In addition, flows ranging from usually minor amounts to infrequent torrential floods may enter the lower Colorado River from the Bill Williams River, draining about 1,857 square kilometers below Alamo Dam and Lake, completed in 1963; and from the Gila River, draining about 18,900 square kilometers 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 scheduled deliveries of waters of the Colorado River, which in 1995 amounted to 1,850,234 thousand cubic meters, in accordance with Article 10 of the 1944 Water Treaty. No diversions were made to a substitute canal in 1995.

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, 1.8 kilometers downstream from the northerly boundary, Morelos Dam, the principal diversion structure for Mexico, was completed and placed in operation on November 8, 1950. Since that date, almost all Colorado River waters diverted by Mexico (except emergency deliveries to Tijuana from August 1972 to August 1980) have been diverted to the Alamo Canal at Morelos Dam.

TIJUANA RIVER BASIN

The total drainage area of the Tijuana River basin is 4,483 square kilometers, of which 27 percent lies in the United States and 73 percent in Mexico. This river is formed by the principal tributaries, Cottonwood Creek, which rises in the United States and Rio de las Palmas, which rises in Mexico. Cottonwood Creek crosses the international land boundary 34 kilometers from the Pacific Ocean to join the Rio de las Palmas in Mexico. From the confluence of these tributaries, the Tijuana River flows northwesterly 8 kilometers to cross the land boundary into the United States near San Ysidro, California and Tijuana, Baja California, and then flows westerly 10 kilometers to discharge into the Pacific Ocean 3 kilometers north of the boundary. The flow of Cottonwood Creek is partially controlled by Barrett and Morena Reservoirs in the United States, and the flow of the Rio de las Palmas is partially controlled by Rodriguez Reservoir in Mexico.

WHITEWATER DRAW NEAR DOUGLAS, ARIZONA

Whitewater Draw rises in the United States and flows south into Mexico, crossing the international boundary near Douglas, Arizona, eventually discharging into the Gulf of California through the Yaqui River in Mexico. The total drainage area above the Douglas Gaging Station is 2,650 square kilometers. A number of mountain streams in the upper reaches of the basin are diverted for irrigation, but they would normally sink or go to ground water before reaching the main water course.

FOREWORD

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

The San Pedro River rises in Mexico and flows north into the United States, crossing the boundary near Palominas, Arizona and thence northwesterly into the Gila River. The river in the vicinity of the international boundary drains an area of 1,919 square kilometers, of which 1,681 square kilometers are in Mexico.

SANTA CRUZ RIVER NEAR NOGALES AND LOCHIEL, ARIZONA

The Santa Cruz River rises in the United States and flows south into Mexico, crossing the international boundary near Lochiel, Arizona and returning 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 1,380 square kilometers. Of this amount, 901 square kilometers lie in Mexico. There are a few ground water irrigation diversions above the Lochiel station in Arizona and an unknown amount of water diverted for irrigation in Mexico.

ACKNOWLEDGMENTS

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

UNITS OF MEASURE

This Bulletin is published in System International (SI) units which are based on the metric system. The following conversion constants may be used to convert to the English system of measurement. Data collected by the Mexican Section are computed and published in a Spanish version of the water bulletin in metric units.

METRIC TO ENGLISH CONVERSION CONSTANTS

METRIC UNITS				ENGLISH UNITS	
<u>LENGTH</u>					
1	Millimeter	x	0.03937	=	Inch
1	Meter	x	3.28084	=	Feet
1	Kilometer	x	0.62137	=	Mile
<u>AREA</u>					
1	Square Meter	x	10.76391	=	Square Feet
1	Hectare	x	2.47105	=	Acre
1	Square Kilometer	x	0.38610	=	Square Mile
<u>VOLUME</u>					
1	Cubic Meter	x	35.31467	=	Cubic Feet
1,000	Cubic Meters	x	0.81071	=	Acre-Feet
<u>WEIGHT</u>					
1	Kilogram	x	2.20462	=	Pounds
1	Megagram	x	1.10231	=	Tons (2,000 lbs.)
<u>TEMPERATURE</u>					
1	Degree Celsius	x	1.8 + 32	=	Degree Fahrenheit

GENERAL HYDROLOGIC CONDITIONS FOR 1995

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 1995 from the Gila River. In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation during 1995 measured at 2 index stations was 22 millimeters compared to an average of 53 millimeters during the last 37 years (1959-1995).

The flow of the Colorado River reaching Imperial Dam was 6,868,599 thousand cubic meters, about 69% of the 61-year average (1935-1995) of 10,014,126 thousand cubic meters. At the Northerly International Boundary, the total flow of the river during 1995 was 1,965,936 thousand cubic meters, about 41% of the 1935-1995 average of 4,818,455 thousand cubic meters. At the Southerly International Boundary, the flow during 1995 was 75,180 thousand cubic meters, or about 2% of the 1935-1995 average of 3,371,739 thousand cubic meters.

The total of all flows of the Colorado River entering Mexico in 1995 amounted to 2,266,902 thousand cubic meters, 43% of the 1935-1995 average of 5,246,776 thousand cubic meters, as measured 1) in the Colorado River at the Northerly International Boundary, 2) in the Wellton-Mohawk Main Outlet Drain Extension near Morelos Dam, 3) in the wasteways that discharge into the limitrophe section of the river from the United States bank, 4) in the canal which discharges waste and drainage waters from the Yuma Project across the southerly land boundary into Mexico near San Luis, Arizona, 5) in the Wellton-Mohawk Bypass Drain at the southerly land boundary near San Luis, Arizona, and 6) from the 242 Well Field near San Luis, Arizona.

During 1995, other waters arrived at the Mexican points of diversion and amounted to 261,895 thousand cubic meters. These waters consisted mainly of excess waters released from reservoirs on the Colorado River. A maximum instantaneous flow of 161 cubic meters per second occurred in the Colorado River at the Northerly International Boundary station on April 23, 1995.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 29,367.3 million cubic meters, 83% of the usable capacity of 35,263.2 million cubic meters. The greater part (26,674.0 million cubic meters) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1995 due to drought or accident to the irrigation system.

The total reported area irrigated from waters of the Colorado River below Imperial Dam in 1995 was 470,421 hectares; 278,421 hectares in the United States and 192,000 hectares in Mexico. An estimated 33% of the total area irrigated in Mexico is served by pumping from ground water.

TIJUANA RIVER BASIN

During 1995, the temperatures at Barrett Dam, California (elevation 533.40 meters) in the upper portion of the basin in the United States averaged 18.1 degrees Celsius, 1.6 degrees above the 65-year mean. In the extreme upper portion of the basin in Mexico at El Pinal, Baja California (elevation 1349.96 meters), the recorded temperatures during the year could not be determined due to incomplete records. At Rodriguez Dam, Baja California (elevation 139.90 meters), the recorded temperatures averaged 20 degrees Celsius, equal to the normal for many years.

At Barrett Dam, in the upper portion of the basin in the United States, the recorded precipitation was 719 millimeters, 158% of normal; and at Lower Otay Dam near the lower end of the basin, 355 millimeters, or 125% of normal. The recorded precipitation at El Pinal in the upper portion of the basin in Mexico could not be determined due to incomplete records. At Rodriguez Dam, in the lower portion of the basin in Mexico, the recorded precipitation was 371 millimeters, 160% of the 57-year average.

Runoff above Barrett and Rodriguez Reservoirs during 1995 was about 282% of normal. Above Morena Reservoir, the runoff was 18,798 thousand cubic meters, or about 140% of the 59-year 1937-1995 mean of 13,397 thousand cubic meters. Above Barrett Reservoir, the runoff was 135,830 thousand cubic meters, or about 776% of the 59-year 1937-1995 mean of 17,496 thousand cubic meters. At Rodriguez Reservoir, the runoff was 109,141 thousand cubic meters, or about 341% of the 58-year mean of 31,985 thousand cubic meters.

The flow of the Tijuana River at the international boundary was 215,894 thousand cubic meters during 1995.

WHITEWATER DRAW

During 1995, the average annual temperature over the watershed was 1.6 degrees Celsius above normal, while the annual precipitation was 84% of normal. Runoff for the year at the gaging station near Douglas, Arizona, was 492 thousand cubic meters, or about 7% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1995

SAN PEDRO RIVER

During 1995, the average annual temperature was 0.6 degree Celsius above normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 83% of the 1961-1995 mean of 532 millimeters. The stream flow at the international boundary was 13,925 thousand cubic meters, 52% of the 1951-1995 average.

SANTA CRUZ

During 1995, the average annual temperature over the watershed was somewhat above normal, and the annual precipitation was about 96% of the 57-year 1939-1995 mean. Runoff measured at the Nogales gaging station, where the stream re-enters the United States, was 17,640 thousand cubic meters. The total runoff for the year measured at the gaging station near Lochiel, Arizona, where the stream enters Mexico from the United States, was 2,342 thousand cubic meters. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 15,298 thousand cubic meters from the loop of the river lying in Mexico, or approximately 87% of the flow reaching the Nogales station.

ALAMO AND NEW RIVERS

During 1995, the average annual temperature over the drainage areas of the Alamo and New Rivers, as recorded at El Centro, California, was 23.7 degrees Celsius, 1.3 degree above normal; and over the drainage area of the New River as recorded at Mexicali, Baja California, it was 25 degrees Celsius, 2 degrees above the 70-year average.

At El Centro, the precipitation was 58 millimeters, about 83% of the 65-year average; and in Mexicali, the annual precipitation record was 49 millimeters. The total flow of the New River at the International Boundary in 1995 was 183,514 thousand cubic meters, which was about 130% of the 1943-1995 average.

SALTON SEA

During 1995, the average annual temperature around the Salton Sea was 0.5 degree Celsius above the long-term average, while the annual precipitation recorded at Brawley, California was approximately 76% of the long-term mean of 71 millimeters. The water surface of the Salton Sea rose slightly during the year. The maximum stage, 69.070 meters below mean sea level, was recorded on April 8-14, April 24-May 6, and May 10-18, 1995, inclusive. The minimum stage, 69.370 meters below mean sea level, was recorded on January 1-3, 1995, inclusive.

09-5300.00 RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder (digital) located 152 meters upstream from railroad culvert and 1.6 kilometers 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 61.0 meters downstream from the spillway structure, and thence into the Colorado River on the right bank, 305 meters upstream from Colorado River below Yuma Main Canal Wasteway, and 10.5 kilometers upstream from the northerly international boundary. Prior to October 1955, published as "California Drainage Canal near Yuma, Arizona."

RECORDS: Based on current meter measurements and a continuous record of gage heights. Records are computed and furnished by the U. S. Geological Survey. Records available: Monthly discharge, January 1913 to April 1920, October 1921 to March 1925, and January 1934 to September 1947; daily and monthly discharge, October 1947 through 1995.

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 15,789 TCM. Monthly and annual averages since 1937 are shown in the table below.

EXTREMES: Prior to 1937: Maximum annual flow 24,904 TCM, 1916; minimum annual flow 11,003 TCM, 1913.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.84	1.76	2.12	2.38	2.10	1.95	1.90	2.24	1.98	2.24	2.55	2.07
2	1.78	1.76	2.27	2.38	2.10	1.95	1.95	2.27	1.98	2.24	2.55	1.93
3	1.95	1.78	2.24	2.38	2.07	1.95	1.98	2.29	2.01	2.35	2.55	2.10
4	1.93	1.81	2.35	2.35	2.10	1.93	1.90	2.29	2.01	2.41	2.58	2.49
5	1.76	1.93	2.46	2.35	2.10	1.87	1.87	2.29	2.01	2.41	2.58	2.27
6	1.76	1.81	2.61	2.55	2.10	1.95	1.87	2.29	2.04	2.38	2.52	2.15
7	1.76	1.81	2.61	2.61	2.10	1.90	1.87	2.29	2.04	2.35	2.46	2.15
8	1.76	1.90	2.61	2.72	2.07	1.93	1.93	2.29	2.07	2.38	2.41	2.24
9	2.04	1.87	2.58	2.72	2.10	2.07	1.93	2.29	2.07	2.41	2.35	2.21
10	1.93	1.90	2.58	2.63	2.10	2.12	1.87	2.27	2.07	2.38	2.29	2.35
11	1.76	1.84	2.58	2.55	2.07	2.15	1.87	2.27	2.10	2.38	2.24	2.32
12	1.76	2.01	2.55	2.46	2.04	2.21	1.87	2.24	2.10	2.38	2.18	2.41
13	1.76	1.95	2.55	2.41	2.04	2.18	1.87	2.21	2.10	2.41	2.12	2.49
14	1.76	2.07	2.55	2.38	2.07	2.12	1.93	2.21	2.12	2.41	2.07	2.32
15	1.76	2.12	2.55	2.35	2.12	2.10	1.87	2.24	2.12	2.38	2.01	2.38
16	1.76	2.10	2.52	2.35	2.27	2.07	1.90	2.21	2.15	2.41	1.95	2.27
17	1.76	2.12	2.52	2.32	2.32	2.04	2.07	2.15	2.15	2.38	2.04	2.24
18	1.76	2.15	2.52	2.29	2.24	1.98	1.87	2.12	2.15	2.38	1.95	2.04
19	1.76	2.24	2.49	2.29	2.35	2.01	1.98	2.12	2.18	2.38	1.95	2.21
20	1.76	2.35	2.49	2.24	2.38	1.98	2.01	2.10	2.18	2.41	2.04	2.32
21	1.76	2.15	2.49	2.32	2.38	2.29	1.87	2.10	2.21	2.41	2.04	2.21
22	1.76	2.10	2.46	2.24	2.38	2.10	1.87	2.10	2.21	2.41	1.95	2.24
23	1.76	2.21	2.46	2.21	2.32	2.07	1.90	2.21	2.21	2.41	2.10	2.29
24	1.76	2.27	2.46	2.12	2.29	2.01	1.87	2.12	2.24	2.38	2.01	2.32
25	1.76	2.27	2.44	2.12	2.21	1.95	1.87	2.10	2.24	2.41	1.98	2.18
26	1.76	2.29	2.44	2.12	2.12	1.90	1.90	2.12	2.24	2.41	2.10	2.24
27	1.76	2.12	2.44	2.10	2.21	1.87	1.90	2.07	2.27	2.41	2.01	2.29
28	1.76	2.10	2.41	2.10	2.21	1.87	1.93	2.04	2.27	2.41	2.01	2.41
29	1.76		2.41	2.10	2.18	1.87	2.07	2.04	2.29	2.38	1.95	2.38
30	1.76		2.41	2.10	2.01	1.87	2.21	2.04	2.29	2.46	1.98	2.38
31	1.76		2.41		1.93		2.27	2.01		2.55		2.35
Sum	55.47	56.79	76.58	70.24	67.08	60.26	59.97	67.63	64.10	74.11	65.52	70.25

Current Year 1995

Period 1937-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.			9	2.04	15	1.76	1.79	4,793	4,084	5,896	711
Feb.			20	2.35	1	1.76	2.03	4,907	3,786	5,493	456
Mar.			16	2.61	1	2.12	2.47	6,617	4,678	6,617	1,005
April			18	2.72	127	2.10	2.34	6,069	4,680	6,476	940
May			120	2.38	31	1.93	2.16	5,796	4,842	6,895	804
June			21	2.29	15	1.87	2.01	5,206	4,667	6,883	717
July			31	2.27	15	1.87	1.93	5,181	4,959	8,079	662
Aug.			13	2.29	31	2.01	2.18	5,843	4,956	8,400	698
Sept.			129	2.29	11	1.98	2.14	5,538	4,711	7,672	721
Oct.			31	2.55	11	2.24	2.39	6,403	4,911	7,080	843
Nov.			14	2.58	116	1.95	2.18	5,661	4,599	6,794	806
Dec.			14	2.49	2	1.93	2.27	6,070	4,404	6,241	783
Yearly				2.72		1.76	2.16	68,084	55,277	78,573	10,410

φ Mean daily

! And other days

09-5250.00 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, 501 meters upstream from the intake of the Colorado River siphon, and 5.1 kilometers downstream from the Siphon Drop Power Plant. This wasteway discharges into the Colorado River on the California side, 305 meters upstream from Colorado River below Yuma Main Canal Wasteway, and 10.5 kilometers upstream from the northerly international land boundary.

RECORDS: Discharge is computed as the difference between the measured discharge of the Yuma Main Canal at the Siphon Drop Power Plant upstream and that of the same canal below the Colorado River siphon, with deductions for small irrigation diversions from the canal between the two gaging stations. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 1995.

REMARKS: The wasteway discharges to the river the flow in excess of irrigation water in the Yuma Main Canal.

EXTREMES: Prior to 1935, when storage began in Lake Mead: Average annual flow, 367,333 TCM; maximum annual flow, 1,127,040 TCM, 1932; minimum annual flow, 141,728 TCM, 1917. Since 1935: Maximum mean daily discharge, 57.2 CMS, December 24-25, 1948; minimum mean daily discharge, no flow on numerous occasions.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.6	2.04	1.95	1.50	1.02	0.54	0.28	9.40	13.8	20.1	9.77	0.37
2	20.5	2.18	3.40	1.53	1.44	.40	.28	9.43	14.4	13.1	14.1	.28
3	20.3	1.73	2.35	1.16	1.30	.51	1.73	8.18	12.4	11.3	17.4	9.86
4	13.1	1.98	3.14	.91	1.44	.65	.28	6.60	1.95	12.0	17.7	25.0
5	8.86	2.35	3.06	1.13	1.64	.40	.28	6.80	8.67	12.9	18.1	23.6
6	8.69	1.73	4.22	1.53	1.53	.17	.28	6.34	14.9	13.5	22.1	24.9
7	8.67	1.76	3.12	1.73	1.16	.28	.28	6.20	16.6	12.9	23.6	25.2
8	8.61	2.35	2.58	2.10	1.22	.34	.28	6.43	16.4	11.6	24.9	25.1
9	8.72	2.44	2.38	1.95	2.01	.34	.42	6.40	17.6	11.4	24.0	24.9
10	14.3	2.15	1.50	1.64	2.21	.34	.28	6.37	17.8	12.1	23.2	23.8
11	25.5	2.15	2.44	2.32	2.21	.28	.40	7.70	17.5	11.2	22.4	24.2
12	26.6	2.44	3.85	2.89	2.10	.28	.48	9.26	17.8	8.33	22.2	23.5
13	25.9	2.18	2.10	2.44	.51	.23	.74	9.23	17.4	5.69	27.1	22.2
14	27.7	2.83	1.76	1.93	1.33	.28	.93	8.13	16.9	7.90	28.6	23.6
15	28.3	2.63	2.18	1.30	1.05	.28	.42	6.83	16.0	9.37	22.7	24.2
16	35.4	2.35	1.70	1.73	1.50	.27	.28	8.81	16.4	10.0	1.67	24.6
17	21.1	2.75	1.50	1.53	2.15	.57	1.67	14.4	17.2	10.2	1.16	23.1
18	4.30	2.10	2.15	1.47	1.13	.31	.28	15.5	18.1	8.55	.40	16.1
19	2.27	2.69	2.32	1.67	1.13	.31	1.25	15.7	16.0	8.13	.54	18.1
20	3.26	1.93	2.78	1.70	.99	.54	1.25	15.1	16.8	8.50	.37	18.5
21	4.11	2.04	2.10	1.64	.96	.62	1.05	16.2	19.1	9.66	.54	18.5
22	6.20	2.86	1.50	2.07	.54	.51	.65	16.5	20.8	9.37	.51	19.1
23	6.46	3.23	1.81	2.49	.24	.28	.23	6.12	20.6	10.7	.31	17.0
24	6.77	2.35	2.24	1.64	.48	.28	.40	12.9	19.9	10.3	.62	15.8
25	7.73	2.61	1.61	1.61	.82	.28	.40	19.2	20.6	11.6	1.10	15.8
26	8.52	3.00	1.98	2.01	.71	.28	.68	19.5	20.3	12.9	.71	18.7
27	7.33	2.01	1.42	2.27	.74	.28	.82	15.2	20.6	12.7	.34	21.0
28	5.64	1.78	1.42	2.24	1.36	.28	1.10	14.9	21.3	12.5	.25	22.5
29	6.43		1.53	1.42	.76	.28	.91	12.8	25.6	11.8	.37	21.7
30	6.06		1.42	1.05	1.08	.28	.65	12.9	25.4	9.12	.71	22.7
31	3.62		1.84		.59		1.90	13.3	9.23			20.0
Sum	401.55	64.64	69.35	52.60	37.35	10.69	20.88	342.33	518.82	338.65	327.47	613.91

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			16	35.4	19	2.27	13.0	34,694	55,031	136,546	550
Feb.			23	3.23	13	1.73	2.31	5,585	46,058	109,952	444
Mar.			6	4.22	127	1.42	2.24	5,992	45,627	111,248	440
April			12	2.89	4	.91	1.75	4,545	45,522	106,795	402
May			110	2.21	23	.24	1.20	3,227	54,163	108,892	411
June			4	.65	6	.17	.36	924	47,663	107,263	422
July			31	1.90	23	.23	.67	1,804	44,477	112,518	455
Aug.			26	19.5	23	6.12	11.0	29,577	46,937	110,878	455
Sept.			29	25.6	4	1.95	17.3	44,826	51,576	103,193	440
Oct.			1	20.1	13	5.69	10.9	29,259	46,810	111,075	699
Nov.			14	28.6	28	.25	10.9	28,293	47,444	125,198	882
Dec.			7	25.2	2	.28	19.8	53,042	54,733	134,203	570
Yearly				35.4		0.17	7.67	241,768	586,041	1,286,335	8,226

φ Mean daily

! And other days

09-5211.00 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, 305 meters downstream from the mouth of the Yuma Main Canal Wasteway, 1.0 kilometers downstream from the abandoned gaging station on the Colorado River at Yuma, 8.4 kilometers downstream from the mouth of the Gila River, 31.5 kilometers downstream from Imperial Dam, and 10.3 kilometers upstream from the northerly international boundary. Zero of the gage is 31.09 meters above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Computations by shifting control methods. Records obtained and furnished by U. S. Geological Survey. Records available: October 1963 through 1995. Records from January 1951 through September 1963 deduced from "Colorado River at Yuma" plus flows from "Reservation Main Drain No. 4" and "Yuma Main Canal Wasteway."

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

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	33.7	14.3	18.2	19.2	62.6	72.8	89.2	45.6	34.0	35.7	34.6	17.1
2	33.1	13.5	19.4	20.8	64.0	71.9	92.3	45.0	33.7	28.6	36.0	16.6
3	32.9	13.6	18.2	20.3	66.6	72.2	92.9	42.5	35.4	28.0	35.4	25.5
4	36.0	14.0	19.0	18.7	67.4	75.6	90.1	38.5	38.8	27.9	35.7	40.2
5	32.9	15.0	20.0	20.4	67.4	80.1	88.9	37.7	34.0	27.9	38.5	39.6
6	28.3	14.2	21.9	24.6	68.3	83.0	88.4	36.5	35.1	28.6	38.5	40.2
7	27.0	13.6	20.5	27.1	68.8	82.1	88.6	35.4	36.2	28.9	39.9	40.8
8	26.3	14.2	19.4	33.4	68.3	83.0	91.2	34.8	35.4	28.3	39.4	40.2
9	24.0	14.0	18.8	36.5	69.1	88.6	90.6	35.1	36.2	28.0	39.4	39.9
10	26.6	14.5	17.3	37.7	68.8	89.8	90.9	34.3	36.0	28.2	39.1	39.1
11	36.2	14.3	18.9	37.4	68.8	89.8	90.3	34.3	36.8	28.3	38.5	39.9
12	38.5	16.4	21.3	32.9	68.5	92.3	90.3	36.5	36.8	27.7	40.2	39.4
13	36.8	16.2	28.2	28.3	68.0	91.5	90.9	37.1	36.5	27.6	42.5	38.8
14	38.8	16.8	27.5	26.6	70.0	90.3	92.6	36.8	36.0	28.2	42.8	39.6
15	38.8	18.0	21.1	25.4	72.5	90.1	92.0	33.4	34.3	29.2	25.9	39.6
16	45.6	18.1	19.3	25.7	75.3	89.2	91.2	34.8	34.6	28.9	19.8	39.9
17	33.7	18.2	18.5	26.5	76.5	90.3	93.7	39.5	34.3	29.2	18.0	39.1
18	17.5	18.2	19.3	30.3	77.6	88.6	86.7	38.4	35.1	30.0	18.1	32.6
19	15.9	19.9	20.3	31.4	81.8	88.9	91.2	40.8	35.4	30.0	18.0	34.3
20	17.8	22.7	19.9	37.9	83.3	88.4	94.0	38.8	35.4	28.3	18.3	35.1
21	18.6	19.5	19.1	73.9	83.8	101	89.5	38.8	35.1	29.2	18.0	34.6
22	21.0	18.7	19.0	91.2	82.4	94.3	87.5	43.0	36.2	28.9	17.6	34.8
23	21.3	19.6	19.0	67.4	82.4	93.7	88.6	34.3	36.2	29.5	17.4	35.1
24	20.2	20.4	19.6	56.1	81.0	91.2	86.7	36.2	36.2	29.2	17.2	35.1
25	21.1	20.4	18.9	54.9	80.7	88.9	89.5	40.5	37.1	28.9	17.8	34.0
26	22.1	20.4	19.5	57.8	80.4	88.6	90.9	41.3	37.7	29.2	18.2	34.8
27	21.3	18.7	19.1	60.6	83.3	88.1	88.1	37.7	37.4	29.5	17.4	35.4
28	18.4	18.1	19.0	62.0	84.7	86.4	82.7	36.5	37.7	29.2	16.7	36.8
29	19.5		19.2	61.2	84.1	85.2	62.3	33.4	42.2	28.9	17.2	36.2
30	18.7		18.7	62.0	79.9	87.5	47.3	33.4	41.9	30.0	17.3	36.0
31	16.0		19.1	74.2			39.6	33.4		28.6		35.1
Sum	838.6	475.5	617.2	1,208.2	2,310.5	2,603.4	2,668.7	1,164.3	1,087.7	898.6	833.4	1,105.4

Current Year 1995

Period 1951-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.	4.175	3.570	16	45.6	19	15.9	27.1	72,455	281,291	1,317,479	36,828
Feb.	3.820	3.565	20	22.7	2	13.5	17.0	41,083	223,561	1,228,424	41,083
Mar.	3.965	3.655	13	28.2	10	17.3	19.9	53,326	269,274	1,610,496	42,683
April	4.790	3.695	22	91.2	4	18.7	40.3	104,388	225,447	1,119,312	41,552
May	4.770	4.460	28	84.7	1	62.6	74.5	199,627	227,625	1,065,554	56,582
June	4.985	4.620	21	101	2	71.9	86.8	224,934	223,414	1,113,679	36,996
July	4.975	4.080	20	94.0	31	39.6	86.1	230,576	253,350	2,013,773	37,956
Aug.	4.225	3.390	1	45.6	15	33.4	37.6	100,596	256,882	2,073,958	41,457
Sept.	4.115	3.385	29	42.2	2	33.7	36.3	93,977	228,390	1,669,785	53,264
Oct.	3.965	3.740	1	35.7	13	27.6	29.0	77,639	196,704	1,789,911	43,129
Nov.	4.055	3.545	14	42.8	28	16.7	27.8	72,006	199,027	1,292,035	42,965
Dec.	4.040	3.535	7	40.8	2	16.6	35.7	95,507	231,481	1,374,775	40,733
Yearly	4.985	3.385		101		13.5	43.3	1,366,114	2,796,426	13,065,596	633,707

φ Mean daily

! And other days

09-5211.01 COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY
AT YUMA, ARIZONA - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.975	3.605	3.685	3.720	4.470	4.640	4.820	4.210	3.960	3.935	3.890	3.555
2	3.965	3.580	3.710	3.750	4.485	4.635	4.850	4.180	3.950	3.815	3.915	3.550
3	3.960	3.585	3.685	3.745	4.515	4.635	4.860	4.135	3.985	3.800	3.905	3.710
4	4.010	3.595	3.700	3.710	4.530	4.675	4.830	4.060	4.055	3.800	3.905	3.975
5	3.960	3.620	3.720	3.745	4.530	4.720	4.820	4.040	3.960	3.795	3.960	3.965
6	3.880	3.600	3.755	3.830	4.540	4.750	4.815	4.015	3.975	3.810	3.965	3.980
7	3.855	3.585	3.730	3.885	4.545	4.745	4.820	3.995	3.995	3.815	3.995	3.990
8	3.845	3.600	3.710	3.995	4.540	4.750	4.845	3.985	3.980	3.800	3.980	3.980
9	3.800	3.595	3.700	4.050	4.550	4.805	4.835	3.990	3.995	3.790	3.980	3.975
10	3.845	3.610	3.670	4.070	4.550	4.815	4.840	3.980	3.985	3.800	3.975	3.955
11	4.015	3.605	3.705	4.070	4.555	4.820	4.835	3.975	4.000	3.800	3.960	3.970
12	4.050	3.650	3.750	3.995	4.550	4.845	4.835	4.015	4.000	3.785	3.995	3.965
13	4.025	3.645	3.880	3.925	4.550	4.835	4.840	4.025	3.990	3.785	4.045	3.955
14	4.055	3.660	3.870	3.890	4.570	4.825	4.855	4.025	3.975	3.790	4.045	3.975
15	4.055	3.680	3.750	3.875	4.600	4.825	4.850	3.955	3.945	3.805	3.730	3.975
16	4.160	3.680	3.710	3.880	4.635	4.815	4.845	3.980	3.945	3.800	3.610	3.980
17	3.960	3.685	3.700	3.900	4.650	4.825	4.865	4.055	3.945	3.805	3.575	3.970
18	3.675	3.685	3.715	3.970	4.665	4.810	4.800	4.075	3.955	3.825	3.580	3.840
19	3.635	3.720	3.730	3.995	4.710	4.815	4.840	4.100	3.960	3.820	3.575	3.865
20	3.680	3.775	3.725	4.100	4.725	4.810	4.870	4.055	3.955	3.785	3.580	3.885
21	3.695	3.710	3.710	4.580	4.735	4.915	4.830	4.060	3.950	3.800	3.575	3.870
22	3.740	3.695	3.710	4.755	4.720	4.865	4.810	4.145	3.965	3.795	3.565	3.880
23	3.745	3.710	3.710	4.510	4.725	4.860	4.820	3.980	3.960	3.805	3.565	3.885
24	3.725	3.730	3.720	4.375	4.710	4.835	4.805	4.010	3.960	3.800	3.560	3.885
25	3.745	3.730	3.710	4.370	4.710	4.815	4.830	4.095	3.975	3.790	3.570	3.870
26	3.760	3.730	3.720	4.405	4.710	4.815	4.840	4.110	3.980	3.800	3.580	3.880
27	3.745	3.695	3.715	4.440	4.745	4.815	4.815	4.035	3.975	3.800	3.565	3.900
28	3.690	3.680	3.710	4.460	4.760	4.795	4.750	4.010	3.970	3.800	3.550	3.925
29	3.710		3.720	4.455	4.750	4.785	4.495	3.945	4.045	3.785	3.555	3.915
30	3.695		3.710	4.460	4.710	4.805	4.265	3.950	4.040	3.805	3.560	3.910
31	3.640		3.715	4.655			4.135	3.950		3.780		3.895
Avg.	3.850	3.660	3.725	4.095	4.625	4.790	4.780	4.035	3.980	3.805	3.760	3.900

09-5302.00 YUMA MESA OUTLET DRAIN
TO COLORADO RIVER NEAR YUMA, ARIZONA

DESCRIPTION: Venturi meter with recorder 0.5 kilometer from outlet to Colorado River, 0.8 kilometer west of Joe Henry Memorial Park in Yuma, Arizona. Outlet is 2.7 kilometers downstream from the mouth of Yuma Main Canal Wasteway.
RECORDS: Records are furnished by U. S. Geological Survey. Records available: July 1970 through 1995. Prior to July 21, 1972, records furnished by U. S. Bureau of Reclamation.
REMARKS: Records show water pumped from wells on the Yuma Mesa and conveyed by underground conduit to Colorado River.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.39	1.39	1.13	1.27	1.27	1.02	1.02	1.02	0.85	0.76	0.76	0.76
2	1.39	1.39	1.22	1.27	1.25	1.02	1.02	1.02	.88	.76	.76	.76
3	1.39	1.39	1.27	1.27	1.22	1.02	1.02	1.02	.88	.76	.76	.76
4	1.39	1.39	1.27	1.27	1.19	1.02	1.02	1.02	.88	.76	.76	.76
5	1.39	1.39	1.27	1.27	1.13	1.02	1.02	1.02	.85	.76	.76	.76
6	1.39	1.39	1.27	1.27	1.13	1.02	1.02	1.02	.79	.76	.76	.82
7	1.39	1.39	1.27	1.27	1.13	.99	1.02	1.02	.79	.76	.76	.88
8	1.39	1.44	1.27	1.27	1.13	.71	1.02	1.02	.82	.76	.68	.88
9	1.39	1.59	1.27	1.27	1.13	.85	1.02	1.02	.88	.76	.65	.88
10	1.39	1.53	1.27	1.27	.93	1.02	1.02	1.02	.88	.76	.76	.88
11	1.39	1.44	1.27	1.27	.93	1.02	1.02	1.02	.88	.76	.76	.88
12	1.39	1.44	1.27	1.27	1.02	1.02	1.02	1.02	.79	.76	.76	.88
13	1.39	1.44	1.19	1.27	1.02	.85	1.02	1.02	.76	.76	.76	.88
14	1.39	1.44	1.13	1.27	1.02	.91	1.02	1.02	.76	.76	.76	.88
15	1.39	1.44	1.13	1.27	.96	1.02	1.02	1.02	.76	.76	.76	.88
16	1.39	1.44	1.19	1.27	.91	1.02	1.02	.96	.76	.76	.76	.88
17	1.39	1.44	1.27	1.27	.91	1.02	1.02	.79	.76	.76	.76	.88
18	1.39	1.44	1.27	1.27	.99	1.02	1.02	.79	.76	.76	.76	.88
19	1.39	1.44	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
20	1.39	1.44	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
21	1.39	1.44	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
22	1.39	1.44	1.27	1.27	.96	1.02	1.02	.79	.76	.76	.76	.88
23	1.39	1.44	1.27	1.27	.93	1.02	1.02	.79	.76	.76	.76	.88
24	1.39	1.05	1.27	1.27	.99	1.02	1.02	.79	.76	.76	.76	.88
25	1.39	.85	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
26	1.39	.85	1.27	1.27	1.02	.96	1.02	.79	.76	.76	.76	.88
27	1.39	1.02	1.27	1.27	1.02	.99	1.02	.79	.76	.76	.76	.88
28	1.39	1.13	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
29	1.39	1.27	1.27	1.27	1.02	1.02	1.02	.79	.76	.76	.76	.88
30	1.39	1.27	1.27	1.27	.96	1.02	1.02	.79	.76	.76	.76	.88
31	1.39	1.27	1.27	1.27	.96	1.02	1.02	.79	.76	.76	.76	.88
Sum	43.09	37.91	38.74	38.10	32.23	29.72	31.62	28.11	23.85	23.56	22.61	26.62
Current Year 1995									Period 1971-1995			
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum	
Jan.			! 1	1.39	! 1	1.39	1.39	3,723	2,782	7,204	0	
Feb.			9	1.59	!25	.85	1.35	3,275	2,656	5,958	0	
Mar.			! 3	1.27	! 1	1.13	1.25	3,347	3,045	6,698	4.9	
April			! 1	1.27	! 1	1.27	1.27	3,292	2,905	6,315	299	
May			! 1	1.27	!16	.91	1.04	2,785	2,828	6,085	0	
June			! 1	1.02	8	.71	.99	2,568	2,574	5,955	0	
July			! 1	1.02	! 1	1.02	1.02	2,732	2,835	6,796	613	
Aug.			!17	.79	! 1	1.02	.91	2,429	2,963	7,401	222	
Sept.			! 2	.88	!14	.76	.80	2,061	2,966	7,253	0	
Oct.			! 1	.76	! 1	.76	.76	2,036	2,977	6,611	194	
Nov.			! 1	.76	9	.65	.75	1,954	3,057	6,525	386	
Dec.			! 7	.88	! 1	.76	.86	2,300	3,272	7,364	0	
Yearly				1.59		0.65	1.03	32,502	34,860	72,381	2,162	

φ Mean daily

! And other days

09-5305.00 DRAIN NO. 8-B (ARAZ DRAIN)

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

RECORDS: Records are furnished by the U. S. Geological Survey from current meter measurements during the year. Records available: May 1948 through 1995.

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 975 meters upstream, is affected by backwater from the river during ordinary high stages.

EXTREMES: Mean daily discharge: Maximum, 0.76 CMS on November 12, 1992; minimum no flow several days in February 1966.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.27	0.25	0.25	0.27	0.22	0.25	0.23	0.24	0.37	0.45	0.37	0.31
2	.27	.25	.25	.28	.22	.25	.23	.24	.40	.45	.37	.31
3	.27	.26	.25	.31	.22	.25	.24	.24	.42	.45	.37	.31
4	.26	.25	.27	.31	.22	.25	.24	.24	.45	.45	.37	.31
5	.25	.25	.28	.31	.22	.25	.24	.24	.48	.48	.37	.31
6	.25	.24	.28	.31	.23	.24	.24	.24	.45	.48	.37	.31
7	.24	.24	.31	.28	.23	.22	.24	.25	.42	.48	.37	.31
8	.24	.23	.31	.27	.23	.21	.24	.25	.40	.48	.37	.31
9	.23	.23	.28	.26	.23	.21	.24	.25	.37	.48	.34	.31
10	.22	.22	.28	.25	.23	.21	.25	.25	.34	.48	.34	.31
11	.22	.22	.27	.24	.23	.21	.25	.25	.31	.48	.34	.31
12	.21	.22	.26	.24	.23	.21	.25	.25	.27	.45	.34	.31
13	.20	.21	.25	.23	.23	.21	.25	.25	.27	.45	.34	.31
14	.20	.20	.24	.23	.23	.21	.25	.26	.28	.45	.34	.31
15	.19	.20	.22	.23	.23	.21	.25	.26	.28	.45	.34	.31
16	.19	.21	.22	.23	.24	.21	.25	.26	.31	.45	.34	.31
17	.18	.22	.22	.23	.24	.21	.25	.26	.31	.45	.34	.31
18	.19	.22	.22	.22	.24	.21	.25	.26	.31	.42	.34	.28
19	.19	.22	.22	.22	.24	.21	.25	.26	.34	.42	.34	.28
20	.19	.22	.22	.22	.24	.21	.25	.26	.34	.42	.34	.28
21	.20	.23	.22	.22	.24	.21	.25	.26	.34	.42	.34	.28
22	.20	.23	.23	.22	.24	.21	.25	.26	.37	.42	.34	.28
23	.21	.23	.23	.22	.24	.21	.25	.27	.37	.40	.34	.27
24	.21	.24	.23	.21	.24	.21	.25	.27	.37	.40	.34	.27
25	.22	.24	.23	.21	.24	.22	.25	.27	.40	.40	.34	.26
26	.22	.24	.23	.21	.24	.22	.25	.27	.40	.40	.34	.26
27	.23	.25	.23	.21	.24	.22	.25	.27	.40	.40	.34	.25
28	.23	.25	.23	.21	.24	.22	.24	.27	.42	.40	.31	.25
29	.24	.23	.23	.22	.25	.22	.24	.27	.42	.40	.31	.24
30	.24	.23	.23	.22	.25	.23	.24	.31	.42	.37	.31	.24
31	.24	.25	.23	.22	.25	.23	.24	.34	.42	.37	.31	.24
Sum	6.91	6.47	7.64	7.29	7.27	6.61	7.60	8.07	11.03	13.50	10.35	8.94

Current Year 1995

Period 1948-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			1	0.27	17	0.18	0.22	597	455	1,109	48.5
Feb.			3	.26	114	.20	.23	559	388	920	50.0
Mar.			1	.31	115	.22	.25	660	460	1,052	77.3
April			1	.31	124	.21	.24	630	466	1,233	82.4
May			1	.25	1	.22	.23	628	486	1,192	71.9
June			1	.25	1	.21	.22	571	497	1,270	83.1
July			1	.25	1	.23	.25	637	563	1,554	89.8
Aug.			5	.34	1	.24	.26	697	622	1,665	91.0
Sept.			5	.48	112	.27	.37	953	626	1,690	66.1
Oct.			1	.48	130	.37	.44	1,166	680	1,505	68.2
Nov.			1	.37	128	.31	.35	894	634	1,530	71.2
Dec.			1	.31	31	.23	.29	772	538	12,295	52.1
Yearly				0.48		0.18	0.28	8,784	6,415	15,331	955

φ Mean daily

! And other days

09-5270.00 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, 33.5 kilometers downstream from the intake at Imperial Dam, 9.7 kilometers west of Yuma, about 1.6 kilometers north of the northerly international boundary and empties into the old Alamo Canal in the United States and thence into the Colorado River through Rockwood gates, about 1.6 kilometers upstream from the northerly international boundary. Water-stage recorder is located in forebay on right bank of the All-American Canal, 168 meters upstream from wasteway gates and 549 meters from the entrance to the power plant. Datum of gage is 45.72 meters above mean sea level. Tailrace gage is on left bank, 207 meters 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 45.07 meters, U. S. C. & G. S. datum. Prior to October 1956, this station was published as "Pilot Knob Wasteway near Pilot Knob, California."

RECORDS: Daily discharge is computed from flowmeter equipment and head and openings on wasteway gates or from head and gate opening on wicket and wasteway gates. Records furnished by the U. S. Geological Survey. Records available: July 1944 through 1995. 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, 281 CMS on October 6, 1985; minimum daily discharge, no flow during long periods.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	50.7	56.9	53.2	0	0	0	0	0	0	0	25.2
2	0	52.4	56.9	53.2	0	0	0	0	0	0	0	25.6
3	0	48.7	51.8	52.4	0	0	0	0	0	0	0	22.5
4	15.9	47.9	51.8	50.4	0	0	0	0	0	0	0	0
5	42.5	47.9	51.8	50.1	0	0	0	0	0	0	0	0
6	36.2	47.9	50.4	51.0	0	0	0	0	0	0	0	0
7	30.0	47.9	48.7	50.1	0	0	0	0	0	0	0	0
8	28.6	47.9	51.8	47.9	0	0	0	0	0	0	0	0
9	28.6	50.1	54.7	44.2	0	0	0	0	0	0	0	0
10	22.6	53.0	54.1	41.3	0	0	0	0	0	0	0	0
11	0	53.0	55.2	36.2	0	0	0	0	0	0	0	0
12	0	53.0	55.2	31.4	0	0	0	0	0	0	0	0
13	0	59.5	50.4	35.1	0	0	0	0	0	0	0	0
14	0	58.3	52.7	38.2	0	0	0	0	0	0	0	0
15	0	69.7	54.1	38.2	0	0	0	0	0	0	2.12	0
16	0	55.8	55.2	37.1	0	0	0	0	0	0	26.9	0
17	9.46	53.2	55.2	30.9	0	0	0	0	0	0	27.4	0
18	34.8	53.2	55.2	28.3	0	0	0	0	0	0	27.9	0
19	36.8	53.2	55.2	27.4	0	0	0	0	0	0	28.2	0
20	36.8	56.1	55.2	27.6	0	0	0	0	0	0	28.0	0
21	36.8	59.8	55.2	24.9	0	0	0	0	0	0	28.6	0
22	34.6	59.8	55.2	34.6	0	0	0	0	0	0	29.2	0
23	39.1	59.8	56.1	44.2	0	0	0	29.7	0	0	30.3	0
24	39.1	59.8	57.2	8.86	0	0	0	12.1	0	0	30.6	0
25	46.4	59.8	59.8	0	0	0	0	0	0	0	31.2	0
26	46.4	60.9	60.0	0	0	0	0	0	0	0	30.3	0
27	49.8	68.5	61.5	0	0	0	0	0	0	0	35.7	0
28	49.8	77.6	59.8	0	0	0	0	0	0	0	36.0	0
29	48.7		58.3	0	0	0	0	0	0	0	31.7	0
30	46.2		60.0	0	0	0	0	0	0	0	29.7	0
31	47.9		59.2	0	0	0	12.9	0	0	0	0	0
Sum	807.06	1,565.4	1,714.8	936.76	0	0	12.9	41.8	0	0	453.82	73.3

Current Year 1995

Period 1944-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			127	49.8	1	0	26.0	69,730	103,280	643,620	0
Feb.			28	77.6	4	47.9	55.9	135,251	79,812	579,127	0
Mar.			27	61.5	7	48.7	55.3	148,159	141,907	501,939	0
April			1	53.2	125	0	31.2	80,936	153,962	447,013	0
May			1	0	1	0	0	0	71,322	454,461	0
June			1	0	1	0	0	0	114,296	501,523	0
July			31	12.9	1	0	.42	1,115	165,449	512,385	0
Aug.			23	29.7	1	0	1.35	3,612	165,133	498,782	0
Sept.			1	0	1	0	0	0	94,815	591,679	0
Oct.			1	0	1	0	0	0	67,810	617,269	0
Nov.			28	36.0	1	0	15.1	39,210	65,529	609,196	0
Dec.			2	25.6	4	0	2.36	6,333	103,268	700,894	0
Yearly				77.6		0	15.4	484,346	1,326,583	6,000,505	0

φ Mean daily

! And other days

09-5220.00 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank and cableway at the point where the northerly international land boundary (California-Baja California) intersects the Colorado River, about 10.3 kilometers upstream from Colorado River below Yuma Main Canal Wasteway, 8.0 kilometers west of Yuma, Arizona, 1.8 kilometers upstream from Morelos Diversion Structure, and about 1.6 kilometers downstream from Rockwood Gate. Zero of the gage is at mean sea level, U. S. C. & G. S. datum. On May 1, 1988, the gage was relocated 52 meters upstream of the old gage on the left bank. Zero of the new gage is at mean sea level, U. S. C. & G. S. datum. Elevation of the new gage is equal to that of the old gage. Station is operated by the United States Section of the Commission.

RECORDS: Based on 178 current meter measurements during the year, 101 by the United States Section, 76 by the Mexican Section of the Commission, 1 by the U. S. Geological Survey, and a continuous record of gage heights. Discharges are computed on the basis of a water-stage recorder 512 meters 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 1995; daily discharge records available January 1, 1950 through 1995.

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 1995 the flow at this point represented the total amount of the Colorado River water which crossed the northerly international boundary.

EXTREMES: Prior to January 1935: Maximum instantaneous discharge estimated about 7,080 CMS, January 22, 1916; minimum discharge, no flow several days during August and September 1934; average annual flow 16,581,806 TCM; maximum annual flow 31,429,325 TCM, 1907; minimum annual flow 1,448,117 TCM, 1934. Since January 1935: Maximum instantaneous discharge 1,150 CMS on August 20, 1983, minimum discharge, no flow during April 1935.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.5	68.2	80.0	78.1	69.9	74.2	91.0	53.6	37.1	39.3	36.1	44.3
2	42.0	71.5	77.2	78.0	70.3	72.5	93.7	49.5	36.7	32.9	37.4	44.4
3	41.1	71.6	77.8	77.8	70.8	71.8	94.6	46.5	37.9	32.1	38.6	46.7
4	55.9	71.5	77.8	77.5	71.0	72.7	93.6	42.2	42.4	31.6	38.1	45.5
5	83.3	71.6	78.0	78.0	70.8	80.3	93.2	41.2	37.4	31.4	38.2	43.6
6	71.9	71.7	77.5	79.1	70.9	80.3	93.1	39.7	37.1	32.1	42.2	44.6
7	64.6	71.8	78.6	82.5	71.4	83.5	93.0	38.6	39.2	32.4	42.8	45.3
8	59.7	70.6	79.5	84.9	71.4	88.3	92.7	37.7	39.5	32.0	44.3	44.5
9	57.5	68.4	78.8	84.8	71.5	90.4	92.6	37.5	40.1	31.7	43.8	44.6
10	55.0	71.5	76.7	84.5	71.8	93.9	91.8	36.8	40.1	31.7	43.8	43.8
11	42.6	71.6	76.6	82.3	71.9	94.0	95.5	36.9	40.4	32.0	43.7	44.5
12	44.6	71.5	76.7	70.0	72.1	93.4	95.8	39.4	40.4	30.9	43.3	44.9
13	41.9	80.0	86.1	68.9	72.1	92.9	95.6	39.8	40.1	30.8	46.2	44.3
14	43.6	81.1	85.1	70.8	72.7	92.7	95.6	40.3	39.5	30.6	47.6	45.2
15	41.0	94.4	78.1	71.1	73.3	92.3	95.7	35.9	38.4	31.5	47.0	44.9
16	45.7	80.0	77.8	71.0	74.7	92.2	95.8	37.6	38.4	31.4	47.4	45.6
17	54.1	78.9	78.1	64.6	76.7	92.3	96.0	41.2	31.2	31.5	47.8	45.2
18	56.7	78.9	78.2	64.3	78.7	92.3	95.8	41.8	38.5	32.1	47.0	37.8
19	54.3	79.1	77.9	68.9	77.3	92.9	95.9	43.6	38.8	33.2	47.9	38.5
20	50.9	84.4	78.0	68.8	80.9	92.3	96.0	41.2	38.5	31.0	47.3	40.3
21	46.4	84.9	78.4	99.4	82.3	97.7	95.5	40.7	38.2	31.8	47.9	39.4
22	46.1	84.1	78.5	131	82.5	96.6	93.4	44.8	39.4	31.2	47.5	39.8
23	62.2	84.1	78.5	137	82.3	93.6	90.7	69.0	39.2	31.6	47.7	39.9
24	63.9	84.5	80.9	78.8	82.0	91.5	89.3	54.4	38.8	31.5	47.3	39.7
25	70.7	84.5	81.3	59.8	81.0	89.6	89.4	43.6	39.5	31.3	48.1	39.1
26	71.8	84.4	81.9	64.1	80.1	89.2	89.4	44.7	39.9	31.5	47.6	39.5
27	71.3	91.3	81.4	68.5	80.7	89.3	89.5	41.4	40.0	32.6	53.6	40.9
28	71.0	101	80.8	70.3	81.2	89.4	88.4	39.8	40.1	31.7	54.3	42.5
29	70.5		79.5	68.0	81.3	89.3	73.7	36.8	42.6	31.5	50.6	42.0
30	70.8		81.8	66.6	79.1	89.2	57.3	36.7	43.9	32.1	49.5	41.5
31	70.7		81.5		76.6		60.3	36.7		31.2		41.3
Sum	1,765.3	2,207.1	2,459.0	2,349.2	2,350.1	2,650.6	2,803.9	1,309.6	1,180.2	990.2	1,364.6	1,324.1

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.	33.820	32.785	5	87.5	1	37.1	56.9	152,522	502,484	2,027,841	39,348
Feb.	33.080	32.765	28	102	1	66.1	78.8	190,693	424,408	1,705,506	74,502
Mar.	32.915	32.500	1	99.8	1	75.9	79.3	212,458	460,121	1,642,378	23,930
April	33.820	31.990	23	161	24	55.7	78.3	202,971	381,800	1,522,616	0
May	33.145	32.085	25	83.7	1	69.7	75.8	203,049	365,035	1,419,735	88,077
June	32.760	32.398	21	102	3	71.6	88.4	229,012	365,170	1,629,906	10,485
July	32.775	32.030	3	97.9	31	45.9	90.4	242,257	387,966	2,303,937	30,097
Aug.	32.500	31.820	23	93.4	15	32.5	42.2	115,149	398,482	2,485,718	54,026
Sept.	32.025	31.830	129	46.1	5	35.0	39.3	101,969	346,102	2,286,076	66,424
Oct.	31.950	31.725	1	41.9	14	29.3	31.9	85,553	338,890	2,417,702	52,985
Nov.	32.175	31.780	28	57.4	1	30.9	45.5	117,901	375,456	1,889,976	51,070
Dec.	32.125	31.825	3	59.4	18	35.3	42.7	114,402	472,541	2,259,735	51,806
Yearly	33.820	31.725		161		29.3	62.3	1,965,936	4,818,455	19,033,105	890,696

! And other days

09-5220.01 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.905	33.025	32.800	32.755	32.095	32.645	32.650	32.140	31.865	31.905	31.880	31.975
2	32.885	32.955	32.790	32.765	32.110	32.515	32.710	32.090	31.865	31.765	31.905	31.965
3	32.930	32.945	32.780	32.730	32.125	32.450	32.725	32.055	31.885	31.750	31.930	32.015
4	33.295	32.945	32.775	32.710	32.135	32.500	32.710	31.995	31.975	31.745	31.920	31.990
5	33.765	32.930	32.760	32.770	32.130	32.620	32.700	31.975	31.880	31.740	31.925	31.960
6	33.585	32.890	32.780	32.820	32.125	32.700	32.695	31.950	31.870	31.755	31.990	31.975
7	33.470	32.880	32.725	32.775	32.125	32.625	32.700	31.920	31.905	31.765	32.005	31.990
8	33.380	32.890	32.650	32.870	32.095	32.535	32.695	31.905	31.890	31.760	32.030	31.975
9	33.340	32.885	32.685	32.855	32.110	32.505	32.695	31.905	31.905	31.755	32.015	31.975
10	33.290	32.940	32.860	32.825	32.140	32.420	32.660	31.900	31.900	31.755	32.010	31.960
11	33.030	32.915	32.850	32.785	32.155	32.410	32.615	31.910	31.910	31.770	32.005	31.975
12	33.080	32.945	32.865	32.710	32.165	32.490	32.575	31.935	31.915	31.755	31.995	31.965
13	33.015	32.960	32.840	32.740	32.185	32.535	32.535	31.940	31.905	31.755	32.050	31.945
14	33.055	32.890	32.835	32.695	32.225	32.555	32.515	31.945	31.895	31.750	32.075	31.960
15	32.990	32.960	32.770	32.740	32.265	32.600	32.555	31.875	31.875	31.770	32.070	31.950
16	33.080	32.935	32.765	32.730	32.425	32.645	32.600	31.900	31.875	31.770	32.070	31.965
17	33.040	32.875	32.750	32.735	32.920	32.640	32.645	31.960	31.870	31.770	32.075	31.960
18	33.075	32.830	32.745	32.750	33.000	32.620	32.600	31.975	31.885	31.780	32.060	31.840
19	33.035	32.830	32.755	32.300	33.060	32.640	32.620	32.005	31.905	31.795	32.075	31.860
20	32.965	32.875	32.750	32.110	33.100	32.625	32.645	31.965	31.895	31.755	32.060	31.895
21	32.895	32.865	32.730	32.565	33.115	32.695	32.605	31.965	31.880	31.780	32.075	31.880
22	32.895	32.835	32.735	33.520	33.115	32.695	32.605	32.035	31.905	31.765	32.075	31.890
23	32.965	32.835	32.740	33.555	33.110	32.640	32.590	32.275	31.895	31.775	32.085	31.890
24	32.870	32.860	32.820	32.430	33.105	32.585	32.575	32.125	31.890	31.775	32.075	31.890
25	32.935	32.865	32.830	32.000	33.085	32.570	32.570	31.965	31.905	31.770	32.095	31.880
26	32.855	32.855	32.785	32.020	33.055	32.565	32.555	31.990	31.920	31.780	32.085	31.885
27	33.005	32.895	32.815	32.060	33.090	32.570	32.535	31.930	31.920	31.790	32.140	31.910
28	33.100	32.935	32.790	32.095	33.125	32.545	32.505	31.905	31.920	31.790	32.140	31.930
29	33.225		32.780	32.090	33.120	32.555	32.340	31.845	31.960	31.790	32.085	31.915
30	33.155		32.785	32.085	33.005	32.585	32.175	31.845	31.985	31.795	32.065	31.915
31	33.115		32.795		32.825		32.180	31.850		31.785		31.905
Avg.	33.105	32.900	32.780	32.620	32.595	32.575	32.585	31.965	31.900	31.775	32.035	31.935

09-5318.50 COOPER WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

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

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge March 1950 through 1995 obtained by the United States Section; monthly discharge, January 1934 through 1950 by the Bureau of Reclamation.

EXTREMES: Prior to March 1950, maximum monthly discharge 1,127 TCM in January 1940; minimum monthly discharge, zero for various months. Since March 1950, maximum instantaneous discharge, 2.25 CMS on June 19, 1965, at a maximum gage height of 34.785 meters (old datum); minimum instantaneous discharge, zero during parts of most months.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.12	0.06	0	0.01	0.03	0	0	0.13	0.03	0.06	0.21
2	0	.08	.12	.05	.01	.04	0	.01	.24	.04	.05	.22
3	0	.13	.01	.02	0	.08	.03	.02	.23	.12	.15	.30
4	0	.05	.03	.03	0	.01	.01	.01	.17	.10	.05	.02
5	0	.01	.19	.11	0	.01	.02	0	.23	.01	.13	0
6	0	0	.01	.01	.05	.03	0	.12	.27	.03	.08	0
7	0	0	0	.01	.13	.01	0	.03	.24	.01	.05	.02
8	0	.02	.01	.01	.07	0	0	.01	.05	.03	.01	.04
9	0	.01	0	.01	.08	.03	.06	.01	0	.14	.04	0
10	0	.17	.07	0	.01	.04	.09	0	.10	.01	.04	.06
11	0	.05	.11	.02	0	.01	.03	0	.05	.01	.03	.01
12	0	.07	.15	.04	0	.01	0	0	.09	.01	.01	0
13	.03	.14	.06	.13	0	.01	0	.02	.02	.02	.01	0
14	0	.09	.17	.04	.07	.01	.01	.01	.01	.03	0	.03
15	0	.06	.01	.01	.07	.01	.03	.10	.19	.12	.05	.01
16	0	.07	.06	.07	.06	0	.29	.05	.01	.12	.02	.01
17	0	.07	.06	.01	.01	.27	0	.01	.01	.05	.04	.17
18	0	.11	.01	.06	.01	.01	0	0	.01	.13	.01	.04
19	.17	.08	.02	.05	.11	.17	0	.04	0	.36	.04	.02
20	.03	.09	.14	.01	.03	.01	.04	.11	0	.22	.02	.09
21	.05	.17	.01	0	.09	.01	.01	.04	0	.07	.06	.07
22	.01	.05	.01	.16	.08	.01	.02	.05	.03	.19	.03	.09
23	.02	.04	0	.04	.09	0	.01	.04	.01	.21	0	.01
24	.17	.01	0	0	.01	0	.01	.01	.03	.18	0	.01
25	.01	.06	.04	.01	.14	.04	.01	0	.15	.05	.01	.01
26	0	.01	.15	.04	.02	.01	.01	.06	.16	.01	0	.03
27	0	.05	.02	.04	.02	.01	.03	.01	.02	.02	0	.01
28	.02	.03	.02	.06	.06	0	.04	.27	.09	.01	0	.07
29	.08	.05	.05	.06	.01	0	0	.06	.43	.04	.01	.12
30	.01	0	.04	.06	.01	0	0	.02	.24	.04	.10	.03
31	.01	0	0	.01	.01	0	0	.03	.01	.01	0	.04
Sum		1.84		1.16		0.87		1.14		3.21		1.74
	0.61		1.63		1.26		0.75		3.21		1.10	

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.	0.430	0	19	0.68	1	0	0.02	52.7	185	1,127	0
Feb.	.465	0	21	.76	1	0	.07	159	166	493	7.4
Mar.	.485	0	17	.81	1	0	.05	141	176	638	0
April	.460	0	27	.75	1	0	.04	100	173	524	20.6
May	.590	0	6	1.08	2	0	.04	109	174	543	39.1
June	.650	0	17	1.26	5	0	.03	75.2	157	734	27.9
July	.670	0	16	1.32	1	0	.02	64.8	147	636	0
Aug.	.695	0	6	1.39	1	0	.04	98.5	121	761	0
Sept.	.740	.005	25	1.53	8	0	.11	277	128	570	0
Oct.	.795	.005	19	1.71	6	0	.08	209	164	604	0
Nov.	.715	0	9	1.46	1	0	.04	95.0	182	570	11.1
Dec.	.670	0	1	1.32	1	0	.06	150	202	730	16.9
Yearly	0.795	0		1.71		0	0.05	1,531	1,975	5,551	787

! And other days

09-5220.21 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, 1.8 kilometers downstream from the northerly international boundary, and about 12.1 kilometers downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date, zero of the gage was 0.05 meter below mean sea level.

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage height records November 8, 1950 to June 3, 1951; a continuous record of gage heights June 4, 1951 through 1995.

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

EXTREMES: Since November 8, 1950: Maximum mean daily elevation above mean sea level, 34.97 meters on March 5, 1993; minimum mean daily elevation above mean sea level, 30.94 meters on February 17, 1957.

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.780	32.850	32.670	32.650	31.590	32.430	32.200	31.500	31.140	31.310	31.200	31.240
2	32.760	32.770	32.660	32.650	31.610	32.240	32.270	31.460	31.110	31.190	31.210	31.210
3	32.820	32.770	32.660	32.610	31.630	32.160	32.350	31.390	31.120	31.140	31.220	31.240
4	33.210	32.770	32.650	32.600	31.620	32.190	32.430	31.220	31.230	31.110	31.200	31.290
5	33.650	32.750	32.630	32.670	31.640	32.350	32.440	31.150	31.150	31.100	31.210	31.250
6	33.490	32.710	32.660	32.700	31.630	32.440	32.470	31.160	31.110	31.100	31.280	31.250
7	33.360	32.700	32.590	32.650	31.620	32.340	32.400	31.130	31.170	31.110	31.320	31.280
8	33.280	32.690	32.440	32.750	31.590	32.260	32.180	31.130	31.210	31.120	31.350	31.310
9	33.240	32.700	32.450	32.740	31.590	32.200	32.180	31.160	31.230	31.140	31.320	31.330
10	33.190	32.760	32.750	32.700	31.630	32.090	32.130	31.150	31.250	31.130	31.300	31.320
11	32.930	32.730	32.740	32.660	31.670	32.070	32.060	31.130	31.280	31.140	31.300	31.320
12	32.970	32.770	32.760	32.600	31.690	32.110	31.990	31.170	31.320	31.130	31.270	31.320
13	32.910	32.750	32.720	32.630	31.750	32.140	31.930	31.190	31.310	31.120	31.310	31.280
14	32.940	32.660	32.710	32.570	31.780	32.130	31.930	31.220	31.270	31.100	31.340	31.280
15	32.880	32.680	32.660	32.620	31.850	32.140	32.000	31.160	31.230	31.100	31.340	31.290
16	32.970	32.690	32.660	32.610	32.110	32.150	32.050	31.160	31.220	31.130	31.340	31.340
17	32.920	32.660	32.640	32.620	32.780	32.170	32.070	31.200	31.200	31.140	31.360	31.340
18	32.950	32.680	32.640	32.620	32.880	32.140	31.990	31.240	31.210	31.160	31.320	31.200
19	32.900	32.660	32.640	31.850	32.940	32.150	32.030	31.340	31.220	31.230	31.330	31.150
20	32.810	32.720	32.640	31.550	32.980	32.120	32.070	31.320	31.240	31.170	31.330	31.180
21	32.740	32.720	32.610	32.120	32.990	32.240	32.040	31.280	31.240	31.180	31.360	31.180
22	32.740	32.670	32.630	33.400	32.990	32.200	32.050	31.340	31.260	31.170	31.370	31.190
23	32.810	32.680	32.630	33.430	32.990	32.160	32.050	31.550	31.270	31.140	31.400	31.210
24	32.690	32.720	32.710	32.110	32.990	32.140	32.040	31.440	31.250	31.130	31.420	31.210
25	32.730	32.730	32.720	31.500	32.960	32.110	32.030	31.230	31.250	31.100	31.440	31.200
26	32.630	32.720	32.660	31.520	32.930	32.100	31.970	31.240	31.250	31.090	31.430	31.210
27	32.800	32.750	32.690	31.590	32.970	32.080	31.940	31.230	31.260	31.100	31.470	31.310
28	32.910	32.760	32.670	31.620	33.000	32.040	31.910	31.210	31.280	31.110	31.460	31.350
29	33.040		32.660	31.570	32.990	32.040	31.700	31.140	31.330	31.130	31.390	31.320
30	32.990		32.670	31.560	32.850	32.090	31.440	31.150	31.390	31.160	31.370	31.240
31	32.960		32.680		32.660		31.350	31.150		31.170		31.230
Avg.	32.970	32.720	32.655	32.380	32.285	32.175	32.055	31.245	31.235	31.140	31.330	31.260

09-5220.30 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - DISCHARGES

DESCRIPTION: Water-stage recorder and staff gage on left bank of Intake Canal, 61 meters downstream from the intake at Morelos Dam, 410 meters upstream from the point where it joins the old Alamo Canal, 3.5 kilometers upstream from Matamoros Check, and about 1.6 kilometers south of the northerly international boundary. The zero of the gage is 0.05 meter below mean sea level, U. S. C. & G. S. datum.

RECORDS: The records are deduced from the flows arriving in the limnographic section of the Colorado River at the northerly international boundary, the flows that pass downstream from the structure, and leakage through the structure. Records available: November 8, 1950 through 1995. Records obtained and furnished by the Mexican Section of the Commission.

REMARKS: The canal is operated with a minimum hydraulic slope to permit the maximum retention of silt above Matamoros Check, and the lower velocities in the canal do not permit measuring the flow with a current meter. Records for this station show the amounts of Colorado River water diverted at Morelos Diversion Dam to the Intake Canal and thence to the Alamo Canal for use in Mexico. Under conditions set forth in the 1944 Water Treaty, water for use in Mexico may 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. No diversions of this nature have been made during the years 1951 through 1995, and consequently the records reported below show the total water diverted from the Colorado River to the Alamo Canal during those years. Mexico occasionally pumps water from the Colorado River at other points below Morelos Dam when water is available in the channel.

EXTREMES: Maximum mean daily discharge, 187 CMS, July 12 and 14, 1983; maximum mean daily gage height, 32.96 meters October 30, 1993 and other days. Minimum daily discharge, no flow on various occasions.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	37.4	46.4	79.9	78.1	69.9	68.0	91.0	53.6	37.2	39.3	36.2	44.5
2	33.2	59.5	77.1	78.0	70.3	64.2	93.7	49.5	36.9	32.9	37.4	44.6
3	27.9	62.4	77.6	77.8	70.8	63.9	94.6	46.5	38.1	32.9	38.8	47.0
4	21.6	71.6	77.6	77.5	71.0	64.2	93.6	42.2	42.7	31.7	38.2	45.5
5	21.1	71.6	78.0	78.1	70.8	74.7	93.2	41.2	37.5	31.4	38.3	43.6
6	22.5	71.7	77.3	79.1	71.0	73.3	93.1	39.8	37.4	32.1	42.3	44.6
7	23.0	71.8	78.4	82.3	71.5	75.9	93.0	38.6	39.4	32.4	42.8	45.3
8	24.7	70.6	79.3	84.9	71.5	76.7	92.7	37.7	39.6	32.0	44.3	44.5
9	24.6	68.4	78.6	84.8	71.6	80.1	92.7	37.5	40.1	31.8	43.8	44.6
10	24.1	71.7	76.6	84.5	71.8	86.5	91.9	36.8	40.2	31.7	43.8	43.9
11	24.7	71.6	76.5	82.3	71.9	94.0	95.5	36.9	40.5	32.0	43.7	44.5
12	25.2	71.6	76.7	70.0	72.1	93.4	95.8	39.4	40.5	30.9	43.3	44.9
13	24.7	80.1	86.0	69.0	72.1	92.9	95.6	39.8	40.1	30.8	46.2	44.3
14	27.0	80.9	85.1	70.8	72.8	92.7	95.6	40.3	39.5	30.6	47.6	45.2
15	28.0	89.5	77.9	71.1	71.1	92.3	95.7	36.0	38.6	31.6	47.0	44.9
16	31.3	80.1	77.7	71.1	73.5	92.2	96.1	37.6	38.4	31.5	47.4	45.6
17	33.9	79.0	78.0	64.6	69.9	92.6	96.0	41.2	38.1	31.6	47.8	45.4
18	35.0	79.0	78.0	64.4	65.5	92.3	95.8	41.8	38.5	32.2	47.0	37.8
19	38.5	79.2	77.7	69.0	62.8	93.1	95.9	43.6	38.8	33.6	47.9	38.5
20	48.5	84.5	77.9	68.8	63.4	92.3	96.0	41.3	38.5	31.2	47.3	40.4
21	45.8	85.1	78.2	84.6	64.6	97.7	95.5	40.7	38.2	31.9	48.0	39.5
22	45.6	84.2	78.3	88.1	69.4	96.6	93.4	44.8	39.4	31.4	47.5	39.9
23	57.4	84.1	78.3	84.9	64.4	93.6	90.7	69.0	39.2	31.8	47.7	39.9
24	63.9	84.5	80.7	73.9	64.5	91.5	89.3	54.4	38.8	31.7	47.3	39.7
25	70.0	84.6	81.1	59.8	65.7	89.6	89.4	43.6	39.7	31.4	48.1	39.1
26	69.1	84.4	81.9	64.1	60.4	89.2	89.4	44.8	40.1	31.5	47.6	39.5
27	66.3	91.4	81.2	68.5	61.9	89.3	89.5	41.4	40.0	32.6	53.6	40.9
28	50.3	101	80.6	70.3	63.4	89.4	88.4	40.1	40.2	31.7	54.3	42.6
29	46.2		79.4	68.0	63.2	89.3	73.7	36.9	43.0	31.5	50.6	42.1
30	46.6		81.6	66.6	64.8	89.2	57.3	36.7	44.1	32.1	49.6	41.5
31	44.4		81.3		64.5		60.3	36.7		31.2		41.3
Sum	1,182.5	2,160.5	2,454.5	2,235.0	2,114.1	2,570.7	2,804.4	1,310.4	1,183.3	992.3	1,365.4	1,325.6

Current Year 1995 Period 1950-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters				
	High	Low	Day	φ High		Average	Total	Average	Maximum	Minimum	
				Day	φ Low						
Jan.	32.180	31.300	25	70.0	5	21.1	38.1	102,168	110,874	275,305	1,192
Feb.	32.340	31.840	28	101	1	46.4	77.2	186,667	114,443	251,580	11,387
Mar.	32.250	31.590	13	86.0	11	76.5	79.2	212,069	233,072	435,370	120,761
April	31.910	31.330	22	88.1	25	59.8	74.5	195,104	256,676	404,698	189,700
May	31.860	31.350	16	73.5	26	60.4	68.2	182,658	141,262	286,174	81,665
June	32.310	31.720	21	97.7	3	63.9	85.7	222,108	196,159	332,588	117,600
July	32.270	31.190	16	96.1	30	57.3	90.5	242,300	266,394	439,171	155,105
Aug.	31.580	31.060	23	69.0	15	36.0	42.3	113,219	259,358	420,673	113,219
Sept.	31.320	31.060	30	44.1	2	36.9	39.4	102,237	157,470	336,960	66,156
Oct.	31.290	31.010	1	39.3	14	30.6	32.0	85,735	89,117	280,817	12,894
Nov.	31.480	31.070	28	54.3	1	36.2	45.5	117,971	79,968	258,388	9,271
Dec.	31.370	31.010	3	47.0	18	37.8	42.8	114,532	113,586	247,899	10,886
Yearly	32.340	31.010		101		21.1	59.4	1,874,768	2,022,710	3,451,533	1,569,404

φ Mean daily

09-5220.31 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.480	31.940	31.950	31.550	31.470	31.770	32.190	31.380	31.090	31.250	31.120	31.280
2	31.510	31.950	31.910	31.560	31.490	31.790	32.250	31.410	31.070	31.140	31.120	31.260
3	31.460	31.960	31.830	31.590	31.500	31.810	32.220	31.340	31.090	31.090	31.130	31.280
4	31.480	32.030	31.830	31.510	31.470	31.830	32.250	31.180	31.170	31.060	31.110	31.280
5	31.510	32.090	31.840	31.500	31.490	31.840	32.230	31.110	31.110	31.050	31.130	31.230
6	31.510	32.070	31.850	31.590	31.480	31.820	32.200	31.110	31.090	31.050	31.200	31.230
7	31.490	32.050	31.780	31.650	31.460	31.820	32.180	31.080	31.140	31.050	31.260	31.250
8	31.470	31.990	31.820	31.710	31.410	31.840	32.140	31.080	31.170	31.050	31.280	31.280
9	31.470	31.880	31.880	31.700	31.390	31.950	32.140	31.110	31.190	31.080	31.250	31.290
10	31.450	31.990	31.880	31.660	31.390	32.070	32.080	31.090	31.200	31.080	31.240	31.280
11	31.500	32.040	31.920	31.580	31.360	32.050	32.010	31.070	31.220	31.100	31.240	31.300
12	31.510	32.080	31.980	31.450	31.440	32.100	31.930	31.110	31.250	31.080	31.230	31.310
13	31.470	32.260	32.010	31.390	31.590	32.140	31.830	31.140	31.230	31.070	31.270	31.280
14	31.480	32.220	32.040	31.440	31.630	32.120	31.830	31.180	31.210	31.060	31.320	31.280
15	31.460	32.190	31.920	31.410	31.730	32.140	31.890	31.100	31.180	31.070	31.310	31.290
16	31.460	32.070	31.880	31.400	31.820	32.140	31.950	31.090	31.170	31.080	31.310	31.330
17	31.490	31.940	31.870	31.350	31.720	32.160	31.990	31.110	31.150	31.080	31.330	31.330
18	31.500	31.910	31.870	31.350	31.690	32.130	31.900	31.160	31.160	31.100	31.290	31.190
19	31.480	31.890	31.890	31.380	31.700	32.140	31.940	31.250	31.170	31.150	31.300	31.140
20	31.470	31.970	31.900	31.450	31.710	32.100	31.970	31.240	31.190	31.110	31.300	31.160
21	31.570	32.000	31.870	31.710	31.720	32.210	31.930	31.190	31.180	31.110	31.320	31.150
22	31.850	31.980	31.750	31.670	31.710	32.200	31.940	31.250	31.200	31.100	31.350	31.160
23	31.860	31.980	31.600	31.640	31.720	32.140	31.940	31.420	31.200	31.080	31.370	31.180
24	31.950	31.970	31.630	31.520	31.710	32.120	31.930	31.330	31.190	31.070	31.370	31.170
25	32.010	31.990	31.670	31.350	31.690	32.090	31.920	31.160	31.180	31.040	31.400	31.170
26	31.950	31.980	31.720	31.410	31.680	32.090	31.860	31.180	31.200	31.030	31.390	31.170
27	31.940	32.070	31.730	31.500	31.700	32.070	31.820	31.160	31.200	31.040	31.440	31.270
28	31.900	32.260	31.710	31.520	31.710	32.030	31.780	31.140	31.210	31.050	31.450	31.310
29	31.920		31.620	31.450	31.710	32.030	31.550	31.080	31.260	31.060	31.390	31.280
30	31.880		31.610	31.420	31.740	32.080	31.320	31.090	31.300	31.090	31.380	31.210
31	31.890		31.620		31.740		31.240	31.090		31.100		
Avg.	31.625	32.025	31.820	31.515	31.605	32.025	31.945	31.175	31.180	31.085	31.285	31.245

09-5220.41 COLORADO RIVER IMMEDIATELY BELOW MORELOS DAM - STAGES

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

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage heights, February 20, 1951 to June 6, 1966; continuous record of gage heights June 7, 1966 through 1995.

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

EXTREMES: Maximum mean daily gage height, 34.87 meters on March 5, 1993; minimum mean gage height, 29.30 meters which occurs frequently.

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.490	31.540	29.300	29.300	29.300	31.440	29.300	29.300	29.300	29.300	29.300	29.330
2	31.660	31.460	29.300	29.300	29.300	31.240	29.300	29.300	29.300	29.300	29.300	29.320
3	31.710	30.780	29.300	29.300	29.300	31.160	29.300	29.300	29.300	29.300	29.300	29.310
4	32.100	29.300	29.300	29.300	29.300	31.190	29.300	29.300	29.300	29.300	29.300	29.310
5	32.580	29.300	29.300	29.300	29.300	31.340	29.300	29.300	29.300	29.300	29.300	29.300
6	32.380	29.300	29.300	29.300	29.300	31.440	29.300	29.300	29.300	29.300	29.300	29.300
7	32.270	29.300	29.300	29.300	29.300	31.350	29.300	29.300	29.300	29.300	29.300	29.300
8	32.180	29.300	29.300	29.300	29.300	31.260	29.300	29.300	29.300	29.300	29.300	29.300
9	32.140	29.300	29.300	29.300	29.300	31.200	29.300	29.300	29.300	29.300	29.300	29.300
10	32.100	29.300	29.300	29.300	29.300	30.140	29.300	29.300	29.300	29.300	29.310	29.300
11	31.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300
12	31.880	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300
13	31.840	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.310	29.300
14	31.840	29.380	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.310	29.300
15	31.780	31.120	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.300	29.310	29.300
16	31.860	29.300	29.300	29.300	29.480	29.300	29.300	29.300	29.300	29.300	29.310	29.300
17	32.820	29.300	29.300	29.300	30.880	29.300	29.300	29.300	29.300	29.300	29.310	29.300
18	31.850	29.300	29.300	29.300	31.850	29.300	29.300	29.300	29.300	29.310	29.320	29.300
19	31.800	29.300	29.300	29.300	31.910	29.300	29.300	29.300	29.300	29.310	29.320	29.300
20	31.720	29.300	29.300	29.300	31.960	29.300	29.300	29.300	29.300	29.310	29.320	29.300
21	31.460	29.300	29.300	30.150	31.970	29.300	29.300	29.300	29.300	29.310	29.330	29.300
22	30.720	29.300	29.300	32.180	31.970	29.300	29.300	29.300	29.300	29.310	29.330	29.300
23	30.770	29.300	29.300	32.150	31.970	29.300	29.300	29.300	29.300	29.300	29.340	29.300
24	29.300	29.300	29.300	30.170	31.980	29.300	29.300	29.300	29.300	29.300	29.350	29.300
25	29.870	29.300	29.300	29.300	31.950	29.300	29.300	29.300	29.300	29.300	29.390	29.300
26	31.430	29.300	29.300	29.300	31.920	29.300	29.300	29.300	29.300	29.300	29.430	29.300
27	31.480	29.300	29.300	29.300	31.960	29.300	29.300	29.300	29.300	29.300	29.420	29.300
28	31.590	29.300	29.300	29.300	31.990	29.300	29.300	29.300	29.300	29.300	29.410	29.300
29	31.730		29.300	29.300	31.970	29.300	29.300	29.300	29.300	29.300	29.350	29.300
30	31.680		29.300	29.300	31.830	29.300	29.300	29.300	29.300	29.300	29.390	29.300
31	31.640		29.300		31.660	29.300	29.300	29.300	29.300	29.300	29.390	29.300
Avg.	31.645	29.580	29.300	29.550	30.540	29.925	29.300	29.300	29.300	29.300	29.330	29.300

09-5319.00 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, 1.8 kilometers downstream from the northerly International boundary. The elevation of the zero of the gage has not been determined.

RECORDS: Based on discharge measurements and a continuous record of gage heights. Station is operated by the United States Section of the Commission. Records available: November 16, 1965 through 1995.

REMARKS: Pursuant to Minute 218 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 19.3 kilometers, and placed in operation on November 16, 1965. Drainage flows may be discharged on an emergency basis 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, 3.1 kilometers upstream from Morelos Dam; and directly to the Colorado River immediately below Morelos Dam at this station, Main Outlet Drain Extension No. 3. On July 14, 1972, Minute No. 241 of the Commission became effective. The Minute called for discharge of all Wellton-Mohawk drainage waters to be made below Morelos Dam. On August 30, 1973, Minute No. 242 of the Commission became effective. The Minute called for construction of a concrete-lined bypass drain from Morelos Dam to the Santa Clara Slough in Mexico. On June 23, 1977, the first flow was recorded in the bypass drain. Drainage flows through Main Outlet Extension No. 3 will be only on an emergency basis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	0.02
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	.18	0	0	0	0	0	0
6	0	0	0	0	0	.18	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	.33	0	0	0	0	0	0	0
12	0	0	0	0	.33	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	.03	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	.06	0	0	0	0	0	0	0	0
23	0	0	0	.16	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	.06	0
26	0	0	0	0	0	0	0	0	0	0	.19	0
27	0	0	0	0	0	0	0	0	0	0	.07	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	.02	0
30	0	0	0	0	0	0	0	0	0	0	.08	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0.25	0.66	0.36	0	0	0	0	0.42	0.02
Current Year 1995										Period 1966-1995		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum	
Jan.	0	0	11	0	11	0	0	0	8,081	23,088	0	
Feb.	0	0	11	0	11	0	0	0	6,212	20,959	0	
Mar.	0	0	11	0	11	0	0	0	4,383	22,827	0	
April	.285	0	20	1.29	11	0	.01	21.6	3,926	22,944	0	
May	.210	0	11	.82	11	0	.02	57.0	5,918	23,548	0	
June	.150	0	5	.48	11	0	.01	31.1	4,658	23,135	0	
July	0	0	11	0	11	0	0	0	4,277	23,370	0	
Aug.	0	0	11	0	11	0	0	0	4,369	23,668	0	
Sept.	0	0	11	0	11	0	0	0	6,112	22,787	0	
Oct.	0	0	11	0	11	0	0	0	8,602	23,683	0	
Nov.	.175	0	27	.61	11	0	0	0	8,155	22,792	0	
Dec.	.025	0	1	.04	12	0	.01	36.3	8,155	22,792	0	
Yearly	0.285	0		1.29		0	0	148	72,173	264,928	0	

! And other days

09-5325.00 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, 6.9 kilometers downstream from the northerly international boundary and 5.1 kilometers 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. Since June 1986, zero of the gage is 34.05 meters above mean sea level, U. S. C. & G. S. datum; prior to that date, zero of the gage was mean sea level, U. S. C. & G. S. datum.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1995, obtained by the United States Section; monthly discharge, January 1924 through 1950 by Bureau of Reclamation.

EXTREMES: Prior to January 1951, maximum monthly discharge, 12,014 TCM in August 1940; minimum monthly discharge, zero in April 1941. Since January 1, 1951, maximum instantaneous discharge, 22.7 CMS on December 3, 1961, at a maximum gage height of 35.845 meters; minimum instantaneous discharge, zero during parts of most years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.01	0.01	0	0	0	0	0.01	0	0.45	0.01	0.01
2	.01	.01	0	0	0	0	0	.01	0	.29	.52	.01
3	.01	.01	0	0	0	0	0	.01	.01	.01	.47	.01
4	.01	.01	0	0	0	0	0	.01	.01	.29	.17	.01
5	.01	.01	0	0	0	0	0	.01	.01	.01	.25	.01
6	0	.01	0	0	0	0	0	.01	.01	.01	.49	.01
7	0	.01	0	0	0	0	0	.02	.01	.09	.53	.01
8	0	.01	0	0	0	0	0	.01	.01	.21	.01	.01
9	0	.01	0	0	0	0	0	.01	.01	.08	.01	.05
10	0	.01	0	0	0	0	0	.01	.01	0	.01	.10
11	0	.01	0	0	0	0	0	.01	.01	0	.02	.06
12	0	.01	0	0	0	0	0	.03	.01	0	.01	.01
13	0	.01	0	0	0	0	0	.01	.01	0	.07	0
14	0	.01	0	.26	0	0	0	.06	.01	.08	.01	.01
15	0	.01	0	0	0	0	0	.01	.01	0	.01	.01
16	0	.01	0	.01	0	0	0	.01	.01	.14	.01	.01
17	.07	.01	0	.01	0	.01	0	.02	.01	.01	.01	.03
18	.01	.01	0	0	0	0	0	.38	.03	.01	0	.01
19	.01	.01	0	.08	0	0	0	.25	.01	0	.02	.01
20	.06	.03	.01	.01	0	0	0	.01	.02	.17	.14	.01
21	.36	.01	.01	0	0	0	0	.01	.05	.01	.14	.01
22	.01	.03	.01	0	0	0	0	.01	.01	0	.01	.01
23	.02	.02	0	.01	0	0	0	.01	.04	.01	.24	.01
24	.06	.01	0	0	0	0	0	.01	.05	.01	0	.05
25	.04	.01	0	0	0	.01	.01	.01	.01	.30	.10	.01
26	.03	.03	0	0	.03	.01	0	.01	.31	0	.02	.01
27	.01	.09	0	0	0	0	0	.12	.01	0	.02	.03
28	.05	.01	0	0	.08	0	0	.41	.01	.01	.01	.01
29	.09	0	0	0	0	0	0	.01	.10	.01	.23	.01
30	.04	.01	0	0	0	0	0	.01	.01	.17	.01	.01
31	.08	0	0	0	0	0	0	.01	.01	.01	.01	.01
Sum	0.96	0.43	0.04	0.38	0.11	0.03	0.76	1.13	1.03	2.58	2.94	0.54

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.	0.320	0	21	1.77	1	0	0.03	82.9	2,754	11,804	0
Feb.	.130	0	27	.26	1	0	.02	37.2	2,255	10,398	17.9
Mar.	.010	0	1	.01	1	0	0	3.5	2,124	7,685	3.5
April	.670	0	14	2.96	1	0	.01	32.8	1,957	7,771	0
May	.115	0	28	.21	1	0	0	9.5	2,307	11,496	9.5
June	.035	0	17	.03	1	0	0	2.6	2,189	9,177	2.6
July	.255	0	18	1.22	1	0	.02	65.7	2,220	10,263	11.2
Aug.	.200	.005	28	.56	116	0	.04	97.6	1,918	12,014	18.1
Sept.	.295	.005	30	1.58	1	0	.03	89.0	1,385	7,574	7.4
Oct.	.450	0	20	2.04	1	6	.08	223	1,903	7,006	14.7
Nov.	.585	.010	4	2.39	1	1	.10	254	2,317	10,139	23.2
Dec.	.160	.005	27	.37	113	0	.02	46.7	3,006	11,632	46.7
Yearly	0.670	0		2.96		0	0.03	945	26,335	102,255	945

! And other days

09-5221.00 COLORADO RIVER AT ELEVEN MILE GAGE - STAGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of the river, 6.9 kilometers downstream from northerly international boundary, 5.1 kilometers downstream from Morelos Dam, about 15 meters downstream from the mouth of Eleven Mile Wasteway of the Yuma Project, and 17.7 kilometers downstream from Yuma, Arizona, along the river levee. The zero of the gage is at mean sea level, U. S. C. & G. S. datum. On April 1, 1988, the gage was relocated 399 meters downstream of the old gage on the left bank. Zero of the new gage is at mean sea level, U. S. C. & G. S. datum. Elevation of the new gage is 0.12 meter lower than the old gage. On August 1, 1993, the gage was relocated 81.0 meters upstream of the original 1947 gage. The datum is equal to the 1947 gage.

RECORDS: Mean daily gage heights based on continuous water-stage records. Records available: Continuous record of gage heights, November 1947 through 1995; 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, 33.15 meters on June 28, 1983; minimum mean daily gage height, 28.65 meters on September 13, 1988 and other days since that time.

MEAN DAILY GAGE HEIGHT IN METERS 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30.355	30.640	29.695	29.600	29.595	30.285	29.555	29.565	29.500	29.585	29.515	29.530
2	30.065	30.445	29.690	29.605	29.595	30.085	29.550	29.560	29.500	29.545	29.610	29.530
3	29.990	30.135	29.685	29.595	29.595	29.975	29.545	29.555	29.490	29.485	29.615	29.530
4	30.250	29.750	29.685	29.595	29.595	29.980	29.555	29.555	29.500	29.535	29.565	29.530
5	30.875	29.700	29.685	29.595	29.590	30.095	29.555	29.555	29.500	29.475	29.590	29.530
6	31.100	29.690	29.685	29.595	29.595	30.230	29.555	29.555	29.505	29.485	29.625	29.535
7	31.025	29.705	29.680	29.585	29.595	30.170	29.615	29.560	29.515	29.500	29.620	29.535
8	30.935	29.705	29.685	29.585	29.595	30.045	29.765	29.550	29.505	29.545	29.510	29.535
9	30.905	29.695	29.675	29.585	29.585	30.030	29.750	29.540	29.500	29.515	29.515	29.545
10	30.875	29.710	29.685	29.585	29.590	29.890	29.710	29.540	29.510	29.485	29.540	29.575
11	30.635	29.680	29.690	29.585	29.600	29.845	29.650	29.540	29.515	29.485	29.520	29.570
12	30.660	29.680	29.665	29.585	29.625	29.785	29.625	29.545	29.515	29.500	29.500	29.535
13	30.625	29.765	29.665	29.580	29.615	29.605	29.595	29.530	29.520	29.490	29.540	29.530
14	30.615	29.695	29.660	29.625	29.615	29.585	29.585	29.555	29.515	29.515	29.525	29.530
15	30.580	30.290	29.650	29.570	29.635	29.580	29.595	29.525	29.515	29.500	29.515	29.525
16	30.625	29.740	29.645	29.575	29.735	29.590	29.600	29.525	29.515	29.530	29.515	29.525
17	30.600	29.680	29.645	29.580	30.385	29.570	29.635	29.530	29.520	29.505	29.520	29.540
18	30.610	29.680	29.640	29.580	30.560	29.570	29.640	29.545	29.515	29.510	29.525	29.540
19	30.600	29.670	29.635	29.595	30.595	29.565	29.630	29.530	29.540	29.510	29.530	29.525
20	30.545	29.690	29.635	29.565	30.655	29.565	29.615	29.545	29.515	29.555	29.585	29.525
21	30.430	29.685	29.635	29.650	30.675	29.565	29.600	29.565	29.525	29.535	29.520	29.520
22	30.115	29.695	29.630	30.900	30.675	29.560	29.600	29.535	29.525	29.515	29.530	29.515
23	30.265	29.690	29.625	31.210	30.680	29.565	29.600	29.555	29.530	29.565	29.530	29.515
24	29.780	29.690	29.625	30.290	30.675	29.565	29.600	29.580	29.530	29.500	29.545	29.515
25	29.775	29.695	29.620	29.690	30.665	29.565	29.600	29.530	29.555	29.530	29.530	29.510
26	30.135	29.700	29.620	29.640	30.645	29.565	29.600	29.530	29.580	29.505	29.540	29.510
27	30.345	29.720	29.620	29.625	30.670	29.635	29.600	29.580	29.495	29.500	29.545	29.530
28	30.635	29.700	29.615	29.615	30.715	29.760	29.600	29.655	29.500	29.510	29.530	29.520
29	30.655		29.615	29.610	30.725	29.760	29.585	29.650	29.490	29.560	29.530	29.515
30	30.720		29.610	29.605	30.620	29.725	29.565	29.500	29.515	29.510	29.530	29.525
31	30.710		29.605		30.485		29.565	29.500		29.515		29.530
Avg.	30.515	29.795	29.650	29.720	30.105	29.775	29.610	29.550	29.515	29.515	29.545	29.530

09-5330.00 TWENTY-ONE MILE WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway from West Main Canal to Colorado River. Located on east side of levee at site used prior to May 1, 1971. The site used May 1, 1971 to September 20, 1977 was located 61 meters downstream from present site on west side of levee. This wasteway is located in Arizona, 29.8 kilometers downstream from the northerly international boundary, 28.0 kilometers downstream from Morelos Diversion Dam, and 3.5 kilometers upstream from the southerly international boundary. It is the farthest downstream of the two wasteways discharging waste water from the Valley Division of the Yuma Project in the United States into the limitrophe section of the Colorado River. The elevation of the zero of the gage at the new location has not been determined.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1995, obtained by the United States Section; monthly discharge, March 1939 through 1950, by Bureau of Reclamation.

REMARKS: This wasteway was completed and flow began March 14, 1939. Since May 13, 1944, waste water from the West Main Canal which previously discharged across the southerly land boundary has been returned to the Colorado River through this wasteway. The West Main Canal Wasteway was completed in February of 1971, and the waste water from the West Main Canal is normally discharged across the southerly land boundary.

EXTREMES: Prior to January 1951, maximum monthly discharge 3,528 TCM in January 1946; minimum monthly discharge, 150 TCM in September 1950. Since January 1, 1951, maximum instantaneous discharge, 2.89 CMS on January 24, 1954, at a maximum gage height of 29.095 meters (old datum); minimum instantaneous discharge, zero during a part of most months.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.19	0	0	0	0	0	0	0	0	0
2	0	0	.21	0	0	0	0	0	0	0	0	0
3	0	.01	.04	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	.02
6	0	0	0	0	0	0	0	0	0	0	0	.02
7	0	0	0	0	0	0	0	0	0	0	0	.01
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	.01	0	0	0	0	0	0	0	0	0	0	0
19	.01	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	.02	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	.05	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	.13	0
28	0	.07	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0.07	0.08	0.44	0	0	0.02	0	0	0	0	0.13	0.05
Current Year 1995										Period 1939-1995		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum	
Jan.	0.225	0	23	0.28	11	0	0	6.0	674	3,528	0	
Feb.	.225	0	28	.28	11	0	0	6.9	578	3,096	0	
Mar.	.485	0	2	.96	12	0	.01	38.0	527	2,048	0	
April	0	0	11	0	11	0	0	0	563	2,393	0	
May	0	0	11	0	11	0	0	0	682	3,047	0	
June	.080	0	20	.05	11	0	0	1.7	601	2,899	0	
July	0	0	11	0	11	0	0	0	521	2,405	0	
Aug.	0	0	11	0	11	0	0	0	544	3,121	0	
Sept.	0	0	11	0	11	0	0	0	484	2,689	0	
Oct.	0	0	11	0	11	0	0	0	603	2,590	0	
Nov.	.495	0	27	.99	11	0	0	11.2	726	2,936	0	
Dec.	.350	0	5	.57	11	0	0	4.3	767	3,306	0	
Yearly	0.495	0		0.99		0	0	68.1	7,270	30,060	0	

! And other days

09-5345.00 EAST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir located about 91 meters north of the international boundary near San Luis, Arizona and 2.4 kilometers east of the Colorado River. From September 28, 1977 to April 6, 1978, recorder was moved west 31 meters to a temporary bypass channel. On April 7, 1978, recorder was moved back to original site. On August 17, 1992, flow ceased through the wasteway due to construction upstream of the gage. The gage was relocated 20 meters west of the original site providing continuous record since December 21, 1992.

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 1995. Records of monthly discharges also are available for the periods January 1924 through June 1928, January 1932 through 1933, and April 1935 through September 1946.

REMARKS: Wasteway discharges from the East Main Canal comprise regulatory waste and drainage waters from the eastern half of the Valley Division of the Yuma Project and are considered as part of the volumes arriving at the land boundary at San Luis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.30	0.29	0.29	0.07	0.24	0.01	0.23	0.46	0.23	0.26	0.28	0.33
2	.27	.42	.19	.78	.57	.01	.29	.65	.15	.26	.38	.33
3	.23	.18	.30	.58	.07	0	.19	.25	.19	.24	.29	.33
4	.35	.12	.45	.50	.23	.05	.33	.25	.48	.06	.39	.33
5	.45	.14	.11	.13	.58	.40	.35	.05	.29	.02	.26	.32
6	.47	.62	.32	.27	.26	.03	.19	.26	.53	.04	.14	.45
7	.42	.14	.03	.57	.01	.04	.06	.48	.48	.30	.37	.75
8	.45	.28	.03	.55	.30	.12	.02	.05	.12	.29	.33	.38
9	.41	.30	.22	.72	.64	.14	.31	.14	.34	.43	.53	.02
10	.32	.41	.01	.34	.66	.41	.38	.04	.20	.53	.24	.55
11	.34	.34	.32	.02	.42	.46	.42	.29	.34	.16	.09	.16
12	.34	.34	.50	.01	.48	.12	.38	.30	.27	.34	.21	.11
13	.28	.15	.30	.02	.36	.15	.18	.20	.02	.37	.59	.23
14	.41	.16	.21	.19	.51	.25	.22	.33	.24	.41	.59	.36
15	.29	.17	.23	.11	.66	.18	.34	.30	.01	.38	.27	.46
16	.49	.48	.28	.06	.55	.03	.28	.02	.25	.15	.24	.52
17	.43	.29	.40	.01	.47	.03	.17	.28	.50	.01	.25	.64
18	.35	.14	.09	.04	.63	.02	.05	.06	.42	.29	.12	.41
19	.13	.15	.13	.52	.31	.35	.46	.15	.34	.49	.41	.29
20	.28	.16	.02	.61	.49	.33	.15	.17	.03	.46	.38	.28
21	.13	.20	.36	.73	.30	.12	.30	.21	.04	.23	.62	.13
22	.15	.25	.18	.49	.69	.36	.30	.45	.32	.12	.33	.39
23	.11	.12	.24	.50	.35	.27	.39	.30	.38	.02	.33	.21
24	.14	.35	.42	.06	.30	.30	.27	.36	.07	.31	.33	.73
25	.56	.05	.46	.02	.21	.51	.07	.60	.34	.31	.33	.73
26	.23	.54	.03	.11	.19	.35	.11	.32	.26	.32	.33	.38
27	.46	.77	.16	.27	.24	.37	.23	.32	.26	.45	.33	.04
28	.47	.38	.05	.06	.23	.52	.04	.36	.26	.38	.33	.06
29	.59		.07	.12	.17	.39	.42	.27	.26	.24	.33	.14
30	.74		.15	.21	.25	.28	.20	.38	.26	.43	.33	.17
31	.12		.20		.02		.41	.17		.51		.52
Sum	10.71	7.94	6.75	8.67	11.39	6.60	7.74	8.25	7.88	8.81	9.95	10.75

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day			Total	Average	Maximum	Minimum
					Day	Low					
Jan.	0.335	0.010	30	0.86	121	0.01	0.35	925	1,141	4,144	111
Feb.	.340	.005	27	.88	119	0	.28	686	951	3,910	164
Mar.	.345	0	23	.90	110	0	.22	583	1,088	3,602	175
April	.375	0	2	1.02	117	0	.29	749	1,058	3,910	165
May	.365	0	18	.97	31	0	.37	984	1,198	3,750	281
June	.345	0	28	.89	11	0	.22	570	995	4,515	157
July	.350	0	19	.92	14	0	.25	669	1,068	4,428	210
Aug.	.330	0	2	.85	8	0	.27	713	1,103	4,885	196
Sept.	.315	.005	7	.79	13	.01	.26	681	1,043	3,910	0
Oct.	.320	0	31	.82	5	0	.28	761	1,091	4,046	0
Nov.	.360	.015	9	.95	110	.02	.33	860	1,190	4,404	0
Dec.	.370	.005	7	.99	23	0	.35	929	1,165	3,799	51.0
Yearly	0.375	0		1.02		0	0.29	9,110	13,091	47,255	3,733

! And other days

09-5340.00 YUMA MAIN DRAIN (VALLEY DIVISION, YUMA PROJECT)

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

RECORDS: Main Drain discharges are lifted 3.05 to 3.66 meters at the pumping plant. Prior to April 1, 1969, discharges were computed from pump ratings and the differential head measured by the two gages. Beginning April 1, 1969 discharges were computed from flow meter charts. Pump ratings and flow meter discharges are checked by current meter measurements. Records obtained and computed by the United States Section of the Commission. Records available: Monthly discharges, June 1919 through 1951; daily discharges January 1952 through 1995.

REMARKS: Flows in the Main Drain are principally drainage waters from the Valley Division of the Yuma Project. The Main Drain, the East Main Canal Wasteway, West Main Canal Wasteway, and 242 Lateral 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 land boundary at San Luis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.16	2.95	3.36	3.56	4.00	3.72	3.15	3.26	3.08	3.38	4.88	3.95
2	3.13	3.08	3.57	3.77	3.75	3.50	3.35	3.25	3.44	3.50	4.79	3.97
3	3.04	2.93	3.94	3.76	3.06	3.97	3.47	3.07	3.03	4.04	4.99	3.99
4	3.19	2.88	3.49	3.55	3.74	3.75	2.88	3.03	2.92	4.27	4.44	3.82
5	3.22	3.15	3.41	3.63	3.53	3.65	3.02	3.02	2.94	3.72	4.38	4.12
6	2.83	2.82	4.08	3.61	3.63	3.63	3.14	2.93	3.00	4.05	4.61	3.74
7	3.14	3.14	3.32	3.92	3.71	3.28	3.16	2.98	3.12	3.62	4.49	3.64
8	3.12	2.90	3.35	3.82	4.07	3.17	3.01	3.02	3.17	3.73	4.41	3.85
9	3.07	2.95	3.65	3.60	3.94	3.26	2.95	2.92	2.95	4.21	4.56	4.06
10	3.08	3.20	3.43	3.49	3.72	3.42	2.92	2.92	3.17	4.61	4.40	3.76
11	3.09	2.97	3.53	3.45	3.68	3.33	3.06	2.89	2.96	4.16	4.53	3.33
12	3.02	3.33	3.37	3.48	3.92	3.34	2.94	2.82	3.25	4.62	4.64	3.62
13	3.18	3.07	3.13	3.65	4.00	3.38	3.01	3.07	2.97	4.43	4.21	3.72
14	2.90	3.10	3.12	3.76	4.08	3.59	3.59	3.13	3.10	2.99	4.50	3.53
15	3.43	3.29	3.30	4.01	3.88	3.08	3.06	2.84	3.27	4.42	4.13	3.88
16	3.14	2.84	3.54	3.85	3.72	3.42	3.21	2.69	3.14	4.41	3.90	3.21
17	2.98	2.84	3.49	4.15	3.71	3.41	3.35	2.76	3.48	4.41	3.96	3.95
18	3.21	3.16	3.47	3.80	3.71	3.48	2.85	3.27	3.26	4.53	4.32	3.55
19	3.16	3.16	3.90	3.82	4.10	3.26	2.79	3.16	3.48	4.43	4.68	3.38
20	2.97	2.99	3.83	3.88	3.92	3.72	2.77	3.33	3.58	4.78	4.40	3.57
21	2.94	2.87	3.58	4.08	3.91	3.20	3.02	3.25	3.65	4.61	4.45	3.62
22	3.23	3.40	3.39	4.08	4.15	3.23	3.05	3.28	3.51	4.70	4.52	4.03
23	2.91	3.67	3.55	4.08	3.78	3.26	3.22	3.24	3.45	4.44	4.23	4.04
24	2.75	3.05	3.68	3.98	3.44	3.36	3.19	3.14	3.25	4.45	4.36	3.76
25	3.05	3.37	3.57	3.75	3.85	3.29	2.95	3.11	3.24	4.85	4.22	3.04
26	2.99	3.64	3.69	3.64	3.77	3.18	3.33	3.28	4.08	4.98	4.08	2.87
27	3.00	3.79	3.52	3.56	4.06	3.33	2.88	3.39	3.58	4.85	4.24	3.29
28	2.59	3.40	3.54	3.64	3.85	3.17	3.07	3.23	3.56	4.95	3.79	3.49
29	2.85	3.59	3.59	3.75	3.70	3.18	3.27	3.27	3.59	4.90	3.68	3.45
30	2.98	3.55	4.30	3.55	3.10	3.10	3.33	2.89	3.51	4.83	3.72	3.49
31	2.88	3.66	3.66	3.80	3.80	3.80	3.04	2.85	3.04	4.60	3.79	3.79
Sum		87.94		113.42		101.64		95.26		135.98		113.51
	94.23		109.60		118.63		95.57		98.62		130.51	

Current Year 1995 Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			15	3.43	28	2.59	3.04	8,141	9,335	13,819	2,146
Feb.			27	3.79	6	2.82	3.14	7,598	9,007	14,787	2,023
Mar.			6	4.08	14	3.12	3.54	9,469	10,330	15,332	2,393
April			30	4.30	11	3.45	3.78	9,799	10,226	14,666	2,368
May			22	4.15	24	3.44	3.83	10,250	10,496	16,208	2,405
June			3	3.97	15	3.08	3.39	8,782	9,683	14,851	2,825
July			3	3.47	20	2.77	3.08	8,257	9,610	14,715	3,121
Aug.			27	3.39	16	2.69	3.07	8,230	9,609	14,752	3,158
Sept.			26	4.08	4	2.92	3.29	8,521	9,671	14,269	2,812
Oct.			26	4.98	1	3.38	4.39	11,749	11,146	15,277	3,626
Nov.			3	4.99	29	3.68	4.35	11,276	10,646	14,814	3,454
Dec.			5	4.12	26	2.87	3.66	9,807	10,049	14,160	3,022
Yearly				4.99		2.59	3.55	111,879	119,808	171,922	33,353

φ Mean daily

! And other days

09-5343.00 WEST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder located about 0.5 kilometer upstream from outlet to Yuma Main Drain, which is 53 meters upstream from East Main Canal Wasteway outlet and 0.6 kilometer west of San Luis, Arizona. Prior to August 1, 1975, the recorder was located about 46 meters upstream from outlet to Yuma Main Drain.

RECORDS: Wasteway discharges computed by United States Section of the Commission beginning February 23, 1971, from water-stage recorder and ratings as determined by current meter measurements. Records available: February 23, 1971 through 1995.

REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal and this water is considered as part of the volumes arriving at the land boundary at San Luis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.32	0.13	0.03	0.11	0.18	0.27	0.12	0.14	0.27	0.13	0.49	0.26
2	.27	.13	0	.16	.04	.11	.21	.32	.51	.44	.48	.25
3	.14	.13	0	.28	.35	.12	.36	.15	.10	.29	.19	.15
4	.01	.14	.06	.09	.49	.28	.19	.24	.20	.30	.08	.05
5	.43	.04	.10	.19	.52	.17	.34	.03	.07	.14	.53	.09
6	.62	.26	.59	.33	.13	.01	.45	.21	.22	.11	.17	.02
7	.56	.28	.10	.35	.12	.39	.37	.31	.36	.23	.05	.04
8	.59	.10	.27	.30	.24	.51	.24	.29	.29	.19	.26	.10
9	.49	.10	.14	.25	.24	.31	.27	.15	.02	.14	.21	.05
10	.49	.10	.03	.31	.24	.03	.26	.39	.36	.33	.28	.13
11	.64	.10	.01	.24	.24	.08	.24	.48	.15	.15	.08	.55
12	.39	.10	.20	.12	.40	.08	.29	.15	.43	.13	.03	.10
13	.27	.10	.18	.28	.28	.24	.15	.36	.35	.33	.01	.02
14	.32	.10	.30	.34	.30	.32	.32	.26	.53	.38	.10	.09
15	.28	.10	.32	.09	.23	.12	.22	.47	.34	.28	.25	.12
16	.25	.16	.28	.19	.24	.17	.21	.27	.07	.03	.22	.27
17	.34	.01	.38	.65	.15	.35	.47	.21	.16	.03	.10	.22
18	.60	.08	.32	.05	.21	.16	.16	.42	.06	.16	.10	.14
19	.58	.01	.18	.01	.28	.43	.28	.25	.63	.39	.24	.36
20	.61	.04	.19	.20	.32	.07	.14	.03	.72	.39	.28	.15
21	.63	0	.27	.54	.16	.12	.16	.19	.02	.46	.11	.06
22	.60	.11	.19	.31	.38	.17	.26	.20	.01	.23	.40	.26
23	.64	.43	.38	.38	.35	.03	.04	.13	.04	.45	.14	.19
24	.33	.32	.29	.20	.30	0	.26	.06	.04	.20	.32	.44
25	.49	.19	.05	.27	.27	.03	.09	.21	0	.23	.17	.46
26	.33	.28	.16	.20	.36	.11	.22	.24	.10	.29	.26	.25
27	.08	.41	.32	.26	.47	.04	.28	.23	.29	.34	.36	.12
28	.19	.09	.04	.28	.21	.31	.08	.27	.29	.21	.21	.01
29	.12	.09	.22	.40	.38	.44	.33	.29	.01	.06	.21	.04
30	.10	.25	.15	.19	.19	.23	.10	.10	.01	.27	.16	.29
31	.14	.12	.12	.12	.12	.12	.39	.03	.03	.20	.33	.33
Sum	11.87	4.04	5.97	7.53	8.39	5.90	7.50	7.08	6.65	7.51	6.49	5.61
Current Year 1995										Period 1971-1995		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum	
Jan.	0.725	0.010	23	1.02	13	0	0.38	1,026	560	1,376	48.7	
Feb.	.700	0	27	.94	121	0	.14	349	520	840	196	
Mar.	.730	0	5	1.03	110	0	.19	516	558	1,158	250	
April	.720	.015	21	1.00	112	0	.25	651	504	1,280	202	
May	.730	.005	27	1.04	131	0	.27	725	440	725	183	
June	.750	0	17	1.09	16	0	.20	510	406	699	55.8	
July	.705	.005	117	.95	125	0	.24	648	426	763	77.3	
Aug.	.680	.010	11	.85	117	0	.23	612	476	950	121	
Sept.	.760	.010	20	1.13	129	0	.22	575	497	947	234	
Oct.	.735	.010	4	1.06	11	0	.24	649	488	898	164	
Nov.	.770	.015	1	1.17	121	0	.22	561	452	845	32.3	
Dec.	.750	.010	11	1.09	114	0	.18	485	547	1,204	43.5	
Yearly	0.770	0		1.17		0	0.23	7,307	5,874	8,934	3,179	

! And other days

09-5345.50 242 WELL FIELD NEAR SAN LUIS, ARIZONA

DESCRIPTION: Water-stage recorder and 3.7-meter Parshall flume located 31 meters upstream from confluence of East Main Canal Wasteway, 34 meters north of the southerly land boundary, and 2.3 kilometers east of the Colorado River.
 RECORDS: Based on current meter measurements and a continuous record of gage heights. The station is operated by the United States Section of the Commission. Records available: October 18, 1978 through 1995.
 REMARKS: Records show the pumping of ground water from the 242 well field east of San Luis, Arizona. This water is considered as part of the volumes arriving at the land boundary at San Luis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	1.35	1.62	0	0	0	0.37	0.86	0.80	0	0
2	0	0	.59	1.62	0	0	0	.76	.87	.80	0	0
3	0	.16	.31	1.60	0	0	0	.76	.87	.81	0	0
4	0	.57	.67	1.59	0	0	0	.76	.87	.82	0	0
5	0	.65	.66	1.60	0	0	0	.76	.87	.82	0	0
6	0	.73	.67	1.60	0	0	.18	.76	.87	.83	0	0
7	0	.82	.68	1.60	0	0	.16	.76	.87	.82	.07	0
8	0	.96	.78	1.60	0	0	0	.76	.87	.80	.19	0
9	0	1.19	.91	1.60	0	0	0	.76	.87	.78	.12	0
10	0	1.34	.91	1.64	0	0	0	.78	.89	.52	0	0
11	0	1.33	.93	1.64	0	0	0	.75	.89	0	0	0
12	0	1.33	.95	1.60	0	0	0	.75	.87	0	0	0
13	0	1.33	.94	1.55	0	0	0	.75	.85	0	.07	0
14	0	.53	.97	1.54	0	0	0	.75	.85	0	.18	.31
15	0	.77	1.00	1.53	0	0	0	.77	.84	0	.16	.71
16	0	1.55	.95	1.49	0	0	0	.79	.85	0	.01	.73
17	0	1.69	.83	1.50	0	0	0	1.14	.85	0	0	.74
18	0	1.65	.82	1.52	0	0	0	1.33	.85	0	0	.75
19	0	1.64	.81	1.34	0	.34	0	.39	.86	0	0	.75
20	0	1.64	1.04	1.06	0	.69	.06	.40	.86	0	0	.78
21	0	1.65	1.61	1.08	0	0	0	.55	.86	0	0	.78
22	0	1.71	1.61	1.08	0	0	0	.95	.82	0	0	.78
23	0	1.87	1.62	1.09	0	0	0	.93	.81	0	0	.78
24	0	1.86	1.61	.76	0	0	.05	.96	.81	0	0	.79
25	0	1.86	1.62	0	0	0	.05	.93	.80	0	0	.80
26	0	1.86	1.62	0	0	0	0	.92	.80	0	0	.81
27	0	1.86	1.63	0	0	0	.04	.89	.78	0	0	.82
28	0	1.87	1.63	0	0	0	0	.92	.79	0	0	.82
29	0		1.62	0	0	0	0	.89	.79	0	0	.82
30	0		1.62	0	0	0	0	.87	.79	0	0	.81
31	0		1.62	0	0	0	.05	.85	.87	0	0	.81
Sum	0	34.42	34.58	34.85	0	1.03	0.59	24.71	25.34	7.80	0.80	13.59

Current Year 1995

Period 1979-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High		Day		Total	Average	Maximum	Minimum
				Day	Low						
Jan.	0	0	!	0	!	1	0	0	955	3,406	0
Feb.	.390	0	23	2.04	!	1	1.23	2,974	1,411	3,677	0
Mar.	.370	.010	1	1.88	3		1.12	2,988	1,384	4,717	0
April	.365	0	11	1.73	125		1.16	3,011	1,593	4,265	0
May	0	0	!	0	!	1	0	0	1,560	4,269	0
June	.300	0	21	1.36	!	1	.03	89.0	1,506	4,272	26.4
July	.120	0	!	.34	!	1	.02	51.0	1,746	5,868	20.1
Aug.	.350	0	17	1.69	1		.80	2,135	1,614	4,988	0
Sept.	.290	.185	20	1.19	22		.56	2,189	1,397	3,397	0
Oct.	.300	0	6	1.25	111		.25	674	1,011	3,344	0
Nov.	.090	0	8	.22	!	1	0	.03	69.1	2,101	0
Dec.	.255	0	18	.96	!	1	0	.44	1,174	926	3,654
Yearly	0.390	0		2.04		0	0.49	15,354	15,530	38,461	201

! And other days

09-5348.00 TOTAL FLOWS CROSSING INTERNATIONAL BOUNDARY INTO MEXICO NEAR SAN LUIS, SONORA

DESCRIPTION: The tabulated data below are the combined flows of the East Main Canal Wasteway, West Main Canal Wasteway, 242 Lateral, and the Yuma Main Drain and represent the total water crossing the international land boundary into the Sanchez Mejorada Canal near San Luis, Arizona. The mean daily discharges are combined and rounded and the monthly volumes are obtained by adding the volumes of the four stations.

RECORDS: Records obtained and computed by the United States Section of the Commission. Records available: February 23, 1971 through 1995; 242 Lateral from November 1978 through 1995.

REMARKS: Descriptions and flows of the individual stations, East Main Canal Wasteway, West Main Canal Wasteway, the Yuma Main Drain, and 242 Lateral are published separately on preceding pages of this bulletin.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.78	3.37	5.03	5.36	4.42	4.00	3.50	4.23	4.44	4.57	5.65	4.54
2	3.67	3.63	4.35	6.33	4.36	3.62	3.85	4.98	4.97	5.00	5.65	4.55
3	3.41	3.40	4.55	6.22	4.38	4.09	4.02	4.23	4.19	5.38	5.47	4.47
4	3.55	3.71	4.67	5.73	4.46	4.06	3.40	4.28	4.47	5.45	4.91	4.20
5	4.12	3.98	4.28	5.55	4.63	4.22	3.71	3.86	4.17	4.70	5.17	4.53
6	3.92	4.43	5.66	5.81	4.02	3.67	3.96	4.16	4.62	5.03	4.92	4.21
7	4.12	4.38	4.13	6.44	3.84	3.71	3.75	4.31	4.83	4.97	4.98	4.43
8	4.16	4.24	4.43	6.27	4.61	3.80	3.27	4.12	4.45	5.01	5.19	4.33
9	3.97	4.54	4.92	6.17	4.82	3.71	3.53	3.97	4.19	5.56	5.42	4.13
10	3.89	5.05	4.38	5.78	4.62	3.86	3.56	4.13	4.62	5.99	4.92	4.44
11	4.07	4.74	4.79	5.35	4.34	3.87	3.72	4.41	4.34	4.47	4.70	4.04
12	3.75	5.10	5.02	5.21	4.80	3.54	3.61	4.02	4.82	5.09	4.88	3.83
13	3.73	4.65	4.55	5.50	4.64	3.77	3.34	4.38	4.19	5.13	4.88	3.97
14	3.63	3.89	4.60	5.83	4.89	4.16	3.67	4.44	4.61	5.29	5.37	4.29
15	4.00	4.33	4.85	5.74	4.77	3.38	3.62	4.38	4.46	5.08	4.81	5.17
16	3.88	5.03	5.05	5.59	4.51	3.62	3.70	3.77	4.31	4.59	4.37	4.73
17	3.75	4.83	5.10	6.31	4.33	3.79	3.99	4.39	4.99	4.45	4.31	5.55
18	4.16	5.03	4.70	5.41	4.55	3.86	3.06	5.08	4.59	4.98	4.54	4.85
19	3.87	4.96	5.02	5.69	4.69	4.04	3.53	3.95	5.31	5.31	5.33	4.78
20	3.86	4.83	5.08	5.75	4.73	4.46	3.12	3.93	5.19	5.63	5.06	4.78
21	3.70	4.72	5.82	6.43	4.37	4.13	3.48	4.20	4.57	5.30	5.18	4.59
22	3.98	5.47	5.37	5.96	5.22	3.76	3.61	4.88	4.66	5.05	5.25	5.46
23	3.66	6.09	5.79	6.05	4.48	3.56	3.65	4.60	4.68	4.91	4.70	5.22
24	3.22	5.58	6.00	5.00	4.04	3.66	3.77	4.52	4.17	4.96	5.01	5.72
25	4.10	5.47	5.70	4.04	4.33	3.83	3.16	4.85	4.38	5.39	4.72	5.03
26	3.55	6.32	5.50	3.95	4.32	3.64	3.66	4.76	5.24	5.59	4.67	4.31
27	3.54	6.83	5.63	4.09	4.77	3.74	3.43	4.83	4.91	5.64	4.93	4.27
28	3.25	5.74	5.26	3.98	4.29	4.00	3.19	4.78	4.90	5.54	4.33	4.38
29	3.56		5.50	4.27	4.25	4.01	4.02	4.72	4.65	5.20	4.22	4.45
30	3.82		5.57	4.66	3.99	3.61	3.63	4.24	4.57	5.53	4.21	4.76
31	3.14		5.60		3.94		3.89	3.90		5.31		5.45
Sum	116.81	134.34	156.90	164.47	138.41	115.17	111.40	135.30	138.49	160.10	147.75	143.46

Current Year 1995

Period 1935-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			! 8	4.16	31	3.14	3.77	10,092	11,991	14,963	2,619
Feb.			27	6.83	1	3.37	4.80	11,607	11,889	15,998	2,495
Mar.			24	6.00	7	4.13	5.06	13,556	13,360	16,904	2,864
Apr.			7	6.44	26	3.95	5.48	14,210	13,381	16,013	2,611
May			22	5.22	7	3.84	4.46	11,959	13,694	17,145	3,050
June			20	4.46	15	3.38	3.84	9,951	12,590	15,505	3,115
July			3	5.02	18	3.06	3.59	9,625	12,850	15,320	3,610
Aug.			18	4.08	16	3.77	4.36	11,690	12,802	15,612	3,687
Sept.			19	5.31	! 5	4.17	4.62	11,966	12,608	15,357	3,210
Oct.			10	5.99	17	4.45	5.16	13,833	13,736	17,143	4,248
Nov.			! 1	5.65	30	4.21	4.93	12,766	12,715	15,680	4,202
Dec.			24	5.72	12	3.83	4.63	12,395	12,687	14,863	3,562
Yearly				6.83		3.06	4.56	143,650	154,303	183,801	39,274

φ Mean daily

! And other days

09-5222.00 COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder was located in Mexico on the right bank of the river about 305 meters upstream from the southerly international boundary, 3.2 kilometers west of San Luis, Arizona, and 35 kilometers downstream from Morelos Dam. The zero of the gage was at mean sea level, U. S. C. & G. S. datum. This gage was destroyed on January 19, 1983. Between January 19, 1983 and December 10, 1985, temporary gages were installed on the United States side and levels were established to ensure continuous record. On December 10, 1985 a permanent water-stage recorder was relocated on the left bank of the river about 24 meters upstream from the southerly international boundary.

RECORDS: Records obtained and furnished by the United States Section of the Commission. Computations by shifting control methods. Records available: Daily discharges, January 1950 through 1995; continuous record of gage heights, January 1947 through 1993. During 1993, from January 1 to February 4 and May 1, 1993 to December 31, 1994, the gage was inoperable.

Records of gage height and discharge were estimated from instantaneous observations and discharge measurements. Monthly flows for this station have been derived for the period January 1935 through 1949 based on the computed records of monthly flows of the Colorado River at the northerly international boundary combined with the measured flows from the wasteways discharging into the boundary section of the river from the Yuma Project in Arizona.

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

EXTREMES: Since January 1950: Maximum instantaneous discharge, 937 CMS on August 19, 1983; maximum gage height, 25.860 meters on November 29, 1957. Minimum discharge, no flow on several occasions since September 1, 1956.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.0	20.8	0	0	0	7.14	0	0	0	0	0	0
2	10.6	16.2	0	0	0	5.30	0	0	0	0	0	0
3	8.44	6.40	0	0	0	4.22	0	0	0	0	0	0
4	12.7	1.12	0	0	0	3.88	0	0	0	0	0	0
5	36.0	.07	0	0	0	3.85	0	0	0	0	0	0
6	67.7	.07	0	0	0	3.91	0	0	0	0	0	0
7	76.5	.09	0	0	0	3.85	0	0	0	0	0	0
8	40.8	.12	0	0	0	3.85	0	0	0	0	0	0
9	28.1	.12	0	0	0	3.91	0	0	0	0	0	0
10	25.2	.08	0	0	0	2.86	0	0	0	0	0	0
11	22.4	.05	0	0	0	.02	0	0	0	0	0	0
12	17.3	.03	0	0	0	0	0	0	0	0	0	0
13	17.4	.03	0	0	0	0	0	0	0	0	0	0
14	18.3	.02	0	0	0	0	0	0	0	0	0	0
15	17.4	1.06	0	0	0	0	0	0	0	0	0	0
16	18.1	7.16	0	0	0	0	0	0	0	0	0	0
17	16.7	.05	0	0	0	0	0	0	0	0	0	0
18	17.2	.03	0	0	0	0	0	0	0	0	0	0
19	16.5	.01	0	0	.01	0	0	0	0	0	0	0
20	15.0	.01	0	0	.44	0	0	0	0	0	0	0
21	13.1	.01	0	0	6.66	0	0	0	0	0	0	0
22	7.36	.01	0	0	10.8	0	0	0	0	0	0	0
23	7.73	0	0	0	11.7	0	0	0	0	0	0	0
24	7.90	0	0	0	13.1	0	0	0	0	0	0	0
25	.31	0	0	0	13.6	0	0	0	0	0	0	0
26	2.16	0	0	0	14.1	0	0	0	0	0	0	0
27	14.3	0	0	0	14.6	0	0	0	0	0	0	0
28	17.8	0	0	0	16.3	0	0	0	0	0	0	0
29	18.4	0	0	0	16.6	0	0	0	0	0	0	0
30	20.2	0	0	0	16.1	0	0	0	0	0	0	0
31	21.0	0	0	0	11.2	0	0	0	0	0	0	0
Sum	628.60	53.54	0	0	145.21	42.79	0	0	0	0	0	0
Current Year 1995										Period 1935-1995		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum	
Jan.	23.320	21.995	7	79.9	26	0.22	20.3	54,311	424,029	2,062,379	0	
Feb.	22.800	21.765	1	23.1	115	0	1.91	4,626	347,283	1,708,370	0	
Mar.	21.765	21.765	1	0	1	0	0	0	294,761	1,458,432	0	
April	21.765	21.765	1	0	1	0	0	0	195,494	947,722	0	
May	22.665	21.765	128	16.7	1	0	4.68	12,546	263,491	1,430,837	0	
June	22.390	21.840	1	7.99	111	0	1.43	3,697	225,154	1,455,506	0	
July	21.840	21.840	1	0	1	0	0	0	193,772	1,821,962	0	
Aug.	21.840	21.840	1	0	1	0	0	0	207,608	2,103,318	0	
Sept.	21.840	21.840	1	0	1	0	0	0	232,367	1,956,768	0	
Oct.	21.840	21.840	1	0	1	0	0	0	276,097	2,144,909	0	
Nov.	21.840	21.840	1	0	1	0	0	0	319,988	1,761,409	0	
Dec.	21.840	21.840	1	0	1	0	0	0	391,715	2,268,370	0	
Yearly	23.320	21.765		79.9		0	2.38	75,180	3,371,739	15,656,495	1,398	

1 And other days

09-5333.00 WELLTON-MOHAWK BYPASS DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder and Parshall flume located 24 meters upstream from the southerly land boundary, 168 meters east of the Colorado River, and 2.9 kilometers west of San Luis, Arizona. The zero of the gage has not been determined.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Station is operated by United States Section of the Commission. Records available: June 23, 1977 through 1995.

REMARKS: Pursuant to Minute No. 242 of the Commission, a bypass drain of the Wellton-Mohawk extension channel was constructed from Morelos Dam to the Santa Clara Slough in Mexico along the left bank of the Colorado River.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.27	5.74	5.53	4.31	5.43	5.20	6.11	4.85	3.27	4.56	4.54	0.82
2	5.32	5.73	5.33	4.39	5.35	5.38	6.24	4.83	.65	4.45	4.58	.72
3	5.32	5.63	5.31	4.36	5.26	5.17	6.28	5.04	.82	4.31	4.49	1.64
4	5.36	5.63	5.25	4.34	5.22	5.16	6.34	4.95	.88	4.36	4.74	1.86
5	5.35	5.67	5.32	4.39	5.12	5.14	6.52	4.93	.82	4.44	4.85	1.62
6	5.22	5.66	5.14	4.45	5.14	4.91	6.46	4.96	1.83	4.45	4.41	3.04
7	5.23	5.64	4.41	4.42	5.14	5.02	6.32	5.04	3.30	4.42	3.78	4.40
8	5.17	5.89	4.38	4.67	5.17	5.13	6.26	5.14	4.52	4.55	3.57	5.52
9	5.17	5.78	4.25	4.98	5.19	5.31	6.19	5.18	4.94	4.62	3.54	5.43
10	5.34	5.79	4.37	4.87	5.23	5.21	6.23	4.88	5.43	4.56	3.50	5.48
11	5.47	5.77	4.34	4.88	5.22	5.11	5.90	5.09	5.89	4.60	3.43	5.42
12	5.45	5.67	4.60	4.91	4.76	5.17	5.84	5.23	5.93	4.57	3.57	5.37
13	5.38	5.72	4.55	4.87	5.49	5.19	5.78	5.29	5.46	4.66	3.79	5.44
14	5.33	5.66	4.47	4.78	5.63	5.20	5.77	5.38	5.44	4.49	3.80	5.36
15	5.31	5.05	4.45	4.91	5.70	5.25	5.91	5.46	5.41	4.48	3.73	5.26
16	5.31	5.65	4.51	5.04	5.62	5.19	5.92	5.58	5.16	4.55	4.00	5.20
17	5.21	5.75	4.46	5.08	5.46	5.32	5.91	5.57	4.91	4.66	3.20	5.14
18	5.14	5.75	4.32	4.96	5.34	5.47	5.84	5.48	5.05	4.59	3.18	5.12
19	5.22	5.72	4.32	5.09	5.28	5.52	5.84	5.56	4.92	4.48	3.11	5.12
20	5.45	5.72	4.53	4.91	5.34	5.55	5.69	5.55	4.84	4.50	3.02	5.33
21	5.59	5.82	4.49	4.74	5.37	5.49	5.65	5.55	4.76	4.44	3.21	5.52
22	5.54	5.87	4.39	5.10	5.38	5.48	5.57	5.53	4.80	4.48	3.38	5.47
23	4.46	5.65	4.40	5.19	5.48	5.42	5.40	5.30	4.77	4.34	3.16	5.66
24	5.70	5.64	4.31	5.18	5.45	5.49	5.34	5.37	4.65	4.36	3.04	5.64
25	5.63	5.78	4.31	5.15	5.28	5.60	5.24	5.47	4.78	4.47	1.61	5.53
26	5.86	5.82	4.23	5.21	5.30	5.65	5.03	5.39	4.89	4.32	1.64	5.52
27	5.68	5.81	4.18	5.30	5.33	5.68	4.94	5.30	4.67	4.29	.62	5.51
28	5.68	5.67	4.31	5.38	5.36	5.77	4.99	5.29	4.43	4.34	.85	5.64
29	5.75		4.44	5.45	5.46	5.89	4.97	5.11	4.42	4.40	.82	5.99
30	5.67		4.46	5.43	5.38	6.01	4.95	5.35	4.40	4.57	.83	5.99
31	5.64		4.43		5.31		4.90	5.11		4.63		5.97
Sum	167.22	159.66	141.79	146.74	165.19	161.08	178.33	162.76	126.04	138.92	95.97	145.93

Current Year 1995

Period 1977-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters				
	High	Low	Day	High	Average		Total	Average	Maximum	Minimum	
					Day	Low					
Jan.	0.585	0.280	26	6.08	23	1.80	5.39	14,448	14,459	21,638	7,412
Feb.	.595	.520	8	6.13	15	4.90	5.70	13,795	13,927	18,374	8,506
Mar.	.570	.470	1	5.59	9	4.08	4.57	12,251	15,415	21,496	11,420
April	.550	.415	29	5.48	21	3.42	4.89	12,678	14,195	20,613	3,445
May	.565	.480	15	5.77	12	4.47	5.33	14,272	14,419	20,732	5,215
June	.570	.490	30	6.11	6	4.64	5.37	13,917	13,064	19,842	2,227
July	.610	.515	6	6.86	31	4.87	5.75	15,408	13,952	22,235	3,718
Aug.	.565	.460	116	5.69	31	4.11	5.25	14,062	14,184	22,444	3,656
Sept.	.585	.100	12	6.20	6	.36	4.20	10,890	13,135	23,538	51.4
Oct.	.510	.465	13	4.79	26	4.18	4.48	12,003	13,690	23,600	23.9
Nov.	.510	.095	5	4.93	25	.34	3.20	8,292	12,544	20,944	59.2
Dec.	.570	.100	29	6.08	2	.38	4.71	12,608	13,281	22,518	138
Yearly	0.610	0.095		6.86		0.34	4.90	154,624	166,265	222,488	75,784

! And other days

09-5350.00 WASTEWAY TO COLORADO RIVER AT KILOMETER 27 IN MEXICO

DESCRIPTION: Water-stage recorder and cableway located on the left bank of the canal wasteway immediately upstream from where it discharges into the Colorado River, 1.0 kilometer downstream from the wasteway gates on the Central Feeder Canal on the right bank of the Colorado River, 27 kilometers downstream from Morelos Dam, and 250 meters south of the junction of the Mexicali-San Luis and Algodones-Pescaderos highways.

RECORDS: Data obtained and computed by the Colorado River Irrigation District No. 14 of the National Water Commission and furnished by the Mexican Section of the Commission. Records shown in table below are waste returns to the Colorado River. Records available: April 1956 through 1995.

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

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1956 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	15,255	11,251	85,761	0
February	2,872	5,627	50,898	0
March	51.8	8,150	72,049	0
April	360	13,902	85,372	0
May	19,020	13,752	99,576	0
June	17,433	11,902	61,705	0
July	242	12,352	56,912	0
August	0	18,085	132,183	0
September	0	14,246	83,943	0
October	0	12,908	136,198	0
November	0	12,797	122,170	0
December	0	11,199	86,607	0
Yearly	55,235	147,503	628,347	0

09-5365.00 WASTEWAY TO COLORADO RIVER AT KILOMETER 38 IN MEXICO

DESCRIPTION: Wasteway to the Colorado River on the left bank of new Barrote Canal at old dam and bridge at Kilometer 18+251 (old Kilometer 38+000). The wasteway is located in the Colonia Bojorquez 1.3 kilometers upstream from the Sonora-Baja California railroad bridge, 5.9 kilometers downstream from the Miguel C. Rodriguez gaging station, and 45 kilometers downstream from the southerly international boundary.

RECORDS: The records are computed by the National Water Commission and are based upon gate openings. Records available: January 1964 through 1995.

REMARKS: The wasteway structure on the left bank of the Colorado River has two manually operated radial gates 3.0 meters wide. It discharges into a dirt canal 200 meters long with a total capacity of 13.0 CMS which discharges to the river.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1964 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	4,955	1,889	10,541	0
February	0	1,412	12,035	0
March	0	737	5,932	0
April	0	393	5,555	0
May	0	1,456	14,246	0
June	0	839	8,585	0
July	0	703	9,114	0
August	0	1,141	17,765	0
September	0	2,217	16,855	0
October	0	4,551	28,669	0
November	0	2,835	25,263	0
December	0	2,349	13,380	0
Yearly	4,955	19,939	103,228	0

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 million cubic meters. The capacities indicated are usable capacities at the top of the spillway gates in closed position for those dams having controlled spillways; for all others, capacities indicated are at spillway level. Records furnished by the U.S. Geological Survey.

IN MILLION CUBIC METERS

Month	LAKE MEAD (Capacity 32,267)		LAKE MOHAVE (Capacity 2,233)		HAVASU LAKE (Capacity 764)		TOTAL IN UNITED STATES RESERVOIRS (Capacity 35,263)	
	1995	Average 1935-1995	1995	Average 1951-1995	1995	Average 1939-1995	1995	Estimated Average
Jan.	24,904.0	22,908.7	2,031.7	2,053.3	701.5	683.0	27,637.2	25,645.0
Feb.	25,267.8	22,759.7	1,982.9	2,066.3	702.8	685.4	27,953.5	25,511.4
Mar.	25,216.0	22,475.7	2,096.3	2,070.5	674.5	703.4	27,986.8	25,249.6
April	24,791.7	22,505.1	2,147.0	2,054.0	736.8	738.6	27,675.5	25,297.7
May	24,572.2	23,256.6	2,130.0	2,126.3	744.3	744.3	27,446.5	26,127.2
June	24,685.6	24,397.8	2,094.3	2,018.3	755.1	740.6	27,535.0	27,156.7
July	24,966.9	24,553.8	2,020.1	1,874.5	704.7	726.6	27,691.7	27,154.9
Aug.	25,122.3	24,344.4	2,048.7	1,822.5	737.4	709.8	27,908.4	26,876.7
Sept.	25,550.3	24,115.0	2,016.9	1,783.2	725.7	702.3	28,292.9	26,640.5
Oct.	25,857.4	23,872.2	1,929.9	1,788.4	735.8	699.4	28,523.1	26,360.0
Nov.	26,456.9	23,701.1	1,786.3	1,865.7	691.5	688.0	28,934.7	26,254.8
Dec.	26,674.0	23,515.8	2,009.8	1,976.3	683.5	686.8	29,367.3	26,178.9
Avg.	25,338.8	23,533.8	2,024.5	1,958.3	716.1	709.0	28,079.4	26,204.5
Max.	26,674.0	!34,266.1	2,147.0	!2,230.1	755.1	! 849.5	29,367.3	! 35,934.1
Min.	24,572.2	*13,231.5	1,786.3	!!1,462.9	674.5	!! 94.9	27,446.5	!!16,112.5

! Maximum end of month storage for period of record

!! Minimum end of month storage for period of record

* Minimum end of month storage since 1940

SUSPENDED SILT - 1995

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.

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY

Date	Time Std.	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time Std.	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time Std.	Stream-flow, Momentary CMS	Gravimetric Percent
Jan. 05	0839	87.4	0.0169	May 11	0745	72.4	0.1021	Sep. 07	1016	40.1	0.0204
11	0833	41.2	0.0108	18	0925	77.0	0.0085	14	0655	39.8	0.0155
18	0850	56.9	0.0077	25	0750	81.4	0.0093	21	0743	38.0	0.0219
Feb. 02	0845	71.5	0.0078	Jun. 01	0741	74.5	0.0217	27	0750	40.2	0.0142
09	0925	67.1	0.0096	08	0738	81.0	0.0499	Oct. 05	0745	31.8	0.0214
16	0920	81.2	0.0215	15	0744	94.4	0.0323	12	0750	31.8	0.0144
23	0902	84.5	0.0194	22	0925	99.1	0.0417	19	0735	34.3	0.0297
Mar. 03	1058	76.9	0.0071	29	0805	89.0	0.0676	26	0705	31.1	0.0085
08	0836	76.9	0.0468	Jul. 06	0900	92.4	0.0436	Nov 02	0810	36.8	0.0116
15	0940	83.6	0.0076	13	0850	91.9	0.0559	09	0845	42.7	0.0121
23	0840	77.5	0.0286	20	1005	96.2	0.0829	16	0907	47.7	0.0227
30	1014	82.1	0.0069	27	0947	89.5	0.0788	22	0800	48.1	0.0044
Apr. 06	1010	78.8	0.0048	Aug. 03	0738	37.5	0.0150	30	0842	50.7	0.0258
13	0735	66.8	0.0052	10	0725	37.9	0.0173	Dec. 07	0900	44.6	0.0174
20	0815	70.5	0.1047	17	0725	42.1	0.0170	14	0845	45.1	0.0203
27	0940	68.9	0.0623	24	0752	63.3	0.0216	29	0835	41.9	0.0137
May 04	0740	69.1	0.0417	31	0904	36.9	0.0140				

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

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

Month	Monthly Weight Megagrams		Number of Samples	Gravimetric Percentages			* Silt Volume - Thousand Cubic Meters			
	Water	Silt		Average	Maximum Sample	Minimum Sample	Total 1995	Period 1952 - 1995		
								Average	Maximum	Minimum
Jan.	101,762,000	2,710	4	0.0027	0.0053	0.0010	2.0	11.0	62.2	0.30
Feb.	186,667,000	9,686	4	0.0052	0.0079	0.0010	7.1	13.9	127.8	1.10
Mar.	212,069,000	10,843	5	0.0051	0.0080	0.0024	8.0	57.9	605.2	3.32
April	193,104,000	8,351	4	0.0043	0.0065	0.0017	6.1	63.0	856.8	4.49
May	182,658,000	6,018	5	0.0033	0.0055	0.0020	4.4	20.6	318.2	1.36
June	222,108,000	10,962	4	0.0049	0.0079	0.0025	8.0	34.8	256.6	2.53
July	242,300,000	25,682	4	0.0103	0.0137	0.0079	18.9	46.3	192.3	4.14
Aug.	113,219,000	7,127	5	0.0063	0.0145	0.0034	5.2	40.4	166.9	4.02
Sept.	102,237,000	5,792	3	0.0057	0.0111	0.0007	4.2	18.6	79.8	1.78
Oct.	85,735,000	20,885	4	0.0244	0.0553	0.0003	15.3	9.8	124.0	0.04
Nov.	117,971,000	26,425	4	0.0224	0.0436	0.0055	19.4	9.9	165.2	0.30
Dec.	114,532,000	30,984	4	0.0271	0.0635	0.0011	22.8	9.9	54.4	0.84
Year	1,874,362,000	165,465	50	0.0101	0.0635	0.0003	121.5	336.1	2,706.5	40.2

* Volume calculated at 1.362 megagrams per cubic meter

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

Date	Time Std.	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time Std.	Stream-flow, Momentary CMS	Gravimetric Percent
Jan. 05	1315	37.0	0.0033				

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

CHEMICAL ANALYSES OF WATER SAMPLES
1995

The tables below are based on chemical analyses of samples from the Colorado River taken at the Northerly International Boundary by the United States Section of the Commission and analyzed under a contract with the U. S. Bureau of Reclamation.

Colorado River at Northerly International Boundary

1995	Time	Streamflow	Specific	pH	Hardness,	Hardness,	Calcium	Magnesium
Date	Standard	Momentary	Conductance		Total	Noncarbonate	ion (Ca),	ion (Mg),
		CMS	Microsiemens/ cm	Units	(as CaCO ₃)	(CaCO ₃)	Dissolved	Dissolved
					mg/L	mg/L	mg/L	mg/L
Jan. 3	0830	38.9	1840	8.2	459.80	244.10	115.0	41.5
17	0915	54.1	1900	8.3	469.79	245.59	118.0	42.1
Feb. 6	0900	69.4	1440	8.3	379.33	208.03	93.1	35.3
21	0900	85.2	1370	8.3	359.79	204.39	88.3	33.5
Mar. 7	0945	79.5	1270	8.3	347.94	197.14	85.7	32.2
20	0830	81.1	1210	8.3	318.12	162.82	78.1	29.6
April 3	0810	77.6	1340	8.3	355.46	200.46	88.4	32.4
17	0830	63.8	1390	8.3	352.92	186.62	87.7	32.2
May 1	0730	67.9	1210	8.4	269.85	108.85	67.8	24.2
15	0800	71.4	1220	8.4	268.07	105.17	66.6	24.5
June 5	0715	81.6	1240	8.4	256.01	92.71	64.6	22.8
19	0740	91.0	1300	8.4	266.82	105.22	66.6	24.2
July 3	#	98.8	1390	8.3	282.11	125.11	69.4	26.2
17	0800	97.2	1442	8.3	279.02	134.82	67.0	26.9
Aug. 7	0730	38.7	1780	8.4	389.71	207.51	94.0	37.3
21	0730	42.1	1590	8.3	374.30	199.70	90.8	35.5
Sept. 5	0800	40.0	1440	8.4	349.29	190.09	85.1	32.9
18	0715	37.1	1520	8.3	372.25	207.55	90.8	35.0
Oct. 2	0700	33.9	1540	8.3	391.67	223.17	95.4	36.9
16	0800	32.2	1590	8.2	398.44	226.64	98.3	36.8
Nov. 6	0730	41.5	1570	8.3	377.07	206.07	90.7	36.2
20	0800	47.0	1650	8.2	409.30	235.30	98.3	39.4
Dec. 4	0800	46.3	1570	8.2	384.11	213.11	92.7	36.7
18	0830	N.R.	1710	8.2	418.96	235.96	102.0	39.5

N.R. - None Reported
Missing Data

1995	Sodium	Potassium	Sulfate	Chloride	Carbonate	Bicarbonate	Nitrate	Total
Date	ion (Na),	ion (K)	ion (SO ₄)	ion (Cl),	(as CO ₃)	(as HCO ₃)	(as NO ₃)	Solids
	Dissolved	Dissolved	Dissolved	Dissolved				Dissolved
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(Calculated)
Jan. 3	228	5.9	397	231	N.D.	263	1.7	1,160
17	262	5.6	427	247	N.D.	274	1.3	1,240
Feb. 6	171	5.2	358	160	N.D.	209	1.3	918
21	152	5.2	318	151	N.D.	190	1.4	854
Mar. 7	137	5.2	303	136	N.D.	184	1.2	802
20	131	5.2	263	131	N.D.	189	1.5	744
April 3	144	4.9	351	150	0.2	189	1.5	744
17	149	4.8	285	164	0.5	202	1.6	837
May 1	139	4.2	173	181	2.2	192	0.2	697
15	146	4.3	166	192	2.4	194	N.D.	712
June 5	147	4.8	139	204	1.6	196	0.6	694
19	160	5.2	153	218	1.2	195	0.3	735
July 3	173	5.7	171	248	0.2	191	0.4	801
17	183	6.1	183	255	0.1	176	0.3	821
Aug. 7	231	6.8	314	282	1.7	219	1.4	1,090
21	195	6.0	329	208	0.5	212	1.9	988
Sept. 5	160	5.7	323	164	1.2	192	1.5	881
18	179	5.3	337	181	0.1	201	1.4	943
Oct. 2	182	5.7	344	184	N.D.	206	1.7	964
16	189	5.4	358	198	N.D.	210	1.6	1,000
Nov. 6	184	5.7	365	178	N.D.	209	1.9	976
20	193	6.0	371	207	N.D.	212	1.9	1,030
Dec. 4	178	6.1	353	189	N.D.	209	1.8	972
18	203	5.7	378	210	N.D.	223	2.2	1,060

N.D. - Not Detected

SPECIFIC CONDUCTANCE OF WATER SAMPLES

The following table shows specific conductance of individual water samples taken at the Colorado River station and in Mexican canals. Samples were taken at the Northerly International Boundary and at the Southerly International Boundary by the United States Section of the Commission. Determinations for the Northerly International Boundary were made by the Bureau of Reclamation and the United States Section of the Commission (Jointly); and for the Southerly International Boundary, by the United States Section of the Commission. Samples for the Intake Canal at Morelos Dam were taken by the Mexican Section of the Commission, and determinations were made by the Ministry of Agriculture and Hydraulic Resources of Mexico.

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,740	1,520	1,270	1,330	1,210	1,250	1,360	1,700	1,530	1,530	1,580	1,660
2	1,800	1,500	1,310	1,340	1,190	1,250	1,380	1,690	1,520	1,540	1,550	1,630
3	1,840	1,500	1,250	1,340	1,190	1,250	1,390	1,680	1,500	1,540	1,560	1,600
4	1,890	1,480	1,260	1,350	1,230	1,240	1,380	1,710	1,470	1,570	1,560	1,570
5	1,750	1,460	1,260	1,360	1,210	1,240	1,380	1,730	1,440	1,570	1,550	1,540
6	1,620	1,440	1,270	1,370	1,210	1,230	1,380	1,760	1,500	1,540	1,570	1,540
7	1,670	1,490	1,320	1,310	1,220	1,230	1,390	1,780	1,540	1,560	1,550	1,540
8	1,730	1,460	1,320	1,310	1,220	1,230	1,390	1,810	1,550	1,570	1,540	1,510
9	1,780	1,450	1,320	1,310	1,200	1,240	1,400	1,790	1,550	1,580	1,540	1,530
10	1,760	1,400	1,290	1,290	1,210	1,240	1,400	1,820	1,540	1,600	1,550	1,560
11	1,840	1,400	1,300	1,260	1,210	1,250	1,410	1,820	1,540	1,590	1,560	1,580
12	1,790	1,400	1,300	1,290	1,200	1,250	1,430	1,820	1,560	1,620	1,570	1,650
13	1,790	1,400	1,310	1,330	1,210	1,240	1,440	1,820	1,540	1,590	1,570	1,620
14	1,820	1,410	1,180	1,340	1,220	1,240	1,430	1,820	1,520	1,590	1,550	1,590
15	1,840	1,380	1,210	1,360	1,220	1,260	1,430	1,840	1,500	1,590	1,520	1,550
16	1,870	1,410	1,270	1,380	1,210	1,270	1,440	1,760	1,510	1,590	1,570	1,600
17	1,900	1,430	1,210	1,390	1,210	1,280	1,470	1,680	1,510	1,620	1,610	1,660
18	1,740	1,420	1,210	1,370	1,210	1,290	1,480	1,680	1,520	1,600	1,630	1,710
19	1,610	1,400	1,210	1,360	1,200	1,300	1,480	1,650	1,510	1,570	1,640	1,680
20	1,630	1,380	1,210	1,330	1,200	1,300	1,490	1,620	1,500	1,600	1,650	1,640
21	1,630	1,370	1,290	1,320	1,210	1,300	1,500	1,590	1,510	1,610	1,630	1,640
22	1,640	1,430	1,310	1,300	1,210	1,310	1,520	1,550	1,520	1,630	1,600	1,610
23	1,640	1,270	1,320	1,280	1,220	1,320	1,530	1,520	1,520	1,640	1,600	1,630
24	1,640	1,280	1,310	1,260	1,220	1,330	1,550	1,470	1,530	1,590	1,600	1,660
25	1,730	1,260	1,290	1,260	1,220	1,340	1,560	1,480	1,530	1,620	1,610	1,680
26	1,500	1,240	1,280	1,240	1,220	1,340	1,590	1,500	1,490	1,640	1,610	1,700
27	1,520	1,230	1,260	1,200	1,220	1,340	1,630	1,530	1,490	1,640	1,620	1,740
28	1,530	1,200	1,300	1,230	1,230	1,350	1,720	1,550	1,500	1,630	1,600	1,670
29	1,550		1,300	1,230	1,240	1,360	1,760	1,550	1,500	1,620	1,620	1,610
30	1,560		1,300	1,230	1,250	1,350	1,790	1,560	1,520	1,610	1,630	1,620
31	1,440		1,330		1,240		1,830	1,560		1,600		1,630

SPECIFIC CONDUCTANCE OF WATER SAMPLES

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,740	1,520	1,300	1,350	1,220	1,300	1,360	1,730	1,590	1,490	1,680	1,790
2	1,810	1,490	1,300	1,370	1,210	1,290	1,370	1,710	1,590	1,570	1,660	1,770
3	1,880	1,480	1,280	1,350	1,200	1,290	1,390	1,700	1,550	1,530	1,670	1,700
4	1,780	1,500	1,290	1,370	1,210	1,290	1,370	1,730	1,550	1,560	1,610	1,540
5	1,650	1,530	1,300	1,350	1,220	1,220	1,380	1,730	1,440	1,580	1,590	1,540
6	1,630	1,510	1,300	1,380	1,210	1,260	1,360	1,780	1,510	1,580	1,610	1,520
7	1,570	1,520	1,300	1,320	1,210	1,280	1,380	1,820	1,570	1,590	1,630	1,550
8	1,710	1,490	1,300	1,330	1,220	1,260	1,380	1,820	1,590	1,600	1,670	1,530
9	1,660	1,490	1,300	1,300	1,210	1,270	1,370	1,830	1,630	1,550	1,690	1,500
10	1,670	1,460	1,310	1,290	1,200	1,270	1,370	1,830	1,600	1,550	1,710	1,520
11	1,750	1,480	1,320	1,290	1,210	1,270	1,390	1,850	1,600	1,590	1,690	1,580
12	1,780	1,500	1,340	1,280	1,450	1,230	1,400	1,830	1,560	1,590	1,690	1,600
13	1,810	1,490	1,330	1,300	1,220	1,290	1,400	1,820	1,530	1,610	1,690	1,590
14	1,810	1,450	1,200	1,300	1,220	1,220	1,450	1,830	1,570	1,540	1,640	1,570
15	1,840	1,410	1,200	1,360	1,220	1,280	1,440	1,850	1,520	1,580	1,630	1,530
16	1,830	1,450	1,280	1,360	1,200	1,330	1,420	1,810	1,560	1,500	1,630	1,540
17	1,910	1,490	1,210	1,390	1,220	1,320	1,430	1,750	1,550	1,490	1,640	1,610
18	1,800	1,440	1,220	1,350	1,210	1,230	1,450	1,760	1,540	1,590	1,610	1,690
19	1,550	1,440	1,250	1,320	1,210	1,340	1,460	1,680	1,570	1,550	1,580	1,690
20	1,640	1,440	1,240	1,300	1,190	1,350	1,490	1,580	1,530	1,590	1,500	1,620
21	1,610	1,400	1,310	1,300	1,200	1,350	1,500	1,620	1,530	1,540	1,520	1,650
22	1,550	1,380	1,310	1,290	1,220	1,350	1,520	1,600	1,540	1,600	1,540	1,620
23	1,550	1,380	1,310	1,270	1,230	1,310	1,530	1,580	1,570	1,620	1,550	1,610
24	1,620	1,370	1,310	1,250	1,220	1,320	1,540	1,630	1,570	1,490	1,580	1,620
25	1,550	1,320	1,320	1,230	1,220	1,380	1,580	1,580	1,530	1,600	1,540	1,630
26	1,560	1,300	1,320	1,230	1,220	1,390	1,620	1,560	1,530	1,620	1,580	1,690
27	1,540	1,300	1,310	1,200	1,220	1,370	1,610	1,590	1,530	1,650	1,600	1,710
28	1,490	1,350	1,300	1,220	1,220	1,340	1,690	1,580	1,530	1,660	1,570	1,720
29	1,510		1,310	1,220	1,220	1,360	1,690	1,590	1,500	1,670	1,540	1,610
30	1,510		1,320	1,220	1,240	1,390	1,710	1,610	1,480	1,650	1,520	1,610
31	1,480		1,330		1,230	1,410	1,760	1,590		1,640		1,630

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1995

04	January	4,190	01	March	4,120	01	May	4,300	05	July	4,470	12	September	4,320	20	November	4,120
10		4,150	14		4,530	15		4,340	18		4,380	20		4,300			
19		4,170															
01	February	4,120	03	April	4,560	01	June	4,330	01	August	4,200	02	October	4,260	04	December	3,450
14		4,530	12		4,440	14		4,370	16		4,200	17		4,270	27		4,540

RAINFALL ON THE COLORADO RIVER WATERSHED
IN MILLIMETERS

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

IN THE UNITED STATES

Month	Brawley, California		El Centro, California		Blythe, California		Yuma Citrus Station, Arizona		Bullhead City, Arizona	
	1995	Average 1931-1995	1995	Averages 1931-1995	1995	Averages 1931-1995	1995	Averages 1931-1995	1995	Averages 1978-1995
Jan.	35	11	42	11	46	13	14	11	81	32
Feb.	7	9	3	9	10	11	2	9	33	27
Mar.	2	7	6	6	0	7	7	7	24	32
April	6	2	3	2	5	3	5	3	5	5
May	0	1	0	0	0	1	0	1	0	3
June	0	0	0	0	0	1	0	1	0	0
July	0	1	1	2	2	5	6	6	0	11
Aug.	0	10	1	9	1	19	0	14	1	22
Sept.	0	8	0	7	0	9	1	9	1	10
Oct.	0	6	0	7	0	7	1	9	0	12
Nov.	0	5	0	5	0	7	1	0	0	13
Dec.	2	11	2	12	0	14	0	12	0	19
Yearly	54	71	58	70	64	100	37	82	145	186

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		Delta, Baja California		Riito, Sonora	
	1995	Average 1948-1995	1995	Averages 1926-1995	1995	Averages 1948-1995	1995	Averages 1949-1995	1995	Averages 1948-1995
Jan.	8	10	44	10	11	10	T	8	25	7
Feb.	1	5	2	8	0	6	0	6	0	5
Mar.	0	4	2	6	6	5	T	5	0	4
April	0	2	T	2	3	2	T	1	3	1
May	0	T	T	T	0	T	0	T	0	T
June	0	T	0	T	0	1	0	T	0	T
July	0	3	0	3	0	2	0	2	0	2
Aug.	7	9	T	10	1	6	T	7	0	6
Sept.	0	4	0	9	0	4	T	6	0	10
Oct.	0	6	0	9	0	7	0	7	0	8
Nov.	0	4	0	4	0	3	0	3	0	4
Dec.	0	9	1	18	0	8	0	11	0	10
Yearly	16	57	49	84	21	50	T	53	28	64

Month	San Felipe, Baja California		El Centinela, Baja California					
	1995	Average 1952-1995	1995	Averages 1975-1995				
Jan.	3	7	T	6				
Feb.	16	4	0	5				
Mar.	13	3	0	3				
April	0	1	3	2				
May	0	1	0	0				
June	0	1	0	T				
July	0	3	0	T				
Aug.	7	10	0	5				
Sept.	26	9	0	1				
Oct.	0	5	0	6				
Nov.	0	5	0	1				
Dec.	7	10	1	8				
Yearly	72	63	4	37				

T Trace

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 1995.

IN THE UNITED STATES

NAME OF STATION	LATITUDE	LONGITUDE	φ ELEV. (Meters)	RECORD BEGAN	OBSERVER
* Blythe, California	33° 37'	114° 36'	81.69	1909	State Division of Forestry
Brawley, California	32° 57'	115° 33'	30.48	1908	Agricultural Research Service
Bullhead City, Arizona	35° 07'	114° 36'	176.78	1980	Bullhead City Fire Department
El Centro, California	32° 46'	115° 34'	9.14	1930	El Centro Water Department
Yuma Citrus Station, Arizona	32° 37'	114° 39'	58.22	1923	University of Arizona Experimental Farm

IN MEXICO

NAME OF STATION	LATITUDE	LONGITUDE	φ ELEV. (Meters)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 34'	115° 00'	**20.12	1948	# S. A. R. H.
Delta, Baja California	32° 21'	115° 11'	**11.89	1948	S. A. R. H.
El Centinela, Baja California	32° 35'	115° 45'	49.99	1978	S. A. R. H.
Los Algodones, Baja California	32° 42'	114° 44'	35.05	1948	S. A. R. H.
Mexicali, Baja California	32° 40'	115° 28'	3.96	1926	S. A. R. H.
Riito, Sonora	32° 13'	115° 01'	13.11	1959	S. A. R. H.
San Felipe, Baja California	31° 01'	114° 51'	21.95	1969	S. A. R. H.

* Not shown on rainfall map

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

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

Ministry of Agriculture and Hydraulic Resources

EVAPORATION IN THE COLORADO RIVER BASIN
IN MILLIMETERS

Tabulated below are records of evaporation observed at one station in Arizona, at five stations in Baja California, and at one station in Sonora. The station in the United States is operated by the University of Arizona Experimental Farm. The stations in Mexico are operated by the Ministry of Agriculture and Hydraulic Resources. The type of pan used at all these stations was the National Weather Service standard pan of 1.22 meters diameter. For specific location of these stations, refer to data opposite the same station name shown in "Location of Rainfall Stations," in this bulletin.

IN THE UNITED STATES

Month	Yuma Citrus Station, Arizona	
	1995	Average 1931-1995
Jan.	70	99
Feb.	122	120
Mar.	168	184
April	228	253
May	275	325
June	356	359
July	350	383
Aug.	340	338
Sept.	279	266
Oct.	212	189
Nov.	115	124
Dec.	92	93
Yearly	2,587	2,733

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		Riito, Sonora		San Felipe, Baja California	
	1995	Average 1949-1995	1995	Average 1926-1995	1995	Average 1959-1995	1995	Average 1962-1995	1995	Average 1952-1995
Jan.	59	108	37	65	#	83	#	76	#	120
Feb.	97	131	95	134	#	101	#	98	#	139
Mar.	127	183	139	148	#	150	#	146	#	169
April	218	253	203	198	#	205	#	187	#	196
May	260	316	260	268	#	269	#	256	#	240
June	227	349	315	293	#	305	#	286	#	256
July	337	353	355	299	#	290	#	315	#	285
Aug.	299	316	290	257	#	251	#	266	#	270
Sept.	233	260	248	205	#	206	#	215	#	237
Oct.	197	205	163	146	#	147	#	153	#	206
Nov.	140	134	93	86	#	109	#	95	#	152
Dec.	112	108	64	60	#	78	#	77	#	122
Yearly	2,306	2,683	2,262	2,125		2,226		2,246		2,538

Month	Delta, Baja California							
	1995	Average 1959-1995						
Jan.	#	86						
Feb.	#	109						
Mar.	#	153						
April	#	199						
May	#	254						
June	#	275						
July	#	286						
Aug.	#	260						
Sept.	#	217						
Oct.	#	153						
Nov.	#	105						
Dec.	#	165						
Yearly		2,011						

Missing record

TEMPERATURE IN THE COLORADO RIVER BASIN
IN DEGREES CELSIUS

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

IN THE UNITED STATES

Month	Blythe, California				Yuma Citrus Station, Arizona				Brawley, California			
	1995				1995				1995			
	Mean	Max.	Min.	Average 1931-95	Mean	Max.	Min.	Average 1931-95	Mean	Max.	Min.	Average 1931-95
Jan.	12.4	23.3	1.7	11.5	12.7	22.8	2.8	11.9	13.1	22.8	1.7	12.2
Feb.	17.0	30.0	3.9	14.2	17.7	31.1	5.6	14.0	17.8	30.6	5.0	14.6
Mar.	18.4	32.8	3.9	17.3	18.1	32.8	3.3	16.8	18.1	32.2	5.0	17.4
April	21.0	36.1	7.2	21.3	19.8	34.4	4.4	20.5	19.8	34.4	6.1	21.1
May	24.5	41.7	9.4	25.4	22.8	37.8	8.3	24.4	22.6	38.9	9.4	25.0
June	29.1	47.8	11.7	29.8	27.9	43.3	13.3	28.8	27.3	43.9	11.1	29.4
July	34.1	50.0	18.9	33.6	32.6	51.1	17.2	32.7	32.3	49.4	16.1	33.1
Aug.	35.3	47.2	23.3	32.8	34.7	46.7	23.3	32.4	34.3	47.8	21.1	32.9
Sept.	31.8	45.6	15.0	29.4	32.1	43.9	15.6	29.4	31.8	45.0	16.1	30.0
Oct.	23.2	38.3	6.7	22.9	24.1	38.3	7.8	23.1	24.3	39.4	7.8	23.9
Nov.	18.6	32.2	6.1	15.6	19.4	31.7	6.1	16.3	19.7	32.8	6.7	16.9
Dec.	12.9	26.7	0.6	11.7	13.7	26.7	1.7	12.4	14.2	28.3	0.0	12.7
Yearly	23.2	50.0	0.6	22.1	23.0	51.1	1.7	21.9	22.9	49.4	0.0	22.4

Month	El Centro, California				Bullhead City, Arizona							
	1995				1995							
	Mean	Max.	Min.	Average 1931-95	Mean	Max.	Min.	Average 1978-95				
Jan.	13.4	23.9	3.9	12.3	12.5	21.7	2.2	12.1				
Feb.	18.2	31.1	7.2	14.7	17.1	27.8	5.0	14.8				
Mar.	18.5	32.8	5.0	17.4	17.2	31.1	3.3	17.6				
April	21.2	35.6	8.9	21.0	21.6	36.7	8.3	22.3				
May	23.3	38.9	10.6	25.1	25.4	40.6	11.1	27.0				
June	28.9	43.9	13.9	29.6	31.2	46.1	14.4	32.3				
July	33.2	50.0	20.6	33.1	35.3	50.6	21.1	35.0				
Aug.	34.7	45.6	22.2	32.8	36.5	49.4	22.2	34.5				
Sept.	32.3	44.4	17.2	29.9	32.4	47.2	18.9	30.6				
Oct.	25.4	39.4	10.6	23.8	24.2	38.3	8.3	23.8				
Nov.	20.8	32.8	8.9	16.8	19.7	31.1	7.2	16.5				
Dec.	14.8	27.8	3.3	12.7	13.9	25.0	2.2	11.9				
Yearly	23.7	50.0	3.3	22.4	23.9	50.6	2.2	23.2				

IN MEXICO

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	1995		1948-1995		1995		1926-1995		1995		1948-1995	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	24	1	31	-5	28	5	34	-7	22	2	45	-9
Feb.	29	7	35	-2	30	9	34	-5	30	8	37	-6
Mar.	35	6	38	0	33	8	38	-1	33	5	45	-4
April	38	5	43	3	39	8	41	1	35	6	48	-9
May	43	8	47	6	40	11	47	6	39	9	51	1
June	48	14	52	11	46	15	49	9	46	13	57	6
July	49	18	50	13	52	19	48	13	48	18	56	7
Aug.	48	23	49	16	49	25	49	12	48	23	54	8
Sept.	47	18	50	10	47	19	50	8	46	17	57	4
Oct.	40	12	44	0	39	12	44	0	41	7	48	0
Nov.	36	5	38	-3	32	10	40	-2	34	5	46	0
Dec.	29	2	32	-5	26	4	32	-5	34	4	36	-4
Yearly	49	1	52	-5	52	4	50	-7	48	2	57	-9

Missing Data

TEMPERATURE IN THE COLORADO RIVER BASIN
IN DEGREES CELSIUS

IN MEXICO

Month	Riito, Sonora				San Felipe, Baja California				Delta, Baja California			
	1995		1948-1995		1995		1948-1995		1995		1948-1995	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	25	5	33	-7	20	4	37	-1	21	10	40	-4
Feb.	31	7	35	-6	23	5	39	0	21	10	40	-2
Mar.	37	7	38	-7	21	9	40	0	21	10	45	-2
April	37	6	43	2	35	9	45	1	31	10	48	0
May	38	8	46	5	38	12	49	5	#	#	54	0
June	45	14	51	7	38	17	51	10	#	#	56	2
July	50	20	60	11	42	25	51	10	52	15	57	7
Aug.	49	20	50	8	42	24	57	5	51	23	60	16
Sept.	47	20	48	4	41	14	52	3	49	14	57	4
Oct.	42	15	46	-1	39	9	47	-5	43	8	47	1
Nov.	36	10	48	-3	34	9	48	-6	36	7	50	0
Dec.	30	1	30	-6	25	6	36	-2	29	0	40	-3
Yearly	50	1	60	-7	42	4	57	-6			60	-4

Month	El Centinela, Baja California									
	1995		1975-1995							
	Max.	Min.	Max.	Min.						
Jan.	27	4	30	1						
Feb.	31	6	35	-4						
Mar.	35	10	38	4						
April	38	10	46	8						
May	44	12	45	11						
June	41	12	48	10						
July	52	21	52	20						
Aug.	49	26	49	18						
Sept.	48	21	50	11						
Oct.	40	13	46	3						
Nov.	33	11	40	3						
Dec.	27	5	29	-3						
Yearly	52	4	52	-4						

Missing Data

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

1995

The total drainage area within the Colorado River basin is about 637,100 square kilometers, of which 478,100 square kilometers lie above Imperial Dam and about 159,000 square kilometers, are below the dam. Of the area below Imperial Dam, 153,800 square kilometers are in the United States and about 5,180 square kilometers are in Mexico. The area below Imperial Dam includes the Gila River watershed with a total area of about 150,700 square kilometers, of which about 2,850 square kilometers 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 U. S. Bureau of Reclamation; and 3) those within the Imperial Valley, California, the data for which are furnished by the U. S. Bureau of Reclamation. 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 National Water Commission 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 Hectares
IN THE UNITED STATES:	
Imperial Dam	
Yuma Valley Division	18,403
Reservation Division	5,414
Yuma Mesa	7,004
Yuma Aux. Project Unit "B" (Yuma Mesa)	893
South Gila Valley	3,902
North Gila Valley	2,571
Wellton-Mohawk	23,386
Coachella Valley	24,844
Imperial Valley	186,462
Warren Act *	459
Non-Project lands adjacent to Colorado River	5,083
Total in United States	278,421
IN MEXICO:	
San Luis Valley, R. C., Sonora	26,895
Mexicali Valley	165,105
Total in Mexico	192,000
Total in United States and Mexico	470,421

* -Estimated area based on the volume of irrigation water delivered

10-2545.80 ALAMO RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Staff gage located on the right bank of the river, about 11.3 kilometers east of Calexico, California, immediately downstream from the international land boundary between the United States and Mexico and approximately three meters upstream from a 1.22-meter Cipolletti weir in the throat of a twin-tube concrete culvert which carries the river flow under the All-American Canal. On November 18, 1992 continuous gage height recording equipment was installed at the site.

RECORDS: From June 1942 through November 18, 1992 flows 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. A continuous gage height record and mean daily discharge records are available November 19, 1992 through 1995. Records obtained and furnished by Imperial Irrigation District.

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. On September 28, 1995 the National Water Commission of Mexico completed the construction of a weir immediately upstream of the international boundary. The result is that all the Alamo River flow, or a portion thereof, is being diverted into the New River via the interconnected agricultural drainage system in Mexico. After September 28, 1995 the recorded flow at the gage is affected by this diversion.

EXTREMES: Maximum mean daily discharge, 7.31 CMS (estimated), April 13, 1946; minimum discharge, no flow July 22-23, 29-30, 1949 and numerous days after September 28, 1995. 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 CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.07	0.07	0.07	0.07	0.06	0.06	0.09	0.07	0.07	0	0	0
2	.07	.07	.07	.06	.06	.05	.05	.07	.06	0	0	0
3	.07	.07	.07	.06	.05	.05	.07	.06	.05	0	0	0
4	.07	.07	.07	.06	.06	.07	.06	.06	.04	0	0	0
5	.07	.07	.07	.08	.06	.07	.07	.06	.04	0	0	0
6	.07	.07	.07	.08	.05	.07	.09	.08	.04	0	0	0
7	.07	.07	.07	.08	.05	.07	.06	.04	.04	0	0	0
8	.07	.07	.07	.08	.05	.07	.12	.04	.04	0	0	0
9	.07	.07	.09	.06	.06	.07	.06	.03	.04	0	.01	0
10	.07	.07	.08	.06	.09	.07	.05	.06	.04	0	0	0
11	.07	.07	.08	.07	.07	.07	.05	.06	.04	0	.01	0
12	.06	.07	.07	.07	.07	.13	.05	.06	.05	0	.01	0
13	.06	.07	.07	.08	.08	.07	.05	.07	.05	0	.02	0
14	.07	.07	.07	.06	.08	.07	.05	.07	.04	0	0	0
15	.07	.07	.06	.05	.08	.06	.05	.07	.04	0	0	0
16	.06	.07	.07	.06	.08	.07	.05	.03	.06	0	.02	0
17	.05	.07	.07	.08	.06	.07	.07	.03	.04	0	0	0
18	.06	.07	.06	.08	.07	.07	.06	.03	.03	0	0	0
19	.06	.07	.08	.08	.06	.07	.06	.04	.04	0	0	0
20	.06	.07	.08	.08	.06	.09	.05	.07	.04	0	0	0
21	.06	.06	.07	.14	.07	.11	.05	.04	.05	0	0	0
22	.06	.07	.08	.12	.07	.07	.05	.04	.06	0	0	0
23	.07	.06	.08	.07	.12	.09	.05	.04	.04	0	0	0
24	.06	.06	.08	.07	.08	.08	.07	.04	.04	0	0	0
25	.08	.07	.08	.06	.11	.10	.08	.04	.04	0	0	0
26	.09	.07	.09	.06	.08	.09	.08	.05	.04	0	0	0
27	.11	.08	.08	.05	.07	.08	.08	.05	.04	0	0	0
28	.09	.07	.12	.05	.09	.08	.09	.05	0	0	0	0
29	.08	.08	.05	.12	.06	.08	.08	.06	0	0	0	0
30	.07	.07	.05	.06	.08	.08	.07	.10	0	0	0	0
31	.07	.07	.07	.08	.08	.08	.09	.07	0	0	0	0
Sum		1.94		2.12		2.26		1.68	1.20	0		0
	2.16		2.34		2.25		2.05				0.07	
Current Year 1995										Period 1943-1995		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum	
Jan.	0.170	0.105	27	0.11	17	0.05	0.07	187	347	3,441	122	
Feb.	.140	.110	27	.08	121	.06	.07	168	318	3,481	111	
Mar.	.185	.120	28	.12	115	.06	.08	202	364	3,890	107	
April	.195	.100	21	.14	115	.05	.07	183	381	2,741	120	
May	.185	.100	123	.12	13	.05	.07	194	307	2,219	90.0	
June	.190	.105	12	.13	2	.05	.08	195	295	2,080	75.2	
July	.185	.100	8	.12	5	.05	.07	177	274	2,112	72.8	
Aug.	.155	.080	30	.10	9	.03	.05	145	318	2,062	81.0	
Sept.	.120	0	1	.07	4	0	.04	104	293	1,734	103	
Oct.	0	0	1	0	1	0	0	0	308	2,276	0	
Nov.	.060	0	13	.02	9	0	0	6.0	320	2,566	6.0	
Dec.	0	0	1	0	1	0	0	0	308	2,080	0	
Yearly	0.195	0		0.14		0	0.05	1,561	3,833	27,317	1,321	

φ Mean daily ! And other days

10-2549.70 NEW RIVER AT INTERNATIONAL BOUNDARY

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

RECORDS: Based on a continuous record of gage heights and current meter measurements by the Imperial Irrigation District. Records computed and furnished by the District. Records available: June 1942 through 1995.

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 43,172 TOM during any successive five-year period under the provisions of Minute No. 197 of the Commission.

EXTREMES: Maximum mean daily discharge, 29.2 CMS on December 9, 1982; minimum mean daily discharge, 0.06 CMS 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 CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.43	7.16	6.49	5.64	6.12	5.24	5.35	5.61	4.25	5.04	5.10	5.83
2	9.09	7.11	6.23	5.35	7.05	5.52	5.04	4.79	3.99	4.93	5.13	6.17
3	11.2	7.50	6.00	5.44	7.65	5.10	4.93	4.33	3.94	4.84	5.18	6.37
4	11.8	7.45	5.66	5.58	7.25	5.07	5.07	4.19	3.94	5.04	5.49	6.49
5	9.97	6.88	5.83	5.49	6.60	5.55	5.21	4.13	3.85	4.96	5.66	6.91
6	9.18	6.51	5.95	5.32	6.60	5.49	5.32	3.85	4.08	4.93	5.35	7.05
7	9.09	6.29	5.89	5.18	6.15	5.41	5.69	3.88	3.94	4.93	5.21	7.22
8	8.75	6.00	5.78	5.21	6.23	5.98	5.72	3.96	4.05	4.87	4.79	6.91
9	8.67	5.89	5.66	5.27	6.66	5.92	5.41	4.25	4.42	5.35	4.70	6.77
10	8.69	6.00	5.61	5.69	7.05	5.95	5.38	4.08	4.39	5.15	4.50	6.57
11	8.21	5.86	5.58	5.98	7.08	6.20	5.89	3.96	4.42	5.10	4.39	6.83
12	8.04	5.64	5.49	6.37	6.63	6.20	6.32	3.91	4.81	5.13	4.39	6.94
13	7.31	5.32	5.55	6.20	6.23	5.89	6.17	3.99	4.96	5.07	4.76	6.57
14	7.00	5.52	5.78	5.64	6.17	6.85	6.40	4.22	4.87	4.84	4.67	6.63
15	6.46	5.92	6.15	5.41	6.40	6.40	6.37	3.94	4.67	4.81	4.33	6.63
16	6.54	6.85	5.92	5.38	6.60	5.81	6.06	4.16	4.87	4.84	3.91	6.57
17	6.49	7.25	5.78	5.58	6.46	5.21	5.86	3.91	4.96	5.10	3.94	7.08
18	6.34	6.94	5.66	6.17	6.15	5.18	6.09	3.85	5.07	4.84	4.05	7.39
19	6.17	6.80	5.66	6.54	6.15	5.64	7.36	4.08	5.04	4.50	4.11	7.56
20	5.98	6.97	5.69	6.34	5.89	5.61	6.71	4.47	5.13	4.93	4.22	7.56
21	5.78	7.33	5.35	6.17	5.86	5.83	5.92	4.81	4.87	4.87	4.59	7.25
22	5.98	7.42	5.18	6.03	5.92	6.17	5.35	4.90	4.98	4.84	5.10	6.77
23	6.37	7.00	5.41	6.03	5.83	5.89	5.52	4.79	4.76	4.87	5.13	6.54
24	6.60	7.00	5.35	6.26	6.00	5.81	5.72	4.67	4.76	4.90	4.70	6.37
25	11.4	7.56	5.49	6.88	5.61	5.75	6.34	5.13	4.87	4.98	4.93	6.46
26	7.65	7.62	5.55	7.56	5.61	5.89	6.32	5.07	5.24	4.81	5.13	6.94
27	8.10	7.45	5.58	7.33	5.21	6.40	6.23	4.76	5.15	4.87	5.21	7.36
28	7.87	7.48	5.61	7.00	5.07	6.34	5.95	4.93	5.15	4.90	4.98	7.33
29	7.62		5.95	6.54	5.44	6.15	5.58	4.73	5.15	5.04	5.01	6.77
30	7.39		6.43	6.34	5.47	5.69	5.41	4.50	4.93	5.24	5.15	6.37
31	7.28		6.09		5.52		5.38	4.33		5.15		6.32
Sum	246.45	188.72	178.35	179.92	192.66	174.14	180.07	136.18	139.51	153.67	143.81	210.53
Current Year 1995									Period 1943-1995			
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum	
Jan.	12.145	12.525	4	11.8	21	5.78	7.95	21,293	12,913	27,387	2,160	
Feb.	12.330	12.575	26	7.62	13	5.32	6.74	16,305	11,390	26,416	1,552	
Mar.	12.450	12.590	1	6.49	22	5.18	5.75	15,409	12,906	31,213	1,243	
April	12.335	12.590	26	7.56	7	5.18	6.00	15,545	13,165	34,066	1,715	
May	12.325	12.600	3	7.65	28	5.07	6.21	16,646	12,048	29,740	776	
June	12.410	12.600	14	6.85	4	5.07	5.80	15,046	10,108	25,024	1,341	
July	12.315	12.615	19	7.36	3	4.93	5.81	15,558	10,623	28,368	1,008	
Aug.	12.545	12.730	1	5.61	6	3.85	4.39	11,766	12,185	34,066	1,405	
Sept.	12.580	12.730	26	5.24	5	3.85	4.65	12,054	11,410	29,251	2,214	
Oct.	12.570	12.660	9	5.35	19	4.50	4.96	13,277	11,359	28,072	2,567	
Nov.	12.535	12.725	5	5.66	16	3.91	4.79	12,225	10,717	25,310	3,063	
Dec.	12.335	12.520	19	7.56	1	5.83	6.79	18,190	12,624	28,104	2,175	
Yearly	12.145	12.730		11.8		3.85	5.82	183,514	141,448	330,444	30,310	

φ Mean daily

! And other days

10-2549.60 WASTES FROM MEXICALI POTABLE WATER PLANT TO NEW RIVER IN MEXICO

DESCRIPTION: A 3.5-meter Parshall flume, installed by the State Commission of Public Services of Mexicali, is located 2.0 kilometers upstream of the pumping plant on the supply canal. Excess water discharges into an open channel, thence into a 91 centimeter diameter pipe that empties into Rivera Drain (Drain 134), which is 2.0 kilometers below the plant and 2.0 kilometers south of the international boundary. From this point the waste is carried by a closed concrete box conduit into New River.

RECORDS: During 1995 the mean daily flows were computed from the total inflow to the potable water plant as measured at the Parshall flume, less the water pumped to the city and the water used in the maintenance of the plant. The records are obtained and furnished by the State Commission of Public Services of Mexicali. Records available: January 1968 through December 1995.

REMARKS: The plant began operation on September 28, 1963 by the State Commission of Public Services of Mexicali. Before 1968 the flow was small and infrequent. The potable water plant obtains water from the West Main Canal, which is part of Mexico's system of canals in the Colorado Irrigation System. Excess water discharges into a closed conduit that empties into New River 1.4 kilometers upstream of the international boundary.

EXTREMES: Maximum instantaneous discharge, 2.32 CMS on March 26, 1969; minimum instantaneous discharge, zero during several days in the years 1977 through 1995.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
2	.02	.01	.01	.02	.02	.02	.02	.01	.02	.02	.01	.01
3	.01	.01	.01	.01	.03	.01	.02	.02	.02	.02	.01	.02
4	.01	.01	.01	.01	.02	.02	.02	.02	.02	.02	.01	.01
5	.02	.02	.01	0	.02	.01	.01	.02	.02	.02	.02	.02
6	.02	.01	.01	0	.02	.03	.02	.03	.03	.02	.01	.02
7	.02	.02	.01	.01	.02	.02	.02	.02	.02	.02	.02	.01
8	.02	.01	.02	.02	.02	.02	.02	.03	.02	.02	.02	.01
9	.02	.02	.01	.01	.02	.03	.01	.02	.02	.02	.02	.01
10	.03	.02	.02	.02	.03	.02	.01	.02	.02	.02	.01	.01
11	.01	.01	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
12	.01	.02	.02	.02	.02	.03	.02	.01	.02	.02	.01	.02
13	.01	.02	.02	.01	.02	.03	.02	.02	.02	.02	.01	.02
14	.01	.02	.01	.01	.03	.02	.03	.01	.02	.02	.02	.02
15	.01	.01	0	.02	.02	.02	.02	.02	.02	0	.02	.01
16	.01	.02	0	.02	.02	.04	.02	.02	.02	.01	.01	.01
17	.02	.02	0	.02	.02	.03	.03	.01	.02	.02	.02	.02
18	.02	.02	0	.02	.02	.04	.02	.02	.02	.02	.01	.02
19	.01	.01	0	.02	.01	.02	.02	.02	.02	.01	.01	.02
20	.01	.01	0	.02	.01	.02	.02	.02	.02	.01	.01	.02
21	.01	.01	.02	.02	.02	.03	.02	.02	.02	.01	.02	.02
22	.01	.01	.02	.01	.02	.04	.03	.01	.02	.01	.02	.02
23	.02	.01	.02	.01	.02	.02	.02	.02	.01	.03	.01	.02
24	.02	.01	.02	.03	.01	.02	.02	.02	.02	.03	.01	.01
25	.01	.01	.02	.04	.02	.02	.02	.02	.03	.02	.02	.03
26	.02	.01	.02	.02	.02	.02	.01	.02	.02	.01	.01	.01
27	.01	.01	.02	.04	.02	.03	.01	.02	.02	.02	.01	.01
28	.01	.02	.01	.02	.03	.02	.02	.02	.02	.01	.02	.02
29	.02		0	.01	.01	.02	.02	.02	.02	.01	.02	.02
30	.02		.02	.01	.02	.02	.04	.02	.01	.02	.01	.02
31	.02		.02		.02		.03	.02		.01		.02
Sum	0.48	0.39	0.39	0.51	0.62	0.71	0.63	0.58	0.60	0.51	0.43	0.51

Current Year 1995 Period 1968-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	φ High		Day		φ Low	Total	Average	Maximum	Minimum
				Day	φ							
Jan.			10	0.03	13	0.01	0.02	41.5	163	641	0	
Feb.			15	.02	11	.01	.01	33.7	107	384	0	
Mar.			11	.02	115	0	.01	33.7	203	1,074	0	
April			125	.04	15	0	.02	44.1	196	532	0	
May			110	.03	119	.01	.02	53.6	210	537	53.6	
June			116	.04	13	.01	.02	61.3	194	504	25.9	
July			30	.04	15	.01	.02	54.4	237	651	0	
Aug.			8	.03	12	.01	.02	50.1	256	735	48.4	
Sept.			16	.03	123	.01	.02	51.8	241	677	44.1	
Oct.			24	.03	15	0	.02	44.1	226	625	44.1	
Nov.			11	.02	12	.01	.01	37.2	199	622	32.8	
Dec.			25	.03	11	.01	.02	44.1	184	737	8.6	
Yearly				0.04		0	0.02	550	2,455	6,610	550	

φ Mean daily ! And other days

10-2549.65 WASTE WATERS FROM MEXICAN SYSTEM OF CANALS
ENTERING THE UNITED STATES

DESCRIPTION: During 1995, the flow to the New River in Mexico included waste from the City of Mexicali Potable Water Plant, which discharges into Rivera Drain and then to New River, and drainage water coming from the Colorado River District system of canals that enter the New River below Laguna Xochimilco, and starting January 1988, the north irrigation district watershed is included.

RECORDS: Records of the Potable Water Plant are based on flows measured on a Parshall flume less pumping to the city. Records obtained and furnished by the State Commission of Public Services of Mexicali. Records available: Wisteria Wasteway, January 1951 through 1975; Sifon Wasteway, January 1952 to April 30, 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through December 1995.

REMARKS: To obtain data for Sifon and Pueblo Nuevo Wasteways, see bulletins 1 to 6 (1960-1965); and for Wisteria Wasteway, bulletins 1 to 16 (1960-1975). For data on wastes from Potable Water Plant, see previous page of this bulletin.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1956 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	2,888	1,086	10,803	7.8
February	740	811	8,981	7.8
March	351	665	5,506	26.8
April	361	568	3,940	19.9
May	939	445	3,174	11.2
June	331	477	6,994	0
July	90.7	666	12,644	0
August	71.7	667	5,103	0
September	153	538	3,966	25.9
October	44.1	620	4,285	10.4
November	102	623	4,668	0
December	669	639	10,720	0
Yearly	6,740	8,268	34,953	492

10-2540.05 SALTON SEA - ELEVATIONS OF WATER SURFACE

DESCRIPTION: Water-stage recorder and staff gage located on the western shore of the Salton Sea, 24.9 kilometers northwest of Westmorland, Imperial County, California. The Salton Sea is the sink of a closed basin which has a drainage area of 21,652 square kilometers. Zero of the gage is 76.2 meters below mean sea level, U. S. C. & G. S. datum.

RECORDS: Records of water surface elevations available from November 1904 through 1995. From January 1925 to October 22, 1951, once monthly records of elevations were collected by Imperial Irrigation District from a bench mark at Figtree John's Spring, about 35.4 kilometers 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 Westmorland, California." The elevation of the old station is at a datum of 0.30 meter higher than that of the present station. All records reported below and the area and capacity table are adjusted to the datum of the present station.

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

EXTREMES: Maximum elevation during 1995 was 69.07 meters below mean sea level. Minimum elevation during 1995 was 69.46 meters below mean sea level. Extremes for period of record: maximum elevation 59.7 below mean sea level February 10 to March 29, 1907; minimum elevation since 1906, 76.7 meters below mean sea level in November 1924.

MEAN DAILY WATER SURFACE ELEVATIONS IN METERS BELOW MEAN SEA LEVEL - 1995

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.370	69.250	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
2	69.370	69.250	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
3	69.370	69.250	69.160	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
4	69.340	69.250	69.160	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
5	69.340	69.250	69.160	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
6	69.340	69.250	69.160	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340
7	69.310	69.250	69.160	69.100	69.100	69.100	69.130	69.160	69.220	69.310	69.340	69.340
8	69.310	69.250	69.160	69.070	69.100	69.100	69.130	69.160	69.220	69.310	69.340	69.340
9	69.310	69.250	69.130	69.070	69.100	69.100	69.130	69.160	69.220	69.310	69.340	69.310
10	69.310	69.250	69.130	69.070	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.310
11	69.310	69.250	69.130	69.070	69.070	69.130	69.130	69.160	69.250	69.310	69.340	69.310
12	69.310	69.250	69.130	69.070	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.340
13	69.310	69.220	69.130	69.070	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.340
14	69.310	69.220	69.130	69.070	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.340
15	69.310	69.220	69.130	69.100	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.340
16	69.310	69.220	69.130	69.100	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.310
17	69.310	69.220	69.100	69.100	69.070	69.130	69.130	69.220	69.250	69.310	69.340	69.310
18	69.310	69.190	69.100	69.100	69.070	69.130	69.130	69.220	69.250	69.340	69.340	69.310
19	69.310	69.190	69.100	69.100	69.100	69.130	69.130	69.220	69.250	69.340	69.340	69.310
20	69.310	69.190	69.100	69.100	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
21	69.310	69.190	69.100	69.100	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
22	69.310	69.190	69.100	69.100	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
23	69.310	69.190	69.100	69.100	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
24	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
25	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.250	69.340	69.340	69.310
26	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.280	69.340	69.340	69.340
27	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.280	69.340	69.340	69.340
28	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.280	69.340	69.340	69.340
29	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.280	69.340	69.340	69.340
30	69.280	69.190	69.100	69.070	69.100	69.130	69.160	69.220	69.310	69.340	69.340	69.340
31	69.250	69.190	69.100	69.100	69.100	69.130	69.160	69.220	69.310	69.340	69.340	69.310
Avg.	69.310	69.220	69.125	69.085	69.085	69.120	69.140	69.200	69.245	69.325	69.340	69.330

Month	Current Year 1995		Period 1935-1995		
	φ Extreme Elevation Meters		Elevation Meters		
	High	Low	# Average	# Maximum	! Minimum
Jan.	69.250	69.370	71.562	69.310	75.990
Feb.	69.190	69.250	71.468	69.220	75.830
Mar.	69.100	69.190	71.386	69.190	75.770
April	69.070	69.100	71.330	69.160	75.800
May	69.070	69.100	71.324	69.130	75.740
June	69.100	69.130	71.369	69.190	75.830
July	69.130	69.160	71.421	69.220	75.930
Aug.	69.160	69.220	72.670	69.250	76.020
Sept.	69.220	69.310	71.539	69.280	76.020
Oct.	69.310	69.340	71.566	69.310	76.140
Nov.	69.340	69.340	71.575	69.340	76.200
Dec.	69.310	69.340	71.540	69.340	76.080
Yearly	69.070	69.370	71.560	69.340	75.740

Area and Capacity Table		
Elevation	Area	Capacity
Meters Below M.S.L.	Hectares	Million Cubic Meters
84.640	0	0
83.520	8,337	31.7
82.300	25,455	232.8
81.080	38,284	629.8
79.250	49,615	1,443.2
78.030	54,512	2,077.2
76.810	60,218	2,775.3
74.370	72,723	4,395.7
73.150	79,683	5,322.5
71.630	89,760	6,611.5
70.100	95,426	8,022.6
67.060	106,029	11,092.7
64.010	116,753	14,481.1
60.960	127,680	18,206.2

φ Mean daily

! Reading near first day of month

Mean monthly

CHEMICAL ANALYSIS OF WATER SAMPLES

The tables below are based on samples collected and analyzed by the California Regional Water Quality Control Board - Colorado River Basin, Region-7. New River Samples prior to 1985 were collected and analyzed by the U.S. Geological Survey. Samples from the New River are taken from the right bank at the road bridge, 137 meters north of the international boundary.

NEW RIVER AT INTERNATIONAL BOUNDARY

1995	Time	*Streamflow Momentary	Water Temperature	PH	Oxygen Dissolved (DO)	Specific Conductance	Turbidity
Date	Std.	CMS	Deg C	Units	mg/L	Microsiemens/cm	NTU
Sep. 19	0700	5.01	29.3	7.8	0.2	4,130	51
Oct. 24	0700	4.84	20.2	7.4	1.2	3,390	36
Nov. 13	0700	4.73	20.4	7.4	0.9	3,725	54
Dec. 12	0700	6.74	15.6	7.5	3.5	3,780	25

* Flow provided by the California Regional Water Quality Control Board

NEW RIVER AT INTERNATIONAL BOUNDARY

SAMPLE TYPE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	
DATE	Sep. 19, 1995	Oct. 24, 1995	Nov. 13, 1995	Dec. 12, 1995	
PARAMETER	CONCENTRATION	CONCENTRATION	CONCENTRATION	CONCENTRATION	DETECTION LIMIT
Arsenic	6.00 mg/L	4.00 ug/L	4.00 ug/L	3.00 mg/L	2.0 ug/L
Boron	N.D.	N.D.	N.D.	N.D.	0.1 mg/L
Cadmium	N.D.	N.D.	N.D.	1.00 mg/L	1.0 ug/L
Chromium	N.D.	N.D.	N.D.	N.D.	10.0 ug/L
Copper	N.D.	16.0 ug/L	N.D.	N.D.	10.0 ug/L
Lead	N.D.	N.D.	N.D.	N.D.	10.0 ug/L
Phenol	0.02 mg/L	0.02 mg/L	0.01 mg/L	N.D.	0.002 mg/L
MBAS	1.49 mg/L	1.41 mg/L	4.80 mg/L	2.26 mg/L	0.025 mg/L
Zinc	N.D.	N.D.	N.D.	N.D.	50.0 ug/L
Total Cyanide	N.D.	N.D.	N.D.	N.D.	0.01 mg/L
Total Phosphate(P04-P)	2.18 mg/L	2.27 mg/L	2.55 mg/L	1.44 mg/L	0.01 mg/L
Nitrate (NO3-N)	N.D.	N.D.	0.30 mg/L	0.90 mg/L	0.20 mg/L
Nitrite (NO2-N)	N.D.	N.D.	N.D.	N.D.	0.03 mg/L
Ammonia (NH3-NH4-N)	5.80 mg/L	5.80 mg/L	6.80 mg/L	5.50 mg/L	0.05 mg/L
Total Dissolved Solids	2,650 mg/L	2,626 mg/L	2,713 mg/L	2,336 mg/L	---
Total Suspended Solids	36.0 mg/L	24.0 mg/L	32.0 mg/L	58.0 mg/L	---
Volatile Suspended Solids	23.0 mg/L	15.0 mg/L	21.0 mg/L	24.0 mg/L	---

N.D.- None Detected

CHEMICAL ANALYSES OF WATER SAMPLES

The tables below are based on samples collected and analyzed by the United States Section of the Commission.

Samples from the Alamo River are taken north of the international boundary upstream of the box culvert under the All-American Canal. Flow at this point includes drainage flows across international boundary and flows from drain interceptors along the toe of the south bank of the All-American Canal. Samples from the New River are taken from the right bank at the road bridge, 137 meters north of the international boundary. Records of the sampling extend from April 1951 through 1995.

ALAMO RIVER

1995 Date	Time Std.	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Conduct- ance Micro- siemens/cm	Coliform Fecal Colonies/ 100 mL	Flow CMS
Jan. 18	0805	11.0	7.6	7.6	6,300	11,300	0.08
Feb. 28	0920	18.0	7.5	4.6	5,600	6,200	0.08
Mar. 15	0840	18.0	7.5	5.6	6,250	4,000	0.10
Apr. 13	0930	18.0	7.6	4.3	4,400	4,800	0.07
May 17	0845	18.0	7.5	6.2	4,600	7,000	0.08
May 31	0755	22.0	7.5	5.6	4,600	4,500	0.08
July 26	0925	24.0	7.2	6.1	5,400	6,100	0.06
Aug. 29	0905	25.0	7.4	5.8	4,400	2,310	0.08
Sep. 25	0750	22.0	7.7	6.1	5,100	3,800	0.06

NEW RIVER

1995 Date	Time Std.	**Streamflow Momentary CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Microsiemens/cm	Fecal Coliform Colonies/ 100 mL
Jan. 11	0850	8.30	15.0	7.6	4.4	3,600	*1,000,000
Jan. 18	0850	6.30	13.0	7.6	4.1	4,000	470,000
Jan. 31	0850	10.1	15.0	7.5	3.5	3,500	140,000
Feb. 28	0900	8.10	17.0	7.5	2.0	4,100	150,000
Mar. 7	0755	5.80	19.0	7.4	2.3	5,000	215,000
Mar. 15	0920	6.45	21.0	7.4	2.3	5,000	410,000
Mar. 28	0850	5.50	18.0	7.4	2.7	5,500	240,000
Apr. 13	1010	6.10	21.0	7.5	1.6	5,000	310,000
Apr. 27	0745	7.30	23.0	7.5	1.3	4,700	290,000
May 17	0930	6.30	21.0	7.5	2.0	4,200	430,000
May 31	0845	5.50	27.0	7.3	0.8	4,600	510,000
June 12	0830	6.10	27.0	7.4	1.9	3,900	300,000
June 22	0845	5.80	29.0	7.4	0.5	4,200	760,000
July 12	0820	6.90	29.0	7.4	0.4	3,900	1,070,000
July 26	1020	6.50	30.0	7.1	2.4	4,200	195,000
Aug. 14	0825	3.90	30.0	7.4	0.9	4,700	1,180,000
Aug. 29	0955	4.60	31.0	7.2	1.5	4,400	480,000
Sep. 14	0805	4.60	29.0	***	0.7	4,600	1,500,000
Sep. 25	0850	4.60	27.0	7.5	0.9	4,400	1,300,000
Oct. 11	0900	5.10	22.0	7.7	1.7	3,600	1,400,000
Oct. 19	0745	4.40	22.0	7.6	1.3	4,100	1,100,000
Oct. 25	0840	4.80	19.5	7.5	1.3	3,900	1,650,000
Nov. 13	0830	4.50	20.0	7.5	2.1	4,400	800,000
Nov. 21	0815	4.60	19.0	7.6	2.8	4,100	770,000
Dec. 13	0815	6.10	15.0	7.3	3.3	4,000	410,000

Note: Temperature, pH, D.O., and Specific Conductance - Data collected in field
 * Rain conditions. Runoff from city causes to increase the fecal coliform counts.
 ** Flow reported by Imperial Irrigation District
 *** Meter not working

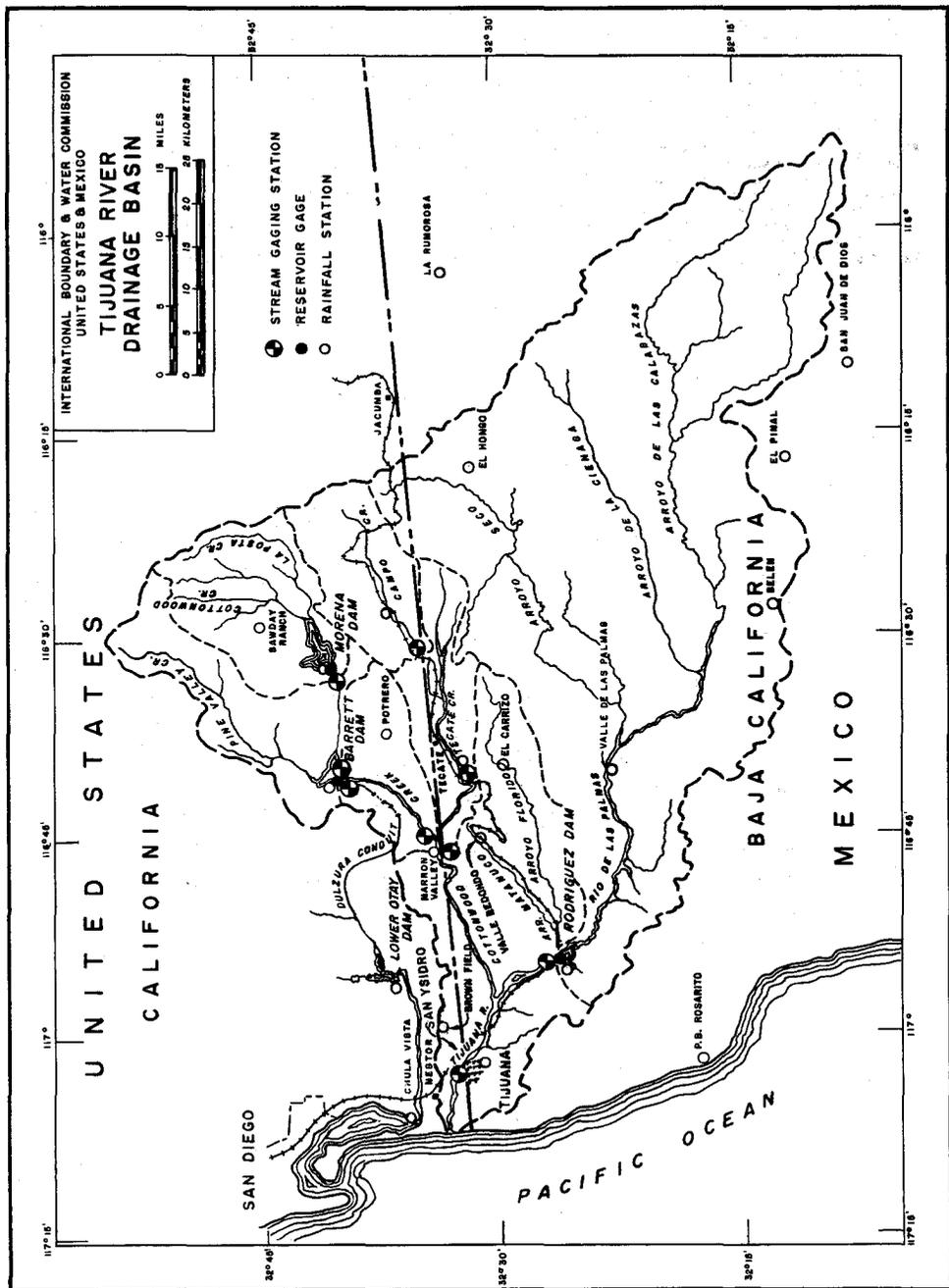
SPECIFIC CONDUCTANCE OF WATER SAMPLES

The following table shows specific conductance of individual water samples from the New River in Mexico at the international boundary. Samples were taken by the Mexican Section of the Commission, who also made the determinations.

NEW RIVER AT INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1995

January		March		May		July		September		November	
4	5,000	1	5,800	3	4,900	5	4,500	6	5,800	1	4,200
11	4,800	8	6,000	10	4,800	12	4,300	13	5,300	8	4,100
18	5,200	15	6,100	17	5,000	19	4,300	20	4,300	15	3,800
25	4,750	22	5,800	24	4,900	26	5,200	27	4,400	22	3,950
		29	5,750	31	5,100					29	4,200
February		April		June		August		October		December	
1	5,500	5	4,900	7	5,100	2	4,900	4	4,300	6	3,800
8	5,000	12	5,200	14	5,400	9	5,500	11	3,850	13	3,700
15	5,100	19	5,600	21	5,200	16	5,500	18	3,810	20	3,330
22	5,250	26	4,850	28	4,800	23	5,500	25	3,800	28	3,540
						30	5,200				



11-0100.00 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 2.9 kilometers upstream from the mouth of Hauser Creek, 13.7 kilometers upstream from Barrett Dam, and about 32.2 kilometers upstream from the international boundary. The zero of the gage is 878.56 meters 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 April 1911 through 1995.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1995 computed on basis of area-capacity curves determined from 1948 resurvey. Various changes have been made to the spillway section since construction of the dam. Elevation of the present crest of ungated spillway is 47.85 meters, gage datum. Reservoir capacity at spillway crest, 1948 survey, is 61,934 TCM. 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: Maximum monthly inflow since 1937, 55,845 TCM, March 1983. Prior to 1937, maximum monthly inflow, 45,886 TCM, January 1916; minimum no flow during parts of many years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1937 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	3,850	1,207	20,362	0
February	5,082	2,689	41,407	9.9
March	5,043	3,707	55,845	23.8
April	1,002	2,047	28,530	4.1
May	1,019	1,038	18,642	0
June	1,606	596	10,173	0
July	553	359	7,651	0
August	11.9	293	8,916	0
September	71.5	196	6,331	0
October	88.8	178	4,817	0
November	89.6	290	5,633	0
December	381	797	9,472	5.4
Yearly	18,798	13,397	177,579	149

11-0105.00 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 1.3 kilometers 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 1995.

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: Maximum monthly discharge since 1937, 55,615 TCM, March 1983. Prior to 1937, maximum monthly discharge, 26,397 TCM February 1916; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1937 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	821	287	2,583	0
February	743	1,061	19,644	0
March	821	2,097	55,615	0
April	819	1,578	28,159	0
May	821	861	18,100	0
June	819	644	9,260	0
July	821	382	6,236	0
August	821	366	7,937	0
September	819	412	7,253	0
October	821	247	4,639	0
November	819	282	5,071	0
December	821	530	9,099	0
Yearly	9,766	8,747	168,432	0

11-0110.00 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 13.7 kilometers downstream from Morena Dam, 1.6 kilometers downstream from the mouth of Pine Valley Creek, and about 19.3 kilometers upstream from the international boundary. Zero of gage is 440.78 meters 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 1995. Records of stream flow for a station at the dam site are also available for the periods 1906-1915 and 1917-1920.

REMARKS: Storage began at Barrett Reservoir in January 1921. The area-capacity-elevation curves used in the inflow calculations are dated 1948, 1951, and 1955 and were furnished by the City of San Diego, California. Capacity of reservoir at top of flash gates on spillway (gage height 51.47 meters) is 55,205 TCM. Capacity at spillway crest (gage height 49.04 meters) is 46,811 TCM. Dead storage, 887 TCM below lowest outlet (gage height 17.95 meters) 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: Maximum monthly discharge since 1937, 67,540 TCM, February 1980. Prior to 1937, maximum monthly discharge, 67,595 TCM February 1927; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1937 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	9,655	1,589	29,627	6.4
February	13,400	3,416	67,539	9.4
March	62,041	6,072	62,041	17.4
April	16,762	2,743	26,680	12.6
May	10,509	1,256	10,509	0
June	4,740	570	4,818	0
July	5,042	335	5,042	0
August	4,472	212	4,472	0
September	3,858	205	3,858	0
October	0	125	796	0
November	2,519	271	2,519	0
December	2,832	702	6,845	2.1
Yearly	135,830	17,496	141,024	159

11-0114.90 DULZURA CONDUIT BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder 0.8 kilometer downstream from Barrett Dam on right bank of Dulzura Conduit 15.2 meters upstream from road crossing to Barrett Dam. Elevation of gage has not been determined.

RECORDS: Computed on basis of head on control section of flume, as measured by water-stage recorder, and rating curve determined from current meter measurements. Records obtained and furnished by the City of San Diego, California. Records available: January 1909 through 1995.

REMARKS: Barrett Dam was completed in 1921. Prior to this date the intake of Dulzura Conduit was located 2.4 kilometers 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 12.9 kilometers 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 loss in the reach from the reservoir to the gaging station.

EXTREMES: Since 1937: Maximum mean daily discharge, 4.66 CMS on March 8, 1995; minimum discharge, no flow for long periods on many occasions.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	1.70	2.61	1.29	2.02	1.77	1.77	1.77	0	0	1.02
2	0	0	1.74	2.61	.21	2.02	1.77	1.77	1.77	0	.79	1.02
3	0	0	1.79	2.61	.21	2.02	2.02	1.77	1.77	0	.88	1.02
4	0	0	1.84	2.61	.21	2.02	2.02	1.77	1.77	0	1.02	1.02
5	0	0	1.94	2.61	.21	2.02	2.02	1.77	1.77	0	1.02	1.02
6	0	0	2.49	2.61	.21	1.56	2.02	1.77	1.77	0	1.02	1.02
7	0	0	3.22	2.61	.21	1.56	2.02	1.77	1.77	0	1.02	1.02
8	0	0	4.66	2.61	.42	1.56	2.02	1.77	1.77	0	1.02	1.02
9	0	0	4.40	2.61	.39	1.56	2.02	1.77	1.77	0	1.02	1.02
10	0	0	4.17	2.61	.39	1.56	2.02	1.77	1.77	0	1.02	1.02
11	0	0	3.95	2.02	.73	1.56	1.77	1.77	1.77	0	1.02	1.02
12	0	0	3.72	1.69	1.17	1.56	1.77	1.77	1.77	0	1.02	1.02
13	0	1.02	3.52	1.69	1.77	1.77	1.77	1.77	1.77	0	1.02	1.02
14	0	2.04	3.36	1.67	1.77	2.02	1.77	1.77	1.77	0	1.02	1.02
15	0	3.14	3.22	1.65	1.77	1.94	1.77	1.77	1.77	0	1.02	1.02
16	0	4.25	3.04	2.06	1.89	1.84	1.77	1.77	0	0	1.02	1.02
17	0	2.45	2.86	2.58	1.74	1.77	1.77	1.77	0	0	1.02	1.02
18	0	2.33	2.71	1.92	1.61	1.77	1.77	1.77	0	0	1.02	1.02
19	0	2.20	2.58	1.29	1.51	1.77	1.77	1.77	0	0	1.02	1.02
20	0	2.09	2.45	1.34	1.40	1.77	1.77	1.77	0	0	1.02	1.02
21	0	1.99	2.29	1.40	1.29	1.77	1.77	1.77	0	0	1.02	1.02
22	0	1.89	2.68	1.45	1.22	1.77	1.77	1.77	0	0	1.02	1.02
23	0	1.82	2.68	1.51	1.15	1.77	1.77	1.77	0	0	1.02	1.02
24	0	1.74	2.68	1.58	1.10	1.77	1.77	1.77	0	0	1.02	1.02
25	0	1.67	2.68	1.65	1.32	1.77	1.77	1.77	0	0	1.02	1.02
26	0	1.61	2.68	1.29	1.63	1.77	1.77	1.77	0	0	1.02	1.02
27	0	1.56	2.68	1.29	1.99	1.77	1.77	1.77	0	0	1.02	1.02
28	0	1.57	2.68	1.29	1.99	1.77	1.77	1.77	0	0	1.02	1.02
29	0		2.68	1.29	1.97	1.77	1.77	1.77	0	0	1.02	1.02
30	0		2.68	1.29	1.97	1.77	1.77	1.77	0	0	1.02	1.02
31	0		2.65		1.97		1.77	1.77	0	0	1.02	1.02
Sum		33.37	88.42	58.05	36.71	53.37	56.87	54.87	26.55	0	29.21	31.62

Current Year 1995

Period 1937-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			! 1	0	! 1	0	0	469	2,899	0	
Feb.			16	4.25	! 1	0	1.19	2,883	541	2,883	0
Mar.			8	4.66	! 1	1.70	2.85	7,639	784	7,639	0
April			! 1	2.61	! 19	1.29	1.94	5,016	1,003	5,016	0
May			! 27	1.99	! 2	.21	1.18	3,172	1,099	3,750	0
June			! 1	2.02	! 6	1.56	1.78	4,611	1,191	4,611	0
July			! 3	2.02	! 1	1.77	1.83	4,914	1,053	4,914	0
Aug.			! 1	1.77	! 1	1.77	1.77	4,741	985	4,741	0
Sept.			! 1	1.77	! 6	0	.89	2,294	793	2,862	0
Oct.			! 1	0	! 1	0	0	0	627	3,022	0
Nov.			! 4	1.02	! 1	0	.97	2,524	672	3,404	0
Dec.			! 1	1.02	! 1	1.02	1.02	2,732	613	2,843	0
Yearly				4.66		0	1.29	40,526	9,830	40,526	0

φ Mean daily

! And other days

11-0111.00 COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located about 4.0 kilometers downstream from Barrett Dam and 0.8 kilometer 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 305 meters (from topographic map).

RECORDS: Data furnished by the City of San Diego, California. Prior to January 1953, the records were furnished by the City of San Diego and reviewed and revised by the United States Section of the Commission. The recorder is to be operated only when Barrett Reservoir is near or above spillway level. Spillway discharges have occurred in May 1943, March, April 1979, January to May of 1980, April, December 1982, and the entire year of 1983, January to April 1993 and January to March 1995. 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 1995. 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: Maximum monthly discharge since 1937, 111,775 TCM March 1983. Prior to 1937, maximum monthly discharge 47,366 TCM February 1927; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1937 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	10,114	459	10,114	0
February	11,107	2,381	86,736	0
March	54,579	4,861	111,775	0
April	7,224	2,404	45,417	0
May	6,490	1,096	28,287	0
June	3,105	504	13,503	0
July	3,499	259	5,311	0
August	2,892	167	4,206	0
September	1,148	61.4	1,554	0
October	0	51.9	1,530	0
November	2,579	161	5,100	0
December	2,652	210	6,058	0
Yearly	105,389	12,615	254,099	0

11-0120.00 COTTONWOOD CREEK ABOVE TECATE CREEK NEAR DULZURA, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located 2.6 kilometers upstream from the international land boundary between the United States and Mexico, 1.3 kilometers upstream from the confluence with Tecate Creek, and 8.2 kilometers 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 213 meters downstream from the gage. Zero of the gage is 173.55 meters above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and current meter measurements or observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1995.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 16.1 kilometers and 29.0 kilometers, respectively, upstream from this station.

EXTREMES: Maximum discharge 331 CMS February 21, 1980 (gage height 3.400 meters). Minimum discharge, no flow during part of each year.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.12	2.12	0.74	5.49	0.62	1.30	0.34	0.08	0	0	0.01	0
2	.10	1.64	.51	5.24	.65	1.30	.31	.08	0	0	.01	0
3	.12	1.27	.40	5.04	.71	1.27	.31	.07	0	0	0	0
4	.48	.99	.40	4.70	.76	1.25	.28	.05	0	0	0	0
5	10.8	.85	38.8	4.33	.91	1.22	.28	.04	0	0	0	0
6	4.93	.76	167	4.02	1.19	1.22	.27	.04	0	0	0	0
7	1.44	.71	51.5	3.74	1.50	1.22	.25	.03	0	0	0	0
8	.57	.65	34.3	3.51	1.61	1.19	.24	.03	0	0	0	0
9	.40	.59	25.9	3.37	1.67	1.16	.23	.02	0	0	0	0
10	.40	.57	20.8	2.80	1.64	1.10	.21	.03	0	0	0	0
11	4.53	.45	41.6	1.25	1.56	1.08	.20	.03	0	0	0	0
12	5.58	.28	59.5	.88	1.61	1.05	.18	.02	0	0	0	0
13	5.66	.24	34.8	.71	1.87	.99	.18	.02	0	0	0	.01
14	3.06	49.0	25.2	.65	3.79	.96	.18	.01	0	0	0	.01
15	1.61	88.6	20.5	.59	3.82	.93	.17	.01	0	0	0	0
16	2.35	21.7	17.3	1.05	3.82	.99	.17	.01	0	0	0	0
17	3.91	12.9	15.4	1.39	3.79	.96	.16	.01	0	0	0	0
18	3.20	8.64	13.9	1.22	3.79	.91	.16	.01	0	0	0	0
19	1.78	6.03	12.8	1.42	3.62	.85	.14	.01	0	0	0	0
20	1.08	4.33	11.9	1.25	2.07	.82	.14	.01	0	0	0	.01
21	.88	3.14	11.6	1.16	1.76	.76	.14	.01	0	0	0	.01
22	.79	2.75	13.0	1.05	1.70	.74	.13	.02	0	0	0	0
23	.65	2.38	12.2	.93	1.70	.71	.13	.02	0	0	0	.01
24	.68	1.93	14.0	.85	1.70	.68	.11	.03	0	0	0	.01
25	3.68	1.59	11.4	.79	1.70	.62	.11	.03	0	0	0	.01
26	41.1	1.30	9.60	.71	1.67	.57	.11	.05	0	0	0	.01
27	17.7	1.13	8.58	.68	1.64	.51	.10	.05	0	0	0	.01
28	7.93	.99	7.90	.71	1.56	.45	.10	.06	0	0	0	.01
29	4.70		7.33	.68	1.50	.40	.10	.03	0	0	0	.01
30	3.51		6.77	.62	1.42	.34	.08	.01	0	0	0	.01
31	2.80		6.15		1.36		.08	0	0	0	0	.01
Sum	136.54	217.53	701.78	60.83	58.71	27.55	5.59	0.92	0	0	0.02	0.14

Current Year 1995

Period 1937-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			26	41.1	2	0.10	4.40	11,797	1,526	45,897	0
Feb.			15	88.6	13	.24	7.77	18,795	3,768	85,134	0
Mar.			6	167	13	.40	22.6	60,634	5,679	109,418	0
April			1	5.49	15	.59	2.03	5,256	2,713	49,635	0
May			115	3.82	1	.62	1.89	5,073	1,008	22,439	0
June			1	1.30	30	.34	.92	2,380	355	7,301	0
July			1	.34	130	.08	.18	483	115	3,599	0
Aug.			1	.08	31	0	.03	79.5	89.4	1,850	0
Sept.			1	0	1	0	0	0	87.2	4,209	0
Oct.			1	0	1	0	0	0	98.7	291	0
Nov.			1	.01	3	0	0	1.7	59.2	1,378	0
Dec.			113	.01	1	0	0	12.1	192	3,169	0
Yearly				167		0	3.31	104,511	15,691	220,556	0

φ Mean daily

! And other days

11-0125.00 CAMPO CREEK NEAR CAMPO, CALIFORNIA

DESCRIPTION: Water-stage recorder and broad-crested weir on left bank, 0.8 kilometer upstream from the international land boundary between the United States and Mexico, just upstream from the bridge on California State Highway 94, 5.6 kilometers southwest of Campo, California. Zero of gage is 664.135 meters 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 from October 1936 through 1995.

REMARKS: Campo Creek originates in the United States and flows southwestward into Mexico where it joins Tecate Creek. The flow at this station was partially regulated by a small conservation reservoir, 1.6 kilometers upstream, from August 1956 to February 20, 1980, when it was destroyed by a flood.

EXTREMES: Maximum discharge, 25.3 CMS, March 24, 1983 (gage height 1.640 meters present datum), from rating curve extended above 3.12 CMS on basis of velocity-depth relation and cross section area at the control. Minimum discharge, no flow during part of most years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.13	0.37	0.54	0.62	0.57	0.31	0.11	0.03	0.02	0.02	0.06	0.13
2	.12	.34	.59	.65	.54	.31	.12	.03	.03	.01	.07	.14
3	.17	.34	.65	.65	.54	.28	.12	.02	.02	.01	.07	.14
4	.59	.34	.68	.62	.54	.28	.12	.02	.02	.02	.07	.14
5	3.34	.34	5.13	.62	.57	.28	.12	.02	.02	.02	.07	.13
6	.62	.34	7.99	.65	.74	.27	.12	.02	.02	.02	.07	.14
7	.48	.34	3.23	.65	.71	.26	.11	.02	.02	.02	.07	.14
8	.42	.34	2.97	.65	.51	.26	.11	.02	.02	.02	.07	.14
9	.37	.34	2.92	.68	.45	.25	.11	.02	.02	.02	.07	.14
10	.42	.34	2.72	.65	.40	.26	.11	.02	.02	.02	.07	.14
11	.99	.31	4.93	.65	.40	.24	.10	.02	.02	.02	.08	.14
12	.76	.31	3.37	.65	.37	.24	.10	.02	.02	.02	.08	.14
13	.76	.37	2.35	.68	.37	.23	.09	.02	.02	.02	.08	.15
14	.54	3.71	1.90	.71	.40	.23	.09	.02	.02	.02	.08	.18
15	.51	4.05	1.59	.76	.37	.23	.08	.02	.02	.02	.08	.17
16	.74	1.70	1.39	1.02	.37	.25	.08	.02	.02	.03	.08	.16
17	.71	1.36	1.19	1.27	.37	.25	.07	.02	.02	.03	.08	.17
18	.51	1.10	1.08	1.05	.37	.23	.07	.02	.02	.03	.08	.16
19	.48	.91	1.02	1.08	.34	.20	.07	.02	.02	.03	.09	.16
20	.45	.76	.99	.85	.34	.18	.06	.02	.02	.03	.09	.17
21	.48	.62	1.02	.79	.31	.17	.06	.02	.02	.03	.09	.17
22	.45	.54	.99	.74	.34	.15	.05	.02	.02	.04	.10	.17
23	.40	.54	1.02	.68	.37	.14	.05	.02	.02	.04	.11	.18
24	.37	.51	.96	.65	.37	.12	.05	.02	.02	.04	.11	.18
25	.65	.54	.79	.65	.40	.11	.04	.02	.02	.04	.11	.18
26	2.07	.54	.71	.62	.37	.11	.04	.02	.02	.04	.11	.17
27	.79	.54	.68	.62	.40	.11	.04	.02	.02	.04	.12	.17
28	.68	.51	.68	.59	.37	.12	.03	.02	.02	.05	.12	.17
29	.57		.65	.59	.37	.12	.03	.02	.02	.05	.12	.17
30	.45		.65	.57	.34	.12	.03	.01	.02	.05	.13	.17
31	.40		.62		.31		.03	.01		.06		.18
Sum	20.42	22.35	56.00	21.66	13.22	6.31	2.41	0.62	0.61	0.91	2.63	4.91

Current Year 1995 Period 1937-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			5	3.34	2	0.12	0.66	1,764	438	10,581	0
Feb.			15	4.05	111	.31	.80	1,931	543	5,288	0
Mar.			6	7.99	1	.54	1.81	4,838	909	11,587	0
April			17	1.27	30	.57	.72	1,871	552	8,886	0
May			6	.74	121	.31	.43	1,142	271	3,956	0
June			1	.31	125	.11	.21	545	136	2,234	0
July			1	.12	128	.03	.08	208	74.7	1,525	0
Aug.			1	.03	130	.01	.02	53.6	69.9	2,008	0
Sept.			2	.03	1	.02	.02	52.7	51.3	1,214	0
Oct.			31	.06	1	.01	.03	78.6	64.1	1,084	0
Nov.			30	.13	1	.06	.09	227	127	1,522	0
Dec.			24	.20	1	.13	.16	424	212	1,953	0
Yearly				7.99		0.01	0.42	13,135	3,448	38,639	0

φ Mean daily

! And other days

11-0131.00 INFLOWS TO RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Rodriguez Dam is located in Mexico on Rio de las Palmas, the principal tributary to the Tijuana River, about 9.0 kilometers upstream from its confluence with Cottonwood Creek, 17.0 kilometers upstream from the point where the Tijuana River crosses the international boundary between the United States and Mexico, and 16.0 kilometers 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 Agriculture and Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana, Baja California, and from April 1966 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1995. Storage began in Rodriguez Reservoir on September 22, 1936.

REMARKS: Records of runoff represent all water reaching Rodriguez Reservoir, including rainfall on the reservoir water surface. Area-capacity-elevation rating for reservoir used in the computations is dated 1927 when the reservoir area was initially surveyed. Elevation of crest of spillway 115.85 meters above mean sea level; at top of spillway gates 125.00 meters above mean sea level. Reservoir capacity at spillway crest 92,370 TCM; at top of spillway gates 138,000 TCM.

EXTREMES: Maximum monthly inflow, 194,216 TCM; February 1980; minimum, no flow during part of most years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1938 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	14,271	4,849	131,649	0
February	23,021	7,833	194,216	7.2
March	58,762	12,960	172,556	5.2
April	9,250	3,851	95,953	0
May	3,767	752	14,136	0
June	70.0	223	5,749	0
July	0	119	1,806	0
August	0	70.0	950	0
September	0	71.0	575	0
October	0	90.0	432	0
November	0	186	2,393	0
December	0	980	19,348	0
Yearly	109,141	31,985	381,515	313

11-0132.00 DIVERSIONS FROM RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

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

RECORDS: Direct recording by Sparling flow meter. Records through May 1961 were obtained by the Ministry of Agriculture and Hydraulic Resources; from June 1961 to March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana; and from April 1966 through 1990 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1995.

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

EXTREMES: Maximum monthly diversion, 36,018 TCM, March 1995; minimum, no flow on several occasions since March 1941.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1995	PERIOD 1938 - 1995		
		AVERAGE	MAXIMUM	MINIMUM
January	4,543	543	4,543	0
February	4,460	537	4,460	0
March	36,018	1,141	36,018	0
April	4,059	705	4,059	0
May	4,812	869	4,812	0
June	5,251	1,002	5,251	0
July	5,681	1,099	5,681	0
August	5,859	1,048	5,931	0
September	6,158	943	6,158	0
October	6,054	867	6,054	0
November	5,873	756	5,873	0
December	6,212	722	6,212	0
Yearly	94,980	10,235	94,980	0

11-0133.00 TIJUANA RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder on top of north levee about 1.1 kilometers downstream (north) from boundary, 1.8 kilometers upstream from the new Dairy Mart Road bridge, and 2.3 kilometers west of the international gate at San Ysidro, California. Zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, staff gage readings and record of gage heights. Records obtained and furnished by the United States Section of the Commission. Records available: May 1947 through 1995.

EXTREMES: Since May 1947: Maximum instantaneous discharge, 937 CMS, February 21, 1980; minimum discharge, no flow during many years since 1951.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.96	2.81	4.56	5.95	1.69	2.19	1.01	0	0	0.63	0.18	0.58
2	.99	2.65	4.50	5.24	1.67	2.26	1.04	0	0	0	.17	.46
3	1.00	2.67	4.53	4.47	1.68	2.47	.96	0	0	0	.08	.68
4	11.9	2.56	4.59	3.91	1.67	2.41	.96	0	.01	0	.01	.52
5	18.5	2.52	20.7	3.68	2.04	2.23	.86	0	.02	0	.02	.32
6	10.8	2.40	141	4.02	3.68	2.01	.69	0	0	0	0	.23
7	8.04	2.39	22.7	4.28	3.60	1.86	.54	.06	0	0	0	.27
8	5.47	2.18	26.6	4.22	3.17	1.75	.58	.20	0	0	0	.28
9	3.54	2.49	54.9	3.91	3.12	1.80	.53	.08	0	0	0	.27
10	1.97	2.12	39.1	3.82	3.06	1.78	.48	0	0	0	.03	.31
11	4.73	2.10	185	3.20	3.00	1.81	.43	0	0	0	0	.33
12	6.43	2.10	464	2.71	3.12	1.81	.47	0	0	0	0	.30
13	7.36	2.51	371	2.51	3.34	1.74	.49	0	0	0	0	.28
14	4.81	32.3	36.0	2.56	3.85	1.68	.33	0	0	0	0	.13
15	2.97	106	26.8	2.63	4.22	1.50	.25	0	0	0	0	.14
16	3.46	25.8	21.1	4.84	4.30	1.55	.31	.11	0	0	0	.18
17	6.91	14.5	17.2	4.93	4.53	1.96	.34	0	0	0	0	.11
18	3.79	11.2	73.6	5.04	4.73	1.92	.32	.02	0	0	0	0
19	4.33	9.09	36.2	4.93	4.50	1.50	.34	0	0	0	0	0
20	3.65	7.70	15.0	4.28	3.94	1.37	.31	0	0	0	0	.16
21	3.06	6.49	21.2	3.31	3.37	1.33	.32	0	0	0	0	.12
22	2.46	6.03	17.5	2.71	3.17	1.29	.32	0	0	0	.09	.29
23	1.97	6.03	17.9	2.34	2.97	1.27	.47	0	.20	0	.07	.71
24	1.86	5.49	14.9	2.34	2.89	1.24	.38	0	.74	.02	.09	.35
25	7.33	5.32	12.7	2.92	2.76	1.20	.28	0	0	0	0	.42
26	34.3	5.18	39.9	2.89	2.61	1.09	.23	0	.03	0	0	.28
27	16.0	5.04	10.0	2.66	2.52	1.00	.20	0	.06	0	0	.18
28	9.66	4.84	8.95	2.05	2.50	.92	.19	0	0	0	0	.06
29	7.08		8.75	1.92	2.45	.96	.20	0	0	0	.12	.04
30	5.27		8.44	1.84	2.36	.97	.22	0	0	0	.46	0
31	3.60		7.36		2.25		.10	0	0	0	0	0
Sum		282.51		106.11		48.87		0.47		0.65		8.00
	204.20		1,736.68		94.76		14.15		1.06		1.32	

Current Year 1995

Period 1947-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day			Total	Average	Maximum	Minimum
					Day	Low					
Jan.	12.745	11.890	1	70.0	1	0.61	6.59	17,643	9,753	297,879	0
Feb.	13.140	12.045	15	251	8	1.79	10.1	24,409	15,366	388,951	0
Mar.	13.300	12.035	12	504	4	4.22	56.0	150,049	18,362	362,019	0
April	12.420	12.045	16	8.38	30	1.79	3.54	9,168	4,187	77,633	0
May	12.215	12.025	19	4.90	3	1.50	3.06	8,187	2,247	52,545	0
June	12.080	11.995	3	2.60	30	.83	1.63	4,222	761	11,960	0
July	12.025	11.665	2	1.12	31	0	.46	1,223	557	11,400	0
Aug.	11.975	11.665	16	.56	1	0	.02	40.6	682	21,083	0
Sept.	12.075	11.665	23	1.65	1	0	.04	91.6	296	5,142	0
Oct.	12.105	11.665	1	2.05	1	0	.02	56.2	406	6,859	0
Nov.	12.010	11.665	30	.95	1	0	.04	114	577	5,399	0
Dec.	12.080	11.665	23	1.76	114	0	.26	691	1,048	8,820	0
Yearly	13.300	11.665		504		0	6.85	215,894	54,222	734,432	0

1 And other days

STORED WATER IN RESERVOIRS, TIJUANA RIVER BASIN

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

The storage data for Morena and Barrett reservoirs are obtained and provided by the City of San Diego, California and the U.S. Geological Survey. The data for Rodriguez Dam were provided by the Secretariat of Hydraulic Resources in Mexico up to May 1961, from June 1961 to March 1966 the data were provided by the Potable Water and Sewerage Board for the Urban District of Tijuana, from April 1966 to December 1991, the data were provided by the State Public Service Commission of Tijuana, Baja California, and since 1992, by the Secretariat of Agriculture and Hydraulic Resources.

IN THOUSAND CUBIC METERS

Month	MORENA RESERVOIR, CALIFORNIA (Capacity 61,933)		BARRETT RESERVOIR, CALIFORNIA (Capacity 55,211)		RODRIGUEZ RESERVOIR, BAJA CALIFORNIA (Capacity 138,000)		TOTAL IN TIJUANA RIVER BASIN RESERVOIRS (Capacity 255,147)	
	1995	Average 1937-1995	1995	Average 1937-1995	1995	Average 1937-1995	1995	Average 1937-1995
Jan.	52,242	23,662	46,967	18,111	92,328	42,058	191,537	83,831
Feb.	56,823	25,170	46,907	19,242	110,264	43,908	213,994	88,320
Mar.	62,242	26,676	47,158	21,528	132,208	49,751	241,608	97,955
April	62,384	26,850	51,900	22,220	136,704	50,260	250,988	99,330
May	62,308	26,602	53,592	21,801	135,354	49,557	251,254	97,960
June	62,080	25,952	50,824	20,945	128,332	48,091	241,236	94,988
July	60,461	25,236	47,491	20,004	121,332	46,199	229,284	91,439
Aug.	58,466	24,603	44,421	19,047	114,200	44,339	217,087	87,989
Sept.	56,521	23,930	43,590	18,411	107,240	42,947	207,351	85,288
Oct.	55,113	23,499	43,993	17,813	100,038	41,469	199,144	82,781
Nov.	54,139	23,337	41,934	17,400	93,644	40,837	189,717	81,574
Dec.	53,627	23,483	40,025	17,677	87,236	40,874	180,888	82,034
Avg.	58,034	24,917	46,567	19,517	113,240	45,024	217,841	89,458
Max.	62,384	! 76,069	53,592	*! 56,641	136,704	! 138,486	251,254	! 263,471
Min.	52,242	!! 12	40,025	!! 131	87,236	!! 0	180,888	!! 1,559

- March 31, 1941 - Prior to removal of spillway gates

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

! - Maximum end of month storage for period of record

!! - Minimum end of month storage for period of record

RAINFALL ON THE TIJUANA RIVER WATERSHED
IN MILLIMETERS

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

IN THE UNITED STATES

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Sawday Ranch, California		Campo, California	
	1995	Average 1906-1995	1995	Average 1907-1995	1995	Average 1951-1995	1995	Average 1950-1995	1995	Average 1900-1995
Jan.	330	100	287	92	#	#	299	95	257	81
Feb.	115	97	103	87	#	#	113	79	83	82
Mar.	262	92	219	84	#	#	216	83	168	75
April	42	41	41	37	#	#	52	36	32	34
May	58	15	36	13	#	#	26	10	28	12
June	14	3	8	2	#	#	5	1	12	2
July	2	9	1	3	#	#	1	14	2	12
Aug.	3	15	0	6	#	#	9	21	16	14
Sept.	12	10	3	6	#	#	2	12	7	9
Oct.	0	22	0	18	#	#	0	14	0	16
Nov.	3	39	5	37	#	#	1	43	2	34
Dec.	31	76	16	69	#	#	15	59	25	61
Yearly	872	519	719	454	#	#	739	467	632	432

Month	Chula Vista, California		Lower Otay Dam, California						
	1995	Average 1930-1995	1995	Average 1906-1995					
Jan.	146	49	125	57					
Feb.	48	45	59	43					
Mar.	76	45	92	58					
April	32	20	23	25					
May	6	5	24	10					
June	10	2	18	3					
July	T	0	1	1					
Aug.	0	2	0	3					
Sept.	0	4	0	5					
Oct.	0	9	0	9					
Nov.	1	28	2	32					
Dec.	6	40	11	38					
Yearly	325	249	355	284					

T Trace

IN MEXICO

Month	El Pinal, Baja California		El Hongo, Baja California		Belen, Baja California		Tecate, Baja California		El Carrizo, Baja California	
	1995	Average 1964-1995	1995	Average 1980-1995	1995	Average 1965-1995	1995	Average 1946-1959 1961-1995	1995	Average 1980-1995
Jan.	#	84	195	73	202	63	242	79	140	46
Feb.	#	90	66	71	96	71	57	54	33	46
Mar.	#	94	108	77	141	71	198	68	108	69
April	#	37	37	18	38	27	40	27	30	18
May	#	9	26	6	12	5	36	8	18	4
June	#	1	2	2	3	T	8	2	4	1
July	#	18	1	13	0	3	0	4	1	5
Aug.	#	23	7	7	0	6	0	6	0	3
Sept.	#	18	6	7	3	9	0	4	0	4
Oct.	#	16	T	12	0	15	0	12	3	16
Nov.	#	46	25	32	6	39	0	36	3	34
Dec.	#	71	9	30	11	48	24	51	12	38
Yearly		494	482	371	512	367	605	351	349	306

Missing record

T Trace

RAINFALL ON THE TIJUANA RIVER WATERSHED
IN MILLIMETERS

IN MEXICO

	Valle de Palmas, Baja California		Rodriguez Dam, Baja California						
	1995	Average 1948-1995	1995	Average 1938-1995					
Jan.	12	45	116	45					
Feb.	32	37	72	40					
Mar.	63	41	125	45					
April	29	15	26	18					
May	15	4	13	3					
June	0	T	2	T					
July	0	2	1	T					
Aug.	0	5	0	2					
Sept.	8	5	0	5					
Oct.	0	9	0	9					
Nov.	4	21	5	24					
Dec.	4	28	11	38					
Yearly	167	202	371	232					

T Trace

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

The precipitation records of the stations listed alphabetically below began on the date shown and extend through 1995.

IN THE UNITED STATES

NAME OF STATION	LATITUDE	LONGITUDE	φ ELEV. (Meters)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	494.69	1907	City of San Diego
Campo, California	32° 38'	116° 28'	801.62	1877	County of San Diego
Chula Vista, California	32° 36'	117° 06'	2.74	1930	Chula Vista Fire Department
Lower Otay Dam, California	32° 37'	116° 56'	164.59	1906	City of San Diego
Marron Valley, California	32° 34'	116° 46'	167.64	1951	County of San Diego
Morena Dam, California	32° 41'	116° 31'	937.26	1906	City of San Diego
Sawday Ranch, California	32° 45'	116° 29'	975.36	1950	William Tulloch

IN MEXICO

NAME OF STATION	LATITUDE	LONGITUDE	φ ELEV. (Meters)	RECORD BEGAN	OBSERVER
Belen, Baja California	32° 12'	116° 29'	555.04	1965	** CNA
El Carrizo, Baja California	32° 29'	116° 42'	494.99	1980	CNA
El Hongo, Baja California	32° 31'	116° 18'	960.12	1981	CNA
El Pinal, Baja California	32° 11'	116° 17'	"1350.00	1964	CNA
Rodriguez Dam, Baja California	32° 27'	116° 54'	120.09	1938	CNA
Tecate, Baja California	32° 33'	116° 41'	480.06	1946	CNA
Valle de Las Palmas, Baja California	32° 22'	116° 37'	280.11	1948	CNA

φ Elevation above mean sea level

" Estimated from topographic maps

** Baja California State Office of the National Water Commission

EVAPORATION IN THE TIJUANA RIVER BASIN
IN MILLIMETERS

Tabulated below are records of evaporation observed at 3 stations in California and at 2 stations in Baja California, with averages for their periods of record. The stations in California are observed by Western Salt Company, City of San Diego, California, and the United States Section of the Commission; those in Baja California are observed by the Ministry of Agriculture and Hydraulic Resources of Mexico. For specific location of these stations, refer to data opposite same station name shown in "Location of Rainfall Stations on the Tijuana River Watershed" in this bulletin.

Types of pans used:

1. Barrett Reservoir: January 1921 through September 1926, square 0.91-meter by 0.91-meter by 0.46-meter deep floating pan. October 1926 through 1995, square 0.91-meter by 0.91-meter by 0.46-meter deep land pan set 0.38-meter in ground.

2. Morena Reservoir: October 1915 through December 1921, square 0.91-meter by 0.91-meter by 0.46-meter deep floating pan. January 1922 through August 1926 records are the average of evaporation in a square 0.91-meter by 0.91-meter by 0.46-meter deep floating pan and a land pan of the same dimensions. September 1926 through 1995, square 0.91-meter by 0.91-meter by 0.46-meter deep land pan set 0.38-meter in ground.

3. Lower Otay Dam: January 1950 through 1995, square 0.91-meter by 0.91-meter by 0.46-meter deep land pan set 0.38-meter in ground.

IN THE UNITED STATES

Month	Morena Dam, California		Barrett Dam, California		Lower Otay Dam, California	
	1995	Average 1916-1995	1995	Average 1921-1995	1995	Average 1950-1995
Jan.	62	54	58	48	50	49
Feb.	57	53	48	54	75	58
Mar.	54	81	97	84	55	85
April	81	118	91	117	127	118
May	102	164	93	164	113	153
June	180	212	146	202	147	175
July	219	242	198	238	181	210
Aug.	198	225	197	224	180	198
Sept.	159	179	144	183	156	163
Oct.	116	125	104	128	119	118
Nov.	50	81	62	80	74	72
Dec.	44	57	32	49	58	54
Yearly	1,322	1,591	1,270	1,571	1,335	1,453

IN MEXICO

Month	Rodriguez Dam, Baja California		El Carrizo, Baja California	
	1995	Average 1939-1942 1946-1995	1995	Average 1980-1995
Jan.	67	104	99	140
Feb.	78	106	111	119
Mar.	89	111	113	142
April	141	140	153	179
May	129	128	157	217
June	173	191	242	275
July	206	215	352	296
Aug.	211	199	393	289
Sept.	167	170	276	245
Oct.	118	138	215	208
Nov.	76	111	160	153
Dec.	57	86	119	132
Yearly	1,512	1,713	2,390	2,366

TEMPERATURE IN THE TIJUANA RIVER BASIN
IN DEGREES CELSIUS

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 meters above sod-covered ground. The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations, with maximum and minimum for their periods of record. For specific location, elevation, period of record, and the observer, refer to data opposite same station name as shown in "Location of Rainfall Stations on Tijuana River Watershed" in this bulletin.

IN THE UNITED STATES

Month	Barrett Dam, California				Campo, California				Chula Vista, California			
	1995			Average 1931- 1995	1995			Average 1951- 1995	1995			Average 1931- 1995
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	10.8	22.2	1.7	9.6	#	#	#	8.7	13.9	27.2	5.0	12.0
Feb.	15.5	28.9	4.4	10.7	13.0	29.4	-1.1	9.3	16.8	32.2	8.9	12.7
Mar.	13.2	24.4	2.2	12.0	11.4	27.2	-3.3	10.1	16.3	27.2	7.2	13.4
April	14.7	35.6	3.3	14.5	11.9	27.8	-0.6	12.2	16.4	29.4	7.8	14.9
May	15.3	31.1	6.7	17.1	14.4	33.9	1.7	15.0	16.6	23.9	10.0	16.2
June	20.2	35.6	9.4	20.5	18.3	36.7	2.2	18.6	18.4	25.0	11.7	17.7
July	24.9	40.0	11.7	24.5	23.0	43.9	4.4	22.7	20.8	31.1	13.3	19.8
Aug.	27.1	38.3	14.4	24.6	25.1	41.7	6.7	22.8	22.6	32.2	16.1	20.7
Sept.	25.1	38.9	11.7	22.5	22.3	37.8	5.0	20.5	22.4	31.1	13.9	20.0
Oct.	20.0	33.9	7.2	18.1	17.2	33.3	1.7	16.1	19.6	33.3	8.9	17.7
Nov.	17.7	30.6	6.1	13.4	14.9	30.6	-1.7	11.4	16.9	28.3	8.3	14.8
Dec.	12.9	27.8	-0.6	10.3	10.2	28.3	-5.0	8.8	14.2	23.3	4.4	12.7
Yearly	18.1	40.0	-0.6	16.5	#	#	#	14.7	17.9	33.3	4.4	16.1

IN MEXICO

Month	El Pinal, Baja California				El Hongo, Baja California				Belen, Baja California			
	1995		1964-1995		1995		1981-1995		1995		1965-1995	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	#	#	29	-16	18	-1	25	-9	22	-1	34	-6
Feb.	#	#	31	-10	23	1	27	-6	26	4	32	-6
Mar.	#	#	29	-7	26	-1	29	-2	24	1	36	-4
April	#	#	33	-8	25	0	32	-1	26	2	38	-3
May	#	#	34	-4	36	1	38	1	28	5	40	0
June	#	#	43	-4	36	5	41	2	34	6	43	3
July	#	#	44	0	42	8	42	7	41	10	45	4
Aug.	#	#	44	0	41	15	41	3	42	12	45	5
Sept.	#	#	45	-4	38	9	39	2	42	9	44	1
Oct.	#	#	40	-5	32	7	37	0	36	2	40	-6
Nov.	#	#	35	-10	29	6	29	-2	33	3	34	-4
Dec.	#	#	29	-4	26	-2	27	-8	31	-2	33	-7
Yearly			45	-4	42	-2	42	-9	42	-2	45	-7

Month	Tecate, Baja California				El Carrizo, Baja California				Valle de Palmas, Baja California			
	1995		1946-1995		1995		1980-1995		1995		1948-1995	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	23	0	38	-9	28	4	30	-1	25	1	33	-11
Feb.	32	4	38	-8	31	3	34	-2	29	5	37	-5
Mar.	29	1	36	-5	24	2	32	-4	27	-1	38	-2
April	27	4	39	-2	30	5	41	4	32	1	41	-2
May	31	5	42	1	29	7	42	5	33	4	44	2
June	37	6	44	0	36	9	42	9	40	6	48	4
July	42	10	46	2	46	10	46	8	47	7	49	7
Aug.	41	11	47	1	41	5	45	5	43	10	48	5
Sept.	41	8	46	2	39	6	42	6	42	8	47	4
Oct.	38	8	41	-3	36	6	38	6	39	2	43	0
Nov.	32	4	36	-3	35	5	35	4	37	0	38	-7
Dec.	29	0	36	-5	27	2	32	-3	30	0	35	-6
Yearly	42	0	47	-9	46	2	46	-4	47	-1	49	-11

Missing Data

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

1995

The total area within the Tijuana River basin is 4,484 square kilometers, 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 Mr. Art Letter, General Manager, Tia Juana Valley County Water District, or estimated from aerial photographs. Those in Mexico were furnished by the Ministry of Agriculture and Hydraulic Resources of Mexico through the Mexican Section of the Commission. All irrigation in the Tijuana River basin in 1995 was by pumping from ground water.

Designation of Areas	Drainage Basin-Square Kilometers			Irrigated Areas-Hectares		
	United States	Mexico	Total	United States	Mexico	Total
Cottonwood Creek above Morena Dam	295	0	295	0		0
Morena Dam to Barrett Dam	344	0	344	0		0
above Barrett Dam	640	0	640	0		0
below Barrett Dam and above Tecate Creek	168	0	168	0		0
above Tecate Creek	808	0	808	0		0
Campo Creek above International Boundary	220	10	230	0		0
Tecate Creek above International Boundary (not including Campo Creek)	49	166	215	0		0
Cottonwood Creek above International Boundary Station	1,070	176	1,246	0		0
Rio de las Palmas above Rodriguez Dam	18	2,541	2,559	0	(b)	0
Tijuana River above Nestor Gaging Station	1,186	3,279	4,465	49		49
above the Mouth	1,197	3,287	4,484	(a) 244		244

(a) Data from Otay Water District, leased areas from IBWC irrigation and private landowners.

(b) There was no irrigation in 1995 in the Tijuana Irrigation District, Tijuana Valley, Baja California Mexico, from the Rodriguez Reservoir.



09-5375.00 WHITEWATER DRAW NEAR DOUGLAS, ARIZONA

DESCRIPTION: Water-stage recorder located on U. S. Highway 80 bridge between Douglas and Bisbee, Arizona, about 137 meters upstream from the Southern Pacific Railroad bridge, 2.4 kilometers upstream from the international boundary, and 3.2 kilometers west of Douglas, Arizona. Zero of gage is 1,191.505 meters above mean sea level, U. S. C. & G. S. datum of 1929. Location April 26, 1972 to April 10, 1974 was 61 meters upstream from bridge with the datum 1.340 meters higher.

RECORDS: Based on current meter measurements, observations of no flow, and a continuous record of gage heights. Computations by shifting control methods. Records obtained and furnished by the U. S. Section of the Commission. Records fair. Records available: August to October 1911 (gage heights and discharge measurements only), July to October 1912, January to June 1913, October 1913, December 1913 to June 1914, February to June 1915, October 1915 to September 1919, October 1919 to April 1922 (gage heights and discharge measurements only), July 1930 to December 1933, May 1935 to July 1947, October 1947 through 1995 (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.

EXTREMES: Prior to 1936: Maximum recorded discharge, 97.7 CMS August 10, 1931 (gage height 3.700 meters); maximum estimated discharge, 115 CMS July 27, 1919; minimum discharge, no flow for several days of many years. Since 1936: Maximum discharge, 143 CMS August 7, 1955; maximum gage height, 5.045 meters July 29, 1966; minimum daily discharge, no flow at times during most years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.10	0	0.03	0	0	0	0	0	0	0	0	0
2	.09	0	.01	0	0	0	0	0	0	0	0	0
3	.08	0	0	0	0	0	0	0	0	0	0	0
4	.06	0	0	0	0	0	0	0	0	0	0	0
5	.04	0	0	0	0	0	0	0	0	0	0	0
6	.25	0	0	0	0	0	0	0	0	0	0	0
7	.19	0	0	0	0	0	0	0	0	0	0	0
8	.09	0	0	0	0	0	0	0	0	0	0	0
9	.06	0	0	0	0	0	0	0	0	0	0	0
10	.08	0	0	0	0	0	0	0	0	0	0	0
11	.08	0	0	0	0	0	0	0	0	0	0	0
12	.06	0	0	0	0	0	0	.02	0	0	0	0
13	.04	0	0	0	0	0	0	.27	0	0	0	0
14	.01	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	.19	0	0	0	0
16	0	0	0	0	0	0	0	.35	0	0	0	0
17	0	0	0	0	0	0	0	.49	0	0	0	0
18	0	0	0	0	0	0	.56	.13	0	0	0	0
19	0	.01	0	0	0	0	0	.37	0	0	0	0
20	0	.13	0	0	0	0	0	.18	0	0	0	0
21	0	.14	0	0	0	0	0	0	0	0	0	0
22	0	.15	0	0	0	0	0	0	0	0	0	0
23	0	.15	0	0	0	0	0	0	0	0	0	0
24	0	.19	0	0	0	0	0	0	0	0	0	0
25	0	.16	0	0	0	0	0	0	0	0	0	0
26	0	.13	0	0	0	0	0	0	0	0	0	0
27	0	.11	0	0	0	0	0	.61	0	0	0	0
28	0	.08	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	1.23	1.25	0.04	0	0	0	0.56	2.61	0	0	0	0

Current Year 1995

Period 1936-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.	1.910	1.630	6	0.47	115	0	0.04	106	42.5	556	0
Feb.	1.785	1.630	24	.19	1	0	.04	108	20.5	163	0
Mar.	1.690	1.630	1	.06	2	0	0	3.5	26.1	364	0
April	1.630	1.630	1	0	1	0	0	0	19.1	213	0
May	1.630	1.630	1	0	1	0	0	0	13.6	170	0
June	1.630	1.630	1	0	1	0	0	0	127	1,961	0
July	2.085	1.630	18	1.83	1	0	.02	48.4	1,955	10,004	0
Aug.	2.090	1.630	27	1.87	1	0	.08	226	3,182	17,861	0
Sept.	1.630	1.630	1	0	1	0	0	0	852	3,910	0
Oct.	1.630	1.630	1	0	1	0	0	0	390	7,528	0
Nov.	1.630	1.630	1	0	1	0	0	0	48.6	714	0
Dec.	1.630	1.630	1	0	1	0	0	0	133	2,915	0
Yearly	2.090	1.630		1.87		0	0.02	492	6,789	27,533	0

1 And other days

SEWAGE INFLUENT, DOUGLAS, ARIZONA
INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Parshall flume in the influent line of the older trickling filter unit and a Parshall flume in the influent line of the newer extended aeration unit. The treatment plant is located about 1.6 kilometers west of the Douglas-Agua Prieta Port of Entry immediately adjacent to the international boundary in Douglas, Cochise County, Arizona.

RECORDS: Continuous monthly records since March 1948; daily records from March 18, 1948 through 1950 and from January 1952 through 1995.

REMARKS: The older 4.9 thousand cubic meters per day trickling filter unit was constructed in 1947 by the International Boundary and Water Commission. Since April 8, 1968 all sewage from Agua Prieta has been retained in Mexico to be used for irrigation along with the effluent from the Douglas International Treatment Plant. On July 1, 1973, ownership and operation of the plant was transferred from the International Boundary and Water Commission to the City of Douglas. In 1980 the plant was enlarged, with the addition of the extended aeration unit bringing the total capacity up to 9.8 thousand cubic meters per day. The effluent from the Douglas Treatment Plant is discharged through a closed conduit to Mexico.

Month	Total Monthly Flows Thousand Cubic Meters			Mean Daily Flows—Thousand Cubic Meters Per Day					
	U.S.	Mexico	Total	Current Year 1995			Period 1952-1995		
				Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	164	0	164	6.7	4.4	5.3	9.6	1.6	4.4
Feb.	147	0	147	6.8	3.6	5.3	17.7	2.1	4.4
Mar.	162	0	162	7.1	3.8	5.2	13.9	2.2	4.4
April	153	0	153	6.2	3.7	5.1	12.9	1.4	4.4
May	166	0	166	6.7	3.7	5.3	12.2	1.9	4.4
June	156	0	156	7.1	3.2	5.2	9.5	2.1	4.5
July	165	0	165	6.0	3.3	5.3	14.1	1.8	4.7
Aug.	163	0	163	6.6	3.8	5.3	10.2	1.4	4.7
Sept.	153	0	153	5.8	4.5	5.1	9.6	1.8	4.6
Oct.	152	0	152	5.5	4.7	4.9	12.0	2.3	4.5
Nov.	158	0	158	6.1	4.0	5.2	10.9	1.2	4.5
Dec.	156	0	156	5.8	4.3	5.0	12.6	1.9	4.5
Yearly	1,897	0	1,897	7.1	3.2	5.2	17.7	1.2	4.5

09-4705.00 SAN PEDRO RIVER AT PALOMINAS, ARIZONA

DESCRIPTION: Water-stage recorder located near left bank on downstream side of the bridge pier at Highway 92, 1.1 kilometers east of Palominas, 4.0 kilometers upstream from Green Brush Draw, 7.2 kilometers downstream from international boundary, and 19 kilometers southwest of Bisbee, Arizona. Zero of gage is 1,276.39 meters above mean sea level (State Highway bench mark).

RECORDS: Based on current meter measurements, observations of no flow, and a continuous record of gage heights. Records available: May 1930 to October 1935, May 1935 to July 1941, and July 1950 through 1995. Records obtained and furnished by U. S. Geological Survey prior to October 1, 1981 and from October 1, 1995 through December 31, 1995, and by the United States Section of the Commission from October 1, 1981 through September 30, 1995.

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

EXTREMES: Maximum daily discharge, 623 CMS on August 14, 1940 (gage height 4.93 meters present datum), from rating curve extended above 159 CMS on basis of slope-area measurement of peak flow; no flow at time in most years. Greatest flood known occurred on September 28, 1926 (gage height, about 7.28 meters present datum), from flood marks; discharge not determined.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.46	1.21	0.88	0.23	0.07	0	0	0	0	0	0	0
2	1.37	1.23	.83	.20	.04	0	0	0	0	0	0	0
3	1.31	1.25	.80	.16	.03	0	0	0	0	0	0	0
4	1.25	1.14	.77	.15	.03	0	0	0	0	0	0	0
5	1.25	1.11	.72	.14	.03	0	0	0	0	0	0	0
6	6.71	1.13	.71	.12	.06	0	0	0	0	0	0	0
7	4.45	1.10	.68	.10	.09	0	0	0	0	0	0	0
8	3.12	1.13	.66	.12	.11	0	0	0	0	0	0	0
9	2.51	1.15	.66	.12	.08	0	0	0	0	0	0	0
10	2.27	1.17	.65	.14	.02	0	0	0	0	0	0	0
11	2.20	1.16	.62	.14	.02	0	0	.11	0	0	0	0
12	2.11	1.21	.60	.13	.02	0	0	0	0	0	0	0
13	2.03	1.27	.60	.12	.02	0	0	0	0	0	0	0
14	1.99	1.29	.57	.10	.02	0	0	0	0	0	0	0
15	1.93	2.25	.56	.08	.02	0	0	2.15	0	0	0	0
16	1.82	25.0	.54	.08	.01	0	0	.27	0	0	0	.01
17	1.76	8.38	.48	.08	0	0	.02	.50	0	0	0	.01
18	1.69	4.45	.46	.11	0	0	0	.57	.63	0	0	.01
19	1.65	2.89	.46	.14	0	0	0	.07	.91	0	0	.02
20	1.57	2.00	.45	.16	.01	0	0	.57	.01	0	0	.02
21	1.52	1.57	.43	.17	.08	0	0	1.20	0	0	0	.03
22	1.50	1.38	.40	.15	.02	0	0	.27	0	0	0	.03
23	1.45	1.29	.38	.13	0	0	0	.09	0	0	0	.03
24	1.46	1.21	.36	.12	0	0	0	.06	0	0	0	.03
25	1.43	1.16	.35	.10	0	0	0	.74	0	0	0	.03
26	1.40	1.12	.34	.06	0	0	0	.44	0	0	0	.03
27	1.34	1.07	.32	.04	0	0	0	.27	0	0	0	.03
28	1.36	.92	.31	.04	0	0	0	.06	0	0	0	.03
29	1.36		.28	.04	0	0	0	.01	0	0	0	.03
30	1.31		.27	.06	0	0	0	0	0	0	0	.03
31	1.28		.26		0	0	0	0	0	0	0	.03
Sum	59.86	71.24	16.40	3.53	0.78	0	0.02	7.38	1.55	0	0	0.40

Current Year 1995

Period 1951-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.	1.450	0.800	6	9.49	5	1.21	1.93	5,172	2,583	35,987	3.2
Feb.	2.075	.790	16	39.9	27	.92	2.54	6,155	1,066	8,343	3.7
Mar.	.890	.810	1	.95	31	.25	.53	1,417	931	9,129	16.4
April	.830	.770	1	.25	28	.03	.12	305	213	1,282	0
May	.805	.735	7	.11	16	0	.03	67.4	71.8	502	0
June	.735	.735	1	0	1	0	0	0	153	1,716	0
July	.850	.735	17	.27	1	0	0	1.7	5,646	21,263	0
Aug.	1.360	.675	25	6.80	1	0	.24	638	9,108	44,860	204
Sept.	1.375	.675	19	7.14	1	0	.05	134	2,161	20,160	13.9
Oct.	.735	.735	1	φ	1	φ	0	0	2,088	58,371	0
Nov.	.735	.735	1	φ	0	1	φ	0	719	19,006	0
Dec.	.770	.735	12	φ	.03	1	φ	.01	34.6	31,428	7.6
Yearly	2.075	0.675		39.9		0	0.44	13,925	26,867	77,448	5,427

! And other days.

φ Mean daily

09-4800.00 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, 4.0 kilometers northeast of Lochiel, Arizona, and 2.7 kilometers upstream from the international land boundary. The elevation of the zero of the gage has not been determined, but topographic maps indicate the elevation of the stream bed at the gage is about 1,408 meters.

RECORDS: Based on current meter measurements, observations of no flow, and a continuous record of gage heights. Records obtained and furnished by the U. S. Geological Survey. Records available: January 1949 through 1995.

REMARKS: There are small diversions by ground water pumping for irrigating about 80.9 hectares above this station. EXTREMES: Maximum discharge, 362 CMS on August 15, 1984, (gage height 3.19 meters); minimum discharge, no flow for several days of many years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.14	0.18	0.15	0.07	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02
2	.14	.18	.16	.07	.02	.02	.02	.02	.02	.01	.02	.02
3	.14	.17	.15	.07	.02	.02	.02	.02	.02	.01	.02	.02
4	.14	.16	.16	.06	.02	.02	.02	.02	.02	.02	.01	.02
5	1.50	.16	.16	.06	.02	.02	.02	.02	.02	.02	.02	.02
6	.59	.16	.19	.06	.02	.02	.02	.02	.02	.02	.02	.02
7	.18	.16	.20	.05	.02	.02	.02	.02	.02	.02	.02	.02
8	.15	.15	.20	.05	.02	.02	.02	.02	.02	.02	.02	.02
9	.14	.15	.20	.05	.02	.02	.02	.02	.02	.02	.02	.02
10	.14	.17	.20	.05	.03	.02	.02	.02	.02	.02	.02	.02
11	.13	.16	.20	.05	.03	.02	.02	.02	.02	.02	.02	.02
12	.13	.15	.20	.05	.03	.02	3.20	.02	.02	.02	.02	.02
13	.13	.16	.21	.04	.03	.01	.08	.02	.02	.02	.02	.02
14	.14	.16	.22	.04	.03	.01	.03	.02	.02	.02	.02	.02
15	.15	.21	.20	.04	.03	.01	.02	.03	.02	.02	.02	.01
16	.16	.17	.19	.03	.03	.01	.02	.03	.02	.02	.02	.02
17	.17	.14	.19	.03	.03	.01	.02	.02	.02	.02	.02	.02
18	.16	.14	.17	.03	.03	.01	.02	.76	.02	.02	.02	.02
19	.17	.13	.15	.04	.03	.02	.05	.04	.02	.02	.02	.02
20	.17	.13	.14	.04	.03	.02	.03	.03	.02	.02	.02	.02
21	.17	.12	.14	.04	.03	.02	.02	.02	.02	.02	.02	.02
22	.18	.12	.14	.03	.02	.02	.02	.02	.02	.02	.02	.01
23	.18	.12	.13	.03	.02	.02	.02	.02	.01	.02	.02	.01
24	.18	.13	.13	.03	.02	.02	.02	1.02	.01	.02	.02	.01
25	.19	.12	.12	.03	.02	.02	.02	.20	.01	.02	.02	.01
26	.20	.12	.11	.03	.02	.02	.02	.03	.01	.02	.02	.01
27	.19	.13	.10	.02	.02	.01	.02	.03	.01	.02	.02	.02
28	.19	.14	.10	.02	.02	.01	.02	.02	.01	.01	.02	.02
29	.18	.09	.02	.02	.02	.02	.02	.02	.01	.01	.02	.02
30	.18	.09	.02	.02	.02	.02	.02	.02	.01	.02	.02	.02
31	.17	.08	.02	.02	.02	.02	.02	.02	.01	.02	.02	.02
Sum	6.78	4.19	4.87	1.25	0.74	0.52	3.91	2.61	0.52	0.57	0.59	0.55

Current Year 1995

Period 1949-1995

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum
Jan.			5	1.50	111	0.13	0.22	586	380	8,822	1.6
Feb.			15	.21	121	.12	.15	362	131	1,233	2.2
Mar.			14	.22	31	.08	.16	421	148	2,594	.9
April			1	.07	127	.02	.04	108	67.7	638	0
May			110	.03	1	.02	.02	63.9	34.2	210	0
June			1	.02	113	.01	.02	44.9	23.9	208	0
July			12	3.20	1	.02	.13	338	579	5,267	2.0
Aug.			24	1.02	1	.02	.08	226	1,169	14,207	.1
Sept.			1	.02	123	.01	.02	44.9	359	3,249	0
Oct.			1	.02	1	.01	.02	49.2	345	5,837	0
Nov.			1	.02	4	.01	.02	51.0	76.9	497	0
Dec.			1	.02	114	.01	.02	47.5	138	1,348	0
Yearly				3.20		0.01	0.07	2,342	3,452	21,433	155

φ Mean daily

! And other days

09-4805.00 SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

DESCRIPTION: Water-stage recorder, cable with sit-down cable car located 8.9 kilometers east of Nogales, Arizona, 1.3 kilometer downstream from the international boundary and 9.7 kilometers upstream from the Santa Cruz bridge on State Highway No. 82. Zero of gage is 1,128.54 meters above mean sea level, U. S. C. & G. S. datum (levels by International Boundary and Water Commission).

RECORDS: Based on current meter measurements, observations of no flow, and a continuous record of gage heights. Records obtained and furnished by the U. S. Geological Survey. 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 1920 to December 1933; and July 1935 through 1995.

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 1995.

EXTREMES: Maximum discharge, 949 CMS on October 9, 1977 (gage height 4.725 meters); minimum discharge, no flow for several days of many years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1995 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.41	0.15	1.19	0.51	0.03	0	0	0	0.12	0	0	0
2	2.01	.15	1.27	.42	.02	0	0	0	.02	0	0	0
3	1.67	.16	1.16	.45	.03	0	0	0	.01	0	0	0
4	1.42	.10	1.19	.37	.01	0	0	0	.01	0	0	0
5	9.74	.10	1.05	.24	.02	0	0	0	.19	0	0	0
6	16.7	.08	1.16	.14	.02	0	0	0	.31	0	0	0
7	11.4	.03	1.13	.12	.03	0	0	0	.91	0	0	0
8	6.68	.04	1.25	.15	.02	0	0	0	.42	0	0	0
9	5.24	.02	1.08	.14	.01	0	0	0	.28	0	0	0
10	4.67	.12	1.13	.12	.01	0	0	0	.12	0	0	0
11	3.29	.09	1.22	.07	.01	0	0	.22	.05	0	0	0
12	2.15	.03	1.05	.07	.01	0	0	.01	.01	0	0	0
13	1.61	.05	1.16	.08	.01	0	0	0	0	0	0	0
14	1.33	.26	1.16	.10	.10	0	0	0	0	0	0	0
15	.99	16.6	.91	.05	.02	0	0	.01	0	0	0	0
16	.74	16.2	.96	.08	.02	0	0	.12	0	0	0	0
17	.62	9.20	.96	.09	.02	0	0	.10	0	0	0	0
18	.48	7.31	.68	.08	.01	0	0	.79	0	0	0	0
19	.48	4.84	.62	.17	.02	0	0	4.25	0	0	0	0
20	.34	3.99	.45	.07	.01	0	0	1.50	0	0	0	0
21	.37	3.82	.68	.07	.01	0	0	.40	0	0	0	0
22	.21	3.43	.45	.12	0	0	0	2.97	0	0	0	0
23	.16	2.55	.54	.11	.01	0	0	.82	0	0	0	0
24	.12	1.39	.85	.10	.01	0	0	.20	0	0	0	0
25	.19	.82	.88	.03	.01	0	0	2.49	0	0	0	0
26	.21	.91	.82	.03	.01	0	0	1.25	0	0	0	0
27	.20	.88	.62	.04	0	0	0	1.81	0	0	0	0
28	.19	1.13	.59	.01	0	0	0	.96	0	0	0	0
29	.18		.37	.03	0	0	0	.68	0	0	0	0
30	.16		.37	.03	0	0	0	.48	0	0	0	0
31	.13		.45		0	0	0	.24	0	0	0	0
Sum	76.09	74.45	27.40	4.09	0.39	0	0	19.30	2.45	0	0	0
Current Year 1995									Period 1936-1995			
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters				
	High	Low	Day	φ High	Day	φ Low		Total	Average	Maximum	Minimum	
Jan.			6	16.7	24	0.12	2.45	6,574	3,149	37,352	0	
Feb.			15	16.6	9	.02	2.66	6,432	2,301	25,344	0	
Mar.			2	1.27	29	.37	.88	2,367	2,012	24,145	0	
April			1	.51	28	.01	.14	353	576	4,263	0	
May			! 1	.03	27	0	.01	33.7	147	1,272	0	
June			! 1	0	! 1	0	0	0	100	1,787	0	
July			! 1	0	! 1	0	0	0	3,130	19,255	0	
Aug.			19	4.25	! 1	0	.62	1,668	6,583	56,481	12.1	
Sept.			7	.91	! 13	0	.08	212	1,849	111,633	0	
Oct.			! 1	0	! 1	0	0	0	2,199	72,806	0	
Nov.			! 1	0	! 1	0	0	0	644	9,108	0	
Dec.			! 1	0	! 1	0	0	0	3,018	41,405	0	
Yearly				16.7		0	0.56	17,640	25,708	108,071	2,756	

φ Mean daily

! And other days

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: One 61-centimeter Parshall flume with a water-stage recorder is located at the international boundary for measuring raw wastewater from Nogales, Sonora. The plant influent and effluent flows are measured by flow meters and recorded on individual chart recorders and continuous totalizers. The Nogales Wash Pumping Plant flows are contaminated surface waters from Mexico captured in the U.S. and pumped into the international sewer trunk line downstream of the influent recorder. Flows determined by pump hour clocks. The Nogales International Treatment Plant is located adjacent to I-19, approximately 14.5 kilometers north of the international boundary, all within the City of Nogales, Santa Cruz County, Arizona.

RECORDS: Flows from the United States are deduced from total plant influent less the flows measured crossing the international boundary from Mexico. Records available: Continuous monthly record for plant influent since August 1951; daily records for plant influent, January 1952 through 1995.

REMARKS: Nogales International Treatment Plant treats combined sewage from both Nogales, Arizona and Nogales Sonora by means of aerated stabilization lagoons. In February 1991, a plant expansion was completed which increased the capacity to 65.1 thousand cubic meters per day. Ultraviolet disinfected effluent is discharged directly into the Santa Cruz River. Prior to the expansion, the plant capacity was 31.0 thousand cubic meters per day and chlorinated effluent was discharged directly to the Santa Cruz River. Prior to December 18, 1971 the plant was located along the right bank of Nogales Wash, approximately 3.2 kilometers north of the international boundary.

Month	Total Monthly Flows				Daily Flows—Thousand Cubic Meters Per Day					
	Thousand Cubic Meters				Current Year 1995			Period 1952-1995		
	U.S.	Mexico	Plant*	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	823	1,377	0	2,200	83.4	63.8	70.9	93.0	2.5	20.9
Feb.	721	1,193	0	1,914	80.4	60.6	68.3	80.4	2.5	21.5
Mar.	681	1,328	0	2,009	70.7	61.1	64.8	85.7	2.8	21.4
April	580	1,241	0	1,821	68.5	55.7	60.7	69.2	2.6	20.2
May	526	1,185	0	1,711	59.4	49.3	55.2	59.4	2.1	19.0
June	485	1,094	0	1,579	54.9	50.2	52.6	62.5	2.6	17.7
July	479	1,060	0	1,539	54.5	44.5	49.6	58.2	2.6	18.4
Aug.	500	1,026	0	1,526	59.1	39.8	49.2	64.6	2.8	19.9
Sept.	506	1,041	0	1,547	56.5	48.3	51.6	61.1	3.0	21.1
Oct.	523	1,044	0	1,567	62.2	45.9	50.5	76.3	2.6	20.9
Nov.	478	1,090	0	1,568	64.4	48.3	52.3	81.8	3.0	20.7
Dec.	499	1,146	0	1,645	66.7	47.8	53.1	75.9	1.3	21.0
Yearly	6,801	13,825	0	20,626	83.4	39.8	56.5	93.0	1.3	20.2

* Nogales Wash Pumping Plant

RAINFALL ON THE SANTA CRUZ RIVER WATERSHED
IN MILLIMETERS

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

IN THE UNITED STATES

Month	San Rafael #2, Arizona		Canelo, Arizona		Patagonia, Arizona		Nogales Sanitation Plant 9N, Arizona	
	1995	Average 1973-1995	1995	Average 1930-1995	1995	Average 1930-1995	1995	Average 1953-1995
Jan.	47	48	37	34	28	35	55	33
Feb.	39	35	46	28	39	28	71	23
Mar.	13	36	17	23	16	25	10	24
April	15	13	12	10	14	10	27	9
May	4	9	3	5	2	5	5	6
June	0	15	1	18	0	12	T	11
July	107	120	33	104	31	109	12	114
Aug.	163	104	116	108	122	106	107	105
Sept.	62	60	43	45	21	45	26	42
Oct.	33	34	30	26	25	28	23	33
Nov.	15	26	17	21	15	21	22	18
Dec.	4	46	15	37	19	38		39
Yearly	502	546	370	459	332	462		457

LOCATION OF RAINFALL STATIONS ON THE SANTA CRUZ RIVER WATERSHED

The precipitation records of the stations listed alphabetically below begin on the date shown and extend through 1995.

IN THE UNITED STATES

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (Meters)	RECORD BEGAN	OBSERVER
Canelo, Arizona	S	31° 33'	110° 32'	1,527	1930	R. E. Ewing
Nogales Sanitation Plant 9N, Arizona	S	31° 25'	110° 57'	1,085	June 1952	I. B. & W. C.
Patagonia, Arizona	S	31° 33'	110° 45'	1,277	1930	George R. Proctor
San Rafael #2, Arizona	S	31° 22'	110° 38'	1,481	Jan. 1973	I. B. & W. C.

S Standard 203 millimeter rain gage

TEMPERATURE IN THE SANTA CRUZ RIVER BASIN
IN DEGREES CELSIUS

Tabulated below are monthly records of temperature at the station located at the Nogales Sanitation Plant in Arizona 14.5 kilometers north of the international boundary. On December 18, 1971, the station was moved to correspond with a new Nogales Sanitation Plant. Prior to this date, the station was located 3.2 kilometers north of the international boundary at the old Nogales Sanitation Plant. This station is operated and maintained by the United States Section of the Commission. The equipment at the Nogales Sanitation Plant - 9N consists of a standard 203-millimeter rain gage and maximum and minimum thermometer. The collection of data for mean relative humidity, evaporation, and mean wind speed was discontinued in 1984.

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

Month	Nogales Sanitation Plant - 9N		
	1995		
	Mean	Max.	Min.
Jan.	7.8	23.9	-4.4
Feb.	11.2	26.1	-2.8
Mar.	12.1	27.8	-5.6
April	13.1	30.0	-3.3
May	17.2	32.2	1.7
June	21.8	38.3	4.4
July	26.2	42.8	8.9
Aug.	27.0	40.0	17.8
Sept.	23.8	36.7	8.3
Oct.	18.2	34.4	-0.6
Nov.	13.5	29.4	-3.9
Dec.	8.5	25.6	-6.1
Yearly	16.7	42.8	-6.1

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

1995

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

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

Designation of Areas	Drainage Basin-Square Kilometers			Irrigated Areas-Hectares		
	United States	Mexico	Total	United States	Mexico	Total
Santa Cruz River: Above Lochiel, Arizona Gaging Station	212	0	212	40	0	40
Above El Cajon, Mexico Gaging Station	464	324	788	40	952	992
Above Nogales, Arizona Gaging Station	479	901	1,380	40	1,091	1,131
San Pedro River: Above Palominas, Arizona Gaging Station	238	*1,621	1,859	578	1,400	1,978
Whitewater Draw: Above Douglas, Arizona Gaging Station	2,650	0	2,650	8,634	0	8,634

* An additional 122 square kilometers in Mexico is tributary to the San Pedro River downstream from this station.