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WESTERN WATER BULLETIN 1994

**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

1994

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FOREWORD

This bulletin is the thirty-fifth 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 1994.

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 1994 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 1994.

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 1994

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 1994. In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation during 1994 measured at 5 index stations could not be determined due to incomplete records.

The flow of the Colorado River reaching Imperial Dam was 7,300,983 thousand cubic meters, about 73% of the 60-year average (1935-1994) of 10,066,552 thousand cubic meters. At the Northerly International Boundary, the total flow of the river during 1994 was 1,724,413 thousand cubic meters, about 35% of the 1935-1994 average of 4,866,000 thousand cubic meters. At the Southerly International Boundary, the flow during 1994 was 10,068 thousand cubic meters, or less than 1% of the 1935 - 1994 average of 3,426,663 thousand cubic meters.

The total of all flows of the Colorado River entering Mexico in 1994 amounted to 2,037,567 thousand cubic meters, 38% of the 1935-1994 average of 5,298,172 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 1994, other waters arrived at the Mexican points of diversion and amounted to 30,857 thousand cubic meters. These waters consisted mainly of excess waters released from reservoirs on the Colorado River. A maximum instantaneous flow of 131 cubic meters per second occurred in the Colorado River at the Northerly International Boundary station on March 21, 1994.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 27,031.6 million cubic meters, 77% of the usable capacity of 35,265.2 million cubic meters. The greater part (24,286.0 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 1994 due to drought or accident to the irrigation system.

The total reported area irrigated from waters of the Colorado River below Imperial Dam in 1994 was 477,882 hectares; 276,050 hectares in the United States and 201,832 hectares in Mexico. An estimated 33% of the total hectares in Mexico is served by pumping from ground water.

TIJUANA RIVER BASIN

During 1994, the temperatures at Barrett Dam, California (elevation 533.40 meters) in the upper portion of the basin in the United States averaged 17.4 degrees Celsius, 0.9 degree above the 64-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 18 degrees, 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 337 millimeters, 75% of normal; and at Chula Vista near the lower end of the basin, 223 millimeters, or 94% 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 218 millimeters, 95% of the 56-year average.

Runoff above Barrett and Rodriguez Reservoirs during 1994 averaged more than 58% of normal. Above Morena Reservoir, the runoff was 9,566 thousand cubic meters, or about 72% of the 58-year 1937 - 1994 mean of 13,303 thousand cubic meters. Above Barrett Reservoir, the runoff was 16,180 thousand cubic meters, or about 105% of the 58-year 1937-1994 mean of 15,457 thousand cubic meters. At Rodriguez Reservoir, the runoff was 10,604 thousand cubic meters, or about 35% of the 57-year mean of 30,632 thousand cubic meters.

The flow of the Tijuana River at the international boundary was 37,406 thousand cubic meters during 1994.

WHITEWATER DRAW

During 1994, the average annual temperature over the watershed equaled the long-term normal, while the annual precipitation was 120% of normal. Runoff for the year at the gaging station near Douglas, Arizona, of 2,423 thousand cubic meters, was about 35% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1994

SAN PEDRO RIVER

During 1994, the average annual temperature was 0.6 degrees Celsius above normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 109% of the 1961 - 1994 mean of 534 millimeters. The stream flow at the international boundary was 35,300 thousand cubic meters, 130% of the 1951 - 1994 average.

SANTA CRUZ

During 1994, the average annual temperature over the watershed was somewhat above normal, and the annual precipitation was about 132% of the 56 - year 1939-1994 mean. Runoff measured at the Nogales gaging station, where the stream re-enters the United States, was 15,339 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 1,232 thousand cubic meters. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 14,107 thousand cubic meters from the loop of the river lying in Mexico or approximately 92% of the flow reaching the Nogales station.

ALAMO AND NEW RIVERS

During 1994, the average annual temperature over the drainage areas of the Alamo and New Rivers, as recorded at El Centro, California, was 22.9 degrees Celsius, 0.5 degree above normal; and over the drainage area of the New River as recorded at Mexicali, Baja California, it was 24 degrees Celsius, 1 degree above the 69-year average.

At El Centro, the precipitation was 64 millimeters, about 90% of the 64-year average; and in Mexicali, the annual precipitation could not be determined due to incomplete records. The total flow of the New River at the international boundary in 1994 was 179,189 thousand cubic meters, which was about 127% of the 1943 - 1994 average.

SALTON SEA

During 1994, the average annual temperature around the Salton Sea was 0.1 degree Celsius above the long-term average, while the annual precipitation recorded at Brawley, California was approximately 89% of the long-term mean of 62 millimeters. The water surface of the Salton Sea rose slightly during the year. The maximum stage, 69.160 meters below mean sea level, was recorded on June 2 - 10, inclusive. The minimum stage, 69.465 meters below mean sea level, was recorded on January 1 - 8 and on November 21 - December 3, 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 1935, 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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.55	2.01	2.27	2.27	2.55	2.61	2.72	2.78	2.27	1.76	2.52	2.38
2	2.46	2.12	2.35	2.35	2.61	2.72	2.78	2.80	2.27	1.98	2.66	2.32
3	2.32	1.84	2.27	2.24	2.55	2.58	2.61	2.86	2.27	2.44	2.63	2.38
4	2.41	1.93	2.29	2.07	2.58	2.78	2.78	2.66	2.35	2.27	2.86	2.38
5	2.32	1.93	2.38	2.01	2.61	2.80	2.61	2.55	2.35	2.10	2.78	2.27
6	2.44	1.95	2.38	1.78	2.63	2.78	2.61	2.55	2.52	2.07	2.92	2.41
7	2.21	1.84	2.38	1.81	2.55	2.61	2.52	2.55	2.72	2.07	2.72	2.32
8	2.18	2.01	2.38	2.15	2.55	2.61	2.55	2.55	2.89	2.21	2.72	2.44
9	2.07	1.98	2.49	2.18	2.55	2.63	2.63	2.66	2.83	2.21	2.69	2.27
10	2.04	2.12	2.41	2.32	2.55	2.46	2.86	2.66	2.89	2.21	2.66	2.24
11	2.18	2.18	2.35	2.44	2.55	2.49	2.61	2.52	2.80	2.12	2.66	2.27
12	1.93	2.07	2.80	1.98	2.55	2.58	2.61	2.52	2.75	2.24	2.63	2.18
13	1.98	2.12	2.83	2.12	2.55	2.49	2.49	2.61	2.83	2.21	2.66	2.18
14	1.61	1.84	2.27	2.38	2.55	2.46	2.52	2.49	2.80	2.21	2.66	2.07
15	1.64	1.67	2.27	2.35	2.69	2.44	2.49	2.55	2.83	2.38	2.58	2.04
16	1.67	1.42	1.76	2.41	2.72	2.44	2.58	2.72	2.92	2.32	2.66	2.10
17	1.70	1.47	1.73	2.35	2.41	2.44	2.69	2.86	2.92	2.21	2.66	2.01
18	1.90	1.59	2.10	2.61	2.35	2.46	2.69	2.83	2.97	2.29	2.61	2.10
19	2.07	1.76	2.35	2.66	2.49	2.44	2.75	2.97	3.09	2.29	2.58	2.46
20	2.07	1.98	2.55	2.63	2.55	2.41	2.75	2.95	3.06	2.24	2.61	2.63
21	2.04	2.15	2.49	2.58	2.44	2.38	2.72	2.89	2.61	2.15	2.66	2.52
22	2.12	2.12	2.15	2.46	2.52	2.41	2.69	2.86	2.55	2.12	2.63	2.32
23	2.10	1.84	2.27	2.78	2.49	2.46	2.95	2.83	2.58	2.15	2.58	2.29
24	2.12	1.84	2.27	2.75	2.46	2.52	2.95	2.75	2.61	2.27	2.66	2.46
25	2.12	2.01	2.27	2.66	2.58	2.66	2.69	2.83	2.63	2.27	2.63	2.61
26	2.15	2.15	2.27	2.55	2.63	2.63	2.58	2.78	2.66	2.35	2.52	2.75
27	2.18	2.38	2.27	2.55	2.69	2.52	2.55	2.58	2.69	2.24	2.44	2.10
28	1.98	2.35	2.41	2.55	2.69	2.63	2.63	2.55	2.72	2.32	2.35	2.49
29	2.12		2.52	2.55	2.69	2.58	2.63	2.55	2.72	2.24	2.35	2.27
30	2.12		2.38	2.55	2.69	2.63	2.69	2.55	2.72	2.15	2.35	2.12
31	2.04		2.32		2.69		2.78	2.55		2.32		2.01
Sum	64.84	54.67	72.23	71.09	79.71	76.65	82.71	83.36	80.82	68.41	78.64	71.39
Current Year 1994									Period 1937-1994			
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	2.55	14	1.61	2.09	5,602	4,071	5,896	711	
Feb.			27	2.38	16	1.42	1.95	4,723	3,767	5,493	456	
Mar.			13	2.83	17	1.73	2.33	6,241	4,645	6,476	1,005	
April			23	2.78	6	1.78	2.37	6,142	4,656	6,476	940	
May			16	2.72	18	2.35	2.57	6,887	4,826	6,895	804	
June			5	2.80	21	2.38	2.56	6,623	4,658	6,883	717	
July			123	2.95	113	2.49	2.67	7,146	4,955	8,079	662	
Aug.			19	2.97	14	2.49	2.69	7,202	4,941	8,400	698	
Sept.			19	3.09	1	2.27	2.69	6,983	4,697	7,672	721	
Oct.			3	2.44	1	1.76	2.21	5,911	4,886	7,080	843	
Nov.			6	2.92	128	2.35	2.62	6,794	4,581	6,794	806	
Dec.			26	2.75	117	2.01	2.30	6,168	4,375	6,241	783	
Yearly				3.09		1.42	2.42	76,422	55,058	78,573	10,410	

‡ 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, 395 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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	27.1	2.18	1.02	0.28	2.41	0.91	0.48	4.95	11.4	9.32	13.0	24.1
2	25.6	2.12	.59	.51	1.33	.91	1.53	34.3	15.9	10.9	12.9	23.3
3	25.0	1.64	.31	1.47	.99	.79	1.50	32.0	17.4	15.2	13.3	19.3
4	25.8	1.36	.28	.99	.99	.71	2.01	29.7	18.9	14.6	18.7	21.3
5	25.4	1.61	1.53	.28	.57	.76	1.30	17.6	19.4	13.2	18.0	26.0
6	26.0	4.11	4.64	.28	1.05	.85	1.00	1.42	21.4	10.4	19.3	29.2
7	24.0	4.19	4.39	1.16	2.21	.76	.74	2.07	22.5	9.86	15.5	25.6
8	25.1	7.70	4.22	1.44	0.30	.79	.68	14.3	24.7	9.43	15.6	25.4
9	24.2	11.4	2.95	2.12	1.76	.85	.68	27.6	24.3	10.3	14.8	22.9
10	24.9	14.2	2.21	2.55	3.60	.76	1.05	25.7	24.0	10.9	11.7	24.2
11	28.1	4.96	.28	1.64	0.50	1.00	.79	26.1	23.6	9.29	11.5	24.5
12	12.2	5.15	.28	1.47	18.9	.74	.91	27.9	23.6	9.15	12.1	24.4
13	17.2	5.98	.96	1.50	18.2	.65	.57	27.9	24.8	8.95	13.8	24.4
14	26.3	3.71	.54	1.70	.79	.93	.57	27.6	24.2	9.60	16.7	24.2
15	26.9	1.47	.51	1.70	1.02	.57	.57	28.1	26.1	11.6	15.4	22.6
16	27.4	.28	.28	1.61	.48	.57	1.16	28.9	25.3	10.5	18.4	22.1
17	27.8	.40	.28	1.59	.82	.27	.57	29.5	25.6	10.6	18.9	23.1
18	28.9	1.22	.28	.95	.27	.91	.57	28.6	27.5	11.0	19.3	22.3
19	31.7	1.33	.28	.71	1.31	.93	.57	29.2	29.5	9.94	20.3	16.6
20	32.0	2.78	2.86	.74	1.25	.74	.42	29.2	29.2	9.54	18.9	19.0
21	31.4	2.10	3.20	1.22	1.36	.25	.65	28.3	22.1	9.69	18.4	20.0
22	32.6	1.22	1.19	.88	2.21	.54	1.39	29.5	8.21	10.0	18.7	20.4
23	32.3	.48	1.56	1.22	1.44	1.16	1.59	28.9	25.2	10.7	18.1	19.9
24	33.1	.71	.54	1.90	.57	.76	2.32	27.7	22.5	11.1	18.1	18.3
25	29.2	1.95	.96	1.44	.76	1.00	2.15	27.1	18.1	11.7	19.4	13.0
26	1.81	1.90	1.22	1.25	1.50	1.42	1.61	24.3	1.39	12.6	21.1	8.47
27	1.61	4.02	.79	1.00	0.33	.82	1.47	14.6	1.30	11.7	26.4	9.09
28	1.53	3.57	.93	1.44	2.58	.82	1.87	2.35	1.64	12.0	26.1	8.95
29	1.39	.28	.28	1.42	14.2	.88	1.13	10.5	5.69	10.3	22.8	8.92
30	4.19	.28	2.46	2.07	1.44	.42	1.05	21.0	8.98	8.81	23.0	9.01
31	4.76	.28	.28	1.44	1.44	.45	.45	18.8	10.8	10.8	13.5	13.5
Sum	686.09	93.82	39.92	39.86	112.29	23.63	33.63	705.67	572.41	333.68	526.2	614.04

Current Year 1994

Period 1935-1994

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.			24	33.1	29	1.39	22.1	59,278	55,370	136,546	550
Feb.			10	14.2	16	.28	3.35	8,106	46,733	109,952	444
Mar.			6	4.64	14	.28	1.29	3,449	46,288	111,268	440
April			19	2.55	11	.28	1.30	3,375	46,205	106,795	442
May			12	18.9	18	.27	3.62	9,702	55,012	108,092	411
June			26	1.42	21	.25	.79	2,042	48,442	107,263	422
July			24	2.32	20	.42	1.00	2,906	45,100	112,518	455
Aug.			2	34.3	4	1.42	22.8	60,970	47,226	110,878	455
Sept.			19	29.5	27	1.30	19.1	49,456	51,680	105,193	440
Oct.			3	15.2	30	0.81	10.8	28,830	47,103	111,075	699
Nov.			27	26.4	11	11.5	17.5	45,464	47,763	125,198	882
Dec.			6	29.2	26	8.47	19.8	53,053	54,761	134,283	570
Yearly				34.3		0.23	10.4	326,631	591,779	1,286,335	8,226

☉ 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 1994. 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	53.5	15.7	16.0	16.8	16.3	15.6	13.9	15.2	34.8	22.4	28.2	36.5
2	52.4	15.8	16.7	17.3	14.1	15.5	13.8	41.6	35.1	24.2	28.6	35.1
3	49.3	14.5	15.9	17.9	14.0	14.8	13.8	41.9	34.6	26.8	28.3	33.4
4	49.6	13.9	15.4	17.0	14.4	16.2	15.0	40.8	34.8	25.6	32.6	32.9
5	49.0	13.4	17.7	16.5	14.8	16.5	14.2	31.7	34.6	24.6	30.9	36.5
6	50.4	16.7	22.0	14.2	15.1	16.1	13.7	14.6	35.1	24.6	33.4	39.6
7	47.9	17.1	23.3	13.9	16.0	15.2	13.5	14.7	36.2	24.3	29.5	36.8
8	48.4	25.2	20.8	16.8	33.4	15.1	13.2	25.2	38.2	24.8	30.3	38.2
9	47.9	42.8	17.7	17.0	58.9	15.0	13.6	41.9	37.7	25.1	30.9	36.8
10	48.1	65.7	16.5	17.8	49.0	14.3	14.4	41.9	37.7	25.3	29.2	36.8
11	51.0	30.3	14.9	17.4	50.1	14.3	14.0	41.6	37.4	25.0	29.5	36.5
12	28.2	27.5	19.2	14.7	54.9	14.8	14.1	41.6	36.8	25.6	29.5	36.0
13	29.2	27.0	19.1	15.2	41.9	14.4	13.8	41.6	37.1	25.5	30.0	36.0
14	41.6	23.2	14.7	16.1	17.9	14.0	13.9	40.8	36.5	25.8	31.2	35.1
15	42.5	19.1	14.5	16.4	15.8	13.7	13.5	41.1	37.1	26.6	28.3	35.4
16	43.6	15.4	10.9	16.2	15.3	13.5	14.0	41.6	37.7	25.9	30.6	34.6
17	45.9	14.8	10.4	15.4	14.9	13.4	14.1	41.9	37.1	25.6	30.9	34.8
18	48.1	15.7	12.5	16.9	14.7	13.6	14.2	41.6	37.1	26.1	32.0	34.0
19	33.0	16.1	13.3	17.9	14.8	13.5	14.3	42.2	38.2	25.7	32.9	28.9
20	33.0	17.4	15.2	17.4	14.4	13.4	14.5	41.6	37.7	25.7	31.7	29.7
21	54.1	20.2	15.8	16.1	14.4	13.2	14.2	41.1	34.3	25.9	30.0	31.2
22	56.4	18.5	13.0	15.1	15.0	13.6	14.2	41.3	27.7	26.0	30.6	32.0
23	56.1	14.3	22.6	17.5	14.9	13.3	15.9	40.8	38.5	26.1	30.3	32.3
24	57.2	14.0	77.9	17.4	14.8	13.4	16.0	39.9	36.8	26.3	30.3	31.2
25	53.8	15.2	40.8	16.1	15.0	13.5	14.6	40.5	33.7	26.3	30.6	30.9
26	16.1	15.8	34.8	17.4	15.7	13.6	13.9	39.6	11.5	26.6	32.9	44.5
27	15.1	18.5	23.2	18.6	32.3	13.6	13.8	39.9	11.0	25.7	35.4	38.2
28	14.6	18.4	19.8	19.0	62.9	13.7	14.1	58.1	10.2	26.3	34.6	29.7
29	14.6	18.4	19.1	19.1	46.4	13.6	14.2	44.5	13.5	26.4	34.3	27.3
30	17.8	17.8	19.1	19.1	19.1	13.8	14.3	40.2	17.8	26.0	34.3	26.2
31	18.4		17.4		16.3		14.6	37.7		27.2		28.6

Sum	1,306.8	582.2	628.2	504.2	767.5	428.2	439.3	1,188.7	966.5	794.0	931.8	1,055.7
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Current Year 1994 Period 1951-1994

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.	4.240	3.585	11	60.6	112	13.2	42.2	112,908	286,038	1,317,479	36,828
Feb.	4.455	3.410	10	113	5	8.27	20.8	50,302	227,687	1,228,424	41,679
Mar.	4.470	3.570	24	89.8	116	9.80	20.3	54,276	253,728	1,610,496	42,683
April	3.840	3.645	28	21.4	7	13.5	16.8	43,563	228,198	1,119,312	41,552
May	4.595	3.660	9	81.0	4	12.1	24.8	66,312	228,262	1,065,554	56,582
June	3.795	3.665	4	17.7	21	12.9	14.3	36,996	223,380	1,113,679	36,996
July	3.775	3.665	14	16.9	18	12.9	14.2	37,956	253,868	2,013,773	37,956
Aug.	4.480	3.655	28	64.6	1	12.5	38.3	102,704	260,434	2,073,958	41,457
Sept.	4.205	3.560	22	43.3	28	9.80	32.2	83,506	231,444	1,669,785	53,264
Oct.	3.975	3.675	2	32.3	1	16.2	25.6	68,502	199,410	1,789,911	43,129
Nov.	4.035	3.775	5	37.7	23	22.9	31.1	80,508	201,914	1,292,035	42,965
Dec.	4.235	3.800	26	50.7	22	24.0	34.1	91,212	234,571	1,374,775	40,733
Yearly	4.595	3.410		113		8.27	26.3	828,845	2,828,934	13,065,596	633,707

! 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 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.220	3.610	3.640	3.735	3.760	3.740	3.695	3.720	4.045	3.800	3.875	4.015
2	4.210	3.605	3.660	3.740	3.720	3.735	3.695	4.230	4.045	3.830	3.885	4.000
3	4.180	3.575	3.640	3.750	3.710	3.720	3.695	4.235	4.040	3.880	3.880	3.970
4	4.180	3.565	3.640	3.730	3.720	3.760	3.725	4.225	4.040	3.860	3.955	3.955
5	4.175	3.555	3.690	3.715	3.725	3.765	3.705	4.050	4.035	3.835	3.925	4.015
6	4.180	3.620	3.765	3.665	3.730	3.755	3.690	3.715	4.050	3.835	3.970	4.070
7	4.150	3.625	3.790	3.655	3.750	3.730	3.685	3.720	4.070	3.830	3.900	4.020
8	4.150	3.765	3.755	3.705	4.060	3.730	3.675	3.915	4.105	3.835	3.915	4.045
9	4.140	3.955	3.710	3.710	4.415	3.730	3.685	4.190	4.100	3.845	3.925	4.025
10	4.140	4.135	3.690	3.730	4.330	3.705	3.710	4.190	4.095	3.845	3.900	4.020
11	4.155	3.840	3.665	3.730	4.340	3.705	3.700	4.180	4.090	3.840	3.900	4.020
12	3.870	3.805	3.750	3.680	4.390	3.720	3.700	4.180	4.085	3.850	3.905	4.010
13	3.890	3.800	3.755	3.690	4.210	3.710	3.690	4.175	4.085	3.845	3.910	4.010
14	4.055	3.740	3.680	3.710	3.800	3.695	3.695	4.165	4.080	3.855	3.930	3.995
15	4.055	3.680	3.680	3.720	3.745	3.690	3.680	4.170	4.085	3.865	3.885	4.000
16	4.065	3.610	3.605	3.720	3.735	3.685	3.695	4.180	4.100	3.850	3.925	3.990
17	4.080	3.605	3.595	3.705	3.725	3.680	3.700	4.180	4.090	3.845	3.925	3.995
18	4.095	3.620	3.655	3.735	3.720	3.685	3.705	4.180	4.090	3.855	3.945	3.980
19	4.135	3.630	3.680	3.755	3.720	3.685	3.705	4.190	4.110	3.845	3.960	3.980
20	4.130	3.655	3.720	3.750	3.710	3.680	3.710	4.175	4.100	3.845	3.940	3.910
21	4.135	3.705	3.735	3.730	3.705	3.675	3.705	4.165	4.040	3.845	3.910	3.930
22	4.150	3.675	3.690	3.710	3.725	3.685	3.705	4.165	3.930	3.845	3.925	3.945
23	4.140	3.680	3.845	3.760	3.720	3.680	3.750	4.160	4.115	3.850	3.915	3.945
24	4.145	3.595	4.390	3.760	3.720	3.680	3.750	4.150	4.085	3.850	3.915	3.930
25	4.105	3.620	4.080	3.740	3.725	3.685	3.715	4.155	4.025	3.850	3.925	3.925
26	3.650	3.635	4.020	3.765	3.745	3.685	3.695	4.135	3.610	3.855	3.960	4.140
27	3.620	3.685	3.865	3.790	4.010	3.685	3.690	4.140	3.595	3.835	4.000	4.045
28	3.610	3.685	3.805	3.800	4.465	3.690	3.700	4.415	3.570	3.845	3.985	3.910
29	3.605		3.775	3.805	4.290	3.685	3.705	4.220	3.645	3.850	3.985	3.860
30	3.655		3.760	3.805	3.830	3.695	3.705	4.145	3.730	3.840	3.985	3.845
31	3.665		3.750		3.760		3.710	4.100		3.860		3.885
Avg.	4.025	3.685	3.755	3.735	3.895	3.705	3.700	4.125	3.995	3.845	3.930	3.975

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 1994. 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.62	0.54	0.59	0.54	0.54	0.37	0.25	0.20	0.42	0.31	1.25	1.42
2	.62	.54	.65	.54	.54	.37	.25	.20	.42	.31	1.25	1.42
3	.62	.54	.65	.54	.54	.37	.25	.20	.42	.34	1.25	1.42
4	.42	.42	.65	.54	.54	.37	.25	.20	.42	.37	1.25	1.42
5	.42	.37	.65	.54	.54	.37	.25	.23	.42	.37	1.25	1.47
6	.51	.37	.65	.54	.42	.37	.25	.25	.34	.42	1.25	1.56
7	.51	.37	.65	.54	.37	.37	.25	.25	.28	.48	1.25	1.56
8	.51	.42	.65	.54	.37	.37	.25	.25	.42	.48	1.25	1.56
9	.51	.54	.65	.54	.37	.25	.25	.25	.42	.48	1.25	1.56
10	.51	.54	.65	.54	.37	.23	.25	.25	.42	.48	1.25	1.56
11	.51	.54	.65	.54	.37	.25	.25	.25	.42	.48	1.25	1.56
12	.62	.54	.65	.54	.37	.25	.25	.25	.42	.48	1.16	1.56
13	.68	.54	.65	.54	.37	.25	.25	.25	.48	.48	1.05	1.56
14	.68	.54	.65	.54	.37	.25	.25	.25	.54	.48	1.16	1.56
15	.68	.54	.65	.54	.37	.25	.25	.37	.54	.48	1.25	1.56
16	.68	.54	.65	.54	.37	.25	.25	.42	.54	.48	1.25	1.56
17	.68	.54	.65	.54	.37	.25	.25	.42	.54	.48	1.25	1.56
18	.68	.54	.65	.54	.37	.25	.25	.42	.54	.48	1.25	1.56
19	.68	.54	.65	.54	.37	.25	.25	.42	.54	.48	1.25	1.56
20	.68	.54	.65	.54	.34	.25	.20	.42	.54	.48	1.25	1.56
21	.62	.54	.57	.54	.31	.25	.20	.42	.37	.48	1.25	1.56
22	.51	.54	.54	.54	.31	.25	.20	.42	.11	.48	1.25	1.56
23	.51	.48	.54	.54	.34	.25	.20	.42	.28	.48	1.25	1.56
24	.57	.48	.54	.54	.37	.25	.20	.42	.42	.59	1.25	1.56
25	.68	.54	.54	.54	.37	.25	.20	.42	.42	.76	1.25	1.56
26	.57	.54	.54	.54	.37	.25	.20	.34	.42	.88	1.25	1.56
27	.54	.54	.54	.54	.37	.25	.20	.14	.42	1.10	1.25	1.56
28	.54	.54	.54	.54	.37	.25	.20	.14	.42	1.36	1.25	1.56
29	.54	.54	.54	.54	.37	.25	.20	.14	.23	1.36	1.25	1.56
30	.54	.54	.54	.54	.37	.25	.20	.28	.20	1.36	1.33	1.56
31	.54	.54	.54	.54	.37	.25	.20	.42	.42	1.36	1.33	1.56
Sum	17.98	14.25	18.91	16.20	12.19	8.44	7.10	9.31	12.37	19.05	37.20	47.71

Current Year 1994

Period 1971-1994

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.			113	0.68	1 4	0.42	0.58	1,553	2,742	7,204	0
Feb.			1 1	.54	1 5	.37	.51	1,231	2,630	5,958	0
Mar.			1 2	.65	122	.54	.61	1,634	3,032	6,698	4.9
April			1 1	.54	1 1	.54	.54	1,400	2,889	6,315	299
May			1 1	.54	121	.31	.39	1,053	2,300	6,085	0
June			1 1	.37	10	.23	.28	729	2,574	5,955	0
July			1 1	.25	119	.20	.23	613	2,839	6,796	613
Aug.			116	.42	127	.14	.30	804	2,985	7,401	222
Sept.			114	.54	22	.11	.41	1,069	3,004	7,253	0
Oct.			128	1.36	1 1	.31	.61	1,646	3,016	6,611	194
Nov.			30	1.33	13	1.05	1.24	3,214	3,103	6,525	386
Dec.			1 1	1.56	1 1	1.42	1.54	4,122	3,313	7,364	0
Yearly				1.56		0.11	0.60	19,068	34,957	72,381	2,162

Mean daily

1 And other days

09-5305.00 DRAIN NO. 8-8 (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 1994.

REMARKS: Drain 8-8, 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.26	0.21	0.20	0.25	0.28	0.34	0.28	0.28	0.31	0.34	0.48	0.34
2	.26	.21	.21	.25	.28	.34	.28	.28	.31	.34	.59	.34
3	.26	.22	.22	.25	.27	.34	.28	.27	.28	.34	.59	.34
4	.25	.20	.23	.24	.27	.34	.28	.26	.28	.34	.59	.34
5	.25	.20	.23	.26	.28	.31	.28	.26	.28	.34	.59	.34
6	.25	.20	.23	.28	.28	.31	.28	.27	.27	.34	.62	.34
7	.34	.20	.23	.31	.28	.31	.28	.27	.27	.34	.62	.31
8	.31	.20	.23	.31	.28	.28	.28	.27	.27	.31	.62	.27
9	.31	.20	.23	.34	.28	.28	.28	.28	.27	.31	.65	.23
10	.31	.20	.23	.37	.28	.28	.27	.28	.26	.28	.62	.23
11	.28	.20	.23	.37	.28	.28	.27	.28	.26	.31	.59	.23
12	.28	.20	.23	.40	.31	.28	.27	.28	.26	.31	.57	.22
13	.27	.20	.24	.42	.31	.28	.27	.28	.26	.31	.54	.22
14	.26	.20	.24	.40	.31	.28	.27	.31	.25	.31	.51	.22
15	.25	.19	.24	.40	.31	.28	.27	.31	.25	.31	.48	.22
16	.24	.19	.24	.40	.31	.28	.27	.31	.25	.31	.45	.22
17	.23	.19	.24	.40	.31	.28	.27	.31	.26	.31	.42	.22
18	.23	.19	.24	.37	.28	.28	.26	.31	.27	.34	.40	.22
19	.23	.19	.24	.37	.28	.28	.26	.31	.27	.34	.37	.22
20	.22	.19	.24	.37	.28	.28	.26	.31	.28	.34	.34	.22
21	.22	.19	.24	.37	.28	.28	.26	.31	.28	.34	.31	.22
22	.22	.19	.24	.37	.28	.28	.26	.31	.28	.34	.31	.23
23	.22	.19	.25	.34	.28	.28	.27	.34	.31	.34	.34	.23
24	.22	.19	.25	.34	.28	.28	.27	.34	.31	.34	.34	.24
25	.22	.19	.25	.34	.28	.28	.27	.34	.31	.37	.34	.24
26	.22	.19	.25	.34	.28	.28	.27	.34	.34	.37	.34	.24
27	.22	.19	.25	.34	.31	.28	.27	.34	.34	.37	.34	.25
28	.21	.19	.25	.31	.31	.28	.27	.34	.34	.40	.34	.25
29	.21	.19	.25	.31	.31	.28	.27	.34	.34	.40	.34	.25
30	.21	.19	.25	.31	.31	.28	.27	.34	.34	.42	.34	.26
31	.21	.19	.25	.31	.34	.28	.27	.31	.45	.45	.34	.26
Sum	7.67	5.50	7.35	10.13	9.02	8.73	8.41	9.38	8.60	10.61	13.98	7.96

Current Year 1994

Period 1948-1994

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.			7	0.34	128	0.21	0.25	663	452	1,109	48.5
Feb.			3	.22	115	.19	.20	475	385	920	50.0
Mar.			1	.25	1	.20	.24	635	455	1,052	77.3
April			13	.42	4	.24	.34	875	462	1,233	82.4
May			31	.34	13	.27	.29	779	483	1,192	71.9
June			1	.34	18	.28	.29	754	495	1,270	83.1
July			1	.28	118	.26	.27	727	560	1,554	89.8
Aug.			123	.34	14	.26	.29	810	620	1,665	91.0
Sept.			126	.34	114	.25	.29	743	619	1,690	66.1
Oct.			31	.45	10	.28	.34	917	670	1,505	68.2
Nov.			9	.65	121	.31	.47	1,208	629	1,530	71.2
Dec.			1	.34	112	.22	.26	688	533	12,295	52.1
Yearly				0.65		0.19	0.29	9,274	6,363	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 45.075 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 1994. 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	38.2	68.8	67.1	39.9	32.9	36.0	31.4	0	17.3	0	0
2	0	37.7	69.1	67.4	41.3	31.4	36.5	0	0	14.6	0	0
3	0	40.8	71.4	66.8	37.1	32.6	36.5	0	0	0	0	0
4	0	43.6	70.2	68.0	37.7	31.4	35.1	0	0	0	0	0
5	0	42.5	69.1	64.0	36.5	31.4	36.2	7.08	0	0	0	0
6	0	39.4	65.7	68.3	34.3	31.2	36.8	28.3	0	0	0	0
7	0	46.2	68.5	69.4	32.0	32.9	37.4	28.3	0	0	0	0
8	0	36.8	70.8	67.1	20.5	34.3	36.8	21.2	0	0	0	0
9	0	31.4	71.6	67.4	0	34.3	36.2	0	0	0	0	0
10	0	25.3	73.9	64.9	0	35.4	36.0	0	0	0	0	0
11	0	39.4	73.6	62.3	0	36.0	36.2	0	0	0	0	0
12	15.3	47.3	71.4	64.3	0	33.7	37.1	0	0	0	0	0
13	14.2	47.6	70.5	64.3	7.59	34.6	37.4	0	0	0	0	0
14	0	53.0	75.0	62.6	29.7	34.6	38.8	0	0	0	0	0
15	0	57.2	68.8	63.4	34.0	36.2	39.4	0	0	0	0	0
16	0	62.0	73.9	62.9	35.1	36.2	36.8	0	0	0	0	0
17	0	62.3	77.9	64.0	33.4	36.0	36.5	0	0	0	0	0
18	0	59.8	75.9	60.0	32.9	35.7	36.2	0	0	0	0	0
19	0	59.5	73.9	54.7	32.9	35.7	36.0	0	0	0	0	0
20	0	57.5	74.2	56.4	32.0	36.0	35.7	0	0	0	0	0
21	0	54.9	88.4	55.8	32.3	36.8	36.0	0	0	0	0	0
22	0	56.1	71.4	57.2	30.9	36.8	35.4	0	24.9	0	0	0
23	0	63.7	62.6	52.4	31.2	38.5	33.4	0	0	0	0	0
24	0	64.6	29.7	52.4	32.3	37.9	32.9	0	0	0	0	0
25	0	69.4	48.1	49.0	31.4	37.1	36.2	0	0	0	0	0
26	33.1	62.3	52.7	45.3	30.3	37.1	36.0	0	28.9	0	0	14.6
27	33.1	61.5	62.3	44.2	25.5	36.8	36.5	0	28.6	0	0	33.1
28	37.1	61.5	66.3	42.8	0	36.5	36.2	0	29.2	0	0	34.0
29	36.3		70.0	46.4	1.76	37.7	36.8	0	26.8	0	0	28.3
30	31.4		71.4	42.8	30.9	37.9	36.0	0	24.1	0	0	28.2
31	32.9		73.3		34.3		37.1	0	0	0	0	22.9
Sum	231.4	1,421.5	2,130.4	1,773.6	797.75	1,055.6	1,126.1	116.28	162.5	31.9	0	161.1
Current Year 1994										Period 1944-1994		
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.			28	37.1	1	0	7.46	19,993	103,938	643,620	0	
Feb.			25	69.4	10	25.3	50.8	122,818	78,724	579,127	0	
Mar.			21	88.4	24	29.7	68.7	184,067	141,785	501,939	0	
April			7	69.4	128	42.8	59.1	153,239	155,394	447,013	0	
May			2	41.3	19	0	25.7	68,926	72,721	454,461	0	
June			23	38.5	6	31.2	35.2	91,204	116,537	501,523	0	
July			15	39.4	24	32.9	36.3	97,295	168,671	512,385	0	
Aug.			1	31.4	12	0	3.75	10,047	168,300	498,782	0	
Sept.			28	29.2	1	0	5.42	14,040	96,674	591,679	0	
Oct.			1	17.3	13	0	1.03	2,756	69,140	617,269	0	
Nov.			1	0	1	0	0	0	66,045	609,196	0	
Dec.			28	34.0	1	0	5.20	13,919	105,168	700,894	0	
Yearly				88.4		0	24.7	778,304	1,343,097	6,000,505	0	

φ Mean daily

1 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 downstream 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, 130 by the United States Section, 47 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 1994; daily discharge records available January 1, 1950 through 1994.

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 1994 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	54.8	58.1	82.9	85.9	58.8	52.6	53.2	49.1	41.4	43.4	33.0	40.0
2	54.5	57.7	85.0	85.6	58.1	52.2	53.5	44.1	41.3	35.2	32.5	40.1
3	52.2	59.8	84.7	84.9	56.5	51.7	53.5	47.8	39.6	29.3	32.6	39.4
4	52.9	62.6	83.7	83.9	57.6	52.6	53.5	45.4	39.6	28.3	37.2	38.7
5	52.6	61.9	84.0	84.6	57.4	53.3	53.4	44.0	38.2	27.3	35.3	40.3
6	52.6	63.1	83.7	85.8	57.5	52.0	53.8	45.6	39.3	27.3	43.9	46.8
7	50.8	71.1	87.4	85.3	56.4	52.0	54.1	46.9	39.9	25.8	34.1	43.1
8	51.3	71.4	90.4	85.9	60.1	54.1	54.5	51.0	42.9	27.4	34.5	43.2
9	50.7	78.2	90.6	87.5	63.2	53.6	54.3	45.6	44.1	26.8	34.8	43.0
10	50.0	85.4	89.4	84.8	53.0	53.3	54.1	45.9	43.6	27.1	34.7	43.0
11	53.0	73.4	89.3	80.9	53.4	54.6	54.2	44.5	43.7	28.2	33.0	43.0
12	49.6	75.8	89.8	80.0	56.0	53.0	56.2	44.7	42.7	27.1	32.9	43.0
13	53.2	76.2	89.1	80.7	60.8	54.6	55.1	45.5	42.3	26.6	32.9	43.1
14	49.8	77.8	88.0	78.8	53.5	53.1	56.0	44.1	41.3	27.7	35.9	43.1
15	49.4	77.5	87.7	79.1	51.9	54.3	55.5	44.5	42.2	26.8	34.0	43.0
16	49.9	77.7	87.1	79.9	52.7	55.5	55.2	44.8	44.8	27.9	33.4	42.9
17	51.7	76.6	91.3	80.7	53.8	54.6	54.1	46.1	44.0	27.2	34.2	42.9
18	50.3	77.6	92.5	74.1	52.8	55.2	53.3	45.8	43.5	27.4	34.6	42.8
19	50.4	75.6	92.3	73.5	53.7	55.1	53.9	46.1	43.8	27.0	35.8	33.9
20	50.2	75.9	95.4	74.5	53.3	54.8	54.4	45.6	44.8	27.4	35.8	35.8
21	50.7	75.7	110	75.1	53.0	54.4	54.5	45.2	42.8	27.2	34.4	36.2
22	52.2	76.5	90.9	75.2	52.6	55.5	54.4	45.8	56.7	26.5	34.2	40.0
23	51.4	77.2	88.7	74.4	52.6	56.3	53.9	45.7	47.0	27.5	34.2	40.1
24	52.3	78.8	92.6	73.7	53.3	56.5	53.5	44.7	43.7	27.7	33.8	39.9
25	52.2	85.0	88.3	65.8	53.3	54.8	54.3	45.4	41.2	27.7	34.3	39.9
26	53.6	78.8	89.4	67.0	53.8	55.6	52.8	44.2	48.2	28.5	34.8	57.0
27	54.2	79.2	88.9	66.5	62.0	54.0	53.2	45.2	47.7	27.7	38.6	80.2
28	60.7	78.1	89.6	66.2	70.5	53.8	52.7	57.6	46.1	29.1	38.9	75.2
29	59.7	90.2	90.2	71.1	53.6	55.5	53.7	52.7	44.6	29.7	39.2	62.0
30	59.1	90.8	68.1	68.1	55.8	56.6	53.9	49.4	45.9	28.3	39.1	60.0
31	57.7	91.5	91.5	54.3	54.3	56.5	56.5	44.2	30.2	30.2	64.1	64.1

Sum	1,633.7	2,062.7	2,775.2	2,339.5	1,735.3	1,625.2	1,679.2	1,437.2	1,306.9	881.3	1,056.6	1,425.7
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Month	Current Year 1994						Period 1935-1994				
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters				
	High	Low	Day	High	Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	33.055	32.690	13	72.7	12	29.3	52.7	141,152	508,317	2,027,841	39,348
Feb.	33.310	32.950	10	103	1	54.1	73.7	178,217	428,304	1,705,506	74,502
Mar.	33.515	33.115	21	131	1	79.1	89.5	239,777	464,249	1,642,378	23,930
April	33.160	32.765	5	94.1	28	62.8	78.0	202,133	384,780	1,322,616	0
May	32.940	32.455	27	87.2	29	35.9	56.0	149,930	367,735	1,419,735	88,077
June	32.665	32.540	24	63.3	27	47.6	54.2	140,417	367,440	1,629,906	10,485
July	32.620	32.515	12	59.8	17	48.1	54.2	145,083	390,395	2,303,937	30,097
Aug.	32.710	32.235	8	80.6	5	25.2	46.4	124,174	403,238	2,485,718	54,026
Sept.	32.770	32.225	22	75.0	22	20.8	43.6	112,916	350,170	2,284,076	66,424
Oct.	32.470	32.115	1	47.4	8	23.5	28.4	76,144	343,113	2,417,702	52,985
Nov.	33.030	32.190	6	60.6	5	24.8	35.2	91,290	379,749	1,889,976	51,070
Dec.	33.715	32.750	26	87.0	19	33.2	46.0	123,180	478,510	2,259,735	51,806
Yearly	33.715	32.115		131		20.8	54.7	1,724,413	4,866,000	19,033,104	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 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.840	32.825	33.070	32.990	32.590	32.455	32.465	32.360	32.225	32.260	32.055	32.900
2	32.825	32.835	33.080	32.980	32.580	32.430	32.465	32.305	32.215	32.145	32.060	32.910
3	32.795	32.860	33.075	32.980	32.525	32.420	32.475	32.345	32.215	32.060	32.055	32.820
4	32.805	32.880	33.070	32.975	32.535	32.430	32.465	32.320	32.215	32.020	32.410	32.740
5	32.800	32.880	33.070	32.930	32.535	32.440	32.455	32.305	32.210	31.995	32.700	32.905
6	32.795	32.890	33.075	32.930	32.500	32.425	32.460	32.315	32.225	31.990	32.780	32.900
7	32.780	32.945	33.100	32.925	32.485	32.420	32.460	32.320	32.235	31.975	32.710	32.885
8	32.780	32.950	33.115	32.930	32.525	32.440	32.450	32.345	32.270	31.995	32.750	32.880
9	32.770	32.995	33.115	32.940	32.575	32.435	32.460	32.295	32.280	31.985	32.790	32.865
10	32.755	33.035	33.105	32.925	32.460	32.435	32.455	32.305	32.275	31.990	32.775	32.865
11	32.780	32.990	33.090	32.895	32.465	32.450	32.460	32.295	32.270	32.005	32.630	32.865
12	32.755	33.040	33.100	32.875	32.485	32.440	32.465	32.295	32.265	32.000	32.635	32.875
13	32.780	33.040	33.095	32.880	32.500	32.455	32.460	32.300	32.270	31.990	32.630	32.885
14	32.750	33.045	33.090	32.875	32.440	32.445	32.460	32.290	32.270	32.000	32.770	32.890
15	32.740	33.040	33.050	32.875	32.430	32.450	32.450	32.295	32.270	31.985	32.690	32.875
16	32.740	33.040	33.045	32.875	32.445	32.460	32.450	32.290	32.285	31.995	32.605	32.865
17	32.755	33.030	33.070	32.880	32.460	32.450	32.440	32.300	32.280	31.985	32.700	32.875
18	32.750	33.010	33.085	32.835	32.455	32.460	32.435	32.295	32.285	31.990	32.745	32.880
19	32.765	32.995	33.080	32.785	32.460	32.465	32.430	32.295	32.290	31.985	32.885	32.845
20	32.760	33.000	33.100	32.795	32.455	32.460	32.435	32.295	32.290	31.990	32.885	32.840
21	32.760	33.005	33.210	32.770	32.450	32.460	32.435	32.290	32.275	31.990	32.740	32.820
22	32.765	33.010	33.045	32.775	32.445	32.470	32.435	32.295	32.450	31.990	32.720	32.820
23	32.765	33.020	33.025	32.740	32.440	32.475	32.430	32.295	32.310	32.000	32.720	32.830
24	32.765	33.030	33.050	32.725	32.445	32.475	32.425	32.285	32.275	32.000	32.670	32.810
25	32.760	33.075	33.020	32.680	32.440	32.470	32.435	32.290	32.255	32.005	32.725	32.805
26	32.765	33.040	33.030	32.645	32.445	32.480	32.425	32.280	32.320	32.015	32.780	33.090
27	32.775	33.045	33.030	32.645	32.540	32.470	32.425	32.285	32.310	32.005	32.875	33.535
28	32.825	33.035	33.035	32.645	32.590	32.475	32.420	32.490	32.300	32.015	32.770	33.445
29	32.820		33.040	32.685	32.460	32.490	32.435	32.395	32.285	32.020	32.800	33.195
30	32.820		33.045	32.660	32.480	32.495	32.445	32.330	32.295	32.000	32.795	33.145
31	32.805		33.055		32.465		32.460	32.265		32.015		33.240
Avg.	32.780	32.985	33.075	32.835	32.485	32.445	32.445	32.310	32.275	32.015	32.660	32.940

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 1994 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.03	0	0.07	0.04	0	0	0	0	0.01	0.15	0.09
2	0	.07	0	.05	.01	.09	.11	0	0	.07	.07	.09
3	0	.12	.01	.14	.06	.08	.03	0	.08	.06	.08	.16
4	.19	.12	.04	0	.03	.02	0	0	.10	.01	.14	.10
5	.06	.04	.07	0	.04	0	0	.02	.01	0	.12	.02
6	0	.02	.09	0	.06	.04	0	.12	.02	.03	.21	.01
7	.01	.01	0	0	.02	.04	0	.14	.08	.01	.08	0
8	.02	.01	.01	0	0	.08	0	0	0	.09	.01	0
9	.13	0	0	.18	.01	.15	.02	0	.15	.10	.06	.09
10	0	0	0	.02	0	.06	.03	.01	.01	.01	.31	.05
11	.05	0	.03	0	.06	.08	.10	.05	.02	.01	.17	.02
12	.08	0	.24	.01	0	.01	.01	.17	.01	0	.12	.01
13	.11	.07	.11	.03	0	0	0	.01	.05	0	.03	0
14	.15	.01	.03	.05	.04	0	0	0	.05	.04	.01	0
15	.24	0	0	.10	.05	0	0	0	.14	.13	.06	.06
16	.06	0	.14	.04	.02	0	.06	0	0	.03	.04	.09
17	.31	.21	.04	.02	0	0	0	.01	0	.10	.27	.17
18	.16	.36	.04	.01	0	.25	.01	0	0	.01	.02	.14
19	.09	.02	.16	.10	0	.13	0	0	0	.16	.01	.04
20	.09	.14	0	.01	.03	.02	0	.06	0	.02	.20	.08
21	.18	.10	0	0	.03	.01	0	.04	0	.01	.11	.05
22	.14	0	.01	0	.01	.05	.12	0	0	.16	.01	.14
23	.01	.11	.01	0	0	.21	.02	0	0	.23	.16	.13
24	0	.13	.04	.11	.17	.01	0	.05	0	.11	.20	.01
25	0	.05	.27	.10	.04	.01	0	.14	0	.22	.01	.02
26	.02	.04	.01	.01	.06	.08	0	.05	.01	.07	.07	.01
27	.02	.05	.01	.10	.10	.02	0	0	0	.17	.03	0
28	0	0	0	.01	.01	.04	.06	0	0	.05	.08	0
29	.04	0	0	.10	0	.03	.04	.01	.05	.08	.04	0
30	.15	.14	.05	.06	0	.03	.05	.06	0	.10	.02	0
31	.03	0	0	.01	.01	0	0	.02	0	.16	0	0
Sum	2.35	1.71	1.41	1.32	0.90	1.54	0.66	0.96	0.78	2.25	2.89	1.58

Current Year 1994

Period 1935-1994

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.	0.680	0	4	1.36	111	0	0.08	203	187	1,127	0
Feb.	.470	0	24	.77	1	0	.06	148	166	493	7.4
Mar.	.450	0	16	.73	1	0	.05	122	176	638	0
April	.430	0	24	.68	1	0	.04	114	174	524	20.6
May	.530	0	1	.93	6	0	.03	77.8	175	543	39.1
June	.720	0	23	1.47	1	0	.05	133	158	734	27.9
July	.545	0	28	.97	1	0	.02	57.0	149	636	0
Aug.	.645	0	5	1.24	1	0	.03	82.9	121	761	0
Sept.	.665	0	9	1.31	1	0	.03	67.4	126	570	0
Oct.	.870	.005	25	1.95	1	0	.07	194	163	604	0
Nov.	.570	0	6	1.03	114	0	.10	250	183	570	11.1
Dec.	.445	0	22	.71	1	2	.05	137	203	730	16.9
Yearly	0.870	0		1.95		0	0.05	1,586	1,981	5,551	787

1 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 1994.

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 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.520	32.380	32.590	32.520	32.130	32.020	32.040	31.980	31.710	31.600	31.360	32.780
2	32.500	32.390	32.580	32.520	32.150	32.000	32.050	31.940	31.680	31.560	31.380	32.800
3	32.460	32.410	32.560	32.520	32.110	31.990	32.060	31.950	31.660	31.530	31.400	32.700
4	32.470	32.440	32.560	32.510	32.110	32.000	32.060	31.900	31.660	31.440	32.060	32.620
5	32.470	32.440	32.560	32.460	32.120	32.020	32.040	31.850	31.640	31.360	32.610	32.790
6	32.460	32.450	32.570	32.460	32.090	32.000	32.060	31.880	31.630	31.360	32.650	32.780
7	32.430	32.500	32.610	32.460	32.080	32.000	32.070	31.900	31.630	31.360	32.600	32.780
8	32.440	32.500	32.620	32.460	32.100	32.020	32.050	31.940	31.660	31.390	32.640	32.780
9	32.430	32.540	32.630	32.470	32.150	32.030	32.050	31.870	31.680	31.390	32.680	32.770
10	32.420	32.570	32.620	32.460	32.060	32.030	32.040	31.860	31.690	31.390	32.650	32.770
11	32.440	32.520	32.610	32.420	32.050	32.040	32.040	31.850	31.690	31.400	32.500	32.770
12	32.410	32.550	32.620	32.410	32.070	32.040	32.060	31.860	31.680	31.370	32.500	32.770
13	32.440	32.550	32.610	32.410	32.090	32.050	32.060	31.870	31.700	31.340	32.500	32.780
14	32.390	32.560	32.610	32.400	32.020	32.030	32.060	31.860	31.680	31.330	32.680	32.780
15	32.380	32.550	32.560	32.400	32.020	32.030	32.060	31.860	31.680	31.340	32.570	32.770
16	32.380	32.530	32.550	32.410	32.040	32.040	32.050	31.870	31.700	31.300	32.470	32.760
17	32.380	32.500	32.590	32.420	32.060	32.040	32.050	31.870	31.700	31.280	32.580	32.770
18	32.370	32.490	32.610	32.370	32.060	32.050	32.040	31.860	31.680	31.280	32.630	32.770
19	32.380	32.480	32.610	32.320	32.050	32.060	32.020	31.860	31.690	31.270	32.780	32.750
20	32.370	32.500	32.630	32.320	32.050	32.050	32.020	31.860	31.710	31.270	32.780	32.740
21	32.360	32.510	32.650	32.290	32.050	32.040	32.020	31.850	31.680	31.270	32.610	32.720
22	32.340	32.520	32.550	32.290	32.040	32.050	32.000	31.860	31.780	31.250	32.590	32.710
23	32.330	32.530	32.520	32.260	32.020	32.060	31.980	31.860	31.660	31.270	32.600	32.730
24	32.330	32.550	32.560	32.260	32.030	32.060	31.970	31.840	31.660	31.280	32.550	32.700
25	32.310	32.490	32.550	32.200	32.030	32.050	31.970	31.850	31.640	31.280	32.610	32.700
26	32.320	32.560	32.560	32.170	32.040	32.060	31.970	31.840	31.690	31.270	32.670	32.990
27	32.330	32.560	32.560	32.170	32.120	32.050	31.970	31.830	31.630	31.260	32.750	33.420
28	32.390	32.550	32.560	32.180	32.190	32.030	31.970	31.990	31.610	31.270	32.640	33.320
29	32.380		32.570	32.210	32.050	32.040	31.980	31.910	31.600	31.300	32.680	33.070
30	32.380		32.570	32.190	32.070	32.060	32.000	31.860	31.620	31.290	32.670	33.030
31	32.360		32.580		32.030		32.030	31.780		31.300		33.130
Avg.	32.400	32.505	32.585	32.365	32.075	32.035	32.025	31.875	31.670	31.340	32.480	32.830

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 limitrophe section of the Colorado River at the northerly international boundary, the flows that pass downstream from the structure, and leakage through the structure. Records available: November 8, 1950 through 1994. 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 Headung 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 1994, 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	54.8	58.1	82.9	86.0	58.8	52.6	53.2	49.1	41.4	43.4	33.2	40.1
2	54.5	57.8	85.0	85.6	58.1	52.3	53.6	44.1	41.3	35.3	32.6	40.2
3	52.2	59.9	84.7	85.0	56.6	51.8	53.5	47.8	39.7	29.4	32.7	39.6
4	53.1	62.7	83.7	83.9	57.6	52.6	53.5	45.4	39.7	28.3	37.3	38.8
5	52.7	61.9	84.1	84.6	57.4	53.3	53.4	44.0	38.2	27.3	35.4	40.3
6	52.6	63.1	83.8	85.8	57.6	52.0	53.8	45.7	39.3	27.3	44.1	46.8
7	50.8	71.1	87.4	85.3	56.4	52.0	54.1	47.0	40.0	25.8	34.2	43.1
8	51.3	71.4	90.4	85.9	56.1	56.2	54.5	51.0	42.9	27.5	34.5	43.2
9	50.8	78.2	90.6	87.7	56.2	53.8	54.3	45.6	44.2	26.9	34.9	43.1
10	50.0	85.4	89.4	84.8	53.0	53.4	54.1	45.9	43.6	27.1	35.0	43.0
11	53.0	73.4	89.3	80.9	53.5	54.7	54.3	44.6	43.7	28.2	33.2	43.0
12	49.7	75.8	90.0	80.0	56.0	53.0	56.2	44.9	42.7	27.1	33.0	43.0
13	53.3	76.3	89.2	80.7	60.8	54.6	55.1	45.5	42.4	26.6	32.9	43.1
14	50.0	77.8	88.0	78.8	53.5	53.1	56.0	44.1	41.4	27.7	35.9	43.1
15	49.6	77.5	87.7	79.2	52.0	54.3	55.5	44.5	42.3	26.9	34.1	43.1
16	50.0	77.7	87.2	79.9	52.7	55.5	55.3	44.8	44.8	27.9	33.4	43.0
17	52.0	76.8	91.3	80.7	53.8	54.6	54.1	46.1	44.0	27.3	34.5	43.1
18	50.5	78.0	92.5	74.1	52.8	55.4	53.3	45.8	43.5	27.4	34.6	42.9
19	50.5	75.6	92.5	73.6	53.7	55.2	53.9	46.1	43.8	27.2	35.8	33.9
20	50.3	76.0	95.4	74.5	53.3	54.8	54.4	45.7	44.8	27.4	36.0	35.9
21	50.9	75.8	101	75.1	53.0	54.4	54.5	45.2	42.8	27.2	34.5	36.2
22	52.3	76.5	90.9	75.2	52.6	55.6	54.5	45.8	56.7	26.7	34.2	40.1
23	51.4	77.3	88.7	74.4	52.6	56.5	53.9	45.7	47.0	27.7	34.4	40.2
24	52.3	78.9	92.6	73.8	53.5	56.5	53.5	44.8	43.7	27.8	34.0	39.9
25	52.2	85.0	88.6	65.9	53.3	54.8	54.3	45.5	41.2	27.9	34.3	39.9
26	53.6	78.8	89.4	67.0	53.9	55.7	52.8	44.2	48.2	28.6	34.9	44.5
27	54.2	79.2	88.9	66.6	58.2	54.0	53.2	45.2	47.7	27.9	38.6	46.4
28	60.7	78.1	89.6	66.2	68.7	53.8	52.8	57.6	46.1	29.2	39.0	42.4
29	59.7		90.2	71.2	53.6	55.5	53.7	52.7	44.6	28.8	39.2	37.4
30	59.2		90.8	68.2	55.8	56.6	54.0	49.5	45.9	29.4	39.1	41.4
31	57.7		91.5		54.3		56.5	44.2		30.4		31.6
Sum	1,635.9	2,064.1	2,767.3	2,340.6	1,719.4	1,626.6	1,679.8	1,438.1	1,307.6	883.6	1,059.5	1,272.3

Current Year 1994

Period 1950-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters				
	High	Low	Day	Cubic Meters per Second		Average	Total	Average	Maximum	Minimum	
				High	Low						
Jan.	32.51	32.15	28	60.7	15	49.6	52.8	141,342	111,071	275,305	1,192
Feb.	32.64	32.26	10	85.4	2	57.8	73.7	178,338	112,802	251,580	11,387
Mar.	32.77	32.48	21	101	1	82.9	89.3	239,095	233,549	435,370	120,761
April	32.51	32.13	9	87.7	25	65.9	78.0	202,228	258,121	408,698	189,700
May	32.21	31.95	28	68.7	15	52.0	55.5	148,556	140,321	286,174	81,665
June	32.09	31.95	30	56.6	3	51.8	54.2	140,538	195,570	332,588	117,400
July	32.08	31.94	31	56.5	126	52.8	54.2	145,135	266,941	439,171	145,135
Aug.	32.07	31.73	28	57.6	5	44.0	46.4	124,252	262,680	420,673	124,252
Sept.	31.88	31.51	22	56.7	5	38.2	43.6	112,977	158,726	336,960	66,156
Oct.	31.62	31.18	1	43.4	7	25.8	28.5	76,347	89,194	280,817	12,894
Nov.	31.59	31.21	6	44.1	2	32.6	35.3	91,541	79,123	258,388	9,271
Dec.	31.79	31.32	6	46.8	31	31.6	41.0	109,927	113,565	247,899	10,886
Yearly	32.77	31.18		101		25.8	54.2	1,710,272	2,026,041	3,451,533	1,569,404

† Mean daily

! And other days

09-5220.31 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	32.450	32.290	32.570	32.510	32.120	32.000	32.050	31.950	31.700	31.580	31.310	31.530
2	32.430	32.300	32.570	32.510	32.150	31.990	32.050	31.890	31.670	31.530	31.330	31.540
3	32.400	32.330	32.560	32.510	32.100	31.970	32.060	31.940	31.650	31.440	31.310	31.540
4	32.410	32.350	32.550	32.500	32.110	31.980	32.060	31.890	31.640	31.360	31.350	31.460
5	32.410	32.350	32.560	32.450	32.110	32.000	32.050	31.840	31.620	31.300		
6	32.390	32.360	32.570	32.440	32.090	31.990	32.060	31.870	31.610	31.320	31.540	31.720
7	32.380	32.410	32.610	32.440	32.070	31.990	32.060	31.890	31.600	31.310	31.440	31.670
8	32.380	32.410	32.620	32.440	32.080	32.020	32.040	31.920	31.630	31.340	31.420	31.650
9	32.370	32.440	32.630	32.470	32.120	32.020	32.040	31.860	31.650	31.340	31.440	31.650
10	32.370	32.450	32.620	32.450	32.040	32.020	32.020	31.850	31.660	31.340	31.480	31.590
11	32.400	32.440	32.610	32.410	32.040	32.030	32.030	31.840	31.670	31.350	31.430	31.590
12	32.360	32.490	32.620	32.400	32.050	32.030	32.050	31.840	31.660	31.320	31.430	31.560
13	32.400	32.490	32.600	32.410	32.070	32.050	32.040	31.860	31.680	31.280	31.420	31.540
14	32.350	32.500	32.600	32.390	32.020	32.030	32.040	31.850	31.670	31.280	31.440	31.510
15	32.330	32.490	32.560	32.390	32.010	32.030	32.040	31.850	31.670	31.300	31.420	31.560
16	32.330	32.490	32.540	32.400	32.040	32.030	32.040	31.850	31.690	31.250	31.410	31.530
17	32.330	32.490	32.580	32.400	32.060	32.030	32.030	31.850	31.690	31.220	31.410	31.560
18	32.320	32.490	32.610	32.370	32.060	32.040	32.030	31.840	31.670	31.230	31.410	31.590
19	32.330	32.490	32.610	32.310	32.050	32.050	32.010	31.840	31.680	31.220	31.430	31.410
20	32.320	32.500	32.630	32.300	32.050	32.040	32.010	31.830	31.710	31.220	31.430	31.390
21	32.310	32.510	32.640	32.270	32.040	32.040	32.010	31.830	31.680	31.220	31.380	31.410
22	32.280	32.520	32.550	32.280	32.020	32.050	32.000	31.840	31.760	31.200	31.340	31.560
23	32.270	32.530	32.510	32.250	32.000	32.060	31.970	31.840	31.630	31.220	31.330	31.610
24	32.260	32.530	32.550	32.240	32.010	32.050	31.960	31.830	31.650	31.240	31.320	31.640
25	32.240	32.570	32.520	32.190	32.010	32.040	31.960	31.840	31.620	31.230	31.330	31.540
26	32.230	32.540	32.560	32.170	32.030	32.040	31.960	31.840	31.670	31.220	31.370	31.450
27	32.250	32.540	32.550	32.160	32.100	32.040	31.960	31.820	31.590	31.210	31.520	31.490
28	32.300	32.540	32.560	32.160	32.170	32.020	31.960	31.970	31.580	31.220	31.360	31.480
29	32.300		32.560	32.200	32.050	32.030	31.970	31.900	31.550	31.260	31.560	31.480
30	32.290		32.560	32.180	32.050	32.050	31.990	31.860	31.590	31.240	31.560	31.490
31	32.270		32.570	32.020	32.020	32.030	32.030	31.760	31.260	31.260	31.460	31.460
Avg.	32.335	32.460	32.580	32.355	32.060	32.025	32.020	31.860	31.650	31.290	31.410	31.540

09-5319.00 WELTON-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 northernly 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 1994.

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 1994 --- 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
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	.02	0	0	0	0	0	0	0	0	0	0	0
11	.62	0	0	0	0	0	0	0	0	0	0	0
12	5.99	0	0	0	0	0	0	0	0	0	0	0
13	5.36	0	0	0	0	0	0	0	0	0	0	0
14	4.75	0	0	0	0	0	0	0	0	0	0	0
15	4.79	0	0	0	0	0	0	0	0	0	0	0
16	4.77	0	0	0	0	0	0	0	0	0	0	0
17	4.68	0	0	0	0	0	0	0	0	0	0	0
18	3.09	0	0	0	0	0	0	0	0	0	0	0
19	.53	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	34.58	0	0	0	0	0	0	0	0	0	0	0

Current Year 1994

Period 1966-1994

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.	0.790	0	11	6.27	11	0	1.12	2,988	8,359	23,088	0
Feb.	0	0	11	0	11	0	0	0	6,426	20,959	0
Mar.	0	0	11	0	11	0	0	0	4,534	22,827	0
April	0	0	11	0	11	0	0	0	4,061	22,944	0
May	0	0	11	0	11	0	0	0	6,120	23,548	0
June	0	0	11	0	11	0	0	0	4,817	23,135	0
July	0	0	11	0	11	0	0	0	4,425	23,370	0
Aug.	0	0	11	0	11	0	0	0	4,499	23,668	0
Sept.	0	0	11	0	11	0	0	0	6,323	22,787	0
Oct.	0	0	11	0	11	0	0	0	8,899	23,683	0
Nov.	0	0	11	0	11	0	0	0	8,435	22,792	0
Dec.	0	0	11	0	11	0	0	0	7,758	23,585	0
Yearly	0.790	0		6.27		0	0.09	2,988	74,656	264,928	0

1 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 1994, 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.03	0.01	0.07	0	0	0	0	0.01	0.29	0.01	0.24
2	.10	.01	.01	0	0	0	0	.01	0	.01	.01	.01
3	.01	.01	.01	0	0	.01	0	0	0	.04	.09	.01
4	.01	.01	.01	.07	.01	.01	0	0	0	.12	.01	0
5	.05	.01	.02	0	0	.01	.23	0	0	0	.01	0
6	.03	.01	.14	0	.08	.01	0	0	.01	0	.36	0
7	.01	.05	.01	0	0	.01	0	0	.08	.12	.31	0
8	.01	.43	.01	0	0	.01	0	0	.31	.48	.03	.01
9	.27	.01	.01	.14	0	.01	0	0	0	.01	.18	.05
10	.01	.01	0	.19	0	.01	0	0	0	.01	.67	0
11	.01	.01	0	0	0	.01	0	0	0	.01	.20	.01
12	.05	.01	0	0	0	.01	0	0	.02	0	.01	.12
13	.01	.02	0	0	0	.01	0	.11	.47	0	.05	.01
14	.01	.01	0	0	0	.01	0	.01	.01	.14	.01	.01
15	.03	.01	0	0	.01	.01	0	.01	0	.55	.01	0
16	.03	.01	0	0	.01	.01	0	0	.01	.82	.01	0
17	.02	.02	0	0	.01	.01	.27	0	0	.25	.01	.01
18	.02	.01	0	0	0	0	0	.02	0	.12	.01	0
19	.01	.01	0	0	.02	.01	0	0	.01	.24	.01	0
20	.19	.01	0	0	0	.01	0	0	0	0	.01	0
21	.01	.01	0	0	0	0	0	0	.39	.01	.02	.04
22	.01	.10	0	0	.03	0	0	0	.01	.17	.01	.07
23	.03	.01	0	0	0	0	0	0	.03	.01	.01	0
24	.01	.01	0	0	0	0	0	.01	.01	.18	.01	0
25	.02	.01	.19	0	0	0	0	0	.01	.01	.06	0
26	.02	.01	.14	0	0	0	0	0	.01	.01	.02	0
27	.01	.01	.01	0	0	0	0	0	.01	.01	.01	0
28	.01	.01	.01	.20	.01	0	0	.01	0	.02	.01	0
29	.01	.01	.01	0	.01	0	0	.01	.01	.01	.01	0
30	.05	.01	0	0	.01	0	0	.01	.44	.01	.03	.01
31	.23	0	0	0	.01	0	0	.01	0	.02	0	0
Sum	1.30	0.87	0.60	0.67	0.21	0.17	0.50	0.21	1.85	3.67	2.20	0.60

Current Year 1994 Period 1935-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day			Total	Average	Maximum	Minimum
					Low	Day					
Jan.	0.485	0.005	9	2.11	111	0	0.04	112	2,799	11,804	0
Feb.	.305	.010	8	1.70	1	.01	.03	75.2	2,292	10,398	17.9
Mar.	.285	0	25	1.47	1	0	.02	51.8	2,159	7,685	51.8
April	.310	0	4	1.71	1	0	.02	57.9	1,989	7,771	0
May	.185	0	6	.49	1	0	.01	18.1	2,346	11,496	10.2
June	.050	0	6	.04	1	0	.01	14.7	2,225	9,177	13.0
July	.250	0	17	1.18	1	0	.02	43.2	2,256	10,263	11.2
Aug.	.250	0	13	1.17	1	0	.01	18.1	1,948	12,014	18.1
Sept.	.900	0	21	4.73	1	0	.06	160	1,407	7,574	7.4
Oct.	.690	0	24	3.10	1	0	.12	317	1,931	7,006	14.7
Nov.	.715	.005	6	3.30	1	0	.07	190	2,351	10,139	23.2
Dec.	.460	0	1	2.06	1	0	.02	51.8	3,056	11,632	51.8
Yearly	0.900	0		4.73		0	0.04	1,110	26,759	102,255	1,110

! 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 1994; 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 limnographic 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 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.615	29.600	29.585	29.635	29.605	29.580	29.555	29.525	29.510	29.600	29.590	29.655
2	29.625	29.590	29.590	29.610	29.600	29.580	29.550	29.525	29.505	29.540	29.590	29.710
3	29.615	29.580	29.595	29.565	29.595	29.580	29.545	29.515	29.505	29.555	29.615	29.620
4	29.615	29.585	29.595	29.580	29.600	29.580	29.545	29.515	29.510	29.570	29.585	29.610
5	29.620	29.585	29.600	29.570	29.595	29.580	29.585	29.515	29.510	29.545	29.595	29.615
6	29.610	29.585	29.615	29.580	29.610	29.575	29.540	29.515	29.515	29.540	29.665	29.615
7	29.610	29.590	29.595	29.580	29.585	29.560	29.535	29.510	29.535	29.560	29.655	29.610
8	29.605	29.630	29.600	29.585	29.680	29.560	29.535	29.510	29.575	29.625	29.610	29.610
9	29.645	29.585	29.595	29.605	29.875	29.565	29.535	29.505	29.520	29.545	29.615	29.630
10	29.615	29.585	29.595	29.635	29.635	29.560	29.535	29.510	29.520	29.550	29.740	29.615
11	29.615	29.585	29.595	29.615	29.615	29.560	29.535	29.500	29.520	29.550	29.640	29.615
12	29.970	29.575	29.590	29.600	29.605	29.555	29.525	29.500	29.530	29.545	29.610	29.650
13	29.955	29.580	29.590	29.605	29.600	29.555	29.525	29.520	29.595	29.540	29.620	29.615
14	29.935	29.580	29.595	29.600	29.595	29.545	29.525	29.510	29.515	29.560	29.605	29.620
15	29.945	29.580	29.600	29.595	29.595	29.540	29.525	29.510	29.515	29.640	29.605	29.615
16	29.945	29.580	29.600	29.590	29.595	29.540	29.530	29.510	29.525	29.700	29.610	29.615
17	29.945	29.580	29.600	29.595	29.595	29.540	29.570	29.515	29.525	29.600	29.605	29.620
18	29.885	29.575	29.600	29.595	29.595	29.540	29.540	29.510	29.525	29.565	29.605	29.620
19	29.720	29.570	29.595	29.590	29.595	29.540	29.530	29.500	29.530	29.615	29.595	29.620
20	29.640	29.580	29.595	29.590	29.585	29.540	29.530	29.510	29.525	29.580	29.600	29.615
21	29.615	29.580	29.890	29.590	29.590	29.540	29.530	29.505	29.570	29.580	29.595	29.625
22	29.610	29.595	29.725	29.595	29.600	29.540	29.555	29.515	29.535	29.615	29.585	29.635
23	29.615	29.580	29.670	29.595	29.590	29.555	29.540	29.520	29.545	29.585	29.585	29.625
24	29.610	29.580	29.655	29.595	29.595	29.560	29.530	29.515	29.545	29.630	29.595	29.615
25	29.610	29.580	29.670	29.600	29.600	29.555	29.530	29.510	29.545	29.595	29.625	29.650
26	29.600	29.580	29.660	29.600	29.595	29.555	29.530	29.515	29.550	29.585	29.615	29.930
27	29.600	29.580	29.635	29.595	29.655	29.555	29.530	29.510	29.545	29.585	29.750	31.040
28	29.595	29.580	29.635	29.640	29.725	29.560	29.530	29.510	29.540	29.590	29.625	31.000
29	29.590		29.635	29.605	29.600	29.555	29.530	29.515	29.540	29.585	29.605	30.765
30	29.600		29.635	29.600	29.595	29.560	29.530	29.515	29.625	29.590	29.615	30.695
31	29.610		29.635		29.590		29.530	29.510		29.590		30.805
Avg.	29.690	29.585	29.625	29.600	29.615	29.555	29.535	29.510	29.535	29.580	29.620	29.835

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 1994, 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 1994 --- 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
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	.12	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	.03	0	0
12	0	0	0	0	0	0	0	0	0	.02	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	.05
16	0	0	0	0	0	0	0	0	0	0	0	.11
17	0	0	0	0	0	0	0	0	0	.05	0	0
18	0	0	0	0	0	0	0	0	0	.40	0	0
19	0	0	0	0	0	0	0	0	0	.16	0	0
20	0	0	0	0	0	0	0	0	0	0	0	.02
21	0	0	0	0	0	0	0	0	.08	0	0	0
22	0	0	0	0	0	0	0	0	.04	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	.10	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	.01	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0.12	0	0	0	0	0	0.12	0.77	0	0.18

Current Year 1994

Period 1939-1994

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	686	3,528	0	
Feb.	0	0	11	0	11	0	0	589	3,096	0	
Mar.	.345	0	8	.55	11	0	0	536	2,048	0	
April	0	0	11	0	11	0	0	573	2,393	0	
May	0	0	11	0	11	0	0	694	3,047	0	
June	0	0	11	0	11	0	0	611	2,899	0	
July	0	0	11	0	11	0	0	550	2,405	0	
Aug.	0	0	11	0	11	0	0	553	3,121	0	
Sept.	.200	0	21	.23	11	0	0	493	2,689	0	
Oct.	.465	0	24	.90	11	0	.02	66.5	614	2,590	
Nov.	0	0	11	0	11	0	0	739	2,936	0	
Dec.	.320	0	16	.48	11	0	.01	15.6	780	3,306	
Yearly	0.465	0		0.90		0	0	103	7,398	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 1994. 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.38	0.03	0.04	0.36	0.33	0.72	0.48	0.25	0.05	0.24	0.18	0.40
2	.38	.13	.12	.45	.38	.29	.28	.08	.29	.23	.36	.23
3	.05	.04	.28	.35	.26	.37	.51	.11	.08	.23	.72	.15
4	.10	.41	.24	.46	.04	.14	.12	.15	.08	.05	.35	.04
5	.64	.39	.04	.19	.02	.69	.31	.28	.03	.01	.22	.42
6	.79	.40	.27	.46	.16	.63	.38	.11	.04	.03	.20	.39
7	.33	.26	.56	.16	.72	.46	.45	.20	.22	.13	.28	.30
8	.22	.41	.44	.35	.49	.09	.44	.11	.31	.11	.14	.16
9	.11	.33	.30	.22	.12	.29	.32	.19	.36	.42	.43	.35
10	.40	.22	.08	.32	.58	.13	.16	.21	.31	.43	.45	.63
11	.30	.57	.23	.13	.26	.02	.04	.21	.60	.26	.41	.73
12	.41	.30	.34	.08	.72	.02	.08	.55	.64	.36	.70	.31
13	.33	.11	.70	.07	.62	.11	.11	.51	.38	.68	.57	.40
14	.42	.05	.57	.08	.15	.23	.23	.25	.27	.38	.37	.41
15	.17	.38	.24	.10	.34	.16	.14	.54	.26	.08	.42	.18
16	.13	.28	.28	.03	.88	.09	.05	.38	.43	.07	.42	.42
17	.29	.17	.28	.09	.38	.16	.06	.29	.47	.24	.30	.61
18	.16	.15	.08	.13	.19	.30	.53	.51	.52	.10	.12	.74
19	.13	.16	.23	.09	.40	.31	.57	.42	.47	.44	.32	.37
20	.13	.03	.13	.22	.43	.07	.37	.33	.41	.17	.55	.25
21	.08	.17	.12	.22	.11	.31	.27	.18	.47	.32	.22	.32
22	.16	.46	.02	.22	.09	.26	.20	.39	.02	.23	.25	.40
23	.26	.37	.04	.22	.29	.41	.20	.50	.42	.15	.27	.70
24	.52	.41	.43	.22	.57	.16	.13	.41	.52	.01	.22	.90
25	.60	.21	.07	.22	.31	.07	.04	.41	.53	0	.33	.81
26	.52	.19	.13	.36	.82	.30	.26	.20	.41	.02	.27	.54
27	.19	.10	.33	.43	.82	.41	.51	.25	.20	.27	.28	.39
28	.27	.28	.27	.12	.47	.21	.44	.16	.08	.01	.45	.40
29	.37	.15	.23	.23	.23	.19	.49	.35	.18	.02	.34	.32
30	.22	.16	.11	.03	.03	.64	.59	.04	.60	.12	.37	.38
31	.30	.18			.29		.48	.01		.02		.31
Sum	9.36	7.01	7.35	6.69	11.50	8.24	9.24	8.58	9.65	5.83	10.51	12.96
Current Year 1994											Period 1935-1994	
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.	0.360	0	10	0.96	3	0	0.30	809	1,144	4,144	111	
Feb.	.315	.005	4	.78	120	0	.25	606	956	3,910	164	
Mar.	.335	0	113	.86	110	0	.24	635	1,097	3,602	175	
April	.340	.005	27	.88	16	0	.22	578	1,063	3,910	165	
May	.390	0	12	1.08	14	0	.37	994	1,201	3,750	281	
June	.360	0	5	.95	111	0	.27	712	1,002	4,515	157	
July	.360	0	30	.96	111	0	.30	798	1,075	4,428	210	
Aug.	.315	0	13	.79	4	0	.28	741	1,109	4,885	196	
Sept.	.385	0	21	1.04	122	0	.32	834	1,049	3,910	0	
Oct.	.335	0	13	.87	14	0	.19	504	1,097	4,046	0	
Nov.	.375	.005	12	1.01	11	.01	.35	908	1,196	4,404	0	
Dec.	.365	.005	24	.97	4	0	.42	1,120	1,169	3,799	51.0	
Yearly	0.390	0		1.08		0	0.29	9,239	13,158	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 1994.

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 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.16	3.13	3.14	3.23	3.71	3.24	2.80	3.03	2.93	3.97	4.66	4.37
2	3.63	3.20	3.28	3.72	3.84	3.00	3.18	3.01	3.31	4.03	5.15	4.45
3	3.39	3.28	3.43	3.72	3.64	2.96	3.00	2.86	2.91	4.01	5.01	4.18
4	3.46	3.37	3.38	3.77	3.74	3.23	3.00	3.20	3.17	3.75	4.98	4.49
5	3.95	3.39	3.50	3.41	3.94	3.15	2.83	3.65	3.12	4.19	4.90	4.18
6	3.97	3.37	3.75	3.39	4.12	3.34	2.91	3.48	2.75	4.37	4.99	3.95
7	3.73	3.20	3.83	3.54	3.96	3.45	3.04	3.40	2.77	3.83	5.24	3.79
8	3.73	3.47	3.44	3.64	3.93	3.44	2.99	3.26	3.02	4.13	4.78	4.06
9	3.71	3.01	3.56	3.37	3.90	3.39	2.99	3.06	3.44	4.34	5.21	3.96
10	3.63	3.14	3.32	3.66	3.43	3.40	3.07	2.86	3.17	4.38	4.92	4.05
11	4.02	3.06	3.48	3.69	3.41	3.50	3.30	3.06	3.16	4.69	4.83	4.68
12	4.02	3.35	3.28	3.45	3.56	3.43	3.18	3.17	3.33	4.42	4.97	4.19
13	3.62	3.48	3.56	3.70	3.39	3.61	2.91	3.09	3.53	4.60	4.77	3.97
14	3.59	3.20	3.42	3.67	3.70	3.29	3.05	2.87	3.40	4.17	4.96	3.81
15	4.02	3.22	3.33	3.36	3.50	3.30	2.96	3.12	3.25	4.66	4.91	3.58
16	3.62	3.12	3.39	3.58	3.46	3.62	2.96	3.00	3.47	4.44	4.72	3.99
17	3.60	3.31	3.42	3.62	3.42	3.30	3.06	2.94	3.49	4.54	4.76	4.06
18	3.64	3.32	3.49	4.02	3.80	3.19	2.80	3.02	3.46	4.73	4.65	4.06
19	3.59	3.35	3.60	3.73	3.77	3.40	2.67	3.04	3.55	4.61	4.59	3.40
20	3.51	3.46	3.61	3.49	3.79	3.28	2.58	3.25	3.38	4.58	4.46	3.38
21	3.66	3.77	3.62	3.77	3.45	3.44	2.61	3.24	4.92	4.31	4.27	3.57
22	3.62	3.32	3.50	3.80	3.41	3.32	2.87	3.13	3.79	4.97	4.38	3.77
23	3.59	3.41	3.22	4.11	3.62	3.72	3.10	3.18	3.22	4.87	4.29	4.01
24	3.34	3.24	3.45	3.96	3.28	3.29	3.03	3.10	3.65	4.88	4.43	3.35
25	3.46	3.37	3.19	4.09	3.51	3.31	2.86	2.94	3.55	4.19	4.40	3.77
26	3.57	3.45	3.24	3.99	3.37	3.38	2.92	3.02	3.31	4.53	4.55	3.26
27	3.49	3.96	3.23	3.83	3.51	3.19	3.05	3.19	3.07	5.03	4.23	3.32
28	3.36	3.67	3.40	3.76	3.97	3.11	2.80	3.17	3.01	5.41	4.06	3.45
29	3.63		3.12	3.95	3.50	3.08	2.98	2.97	3.54	4.92	3.82	3.32
30	3.25		3.22	3.57	3.74	3.15	3.22	3.05	4.03	4.73	4.13	3.35
31	3.18		3.41		3.49		3.44	2.94		4.78		3.28
Sum	112.74	93.62	105.81	110.59	112.86	99.51	92.16	96.30	100.70	139.06	140.02	119.05

Current Year 1994

Period 1935-1994

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.			1	4.16	31	3.18	3.64	9,741	9,355	13,819	2,146
Feb.			27	3.96	9	3.01	3.34	8,089	9,030	14,787	2,023
Mar.			7	3.83	29	3.12	3.41	9,142	10,344	15,332	2,393
April			23	4.11	1	3.23	3.69	9,555	10,234	14,666	2,368
May			6	4.12	24	3.28	3.64	9,751	10,500	16,208	2,405
June			23	3.72	3	2.96	3.32	8,598	9,698	14,851	2,825
July			31	3.44	20	2.58	2.97	7,963	9,632	14,715	3,121
Aug.			5	3.65	13	2.86	3.11	8,320	9,632	14,752	3,158
Sept.			21	4.92	6	2.75	3.36	8,700	9,690	14,269	2,812
Oct.			28	5.41	4	3.75	4.49	12,015	11,136	15,277	3,626
Nov.			7	5.24	29	3.82	4.67	12,098	10,636	14,814	3,454
Dec.			11	4.68	26	3.26	3.84	10,286	10,053	14,160	3,022
Yearly				5.41		2.58	3.62	114,258	119,940	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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.23	0.24	0.01	0.01	0.04	0.09	0.08	0.09	0.06	0.04	0.28	0.36
2	.62	.23	.06	.17	.07	.12	.28	.09	.07	.12	.16	.28
3	.40	.32	.17	.06	.16	.25	.16	.02	.11	.25	.15	.30
4	.11	.12	.25	.05	.08	.24	.09	.02	.14	.47	.01	.43
5	.25	.19	.14	.05	.08	.06	.13	.13	.07	.40	.18	.27
6	.31	.01	.30	.08	.11	.22	.07	.12	.17	.49	.21	.42
7	.26	.02	.22	.02	.23	.08	.05	.39	.22	.48	.02	.28
8	.26	.25	.01	.04	.26	.05	.25	.07	.06	.35	.01	.23
9	.08	.27	.01	.11	.12	.28	.02	.33	.16	.13	.16	.30
10	.21	.26	.22	.07	.12	.01	.05	.22	.23	.29	.20	.44
11	.10	.18	.14	.11	.02	.17	.04	.17	.04	.25	.14	.59
12	.25	.35	.14	.10	.03	.21	.17	.35	.16	.25	.22	.46
13	.14	.07	.06	.09	.07	.01	.09	.44	.26	.25	.30	.25
14	.30	.06	.05	.10	.18	.15	.47	.57	.40	.25	.30	.29
15	.09	.13	.14	.16	.16	.14	.37	.29	.27	.25	.41	.23
16	.20	.14	.04	.12	.27	.14	.43	.09	.26	.25	.43	.32
17	.27	.08	.15	.19	.17	.14	.48	.25	.05	.25	.35	.53
18	.24	.32	.03	.51	.25	.14	.84	.27	.50	0	.28	.15
19	.24	.11	.10	.26	.04	.14	.76	.22	.37	.11	.29	.20
20	.24	.04	.22	.07	.03	.14	.56	.12	.04	.35	.19	.14
21	.24	.14	.25	.20	.04	.23	.20	.37	.29	.50	.30	.31
22	.24	.06	.13	.24	.27	.05	.39	.23	.01	.63	.19	.44
23	.24	.15	.16	.12	.06	.04	.11	.14	.40	.35	.40	.12
24	.24	.42	.08	.23	.02	.08	.08	.32	.39	.35	.05	.12
25	.24	.48	.14	.06	.10	.05	.23	.24	.76	.01	.08	.56
26	.24	.11	.35	.04	.14	.24	.09	.38	.54	.35	.60	.59
27	.23	.23	.36	.09	.26	.35	.14	.31	.30	.34	.19	.54
28	.19	.28	.23	.04	.25	.17	.05	.34	.04	.59	.41	.52
29	.06	.11	.24	.28	.03	.01	.26	.35	.42	.18	.49	.49
30	.34	.05	.03	.26	.08	.05	.11	.58	.21	.13	.46	.46
31	.22	0		.18	.28	.11	.11	.07	.05	.05	.31	.31
Sum	7.28	5.26	4.32	3.66	4.35	4.10	6.85	7.02	7.30	9.03	6.82	10.93
Current Year 1994										Period 1971-1994		
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.	0.555	0.015	8	0.81	1	0.01	0.23	629	540	1,376	48.7	
Feb.	.530	.005	16	.75	116	0	.19	454	527	840	196	
Mar.	.605	0	4	.90	1	0	.14	373	560	1,158	250	
April	.580	0	18	.81	1	0	.12	316	498	1,280	202	
May	.535	0	22	.87	2	0	.14	376	429	707	183	
June	.495	0	9	.76	1	0	.14	354	402	699	55.8	
July	.565	0	117	.94	7	0	.22	592	417	763	77.3	
Aug.	.640	0	14	1.13	3	0	.23	607	470	950	121	
Sept.	.595	.005	25	1.01	4	0	.24	631	494	947	234	
Oct.	.775	0	22	1.19	1	0	.29	780	481	898	166	
Nov.	.760	0	18	1.14	4	0	.23	589	447	845	32.3	
Dec.	.735	.060	4	1.06	23	.01	.35	944	549	1,204	43.5	
Yearly	0.775	0		1.19		0	0.21	6,645	5,814	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 1994.
 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.57	0.87	1.21	1.05	1.33	1.09	1.08	0.91	1.31	0.86	0	0
2	.58	1.00	.01	1.05	1.12	1.10	1.06	.91	1.30	.83	0	0
3	.58	1.00	.50	1.04	1.11	1.10	1.05	.91	1.29	.83	0	0
4	.58	1.13	1.05	1.23	1.13	1.11	1.04	.91	1.28	.83	0	0
5	.57	1.23	1.05	1.44	1.15	1.10	1.03	.93	1.27	.83	0	0
6	.54	1.24	1.06	1.44	1.15	1.10	1.02	.93	1.26	.84	0	0
7	.56	1.24	1.07	1.44	1.17	1.10	1.01	.94	1.25	.83	0	0
8	.57	.75	1.06	1.44	1.19	1.10	1.01	.94	1.23	.82	0	0
9	.58	0	1.07	1.43	1.19	1.09	1.01	.95	1.22	.81	0	0
10	.58	0	1.08	1.43	1.18	1.10	.99	.96	1.20	.82	0	0
11	.57	0	1.08	1.31	1.07	1.11	.99	.96	1.19	.63	0	0
12	.57	0	1.11	1.32	1.05	1.11	.99	.96	1.18	.17	0	0
13	.57	0	1.13	1.15	1.02	1.11	1.04	.97	.86	.17	0	0
14	.57	.58	1.14	1.23	1.02	1.10	1.15	.97	.55	.07	.02	0
15	.57	1.23	1.13	1.37	1.03	1.10	1.11	.97	.55	0	0	0
16	.58	1.24	1.11	1.37	1.05	1.10	.95	.96	.21	0	0	0
17	.58	1.24	1.08	1.36	1.05	1.10	.93	.98	0	0	0	0
18	.59	1.23	1.07	1.36	1.05	1.10	.92	1.00	0	0	0	0
19	.58	1.24	1.05	1.24	1.05	1.10	.92	1.01	0	0	0	0
20	.58	1.26	1.04	1.14	1.06	1.10	.92	1.02	0	0	0	0
21	.58	1.26	1.03	1.26	1.06	1.10	.92	1.03	.02	0	0	0
22	.58	1.26	1.03	1.36	1.05	1.10	.93	1.04	0	0	0	0
23	.57	1.49	1.03	1.36	1.06	1.10	.92	1.06	0	0	0	0
24	.58	1.69	1.03	1.36	1.09	1.10	.92	1.07	0	0	0	0
25	.57	1.70	1.03	1.36	1.10	1.10	.93	1.07	0	0	0	0
26	.57	1.71	1.03	1.35	1.09	1.09	.93	1.08	.11	0	0	0
27	.57	1.72	1.04	1.35	1.09	1.09	.92	1.09	.38	0	0	0
28	.58	1.71	1.03	1.34	1.09	1.09	.93	1.09	.40	0	0	0
29	.58		1.04	1.34	1.09	1.09	.93	1.17	.39	0	0	0
30	.60		1.04	1.34	1.10	1.10	.91	1.30	.49	0	0	0
31	.59		1.05		1.10		.91	1.31		0	0	0
Sum	17.84	29.02	31.48	39.26	34.09	32.98	30.37	31.40	18.94	9.34	0.02	0

Current Year 1994

Period 1979-1994

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.	0.190	0.125	130	0.60	6	0.29	0.58	1,541	1,015	3,406	0
Feb.	.335	0	126	1.73	9	0	1.04	2,507	1,314	3,677	0
Mar.	.350	.005	1	1.70	3	0	1.02	2,720	1,284	4,717	0
April	.340	.255	26	1.50	13	.97	1.31	3,392	1,504	4,265	0
May	.320	.250	1	1.36	11	.95	1.10	2,945	1,658	4,269	13.9
June	.265	.250	20	1.17	27	1.07	1.10	2,849	1,595	4,272	26.4
July	.285	.250	113	1.15	118	.90	.98	2,624	1,852	5,868	20.1
Aug.	.290	.225	31	1.33	16	.84	1.01	2,713	1,581	4,988	0
Sept.	.290	0	1	1.33	116	0	.63	1,636	1,347	3,397	0
Oct.	.235	0	1	.87	114	0	.30	807	1,032	3,344	0
Nov.	.085	0	14	.14	1	0	0	1.7	450	2,101	0
Dec.	0	0	1	0	1	0	0	0	910	3,654	0
Yearly	0.350	0		1.73		0	0.75	23,736	15,542	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 1994; 242 Lateral from November 1978 through 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.34	4.27	4.40	4.65	5.41	5.14	4.44	4.28	4.35	5.11	5.12	5.13
2	5.21	4.56	3.47	5.39	5.41	4.51	4.80	4.09	4.97	5.21	5.67	4.96
3	4.42	4.64	4.38	5.17	5.17	4.68	4.72	3.90	4.39	5.32	5.88	4.63
4	4.25	5.03	4.92	5.51	4.99	4.72	4.25	4.28	4.67	5.10	5.34	4.96
5	5.41	5.20	4.73	5.09	5.19	5.00	4.30	4.99	4.49	5.43	5.30	4.87
6	5.61	5.02	5.38	5.37	5.54	5.29	4.38	4.64	4.22	5.73	5.40	4.76
7	4.88	4.72	5.68	5.16	6.08	5.09	4.55	4.93	4.46	5.27	5.54	4.37
8	4.78	4.88	4.95	5.47	5.87	4.68	4.69	4.38	4.62	5.41	4.93	4.45
9	4.48	3.61	4.94	5.13	5.33	5.05	4.34	4.53	5.18	5.70	5.80	4.61
10	4.82	3.62	4.70	5.48	5.31	4.64	4.27	4.25	4.91	5.92	5.57	5.12
11	4.99	3.81	4.93	5.24	4.76	4.80	4.37	4.40	4.99	5.83	5.38	6.00
12	5.25	4.00	4.87	4.95	5.36	4.77	4.42	5.03	5.31	5.20	5.89	4.96
13	4.66	3.66	5.45	5.01	5.10	4.84	4.15	5.01	5.03	5.70	5.64	4.62
14	4.88	3.89	5.18	5.08	5.05	4.77	4.90	4.66	4.62	4.87	5.65	4.51
15	4.85	4.96	4.84	4.99	5.03	4.70	4.58	4.92	4.33	4.99	5.74	3.99
16	4.53	4.78	4.82	5.10	5.66	4.95	4.39	4.43	4.37	4.76	5.57	4.73
17	4.74	4.80	4.93	5.26	5.02	4.70	4.53	4.46	4.01	5.03	5.41	5.20
18	4.63	5.02	4.67	6.02	5.29	4.73	5.09	4.80	4.48	4.83	5.05	4.95
19	4.54	4.86	4.98	5.32	5.26	4.95	4.92	4.39	4.69	5.16	5.20	3.97
20	4.46	4.79	5.00	4.92	5.31	4.59	4.43	4.72	3.83	5.10	5.20	3.77
21	4.56	5.34	5.02	5.45	4.66	5.08	4.00	4.82	5.70	5.13	4.79	4.20
22	4.60	5.10	4.68	5.62	4.82	4.73	4.39	4.79	3.82	5.83	4.82	4.61
23	4.66	5.42	4.45	5.81	5.03	5.27	4.33	4.88	4.04	5.37	4.96	4.83
24	4.68	5.76	4.99	5.77	4.96	4.63	4.16	4.90	4.56	5.24	4.70	4.37
25	4.87	5.76	4.43	5.73	5.02	4.53	4.06	4.66	4.84	4.20	4.81	5.14
26	4.90	5.46	4.75	5.74	5.42	5.01	4.20	4.68	4.37	4.90	5.42	4.39
27	4.48	6.01	4.96	5.70	5.68	5.04	4.62	4.84	3.95	5.64	4.70	4.25
28	4.40	5.94	4.93	5.26	5.78	4.58	4.22	4.76	3.53	6.01	4.92	4.37
29	4.64		4.42	5.76	5.10	4.39	4.41	4.75	4.46	5.36	4.34	4.13
30	4.41		4.47	5.05	5.13	4.97	4.77	4.50	5.70	5.06	4.63	4.19
31	4.29		4.64		5.06		4.94	4.33		4.85		3.90
Sum	147.22	134.91	148.96	160.20	162.80	144.83	138.62	143.30	136.59	163.26	157.37	142.94

Month	Current Year 1994							Period 1935-1994			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
Jan.			6	5.61	4	4.25	4.75	12,720	12,054	14,963	2,619
Feb.			27	6.01	9	3.61	4.82	11,656	11,827	15,998	2,495
Mar.			7	5.68	2	3.47	4.81	12,870	13,285	16,904	2,864
April			16	6.02	1	4.65	5.34	13,841	13,299	16,031	2,611
May			7	6.08	21	4.66	5.25	14,066	13,788	17,145	3,050
June			6	5.24	29	4.39	4.83	12,513	12,697	15,505	3,115
July			18	5.09	21	4.00	4.47	11,977	12,976	15,320	3,610
Aug.			12	5.03	3	3.90	4.62	12,381	12,792	15,612	3,687
Sept.			121	5.70	28	3.53	4.55	11,801	12,580	15,357	3,210
Oct.			28	6.01	25	4.20	5.27	14,106	13,746	17,143	4,248
Nov.			12	5.89	29	4.34	5.25	13,597	12,729	15,680	4,202
Dec.			11	6.00	20	3.77	4.61	12,350	12,681	14,863	3,562
Yearly				6.08		3.47	4.88	153,878	154,454	183,801	39,274

♦ 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 1994; 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.42	0.04	0	0	0	0	0	0	0	0	0	0
2	.42	.03	0	0	0	0	0	0	0	0	0	0
3	.40	.03	0	0	0	0	0	0	0	0	0	0
4	.37	.03	0	0	0	0	0	0	0	0	0	0
5	.37	.04	0	0	0	0	0	0	0	0	0	0
6	.39	.04	0	0	0	0	0	0	0	0	0	0
7	.36	.05	0	0	0	0	0	0	0	0	0	0
8	.34	.07	0	0	0	0	0	0	0	0	0	0
9	.36	.06	0	0	0	0	0	0	0	0	0	0
10	.42	.04	0	0	0	0	0	0	0	0	0	0
11	.39	.04	0	0	0	0	0	0	0	0	0	0
12	.41	.03	0	0	0	0	0	0	0	0	0	0
13	4.42	.03	0	0	0	0	0	0	0	0	0	0
14	4.42	.03	0	0	0	0	0	0	0	0	0	0
15	4.22	.03	0	0	0	0	0	0	0	0	0	0
16	4.28	.03	0	0	0	0	0	0	0	0	0	0
17	4.30	.02	0	0	0	0	0	0	0	0	0	0
18	4.28	.01	0	0	0	0	0	0	0	0	0	0
19	3.88	.01	0	0	0	0	0	0	0	0	0	0
20	1.12	0	0	0	0	0	0	0	0	0	0	0
21	.53	0	0	0	0	0	0	0	0	0	0	0
22	.48	0	4.79	0	0	0	0	0	0	0	0	0
23	.42	0	0	0	0	0	0	0	0	0	0	0
24	.42	0	0	0	0	0	0	0	0	0	0	0
25	.37	0	0	0	0	0	0	0	0	0	0	0
26	.31	0	0	0	0	0	0	0	0	0	0	0
27	.26	0	0	0	0	0	0	0	0	0	0	6.03
28	.18	0	0	0	0	0	0	0	0	0	0	22.5
29	.10	0	0	0	0	0	0	0	0	0	0	20.7
30	.06	0	0	0	0	0	0	0	0	0	0	12.2
31	.05	0	0	0	0	0	0	0	0	0	0	10.9
Sum	38.75	0.66	4.79	0	0	0	0	0	0	0	0	72.33

Current Year 1994

Period 1935-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	High	Day	Low		Total	Average	Maximum	Minimum
				Day							
Jan.	22.475	21.830	13	4.87	31	0.04	1.25	3,348	430,191	2,062,379	0
Feb.	21.870	21.700	9	.09	120	0	.02	57.0	352,994	1,708,370	0
Mar.	22.395	21.700	22	10.3	11	0	.15	414	299,653	1,458,432	0
April	21.700	21.700	11	0	11	0	0	0	198,752	947,722	0
May	21.700	21.000	11	0	11	0	0	0	267,674	1,430,837	0
June	21.700	21.700	11	0	11	0	0	0	228,845	1,455,506	0
July	21.700	21.700	11	0	11	0	0	0	197,002	1,821,962	0
Aug.	21.700	21.700	11	0	11	0	0	0	211,068	2,103,318	0
Sept.	21.700	21.700	11	0	11	0	0	0	236,240	1,956,768	0
Oct.	21.700	21.700	11	0	11	0	0	0	280,699	2,144,909	0
Nov.	21.700	21.700	11	0	11	0	0	0	325,321	1,761,409	0
Dec.	22.855	21.700	28	25.7	11	0	2.33	6,249	398,224	2,268,370	0
Yearly	22.855	21.000		25.7		0	0.32	10,068	3,426,663	15,656,495	1,398

! 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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.04	6.71	6.12	5.64	5.80	4.91	3.15	2.99	4.85	5.55	5.14	5.91
2	.04	6.61	6.23	5.40	5.73	4.94	3.00	3.06	4.97	5.52	5.59	5.73
3	.04	6.71	5.73	5.46	5.68	4.76	2.87	3.34	4.91	5.51	5.91	5.78
4	.04	6.79	5.26	5.30	5.69	4.70	2.77	3.13	4.83	5.55	5.68	5.85
5	.04	6.80	5.35	4.97	5.64	4.56	2.67	3.09	4.80	5.75	5.59	5.94
6	.04	6.86	5.38	5.03	5.44	3.81	2.61	3.12	4.88	2.67	5.57	6.02
7	.04	6.81	5.44	5.13	5.83	4.48	2.49	3.43	4.93	5.26	5.64	5.27
8	.04	6.79	5.77	5.30	5.98	4.40	2.49	3.57	4.91	4.28	6.12	5.39
9	.04	6.72	5.66	5.22	6.21	5.08	2.49	3.62	4.93	4.32	6.08	5.33
10	.04	7.01	5.64	5.15	6.29	4.73	2.45	3.56	4.98	4.30	6.33	5.48
11	.04	6.80	5.61	5.14	6.03	4.53	2.41	3.60	4.90	4.31	6.39	5.47
12	.04	6.25	5.64	5.33	6.63	4.43	2.29	3.31	4.91	4.40	6.37	5.43
13	.04	6.08	5.66	5.41	5.93	4.54	2.26	3.64	5.00	4.49	6.35	5.43
14	.04	6.07	5.62	5.62	5.99	4.25	2.12	3.58	5.47	4.44	6.32	5.44
15	.04	6.42	5.55	5.54	5.92	4.07	2.18	3.63	5.58	4.25	5.79	5.38
16	.04	6.46	5.63	5.81	5.88	4.23	2.08	3.63	5.63	4.27	5.71	5.40
17	.04	6.57	5.50	5.93	5.78	3.96	2.18	3.86	5.71	4.21	5.72	5.38
18	.04	6.61	5.66	5.93	5.50	4.37	2.22	3.91	5.82	3.64	6.28	5.32
19	3.55	6.77	5.57	5.81	5.65	4.12	2.54	4.01	5.98	4.40	6.48	5.30
20	7.53	6.53	5.52	5.80	5.57	4.11	3.02	3.93	5.77	4.61	6.47	5.34
21	7.15	6.53	5.48	5.66	5.62	4.07	4.19	4.04	6.25	4.76	6.38	5.26
22	7.28	6.34	5.78	5.47	5.50	3.27	3.15	4.08	7.92	5.05	6.44	5.25
23	7.14	6.24	5.63	5.35	5.50	3.69	3.02	4.17	6.08	5.17	6.30	5.20
24	7.19	6.20	5.89	5.27	5.71	3.45	2.99	4.23	4.89	5.10	6.37	5.15
25	7.59	6.36	6.01	5.41	5.48	3.33	2.93	4.29	5.18	5.01	6.29	5.24
26	7.39	6.23	5.95	5.61	5.78	3.32	2.98	4.61	5.22	5.04	5.91	5.00
27	7.29	6.27	5.91	5.70	5.94	3.27	3.03	4.85	4.98	4.93	5.60	4.92
28	7.36	6.24	5.91	5.85	6.09	3.48	3.23	4.99	4.97	5.01	5.23	4.90
29	7.17		5.82	5.82	5.93	3.46	3.20	5.04	5.34	5.08	5.14	4.96
30	7.13		5.79	5.86	5.46	3.23	2.94	4.68	5.49	5.18	5.90	4.96
31	7.03		5.91		5.20		2.99	4.82		5.13		5.00
Sum	91.52	182.78	176.62	164.92	179.58	123.55	84.94	119.81	160.08	147.17	179.09	166.43

Current Year 1994

Period 1977-1994

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.	0.690	0.030	20	7.88	18	0.03	2.95	7,907	14,459	21,638	7,412	
Feb.	.650	.585	10	7.12	14	5.91	6.53	15,792	13,935	18,374	8,506	
Mar.	.605	.520	2	6.42	4	5.04	5.70	15,260	15,601	21,496	11,420	
April	.600	.530	17	6.04	5	4.87	5.50	14,249	14,284	20,613	3,445	
May	.655	.525	12	7.28	31	5.01	5.79	15,516	14,427	20,732	5,215	
June	.590	.230	9	6.11	6	1.26	4.12	10,675	13,014	19,842	2,227	
July	.555	.295	21	5.66	16	2.01	2.74	7,339	13,872	22,235	3,718	
Aug.	.520	.370	29	5.10	1	2.92	3.86	10,352	14,191	22,444	3,656	
Sept.	.680	.485	22	8.01	24	4.67	5.34	13,831	13,260	23,538	51.4	
Oct.	.585	.310	5	6.30	6	2.26	4.75	12,715	13,783	23,600	23.9	
Nov.	.610	.505	119	6.65	29	4.87	5.97	15,473	12,780	20,944	59.2	
Dec.	.575	.500	6	6.08	7	4.81	5.37	14,380	13,318	22,518	138	
Yearly	0.690	0.030		8.01		0.03	4.87	153,489	166,924	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 of the Ministry of Agriculture and Hydraulic Resources and furnished by the Mexican Section of the Commission. Records shown in table below are waste returns to the Colorado River. Records available: April 1956 through 1994.

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 Conexion was enlarged and lined, and is now known as the Central Feeder Canal.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1994	PERIOD 1956 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	0	11,145	85,761	0
February	0	5,700	50,898	0
March	202	8,363	72,049	0
April	0	14,249	85,372	0
May	3,888	13,617	99,576	0
June	179	11,761	61,705	0
July	0	12,663	56,912	0
August	77.8	18,085	132,183	0
September	8.5	14,246	83,943	0
October	0	12,908	136,198	0
November	0	12,797	122,170	0
December	4,809	11,199	86,607	0
Yearly	9,164	149,931	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 45.3 kilometers downstream from the Southerly International Boundary.

RECORDS: The records are computed by the Baja California State Office of the National Water Commission and are based upon gate openings. Records available: January 1964 through 1994.

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 1994	PERIOD 1964 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	0	1,790	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	0	20,422	103,328	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)	
	1994	Average 1935-1994	1994	Average 1951-1994	1994	Average 1939-1994	1994	Estimated Average
Jan.	26,532.2	22,875.5	2,009.7	2,053.7	682.9	682.6	29,224.8	25,611.8
Feb.	26,682.6	22,717.9	2,027.0	2,068.2	663.9	685.1	29,373.5	25,471.2
Mar.	26,262.0	22,430.0	2,053.6	2,069.9	711.7	703.9	29,027.3	25,203.8
April	25,660.1	22,467.0	2,111.6	2,051.8	702.1	738.7	28,473.8	25,257.5
May	25,112.4	23,234.7	2,185.1	2,126.2	747.7	744.3	28,045.2	26,105.2
June	24,749.8	24,393.0	2,070.4	2,016.6	737.1	740.4	27,557.3	27,150.0
July	24,675.8	24,546.9	1,945.2	1,871.2	710.5	727.0	27,331.5	27,145.1
Aug.	24,557.4	24,331.4	1,950.1	1,817.3	711.2	709.3	27,218.7	26,858.0
Sept.	24,583.3	24,091.1	1,810.5	1,777.9	704.7	701.9	27,098.5	26,570.9
Oct.	24,487.0	23,839.1	1,683.0	1,785.1	673.7	698.7	26,843.7	26,322.9
Nov.	24,145.4	23,655.2	1,803.5	1,867.5	692.4	688.0	26,641.3	26,210.7
Dec.	24,286.0	23,463.2	2,032.3	1,975.6	713.3	686.9	27,031.6	26,125.7
Avg.	25,144.5	23,503.8	1,973.5	1,956.8	704.3	708.9	27,822.3	26,169.5
Max.	26,682.6	134,266.1	2,185.1	1,2,230.1	747.7	1,849.5	29,373.5	1,35,934.1
Min.	24,145.4	*13,231.5	1,683.0	1,1,462.9	663.9	1,94.9	26,641.3	1,16,112.5

SUSPENDED SILT - 1994

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	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time	Stream-flow, Momentary CMS	Gravimetric Percent
Jan. 6	0900	50.6	0.0205	May 5	0845	57.6	0.0084	Sep. 1	0850	37.1	0.0314
13	1000	56.3	0.0444	12	0730	49.9	0.0240	8	0715	47.2	0.0160
20	0900	54.2	0.0205	19	0725	54.2	0.0088	15	0825	44.8	0.0238
27	1000	52.5	0.0136	27	0725	57.0	0.0081	22	1000	61.2	0.0261
Feb. 3	0925	62.2	0.0207	Jun. 2	0800	53.8	0.0118	29	0735	43.4	0.0686
10	0800	84.3	0.0410	10	0728	52.9	0.0088	Oct. 6	0800	26.9	0.0098
17	0840	78.6	0.0256	16	0720	55.7	0.0079	13	0805	26.3	0.0134
25	1020	77.8	0.0167	23	0715	56.3	0.0059	20	0745	26.5	0.0130
Mar. 3	0900	84.5	0.0141	30	0817	56.7	0.0094	27	0830	28.4	0.0147
10	0805	97.1	0.0141	Jul. 7	0720	53.0	0.0067	Nov. 3	0828	33.0	0.0205
17	0810	93.1	0.0170	14	0729	54.6	0.0065	10	0835	34.6	0.0026
24	0746	94.0	0.0473	21	0820	55.9	0.0049	23	0820	35.1	0.0056
31	0800	88.7	0.0079	28	0730	54.3	0.0061	Dec. 1	0837	40.9	0.0034
Apr. 7	0913	86.7	0.0040	Aug. 4	0800	47.1	0.0184	8	0755	41.9	0.0040
14	0959	82.8	0.0083	11	0740	43.4	0.0496	15	0840	44.1	0.0034
21	0928	72.4	0.0233	18	0800	45.2	0.0143	22	1020	40.3	0.0032
29	0810	67.4	0.0098	25	0800	46.1	0.0176				

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 1994	Period 1952 - 1994		
								Average	Maximum	Minimum
Jan.	141,342,000	11,109	4	0.0079	0.0213	0.0010	8.2	10.9	62.2	0.30
Feb.	178,338,000	17,663	4	0.0099	0.0136	0.0044	13.0	13.7	127.8	1.10
Mar.	239,095,000	33,026	5	0.0138	0.0477	0.0016	24.3	57.7	605.2	3.32
April	202,228,000	8,637	4	0.0043	0.0090	0.0010	6.4	62.8	856.8	4.49
May	148,556,000	5,513	4	0.0037	0.0074	0.0017	4.0	20.5	318.2	1.36
June	140,538,000	9,507	5	0.0068	0.0135	0.0023	7.0	34.6	256.6	2.53
July	145,135,000	21,419	4	0.0148	0.0358	0.0010	15.7	41.9	192.3	4.14
Aug.	124,252,000	44,315	5	0.0357	0.0912	0.0028	32.5	40.3	166.9	4.02
Sept.	112,977,000	42,579	4	0.0377	0.0991	0.0052	31.3	18.2	79.8	1.78
Oct.	76,343,000	39,887	4	0.0522	0.1065	0.0060	29.3	9.5	124.0	0.40
Nov.	91,541,000	14,452	5	0.0158	0.0985	0.0010	10.6	9.4	165.2	0.30
Dec.	109,927,000	5,454	4	0.0050	0.0067	0.0025	4.0	9.4	54.4	0.84
Year	1,710,272,000	253,561	52	0.0173	0.1065	0.0010	186.2	328.9	2,706.5	40.2

* Volume calculated at 1.362 megagrams per cubic meter

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

Date	Time	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time	Stream-flow, Momentary CMS	Gravimetric Percent	Date	Time	Stream-flow, Momentary CMS	Gravimetric Percent
*											

* No samples taken in 1994

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

CHEMICAL ANALYSES OF WATER SAMPLES
1994

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

1994	Time	Streamflow Momentary	Specific Conductance	pH	Hardness, Total (as CaCO ₃)	Hardness, Noncarbonate CaCO ₃	Calcium ion (Ca), Dissolved	Magnesium ion (Mg), Dissolved
Date	Standard	CMS	Microsiemens/ cm	Units	mg/L	mg/L	mg/L	mg/L
Jan. 3	0800	49.0	2060	8.2	454.29	269.69	110.0	43.2
18	0845	53.0	1600	8.1	411.42	248.92	100.0	38.9
Feb. 7	0900	72.1	1440	8.2	389.96	225.56	96.7	35.7
22	0815	74.6	1380	8.2	397.85	240.85	99.2	36.1
Mar. 7	0830	92.1	1240	8.2	350.53	208.83	85.9	32.7
21	1230	127	1210	8.2	366.22	225.22	90.2	33.9
April 4	0800	86.3	1280	8.3	367.92	221.92	90.7	34.0
18	0830	72.4	1270	8.0	372.21	227.21	91.6	34.5
May 2	0800	58.8	1330	8.3	383.39	231.39	95.4	34.9
16	0830	52.6	1360	8.3	398.65	244.25	99.2	36.3
June 6	0800	52.6	1350	8.3	391.81	237.81	96.3	36.4
20	0830	53.8	1290	8.3	370.16	219.86	91.6	34.0
July 5	0830	57.0	1300	8.4	389.94	241.24	95.7	36.3
18	0800	57.0	1300	8.3	381.49	234.49	95.3	34.5
Aug 1	0745	53.4	1330	8.3	381.63	232.63	94.2	35.2
15	0830	45.2	1330	8.4	378.98	230.38	93.8	34.8
Sept. 6	0740	42.9	1410	8.2	397.11	233.11	95.2	36.4
19	0800	42.9	1370	8.1	383.71	233.11	98.4	35.1
Oct. 3	0945	31.5	1420	8.3	397.83	234.83	98.2	36.7
17	0845	26.8	1590	8.2	420.57	241.17	103.0	39.3
Nov. 7	0815	35.3	1565	8.2	416.05	227.55	104.0	37.6
21	0830	33.4	1620	8.2	415.26	220.06	103.0	38.0
Dec. 6	0845	40.5	1550	8.2	404.02	217.02	99.5	37.4
20	0915	33.2	1660	8.2	407.35	214.05	101.0	37.3

1994	Sodium ion (Na), Dissolved	Potassium ion (K) Dissolved	Sulfate ion (SO ₄) Dissolved	Chloride ion (Cl), Dissolved	Carbonate (as CO ₃)	Bicarbonate (as HCO ₃)	Nitrate (as NO ₃)	Total Solids Dissolved (Calculated)
Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan. 3	263	5.7	401	307	N.D.	225	1.7	1,260
18	195	4.9	350	207	N.D.	198	1.2	1,010
Feb. 7	159	5.1	335	162	N.D.	201	1.1	906
22	145	4.9	324	141	N.D.	192	1.3	856
Mar. 7	129	4.9	297	123	N.D.	173	1.2	769
21	123	5.1	302	114	N.D.	172	1.0	764
April 4	137	4.7	306	128	N.D.	178	1.1	799
18	134	5.0	310	127	N.D.	177	1.0	801
May 2	136	5.0	315	134	N.D.	185	0.9	824
16	147	5.0	324	145	N.D.	188	0.8	861
June 6	154	5.2	322	147	N.D.	188	1.2	866
20	133	5.2	306	123	0.1	183	1.3	796
July 5	142	5.2	330	127	1.6	178	1.1	839
18	134	5.1	314	129	N.D.	179	1.0	814
Aug. 1	143	5.2	320	136	N.D.	182	1.2	837
15	141	5.2	322	138	1.1	179	1.0	806
Sept. 6	154	5.2	339	149	N.D.	200	1.1	837
19	143	4.8	320	148	N.D.	194	0.9	856
Oct. 3	155	5.3	339	156	N.D.	199	1.1	903
17	185	5.4	356	191	N.D.	219	1.7	1,000
Nov. 7	173	5.2	346	189	N.D.	230	1.4	984
21	192	5.5	369	190	N.D.	238	1.1	1,030
Dec. 6	190	5.2	363	181	N.D.	228	1.3	1,000
20	195	5.2	360	202	N.D.	236	1.8	1,030

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 - 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,980*	1,410	1,240	1,270	1,330*	1,400	1,310	1,340	1,390	1,420*	1,580	1,540
2	2,020*	1,400	1,240	1,270*	1,330	1,380	1,310*	1,380	1,360	1,420*	1,590	1,570
3	2,010	1,430	1,240	1,280*	1,340	1,360	1,310*	1,340	1,370*	1,430	1,570	1,560*
4	2,000	1,420	1,240	1,280	1,340	1,360*	1,300*	1,350	1,390*	1,440	1,520	1,560*
5	1,900	1,430*	1,240*	1,290	1,330	1,350*	1,300	1,330	1,400*	1,460	1,540*	1,550
6	1,900	1,430*	1,240*	1,300	1,330	1,360	1,310	1,340*	1,410	1,700	1,550*	1,490
7	1,950	1,450	1,250	1,290	1,310*	1,340	1,300	1,340*	1,390	1,660	1,570	1,500
8	1,960*	1,420	1,270	1,290	1,300*	1,350	1,300	1,350	1,370	1,640*	1,550	1,540
9	1,960*	1,400	1,270	1,290*	1,280	1,320	1,310*	1,340	1,370	1,620*	1,530	1,550
10	1,970	1,310	1,370	1,280*	1,300	1,340	1,310*	1,340	1,390*	1,600*	1,530	1,560*
11	1,950	1,320	1,310	1,280	1,290	1,340*	1,320	1,330	1,400*	1,580	1,540*	1,570*
12	1,550	1,360*	1,310*	1,270	1,310	1,340*	1,320	1,370	1,420	1,570	1,560*	1,580
13	1,750	1,410*	1,310*	1,260	1,310	1,340	1,310	1,360*	1,380	1,590	1,580*	1,570
14	1,690	1,450	1,310	1,280	1,330*	1,340	1,300	1,340*	1,380	1,560	1,590	1,570
15	1,680*	1,390	1,290	1,270	1,340*	1,330	1,290	1,330	1,390	1,570*	1,610	1,580
16	1,660*	1,400	1,280	1,270*	1,360	1,310	1,290*	1,310	1,350	1,580*	1,600	1,560
17	1,650*	1,350	1,290	1,270*	1,360	1,300	1,300*	1,330	1,360*	1,600	1,590	1,590*
18	1,640	1,350	1,290	1,280	1,360	1,300*	1,300	1,360	1,360*	1,580	1,580	1,630*
19	1,410	1,360*	1,260*	1,280	1,370	1,290*	1,280	1,330	1,390	1,600	1,590*	1,660*
20	1,470	1,360*	1,240*	1,280	1,360	1,290	1,290	1,340*	1,360	1,560	1,610*	1,670
21	1,400	1,370*	1,220	1,300	1,370*	1,310	1,290	1,340*	1,350	1,600	1,630	1,690
22	1,410*	1,370	1,260	1,300	1,370*	1,290	1,300	1,350	1,410	1,600*	1,560	1,640
23	1,420*	1,310	1,300	1,310*	1,380	1,300	1,300*	1,360	1,360	1,610*	1,540	1,620
24	1,430	1,300	1,250	1,310*	1,350	1,320	1,310*	1,350	1,390*	1,610	1,560*	1,600*
25	1,420	1,310	1,270	1,320	1,340	1,320*	1,310	1,350	1,420*	1,580	1,570	1,580*
26	1,440	1,300*	1,300*	1,330	1,340	1,330*	1,300	1,360	1,450	1,590	1,560*	1,570*
27	1,450	1,280*	1,340*	1,330*	1,320	1,330	1,300	1,340*	1,420	1,640	1,550*	1,550
28	1,460	1,270	1,370	1,320*	1,340*	1,330	1,300	1,330*	1,410	1,640	1,530	1,530
29	1,470*		1,270	1,320	1,360*	1,280	1,300	1,310	1,440	1,630*	1,560	1,600
30	1,490*		1,300	1,320*	1,380*	1,290	1,310*	1,370	1,420	1,620*	1,580	1,630
31	1,500		1,270		1,400		1,330*	1,360		1,610		1,690*

* - ESTIMATED

SPECIFIC CONDUCTANCE OF WATER SAMPLES

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,100	1,490	1,420	1,400	1,460	1,420	1,410	1,380	1,390	1,520	1,600	1,570
2	2,100	1,490	1,460	1,400	1,410	1,420	1,410	1,360	1,400	1,520	1,610	1,560
3	2,100	1,480	1,490	1,430	1,400	1,390	1,450	1,360	1,410	1,490	1,610	1,590
4	2,200	1,520	1,420	1,400	1,450	1,390	1,480	1,360	1,390	1,500	1,550	1,600
5	1,930	1,490	1,390	1,350	1,450	1,390	1,400	1,360	1,400	1,500	1,540	1,580
6	1,940	1,530	1,480	1,400	1,470	1,390	1,420	1,350	1,380	1,690	1,540	1,530
7		1,480	1,500	1,390	1,420	1,420	1,420	1,370	1,430	1,690	1,540	1,510
8		1,600	1,350	1,410	1,450	1,430	1,420	1,380	1,410	1,610	1,510	1,550
9		1,490	1,380	1,400	1,380	1,460	1,400	1,390	1,420	1,600	1,540	1,550
10		1,520	1,400	1,380	1,330	1,400	1,360	1,370	1,390	1,600	1,520	1,580
11		1,340	1,400	1,420	1,340	1,460	1,400	1,360	1,410	1,600	1,520	1,590
12		1,410	1,450	1,410	1,330	1,480	1,420	1,380	1,420	1,600	1,520	1,620
13	1,830	1,490	1,400	1,430	1,340	1,450	1,380	1,390	1,430	1,600	1,570	1,610
14	1,730	1,510	1,370	1,390	1,340	1,490	1,380	1,390	1,410	1,600	1,590	1,610
15	1,690	1,430	1,300	1,400	1,340	1,480	1,380	1,370	1,420	1,610	1,580	1,600
16	1,720	1,410	1,350	1,410	1,400	1,480	1,380	1,380	1,410	1,610	1,580	1,610
17	1,750		1,320	1,400	1,420	1,490	1,380	1,370	1,420	1,620	1,590	1,610
18	1,660	1,410	1,350	1,400	1,400	1,490	1,360	1,400	1,450	1,620	1,590	1,630
19	1,510		1,230	1,400	1,400	1,490	1,440	1,410	1,450	1,620	1,600	1,680
20	1,480	1,360	1,310	1,420	1,400	1,480	1,400	1,390	1,460	1,610	1,600	1,690
21	1,440	1,430	1,350	1,430	1,400	1,450	1,350	1,380	1,480	1,620	1,620	1,710
22	1,470	1,420	1,280	1,450	1,400	1,500	1,360	1,400	1,480	1,620	1,610	1,700
23	1,460	1,440	1,340	1,430	1,420	1,410	1,450	1,410	1,520	1,630	1,610	1,650
24	1,470	1,430	1,320	1,420	1,390	1,490	1,450	1,390	1,410	1,630	1,610	1,660
25	1,440	1,490	1,320	1,410	1,380	1,430	1,410	1,400	1,440	1,630	1,590	1,620
26	1,530	1,480	1,370	1,400	1,380	1,430	1,400	1,390	1,470	1,620	1,510	1,610
27	1,530	1,410	1,370	1,390	1,350	1,430	1,400	1,400	1,500	1,620	1,550	1,580
28	1,530	1,390	1,410	1,380	1,360	1,430	1,400	1,390	1,480	1,680	1,500	1,620
29	1,480		1,320	1,400	1,390	1,460	1,380	1,390	1,480	1,670	1,500	1,650
30	1,510		1,400	1,390	1,400	1,410	1,380	1,410	1,490	1,670	1,520	1,690
31	1,480		1,400		1,420			1,390		1,660		1,700

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 1994

January 14	March	May	July	September	November
3,660					
February	April	June	August	October	December
					29
					1,580

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	
	1994	Average 1931-1994	1994	Averages 1931-1994	1994	Averages 1931-1994	1994	Averages 1931-1994	1994	Averages 1978-1994
Jan.	5	10	3	11	0	12	1	11	3	29
Feb.	14	9	13	9	9	11	9	9	50	26
Mar.	14	7	17	6	22	10	5	7	36	32
April	0	2	0	2	0	3	1	3	0	5
May	3	1	4	0	2	1	8	1	2	3
June	0	0	0	0	0	1	0	1	0	0
July	1	1	0	2	7	5	T	6	4	11
Aug.	1	10	0	9	10	20	3	14	T	23
Sept.	T	8	4	7	0	9	54	9	1	11
Oct.	0	6	0	8	0	7	0	10	4	12
Nov.	6	5	5	5	1	7	1	5	19	14
Dec.	19	11	18	12	42	14	54	12	30	20
Yearly	62	70	64	71	93	100	136	88	149	186

T Trace

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		Delta Baja California		Riito, Sonora	
	1994	Average 1948-1994	1994	Averages 1926-1994	1994	Averages 1948-1994	1994	Averages 1948-1994	1994	Averages 1959-1994
Jan.	#	10	2	9	6	10	1	8	0	6
Feb.	9	5	11	8	10	6	7	7	0	6
Mar.	5	4	10	7	9	5	14	5	0	4
April	2	2	T	2	0	3	2	2	0	1
May	5	T	3	T	4	T	T	T	0	T
June	0	T	0	T	0	1	0	T	0	T
July	0	3	0	3	0	2	T	2	0	2
Aug.	1	9	0	9	0	6	2	7	#	7
Sept.	0	4	15	9	11	4	T	7	0	10
Oct.	0	6	0	9	0	7	T	7	0	8
Nov.	2	4	3	4	2	4	3	3	0	5
Dec.	40	9	28	18	35	8	39	11	48	11
Yearly		58	72	84	77	51	68	55		65

Month	San Felipe, Baja California		El Centinela, Baja California					
	1994	Average 1948-1994	1994	Averages 1978-1994				
Jan.	0	7	#	6				
Feb.	32	4	#	5				
Mar.	2	3	1	4				
April	0	1	0	2				
May	3	1	0	0				
June	0	1	0	T				
July	0	3	0	T				
Aug.	18	10	0	6				
Sept.	32	9	0	1				
Oct.	0	5	0	7				
Nov.	30	5	0	1				
Dec.	26	10	0	9				
Yearly	143	63		14				

T Trace # Missing Data

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 1994.

IN THE UNITED STATES

NAME OF STATION	LATITUDE	LONGITUDE	♠ 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	1978	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	♠ ELEV. (Meters)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 34'	115° 00'	**20.12	1948	# C. N. A.
Colonia Juarez, Baja California	32° 18'	115° 05'	14.94	1954	C. N. A.
Delta, Baja California	32° 21'	115° 11'	**11.89	1948	C. N. A.
El Centinela, Baja California	32° 35'	115° 45'	49.99	1978	C. N. A.
Laguna Salada, Baja California	32° 12'	115° 44'	2.14	1975	C. N. A.
Los Algodones, Baja California	32° 42'	114° 44'	35.05	1948	C. N. A.
Mexicali, Baja California	32° 40'	115° 28'	3.96	1926	C. N. A.
Riito, Sonora	32° 13'	115° 01'	13.11	1959	C. N. A.
San Felipe, Baja California	31° 01'	114° 51'	21.95	1948	C. N. A.
San Luis, R. C., Sonora	32° 28'	114° 47'	39.93	1949	C. N. A.

* Not shown on rainfall map

♠ 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

National Water Commission, Baja California State Office

EVAPORATION IN THE COLORADO RIVER BASIN
IN MILLIMETERS

Tabulated below are records of evaporation observed at one station in Arizona and at two stations in Baja California. 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

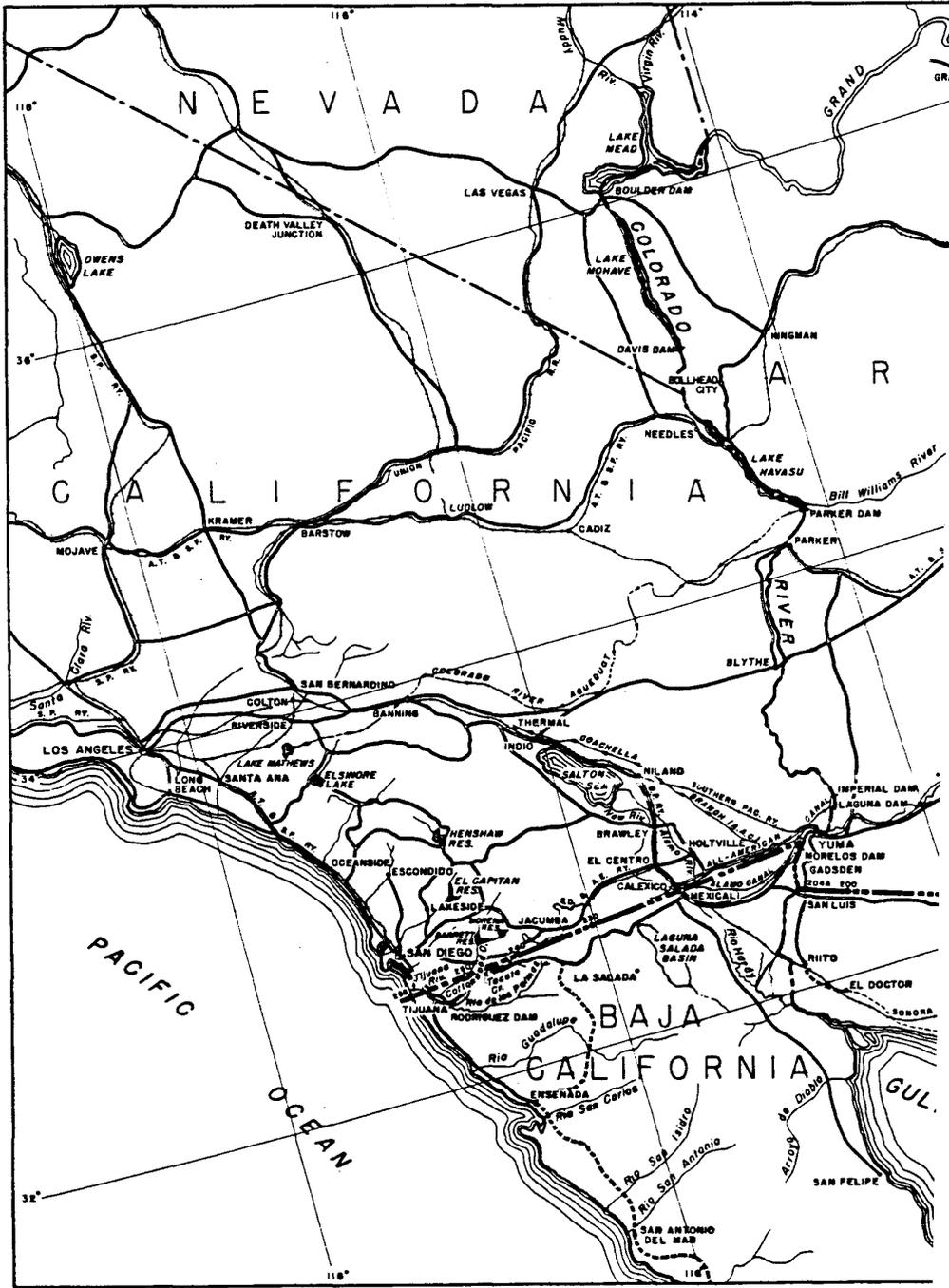
Month	Yuma Citrus Station, Arizona	
	1994	Average 1931-1994
Jan.	111	99
Feb.	110	120
Mar.	170	184
April	225	253
May	289	326
June	369	359
July	370	384
Aug.	342	338
Sept.	249	266
Oct.	167	189
Nov.	112	124
Dec.	80	93
Yearly	2,594	2,735

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		Riito, Sonora		San Felipe, Baja California	
	1994	Average 1948-1994	1994	Average 1926-1994	1994	Average 1959-1994	1994	Average 1962-1994	1994	Average 1952-1994
Jan.	#	109	#	65	#	83	#	76	120	120
Feb.	#	132	#	137	#	101	#	98	135	139
Mar.	#	185	#	148	#	150	#	146	180	169
April	#	234	#	198	#	205	#	187	228	196
May	#	318	#	268	#	269	#	256	260	240
June	#	343	#	293	#	305	#	286	315	256
July	#	353	#	298	#	290	#	315	400	285
Aug.	287	316	#	256	#	251	#	266	416	270
Sept.	229	261	178	204	#	206	#	215	265	237
Oct.	158	205	138	145	#	147	#	153	240	206
Nov.	103	133	95	85	#	109	#	95	164	152
Dec.	#	108	48	60	#	78	#	77	102	122
Yearly		2,695		2,122		2,226		2,246	2,825	2,538

Month	Delta, Baja California		El Centinela, Baja California						
	1994	Average 1959-1994	1994	Average 1975-1994					
Jan.	94	86	#	6					
Feb.	92	109	#	5					
Mar.	136	153	#	4					
April	208	199	#	0					
May	261	254	#	0					
June	317	275	#	1					
July	340	286	#	1					
Aug.	302	260	#	6					
Sept.	252	217	#	1					
Oct.	177	153	#	6					
Nov.	104	105	#	1					
Dec.	61	165	#	9					
Yearly	2,344	2,011		50					

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			
	1994				1994				1994			
	Mean	Max.	Min.	Average 1931-94	Mean	Max.	Min.	Average 1931-94	Mean	Max.	Min.	Average 1931-94
Jan.	11.9	26.1	-0.6	11.5	13.1	25.6	-0.6	11.9	13.6	28.3	-0.6	12.2
Feb.	12.5	26.7	0.0	14.2	13.1	25.6	0.0	14.0	13.2	26.1	-0.6	14.6
Mar.	19.3	33.9	7.8	17.3	18.4	32.8	6.7	16.8	18.8	32.8	5.6	17.4
April	22.7	41.1	8.9	21.4	21.3	38.9	6.1	20.5	21.9	38.9	6.7	21.1
May	25.8	41.7	12.2	25.4	24.0	40.6	9.4	24.4	23.8	39.4	6.7	25.1
June	32.8	50.0	17.2	29.9	31.4	47.2	16.7	28.8	31.1	47.8	16.1	29.4
July	34.1	46.7	19.4	33.6	33.0	45.0	17.2	32.7	33.0	45.0	18.3	33.1
Aug.	34.9	46.1	22.8	32.8	34.1	45.6	23.3	32.4	34.3	45.6	22.8	32.9
Sept.	31.1	44.4	11.7	29.4	30.8	43.3	15.0	29.4	30.8	43.3	15.0	30.0
Oct.	22.3	37.2	7.8	22.9	22.4	36.1	7.8	23.1	23.2	37.8	7.8	23.9
Nov.	13.3	31.1	-1.7	15.6	13.9	30.6	-1.7	16.2	14.0	31.1	-1.1	16.9
Dec.	11.4	22.2	-1.7	11.7	12.0	23.3	0.0	12.4	12.1	25.0	-1.1	12.7
Yearly	22.7	50.0	-1.7	22.1	22.3	47.2	-1.7	21.9	22.5	47.8	-1.1	22.4

Month	El Centro, California				Bullhead City, Arizona							
	1994				1994							
	Mean	Max.	Min.	Average 1931-94	Mean	Max.	Min.	Average 1978-94				
Jan.	13.8	26.7	0.6	12.3	13.2	25.6	0.0	12.0				
Feb.	13.4	26.1	2.2	14.6	13.1	26.1	2.2	14.6				
Mar.	19.2	32.8	7.8	17.4	19.7	33.3	7.2	17.7				
April	21.6	37.2	9.4	21.0	22.7	40.0	8.3	22.4				
May	24.8	39.4	12.2	25.1	27.1	42.2	13.9	27.1				
June	32.1	47.2	18.3	29.6	34.5	52.2	19.4	32.4				
July	33.3	45.0	18.3	33.1	35.9	50.6	22.2	35.0				
Aug.	34.8	45.0	23.3	32.8	36.8	48.9	23.3	34.3				
Sept.	31.3	44.4	16.7	29.8	32.2	44.4	16.1	30.4				
Oct.	23.9	36.7	9.4	23.8	22.8	36.7	7.2	23.8				
Nov.	14.3	32.8	0.6	16.8	14.1	30.6	-0.6	16.3				
Dec.	12.4	25.0	1.1	12.7	12.9	21.7	0.0	11.8				
Yearly	22.9	47.2	0.6	22.4	23.8	52.2	-0.6	23.2				

Missing Data

IN MEXICO

Month	Los Algodones, Baja California				Mexicali, Baja California				Bateques, Baja California			
	1994		1948-1994		1994		1926-1994		1994		1948-1994	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	23	6	31	-5	22	7	34	-7	23	5	45	-9
Feb.	21	6	35	-2	22	8	34	-5	22	5	37	-6
Mar.	30	10	38	0	25	13	38	-1	28	10	45	-4
April	32	12	43	3	32	12	41	1	32	12	48	-9
May	36	16	47	6	34	17	47	6	34	15	51	1
June	44	22	52	11	42	25	49	9	43	20	57	6
July	44	25	50	13	44	28	48	13	44	23	56	7
Aug.	43	27	49	16	44	27	49	12	43	26	54	8
Sept.	39	23	50	10	40	24	50	8	43	22	57	4
Oct.	33	15	44	0	31	17	44	0	33	14	48	0
Nov.	22	7	38	-3	21	14	40	-2	23	5	46	0
Dec.	19	6	32	-5	20	7	32	-5	19	5	36	-4
Yearly	44	6	52	-5	44	7	50	-7	44	5	57	-9

Missing Data

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

1994

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	18,419
Reservation Division	5,404
Yuma Mesa	7,104
Yuma Aux. Project Unit "B" (Yuma Mesa)	996
South Gila Valley	3,902
North Gila Valley	2,571
Wellton-Mohawk	22,767
Coachella Valley	23,763
Imperial Valley	185,712
Warren Act *	329
Non-Project lands adjacent to Colorado River	5,083
Total in United States	276,050
IN MEXICO:	
San Luis Valley, R. C., Sonora	23,218
Mexicali Valley	178,614
Total in Mexico	201,832
Total in United States and Mexico	477,882

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 which carries the river flow 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 1994. 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.

EXTREMES: Maximum mean daily discharge, 7.31 CMS (estimated), April 13, 1946; minimum discharge, no flow July 22-23, 29-30, 1949. Prior to the period of record, and since 1900, considerably higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a part of its flow passed through the Alamo River channel.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.06	0.08	0.06	0.07	0.07	0.07	0.08	0.07	0.08	0.07	0.07	0.06
2	.06	.12	.06	.06	.07	.07	.09	.07	.08	.07	.06	.07
3	.06	.07	.06	.06	.07	.06	.10	.08	.07	.07	.06	.06
4	.06	.07	.06	.06	.07	.07	.10	.09	.07	.06	.06	.06
5	.05	.07	.07	.06	.07	.07	.08	.09	.07	.06	.07	.06
6	.05	.06	.07	.06	.06	.07	.09	.09	.07	.06	.06	.06
7	.06	.07	.07	.07	.06	.07	.08	.08	.08	.06	.07	.06
8	.05	.07	.07	.06	.07	.07	.06	.07	.07	.07	.07	.06
9	.05	.07	.07	.07	.06	.07	.07	.07	.08	.06	.06	.05
10	.06	.06	.07	.07	.07	.07	.06	.07	.05	.06	.06	.05
11	.05	.08	.07	.06	.06	.07	.06	.08	.05	.07	.06	.05
12	.05	.07	.06	.06	.06	.07	.07	.09	.05	.06	.06	.05
13	.06	.06	.06	.06	.06	.07	.08	.09	.05	.06	.07	.06
14	.05	.06	.06	.07	.08	.07	.07	.08	.05	.07	.07	.07
15	.05	.06	.07	.06	.08	.10	.07	.11	.05	.07	.07	.07
16	.05	.06	.06	.07	.10	.08	.07	.09	.07	.06	.07	.07
17	.11	.06	.07	.07	.09	.07	.07	.10	.07	.07	.06	.07
18	.06	.06	.06	.07	.09	.07	.10	.12	.06	.07	.07	.08
19	.06	.06	.07	.08	.09	.09	.10	.08	.05	.07	.08	.08
20	.06	.06	.06	.06	.08	.07	.09	.08	.07	.06	.08	.08
21	.06	.06	.06	.06	.07	.08	.08	.08	.07	.06	.08	.07
22	.06	.06	.06	.06	.09	.10	.07	.08	.06	.06	.07	.07
23	.05	.06	.06	.06	.07	.07	.09	.08	.07	.06	.07	.07
24	.06	.06	.06	.06	.09	.06	.10	.08	.06	.06	.06	.07
25	.05	.06	.06	.06	.13	.08	.10	.08	.06	.06	.15	.06
26	.06	.06	.05	.06	.15	.09	.07	.08	.07	.06	.06	.10
27	.05	.06	.06	.06	.12	.09	.06	.08	.11	.06	.06	.08
28	.05	.06	.06	.06	.08	.08	.07	.08	.07	.06	.06	.07
29	.05	.07	.07	.07	.07	.08	.06	.08	.07	.06	.06	.07
30	.06	.06	.06	.07	.07	.08	.06	.07	.06	.06	.06	.07
31	.06	.07		.08	.08		.07	.08	.07	.06	.07	.07
Sum	1.77	1.85	1.97	1.92	2.49	2.27	2.40	2.57	1.99	1.97	2.06	2.07

Current Year 1994

Period 1943-1994

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.	0.110	0.095	17	0.11	15	0.05	0.06	153	351	3,441	122
Feb.	.180	.110	2	.12	16	.06	.07	160	321	3,481	111
Mar.	.130	.105	15	.07	26	.05	.06	170	367	3,890	107
April	.140	.110	19	.08	12	.06	.06	166	385	2,741	120
May	.205	.115	26	.15	16	.06	.08	215	309	2,219	90.0
June	.160	.115	115	.10	13	.06	.06	196	297	2,080	75.2
July	.165	.110	13	.10	18	.06	.08	207	276	2,112	72.8
Aug.	.175	.120	18	.12	11	.07	.08	222	321	2,062	81.0
Sept.	.170	.095	27	.11	110	.05	.07	172	297	1,734	103
Oct.	.130	.110	11	.07	14	.06	.06	170	314	2,276	76.0
Nov.	.210	.110	25	.15	12	.06	.07	178	327	2,566	77.0
Dec.	.160	.105	26	.10	19	.05	.07	179	314	2,080	98.7
Yearly	0.210	0.095		0.15		0.05	0.07	2,188	3,879	27,317	1,321

! And other days # Mean daily

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 1994.

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 TCM 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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.00	7.00	6.68	6.09	7.39	7.28	4.19	3.99	4.73	5.21	3.43	3.54
2	6.71	6.51	6.66	6.00	7.90	6.83	4.02	4.08	5.10	5.01	3.40	3.57
3	6.85	6.20	6.97	6.03	8.61	6.54	3.91	4.42	4.90	4.90	3.65	3.71
4	7.22	5.58	7.16	5.98	8.84	6.32	3.91	4.28	4.73	5.38	3.48	3.82
5	7.19	5.18	7.08	5.98	8.84	6.09	3.96	4.50	4.70	5.41	3.34	3.99
6	6.83	5.27	7.56	6.03	8.61	6.03	3.91	4.93	4.70	5.15	3.34	3.96
7	6.32	6.46	7.45	5.95	7.87	6.12	4.02	4.67	4.70	4.73	3.40	4.30
8	6.43	7.14	8.50	5.78	7.45	6.06	4.05	5.10	4.98	4.64	3.48	4.25
9	6.15	9.09	9.32	5.61	7.48	6.40	4.19	5.49	4.98	4.50	3.46	4.25
10	5.81	9.66	9.49	5.72	7.76	6.85	4.11	5.04	4.81	4.79	3.20	4.45
11	5.61	9.52	9.37	6.71	8.13	6.49	4.42	5.15	4.64	4.90	3.54	4.76
12	5.58	10.1	9.37	6.23	8.24	6.15	4.33	4.76	4.56	4.73	3.31	4.59
13	5.58	10.4	9.49	5.75	7.50	6.37	4.53	4.39	4.47	4.59	3.34	4.39
14	5.61	10.6	9.52	5.58	6.88	6.63	4.36	4.79	4.53	4.50	3.57	4.53
15	5.72	10.2	9.29	5.55	6.51	6.57	3.99	5.66	4.84	4.36	3.54	5.10
16	5.72	9.63	9.12	5.47	5.95	5.27	4.05	5.83	4.81	4.33	3.40	5.61
17	5.72	9.01	8.72	5.49	5.78	4.64	3.79	5.75	4.79	4.53	3.40	5.24
18	5.83	7.36	8.01	5.61	6.32	4.30	3.71	5.61	4.84	4.81	3.29	4.98
19	5.72	6.91	7.76	5.58	7.50	4.13	3.82	6.03	4.90	4.76	3.20	5.04
20	5.58	7.08	7.33	5.64	6.88	4.05	3.65	5.78	5.55	4.56	3.20	5.13
21	5.41	6.88	7.36	5.83	6.71	4.45	3.65	5.66	6.09	4.64	3.34	5.04
22	5.35	7.33	7.39	5.72	7.28	4.81	3.60	5.83	5.83	4.56	3.77	5.64
23	5.27	7.22	7.25	5.58	7.16	4.70	3.94	5.61	6.17	4.59	3.40	5.27
24	5.04	6.85	6.85	5.55	6.80	4.50	3.82	5.49	6.54	4.59	3.37	6.03
25	4.87	6.80	6.83	5.38	6.63	4.42	3.82	5.30	6.46	4.76	3.60	11.9
26	4.76	6.88	6.66	5.52	7.48	4.25	3.96	5.24	6.34	4.50	3.14	12.6
27	4.90	7.00	6.71	5.44	6.88	4.30	3.91	4.96	6.51	4.05	3.03	12.9
28	5.10	6.94	6.60	5.44	6.49	4.59	3.77	4.62	6.32	3.77	3.17	11.6
29	5.38		6.85	6.23	6.17	4.45	3.54	5.15	5.86	3.71	3.31	10.7
30	5.78		7.08	7.22	6.29	4.84	3.62	5.01	5.38	3.57	3.46	10.2
31	6.49		6.46		6.46		3.91	4.79		3.51		9.80
Sum	181.53	215.00	240.89	174.69	224.79	164.43	122.46	157.91	157.76	142.04	101.56	190.89
Current Year 1994												
Period 1943-1994												
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.	12.370	12.635	4	7.22	26	4.76	5.86	15,684	12,751	27,387	2,160	
Feb.	12.020	12.590	113	10.6	5	5.18	7.68	18,576	11,295	26,416	1,552	
Mar.	12.130	12.450	14	9.52	31	6.46	7.77	20,813	12,858	31,213	1,243	
April	12.370	12.565	30	7.22	25	5.38	5.82	15,093	13,120	34,066	1,715	
May	12.205	12.525	14	8.84	17	5.78	7.25	19,422	11,960	29,740	776	
June	12.365	12.710	1	7.28	20	4.05	5.48	14,207	10,013	25,024	1,341	
July	12.660	12.765	13	4.53	29	3.54	3.95	10,581	10,528	28,368	1,008	
Aug.	12.520	12.715	19	6.03	1	3.99	5.09	13,643	12,193	34,066	1,405	
Sept.	12.440	12.665	24	6.54	13	4.47	5.26	13,630	11,397	29,251	2,214	
Oct.	12.565	12.770	5	5.41	31	3.51	4.58	12,272	11,322	28,072	2,567	
Nov.	12.740	12.820	27	3.77	27	3.03	3.39	8,775	10,685	25,310	3,063	
Dec.	11.790	12.765	22	12.9	1	3.54	6.16	16,493	12,517	28,104	2,175	
Yearly	11.790	12.820		12.9		3.03	5.68	179,189	140,639	330,444	30,310	

† 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 1994 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 1994.

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 a 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 1994.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2	0.03	0.03	0.03	0.02	0.03	0.02	0.04	0.02	0.02	0.01	0.02	0.01
3	.02	.02	.02	.02	.02	.04	.02	.02	.02	.01	.02	.01
4	.03	.04	.02	.02	.02	.03	.02	.02	.02	.02	.02	.02
5	.04	.05	.02	.02	.02	.03	.02	.01	.02	.02	.02	.01
6	.04	.04	.02	.02	.01	.03	.02	.02	.02	.02	.02	.01
7	.03	.04	.03	.02	.01	.02	.01	.02	.02	.02	.01	.02
8	.03	.04	.02	.02	.02	.02	.03	.02	.01	.03	.02	.01
9	.03	.04	.02	.02	.03	.02	.03	.02	.02	.03	.02	.01
10	.02	.04	.02	.02	.02	.03	.04	.02	.01	.02	.01	.01
11	.02	.01	.03	.02	.02	.02	.02	.02	.02	.02	0	.01
12	.04	.04	.02	.03	.02	.04	.02	.02	.01	.02	0	.02
13	.04	.04	.02	.02	.02	.01	.02	.02	.02	.03	0	.02
14	.04	.04	.02	.03	.02	.02	.03	.02	.02	.02	.02	.02
15	.02	.04	.01	.02	.02	.02	.02	.02	.02	.02	.01	.02
16	.04	.04	.02	0	.02	.01	.03	.01	.01	.02	.01	.02
17	.04	.04	.03	.02	.01	.01	.03	.02	.01	.01	.01	.01
18	.04	.03	.03	.02	.02	.01	.02	.02	.03	.01	.01	.02
19	.04	.03	.03	.02	.02	.01	.01	.02	.02	.02	.01	.02
20	.04	.03	.02	.01	.02	.01	.02	.02	.02	.01	.01	.01
21	.04	.05	.02	.02	.02	.02	.02	.02	.02	.01	.02	.02
22	.04	.04	.01	.02	.02	.02	.02	.02	.01	.01	.01	.01
23	.03	.04	.02	.02	.02	.01	.03	.01	.02	.01	.02	.01
24	.04	.04	.02	.02	.02	.01	.02	.02	.01	.01	.01	0
25	.04	.06	.02	.04	.02	.01	.01	.02	.01	.02	.01	0
26	.04	.05	.02	.02	.02	.03	.02	.02	.02	.01	.01	.01
27	.04	.05	.02	.02	.02	.01	.02	.02	.02	.01	.02	.01
28	.04	.06	.02	.02	.02	.02	.01	.02	.02	.01	.01	.01
29	.04	.02	.02	.02	.02	.02	.01	.02	.02	.01	.02	.01
30	.04	.01	.02	.02	.02	.02	.01	.01	.02	.02	.01	.02
31	.04	.01	.01	.02	.02	.02	.02	.02	.02	.02	.01	.02
Sum	1.09	1.12	0.66	0.61	0.62	0.59	0.67	0.56	0.51	0.54	0.38	0.44
Current Year 1994											Period 1968-1994	
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 4	0.04	1 2	0.02	0.04	94.2	167	641	0	
Feb.			125	.06	11	.01	.04	96.8	110	384	0	
Mar.			10	.04	115	.01	.02	57.0	210	1,074	0	
April			25	.04	16	0	.02	52.7	201	532	0	
May			1 1	.03	1 5	.01	.02	53.6	216	537	53.6	
June			1 2	.04	113	.01	.02	51.0	199	504	25.9	
July			1 1	.04	1 7	.01	.02	57.9	244	651	0	
Aug.			1 1	.02	1 4	.01	.02	48.4	264	735	48.4	
Sept.			18	.03	1 8	.01	.02	44.1	248	677	44.1	
Oct.			1 6	.03	1 1	.01	.02	46.7	233	625	46.7	
Nov.			1 1	.02	111	0	.01	32.8	205	622	32.8	
Dec.			1 3	.02	124	0	.01	38.0	189	737	8.6	
Yearly				0.06		0	0.02	673	2,526	6,610	673	

φ Mean daily

! And other days

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

DESCRIPTION: During 1994, 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 1994.

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 1994	PERIOD 1956 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	232	1,039	10,803	7.8
February	434	813	8,981	7.8
March	276	674	5,506	26.8
April	377	573	3,940	19.9
May	1,276	432	3,174	11.2
June	517	481	6,994	0
July	62.2	681	12,644	0
August	558	682	5,103	0
September	400	548	3,966	25.9
October	58.8	635	4,285	10.4
November	32.8	687	4,668	0
December	1,489	1,081	10,720	0
Yearly	5,713	8,326	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 76.200 meters below mean sea level, U. S. C. & G. S. datum.

RECORDS: Records of water surface elevations available from November 1904 through 1994. 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 0.305 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 84.640 meters below mean sea level, U. S. C. & G. S. datum.

EXTREMES: Maximum elevation during 1994 was 69.160 meters below mean sea level. Minimum elevation during 1994 was 69.465 meters below mean sea level. Extremes for period of records: maximum elevation 59.710 below mean sea level February 10 to March 29, 1907; minimum elevation since 1906, 76.690 meters below mean sea level in November 1924.

MEAN DAILY WATER SURFACE ELEVATION IN METERS BELOW MEAN SEA LEVEL - 1994

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.465	69.370	69.340	69.190	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465
2	69.465	69.370	69.310	69.190	69.190	69.160	69.190	69.250	69.310	69.370	69.435	69.465
3	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.310	69.370	69.435	69.465
4	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.310	69.405	69.435	69.435
5	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.310	69.405	69.435	69.435
6	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.340	69.405	69.435	69.435
7	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.340	69.405	69.435	69.435
8	69.465	69.370	69.310	69.190	69.190	69.160	69.220	69.250	69.340	69.405	69.435	69.435
9	69.435	69.370	69.280	69.190	69.190	69.160	69.220	69.280	69.340	69.405	69.435	69.435
10	69.435	69.370	69.280	69.190	69.190	69.160	69.220	69.280	69.340	69.405	69.435	69.435
11	69.435	69.370	69.280	69.190	69.190	69.190	69.220	69.280	69.340	69.405	69.435	69.435
12	69.435	69.370	69.280	69.190	69.190	69.190	69.220	69.280	69.340	69.405	69.435	69.435
13	69.435	69.370	69.250	69.190	69.190	69.190	69.220	69.280	69.370	69.435	69.435	69.435
14	69.435	69.370	69.250	69.190	69.190	69.190	69.220	69.280	69.370	69.435	69.435	69.435
15	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.435	69.435
16	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.435	69.435
17	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.435	69.435
18	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.290	69.370	69.435	69.435	69.435
19	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.435	69.435
20	69.435	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.435	69.435
21	69.405	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.465	69.405
22	69.405	69.370	69.250	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.465	69.405
23	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.465	69.405
24	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.465	69.405
25	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.280	69.370	69.435	69.465	69.405
26	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.405
27	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.370
28	69.405	69.340	69.220	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.370
29	69.405		69.220	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.370
30	69.405		69.220	69.190	69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.370
31	69.370		69.190		69.190	69.190	69.250	69.310	69.370	69.435	69.465	69.370
Avg.	69.430	69.365	69.260	69.190	69.190	69.180	69.235	69.280	69.355	69.420	69.445	69.420

Month	Current Year 1994		Period 1935-1994		
	Extreme Elevation Meters		Elevation Meters		
	High	Low	# Average	# Maximum	! Minimum
Jan.	69.370	69.465	71.600	69.310	75.990
Feb.	69.340	69.370	71.505	69.220	75.830
Mar.	69.190	69.340	71.425	69.190	75.770
April	69.190	69.190	71.365	69.160	75.800
May	69.190	69.190	71.360	69.130	75.740
June	69.160	69.190	71.405	69.190	75.830
July	69.190	69.250	71.460	69.220	75.930
Aug.	69.250	69.310	71.515	69.250	76.020
Sept.	69.310	69.370	71.575	69.280	76.020
Oct.	69.370	69.435	71.605	69.310	76.140
Nov.	69.435	69.465	71.610	69.340	76.200
Dec.	69.370	69.465	71.575	69.340	76.080
Yearly	69.160	69.465	71.500	69.130	76.200

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	4,393.7
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

‡ Mean Daily # Mean Monthly ! Reading near first day of month

CHEMICAL ANALYSES OF WATER SAMPLES

NEW RIVER

The table below is based on samples collected and analyzed by the 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.

SAMPLE TYPE	COMPOSITE	COMPOSITE	COMPOSITE	
DATE	Feb. 8, 1994	May 23, 1994	Oct. 25, 1994	
PARAMETER	CONCENTRATION	CONCENTRATION	CONCENTRATION	DETECTION LIMIT
Arsenic	N.D.	6.00 ug/L	4.0 mg/L	10.0 ug/L
Boron	N.D.	N.D.	N.D.	0.1 mg/L
Cadmium	N.D.	7.00 ug/L	1.0 mg/L	1.0 ug/L
Chromium	N.D.	22.00 ug/L	N.D.	10.0 ug/L
Copper	N.D.	94.00 ug/L	13.0 mg/L	10.0 ug/L
Lead	N.D.	N.D.	N.D.	10.0 ug/L
Phenol	0.015 mg/L	N.D.	N.D.	0.002 mg/L
MBAS	3.400 mg/L	0.42 mg/L	1.6 mg/L	0.025 mg/L
Zinc	N.D.	N.R.	N.D.	50.0 ug/L
Total Cyanide	N.D.	N.D.	N.D.	0.01 mg/L
Total Phosphate(P04-P)	1.600 mg/L	1.49 mg/L	1.56 mg/L	0.01 mg/L
Nitrate (NO3-N)	1.700 mg/L	0.30 mg/L	0.30 mg/L	0.20 mg/L
Nitrite (NO2-N)	N.D.	0.20 mg/L	N.D.	0.03 mg/L
Ammonia (NH3-NH4-N)	6.500 mg/L	3.10 mg/L	5.6 mg/L	0.05 mg/L
Total Dissolved Solids	2,761 mg/L	2,470 mg/L	2,670 mg/L	---
Total Suspended Solids	39.000 mg/L	13.0 mg/L	21.0 mg/L	---
Volatile Suspended Solids	1.000 mg/L	5.60 mg/L	7.0 mg/L	---

N.R. - None Reported

N.D. - None Detected

The table below is based on samples collected and analyzed by the U. S. Section of the Commission.

Samples from the New River are taken from the right bank at road bridge, 137 meters north of the international boundary. Records of the sampling extend from April 1951 through 1994.

NEW RIVER

1994	Time	*Streamflow Momentary	Water Temperature	pH	Oxygen Dissolved (DO)	Specific Conductance	Fecal Coliform
Date	Std.	CMS	Deg C	Units	mg/L	Microsiemens/cm	Colonies/ 100 mL
Jan. 5	0850	7.33	13.0	7.9	5.6	4,100	125,000
Jan. 19	0850	5.89	12.0	7.8	4.8	4,700	70,000
Feb. 2	0705	6.83	11.0	7.8	6.3	4,200	90,000
Feb. 23	1015	7.31	15.0	7.7	5.5	4,500	75,000
Mar. 2	0725	6.46	16.5	7.7	3.5	4,600	64,000
Mar. 17	0855	8.95	19.0	7.7	4.0	3,900	80,000
Apr. 4	0900	8.07	19.0	7.6	2.5	5,200	55,000
Apr. 13	1120	6.03	21.0	7.7	N.R.	4,800	135,000
May 4	0855	8.64	22.0	7.5	3.1	4,000	70,000
May 19	0845	7.36	20.0	7.8	4.4	4,100	71,000
June 2	0825	7.08	27.0	7.6	0.9	4,100	540,000
June 15	0945	3.96	28.0	7.5	1.5	3,600	695,000
July 6	0820	7.08	27.0	7.5	2.1	5,050	202,000
July 20	0840	3.77	29.0	7.5	0.9	5,000	155,000
Aug. 4	0805	4.02	30.0	7.5	1.8	4,420	85,000
Aug. 17	0830	5.92	31.0	7.6	1.1	4,400	85,000
Sep. 6	0805	4.47	31.0	7.5	1.6	4,300	190,000
Sep. 28	0850	6.46	27.0	7.6	1.2	3,500	128,000
Oct. 4	0815	4.76	25.0	7.5	1.6	3,900	120,000
Oct. 19	1130	4.56	20.0	7.6	2.9	4,200	175,000
Nov. 1	0810	3.46	20.0	7.5	1.5	3,500	670,000
Nov. 22	0815	3.68	13.0	7.8	2.7	5,000	760,000
Dec. 7	0750	3.77	13.0	7.6	2.8	5,000	510,000
Dec. 20	0830	4.90	11.0	7.6	3.9	4,200	261,000

Note: Temperature, pH, D.O., and Specific Conductance - Data collected in field

* Flow reported by Imperial Irrigation District

N.R. - None Reported

CHEMICAL ANALYSES OF WATER SAMPLES

The table below is based on samples collected and analyzed by the U. S. 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 flows from drain intercepts along the toe of the south bank of the All-American Canal.

ALAMO RIVER

1994	Time	*Streamflow Momentary	Water Temperature	pH	Oxygen Dissolved (DO)	Specific Conductance	Fecal Coliform
Date	Std.	CMS	Deg C	Units	mg/L	Microsiemens/cm	Colonies/ 100 mL
Jan. 19	0800	0.09	11.0	7.8	6.2	5,600	2,900
Feb. 23	0930	0.07	14.0	7.7	7.7	6,000	2,100
Mar. 17	0735	0.07	17.0	7.6	5.1	6,020	1,430
Apr. 13	0940	0.07	20.0	7.7	N.R.	5,500	1,470
May. 19	0800	0.07	18.0	7.8	5.7	6,000	1,200
June 15	1030	0.06	25.0	7.5	3.9	4,000	967
July 20	0750	0.28	25.0	7.6	4.9	6,500	967
Aug. 17	0755	0.14	29.0	7.6	5.8	5,400	N.R.
Aug. 24	1010	0.17	27.0	7.7	4.6	5,400	3,500
Sep. 28	0810	0.07	24.0	7.6	5.4	4,800	22,000
Oct. 4	1145	0.07	22.0	7.7	5.8	5,800	35,000
Nov. 22	0720	0.08	10.0	7.8	8.5	4,800	3,700
Dec. 20	0740	0.08	10.0	7.7	6.5	5,650	17,500

Note: Temperature, pH, D.O., and Specific Conductance - Data collected in field

* Flow reported by Imperial Irrigation District

N.R.- None Reported

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 - 1994

January	March	May	July	September	November
05 5,200	02 5,000	04 5,200	06 5,600	07 5,800	02 6,200
12 5,000	09 5,100	11 4,900	13 5,500	14 5,400	09 5,900
19 5,300	16 5,300	18 5,000	20 5,100	21 5,800	16 5,400
26 5,700	23 5,200	25 4,800	27 5,400	28 6,000	23 5,500
	30 6,000				30 5,900
February	April	June	August	October	December
02 4,400	06 5,200	01 5,200	03 5,800	05 6,000	07 5,900
09 5,600	13 5,800	08 4,900	10 6,000	12 6,200	14 5,800
16 5,700	20 6,000	15 5,100	17 5,900	19 6,100	21 6,100
23 5,600	27 6,100	22 5,600	24 5,700	26 5,800	28 5,200
		29 5,800	31 5,500		

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 878.555 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 1994.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1994 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 47.855 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 1994	PERIOD 1937 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	1,278	1,161	20,362	0
February	2,056	2,648	41,407	9.9
March	2,031	3,684	55,845	23.8
April	1,464	2,065	28,530	4.1
May	1,113	1,039	18,642	0
June	710	578	10,173	0
July	5.7	356	7,651	0
August	300	298	8,916	0
September	144	198	6,331	0
October	62.5	179	4,817	0
November	8.4	293	5,633	0
December	393	804	9,472	5.4
Yearly	9,566	13,303	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 1994.

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 1994	PERIOD 1937 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	821	278	2,583	0
February	743	1,066	19,644	0
March	821	2,119	55,615	0
April	819	1,591	28,159	0
May	821	862	18,100	0
June	819	641	9,260	0
July	821	375	6,236	0
August	821	358	7,937	0
September	819	405	7,253	0
October	821	238	4,639	0
November	819	273	5,071	0
December	821	525	9,099	0
Yearly	9,766	8,731	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 440.775 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 1994. 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 51.475 meters) is 55,205 TCM. Capacity at spillway crest (gage height 49.035 meters) is 46,811 TCM. Dead storage, 887 TCM below lowest outlet (gage height 17.945 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 1994	PERIOD 1937 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	0	1,450	29,627	6.4
February	0	3,244	67,539	9.4
March	0	5,107	56,370	17.4
April	4,262	2,501	26,680	12.6
May	3,645	1,097	10,251	0
June	1,790	498	4,818	0
July	2,097	254	2,081	0
August	162	139	735	0
September	139	142	936	0
October	816	128	796	0
November	1,053	232	1,531	0
December	2,216	665	6,845	2.1
Yearly	16,180	15,457	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 1994.

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, 1.56 CMS on March 15, 1954; minimum discharge, no flow for long periods on many occasions.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1994 --- 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
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0

Current Year 1994

Period 1937-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters			
	High	Low	High		Low		Total	Average	Maximum	Minimum
			Day		Day					
Jan.			11	0	11	0	0	477	2,899	0
Feb.			11	0	11	0	0	501	2,627	0
Mar.			11	0	11	0	0	666	2,876	0
April			11	0	11	0	0	934	3,528	0
May			11	0	11	0	0	1,063	3,750	0
June			11	0	11	0	0	1,132	3,602	0
July			11	0	11	0	0	987	3,602	0
Aug.			11	0	11	0	0	920	3,478	0
Sept.			11	0	11	0	0	767	2,862	0
Oct.			11	0	11	0	0	638	3,022	0
Nov.			11	0	11	0	0	640	3,404	0
Dec.			11	0	11	0	0	577	2,843	0
Yearly				0		0	0	9,302	33,514	0

! And other days

Note: The Dulzura Conduit was inoperable due to required repairs

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 304.800 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, and January to April 1993. 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 1994. 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 1994	PERIOD 1937 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	0	293	7,460	0
February	0	2,230	86,736	0
March	0	4,004	111,775	0
April	4,818	2,321	45,417	0
May	4,073	1,003	28,287	0
June	1,994	459	13,503	0
July	2,233	203	5,311	0
August	378	120	4,206	0
September	342	42.6	1,554	0
October	1,264	52.8	1,530	0
November	1,697	119	5,100	0
December	1,774	168	6,058	0
Yearly	18,573	11,015	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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.03	0.37	0.57	0.65	0.62	0.14	0	0	0	0	0.14	0.11
2	.03	.31	.48	.57	.51	.14	0	0	0	0	.13	.10
3	.03	.27	.42	.51	.45	.12	0	0	0	0	.13	.09
4	.03	.42	.40	.45	.40	.11	0	0	0	0	.13	.09
5	.04	.74	.40	.42	.34	.09	0	0	0	0	.12	.10
6	.04	.68	.40	.40	.31	.08	0	0	0	0	.10	.12
7	.03	.79	1.02	.37	.28	.06	0	0	0	0	.11	.19
8	.03	3.09	2.21	.34	.26	.05	0	0	0	0	.13	.20
9	.03	4.93	1.67	.34	.25	.04	0	0	0	0	.14	.20
10	.03	2.92	1.27	.40	.24	.03	0	0	0	0	.19	.16
11	.04	1.81	1.05	.42	.24	.03	0	0	0	0	.23	.11
12	.03	1.39	.88	.40	.24	.03	0	0	0	0	.26	.09
13	.03	1.10	.96	.34	.22	.02	0	0	0	0	.25	.08
14	.03	.93	.68	.31	.22	.02	0	0	0	0	.22	.07
15	.03	.85	.45	.28	.20	.02	0	0	0	0	.20	.08
16	.03	.76	.42	.26	.20	.01	0	0	0	0	.17	.10
17	.03	1.02	.42	.26	.18	.01	0	0	0	0	.16	.12
18	.03	2.01	.40	.25	.17	.01	0	0	0	0	.18	.10
19	.03	2.75	.59	.25	.17	.01	0	0	0	.05	.25	.09
20	.03	2.35	1.33	.24	.17	.01	0	0	0	.07	.24	.09
21	.03	1.76	1.27	.22	.16	.01	0	0	0	.08	.20	.09
22	.03	1.39	1.02	.20	.16	0	0	0	0	.08	.16	.09
23	.03	1.19	.79	.19	.15	0	0	0	0	.09	.12	.08
24	.03	1.02	.68	.19	.16	0	0	0	0	.09	.10	.12
25	.08	.88	1.02	.26	.16	0	0	0	0	.10	.09	.23
26	.12	.76	1.59	.37	.17	0	0	0	0	.12	.10	.37
27	.42	.68	1.42	.62	.18	0	0	0	0	.13	.12	.37
28	.59	.62	1.19	.96	.18	0	0	0	0	.15	.18	.28
29	.59	.99	.99	.99	.18	0	0	0	0	.17	.17	.24
30	.54	.85	.76	.76	.17	0	0	0	0	.16	.13	.21
31	.45	.74	.74	.74	.16	0	0	0	0	.14	.13	.19
Sum	3.54	37.79	27.58	12.22	7.50	1.04	0	0	0	1.43	4.85	4.56

Current Year 1994

Period 1937-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Average	Volume-Thousand Cubic Meters			
	High	Low	Day	Cubic Meters per Second		Total		Average	Maximum	Minimum	
				Day	High						Low
Jan.			128	0.59	17	0.03	0.11	306	1,349	45,897	0
Feb.			9	4.93	3	0.27	1.35	3,265	3,509	85,134	0
Mar.			8	2.21	14	.40	.89	2,383	4,732	109,418	0
April			29	.99	23	.19	.41	1,056	2,669	49,635	0
May			22	.62	23	.15	.24	648	938	22,439	0
June			1	.14	125	0	.03	89.9	320	7,301	0
July			11	0	11	0	0	0	108	3,599	0
Aug.			11	0	11	0	0	0	89.6	1,850	0
Sept.			11	0	11	0	0	0	88.7	4,209	0
Oct.			29	.17	11	0	.05	124	100	291	0
Nov.			12	.26	25	.09	.16	419	60.2	1,378	0
Dec.			126	.37	14	.07	.15	394	196	3,169	0
Yearly				4.93		0	0.28	8,685	14,160	220,556	0

♠ 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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.34	0.28	0.28	0.06	0.17	0.07	0.01	0.01	0.01	0	0.02	0.04
2	.34	.31	.20	.06	.14	.06	.01	0	0	.01	.02	.04
3	.31	.28	.16	.06	.12	.05	.01	0	0	.01	.01	.04
4	.28	.48	.13	.06	.10	.05	.01	0	0	.01	.01	.04
5	.28	.59	.11	.06	.10	.05	.01	0	0	.01	.01	.28
6	.26	.37	.13	.05	.10	.05	.01	0	0	.01	.01	.17
7	.24	1.16	1.33	.05	.10	.05	.01	0	0	.01	.01	.14
8	.28	2.07	.71	.06	.10	.04	.01	0	0	.01	.01	.12
9	.45	1.22	.25	.07	.12	.04	.01	.01	0	.01	.01	.11
10	.34	.59	.16	.10	.11	.04	.01	.01	0	.01	.01	.10
11	.31	.48	.14	.08	.10	.04	.01	0	0	.01	.01	.10
12	.34	.40	.13	.07	.10	.04	.01	0	0	.01	.01	.09
13	.28	.20	.10	.07	.09	.03	.01	.01	0	.01	.01	.08
14	.28	.20	.08	.07	.09	.03	.01	.01	0	.01	.01	.08
15	.31	.21	.08	.08	.09	.03	.01	.01	0	.01	.01	.08
16	.24	.23	.08	.07	.09	.03	.01	.01	0	.01	.01	.07
17	.18	.40	.08	.06	.08	.03	.01	.01	0	.01	.01	.07
18	.25	.82	.07	.08	.08	.02	.01	.01	0	.01	.01	.07
19	.20	.96	.51	.07	.09	.02	.01	.01	0	.01	.01	.07
20	.23	.45	.42	.07	.08	.02	.01	.01	0	.01	.01	.07
21	.24	.48	.11	.07	.09	.02	.01	0	0	.01	.01	.06
22	.24	.45	.07	.07	.09	.02	.01	0	0	.01	.01	.06
23	.25	.48	.07	.06	.09	.02	.01	0	0	.01	.01	.07
24	.62	.48	.06	.09	.08	.02	.01	0	0	.01	.01	.09
25	2.49	.48	.62	.12	.09	.02	.01	0	0	.01	.01	.24
26	1.44	.42	.34	.37	.09	.02	.01	.01	0	.01	.11	.22
27	1.33	.45	.10	.65	.08	.02	.01	.01	0	.01	.04	.16
28	1.27	.37	.07	.40	.07	.01	.01	.01	0	.01	.04	.14
29	.62	.06	.31	.06	.01	.01	0	0	0	.01	.04	.14
30	.45	.06	.20	.06	.01	.01	0	0	0	.01	.04	.13
31	.37	.07		.07	.07		.01	.01		.01		.12
Sum	15.06	15.31	6.78	3.69	2.92	0.96	0.31	0.16	0.01	0.30	0.54	3.29

Current Year 1994

Period 1937-1994

Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters				
	High	Low	Day	# High	Day	# Low	Average	Total			
								Average	Maximum	Minimum	
Jan.			25	2.49	17	0.18	0.49	1,301	415	10,581	0
Feb.			8	2.07	14	.02	.55	1,323	519	5,288	0
Mar.			7	1.33	29	.06	.22	586	841	11,587	0
April			27	.65	16	.05	.12	319	529	8,886	0
May			1	.17	129	.06	.09	252	256	3,956	0
June			1	.07	30	.01	.03	82.9	129	2,234	0
July			1	.01	126	.01	.01	26.8	72.4	1,525	0
Aug.			13	.01	15	0	.01	13.8	70.2	2,008	0
Sept.			1	.01	121	0	0	.9	51.2	1,214	0
Oct.			31	.01	1	0	.01	25.9	63.9	1,084	0
Nov.			26	.11	14	.01	.02	46.7	125	1,522	0
Dec.			5	.28	13	.04	.11	284	208	1,953	0
Yearly				2.49		0	0.14	4,262	3,280	38,639	0

♦ 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. As of August 1972 inflows from the Otay Aqueduct are included. Records obtained by the Ministry of Agriculture and Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Tijuana District Urban Potable Water and Sewerage Board, and from April 1966 through 1992 by the State of Baja California Commission of Public Services for Tijuana. Since 1993, the data have been provided by the National Water Commission. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1994. 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 1994	PERIOD 1938 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	881	4,684	131,649	0
February	5,000	7,567	194,216	7.0
March	3,624	12,157	172,556	5.0
April	998	3,756	95,953	0
May	37.0	699	14,136	0
June	0	226	5,749	0
July	0	121	1,806	0
August	0	72.0	950	0
September	0	73.0	575	0
October	0	91.0	432	0
November	0	189	2,393	0
December	64.0	997	19,348	10.0
Yearly	10,604	30,632	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 Tijuana District Urban Potable Water and Sewerage Board; and from April 1966 through 1991 by the State of Baja California Commission of Public Services for Tijuana. Since 1992, the data have been provided by the National Water Commission. Records available: May 1937 through 1994 through the Mexican Section of the Commission.

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, 6,031 TCM, October 1994; minimum, no flow on several occasions since March 1941.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 1994	PERIOD 1938 - 1994		
		AVERAGE	MAXIMUM	MINIMUM
January	1,392	473	1,969	0
February	1,234	469	1,763	0
March	1,294	529	1,990	0
April	1,157	647	1,976	0
May	992	800	2,067	0
June	3,606	928	3,606	0
July	5,416	1,019	5,416	0
August	5,931	964	5,931	0
September	5,640	852	5,640	0
October	6,031	776	6,031	0
November	5,329	667	5,329	0
December	4,825	626	4,825	0
Yearly	42,847	8,750	42,847	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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.38	4.53	1.87	0.45	0.34	0.21	0.22	0.22	0	0	0	0.35
2	.37	5.21	1.98	.45	.34	.21	.22	.22	0	0	0	.30
3	.41	8.16	2.11	.42	.34	.26	.24	.22	0	0	0	.35
4	.35	17.0	2.41	.39	.34	.22	.24	.26	.06	0	0	.39
5	.29	20.5	2.76	.37	.34	.22	.24	.25	.06	0	0	.44
6	.24	24.1	3.57	.36	.33	.24	.24	.24	0	0	0	.37
7	.28	26.9	10.7	.34	.33	.26	.22	.23	0	0	0	.45
8	.26	23.4	4.87	.35	.33	.26	.24	.22	0	0	0	.54
9	.30	20.2	4.08	.35	.33	.22	.24	.20	0	0	0	.52
10	.43	7.36	3.68	.35	.33	.22	.22	.19	0	0	1.90	.50
11	.59	3.88	3.51	.35	.33	.22	.24	.20	0	0	.89	.49
12	.66	2.83	3.31	.35	.33	.19	.25	.19	0	0	.15	.47
13	.55	2.43	2.73	.35	.33	1.56	.20	.19	0	.08	.06	.46
14	2.22	2.82	2.95	.35	.33	2.24	.26	.29	.20	.01	.08	.26
15	.32	2.86	2.38	.35	.33	.23	.26	.24	0	.01	.23	.28
16	.27	3.29	1.77	.35	.35	.22	.24	.22	0	0	.68	.27
17	.56	12.1	1.47	.34	.44	.25	.26	.22	0	0	.39	.25
18	1.01	6.85	1.40	.34	.30	.24	.24	.19	0	0	.17	.24
19	.71	7.19	7.22	.34	.31	.24	.24	.17	0	0	.34	.22
20	.69	4.53	4.13	.34	.29	.24	.26	.17	.11	.15	.31	.21
21	1.12	4.25	2.22	.34	.27	.23	.22	.13	0	0	.31	.33
22	2.08	2.65	2.95	.34	.27	.22	.22	.13	0	0	.31	.35
23	1.25	2.00	3.31	.34	.27	.24	.24	.13	0	.04	.28	.37
24	1.42	1.73	6.17	.34	.27	.24	.22	.08	0	.05	.28	.67
25	5.64	2.33	5.72	.34	.31	.22	.22	.04	0	0	.28	.69
26	2.79	2.66	.61	.34	.27	.20	.22	.04	.14	0	.28	.70
27	3.14	2.51	.59	.34	.25	.22	.19	.07	0	0	.28	.72
28	3.57	2.43	.52	.34	.31	.24	.19	.13	0	2.06	.28	.74
29	3.88		.45	.34	.29	.24	.19	.10	0	0	.31	.74
30	5.07		.46	.34	.29	.21	.22	0	.14	0	.36	.74
31	4.98		.46		.28		.22	0		0		.74
Sum		226.70		10.69		6.87		5.09		2.40		14.15
	65.83		92.36		12.91		7.24		0.51		8.17	

Current Year 1994

Period 1947-1994

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.	12.650	12.360	25	23.3	5	0.08	1.48	3,960	9,589	297,879	0
Feb.	12.870	12.430	17	41.9	28	1.40	8.10	19,587	15,178	388,951	0
Mar.	12.725	11.930	17	41.9	29	.42	2.98	7,980	15,598	362,019	0
April	11.940	11.925	1	.47	130	.34	.36	924	4,084	77,633	0
May	12.205	11.930	14	3.48	20	.24	.42	1,115	2,123	52,545	0
June	11.950	11.935	17	.26	112	.19	.23	594	689	11,960	0
July	11.950	11.940	13	.29	127	.19	.23	626	543	11,400	0
Aug.	11.945	11.905	4	.26	129	0	.16	440	695	21,083	0
Sept.			30	.14	11	0	.02	44.1	301	5,142	0
Oct.			28	2.06	11	0	.08	207	413	6,859	0
Nov.			10	1.90	11	0	.27	706	587	5,399	0
Dec.			28	.74	20	.21	.46	1,223	1,056	8,270	0
Yearly				41.9		0	1.19	37,406	50,856	734,832	0

! 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 138,003)		TOTAL IN TIJUANA RIVER BASIN RESERVOIRS (Capacity 255,147)	
	1994	Average 1937-1994	1994	Average 1937-1994	1994	Average 1937-1994	1994	Average 1937-1994
Jan.	53,880	23,169	46,927	17,614	121,228	41,176	222,035	81,959
Feb.	55,846	24,624	46,947	18,765	125,128	42,744	227,921	86,133
Mar.	57,356	26,063	46,957	21,086	127,840	48,304	232,153	95,453
April	57,718	26,237	46,987	21,709	127,728	48,743	232,433	96,689
May	57,107	25,986	46,927	21,253	125,908	48,078	229,942	95,317
June	55,687	25,329	46,847	20,429	121,072	46,708	223,606	92,466
July	53,627	24,629	46,847	19,530	114,344	44,903	214,818	89,062
Aug.	52,309	24,019	46,827	18,610	107,528	43,134	206,664	85,763
Sept.	50,721	23,369	46,857	17,977	101,004	41,838	198,582	83,184
Oct.	49,006	22,954	46,877	17,362	94,380	40,459	190,263	80,775
Nov.	48,217	22,806	46,867	16,977	88,968	39,927	184,052	79,710
Dec.	47,806	22,964	46,887	17,292	83,364	40,075	178,057	80,331
Avg.	53,273	24,346	46,896	19,050	111,541	43,841	211,710	87,237
Max.	57,718	#1 76,069	46,987	*1 56,641	127,840	1 138,486	232,433	1 263,471
Min.	47,806	!! 12	46,827	!! 131	83,364	!! 0	178,057	!! 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	
	1994	Average 1906-1994	1994	Average 1907-1994	1994	Average 1951-1994	1994	Average 1950-1994	1994	Average 1900-1994
Jan.	51	97	27	89	#	#	47	90	43	79
Feb.	146	96	118	87	#	#	145	79	105	82
Mar.	104	90	75	82	#	#	97	80	80	74
April	73	41	46	37	#	#	39	36	34	34
May	2	15	1	13	#	#	0	9	0	12
June	0	3	0	2	#	#	0	1	0	2
July	1	9	0	3	#	#	0	15	0	12
Aug.	69	15	10	6	#	#	32	22	31	14
Sept.	0	10	0	6	#	#	0	12	0	9
Oct.	12	22	6	18	#	#	7	15	5	16
Nov.	46	40	23	37	#	#	23	44	17	35
Dec.	34	77	31	70	#	#	24	60	25	61
Yearly	538	515	337	450	#	#	414	463	340	430

Month	Chula Vista, California		Lower Otay Dam, California					
	1994	Average 1930-1994	1994	Average 1906-1994				
Jan.	10	47	25	55				
Feb.	88	45	80	43				
Mar.	64	45	53	57				
April	35	20	32	25				
May	0	5	3	10				
June	1	1	0	2				
July	0	0	1	1				
Aug.	1	2	2	3				
Sept.	0	4	0	5				
Oct.	1	9	7	10				
Nov.	11	29	17	32				
Dec.	22	40	32	39				
Yearly	233	247	252	282				

IN MEXICO

Month	El Pinal, Baja California		El Hongo, Baja California		Belen, Baja California		Tecate, Baja California		El Carrizo, Baja California	
	1994	Average 1964-1994	1994	Average 1980-1994	1994	Average 1965-1994	1994	Average 1946-1959 1961-1994	1994	Average 1980-1994
Jan.	31	84	38	64	15	59	12	75	18	39
Feb.	#	90	105	71	106	71	105	54	65	47
Mar.	71	94	76	75	67	69	76	65	84	66
April	#	37	32	17	36	26	47	27	26	18
May	#	9	1	4	0	5	1	7	0	3
June	#	1	1	2	0	2	0	2	0	1
July	#	18	0	14	0	3	0	4	0	5
Aug.	#	23	10	22	16	7	13	6	0	3
Sept.	#	18	5	7	0	10	0	4	0	4
Oct.	#	16	1	13	7	16	7	12	1	17
Nov.	#	46	20	33	22	40	21	36	17	37
Dec.	#	71	33	32	36	50	34	51	21	40
Yearly	#	494	322	371	305	361	316	343	232	301

Missing record

RAINFALL ON THE TIJUANA RIVER WATERSHED
IN MILLIMETERS

IN MEXICO

Month	Valle de Palmas, Baja California		Rodriguez Dam, Baja California			
	1994	Average 1948-1994	1994	Average 1938-1994		
Jan.	15	45	14	44		
Feb.	78	37	72	40		
Mar.	65	41	56	43		
April	19	15	31	18		
May	0	3	0	3		
June	0	1	0	1		
July	0	2	0	1		
Aug.	12	5	3	3		
Sept.	0	5	0	6		
Oct.	T	9	1	10		
Nov.	10	21	19	24		
Dec.	24	28	22	38		
Yearly	223	203	218	229		

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 1994.

IN THE UNITED STATES

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

♠ 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 2 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 1994, 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 1994, 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 1994, 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	
	1994	Average 1916-1994	1994	Average 1921-1994	1994	Average 1950-1994
Jan.	57	54	50	48	81	49
Feb.	33	53	37	54	57	57
Mar.	53	82	72	84	93	86
April	125	118	86	117	107	118
May	155	165	114	165	109	154
June	231	212	180	203	164	176
July	216	243	183	239	172	211
Aug.	214	225	175	224	176	198
Sept.	174	179	147	183	154	163
Oct.	97	125	92	128	124	118
Nov.	47	81	45	80	78	72
Dec.	30	58	43	50	48	54
Yearly	1,432	1,595	1,224	1,575	1,363	1,456

IN MEXICO

Month	Rodriguez Dam, Baja California		El Carrizo, Baja California	
	1994	Average 1938-1994	1994	Average 1980-1994
Jan.	116	104	204	143
Feb.	87	107	119	120
Mar.	108	111	144	144
April	118	140	148	180
May	*	130	184	222
June	181	191	321	278
July	187	216	292	290
Aug.	203	199	320	280
Sept.	159	167	265	242
Oct.	127	138	205	207
Nov.	84	112	160	153
Dec.	64	87	146	133
Yearly		1,717	2,508	2,363

*No data available

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			
	1994			Average 1931- 1994	1994			Average 1951- 1994	1994			Average 1931- 1994
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	12.0	28.3	1.1	9.6	10.2	27.8	-4.4	8.7	14.7	27.2	4.4	12.0
Feb.	11.2	23.9	1.7	10.6	8.7	23.3	-5.0	9.2	13.2	22.8	2.8	12.7
Mar.	14.2	28.3	5.6	12.0	12.0	27.8	-0.6	10.0	16.1	30.6	7.8	13.4
April	15.3	31.1	6.1	14.5	13.1	30.6	0.0	12.2	16.1	27.2	8.9	14.9
May	16.6	33.9	7.2	17.2	15.0	32.8	0.0	15.0	16.6	23.3	10.0	16.2
June	23.2	41.1	11.1	20.5	21.3	41.7	2.2	18.6	19.8	30.6	12.8	17.7
July	24.0	37.2	11.7	24.5	22.2	38.3	3.3	22.7	20.7	25.0	15.6	19.7
Aug.	26.6	40.6	13.9	24.6	24.2	40.6	7.2	22.8	22.9	35.0	5.6	20.6
Sept.	23.9	36.7	9.4	22.5	20.7	37.8	1.1	20.4	22.2	35.0	12.8	19.9
Oct.	18.4	31.7	7.8	18.0	14.9	31.7	-0.6	16.0	19.4	36.1	10.0	17.7
Nov.	11.2	29.4	0.0	13.3	8.7	27.2	-7.2	11.3	13.8	26.1	1.7	14.7
Dec.	11.7	25.6	-1.7	10.3	8.7	23.9	-5.6	8.7	12.9	23.9	3.3	12.6
Yearly	17.4	41.1	-1.7	16.5	15.0	41.7	-7.2	14.6	17.4	36.1	1.7	16.0

IN MEXICO

Month	El Pinal, Baja California				El Hongo, Baja California				Belen, Baja California			
	1994		1964-1994		1994		1981-1994		1994		1965-1994	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	19	4	29	-16	16	5	25	-9	19	3	34	-6
Feb.	*	*	31	-10	13	2	27	-6	15	3	32	-6
Mar.	20	8	29	-7	17	6	29	-2	18	6	36	-4
April	*	*	33	-8	20	6	32	-1	20	5	38	-3
May	*	*	34	-4	24	8	38	1	21	8	40	0
June	*	*	43	-4	33	15	41	2	30	11	43	3
July	*	*	44	0	35	18	42	7	31	13	45	4
Aug.	*	*	44	0	35	19	41	3	33	16	45	5
Sept.	*	*	45	-4	31	16	39	2	32	12	44	1
Oct.	*	*	40	-5	23	9	37	0	23	8	40	-6
Nov.	*	*	35	-10	13	3	29	-2	15	2	34	-4
Dec.	*	*	29	-4	14	4	27	-8	15	2	33	-7
Yearly			45	-16	35	2	42	-9	33	2	45	-7

Month	Tecate, Baja California				El Carrizo, Baja California				Valle de Palmas, Baja California			
	1994		1946-1994		1994		1980-1994		1994		1948-1994	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	21	2	38	-9	22	8	30	-1	22	5	33	-11
Feb.	20	4	38	-8	18	7	34	-2	18	2	37	-5
Mar.	23	6	36	-5	21	9	32	-4	21	5	38	-2
April	24	7	39	-2	20	9	41	4	23	6	41	-2
May	24	9	42	1	23	10	42	5	24	9	44	2
June	34	12	44	0	20	14	42	9	34	11	48	4
July	34	13	46	2	30	14	43	8	34	13	49	7
Aug.	36	16	47	1	34	17	45	10	37	15	48	5
Sept.	34	13	46	2	32	15	42	9	34	12	47	4
Oct.	28	9	41	-3	26	12	38	6	26	9	43	0
Nov.	20	3	36	-3	20	6	35	4	16	3	38	-7
Dec.	21	4	36	-5	20	6	32	-3	17	4	35	-6
Yearly	36	2	47	-9	34	6	45	-4	37	2	49	-11

TEMPERATURE IN THE TIJUANA RIVER BASIN
IN DEGREES CELSIUS

IN MEXICO

Month	Rodriguez Dam, Baja California							
	1994		1938-1994					
	Max.	Min.	Max.	Min.				
Jan.	23	9	32	-3				
Feb.	19	8	34	0				
Mar.	22	10	38	0				
April	22	11	40	2				
May	22	13	39	3				
June	28	14	42	8				
July	28	17	40	8				
Aug.	32	19	41	10				
Sept.	30	17	43	8				
Oct.	25	13	42	1				
Nov.	20	13	37	-1				
Dec.	19	8	34	-3				
Yearly	32	8	43	-3				

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

1994

The total area within the Tijuana River basin is 4,483 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 the Tijuana River Valley Association 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 1994 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
Río 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	94		94
above the Mouth	1,197	3,287	4,484	(a) 289		289

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

(b) There was no irrigation in 1994 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 1994 (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 1994 --- 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	0.02	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	.76	0	0	0
4	0	0	0	0	0	0	0	0	1.20	0	0	0
5	0	0	0	0	0	0	.01	0	.29	0	0	0
6	0	0	0	0	0	0	0	0	.03	0	0	1.42
7	0	0	0	0	0	0	0	.02	.01	0	0	2.31
8	0	0	0	0	0	0	0	.17	0	0	0	.05
9	0	0	0	0	0	0	0	1.02	0	0	0	0
10	0	0	0	0	0	0	0	2.44	.06	0	0	0
11	0	0	0	0	0	0	0	.05	.09	0	.19	0
12	0	0	0	0	0	0	0	0	0	0	2.31	0
13	0	0	0	0	0	0	0	0	.02	0	5.30	0
14	0	0	0	0	0	0	0	0	.14	0	.46	0
15	0	0	0	0	0	0	0	0	.59	0	0	0
16	0	0	0	0	0	0	0	.02	.03	0	0	0
17	0	0	0	0	0	.39	0	.01	0	0	0	0
18	0	0	0	0	0	1.27	0	0	0	0	0	0
19	0	0	0	0	0	.07	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	.04	0	0	0	0
22	0	0	0	0	0	0	0	.26	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	.07	0	0	0	0	0
26	0	0	0	0	0	0	.69	1.15	0	0	0	.15
27	0	0	0	0	0	0	.17	1.38	0	0	0	1.11
28	0	0	0	0	0	0	0	.13	0	0	0	.44
29	0	0	0	0	0	0	0	.12	0	0	0	.12
30	0	0	0	0	0	0	0	.86	0	0	0	.12
31	0	0	0	0	0	0	0	.37	0	0	0	.11
Sum	0	0	0	0	0	1.73	0.94	8.04	3.24	0	8.26	5.83

Current Year 1994

Period 1936-1994

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.	1.465	1.465	1 1	0	1 1	0	0	0	41.5	556	0
Feb.	1.465	1.465	1 1	0	1 1	0	0	0	19.1	163	0
Mar.	1.465	1.465	1 1	0	1 1	0	0	0	26.5	364	0
April	1.465	1.465	1 1	0	1 1	0	0	0	19.4	213	0
May	1.465	1.465	1 1	0	1 1	0	0	0	13.8	170	0
June	2.235	1.465	22	2.02	1 1	0	.06	149	129	1,961	0
July	2.080	1.465	26	1.13	1 1	0	.03	81.2	1,988	10,004	0
Aug.	2.460	1.465	10	4.22	1 1	0	.26	695	3,233	17,861	0
Sept.	2.150	1.465	3	1.53	1 1	0	.11	280	846	3,910	0
Oct.	1.465	1.465	1 1	0	1 1	0	0	0	396	7,528	0
Nov.	2.635	1.465	13	6.85	1 1	0	.28	714	49.4	714	0
Dec.	2.355	1.630	7	3.09	1 1	0	.19	504	135	2,915	0
Yearly	2.635	1.465		6.85		0	0.08	2,423	6,897	27,533	0

! And other days

SEWAGE INFLUENT, DOUGLAS, ARIZONA
INTERNATIONAL WASTEWATER TREATMENT PLANT

DESCRIPTION: Flow is measured by a 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 1994.

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 treated in Mexico then used for irrigation along with the effluent from the Douglas International Wastewater 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			Mean Daily Flows—Thousand Cubic Meters Per Day					
	Thousand Cubic Meters			Current Year 1994			Period 1952-1994		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	158	0	158	6.7	3.3	5.1	9.6	1.6	4.3
Feb.	182	0	182	17.7	3.4	6.5	17.7	2.1	4.4
Mar.	150	0	150	8.1	4.0	4.8	13.9	2.2	4.3
April	161	0	161	12.9	3.7	5.4	12.9	1.4	4.3
May	148	0	148	5.8	3.9	4.8	12.2	1.9	4.4
June	146	0	146	6.3	4.1	4.9	9.5	2.1	4.5
July	161	0	161	7.2	4.2	5.2	14.1	1.8	4.7
Aug.	174	0	174	7.5	4.3	5.6	10.2	1.4	4.7
Sept.	161	0	161	7.4	4.3	5.4	9.6	1.8	4.6
Oct.	163	0	163	11.3	3.0	5.3	12.0	2.3	4.5
Nov.	167	0	167	8.0	3.8	5.6	10.9	1.2	4.4
Dec.	178	0	178	7.5	4.3	5.7	12.6	1.9	4.4
Yearly	1,949	0	1,949	17.7	3.0	5.4	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 1933, May 1935 to July 1941, and July 1950 through 1994. Records obtained and furnished by U. S. Geological Survey to September 30, 1981; thereafter by the United States Section of the Commission.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.05	0.10	0.07	0.03	0	0	0	0	0.03	0	0	1.01
2	.05	.11	.07	.03	0	0	0	.01	0	0	0	1.03
3	.06	.11	.07	.01	0	0	0	0	.44	0	0	1.03
4	.07	.11	.07	.01	0	0	0	0	1.12	0	0	.98
5	.07	.11	.07	.01	0	0	0	0	.56	0	0	1.24
6	.07	.11	.07	.01	0	0	0	0	.03	0	0	107
7	.07	.11	.08	.03	0	0	0	.07	.29	0	0	8.75
8	.07	.12	.09	.03	0	0	0	0	.08	0	0	3.57
9	.07	.12	.10	.03	0	0	0	0	.07	0	0	2.68
10	.07	.12	.10	.03	0	0	0	0	.05	0	0	2.23
11	.07	.12	.10	.03	0	0	0	0	.05	0	6.85	1.90
12	.08	.12	.10	.01	0	0	0	0	.05	0	173	1.62
13	.08	.12	.10	0	0	0	0	0	.05	0	0	1.43
14	.08	.11	.10	0	0	0	0	0	.04	0	0	3.91
15	.08	.11	.09	0	0	0	0	0	.03	0	0	2.79
16	.08	.11	.09	0	0	0	0	0	.01	0	2.18	1.14
17	.08	.09	.06	0	0	0	0	0	0	0	1.64	.98
18	.08	.08	.04	0	0	0	0	0	0	0	1.46	.91
19	.08	.07	.04	0	0	0	0	0	.14	0	1.39	.84
20	.08	.07	.04	0	0	.08	0	.01	0	0	1.33	.77
21	.09	.07	.04	0	0	.05	0	5.78	0	0	1.28	.71
22	.09	.07	.04	0	0	.04	0	2.10	0	0	1.23	.70
23	.09	.05	.03	0	0	0	0	.34	0	0	1.19	.66
24	.09	.05	.04	0	0	0	0	.15	.07	0	1.11	2.66
25	.10	.05	.03	0	0	0	0	.09	.26	0	1.10	2.38
26	.10	.05	.03	0	0	0	0	.07	.08	0	1.13	2.53
27	.10	.07	.03	0	0	0	0	1.57	.02	0	1.12	3.91
28	.10	.08	.03	0	0	0	1.39	.34	0	0	1.09	3.26
29	.10	.08	.03	0	0	0	.24	.15	0	0	1.06	2.40
30	.10	.08	.04	0	0	0	.67	.10	0	0	1.02	1.91
31	.10	.08	.04	0	0	0	.04	.05	0	0	1.02	1.63
Sum	2.50	2.61	1.93	0.26	0	0.17	2.34	10.96	3.34	0	219.98	164.47

Current Year 1994

Period 1951-1994

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.	0.760	0.740	125	0.10	11	0.05	0.08	216	2,524	35,987	3.2
Feb.	.775	.740	19	.12	123	.04	.09	226	950	8,343	3.7
Mar.	.760	.715	18	.10	125	.03	.06	167	920	9,129	16.4
April	.725	.680	1	.03	113	0	.01	211	22.5	1,282	0
May	.680	.675	1	0	11	0	0	0	71.9	502	0
June	.950	.675	20	.95	11	0	.01	14.7	156	1,716	0
July	1.340	.675	28	6.23	11	0	.08	202	5,774	21,263	0
Aug.	2.260	.675	21	52.7	11	0	.35	947	9,301	44,860	204
Sept.	1.295	.665	4	5.04	16	0	.11	289	2,207	20,160	0
Oct.	.665	.665	1	1	1	0	0	0	2,135	58,371	13.9
Nov.	4.325	.665	12	303	11	0	7.33	19,006	736	19,006	0
Dec.	3.890	.770	6	235	122	.66	5.31	14,210	2,175	31,428	7.6
Yearly	4.325	0.665		303		0	1.12	35,300	27,161	77,448	5,427

† And other days

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 1994.

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 3.190 meters); minimum discharge, no flow for several days of many years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.03	0.03	0.03	0.02	0.03	0.01	0.01	0.01	0.02	0.01	0.01	0.02
2	.03	.03	.03	.02	.02	.01	.01	.01	.01	.01	.01	.02
3	.03	.03	.03	.02	.02	.01	.01	.01	.02	.01	.01	.02
4	.03	.03	.03	.02	.02	.01	.01	.01	.01	.01	.01	.03
5	.03	.03	.03	.02	.02	.01	.01	.01	.01	.01	.01	.34
6	.03	.04	.03	.02	.02	.01	.01	.01	.01	.01	.01	1.87
7	.03	.04	.03	.03	.02	.01	.01	.01	.01	.01	.02	.08
8	.03	.04	.02	.03	.03	.01	.01	.01	.01	.01	.02	.03
9	.03	.04	.02	.03	.03	.01	.01	.01	.01	.01	.02	.03
10	.03	.04	.02	.03	.03	.01	.01	.01	.01	.01	.02	.03
11	.03	.03	.02	.03	.03	.01	.01	.01	.01	.01	.06	.04
12	.03	.03	.02	.03	.03	.01	.01	.01	.01	.01	1.02	.06
13	.03	.03	.02	.03	.03	.01	.01	.01	.01	.01	.05	.07
14	.03	.03	.02	.03	.03	.01	.01	.01	.01	.01	.03	.08
15	.03	.03	.02	.03	.03	.01	.01	0	.01	.01	.03	.08
16	.03	.03	.02	.03	.03	0	.01	0	.01	.01	.03	.09
17	.03	.03	.02	.03	.03	.01	.01	0	.01	.01	.03	.10
18	.03	.03	.02	.03	.02	.01	.01	0	.01	.01	.03	.11
19	.03	.03	.02	.03	.02	.01	.01	0	.01	.01	.03	.11
20	.03	.03	.02	.03	.02	.01	.01	0	.01	.01	.02	.11
21	.03	.03	.02	.03	.02	.01	.01	.40	.02	.01	.02	.11
22	.03	.03	.02	.03	.02	.01	.01	.28	.02	.01	.03	.12
23	.03	.03	.02	.03	.02	.01	.01	.08	.02	.01	.03	.14
24	.03	.03	.02	.03	.02	.01	.01	.02	.02	.01	.02	.15
25	.03	.03	.02	.02	.02	.01	.01	.02	.02	.01	.03	.13
26	.03	.03	.02	.02	.02	.01	.01	.02	.02	.01	.03	.16
27	.03	.03	.02	.02	.02	.01	.01	.62	.01	.01	.03	.15
28	.03	.03	.02	.02	.02	.01	.01	.28	.01	.01	.03	.13
29	.03	.03	.02	.02	.02	.01	.01	.05	.01	.01	.02	.12
30	.03	.03	.02	.02	.02	.01	.01	.54	.01	.01	.02	.12
31	.03	.03	.02	.02	.02	.01	.01	.03	.01	.01	.02	.11
Sum	0.93	0.89	0.69	0.78	0.72	0.29	0.31	2.48	0.38	0.31	1.73	4.76
Current Year 1994										Period 1949-1994		
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	0.03	1 1	0.03	0.03	80.4	376	8,822	1.6	
Feb.			1 6	.04	1 1	.03	.03	76.9	126	1,233	2.2	
Mar.			1 1	.03	1 8	.02	.02	59.6	142	2,594	.9	
April			1 7	.03	1 1	.02	.03	67.4	66.9	638	0	
May			1 1	.03	1 2	.02	.02	62.2	33.5	210	0	
June			1 1	.01	1 6	0	.01	25.1	23.4	208	0	
July			1 1	.01	1 1	0	.01	26.8	584	5,267	2.0	
Aug.			30	.54	15	0	.08	214	1,189	14,207	.1	
Sept.			1 1	.02	1 2	.01	.01	32.8	366	3,249	0	
Oct.			1 1	.01	1 1	.01	.01	26.8	352	5,837	0	
Nov.			12	1.02	1 1	.01	.06	149	77.5	497	0	
Dec.			6	1.87	1 1	.02	.15	411	140	1,348	0	
Yearly							0.04	1,232	3,476	21,433	155	

1 And other days

Mean daily

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 1930 to December 1933; and July 1935 through 1994.

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 1994.

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 1994 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.08	0.12	0.08	0.04	0.02	0	0	0	0.48	0.02	0.02	0.02
2	.08	.12	.08	.04	.02	0	.07	0	.13	.02	.02	.01
3	.08	.12	.08	.04	.02	0	0	0	.22	.02	.02	.01
4	.08	.11	.07	.04	.02	0	0	0	.65	.02	.02	.01
5	.08	.11	.07	.04	.02	0	0	0	.48	.02	.03	.08
6	.08	.11	.06	.04	.02	0	0	0	.13	.02	.03	30.9
7	.08	.10	.06	.04	.01	0	0	.02	.03	.02	.03	9.97
8	.09	.16	.06	.04	.01	0	0	0	0	.02	.02	7.16
9	.09	.18	.06	.04	.01	0	0	0	0	.05	.02	5.01
10	.09	.16	.05	.04	.01	0	0	0	.03	.02	.01	3.54
11	.09	.14	.05	.04	.01	0	0	0	.22	.02	.02	2.66
12	.10	.13	.05	.04	.01	0	0	0	.14	.02	16.6	2.07
13	.10	.12	.04	.04	.01	0	0	0	.09	.02	1.27	2.29
14	.09	.11	.04	.04	.01	0	0	0	.05	.02	.20	2.01
15	.09	.12	.04	.03	.01	0	0	0	.05	.02	.05	2.07
16	.09	.12	.04	.03	.01	0	0	0	.06	.02	.01	1.70
17	.09	.11	.04	.03	.01	0	0	0	.07	.02	0	1.73
18	.09	.10	.05	.03	.01	0	0	0	.05	.02	0	1.73
19	.08	.10	.05	.03	.01	0	0	0	.08	.02	0	1.56
20	.09	.10	.06	.03	.01	0	0	0	.05	.02	0	1.44
21	.08	.10	.05	.03	.01	0	0	3.00	.06	.02	0	1.39
22	.09	.10	.05	.03	.01	0	0	1.13	.09	.02	.01	1.22
23	.09	.10	.05	.02	0	0	0	0	.07	.02	.01	1.64
24	.09	.10	.05	.02	0	0	0	0	.05	.02	.01	2.49
25	.09	.10	.05	.02	0	0	0	.62	.08	.02	.01	1.95
26	.09	.09	.05	.02	0	0	0	.42	.08	.02	.01	9.18
27	.10	.09	.05	.02	0	0	0	2.18	.07	.02	.02	8.18
28	.11	.08	.05	.02	0	0	0	2.15	.06	.02	.02	7.76
29	.12	.05	.05	.02	0	0	.01	2.15	.07	.02	.01	6.46
30	.12	.05	.05	.02	0	0	0	2.04	.05	.02	.01	5.15
31	.11		.04		0	0	0	6.74		.02		3.82
Sum	2.83	3.20	1.67	0.96	0.28	0	0.08	20.45	3.76	0.62	18.47	125.21

Current Year 1994

Period 1936-1994

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.			129	0.12	1 1	0.08	0.09	245	3,090	37,352	0
Feb.			9	.18	28	.08	.11	276	2,192	25,344	0
Mar.			1 1	.08	113	.04	.05	144	2,006	24,145	0
April			1 1	.04	123	.02	.03	82.9	580	4,263	0
May			1 1	.02	123		.01	24.2	148	1,272	0
June			1 1	0	1 1	0	0	0	102	1,787	0
July			1 2	.07	1 1	0	0	6.9	3,183	19,255	.1
Aug.			31	6.74	1 1	0	.66	1,767	6,667	56,481	12.1
Sept.			4	.65	8	.02	.13	325	1,876	111,633	0
Oct.			1 1	.02	1 1	.02	.02	53.6	2,236	72,806	0
Nov.			12	16.6	117	0	.62	1,596	655	9,108	0
Dec.			6	30.9	1 2	.01	4.04	10,818	3,069	41,405	0
Yearly				30.9		0	0.49	15,339	25,804	108,071	2,756

† Mean daily 1 And other days

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: One 61-centimeter Parshall flume with a water-stage recorder 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 1994.

REMARKS: The Nogales International Wastewater Treatment Plant treats combined sewage from both Nogales, Arizona and Nogales, Sonora by means of aerated stabilization lagoons. In February 1992, 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 the Nogales Wash, approximately 3.2 kilometers north of the international boundary. Flows up until September 30, 1994, were measured by the Parshall flume. After October 1, 1994, flows at the international boundary were measured by an electronic flow meter.

Month	Total Monthly Flows				Daily Flows—Thousand Cubic Meters Per Day					
	Thousand Cubic Meters				Current Year 1994			Period 1952-1994		
	U.S.	Mexico	Plant*	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	516	1,053	0	1,569	54.1	45.1	50.6	93.0	2.5	19.8
Feb.	500	986	0	1,486	62.7	50.1	53.0	79.2	2.5	20.4
Mar.	533	1,074	0	1,607	56.8	46.2	51.8	85.7	2.8	20.4
April	508	1,003	0	1,511	55.5	44.8	50.4	69.2	2.6	19.2
May	474	1,024	0	1,498	51.4	43.3	48.3	55.7	2.1	18.1
June	434	955	0	1,389	62.5	40.5	46.3	62.5	2.6	16.8
July	470	916	0	1,386	54.9	33.5	44.8	58.2	2.6	17.7
Aug.	500	927	0	1,427	55.4	32.6	46.1	64.6	2.8	19.3
Sept.	539	928	0	1,467	56.7	46.0	48.9	61.1	3.0	20.4
Oct.	628	977	0	1,605	57.7	44.7	51.8	76.3	2.6	20.2
Nov.	559	1,176	0	1,735	81.8	51.3	57.8	81.8	3.0	20.0
Dec.	715	1,180	0	1,895	75.9	54.3	61.1	75.9	1.3	20.3
Yearly	6,376	12,199	0	18,575	81.8	32.6	50.9	93.0	1.3	19.4

* 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			
	1994	Average 1973-1994	1994	Average 1930-1994	1994	Average 1930-1994	1994	Average 1953-1994		
Jan.	8	49	8	33	8	35	9	32		
Feb.	31	34	29	28	35	28	36	22		
Mar.	31	37	39	24	48	25	23	25		
April	8	13	10	10	8	10	17	9		
May	2	9	3	5	4	5	6	7		
June	51	16	18	19	15	12	65	11		
July	45	121	116	105	34	110	22	117		
Aug.	161	101	88	108	117	105	82	105		
Sept.	93	60	35	45	39	45	49	42		
Oct.	11	34	7	26	4	28	3	33		
Nov.	100	26	90	21	77	21	98	18		
Dec.	118	47	100	37	101	38	101	39		
Yearly	659	547	543	461	490	462	511	460		

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 1994.

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 - 9W 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 - 9W		
	1994		
	Mean	Max.	Min.
Jan.	7.4	26.7	-8.3
Feb.	7.9	26.7	-8.9
Mar.	12.6	28.3	-1.7
April	15.1	33.3	-1.7
May	18.6	37.8	2.2
June	26.4	42.2	7.2
July	27.2	40.6	10.6
Aug.	26.9	40.0	15.6
Sept.	23.7	35.6	10.6
Oct.	16.3	33.3	-1.1
Nov.	10.2	28.9	-7.2
Dec.	8.6	23.9	-5.0
Yearly	16.7	42.2	-8.9

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

1994

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 Palomines, 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.

CORRECTIONS TO PREVIOUS WATER BULLETINS

Water Bulletin And Page Number	Heading	Reference	Correction	
			Month	Water
1992-37	SUSPENDED SILT -- 1992 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE TABLE	Column under Monthly Weight Megagrams of Water	Jan	132,175,000
			Feb	144,530,000
			Mar	221,322,000
			Apr	193,648,000
			May	139,631,000
			Jun	143,199,000
			Jul	181,164,000
			Aug	145,930,000
			Sep	105,970,000
			Oct	85,450,000
			Nov	94,504,000
			Dec	134,032,000
			Year	1,721,555,000
			1993-37	SUSPENDED SILT -- 1993 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE TABLE
Feb	196,180,000			
Mar	352,236,000			
Apr	289,587,000			
May	199,403,000			
Jun	210,876,000			
Jul	197,951,000			
Aug	205,114,000			
Sep	142,102,000			
Oct	106,980,000			
Nov	209,866,000			
Dec	170,519,000			
Year	2,438,503,000			
1993-80	SEWAGE INFLUENT MOGALES INTERNA- TIONAL TREATMENT PLANT	Text in REMARKS		