WESTERN WATER BULLETIN 2005

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

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

DEPARTMENT OF STATE
UNITED STATES OF AMERICA

2005

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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FOREWORD

This bulletin is the forty-sixth annual compilation of stream discharges and other hydrographic data relating to international aspects of the Colorado River below Imperial Dam, the Tijuana River, and other streams crossing the western land boundary of the United States and Mexico. The compilation was prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission, solely for the purpose of presenting statistical data relating to stream flow and kindred subjects for the Colorado River from Imperial Dam to the Gulf of California, the Tijuana River and its important tributaries in the United States and Mexico, and other streams, including the Alamo and New Rivers which cross the California-Baja California boundary, and the Santa Cruz River and Whitewater Draw which cross the Arizona-Sonora boundary. This Bulletin contains information for the year 2005.

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 2005 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 2005.

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, November-December 2003, July and November 2004, and October 2005) 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 National Water Commission 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
LENGTH				
Millimeters	x	0.03937	=	Inches
Meters	x	3.28084	=	Feet
Kilometers	x	0.62137	=	Miles
AREA				
Square Meters	x	10.76391	=	Square Feet
Hectares	x	2.47105	=	Acres
Square Kilometers	x	0.38610	=	Square Miles
VOLUME				
Cubic Meters	x	35.31467	=	Cubic Feet
1,000 Cubic Meters	x	0.81071	=	Acre-Feet
WEIGHT				
Kilograms	x	2.20462	=	Pounds
Megagrams	x	1.10231	=	Tons (2,000 lbs.)
TEMPERATURE				
Degrees Celsius	x	1.8 + 32	=	Degrees Fahrenheit

GENERAL HYDROLOGIC CONDITIONS FOR 2005

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 2005. In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation during 2005 measured at 3 index stations was 66 millimeters, compared to an average of 51 millimeters during the last 47 years (1959 to 2005).

The flow of the Colorado River reaching Imperial Dam was 6,501,179 thousand cubic meters, about 67% of the 71-year average (1935-2005) of 9,731,764 thousand cubic meters. At the Northerly International Boundary, the total flow of the river during 2005 was 1,834,384 thousand cubic meters, about 41% of the 1935-2005 average of 4,501,281 thousand cubic meters. At the Southerly International Boundary, the flow during 2005 was 54,545 thousand cubic meters, about 2% of the 1935-2005 average of 2,973,358 thousand cubic meters.

The total of all flows of the Colorado River entering Mexico in 2005 amounted to 2,126,256 thousand cubic meters, 42% of the 1935-2005 average of 5,061,954 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 2005, other waters arrived at the Mexican points of diversion and amounted to 143,503 thousand cubic meters. These waters consisted mainly of excess waters released from reservoirs on the Colorado River. A maximum instantaneous flow of 199 cubic meters per second occurred in the Colorado River at the Northerly International Boundary station on February 27,2005.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 21,383.5 million cubic meters, 61% of the usable capacity of 35,263.2 million cubic meters. The greater part (18,663.8 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 2005 due to drought or accident to the irrigation system.

The total reported area irrigated from waters of the Colorado River below Imperial Dam in 2005 was 431,928 hectares; 296,157 hectares in the United States and 135,771 hectares in Mexico. An estimated 33% of the total area irrigated in Mexico is served by pumping from ground water.

TIJUANA RIVER BASIN

During 2005, the temperatures at Barrett Dam, California (elevation 533.40 meters) in the upper portion of the basin in the United States averaged 17.7 degrees Celsius, 1.1 degree Celsius above the 75-year mean. In the extreme upper portion of the basin in Mexico at El Pinal, Baja California (elevation 1394.96 meters), the recorded temperatures during the year could not be determined due to incomplete records. At Rodriguez Dam, Baja California (elevation 139.90 meters), the recorded temperatures averaged 20 degrees Celsius, about 1 degree below the normal for many years.

At Barrett Dam, in the upper portion of the basin in the United States, the recorded precipitation was 378 millimeters, 85% of normal; and at Lower Otay Dam near the lower end of the basin, 295 millimeters, or 104% 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 221 millimeters, 94% of the 67-year average.

Runoff above Barrett and Rodriguez Reservoirs during 2005 was about 55% of normal. Above Morena Reservoir, the runoff was 14,075 thousand cubic meters, or about 113% of the 69-year 1937-2005 mean of 12,425 thousand cubic meters. Above Barrett Reservoir, the runoff was 25,565 thousand cubic meters, or about 153% of the 69-year 1937-2005 mean of 16,680 thousand cubic meters. At Rodriguez Reservoir, the runoff was 514 thousand cubic meters, or about 2% of the 68 year mean of 30,608 thousand cubic meters.

The flow of the Tijuana River at the international boundary was 66,354 thousand cubic meters during 2005.

WHITEWATER DRAW

During 2005, the average annual temperature over the watershed was 8.7 degrees Celsius below normal, while the annual precipitation was 61% of normal. Runoff for the year at the gaging station near Douglas, Arizona, was 880 thousand cubic meters, or about 14% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 2005

SAN PEDRO RIVER

During 2005, the average annual temperature was 8 degrees Celsius below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 86% of the 1961-2005 mean of 523 millimeters. The stream flow at the international boundary was 39,734 thousand cubic meters, 154% of the 1951-2005 average.

SANTA CRUZ

During 2005, the average annual temperature over the watershed averaged 16.9 degrees Celsius, 0.6 degree Celsius above the long term average. The annual precipitation was about 42% of the 67-year 1939-2005 mean. Runoff measured at the Nogales gaging station, where the stream re-enters the United States, was 3,697 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 96 thousand cubic meters. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 3,601 thousand cubic meters from the loop of the river lying in Mexico, or approximately 97% of the flow reaching the Nogales Station.

ALAMO AND NEW RIVERS

During 2005, the average annual temperature over the drainage areas of the Alamo and New Rivers, as recorded at El Centro, California, was 23.7 degrees Celsius, 1.1 degree Celsius above normal; and over the drainage area of the New River as recorded at Mexicali, Baja California, it was 25 degrees Celsius, 2 degrees Celsius above the 80-year average.

At El Centro, the precipitation was 116 millimeters, about 171% of the 75-year average; and in Mexicali, the annual precipitation record was 134 millimeters, 168% of the 80-year average. The total flow of the New River at the international boundary in 2005 was 157,988 thousand cubic meters, which was about 108% of the 1943-2005 average.

SALTON SEA

During 2005, the average annual temperature around the Salton Sea was 1.6 degree Celsius above the long-term average, while the annual precipitation recorded at Brawley, California was approximately 128% of the long-term mean of 68 millimeters. The water surface of the Salton Sea dropped slightly during the year. The maximum stage, 69.495 meters below mean sea level, was recorded on April 16th through the 23rd, April 25th through the 30th, May 1st through June 5th. The minimum stage, 69.860 meters below mean sea level, was recorded on October 12th and 14th.

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

DESCRIPTION: Water deliveries are measured at a metering station located near the international boundary near Tijuana and approximately 4.0 kilometers east of International Boundary Monument #253. The metering station consists of an in-line flowmeter with four backflow preventers. Deliveries are made utilizing a 61-centimeter diameter steel pipeline.

RECORDS: Based on totalizer readings read at approximately noon each day. Records are furnished by the Otay Municipal Water District. Records available from August 13, 1972 to December 1983; November 2003 to December 2005. (No deliveries were made from 1984 through October 2003). The records reflect a 12% loss through 1983 and a 7.2% loss thereafter incurred in conveying the water from the point of diversion above Parker Dam to the international boundary.

REMARKS: Emergency deliveries of Colorado River waters for use in Tijuana began August 13, 1972 pursuant to Minute No. 240 of this Commission. Pursuant to Minute No. 310, emergency deliveries resumed in November 2003. The deliveries are conveyed approximately 520 kilometers using the following conveyance works: the diversion works from Lake Havasu above Parker Dam and the Colorado River Aqueduct, the San Diego Aqueducts, the Otay Reservoir and facilities of the Otay Municipal Water District. The facilities were developed to circumvent serious water shortages in Tijuana.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- 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	.05	0	0
26	0	0	0	0	0	0	0	0	0	.61	0	0
27	0	0	0	0	0	0	0	0	0	.60	0	0
28	0	0	0	0	0	0	0	0	0	.34	0	0
29	0		0	0	0	0	0	0	0	.31	0	0
30	0		0	0	0	0	0	0	0	.32	0	0
31	0		0		0		0	0		.28		0
Sum	0	0	0	0	0	0	0	0	0	2.51	0	0

Current Year 2005						Period 1973-2005		
Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	Extreme-Cubic Meters per Second @ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			! 1	0	! 1	0	0	0	418	1,113	0
Feb.			! 1	0	! 1	0	0	0	420	1,003	0
Mar.			! 1	0	! 1	0	0	0	444	1,047	0
April			! 1	0	! 1	0	0	0	432	1,057	0
May			! 1	0	! 1	0	0	0	455	1,094	0
June			! 1	0	! 1	0	0	0	456	1,216	0
July			! 1	0	! 1	0	0	0	492	1,259	0
Aug.			! 1	0	! 1	0	0	0	440	1,132	0
Sept.			! 1	0	! 1	0	0	0	363	1,115	0
Oct.			26	.61	! 1	0	.08	217	393	1,116	0
Nov.			! 1	0	! 1	0	0	0	389	1,113	0
Dec.			! 1	0	! 1	0	0	0	387	1,225	0
Yearly				0.61		0	0.01	217	5,089	12,653	0

@ Mean daily ! And other days

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

DESCRIPTION: Water-stage recorder (digital) located 152 meters upstream from railroad culvert and 1.6 kilometers northwest of Yuma, Arizona. Discharge measurements are made from a footbridge immediately below the gage. The drainage canal discharges into the outfall channel of the Yuma Main Canal Wasteway 61.0 meters downstream from the spillway structure, and thence into the Colorado River on the right bank, 305 meters upstream from Colorado River below Yuma Main Canal Wasteway, and 10.5 kilometers upstream from the northerly international boundary. Prior to October 1955, published as "California Drainage Canal near Yuma, Arizona."
RECORDS: Based on current meter measurements and a continuous record of gage heights. Records are computed and furnished by the U. S. Geological Survey. Records available: Monthly discharge, January 1913 to April 1920, October 1921 to March 1925, and January 1934 to September 1947; daily and monthly discharge, October 1947 through 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.08	1.30	1.87	1.39	1.53	1.67	1.53	1.70	1.61	1.64	1.78	1.76
2	1.02	1.27	1.47	1.39	1.61	1.64	1.53	1.70	1.61	1.44	1.84	1.81
3	1.22	1.39	1.44	1.39	1.87	1.67	1.53	1.61	1.61	1.39	1.87	1.67
4	1.53	1.42	1.42	1.42	2.01	1.64	1.53	1.70	1.59	1.44	1.87	1.67
5	2.35	1.44	1.44	1.39	2.10	1.64	1.53	1.73	1.50	1.42	1.90	1.76
6	2.35	1.44	1.59	1.42	2.10	1.56	1.64	1.73	1.50	1.39	1.93	1.84
7	1.73	1.47	1.44	1.42	2.01	1.56	1.84	1.73	1.53	1.50	1.93	1.76
8	1.44	1.44	1.56	1.42	2.07	1.53	1.87	1.73	1.59	1.44	1.93	1.59
9	1.44	1.47	1.42	1.42	2.12	1.59	1.84	1.73	1.50	1.33	1.93	1.70
10	1.44	1.44	1.53	1.42	2.01	1.53	1.81	1.73	1.44	1.30	1.90	1.59
11	1.47	1.42	1.42	1.39	1.67	1.53	1.76	1.73	1.42	1.42	1.87	1.44
12	1.47	2.15	1.39	1.42	1.78	1.53	1.70	1.73	1.47	1.47	1.81	1.50
13	1.42	1.93	1.39	1.42	2.12	1.56	1.67	1.73	1.50	1.36	1.61	1.56
14	1.27	1.42	1.42	1.59	2.10	1.56	1.73	1.76	1.47	1.36	1.87	1.70
15	1.42	1.44	1.42	1.44	2.10	1.56	1.78	1.78	1.56	1.42	1.93	1.73
16	1.25	1.44	1.42	1.50	1.98	1.56	1.76	1.87	1.53	1.47	1.90	1.67
17	.79	1.44	1.42	1.50	1.98	1.59	1.76	1.84	1.70	1.36	1.87	1.47
18	.79	1.47	1.42	1.53	1.98	1.64	1.76	1.81	1.73	1.50	1.90	1.36
19	.93	1.44	1.42	1.56	1.98	1.67	1.81	1.81	1.61	1.61	1.90	1.39
20	.93	1.42	1.39	1.56	1.95	1.67	1.87	1.81	1.59	1.61	1.90	1.33
21	1.05	1.42	1.39	1.61	1.95	1.64	1.81	1.78	1.47	1.44	1.93	1.25
22	1.05	1.44	1.39	1.61	1.93	1.64	1.87	1.78	1.50	1.59	1.90	1.16
23	1.08	1.44	1.95	1.64	1.93	1.61	1.87	1.76	1.50	1.67	1.87	1.22
24	1.13	2.35	1.39	1.59	1.87	1.59	1.87	1.73	1.53	1.70	1.81	1.70
25	1.13	2.44	1.39	1.61	1.78	1.59	1.87	1.73	1.53	1.61	1.87	1.47
26	1.19	2.35	1.39	1.56	1.73	1.59	1.64	1.73	1.56	1.73	1.90	1.33
27	1.39	3.00	1.42	1.44	1.73	1.59	1.61	1.70	1.56	1.67	1.93	1.39
28	1.36	2.83	1.50	1.56	1.73	1.61	1.73	1.67	1.59	1.67	1.78	1.42
29	1.27		1.42	1.44	1.70	1.59	1.70	1.67	1.53	1.76	1.78	1.33
30	1.27		1.39	1.70	1.76	1.61	1.70	1.70	1.64	1.81	1.81	1.33
31	1.25		1.39		1.76		1.76	1.67		1.78		1.10
Sum	40.51	46.92	45.31	44.75	58.94	47.96	53.68	53.88	46.47	47.30	56.02	47.00

Current Year 2005							Period 1937-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			! 5	2.35	!17	0.79	1.31	3,500	4,185	6,054	711
Feb.			27	3.00	2	1.27	1.68	4,054	3,876	5,493	456
Mar.			23	1.95	!12	1.39	1.46	3,915	4,718	6,617	1,005
April			30	1.70	! 1	1.39	1.49	3,866	4,735	6,476	940
May			! 9	2.12	1	1.53	1.90	5,092	4,977	6,895	804
June			1	1.67	! 8	1.53	1.60	4,144	4,747	6,883	717
July			! 8	1.87	! 1	1.53	1.73	4,638	4,969	8,079	662
Aug.			16	1.87	3	1.61	1.74	4,655	4,987	8,400	698
Sept.			18	1.73	11	1.42	1.55	4,015	4,730	7,672	721
Oct.			30	1.81	10	1.30	1.53	4,087	4,985	7,080	843
Nov.			! 6	1.93	13	1.61	1.87	4,840	4,752	7,367	806
Dec.			6	1.84	31	1.10	1.52	4,061	4,516	6,241	783
Yearly				3.00		0.79	1.61	50,867	56,177	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, 305 meters upstream from Colorado River below Yuma Main Canal Wasteway, and 10.5 kilometers upstream from the northerly international land boundary.
RECORDS: Discharge is computed as the difference between the measured discharge of the Yuma Main Canal at the Siphon Drop Power Plant upstream and that of the same canal below the Colorado River siphon, with deductions for small irrigation diversions from the canal between the two gaging stations. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.35	5.78	3.57	0.40	6.23	10.2	19.9	20.5	13.8	7.45	7.53	1.25
2	9.57	4.50	9.06	.48	.79	9.54	19.6	19.5	14.9	4.36	12.1	1.08
3	13.1	1.73	10.6	.40	.93	7.56	20.1	18.5	15.3	3.85	11.9	1.59
4	19.1	1.76	11.5	1.56	1.05	8.75	20.8	11.7	12.7	4.36	11.8	2.35
5	19.7	.34	9.15	.99	1.22	9.63	21.3	14.3	12.6	4.73	10.1	3.00
6	19.9	2.35	6.06	1.36	.79	14.3	14.7	19.5	13.7	4.70	10.7	6.66
7	17.8	1.84	17.3	1.22	.82	12.8	2.01	19.8	11.6	3.46	3.20	6.32
8	17.2	.28	12.9	.54	1.05	12.0	1.22	12.7	9.88	2.55	9.46	5.58
9	17.1	.34	8.38	.45	1.87	11.6	1.33	.28	7.08	3.94	13.7	2.66
10	15.2	1.70	3.60	1.27	1.19	12.8	4.36	.28	7.36	5.01	16.3	.06
11	15.6	5.52	.28	1.05	.96	13.5	3.46	7.56	8.35	3.71	19.8	1.42
12	18.4	6.71	.28	5.81	.51	13.0	1.61	6.03	11.1	2.97	19.4	2.78
13	25.7	7.87	.42	3.77	.88	11.1	.99	2.10	12.2	2.18	27.2	4.98
14	11.2	6.71	.31	2.41	.65	10.8	.88	7.00	12.0	2.46	17.7	5.95
15	23.4	6.43	.59	1.02	.99	10.7	1.42	7.08	11.1	3.96	16.2	4.62
16	20.0	7.28	.31	.71	1.27	9.88	1.70	11.8	8.95	4.53	20.4	1.67
17	3.79	6.63	.28	.74	.79	9.03	1.56	15.2	7.36	5.44	21.8	2.27
18	2.04	5.95	.28	.62	.65	8.95	1.13	15.6	8.07	5.75	21.3	5.24
19	3.03	7.56	.28	.96	.93	8.04	.96	9.83	7.59	3.88	19.3	2.95
20	2.46	8.81	1.56	1.33	.28	8.21	1.16	12.3	9.83	2.35	18.3	1.16
21	2.29	8.55	.99	1.19	1.05	9.60	1.19	13.2	9.49	4.25	18.7	1.42
22	1.56	8.21	.93	1.10	2.80	10.1	.85	14.6	10.5	6.09	20.4	1.36
23	2.72	6.91	.71	1.22	6.43	11.3	1.64	12.8	10.5	8.01	20.5	5.86
24	4.11	6.40	.65	1.50	6.71	11.4	3.65	12.3	9.52	5.55	22.3	22.8
25	6.03	7.84	.59	.65	7.99	8.86	3.96	14.1	10.4	5.75	16.2	16.8
26	7.31	8.67	.79	7.36	9.06	12.9	2.61	16.0	9.29	4.87	14.5	15.8
27	7.82	9.52	1.16	7.39	7.25	12.7	4.79	13.1	10.1	2.21	19.1	17.7
28	7.45	7.76	1.25	2.52	8.04	11.2	13.4	12.8	8.33	4.47	10.3	19.4
29	7.48		.28	9.77	10.6	10.3	19.4	14.2	8.89	6.34	2.41	17.9
30	7.87		.37	6.68	9.63	13.2	14.1	15.2	8.35	5.47	1.13	17.1
31	7.33		.65		9.80		17.1	15.1		4.98		14.9
Sum	345.61	153.95	105.08	66.47	103.21	323.95	222.88	384.96	310.84	139.63	453.73	214.63

Current Year 2005							Period 1935-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			13	25.7	22	1.56	11.1	29,861	51,020	136,546	550
Feb.			27	9.52	8	.28	5.50	13,301	41,386	109,952	444
Mar.			7	17.3	!11	.28	3.39	9,079	41,248	111,248	440
April			29	9.77	! 1	.40	2.22	5,743	40,597	106,795	402
May			29	10.6	20	.28	3.33	8,917	48,744	108,892	411
June			6	14.3	3	7.56	10.8	27,989	42,664	107,263	422
July			5	21.3	22	.85	7.19	19,257	39,467	112,518	455
Aug.			1	20.5	! 9	.28	12.4	33,261	44,080	110,878	455
Sept.			3	15.3	9	7.08	10.4	26,857	48,295	103,193	440
Oct.			23	8.01	13	2.18	4.50	12,064	42,530	111,075	699
Nov.			13	27.2	30	1.13	15.1	39,202	44,111	125,198	882
Dec.			24	22.8	10	.06	6.92	18,544	49,831	134,203	570
Yearly				27.2		0.06	7.74	244,075	533,973	1,286,335	8,226

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005. 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.9	18.7	81.6	60.6	61.2	39.6	47.6	38.8	28.0	24.2	21.0	18.5
2	23.6	17.7	70.0	58.3	63.2	41.1	47.3	41.3	28.6	19.1	25.3	18.6
3	26.1	15.5	68.5	56.4	50.4	39.1	46.4	52.1	29.5	17.2	25.6	19.3
4	45.0	25.1	69.1	56.6	46.4	39.9	46.4	45.3	27.4	17.4	25.5	20.1
5	84.7	23.7	70.5	60.0	44.2	38.2	47.6	37.7	26.6	17.9	27.4	20.3
6	57.8	24.5	77.0	58.3	43.6	41.1	41.1	38.8	27.1	17.3	26.3	22.6
7	66.0	26.6	72.2	54.9	43.0	40.8	26.2	38.5	29.7	17.0	26.6	21.9
8	50.4	28.2	73.9	54.7	40.8	40.8	26.6	32.9	33.7	17.2	25.6	22.8
9	39.6	29.2	71.9	55.2	38.8	39.4	26.6	28.0	29.5	17.3	27.7	21.7
10	34.0	33.7	64.9	56.9	43.6	40.8	27.4	69.4	27.2	17.1	28.9	19.8
11	38.8	44.5	46.4	61.5	58.6	41.9	25.5	108	26.0	21.2	32.3	21.3
12	37.7	84.1	53.8	66.6	51.0	42.2	23.1	76.2	25.9	28.6	35.7	22.2
13	37.9	76.5	53.8	66.3	34.6	41.9	22.4	48.4	25.9	20.0	42.8	24.0
14	34.8	42.8	52.7	72.2	32.6	41.3	23.3	33.7	26.1	17.7	35.4	29.5
15	34.3	36.2	52.1	58.1	32.9	40.8	22.4	28.3	27.3	18.5	28.9	52.4
16	30.0	37.1	52.7	55.5	35.7	40.2	19.7	30.3	29.7	18.2	31.2	44.5
17	16.0	36.2	53.0	55.2	30.3	39.6	19.8	32.3	41.3	20.1	32.9	28.2
18	14.0	35.1	51.8	54.1	30.9	38.8	19.6	32.9	40.8	67.7	32.3	25.8
19	14.6	36.0	50.7	53.2	30.9	38.8	18.9	33.1	34.0	105	31.2	23.1
20	13.3	50.1	51.8	53.8	30.3	38.8	19.6	32.0	24.5	66.6	30.3	20.4
21	12.7	45.0	52.1	53.5	30.3	39.6	21.2	31.4	24.6	22.3	30.6	20.1
22	12.3	40.8	54.1	53.2	31.7	39.4	20.0	31.2	25.7	20.1	32.0	19.7
23	13.3	43.3	81.8	54.9	36.0	40.8	18.8	28.9	24.5	20.9	33.7	21.6
24	15.2	92.6	63.7	58.3	36.5	42.8	21.1	28.6	24.7	20.9	40.2	37.1
25	16.1	94.6	55.5	58.3	39.9	42.5	26.3	29.5	25.6	20.5	37.9	32.6
26	19.3	91.8	54.9	63.2	41.9	42.8	49.8	30.6	24.7	23.1	33.4	30.3
27	35.7	108	54.4	67.1	41.3	41.3	50.7	30.3	25.6	24.6	31.4	31.2
28	26.5	103	71.6	70.8	41.9	40.5	39.4	29.2	24.3	19.8	21.9	32.6
29	24.4		66.0	65.7	41.3	40.5	38.2	30.6	22.9	20.9	20.4	31.2
30	22.5		60.0	64.3	39.1	40.8	41.1	32.6	23.9	21.0	18.2	30.6
31	20.9		56.9		38.2		38.2	31.4		19.0		29.5
Sum	942.4	1,340.6	1,909.4	1,777.7	1,261.1	1,216.1	962.3	1,212.3	835.3	798.4	892.6	813.5

Current Year 2005 | Period 1951-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	Extreme-Cubic Meters per Second @ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			5	84.7	22	12.3	30.4	81,423	247,903	1,317,479	36,828
Feb.			27	108	3	15.5	47.9	115,828	204,565	1,228,424	41,083
Mar.			23	81.8	11	46.4	61.6	164,972	226,783	1,610,496	42,683
April			14	72.2	!19	53.2	59.3	153,593	203,210	1,119,312	41,552
May			2	63.2	!17	30.3	40.7	108,959	201,830	1,065,554	43,373
June			!24	42.8	5	38.2	40.5	105,071	195,966	1,113,679	36,996
July			27	50.7	23	18.8	31.0	83,143	219,400	2,013,773	37,956
Aug.			11	108	9	28.0	39.1	104,743	226,494	2,073,958	41,457
Sept.			17	41.3	29	22.9	27.8	72,170	203,965	1,669,785	53,264
Oct.			19	105	7	17.0	25.8	68,982	176,290	1,789,911	43,129
Nov.			13	42.8	30	18.2	29.8	77,121	178,670	1,292,035	42,965
Dec.			15	52.4	1	18.5	26.2	70,286	206,714	1,374,775	40,733
Yearly				108		12.3	38.3	1,206,291	2,491,790	13,065,596	633,707

@ Mean daily ! And other days

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

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.125	2.980	4.070	3.760	3.765	3.435	3.565	3.385	3.195	3.125	3.000	2.950
2	3.095	2.955	3.865	3.720	3.800	3.455	3.555	3.430	3.205	3.025	3.095	2.955
3	3.145	2.910	3.840	3.685	3.605	3.420	3.550	3.630	3.220	2.980	3.100	2.965
4	3.500	3.105	3.850	3.690	3.540	3.435	3.545	3.510	3.185	2.985	3.095	2.980
5	#	3.080	3.880	3.750	3.510	3.405	3.570	3.360	3.170	2.990	3.140	2.985
6	#	3.090	4.000	3.720	3.500	3.450	3.445	3.375	3.180	2.975	3.115	3.035
7	#	3.130	3.915	3.660	3.495	3.445	3.170	3.375	3.230	2.970	3.120	3.020
8	3.605	3.160	3.945	3.660	3.455	3.445	3.175	3.275	3.290	2.970	3.100	3.040
9	3.415	3.180	3.910	3.665	3.425	3.420	3.175	3.190	3.220	2.970	3.145	3.010
10	#	3.260	3.800	3.695	3.505	3.440	3.190	3.940	3.180	2.965	3.175	2.970
11	3.390	3.460	3.485	3.775	3.730	3.460	3.150	4.555	3.160	3.045	3.245	3.000
12	3.370	4.120	3.610	3.860	3.615	3.465	3.105	4.050	3.160	3.185	3.315	3.020
13	3.375	4.000	3.620	3.855	3.360	3.460	3.095	3.560	3.160	3.015	3.445	3.060
14	3.315	3.425	3.595	3.955	3.330	3.450	3.110	3.290	3.160	2.965	3.300	3.175
15	3.305	3.305	3.585	3.715	3.340	3.440	3.090	3.195	3.180	2.980	3.175	3.630
16	3.215	#	3.595	3.675	3.385	3.435	3.040	3.235	3.225	2.970	3.225	3.480
17	2.925	#	3.605	3.670	3.295	3.425	3.040	3.270	3.430	3.010	3.255	3.150
18	2.880	#	3.585	3.650	3.305	3.415	3.035	3.280	3.410	3.900	3.245	3.095
19	2.895	3.300	3.570	3.635	3.305	3.410	3.025	3.285	3.290	4.510	3.220	3.040
20	2.860	3.550	3.585	3.650	3.295	3.410	3.035	3.265	3.135	3.870	3.205	2.980
21	2.850	3.460	3.595	3.640	3.290	3.425	3.070	3.255	3.135	3.040	3.210	2.970
22	2.840	3.385	3.625	3.640	3.315	3.415	3.045	3.250	3.150	2.995	3.240	2.965
23	2.860	3.430	4.105	3.670	3.385	3.445	3.020	3.215	3.130	3.010	3.275	3.005
24	2.905	4.250	3.795	3.720	3.390	3.480	3.065	3.205	3.135	3.010	3.395	3.340
25	2.925	4.275	3.655	3.725	3.445	3.475	3.165	3.220	3.150	2.995	3.355	3.235
26	2.995	4.250	3.650	3.805	3.470	3.480	3.605	3.240	3.135	3.045	3.270	3.190
27	#	4.480	3.635	3.860	3.465	3.455	3.610	3.235	3.150	3.075	3.230	3.205
28	3.130	4.425	3.940	3.925	3.470	3.440	3.400	3.220	3.125	2.975	3.025	3.235
29	3.095		3.845	3.835	3.465	3.440	3.375	3.240	3.105	2.995	2.995	3.210
30	3.055		3.740	3.815	3.425	3.440	3.430	3.275	3.120	2.995	2.945	3.195
31	3.025		3.690		3.410		3.375	3.250		2.955		3.170
Avg.	3.119	3.519	3.750	3.735	3.455	3.440	3.250	3.390	3.190	3.115	3.190	3.105

No Data

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 2005. 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.13	1.16	1.25	0	0	0	1.13	1.19	0.99	1.19	1.22	1.22
2	1.22	1.53	1.25	0	0	0	1.42	1.05	.99	1.19	1.22	1.22
3	1.30	1.53	1.25	0	0	0	1.42	1.05	.99	1.22	1.22	1.22
4	1.08	1.53	1.25	0	0	0	1.42	.96	.99	1.30	1.22	1.22
5	.93	1.53	1.25	0	0	0	1.42	.45	.99	1.42	1.22	1.22
6	.93	1.53	1.25	0	0	.54	1.42	.45	.99	1.42	1.22	1.22
7	.93	1.53	1.25	0	0	1.42	1.42	.45	.99	1.42	1.22	1.22
8	.93	1.53	1.25	0	0	1.53	1.42	.45	1.02	1.42	1.22	1.22
9	.93	1.53	.62	0	0	1.53	1.42	.45	1.02	1.42	1.22	1.22
10	.93	1.53	0	0	0	1.53	1.42	.45	1.02	1.42	1.22	1.22
11	.93	1.53	0	0	0	1.53	1.42	.45	1.02	1.42	1.22	1.22
12	.93	1.53	0	0	0	1.53	1.42	.45	1.02	1.42	1.22	1.22
13	1.25	1.53	0	0	0	1.53	1.42	.45	1.05	1.42	1.22	1.22
14	1.53	1.42	0	0	0	1.13	1.42	.45	1.16	1.42	1.22	1.22
15	1.53	1.36	0	0	0	1.22	1.47	.40	1.19	1.42	1.22	1.22
16	1.53	1.36	0	0	0	1.53	1.50	.34	1.19	1.42	1.22	1.22
17	1.05	1.36	0	0	0	1.53	1.50	.24	1.19	1.42	1.22	1.22
18	.79	1.36	0	0	0	1.53	1.42	.19	1.19	1.08	1.22	1.22
19	.79	1.36	0	0	0	1.53	1.36	.22	1.19	.74	1.22	1.22
20	.79	1.36	0	0	0	1.53	1.36	.27	1.19	.74	1.22	1.22
21	.79	1.36	0	0	0	1.53	1.36	.27	1.19	.74	1.22	1.22
22	.79	1.36	0	0	0	1.44	1.36	.48	1.19	.74	1.22	1.22
23	.79	1.36	0	0	0	1.39	1.36	.59	1.19	.74	1.22	1.22
24	.79	1.36	0	0	0	1.47	1.36	.59	1.19	1.02	1.22	1.22
25	.79	1.36	0	0	0	1.53	.99	.76	1.19	1.25	1.22	1.22
26	.79	1.36	0	0	0	1.53	1.02	.99	1.19	1.25	1.22	1.22
27	.79	1.36	0	0	0	1.53	1.33	.99	1.19	1.25	1.22	1.22
28	.79	1.30	0	0	0	1.53	1.33	.99	1.19	1.25	1.22	1.16
29	.79		0	0	0	1.53	1.33	.99	1.19	1.25	1.22	1.13
30	.79		0	0	0	1.47	1.33	.99	1.19	1.25	1.22	1.13
31	.79		0		0		1.33	.99		1.25		1.13
Sum	30.12	39.92	10.62	0	0	36.09	42.30	19.04	33.28	37.91	36.60	37.49

Current Year 2005							Period 1971-2005		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			!14	1.53	!18	0.79	0.97	2,602	3,132	7,204	0
Feb.			! 2	1.53	1	1.16	1.43	3,449	2,971	6,753	0
Mar.			! 1	1.25	!10	0	.34	918	3,220	7,530	4.9
April			! 1	0	! 1	0	0	0	3,241	7,491	0
May			! 1	0	! 1	0	0	0	3,282	7,617	0
June			! 8	1.53	! 1	0	1.20	3,118	3,092	7,206	0
July			!16	1.50	25	.99	1.36	3,655	3,298	6,796	613
Aug.			1	1.19	18	.19	.61	1,645	3,251	7,401	222
Sept.			!15	1.19	! 1	.99	1.11	2,875	3,213	7,253	0
Oct.			! 5	1.42	!19	.74	1.22	3,275	3,327	7,106	194
Nov.			! 1	1.22	! 1	1.22	1.22	3,162	3,349	7,103	386
Dec.			! 1	1.22	!29	1.13	1.21	3,239	3,564	7,580	0
Yearly				1.53		0	0.89	27,938	38,940	78,926	2,162

@ Mean daily ! And other days

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

DESCRIPTION: This drain discharges into the Colorado River 6.4 kilometers downstream from Colorado River below Yuma Main Canal Wasteway, and 4.0 kilometers upstream from the northerly international boundary. Prior to October 1955, published as "Araz Drain."
RECORDS: Records are furnished by the U. S. Geological Survey from current meter measurements during the year. Records available: May 1948 through 2005.
REMARKS: Drain 8-B, which was constructed in February 1948, collects seepage water in the westerly section of the Reservation Division of the Yuma Project which lies in California. Flow in the drain between the mouth and the U. S. Highway No. 80 culvert, about 975 meters upstream, is affected by backwater from the river during ordinary high stages.
EXTREMES: Mean daily discharge: Maximum, 1.08 CMS on May 31, 2000; minimum no flow several days in February 1966.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.34	0.31	0.31	0.31	0.31	0.31	0.25	0.28	0.31	0.31	0.45	0.34
2	.34	.37	.31	.31	.28	.34	.27	.28	.37	.34	.51	.45
3	.37	.31	.31	.34	.28	.31	.26	.31	.37	.31	.40	.45
4	.40	.40	.34	.31	.34	.28	.27	.31	.31	.31	.37	.34
5	.34	.34	.34	.31	.31	.28	.26	.31	.31	.28	.45	.34
6	.34	.34	.31	.31	.31	.28	.26	.31	.31	.34	.34	.34
7	.34	.31	.31	.31	.31	.28	.27	.34	.34	.40	.34	.40
8	.34	.34	.31	.31	.31	.28	.27	.31	.31	.34	.37	.28
9	.34	.34	.31	.31	.31	.28	.31	.31	.31	.40	.40	.34
10	.34	.34	.28	.34	.31	.31	.27	.31	.31	.31	.42	.31
11	.34	.31	.28	.45	.34	.28	.28	.34	.40	.31	.34	.28
12	.34	.31	.28	.31	.31	.27	.27	.34	.34	.34	.31	.28
13	.40	.31	.31	.31	.31	.27	.27	.31	.31	.34	.40	.34
14	.34	.31	.37	.31	.31	.28	.27	.31	.37	.31	.40	.31
15	.34	.31	.31	.31	.31	.31	.27	.34	.34	.34	.31	.28
16	.34	.31	.31	.31	.31	.37	.27	.45	.34	.37	.37	.28
17	.37	.31	.31	.34	.40	.28	.27	.42	.28	.37	.34	.31
18	.37	.31	.31	.31	.34	.28	.27	.40	.28	.42	.34	.28
19	.34	.31	.42	.37	.31	.27	.27	.37	.28	.42	.42	.27
20	.31	.31	.42	.31	.31	.27	.28	.40	.28	.37	.40	.27
21	.37	.31	.31	.31	.34	.31	.27	.34	.28	.40	.48	.26
22	.37	.31	.31	.31	.31	.31	.27	.34	.28	.45	.40	.31
23	.40	.31	.31	.31	.28	.26	.28	.34	.28	.42	.45	.27
24	.34	.31	.40	.31	.31	.28	.28	.42	.28	.42	.40	.26
25	.34	.31	.31	.31	.31	.28	.28	.34	.28	.40	.31	.26
26	.34	.31	.31	.31	.28	.31	.28	.34	.28	.42	.31	.28
27	.34	.31	.31	.31	.31	.27	.28	.45	.31	.51	.34	.28
28	.34	.31	.31	.31	.31	.26	.28	.34	.34	.42	.34	.25
29	.31		.31	.31	.28	.25	.34	.31	.34	.37	.31	.26
30	.31		.31	.31	.28	.25	.34	.31	.34	.40	.40	.26
31	.31		.31		.31		.31	.31		.40		.26
Sum	10.75	8.98	9.95	9.59	9.64	8.61	8.62	10.59	9.48	11.54	11.42	9.44

	Current Year 2005					Period 1948-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
Month	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			! 4	0.40	!20	0.31	0.35	929	531	1,337	49.0
Feb.			4	.40	! 1	.31	.32	776	447	920	50.0
Mar.			!19	.42	!10	.28	.32	860	518	1,052	77.0
April			11	.45	! 1	.31	.32	829	528	1,233	82.0
May			17	.40	! 2	.28	.31	833	564	1,551	72.0
June			16	.37	!29	.25	.29	744	540	1,270	83.0
July			!29	.34	1	.25	.28	745	600	1,554	90.0
Aug.			!16	.45	! 1	.28	.34	915	665	1,665	91.0
Sept.			11	.40	!17	.28	.32	819	677	1,690	66.0
Oct.			27	.51	5	.28	.37	997	763	1,505	68.0
Nov.			2	.51	!12	.31	.38	987	708	1,530	71.0
Dec.			! 2	.45	28	.25	.30	816	613	12,295	52.0
Yearly				0.51		0.25	0.33	10,250	7,154	15,331	955

@ Mean daily ! And other days

09-5270.00 PILOT KNOB POWER PLANT AND WASTEWAY
NEAR PILOT KNOB, CALIFORNIA

DESCRIPTION: The Pilot Knob Power Plant and Wasteway is located on the All-American Canal, 33.5 kilometers downstream from the intake at Imperial Dam, 9.7 kilometers west of Yuma, about 1.6 kilometers north of the northerly international boundary and empties into the old Alamo Canal in the United States and thence into the Colorado River through Rockwood gates, about 1.6 kilometers upstream from the northerly international boundary. Water-stage recorder is located in forebay on right bank of the All-American Canal, 168 meters upstream from wasteway gates and 549 meters from the entrance to the power plant. Datum of gage is 45.72 meters above mean sea level. Tailrace gage is on left bank, 207 meters downstream from power plant with automatic recording equipment in control house. All bypass gates are equipped with calibrated openings which are read on all gate changes. Datum of tailrace gage is at mean sea level; elevation of sill of wasteway gates is 45.07 meters, U. S. C. & G. S. datum. Prior to October 1956, this station was published as "Pilot Knob Wasteway near Pilot Knob, California."

RECORDS: Daily discharge is computed from flowmeter equipment and head and openings on wasteway gates or from head and gate opening on wicket and wasteway gates. Records furnished by the U. S. Geological Survey. Records available: July 1944 through 2005. 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.0	40.2	46.2	34.0	0	0	0	0	0	0	0	31.2
2	24.0	39.4	20.9	34.8	0	0	0	0	0	0	0	31.4
3	13.7	40.2	0	35.4	0	0	0	0	0	0	0	32.3
4	0	36.0	0	35.7	0	0	0	0	0	0	0	31.7
5	0	36.2	0	36.0	0	0	0	0	0	0	0	31.2
6	0	36.0	0	36.0	0	0	3.77	0	0	0	0	28.2
7	0	36.2	0	40.5	0	0	22.6	0	0	0	0	28.1
8	0	30.6	0	40.5	0	0	21.6	4.45	0	0	0	29.7
9	0	30.6	0	40.2	0	0	21.5	22.7	0	0	0	30.3
10	0	29.2	10.3	40.2	0	0	21.6	22.2	0	0	0	31.4
11	0	27.2	35.1	35.4	0	0	22.1	27.1	0	0	0	30.9
12	0	26.1	33.7	28.6	0	0	24.8	29.5	0	0	0	30.3
13	0	26.1	33.1	29.2	0	0	26.6	28.1	0	0	0	29.5
14	0	26.3	36.5	25.8	0	0	26.2	15.5	0	0	0	25.7
15	0	29.2	37.9	34.7	0	0	25.8	0	0	0	0	22.2
16	4.56	30.0	37.1	32.9	0	0	27.4	0	0	0	0	22.2
17	30.6	30.9	36.5	33.4	0	0	27.4	0	0	0	0	23.3
18	30.9	31.4	37.4	35.1	0	0	26.6	0	0	0	0	26.5
19	30.9	30.9	35.1	35.4	0	0	26.3	0	0	0	0	27.5
20	30.9	27.9	37.1	34.8	0	0	26.2	0	0	0	0	28.9
21	30.9	25.1	41.6	29.7	0	0	22.9	0	0	0	0	28.9
22	30.6	28.0	40.5	29.7	0	0	21.4	0	0	0	0	28.9
23	30.6	29.7	43.6	26.6	0	0	21.9	0	0	0	0	28.9
24	32.0	30.0	52.4	26.5	0	0	22.5	0	0	0	0	1.84
25	31.4	40.5	40.5	26.1	0	0	21.4	0	0	0	0	0
26	31.4	45.8	39.9	10.3	0	0	18.2	0	0	0	0	0
27	31.2	45.0	40.8	0	0	0	0	0	0	0	0	0
28	31.2	48.4	28.9	0	0	0	0	0	0	0	11.0	0
29	30.9		29.2	0	0	0	0	0	0	0	23.5	0
30	31.2		32.0	0	0	0	0	0	0	0	23.8	0
31	34.0		33.1		0		0	0		0		0
Sum	534.96	933.1	859.4	847.5	0	0	478.77	149.55	0	0	58.3	661.04

Current Year 2005 | Period 1944-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	@ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			31	34.0	! 4	0	17.3	46,221	112,952	643,620	0
Feb.			28	48.4	21	25.1	33.3	80,620	95,736	579,127	0
Mar.			24	52.4	! 3	0	27.7	74,252	146,117	501,939	0
April			! 7	40.5	!27	0	28.3	73,224	151,586	447,013	0
May			! 1	0	! 1	0	0	0	72,178	454,461	0
June			! 1	0	! 1	0	0	0	110,013	501,523	0
July			!16	27.4	! 1	0	15.4	41,366	156,560	512,385	0
Aug.			12	29.5	! 1	0	4.82	12,921	148,676	498,782	0
Sept.			! 1	0	! 1	0	0	0	94,333	591,679	0
Oct.			! 1	0	! 1	0	0	0	67,215	617,269	0
Nov.			30	23.8	! 1	0	1.94	5,037	67,206	609,196	0
Dec.			3	32.3	!25	0	21.3	57,114	105,788	700,894	0
Yearly				52.4		0	12.4	390,755	1,328,360	6,000,505	0

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 185 current meter measurements during the year, 121 by the United States Section, 62 by the Mexican Section of the Commission, 2 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 2005; daily discharge records available January 1, 1950 through 2005.

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 2005 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	55.0	68.4	149	95.2	64.3	44.3	51.2	44.7	37.8	36.2	29.5	53.1
2	53.2	65.9	98.0	95.3	66.3	45.5	52.4	46.5	38.1	30.7	35.9	53.3
3	47.8	65.3	74.8	95.7	55.7	44.3	51.9	54.1	38.7	27.8	36.0	55.9
4	53.2	65.0	73.2	95.0	52.2	44.9	51.9	53.8	37.2	27.9	35.5	54.5
5	95.7	64.5	75.2	98.6	50.3	43.7	53.0	43.9	36.1	27.6	38.3	54.8
6	101	64.4	84.9	97.2	49.5	45.7	52.4	44.6	36.7	27.6	36.5	52.5
7	79.4	67.4	77.5	95.9	49.3	46.8	53.6	44.8	39.2	26.6	38.3	52.1
8	64.7	66.9	78.6	96.7	47.6	46.7	53.3	44.8	41.6	26.7	36.4	54.9
9	57.1	67.2	77.5	97.5	45.9	46.0	53.0	52.0	39.4	26.7	38.8	55.1
10	53.5	70.1	79.3	98.0	48.8	47.2	53.6	91.0	37.5	26.1	39.8	55.4
11	52.2	77.7	85.6	97.3	58.0	48.0	52.5	140	36.9	31.7	42.3	55.3
12	50.6	121	88.5	96.2	57.9	48.2	52.0	121	36.8	39.8	46.1	55.3
13	50.5	120	87.3	95.9	43.1	48.0	52.5	80.1	37.3	31.7	50.1	55.7
14	48.5	83.7	96.3	101	41.6	47.0	52.6	50.8	37.4	28.2	48.6	57.7
15	45.9	73.1	95.5	96.6	42.1	47.0	51.5	36.8	38.1	29.8	39.8	82.4
16	47.5	73.4	96.1	96.1	45.0	47.0	51.7	37.1	39.8	29.0	41.2	77.2
17	54.1	75.3	94.7	97.0	40.7	46.8	51.9	38.4	47.7	30.2	43.4	56.1
18	53.9	75.5	97.0	91.0	40.8	46.3	50.5	38.7	49.9	68.4	43.5	54.8
19	54.3	75.7	97.4	91.1	40.6	46.5	50.0	39.0	45.0	113	42.5	54.3
20	54.1	82.2	96.2	89.8	40.1	46.5	50.6	38.3	36.5	82.1	42.0	53.2
21	53.7	78.0	97.5	86.2	40.1	47.3	49.5	37.9	36.9	31.9	41.7	53.6
22	52.1	74.4	96.5	85.9	40.4	47.2	48.6	38.1	37.4	28.8	42.5	53.6
23	53.1	78.3	135	81.3	43.8	47.7	48.0	36.7	36.2	29.2	43.6	54.6
24	60.0	131	132	83.3	44.0	49.7	49.4	35.8	36.4	30.1	49.0	49.7
25	59.1	156	98.4	82.9	45.1	49.3	52.2	36.4	37.5	30.0	48.3	43.4
26	61.3	157	96.1	73.9	44.6	49.3	70.3	37.8	36.3	31.7	44.2	41.0
27	87.7	179	96.6	67.8	44.9	48.8	57.4	37.9	37.3	35.6	42.3	41.4
28	86.5	163	99.9	73.2	45.2	48.4	46.9	37.3	36.2	28.6	46.5	42.3
29	61.4		97.2	67.8	45.1	49.0	44.9	37.6	34.7	29.5	50.6	41.6
30	60.9		96.0	66.6	44.0	47.2	47.4	39.1	35.6	30.0	48.4	40.9
31	67.8		95.6		42.8		44.9	39.3		27.7		40.3
Sum	2,539.4		2,686.0		1,410.3		1,554.3		1,100.9			1,646.0
	1,875.8		2,943.4		1,459.8		1,601.6		1,152.2		1,261.6	

Current Year 2005						Period 1935-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	High Day	Low Day	Average	Total	Average	Maximum	Minimum
Jan.	31.800	31.290	6	105	16 35.9	60.5	162,069	469,488	2,027,841	39,348
Feb.	32.460	31.555	27	199	3 61.7	90.7	219,404	407,262	1,705,506	74,502
Mar.	31.935	31.620	! 1	166	10 69.6	94.9	254,310	438,271	1,642,378	23,930
April	31.760	31.515	14	105	29 64.3	89.5	232,070	362,925	1,322,616	0
May	31.575	31.285	2	74.6	22 39.5	47.1	126,127	338,135	1,419,735	88,077
June	31.455	31.340	26	51.5	5 42.5	47.0	121,850	337,295	1,629,906	10,485
July	31.745	31.345	26	82.7	6 43.7	51.7	138,378	358,798	2,303,937	30,097
Aug.	32.435	31.265	11	163	15 28.7	50.1	134,292	365,055	2,485,718	54,026
Sept.	31.575	31.275	17	55.7	29 33.2	38.4	99,550	325,190	2,286,076	66,424
Oct.	31.910	31.170	19	116	10 24.0	35.5	95,118	313,949	2,417,702	52,985
Nov.	31.545	31.205	14	153	1 26.0	42.1	109,002	347,547	1,889,976	51,070
Dec.	32.085	31.310	!15	87.6	31 37.3	53.1	142,214	437,366	2,259,735	51,806
Yearly	32.460	31.170		199	24.0	58.2	1,834,384	4,501,281	9,033,104	890,696

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

09-5220.01 COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.460	31.615	31.865	31.710	31.520	31.360	31.485	31.360	31.310	31.295	31.235	31.570
2	31.445	31.590	31.765	31.710	31.530	31.385	31.520	31.385	31.300	31.240	31.285	31.600
3	31.390	31.580	31.670	31.710	31.450	31.370	31.490	31.470	31.320	31.200	31.290	31.665
4	31.420	31.580	31.635	31.705	31.420	31.365	31.505	31.480	31.325	31.210	31.290	31.655
5	31.575	31.580	31.655	31.730	31.400	31.355	31.525	31.360	31.320	31.200	31.315	31.660
6	31.580	31.580	31.725	31.725	31.385	31.380	31.500	31.365	31.330	31.195	31.300	31.630
7	31.565	31.595	31.700	31.705	31.390	31.415	31.515	31.370	31.350	31.190	31.320	31.655
8	31.530	31.580	31.710	31.710	31.380	31.415	31.520	31.380	31.395	31.190	31.295	31.710
9	31.475	31.585	31.695	31.720	31.360	31.410	31.500	31.470	31.365	31.190	31.315	31.645
10	31.445	31.625	31.690	31.720	31.385	31.420	31.505	31.665	31.325	31.185	31.330	31.565
11	31.430	31.685	31.720	31.710	31.455	31.435	31.500	31.970	31.315	31.225	31.360	31.570
12	31.420	31.785	31.745	31.705	31.455	31.440	31.475	32.000	31.305	31.320	31.425	31.570
13	31.420	31.840	31.750	31.700	31.330	31.430	31.500	31.675	31.315	31.235	31.460	31.600
14	31.410	31.700	31.805	31.730	31.315	31.410	31.515	31.515	31.320	31.195	31.430	31.670
15	31.360	31.675	31.795	31.705	31.310	31.400	31.490	31.360	31.335	31.205	31.335	31.940
16	31.375	31.690	31.780	31.700	31.340	31.400	31.460	31.340	31.390	31.195	31.370	31.710
17	31.440	31.690	31.760	31.710	31.305	31.400	31.460	31.340	31.490	31.205	31.425	31.650
18	31.535	31.690	31.760	31.675	31.305	31.395	31.445	31.350	31.495	31.470	31.420	31.545
19	31.460	31.680	31.760	31.675	31.305	31.390	31.455	31.355	31.440	31.730	31.395	31.530
20	31.450	31.695	31.760	31.670	31.300	31.385	31.435	31.360	31.300	31.645	31.385	31.525
21	31.440	31.655	31.760	31.645	31.295	31.390	31.410	31.345	31.290	31.260	31.385	31.525
22	31.425	31.625	31.745	31.645	31.295	31.400	31.400	31.345	31.320	31.230	31.400	31.560
23	31.435	31.655	31.735	31.615	31.320	31.405	31.395	31.330	31.305	31.235	31.415	31.575
24	31.505	31.875	31.810	31.630	31.325	31.440	31.410	31.295	31.310	31.240	31.485	31.515
25	31.510	32.380	31.740	31.630	31.355	31.435	31.470	31.280	31.330	31.235	31.490	31.440
26	31.545	32.280	31.735	31.575	31.370	31.430	31.645	31.305	31.325	31.240	31.430	31.395
27	31.730	32.135	31.735	31.535	31.370	31.435	31.535	31.330	31.340	31.285	31.400	31.380
28	31.725	32.005	31.750	31.570	31.375	31.425	31.390	31.320	31.325	31.230	31.440	31.365
29	31.560		31.730	31.540	31.370	31.420	31.355	31.320	31.295	31.235	31.505	31.350
30	31.545		31.720	31.535	31.360	31.405	31.395	31.345	31.290	31.240	31.490	31.335
31	31.570		31.715		31.345		31.365	31.335		31.225		31.335
Avg.	31.490	31.740	31.740	31.670	31.370	31.405	31.470	31.425	31.340	31.265	31.380	31.565

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 2005 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.01	0.05	0.01	0.01	0	0.12	0.13	0.04	0	0.12
2	0	0	.01	.01	.01	.02	0	.09	.19	.09	0	.08
3	0	.01	.01	.01	.01	.17	0	.01	.11	.14	.01	.10
4	0	.01	.01	.01	0	.13	0	.04	.13	.29	.05	.08
5	0	0	.01	.01	0	.07	0	.02	.15	.06	.18	.11
6	0	0	0	.01	0	.01	0	0	.19	0	.22	.12
7	0	.02	0	.01	0	.01	0	0	.12	.02	.29	.01
8	0	.16	.01	.01	0	.01	0	0	.02	0	.23	0
9	.01	.01	.01	0	0	.02	0	0	.10	0	.19	0
10	.02	0	.02	0	.01	.01	0	0	.14	.02	.07	0
11	0	0	.02	0	0	0	0	0	.18	.04	.07	.15
12	0	0	.01	0	.01	0	0	0	.22	.08	.01	.14
13	.01	0	.01	0	.01	0	0	0	.14	.07	.02	.12
14	.04	0	.01	0	.01	0	0	0	.12	.02	.01	.20
15	.01	0	.01	0	0	0	0	0	0	0	.04	.09
16	.01	0	.01	0	0	0	0	.06	.05	0	.09	.06
17	.01	0	.02	.02	.05	0	0	.08	.19	.01	.11	.05
18	.06	0	.08	.01	.01	0	0	.01	.17	.51	.06	.21
19	.01	0	.02	.01	.01	0	0	.02	.17	.94	.01	.22
20	.01	0	.02	.01	0	0	0	.01	.12	.26	.10	.10
21	.01	.01	.01	0	.01	0	0	.01	.26	.38	.15	.16
22	.01	.01	.01	0	.01	0	0	.04	.34	.19	.10	.17
23	0	0	.01	0	.01	0	0	.16	.29	.23	.06	.06
24	0	0	.01	.11	0	0	0	.06	.48	.17	.11	.08
25	.02	.01	.01	.06	.01	0	.09	.06	.13	.27	.13	.01
26	0	.01	.01	.01	0	0	0	.02	.12	.46	.01	.10
27	.01	.01	.01	0	0	0	0	0	.21	.31	.15	.31
28	.01	.01	.01	0	0	0	0	0	.05	.46	.01	.17
29	.01		.01	.01	0	0	0	0	.07	.22	.06	.03
30	0		.05	.01	0	0	.11	0	.12	.02	.16	.01
31	.01		.01		.01		.01	.13		.53		.20
Sum	0.27	0.27	0.45	0.37	0.19	0.46	0.21	0.94	4.71	5.83	2.70	3.26

Current Year 2005						Period 1935-2005		
Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High	Extreme-Cubic Meters per Second Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
			Day	Day					
Jan.	0.455	0	19	0.74 ! 1	0	0.01	23.3	179	1,127	0
Feb.	.550	0	8	.98 ! 1	0	.01	23.3	159	493	7.4
Mar.	.535	0	18	.94 ! 6	0	.01	38.9	162	638	0
April	.590	.005	25	1.09 ! 1	0	.01	32.0	157	524	4.3
May	.395	0	17	.59 ! 3	0	.01	16.4	158	543	4.3
June	.265	0	2	.32 ! 1	0	.02	39.7	142	734	19.0
July	.780	0	25	1.66 ! 1	0	.01	18.1	132	636	0
Aug.	.650	0	31	1.27 ! 1	0	.03	81.2	111	761	0
Sept.	.730	0	24	1.51 ! 3	0	.16	407	128	570	0
Oct.	.925	0	19	2.15 ! 1	0	.19	504	179	604	0
Nov.	.760	0	7	1.60 ! 1	0	.09	233	180	570	11.1
Dec.	.790	0	19	1.69 ! 1	0	.11	282	196	730	16.9
Yearly	0.925	0		2.15	0	0.05	1,699	1,883	5,551	500

! 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 2005.
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, 35.91 meters on February 15, 1998; minimum mean daily elevation above mean sea level, 30.94 meters on February 17, 1957.

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.410	31.590	31.890	31.730	31.570	31.420	31.550	31.430	31.400	31.090	31.330	31.630
2	31.400	31.560	31.790	31.730	31.580	31.450	31.590	31.460	31.390	31.140	31.380	31.670
3	31.340	31.540	31.720	31.740	31.490	31.440	31.560	31.540	31.410	31.010	31.390	31.730
4	31.350	31.530	31.680	31.730	31.480	31.430	31.560	31.540	31.410	31.010	31.390	31.720
5	31.490	31.510	31.730	31.760	31.470	31.420	31.580	31.420	31.400	31.000	31.420	31.720
6	31.490	31.520	31.790	31.760	31.470	31.440	31.560	31.430	31.420	30.980	31.400	31.700
7	31.480	31.570	31.790	31.740	31.460	31.470	31.580	31.440	31.450	30.980	31.410	31.700
8	31.470	31.560	31.750	31.740	31.450	31.480	31.590	31.450	31.480	31.260	31.400	31.770
9	31.420	31.560	31.730	31.750	31.430	31.480	31.570	31.540	31.440	31.270	31.410	31.720
10	31.370	31.590	31.720	31.740	31.460	31.490	31.570	31.710	31.400	31.260	31.380	31.610
11	31.340	31.640	31.770	31.750	31.520	31.500	31.570	32.030	31.400	31.300	31.430	31.620
12	31.380	31.700	31.810	31.740	31.520	31.510	31.550	32.070	31.390	31.340	31.510	31.610
13	31.370	31.640	31.780	31.730	31.410	31.490	31.570	31.730	31.400	31.300	31.550	31.640
14	31.350	31.660	31.820	31.760	31.390	31.470	31.580	31.600	31.400	31.230	31.560	31.680
15	31.210	31.650	31.820	31.740	31.390	31.460	31.560	31.450	31.410	31.240	31.400	31.970
16	31.270	31.650	31.820	31.730	31.420	31.470	31.530	31.450	31.460	31.230	31.450	31.830
17	31.360	31.660	31.800	31.740	31.380	31.460	31.530	31.420	31.560	31.240	31.480	31.540
18	31.510	31.640	31.820	31.710	31.370	31.450	31.510	31.440	31.570	31.490	31.480	31.530
19	31.420	31.610	31.810	31.710	31.370	31.450	31.510	31.440	31.520	31.540	31.460	31.540
20	31.400	31.640	31.800	31.710	31.370	31.440	31.500	31.450	31.400	31.340	31.450	31.530
21	31.380	31.610	31.790	31.690	31.360	31.450	31.490	31.430	31.380	31.140	31.450	31.560
22	31.350	31.570	31.770	31.690	31.360	31.460	31.480	31.430	31.410	31.120	31.450	31.600
23	31.360	31.610	31.880	31.660	31.390	31.470	31.470	31.420	31.390	31.140	31.460	31.590
24	31.450	31.750	31.870	31.670	31.390	31.510	31.490	31.380	31.390	31.150	31.520	31.520
25	31.470	31.900	31.780	31.680	31.420	31.510	31.540	31.370	31.410	31.140	31.550	31.440
26	31.490	31.950	31.750	31.630	31.440	31.500	31.700	31.390	31.410	31.140	31.490	31.420
27	31.660	32.430	31.750	31.590	31.440	31.500	31.600	31.420	31.420	31.250	31.450	31.410
28	31.660	32.030	31.780	31.620	31.440	31.490	31.470	31.400	31.420	31.270	31.490	31.390
29	31.450		31.760	31.590	31.440	31.470	31.430	31.400	31.410	31.270	31.540	31.390
30	31.450		31.740	31.580	31.430	31.480	31.470	31.430	31.400	31.270	31.500	31.370
31	31.530		31.740		31.410		31.440	31.420		31.260		31.370
Avg.	31.420	31.675	31.780	31.705	31.435	31.470	31.540	31.500	31.425	31.205	31.455	31.595

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005. Records obtained and furnished by the Mexican Section of the Commission.

REMARKS: The canal is operated with a minimum hydraulic slope to permit the maximum retention of silt above Matamoros Check, and the lower velocities in the canal do not permit measuring the flow with a current meter. Records for this station show the amounts of Colorado River water diverted at Morelos Diversion Dam to the Intake Canal and thence to the Alamo Canal for use in Mexico. Under conditions set forth in the 1944 Water Treaty, water for use in Mexico may be diverted to the Alamo Canal in the United States directly from the river at Rockwood Heading or by means of Imperial Dam, the All-American Canal, and certain facilities of the Imperial Irrigation District. No diversions of this nature have been made during the years 1951 through 2005, 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	55.0	68.4	90.3	95.2	64.3	44.3	51.2	44.8	37.9	36.2	29.5	53.2
2	53.2	65.9	83.3	95.3	66.3	45.5	52.4	46.6	38.3	30.8	35.9	53.4
3	47.8	65.3	74.8	95.7	55.7	44.5	51.9	54.1	38.8	28.0	36.0	56.0
4	46.2	65.0	73.2	95.0	52.2	45.0	51.9	53.8	37.3	28.2	35.5	54.6
5	66.4	64.5	75.2	98.6	50.3	43.8	53.0	43.9	36.3	27.7	38.5	54.9
6	69.6	64.4	84.9	97.2	49.5	45.7	52.4	44.6	36.9	27.6	36.7	52.6
7	67.9	67.4	77.5	95.9	49.3	46.8	53.6	44.8	39.3	26.6	38.6	52.1
8	64.7	67.1	78.6	96.7	47.6	46.7	53.3	44.8	41.6	26.7	36.6	54.9
9	57.1	67.2	77.5	97.5	45.9	46.0	53.0	52.0	39.5	26.7	39.0	55.1
10	53.5	70.1	79.3	98.0	48.8	47.2	53.6	71.6	37.6	26.1	39.9	55.4
11	52.2	77.7	85.6	97.3	58.0	48.0	52.5	81.1	37.1	31.7	42.4	55.4
12	50.6	87.0	88.5	96.2	57.9	48.2	52.0	75.5	37.0	39.9	46.1	55.4
13	50.5	79.3	87.3	95.9	43.1	48.0	52.5	69.3	37.4	31.8	50.1	55.8
14	48.5	83.7	96.3	101	41.6	47.0	52.6	50.8	37.5	28.2	48.6	57.9
15	45.9	73.1	95.5	96.6	42.1	47.0	51.5	36.8	38.1	29.8	39.8	82.5
16	47.5	73.4	96.1	96.1	45.0	47.0	51.7	37.2	39.8	29.0	41.3	75.8
17	54.1	75.3	94.7	97.0	40.7	46.8	51.9	38.5	47.9	30.2	43.5	56.1
18	53.9	75.5	97.0	91.0	40.8	46.3	50.5	38.7	50.0	45.8	43.6	55.0
19	54.4	75.7	97.4	91.1	40.6	46.5	50.0	39.0	45.2	72.7	42.5	54.5
20	54.1	82.2	96.2	89.8	40.1	46.5	50.6	38.3	36.6	57.5	42.1	53.3
21	53.7	78.0	97.5	86.2	40.1	47.3	49.5	37.9	37.2	32.3	41.9	53.8
22	52.1	74.4	96.5	85.9	40.4	47.2	48.6	38.1	37.7	29.0	42.6	53.8
23	53.1	78.3	112	81.3	43.8	47.7	48.0	36.9	36.4	29.4	43.7	54.6
24	60.0	89.1	115	83.4	44.0	49.7	49.4	35.9	36.9	30.3	49.1	49.8
25	59.1	91.0	98.4	83.0	45.1	49.3	52.3	36.5	37.6	30.3	48.4	43.4
26	61.3	85.4	96.1	73.9	44.6	49.3	70.3	37.8	36.4	32.2	44.2	41.1
27	75.1	92.8	96.6	67.8	44.9	48.8	57.4	37.9	37.5	35.9	42.4	41.7
28	76.6	90.3	99.9	73.2	45.2	48.4	46.9	37.3	36.3	29.1	46.5	42.5
29	61.4		97.2	67.8	45.1	49.0	44.9	37.6	34.8	29.7	50.7	41.6
30	60.9		96.0	66.6	44.0	47.2	47.5	39.1	35.7	30.0	48.6	40.9
31	67.8		95.6		42.8		44.9	39.4		28.2		40.5
Sum	1,774.2	2,127.5	2,830.0	2,686.2	1,459.8	1,410.7	1,601.8	1,420.6	1,156.6	1,017.6	1,264.3	1,647.6

Current Year 2005						Period 1950-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			28	76.6	15	45.9	57.2	153,291	120,965	275,305	1,192
Feb.			27	92.8	6	64.4	76.0	183,816	131,475	292,464	11,387
Mar.			24	115	4	73.2	91.3	244,512	237,207	435,370	120,761
April			14	101	30	66.6	89.5	232,088	252,476	404,698	189,700
May			2	66.3	!20	40.1	47.1	126,127	146,504	286,174	81,665
June			24	49.7	5	43.8	47.0	121,884	190,690	332,588	117,400
July			26	70.3	!29	44.9	51.7	138,396	250,100	439,171	135,475
Aug.			11	81.1	24	35.9	45.8	122,740	237,898	420,673	107,369
Sept.			18	50.0	29	34.8	38.6	99,930	151,892	336,960	66,156
Oct.			19	72.7	10	26.1	32.8	87,921	93,146	280,817	12,894
Nov.			29	50.7	1	29.5	42.1	109,236	89,929	258,388	9,271
Dec.			15	82.5	31	40.5	53.1	142,353	120,724	247,899	10,886
Yearly				115		26.1	55.9	1,762,294	2,023,006	3,451,533	1,569,404

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

09-5220.31 INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.380	31.560	31.860	31.700	31.540	31.380	31.430	31.270	31.260	31.230	31.130	31.340
2	31.370	31.530	31.760	31.700	31.550	31.420	31.470	31.300	31.230	31.180	31.180	31.380
3	31.310	31.510	31.680	31.710	31.460	31.410	31.440	31.410	31.250	31.150	31.190	31.440
4	31.320	31.500	31.650	31.700	31.450	31.400	31.440	31.420	31.270	31.150	31.190	31.430
5	31.460	31.480	31.700	31.730	31.440	31.380	31.470	31.220	31.260	31.130	31.220	31.430
6	31.460	31.490	31.760	31.730	31.440	31.410	31.440	31.220	31.280	31.120	31.200	31.410
7	31.450	31.540	31.760	31.710	31.430	31.440	31.440	31.280	31.320	31.120	31.210	31.410
8	31.440	31.530	31.720	31.710	31.420	31.450	31.470	31.470	31.350	31.120	31.200	31.370
9	31.390	31.530	31.700	31.720	31.400	31.450	31.450	31.450	31.300	31.130	31.210	31.390
10	31.340	31.560	31.690	31.710	31.430	31.460	31.440	31.440	31.260	31.120	31.180	31.400
11	31.310	31.610	31.740	31.720	31.490	31.470	31.450	31.450	31.250	31.160	31.230	31.420
12	31.350	31.670	31.790	31.710	31.490	31.480	31.420	31.420	31.240	31.240	31.310	31.420
13	31.340	31.610	31.750	31.700	31.380	31.460	31.450	31.450	31.250	31.160	31.350	31.430
14	31.320	31.630	31.790	31.730	31.360	31.440	31.470	31.470	31.250	31.090	31.360	31.440
15	31.180	31.620	31.790	31.710	31.360	31.430	31.450	31.450	31.270	31.100	31.260	31.680
16	31.240	31.620	31.790	31.700	31.390	31.440	31.410	31.410	31.340	31.090	31.300	31.540
17	31.330	31.630	31.770	31.710	31.350	31.430	31.400	31.400	31.430	31.100	31.270	31.410
18	31.480	31.610	31.790	31.680	31.340	31.420	31.380	31.380	31.440	31.350	31.210	31.400
19	31.390	31.580	31.780	31.680	31.340	31.430	31.370	31.370	31.390	31.400	31.180	31.410
20	31.370	31.610	31.770	31.690	31.340	31.410	31.360	31.360	31.250	31.200	31.180	31.370
21	31.350	31.580	31.760	31.660	31.330	31.430	31.350	31.350	31.240	30.990	31.180	31.390
22	31.320	31.540	31.740	31.660	31.330	31.430	31.340	31.450	31.270	30.930	31.170	31.400
23	31.330	31.580	31.850	31.630	31.360	31.440	31.330	31.410	31.260	30.950	31.180	31.400
24	31.420	31.720	31.840	31.640	31.360	31.490	31.330	31.400	31.260	30.950	31.280	31.370
25	31.440	31.870	31.750	31.650	31.390	31.490	31.410	31.380	31.270	30.940	31.340	31.250
26	31.460	31.920	31.720	31.600	31.410	31.470	31.570	31.370	31.280	30.950	31.250	31.120
27	31.630	32.400	31.720	31.560	31.410	31.470	31.480	31.360	31.300	31.110	31.200	31.140
28	31.630	32.000	31.750	31.590	31.410	31.460	31.330	31.350	31.290	31.130	31.260	31.190
29	31.420		31.730	31.560	31.410	31.450	31.260	31.260	31.270	31.130	31.380	31.210
30	31.420		31.710	31.550	31.400	31.440	31.300	31.300	31.260	31.130	31.330	31.170
31	31.500		31.710		31.390		31.290	31.290		31.120		31.150
Avg.	31.390	31.645	31.750	31.675	31.405	31.440	31.410	31.375	31.285	31.120	31.240	31.365

09-5220.41 COLORADO RIVER IMMEDIATELY BELOW MORELOS DAM - STAGES

DESCRIPTION: Water-stage recorder located on the right bank of the Colorado River in Mexico immediately downstream from Morelos Dam, 1.8 kilometers downstream from the northerly international boundary, and about 12.1 kilometers downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date, zero of the gage was 0.05 meter below mean sea level.
RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage heights, February 20, 1951 to June 6, 1966; continuous record of gage heights June 7, 1966 through 2005.
REMARKS: On June 7, 1966 a continuous water-stage recorder was installed; prior to this date, mean daily gage heights were determined from hourly readings of staff gage.
EXTREMES: Maximum mean daily gage height, 35.87 meters on February 15, 1998; minimum mean gage height, 29.06 meters from October 3, 1996 to January 13, 1997.

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	30.500	30.500	31.850	30.500	30.500	31.850	30.500	30.500	30.500	30.500	30.500	30.500
2	30.500	30.500	30.760	30.500	30.500	30.760	30.500	30.500	30.500	30.500	30.500	30.500
3	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
4	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
5	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
6	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
7	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
8	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
9	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
10	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
11	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
12	30.500	31.140	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
13	30.500	30.840	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
14	30.500	30.650	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
15	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
16	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
17	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
18	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
19	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
20	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
21	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
22	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
23	30.500	30.500	30.630	30.500	30.500	30.630	30.500	30.500	30.500	30.500	30.500	30.500
24	30.500	30.640	30.650	30.500	30.500	30.650	30.500	30.500	30.500	30.500	30.500	30.500
25	30.500	31.090	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
26	30.500	30.970	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
27	30.500	31.380	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
28	30.500	31.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
29	30.500		30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
30	30.500		30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500	30.500
31	30.500		30.500		30.500		30.500	30.500		30.500		30.500
Avg.	30.650		30.500		30.565		30.500		30.500		30.500	
	30.500		30.560		30.500		30.500		30.500		30.500	

09-5319.00 WELLTON-MOHAWK DRAINAGE WATER DISCHARGED TO COLORADO RIVER BELOW MORELOS DAM

DESCRIPTION: Water-stage recorder located on downstream end of the Wellton-Mohawk Drainage Extension Channel on the Arizona bank of the Colorado River at the east end of the weir section of Morelos Dam, 1.8 kilometers downstream from the northerly international boundary. The elevation of the zero of the gage has not been determined.

RECORDS: Based on discharge measurements and a continuous record of gage heights. Station is operated by the United States Section of the Commission. Records available: November 16, 1965 through 2005.

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 2005 --- 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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	0	0	0

Current Year 2005					Period 1966-2005		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
	High	Low	High	Low	Average	Total	Average	Maximum	Minimum
Jan.	0	0	0 ! 1	0 ! 1	0	0	6,061	23,088	0
Feb.	0	0	0 ! 1	0 ! 1	0	0	4,659	20,959	0
Mar.	0	0	0 ! 1	0 ! 1	0	0	3,287	22,827	0
April	0	0	0 ! 1	0 ! 1	0	0	2,945	22,944	0
May	0	0	0 ! 1	0 ! 1	0	0	4,438	23,548	0
June	0	0	0 ! 1	0 ! 1	0	0	3,494	23,135	0
July	0	0	0 ! 1	0 ! 1	0	0	3,208	23,370	0
Aug.	0	0	0 ! 1	0 ! 1	0	0	3,262	23,668	0
Sept.	0	0	0 ! 1	0 ! 1	0	0	4,584	22,787	0
Oct.	0	0	0 ! 1	0 ! 1	0	0	6,451	23,683	0
Nov.	0	0	0 ! 1	0 ! 1	0	0	6,116	22,792	0
Dec.	0	0	0 ! 1	0 ! 1	0	0	5,627	23,585	0
Yearly	0	0		0	0	0	54,132	264,928	0

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005, 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.28	0.02	0.06	0.02	0.02	0.09	0.18	0.01	0.08	0.36	0.15
2	.01	.51	.02	.03	.23	.12	.02	.12	.01	.28	.33	.03
3	.24	.02	.36	.46	.02	.11	.01	.02	.36	.04	1.01	.87
4	.16	.05	.20	.39	.19	.10	.01	.12	.49	.11	.50	1.12
5	.05	.21	.38	.02	.26	.07	.32	.41	.50	.39	.60	.88
6	.10	.19	.02	.02	.33	.02	.19	.02	.33	.13	.84	.41
7	.16	.55	.03	.01	.63	.07	.16	.02	.02	.16	.76	.30
8	.29	.05	.05	.02	.49	.19	.16	.37	.01	.53	.03	.38
9	.16	.42	.43	.02	.02	.10	.12	.03	.01	1.11	.20	.53
10	.02	.68	.07	.09	.01	.09	.31	.02	.11	.77	.20	.56
11	0	.80	.66	.25	.01	.03	.10	0	.01	.56	.20	.80
12	0	.04	.08	.03	.01	.06	.02	.11	.12	.59	1.32	.31
13	.20	.12	.40	.02	.01	.06	.03	.09	.02	1.47	.82	.33
14	.17	.07	.26	.11	.01	.33	.13	.32	.57	1.40	.33	.22
15	.66	.11	.02	.01	.03	.10	.02	.13	.31	1.04	.34	.26
16	.85	.05	.02	.31	.02	.04	.03	.06	.85	.45	.13	.31
17	.33	.20	.08	.38	.01	.07	.02	.09	.21	.24	.57	.60
18	.25	.19	.05	.03	.01	.08	.03	.21	.57	1.01	.36	.19
19	.22	.04	.54	.01	.36	.09	.09	.05	.11	.26	.01	.02
20	.01	.09	.11	.01	.06	.03	.21	.50	.02	.35	.10	.34
21	.03	.12	.24	.10	.01	.04	.02	.25	.02	.43	.09	.33
22	.02	.06	.03	.21	.35	.02	.02	.05	.06	.33	.09	.10
23	.83	.08	.03	.42	.18	.02	.07	.45	.13	.25	.24	.51
24	.59	.04	.11	.02	.28	.06	.23	.56	.05	.08	.96	.20
25	.04	.19	.02	.17	.14	.07	.57	.15	.20	.20	.38	.13
26	.74	.04	.14	.13	.14	.02	.28	.41	.49	0	.16	.30
27	.29	.28	.30	.11	.10	.15	.06	.02	1.03	0	.12	.01
28	.11	.19	.03	.02	.49	.07	.17	.08	.03	.92	.07	.21
29	.28		.47	.13	.25	.03	.08	.13	.10	.80	.40	.01
30	.18		.15	.01	.03	.04	.03	.02	.01	.62	.74	.11
31	.21		.02		.02		.03	.25		.44		.46
Sum	7.21	5.67	5.34	3.60	4.72	2.30	3.63	5.24	6.76	15.04	12.26	10.98

	Current Year 2005				Period 1935-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
Month	High	Low	High Day	Low Day	Average	Total	Average	Maximum	Minimum
Jan.	0.495	0	23	2.13	! 1	0	0.23	623	2,469	11,804	0
Feb.	.480	0	7	2.10	! 4	0	.20	490	2,013	10,398	18.0
Mar.	.685	.005	21	.88	! 3	0	.17	461	1,898	7,685	52.0
April	.720	.010	17	3.34	! 5	.01	.12	311	1,720	7,771	0
May	.400	.005	5	1.96	!29	0	.15	408	2,040	11,496	10.0
June	.355	.010	14	1.70	! 1	.01	.08	199	1,937	9,177	13.0
July	.530	0	1	2.20	! 2	.01	.12	314	1,968	10,263	11.0
Aug.	.960	0	20	5.24	! 8	0	.17	453	1,707	12,014	18.0
Sept.	.695	0	15	3.15	! 2	0	.23	584	1,289	7,574	7.0
Oct.	.700	0	8	3.19	! 1	0	.49	1,299	1,789	7,006	15.0
Nov.	.705	0	5	3.20	! 2	0	.41	1,059	2,136	10,139	23.0
Dec.	.780	0	6	3.77	! 1	0	.35	949	2,716	11,632	52.0
Yearly	0.960	0		5.24		0	0.23	7,150	23,682	102,255	707

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005; once weekly readings obtained by the U. S. Bureau of Reclamation, January 1940 through October 1947.
REMARKS: This station is maintained by the United States Section of the Commission as part of the continuing study of channel conditions in the limitrophe section of the river.
EXTREMES: Since November 1947, maximum mean daily gage height, 33.840 meters on February 18, 1998; minimum mean daily gage height, 27.575 meters on April 19, 2005 and other days since that time.

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	27.635	27.675	30.290	27.610	27.585	27.620	27.830	27.905	27.615	27.680	27.735	27.720
2	27.630	27.700	28.835	27.605	27.605	27.640	27.815	27.900	27.615	27.720	27.735	27.710
3	27.650	27.645	27.895	27.640	27.585	27.640	27.820	27.880	27.645	27.700	27.775	27.790
4	27.670	27.645	27.815	27.635	27.605	27.640	27.820	27.900	27.660	27.725	27.745	27.815
5	28.940	27.665	27.800	27.600	27.610	27.645	27.855	27.940	27.665	27.765	27.760	27.790
6	29.330	27.660	27.760	27.595	27.615	27.640	27.860	27.880	27.645	27.730	27.780	27.785
7	28.570	27.695	27.755	27.595	27.650	27.660	27.870	27.885	27.615	27.730	27.775	27.755
8	27.835	27.645	27.735	27.595	27.630	27.670	27.860	27.935	27.615	27.765	27.685	27.760
9	27.695	27.680	27.745	27.595	27.580	27.685	27.850	27.900	27.615	27.870	27.695	27.775
10	27.655	27.700	27.710	27.605	27.580	27.680	27.925	28.805	27.625	27.835	27.710	27.785
11	27.650	27.745	27.760	27.625	27.650	27.680	27.885	30.085	27.615	27.785	27.705	27.795
12	27.645	28.750	27.705	27.600	27.765	27.690	27.865	30.045	27.630	27.775	27.815	27.750
13	27.665	29.505	27.725	27.595	27.600	27.695	27.860	28.875	27.620	27.865	27.785	27.735
14	27.655	28.315	27.705	27.600	27.580	27.725	27.885	27.710	27.680	27.860	27.730	27.720
15	27.725	27.760	27.675	27.585	27.580	27.730	27.870	27.655	27.660	27.840	27.730	27.725
16	27.725	27.720	27.675	27.620	27.580	27.705	27.875	27.690	27.730	27.805	27.705	27.935
17	27.685	27.720	27.680	27.635	27.580	27.725	27.875	27.685	27.660	27.770	27.760	27.765
18	27.670	27.710	27.675	27.580	27.575	27.730	27.885	27.675	27.700	28.305	27.730	27.725
19	27.655	27.690	27.715	27.575	27.610	27.750	27.895	27.650	27.655	29.825	27.690	27.700
20	27.635	27.690	27.680	27.575	27.580	27.745	27.910	27.675	27.645	29.765	27.710	27.730
21	27.640	27.705	27.685	27.585	27.575	27.755	27.875	27.655	27.645	27.965	27.705	27.730
22	27.635	27.685	27.660	27.590	27.625	27.755	27.880	27.630	27.655	27.785	27.715	27.705
23	27.720	27.685	28.280	27.625	27.595	27.755	27.890	27.675	27.670	27.755	27.720	27.745
24	27.705	28.980	28.790	27.580	27.630	27.770	27.920	27.725	27.665	27.735	27.795	27.720
25	27.645	30.325	27.705	27.600	27.610	27.780	27.955	27.690	27.685	27.730	27.745	27.710
26	27.725	31.285	27.660	27.595	27.620	27.770	27.930	27.725	27.720	27.705	27.725	27.730
27	27.790	30.725	27.660	27.590	27.615	27.795	27.950	27.670	27.795	27.705	27.720	27.695
28	28.110	30.410	27.625	27.580	27.655	27.810	27.910	27.635	27.670	27.780	27.715	27.715
29	27.705		27.655	27.590	27.645	27.790	27.895	27.635	27.675	27.780	27.750	27.715
30	27.680		27.625	27.580	27.610	27.805	27.885	27.635	27.665	27.770	27.770	27.690
31	27.680		27.605		27.615		27.890	27.670		27.745		27.730
Avg.	27.820	28.290	27.880	27.600	27.610	27.715	27.880	27.970	27.660	27.920	27.735	27.745

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 the east side of the levee at the 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 the 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 2005, 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.20	0.08	0.08	0.05	0	0	0	0	0	0	0.19	0
2	.04	.15	0	.01	0	0	0	0	0	0	.11	0
3	.29	.01	.01	.01	.04	0	0	0	0	0	.10	0
4	.20	.21	.07	.01	.15	.01	.01	0	0	0	.41	.01
5	.15	.22	.11	.01	0	0	.03	0	0	0	.52	0
6	.17	.17	.08	0	0	0	.01	0	0	0	.27	0
7	.16	.12	.02	0	0	0	0	0	0	0	.26	0
8	.04	.25	0	0	0	0	0	0	.04	0	.04	0
9	.16	.40	0	0	0	0	0	0	0	0	0	0
10	.05	.14	0	0	0	0	0	0	.12	.07	.41	0
11	.05	.12	0	0	0	0	0	0	0	.08	.19	0
12	.01	.28	0	.14	0	0	0	0	0	.01	.07	0
13	.01	.32	0	.01	0	0	0	0	0	0	.09	0
14	.06	.02	0	.04	0	0	0	0	0	.01	.08	0
15	.14	.17	0	.01	0	0	0	0	.17	.06	.16	0
16	.02	.25	.24	0	0	0	0	0	.07	0	.14	0
17	.25	.03	.36	0	0	0	0	0	.14	.17	.24	0
18	.12	.01	.08	0	0	.01	0	0	.07	.13	.12	0
19	.23	.10	.02	.02	0	.01	0	0	.05	.05	.11	0
20	.15	.20	.24	.01	.01	.01	0	0	0	.09	.04	0
21	.01	.17	.11	.01	.01	.02	0	0	0	.15	.01	0
22	.23	.02	.01	.01	.01	.01	0	0	0	.01	.27	.03
23	.14	.02	.01	.01	.01	.01	0	0	0	.09	0	0
24	.21	.02	.23	.01	0	.01	.07	0	0	0	.20	.02
25	.27	.03	.01	0	0	.01	0	0	.12	.28	.01	.12
26	.28	.02	.05	0	0	0	0	0	.16	.27	.17	.18
27	.13	.37	.13	0	0	0	0	0	.18	.23	.15	.21
28	.18	.16	.09	0	0	0	0	0	.15	.11	.07	.07
29	.19		.40	0	0	0	0	0	0	.24	0	0
30	.01		.31	0	0	0	0	0	0	.31	0	0
31	.07		.16		0		0	0		.19		0
Sum	4.22	4.06	2.82	0.36	0.23	0.10	0.12	0	1.27	2.55	4.43	0.64

	Current Year 2005				Period 1939-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
Month	High	Low	High Day	Low Day	Average	Total	Average	Maximum	Minimum
Jan.	0.465	0.025	26	0.79 ! 2	0	0.14	365	617	3,528	0
Feb.	.445	.015	12	.75 ! 3	0	.15	351	522	3,096	0
Mar.	.470	0	17	.81 ! 1	0	.09	244	475	2,048	0
April	.430	0	12	.70 ! 1	0	.01	31.1	503	2,393	0
May	.380	0	4	.59 ! 1	0	.01	19.9	616	3,047	0
June	.070	0	!16	.03 ! 1	0	0	8.6	529	2,899	0
July	.315	0	24	.45 ! 1	0	0	10.4	460	2,405	0
Aug.	0	0	! 1	0 ! 1	0	0	0	479	3,121	0
Sept.	.465	0	!15	.79 ! 1	0	.04	110	435	2,689	0
Oct.	.535	0	17	.97 ! 1	0	.08	220	577	2,590	0
Nov.	.565	0	10	1.07 ! 1	0	.15	383	703	2,936	0
Dec.	.215	0	26	.26 ! 1	0	.02	55.3	718	3,306	0
Yearly	0.565	0		1.07	0	0.06	1,798	6,634	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 its 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 2005. 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.16	0.01	0.07	0.13	0.01	0.07	0.40	0.05	0	0.07	0.09
2	.01	.26	.05	.18	.02	.09	.05	.53	.03	0	0	0
3	.03	.16	.08	.25	.01	.23	.04	.31	.02	.07	0	0
4	.23	.07	.37	.04	.07	.32	0	.15	.26	.01	.01	0
5	.03	.07	.04	.02	.08	.10	.05	.17	.25	0	.14	.03
6	.42	.01	.01	.03	.33	.11	.09	.04	.05	0	.05	.16
7	.39	0	0	.02	.47	.03	.11	.01	.22	0	.01	.03
8	.25	.06	.01	.02	.33	.01	.14	0	.15	0	.16	0
9	.11	.13	.40	.01	.03	.04	.04	0	.05	0	.20	0
10	.03	.17	.16	.02	.24	.03	.01	.01	.01	0	.03	0
11	.09	.11	.03	.09	.04	.04	.05	.10	.01	0	.03	0
12	.16	.09	.03	.13	.32	.13	.05	.27	.19	0	.06	0
13	.18	.23	.16	.03	.03	.16	.32	.12	.10	0	.06	0
14	.05	.04	.03	.03	.10	.02	.06	.24	.15	0	0	0
15	.02	0	.08	.13	.06	.04	.34	.13	.10	0	.03	0
16	.03	.03	.14	.07	.03	.04	.38	.33	.19	0	.02	0
17	0	.14	.07	.01	.02	.04	.27	.25	.29	.01	.06	.02
18	.02	.02	.16	.11	.01	0	.17	.16	.34	.02	.06	.02
19	.02	0	.20	.03	.01	0	.28	.39	.45	0	0	.01
20	.08	0	.03	.19	.14	.01	.27	.27	.20	.01	0	.01
21	.01	.01	.16	.08	.27	.09	.13	.32	.09	0	.01	.01
22	0	.01	.21	.12	.04	0	.13	.39	.30	0	.01	.01
23	.06	.02	.12	.11	.03	0	.22	.37	.20	0	0	.01
24	.16	.02	0	.06	.06	.03	.06	.05	.42	0	0	.01
25	.01	.01	.11	.11	.21	.04	0	.05	.29	0	0	.01
26	0	.02	.01	.17	.17	.04	.01	.08	.21	.01	.01	.01
27	0	.01	.02	.26	.04	.03	.02	.09	.15	.01	0	.01
28	0	0	.19	.22	.22	.02	.10	.33	.30	0	0	.01
29	0		.02	.22	.06	.02	.43	.21	.02	.03	0	.01
30	0		.03	.16	.02	.14	.50	.13	.07	.03	0	.01
31	.05		.14		.01		.41	.17		.04		0
Sum	2.45	1.85	3.07	2.99	3.60	1.86	4.80	6.07	5.16	0.24	1.02	0.47

Current Year 2005						Period 1935-2005		
Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High Day	Extreme-Cubic Meters per Second Low Day	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.	0.250	0	6	0.56	! 2	0	0.08	212	1,061	4,144	111
Feb.	.245	0	2	.55	! 4	0	.07	160	888	3,910	160
Mar.	.300	0	4	.74	! 1	0	.10	265	1,009	3,602	175
April	.240	0	11	.54	! 8	0	.10	258	979	3,910	165
May	.255	0	7	.58	! 3	0	.12	311	1,097	3,750	162
June	.280	0	4	.66	! 1	0	.06	161	916	4,515	114
July	.260	0	13	.59	! 2	0	.15	415	995	4,428	210
Aug.	.265	0	21	.61	! 7	0	.20	524	1,028	4,885	196
Sept.	.395	0	14	1.08	!11	0	.17	446	961	3,910	0
Oct.	.125	0	3	.22	! 1	0	.01	20.7	1,005	4,046	0
Nov.	.160	0	8	.30	! 2	0	.03	88.1	1,087	4,404	0
Dec.	.265	0	1	.62	! 1	0	.02	40.6	1,070	3,799	40.6
Yearly	0.395	0		1.08		0	0.09	2,901	12,096	47,255	2,901

! And other days

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

DESCRIPTION: Water-stage recorder located in the 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 2005.
REMARKS: Flows in the Main Drain are principally drainage waters from the Valley Division of the Yuma Project. The Main Drain, the East Main Canal Wasteway, West Main Canal Wasteway, and 242 Lateral discharge into Mexico at the international land boundary near San Luis, Sonora. The water is used for irrigation in Mexico on the left (Sonora) bank of the Colorado River and is considered as part of the volumes arriving at the land boundary at San Luis.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.34	2.46	2.81	4.56	5.07	3.79	2.54	2.11	2.80	3.91	4.51	4.53
2	2.36	2.82	2.14	3.71	4.41	3.85	2.69	2.49	2.01	2.99	4.32	4.48
3	2.46	3.14	3.29	4.51	4.98	3.92	2.83	2.32	2.18	3.19	3.48	3.67
4	4.09	3.21	2.67	4.41	4.47	4.53	2.93	2.25	1.93	2.93	4.04	4.07
5	2.85	2.82	4.28	4.18	4.17	4.52	2.67	2.17	1.94	2.83	4.48	4.33
6	2.23	3.21	3.92	4.43	5.09	4.15	2.76	2.09	2.12	4.43	4.18	3.25
7	2.30	3.90	2.70	4.14	4.61	3.02	2.97	1.80	2.00	3.53	4.52	3.54
8	3.25	3.04	2.74	4.19	4.98	2.27	2.90	1.95	2.37	4.85	3.58	3.64
9	2.80	3.06	2.87	4.12	5.05	2.60	2.76	1.63	2.29	4.90	4.33	3.27
10	2.60	2.65	3.52	4.69	4.39	2.75	2.76	1.41	2.51	6.80	4.10	4.18
11	2.17	3.97	3.38	4.29	4.11	2.64	2.61	1.59	2.65	3.97	4.42	5.01
12	2.15	3.82	2.36	4.27	4.14	2.74	2.77	1.02	2.71	3.67	4.25	3.76
13	2.16	2.47	3.34	4.48	4.19	2.96	2.83	1.32	2.58	3.61	4.69	3.29
14	2.19	2.77	4.13	4.39	4.59	2.94	2.91	1.39	2.27	4.16	4.66	2.50
15	3.57	2.38	4.24	4.26	5.09	2.88	2.14	1.43	2.95	4.85	4.48	2.82
16	2.83	1.75	4.40	4.16	4.75	2.99	2.21	1.59	2.95	4.13	4.39	2.89
17	3.30	3.18	3.68	5.09	4.61	2.92	2.42	1.40	2.61	4.54	4.17	4.85
18	2.19	3.15	4.16	4.30	4.41	2.62	2.38	1.34	2.40	4.96	4.58	4.80
19	2.53	2.08	4.41	3.83	5.05	3.05	2.51	1.37	2.40	4.50	4.27	4.18
20	2.96	2.49	4.70	3.62	4.38	2.41	2.45	2.23	2.17	4.01	4.94	3.65
21	2.58	2.48	4.33	4.12	4.10	2.84	2.16	1.93	1.78	3.38	5.06	3.80
22	2.66	3.24	3.92	3.90	4.59	2.53	2.12	2.17	2.50	4.51	4.74	4.07
23	3.31	3.24	3.76	3.23	4.39	2.76	2.10	1.92	2.14	4.93	4.19	4.57
24	3.69	1.74	4.14	4.51	4.12	2.59	2.57	1.68	2.28	4.99	4.69	3.50
25	1.96	2.26	4.02	3.89	4.29	2.87	2.76	1.73	2.42	4.79	4.35	1.90
26	1.94	3.26	4.46	3.46	4.49	3.02	2.10	2.51	3.16	4.24	3.94	2.01
27	1.76	3.27	4.17	3.95	4.31	3.03	2.28	1.68	2.55	4.55	4.20	4.18
28	1.47	2.84	4.65	4.33	3.74	2.82	2.57	1.74	3.53	3.77	4.54	4.06
29	1.49		4.14	4.35	4.18	2.54	2.04	2.37	2.49	4.07	3.81	3.41
30	2.43		4.09	4.10	3.93	2.38	2.31	1.97	3.49	4.10	4.14	3.48
31	2.58		4.17		3.83		2.71	2.15		4.53		3.29
Sum	80.20	80.70	115.59	125.47	138.51	90.93	78.76	56.75	74.18	130.62	130.05	114.98

Current Year 2005 | Period 1935-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High	Day	Extreme-Cubic Meters per Second Low	Day	Average	Volume-Thousand Cubic Meters Total	Average	Maximum	Minimum
Jan.			5.89	26	0	!26	2.59	6,929	9,397	13,819	2,146
Feb.			6.17	11	.92	16	2.88	6,972	9,005	14,787	2,023
Mar.			8.45	15	.64	17	3.73	9,987	10,266	15,332	2,393
April			5.75	8	0	8	4.18	10,841	10,285	14,666	2,368
May			5.72	17	2.03	4	4.47	11,967	10,669	16,208	2,405
June			5.45	4	0	30	3.03	7,856	9,672	14,851	2,825
July			3.53	25	0	25	2.54	6,805	9,520	14,715	3,121
Aug.			3.50	25	0	! 2	1.83	4,903	9,446	14,752	3,158
Sept.			5.13	26	.49	21	2.47	6,409	9,692	14,269	2,812
Oct.			7.37	! 6	1.86	11	4.21	11,286	11,470	15,321	3,626
Nov.			7.40	30	1.85	7	4.34	11,236	11,026	15,206	3,454
Dec.			8.00	17	0	!14	3.71	9,934	10,264	14,160	3,022
Yearly			8.45		0		3.33	105,125	120,712	171,922	33,353

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

Diversion Channel at Southerly International Boundary

DESCRIPTION: Water-stage recorder and control weir on Wasteway located immediately below the Yuma Main Drain Pumping Plant, approximately 52 meters north of the international boundary near San Luiz, Arizona/Sononora and approximately two kilometers east of the Colorado River.
RECORDS: Weir flows are checked by current meter discharge measurements. Records obtained and computed by the United States Section of the Commission. Records available from October 2004 through December 2005. Records considered poor due to backwater conditions caused by insignificant slope of channel. Alternative measurement methods undergoing review to improve station accuracy.
REMARKS: Operation began October 6, 2004. Channel constructed as a part of a salinity reduction program undertaken by U.S. Bureau of Reclamation and U.S. Section of the Commission. Main purpose is to divert a maximum of 9,868 thousand cubic meters of higher saline drainage water into the Wellton Mohawk Bypass chain during the four (4) critical planting season months of September through December within San Luis, Sonora and left bank irrigation zone. This water enters the Wellton Mohawk bypass Drain. Water is not accountable Treaty water. (Make-up water for this diversion is from the 242 Wellfield).

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0.01	0	0	0	0	0	0.19	0	0.01
2	0	0	0	0	0	0	0	0	0	0	0	.04
3	0	0	0	0	0	0	0	0	0	.16	0	0
4	.13	0	0	0	0	.04	0	0	0	.15	0	0
5	0	0	0	0	0	.01	0	0	0	.34	.06	.10
6	0	0	0	0	0	.02	0	0	0	.39	.01	0
7	0	0	0	0	0	0	0	0	0	.16	.17	0
8	0	0	0	.07	0	0	0	0	0	.77	0	0
9	0	0	0	.07	0	0	0	0	0	1.52	0	0
10	0	0	0	.07	0	0	0	0	0	1.99	0	.07
11	.01	0	0	.10	0	0	0	0	0	.35	0	.12
12	0	0	0	.15	0	0	0	0	0	.28	0	.04
13	0	0	0	.03	0	0	0	0	0	.36	.12	0
14	0	0	0	.03	0	0	0	0	0	.50	.01	0
15	.34	0	0	.02	0	0	0	0	0	.63	0	0
16	0	0	0	.02	0	0	0	0	.12	.03	0	0
17	.07	0	0	.14	0	0	0	0	0	.17	0	0
18	0	0	0	.03	0	0	0	0	0	.15	0	0
19	0	0	0	.01	0	0	0	0	0	.10	0	0
20	0	0	.01	0	0	0	0	0	0	.17	.27	0
21	0	0	0	0	0	0	0	0	0	.01	.12	0
22	0	0	0	0	0	0	0	0	0	.04	.25	0
23	.09	0	0	.02	0	0	0	0	.06	.25	0	0
24	.28	0	.02	.14	0	0	0	0	0	.35	.05	0
25	0	0	.01	.06	0	0	0	0	0	.38	.03	0
26	0	0	0	0	0	0	0	0	.11	.29	0	0
27	0	0	.01	0	0	0	0	0	0	.10	0	0
28	0	0	.02	.02	0	0	0	0	.16	0	0	0
29	0		.03	.01	0	0	0	0	0	0	0	0
30	0		.05	0	0	0	0	0	.08	.01	0	0
31	0		.02		0		0	0		.16		0
Sum	0		1.00		0.07		0			10.00		0.38
	0.92		0.17		0		0		0.53		1.09	

Current Year 2005						Period 2004-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	High Day	High	Low Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	0.400	0	15	0.98	! 1	0	0.03	79.5	40.0	80.0	0
Feb.	0	0	! 1	0	! 1	0	0	0	0	0	0
Mar.	.110	0	15	.19	! 1	0	.01	14.7	7.0	15.0	0
April	.180	0	24	.36	! 1	0	.03	86.4	43.0	86.4	0
May	0	0	! 1	0	! 1	0	0	0	0	0	0
June	.100	0	4	.17	! 1	0	0	6.0	3.0	6.0	0
July	0	0	! 1	0	! 1	0	0	0	0	0	0
Aug.	0	0	! 1	0	! 1	0	0	0	0	0	0
Sept.	.325	0	28	.76	! 1	0	.02	45.8	23.0	46.0	0
Oct.	.895	0	10	3.23	! 1	0	.32	864	752	864	639
Nov.	.420	0	22	1.10	! 1	0	.04	94.2	925	1,755	94.0
Dec.	.175	0	5	.37	! 1	0	.01	32.8	399	765	32.8
Yearly	0.895	0		3.23		0	0.04	1,223	2,192	3,159	1,223

! 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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.02	0	0.03	0.01	0.03	0.07	0.44	0.18	0.18	0.12	0.22	0.05
2	.02	.02	.03	.01	.02	.11	.82	.15	.15	.07	.02	.08
3	.02	0	.10	0	.01	.19	.38	.15	.11	.27	.01	.11
4	.02	0	.10	.11	.50	.27	.22	.30	.07	.24	.03	.29
5	.02	.01	.12	.13	.20	.14	.18	.35	.22	.30	0	.48
6	.03	0	.04	.10	.04	.39	.08	.17	.37	.09	.08	.04
7	.03	.05	.10	.09	.03	.45	.03	.11	.07	.12	.03	.02
8	.05	.01	.11	.34	.03	.07	.12	.24	.12	.24	.07	.02
9	.01	0	.10	.16	.12	.06	.17	.07	.02	.49	.07	.11
10	.02	0	.40	.23	.09	.20	.20	.31	.17	.65	0	.69
11	.08	0	.28	.22	.22	.34	.33	.19	.07	.13	.15	.45
12	.04	.01	.16	.07	.27	.22	.07	.27	.08	.24	.53	.62
13	.02	.01	.17	.10	.03	.39	.11	.17	.08	.19	.46	.11
14	.01	0	.15	.27	.04	.34	.31	.34	.17	.18	0	.41
15	.01	0	.09	.10	.03	.22	.27	.19	.27	.27	0	.31
16	.02	0	.22	.40	.07	.05	.18	.08	.36	.16	0	.34
17	.01	0	.27	.14	.01	.12	.67	.02	.13	.26	0	.38
18	.04	0	.51	.14	.01	.28	.44	.02	.15	.26	.07	.44
19	.01	.04	.25	.04	.03	.23	.07	.02	.12	.31	.09	.39
20	0	0	.11	.01	.20	.25	.16	.15	.10	.21	.04	.80
21	.02	0	.35	.13	.19	.18	.21	.15	.06	.30	.02	.61
22	.04	.01	.04	.06	.05	.23	.16	.25	.24	.21	.01	.47
23	.02	.01	.03	.23	.31	.10	.09	.59	.23	.26	.05	.37
24	.02	.01	.02	.25	.15	.07	.15	.28	.11	.25	.11	.32
25	.01	.01	.02	.37	.20	.10	.09	.15	.54	.36	0	.11
26	.02	.01	.01	.10	.05	.03	.04	.12	.23	.11	.04	.14
27	.01	.01	.02	.34	.10	.15	.09	.08	.09	0	.18	.53
28	.01	.01	.01	.22	.09	.22	.05	.12	.12	.02	.03	.63
29	0		.02	.18	.05	.36	.08	.09	.03	.09	.22	.42
30	.01		.03	.05	.04	.02	.24	.03	.12	.05	.15	.27
31	.01		.02		.04		.26	.11		.01		.77
Sum	0.65	0.22	3.91	4.60	3.25	5.85	6.71	5.45	4.78	6.46	2.68	10.78

Current Year 2005							Period 1971-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	High Day	High	Low Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	0.590	0	11	0.47	!12	0	0.02	56.2	566	1,376	44.9
Feb.	.530	0	7	.30	! 1	0	.01	19.0	520	1,117	19.0
Mar.	.685	.005	21	.88	! 3	0	.13	338	569	1,158	68.3
April	.675	0	27	.83	! 1	0	.15	397	559	1,280	49.2
May	.750	.015	4	1.09	! 1	0	.10	281	477	1,445	38.9
June	.975	0	29	1.98	!16	0	.20	505	461	1,067	25.1
July	.715	0	17	.99	! 1	0	.22	580	484	944	77.3
Aug.	.740	0	8	1.07	!11	0	.18	471	557	1,447	121
Sept.	.720	.005	15	1.01	! 7	0	.16	413	534	1,128	234
Oct.	.745	0	10	1.08	! 2	0	.21	558	512	1,135	15.6
Nov.	.710	0	!12	.97	! 2	0	.09	232	416	845	13.0
Dec.	.800	0	31	1.41	! 1	0	.35	931	501	1,204	19.0
Yearly	0.975	0		1.98		0	0.15	4,781	6,156	10,047	1,808

! 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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.33	2.96	0	0.19	1.35	1.69	2.62	1.75	2.35	2.43	0.27	0.63
2	2.33	2.89	0	.19	1.36	1.70	2.62	2.26	2.34	2.43	.27	.63
3	2.24	2.49	0	.18	1.37	1.72	2.61	1.57	2.33	2.42	.28	.63
4	1.16	2.61	0	.19	1.36	1.73	2.61	1.48	2.33	2.41	.28	.63
5	0	2.40	0	.19	.88	1.76	2.61	2.36	2.19	2.43	.28	.64
6	0	2.38	0	.12	.31	1.78	2.60	2.36	2.18	2.43	.28	.62
7	0	2.36	0	0	.32	1.78	2.60	2.35	2.17	2.41	.28	.62
8	0	2.34	0	0	.31	1.78	2.72	2.36	2.17	2.41	.28	.62
9	0	2.48	0	0	.31	1.78	2.78	2.25	2.17	2.30	.28	.62
10	0	2.58	0	0	.17	1.78	2.78	1.21	2.18	2.19	.28	.62
11	0	1.43	0	.25	0	1.78	2.78	0	2.20	2.18	.29	.62
12	0	0	0	.75	0	1.77	2.77	0	2.22	2.30	.28	.62
13	.95	0	0	.85	0	1.67	2.70	0	2.24	2.16	.28	.62
14	2.39	0	.05	.85	0	1.61	2.61	0	2.33	2.00	.29	.62
15	2.39	0	.23	.85	0	1.62	2.61	.46	2.42	1.75	.28	.62
16	2.38	0	.25	.86	0	1.62	2.61	1.79	2.42	1.10	.29	.62
17	2.35	0	.25	.85	0	1.63	2.60	2.10	2.40	.76	.29	.62
18	2.32	0	.26	.85	0	1.62	2.60	2.41	2.39	0	.29	.62
19	2.30	0	.25	.85	0	1.52	2.29	2.56	2.26	.37	.29	.62
20	2.12	0	.25	.86	0	1.49	2.09	2.56	2.23	.75	.29	.62
21	2.13	0	.25	1.03	0	1.62	2.09	2.56	2.19	.29	.36	.62
22	2.13	0	.25	1.19	0	1.49	2.10	2.56	2.16	.29	.44	.61
23	2.13	0	.25	1.19	0	1.76	2.09	2.56	2.13	.28	.45	.57
24	2.30	0	.25	1.21	0	2.11	2.10	2.56	2.10	.77	.45	.46
25	2.51	0	.23	1.21	0	2.10	2.08	2.56	2.06	.99	.45	.47
26	1.17	0	.20	1.21	0	2.09	2.06	2.57	2.03	0	.44	.47
27	0	0	.20	1.27	.09	2.16	2.08	2.57	2.14	.10	.45	.47
28	0	0	.19	1.36	.42	2.56	2.06	2.57	2.23	.26	.45	.53
29	0		.19	1.35	.43	2.59	2.07	2.45	2.35	.26	.55	.62
30	0		.19	1.35	.43	2.64	1.97	2.46	2.43	.26	.62	.62
31	1.17		.19		.92		1.47	2.46		.27		.63
Sum	38.80	26.92	3.93	21.25	10.03	54.95	74.38	59.71	67.34	41.00	10.31	18.53

Current Year 2005					Period 1979-2005		
Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High	Extreme-Cubic Meters per Second Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.	0.450	0	31 3.02	! 1 0	1.25	3,352	815	3,406	0
Feb.	.455	0	1 3.05	!11 0	.96	2,326	1,144	3,677	0
Mar.	.080	0	!17 .26	! 1 0	.13	340	1,139	4,717	0
April	.280	0	29 1.37	! 6 0	.71	1,836	1,417	4,265	0
May	.335	0	31 1.70	!10 0	.32	867	1,206	4,269	0
June	.510	.290	30 3.22	!22 1.40	1.83	4,748	1,341	4,748	0
July	.465	.290	8 2.79	19 1.36	2.40	6,426	1,719	6,426	0
Aug.	.460	0	9 2.67	!10 0	1.93	5,159	1,722	5,159	0
Sept.	.440	.380	30 2.50	26 2.00	2.24	5,818	1,462	5,818	0
Oct.	.450	0	12 2.60	!18 0	1.32	3,542	864	3,542	0
Nov.	.170	.100	!29 .63	3 .26	.34	891	419	2,101	0
Dec.	.190	0	14 .74	2 0	.60	1,601	815	3,654	0
Yearly	0.510	0	3.22	0	1.17	36,906	14,063	38,461	201

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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, Yuma Main Drain and the Diversion Channel. These 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 adding the volumes of the four stations and subtracting the Diversion Channel obtain the monthly volumes.
RECORDS: Records obtained and computed by the United States Section of the Commission. Records available: February 23, 1971 through 2005; 242 Lateral from November 1978 through 2005; Diversion Channel from October 6, 2004 through 2005.
REMARKS: Descriptions and flows of the individual stations, East Main Canal Wasteway, West Main Canal Wasteway, the Yuma Main Drain, 242 Lateral and the Diversion Channel at SIB are published separately on preceding pages of this bulletin.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.70	5.58	2.85	4.82	6.58	5.56	5.67	4.44	5.38	6.27	5.07	5.29
2	4.72	5.99	2.22	4.09	5.81	5.75	6.18	5.43	4.53	5.49	4.61	5.15
3	4.75	5.79	3.47	4.94	6.37	6.06	5.86	4.35	4.64	5.79	3.77	4.41
4	5.37	5.89	3.14	4.75	6.40	6.81	5.76	4.18	4.59	5.44	4.36	4.99
5	2.90	5.30	4.44	4.52	5.33	6.51	5.51	5.05	4.60	5.22	4.84	5.38
6	2.68	5.60	3.97	4.68	5.77	6.41	5.53	4.66	4.72	6.56	4.58	4.07
7	2.72	6.31	2.80	4.25	5.43	5.28	5.71	4.27	4.46	5.90	4.67	4.21
8	3.55	5.45	2.86	4.48	5.65	4.13	5.88	4.55	4.81	6.73	4.09	4.28
9	2.92	5.67	3.37	4.22	5.51	4.48	5.75	3.95	4.53	6.17	4.88	4.00
10	2.65	5.40	4.08	4.87	4.89	4.76	5.75	2.94	4.87	7.65	4.41	5.42
11	2.33	5.51	3.69	4.75	4.37	4.80	5.77	1.88	4.93	5.93	4.89	5.96
12	2.35	3.91	2.55	5.07	4.73	4.86	5.66	1.56	5.20	5.93	5.12	4.96
13	3.31	2.71	3.67	5.43	4.25	5.18	5.96	1.61	5.00	5.60	5.37	4.02
14	4.64	2.82	4.36	5.51	4.73	4.91	5.89	1.97	4.92	5.84	4.94	3.53
15	5.65	2.38	4.64	5.32	5.18	4.76	5.36	2.21	5.74	6.24	4.79	3.75
16	5.26	1.78	5.01	5.47	4.85	4.70	5.38	3.79	5.80	5.36	4.70	3.85
17	5.59	3.32	4.27	5.95	4.64	4.71	5.96	3.77	5.43	5.40	4.52	5.87
18	4.57	3.17	5.09	5.37	4.43	4.52	5.59	3.93	5.28	5.09	5.00	5.88
19	4.86	2.12	5.11	4.74	5.09	4.80	5.15	4.34	5.23	5.08	4.65	5.20
20	5.16	2.49	5.08	4.68	4.72	4.16	4.97	5.21	4.70	4.81	5.00	5.08
21	4.74	2.49	5.09	5.36	4.56	4.73	4.59	4.96	4.12	3.96	5.33	5.04
22	4.83	3.26	4.42	5.27	4.68	4.25	4.51	5.37	5.20	4.97	4.95	5.16
23	5.43	3.27	4.16	4.74	4.73	4.62	4.50	5.44	4.64	5.22	4.69	5.52
24	5.89	1.77	4.39	5.89	4.33	4.80	4.88	4.57	4.91	5.66	5.20	4.29
25	4.49	2.28	4.37	5.52	4.70	5.11	4.93	4.49	5.31	5.76	4.77	2.49
26	3.13	3.29	4.68	4.94	4.71	5.18	4.21	5.28	5.52	4.07	4.43	2.63
27	1.77	3.29	4.40	5.82	4.54	5.37	4.47	4.42	4.93	4.56	4.83	5.19
28	1.48	2.85	5.02	6.11	4.47	5.62	4.78	4.76	6.02	4.05	5.02	5.23
29	1.49		4.34	6.09	4.72	5.51	4.62	5.12	4.89	4.45	4.58	4.46
30	2.44		4.29	5.66	4.42	5.18	5.02	4.59	6.03	4.43	4.91	4.38
31	3.81		4.50		4.80		4.85	4.89		4.69		4.69
Sum	109.69	121.18	153.31	126.33	155.39	153.52	164.65	127.98	150.93	168.32	142.97	144.38

Month	Current Year 2005 Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	@ Low Day	@ Low	Average	Total	Period 1935-2005 Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			24	5.89	28	1.48	3.91	10,470	11,799	14,963	2,619
Feb.			7	6.31	24	1.77	3.92	9,477	11,557	15,998	2,495
Mar.			19	5.11	2	2.22	4.08	10,915	12,976	16,904	2,864
April			28	6.11	2	4.09	5.11	13,246	13,197	16,013	2,611
May			1	6.58	13	4.25	5.01	13,426	13,449	17,145	3,050
June			4	6.81	8	4.13	5.12	13,264	12,387	15,505	3,115
July			2	6.18	26	4.21	5.31	14,226	12,718	15,320	3,610
Aug.			23	5.44	12	1.56	4.13	11,057	12,753	15,612	3,687
Sept.			30	6.03	21	4.12	5.03	13,040	12,626	15,357	3,210
Oct.			10	7.65	21	3.96	5.43	14,543	13,099	17,143	4,248
Nov.			13	5.37	3	3.77	4.77	12,353	12,023	16,066	4,202
Dec.			11	5.96	25	2.49	4.66	12,474	12,251	14,863	3,562
Yearly				7.65		1.48	4.71	148,491	150,835	183,801	39,274

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 river 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. On January 30, 1998 a new gage was installed on the left bank of the river about 305 meters downstream 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 2005; continuous record of gage heights, January 1947 through 1993. During 1993, from January 1 to February 4 and May 1, 1993 to January 30, 1998, 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. In September 2002, a dike was constructed in Mexico by CNA approximately 1 mile downstream of the boundary, to divert the water into a new channel. This construction has caused a backwater condition upstream.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.09	0.29	54.4	0.27	0	0	0	0	0	0	0.14	0
2	.08	.26	35.7	.23	0	0	0	0	0	0	.19	0
3	.08	.26	12.3	.19	0	0	0	0	0	0	.13	0
4	.05	.26	5.83	.16	0	0	0	0	0	0	.11	0
5	1.28	.26	4.07	.13	0	0	0	0	0	0	.10	0
6	21.5	.26	3.36	.10	0	0	0	0	0	0	.09	0
7	25.2	.26	2.63	.08	0	0	0	0	0	0	.07	0
8	12.4	.26	2.31	.07	0	0	0	0	0	0	.06	0
9	4.17	.26	1.93	.05	0	0	0	0	0	0	.05	0
10	2.05	.25	1.72	.04	0	0	0	0	0	0	.04	.01
11	1.11	.25	1.37	.03	0	0	0	.53	0	0	.04	.02
12	.75	.25	1.57	.03	0	0	0	19.1	0	0	.03	.02
13	.48	9.74	1.28	.02	0	0	0	25.9	0	0	.03	.01
14	.43	17.1	1.05	.01	0	0	0	16.3	0	0	.12	0
15	.43	7.28	.97	.01	0	0	0	6.37	0	0	.02	0
16	.43	2.39	1.15	0	0	0	0	1.68	0	0	.01	0
17	.42	1.21	1.43	0	0	0	0	.14	0	0	0	.01
18	.41	.80	1.54	0	0	0	0	.04	0	0	0	.02
19	.41	.57	.51	0	0	0	0	.03	0	.79	0	.04
20	.39	.38	2.31	0	0	0	0	0	0	13.5	0	.03
21	.39	.32	.05	0	0	0	0	0	0	19.1	0	.01
22	.40	.32	.04	0	0	0	0	0	0	8.60	0	.01
23	.39	.32	.05	0	0	0	0	0	0	4.99	0	0
24	.39	.32	10.4	0	0	0	0	0	0	3.28	0	0
25	.39	14.2	14.2	0	0	0	0	0	0	1.30	0	0
26	.37	34.7	7.51	0	0	0	0	0	0	1.17	0	0
27	.36	49.2	6.45	0	0	0	0	0	0	.21	0	0
28	2.76	60.9	6.44	0	0	0	0	0	0	.09	0	0
29	12.9		3.04	0	0	0	0	0	0	.46	0	0
30	9.62		.26	0	0	0	0	0	0	4.43	0	0
31	6.37		.27		0		0	0		4.97		0
Sum	106.50	202.87	186.14	1.42	0	0	70.09	0	62.89	1.23	0.18	

Current Year 2005 | Period 1935-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High	Day	Extreme-Cubic Meters per Second Low	Day	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.	23.260	21.990	29.0	7	0.04	4	3.44	9,202	378,532	2,062,379	0
Feb.	23.815	22.100	68.4	28	.25	!10	7.25	17,528	311,329	1,708,370	0
Mar.	23.715	21.820	56.0	1	.04	!21	6.00	16,082	261,515	1,458,432	0
April	22.115	21.860	.28	1	0	!15	.05	123	170,132	947,722	0
May	21.860	21.860	0	! 1	0	! 1	0	0	227,401	1,430,837	0
June	21.860	21.860	0	! 1	0	! 1	0	0	193,884	1,455,506	0
July	21.860	21.860	0	! 1	0	! 1	0	0	166,949	1,821,962	0
Aug.	23.445	21.860	30.8	13	0	! 1	2.26	6,056	180,471	2,103,318	0
Sept.	21.860	21.860	0	! 1	0	! 1	0	0	208,721	1,956,768	0
Oct.	23.430	21.860	23.0	21	0	! 1	2.03	5,434	244,830	2,144,909	0
Nov.	22.475	21.980	.21	! 2	0	!16	.04	106	282,091	1,761,409	0
Dec.	22.245	21.880	.04	!18	0	! 1	.01	15.6	347,503	2,268,370	0
Yearly	23.815	21.820	68.4		0		1.73	54,547	2,973,358	15,656,495	0

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

09-5222.01 COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page for Description)

MEAN DAILY GAGE HEIGHT IN METERS 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.155	22.125	23.705	22.110	21.860	21.860	21.860	21.860	21.860	21.860	22.120	21.980
2	22.140	22.110	23.480	22.095	21.860	21.860	21.860	21.860	21.860	21.860	22.165	21.980
3	22.140	22.110	22.840	22.075	21.860	21.860	21.860	21.860	21.860	21.860	22.135	21.980
4	22.080	22.105	22.515	22.060	21.860	21.860	21.860	21.860	21.860	21.860	22.135	21.980
5	22.120	22.105	22.410	22.040	21.860	21.860	21.860	21.860	21.860	21.860	22.130	21.980
6	23.080	22.105	22.365	22.025	21.860	21.860	21.860	21.860	21.860	21.860	22.130	21.980
7	23.185	22.105	22.315	22.005	21.860	21.860	21.860	21.860	21.860	21.860	22.130	21.980
8	22.795	22.105	22.290	21.990	21.860	21.860	21.860	21.860	21.860	21.860	22.125	21.980
9	22.460	22.105	22.265	21.970	21.860	21.860	21.860	21.860	21.860	21.860	22.120	21.980
10	22.295	22.100	22.250	21.955	21.860	21.860	21.860	21.860	21.860	21.860	22.115	21.990
11	22.215	22.100	22.230	21.935	21.860	21.860	21.860	21.960	21.860	21.860	22.115	22.070
12	22.185	22.100	22.235	21.920	21.860	21.860	21.860	23.090	21.860	21.860	22.105	22.120
13	22.155	22.680	22.220	21.900	21.860	21.860	21.860	23.335	21.860	21.860	22.105	22.030
14	22.145	23.040	22.200	21.885	21.860	21.860	21.860	23.010	21.860	21.860	22.345	21.925
15	22.145	22.605	22.195	21.865	21.860	21.860	21.860	22.590	21.860	21.860	22.100	21.880
16	22.145	22.325	22.205	21.860	21.860	21.860	21.860	22.325	21.860	21.860	21.995	21.880
17	22.140	22.255	22.225	21.860	21.860	21.860	21.860	22.145	21.860	21.860	21.980	21.890
18	22.140	22.225	22.235	21.860	21.860	21.860	21.860	21.980	21.860	21.860	21.980	22.075
19	22.140	22.200	22.135	21.860	21.860	21.860	21.860	21.925	21.860	22.200	21.980	22.230
20	22.135	22.160	22.275	21.860	21.860	21.860	21.860	21.860	21.860	23.015	21.980	22.105
21	22.135	22.135	21.850	21.860	21.860	21.860	21.860	21.860	21.860	23.250	21.980	21.965
22	22.135	22.135	21.835	21.860	21.860	21.860	21.860	21.860	21.860	22.690	21.980	21.880
23	22.135	22.135	21.865	21.860	21.860	21.860	21.860	21.860	21.860	22.455	21.980	21.880
24	22.135	22.135	22.610	21.860	21.860	21.860	21.860	21.860	21.860	22.330	21.980	21.880
25	22.135	22.870	22.920	21.860	21.860	21.860	21.860	21.860	21.860	22.220	21.980	21.880
26	22.130	23.505	22.595	21.860	21.860	21.860	21.860	21.860	21.860	22.220	21.980	21.880
27	22.130	23.655	22.545	21.860	21.860	21.860	21.860	21.860	21.860	22.050	21.980	21.880
28	22.275	23.755	22.545	21.860	21.860	21.860	21.860	21.860	21.860	22.050	21.980	21.880
29	22.815		22.340	21.860	21.860	21.860	21.860	21.860	21.860	22.130	21.980	21.880
30	22.700		22.100	21.860	21.860	21.860	21.860	21.860	21.860	22.400	21.980	21.880
31	22.550		22.110		21.860		21.860	21.860		22.435		21.880
Avg.	22.395		21.925		21.860		22.040			22.095		21.960
	22.300		22.385		21.860		21.860			22.060		

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.45	4.13	3.58	4.16	4.37	4.03	4.88	3.76	4.28	4.31	4.70	3.22
2	4.55	3.92	3.62	4.59	4.10	4.17	4.70	3.54	4.29	4.51	4.74	3.03
3	4.51	4.32	3.78	4.70	4.29	4.13	4.94	3.62	4.28	4.15	5.10	.45
4	4.71	4.56	3.89	4.60	4.22	4.01	5.11	3.77	4.27	4.18	4.67	.02
5	4.80	4.44	4.12	4.81	4.50	4.33	5.23	3.75	4.26	4.02	4.68	0
6	4.53	4.11	3.95	4.86	4.92	4.72	5.24	3.71	4.25	4.08	4.48	0
7	4.25	4.30	3.77	4.88	4.99	4.76	5.05	3.65	4.24	3.99	4.37	0
8	4.26	4.32	3.85	4.78	4.91	4.19	4.53	3.81	4.23	4.07	4.66	.18
9	4.15	4.37	3.78	4.92	4.97	4.28	4.50	3.41	4.22	4.02	4.65	.02
10	3.90	4.64	3.83	4.60	5.25	4.26	4.36	3.26	4.21	4.43	4.57	.70
11	3.98	4.33	3.76	4.47	4.85	4.34	4.57	3.38	4.20	4.12	4.77	2.85
12	4.20	4.14	3.77	4.88	4.81	4.27	4.61	3.56	4.19	4.29	4.22	3.26
13	4.24	3.94	3.86	4.61	4.62	4.40	4.40	3.48	4.19	4.11	4.70	3.28
14	4.23	3.91	3.98	4.63	4.74	4.47	4.40	3.53	4.18	4.19	4.59	3.25
15	4.45	3.96	4.79	4.57	4.59	4.54	4.19	3.51	4.17	3.95	4.50	3.42
16	4.38	4.01	4.79	4.61	4.52	4.43	4.18	3.51	4.16	4.04	4.55	3.93
17	3.91	4.09	4.68	4.68	4.43	4.45	4.33	3.61	4.15	4.21	4.37	4.16
18	4.09	4.16	4.58	4.54	4.78	4.53	4.18	3.69	4.14	4.17	4.59	4.08
19	4.36	4.06	4.53	4.30	4.83	4.38	4.04	3.83	4.13	4.35	4.42	4.15
20	4.58	4.23	4.62	4.32	4.67	4.67	4.06	4.17	4.12	4.19	4.21	4.44
21	4.43	4.23	4.53	4.16	4.57	4.70	3.67	4.27	4.16	4.35	4.36	4.32
22	4.48	4.11	4.47	4.49	4.66	4.86	3.94	4.29	4.44	4.42	4.43	4.27
23	4.36	4.05	4.57	4.55	4.51	4.97	3.67	4.29	4.02	4.43	4.64	4.20
24	4.11	4.20	4.70	4.62	4.85	4.81	3.86	4.16	4.42	4.17	4.57	4.04
25	4.21	4.02	4.77	4.62	4.66	4.82	3.92	4.27	4.43	4.29	4.55	3.77
26	4.29	3.62	4.81	4.18	4.32	4.71	3.86	4.14	4.68	4.56	4.23	3.57
27	4.56	3.68	4.58	4.35	4.17	4.85	3.54	4.27	4.44	4.89	4.31	3.64
28	4.02	3.64	4.77	4.28	4.06	4.84	3.47	4.29	4.03	4.96	4.61	3.80
29	4.00		4.79	4.35	4.46	5.11	3.64	4.52	4.17	4.66	4.46	4.00
30	4.04		4.60	4.30	4.53	4.93	3.61	4.53	4.39	4.70	4.13	4.55
31	3.94		4.55		4.48		3.93	3.99		4.95		3.93
Sum	132.97	115.49	132.67	136.41	142.63	135.96	132.61	119.57	127.34	133.76	135.83	88.53

	Current Year 2005					Period 1977-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
Month	High	Low	High Day	High	Low Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	0.505	0.415	27	5.10	10	3.78	4.29	11,489	13,800	21,638	7,412
Feb.	.505	.390	10	5.07	26	3.40	4.12	9,978	13,018	18,374	8,506
Mar.	.510	.395	!25	5.07	1	3.47	4.28	11,463	13,909	21,496	2,593
April	.510	.435	5	5.10	1	3.96	4.55	11,786	12,960	20,613	3,445
May	.545	.435	10	5.64	28	3.95	4.60	12,323	13,170	20,732	5,215
June	.525	.400	29	5.54	1	3.42	4.53	11,747	12,274	19,842	2,227
July	.525	.420	6	5.43	28	3.36	4.28	11,458	12,371	22,235	2,728
Aug.	.485	.395	30	4.93	10	3.15	3.86	10,331	12,344	22,444	3,656
Sept.	.520	.430	26	4.95	23	3.83	4.24	11,002	11,892	23,538	51.0
Oct.	.540	.445	!27	5.53	5	3.81	4.31	11,557	12,835	23,600	24.0
Nov.	.530	.420	3	5.40	30	3.72	4.53	11,736	11,910	20,944	59.0
Dec.	.510	0	30	4.91	! 4	0	2.86	7,649	12,799	22,518	138
Yearly	0.545	0		5.64		0	4.20	132,519	153,282	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 14 of the National Water Commission and furnished by the Mexican Section of the Commission. Records shown in table below are waste returns to the Colorado River. Records available: April 1956 through 2005.

REMARKS: The Colorado River Irrigation District 14 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 2005	PERIOD 1964 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	13,567	10,826	85,761	0
February	17,420	6,604	50,898	0
March	2,912	8,619	72,049	0
April	2,300	12,452	85,372	0
May	3,192	12,160	99,576	0
June	0	9,999	61,705	0
July	253	10,298	56,912	0
August	9,379	15,375	132,183	0
September	1,902	14,004	83,943	0
October	5,115	12,958	136,198	0
November	1,456	11,892	122,170	0
December	2,428	10,514	86,607	0
Yearly	59,924	134,096	628,347	0

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

DESCRIPTION: Wasteway to the Colorado River on the left bank of new Barrote Canal at old dam and bridge at Kilometer 18.251 (old Kilometer 38.000). The wasteway is located in the Colonia Bojorquez 1.3 kilometers upstream from the Sonora-Baja California railroad bridge, 5.9 kilometers downstream from the Miguel C. Rodriguez gaging station, and 45 kilometers downstream from the southerly international boundary.
RECORDS: The records are computed by the National Water Commission and are based upon gate openings. Records available: January 1964 through 2005.
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 2005	PERIOD 1964 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	472	1,624	10,541	0
February	1,835	1,420	12,035	0
March	572	833	5,932	0
April	0	451	5,555	0
May	807	1,419	14,246	0
June	0	718	8,585	0
July	0	576	9,114	0
August	25.9	992	17,765	0
September	254	2,030	16,855	0
October	847	4,193	28,669	0
November	0	2,515	25,263	0
December	174	2,034	13,380	0
Yearly	4,987	18,431	103,228	0

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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

	LAKE MEAD (Capacity 32,266)		LAKE MOHAVE (Capacity 2,232)		HAVASU LAKE (Capacity 764)		TOTAL IN UNITED STATES RESERVOIRS (Capacity 35,263)	
Month	2005	Average 1935-2005	2005	Average 1951-2005	2005	Average 1939-2005	2005	Estimated Average
Jan.	18,649.0	23,313.4	2,042.6	2,052.8	688.9	682.0	21,380.5	26,048.2
Feb.	19,413.7	23,194.8	2,121.8	2,067.2	757.9	687.9	22,293.4	25,949.9
Mar.	20,007.0	22,935.7	2,079.6	2,071.6	681.0	699.9	22,767.6	25,707.2
April	19,574.1	22,900.4	2,100.6	2,061.9	724.8	735.8	22,399.5	25,698.1
May	19,233.7	23,492.5	2,128.9	2,126.6	726.9	743.5	22,089.5	26,362.6
June	19,046.2	24,438.9	2,075.9	2,031.7	722.2	738.4	21,844.3	27,209.0
July	18,857.4	24,553.1	2,062.4	1,911.8	711.5	725.5	21,631.3	27,190.4
Aug.	18,935.2	24,376.8	2,135.2	1,870.9	704.8	711.9	21,775.2	26,959.6
Sept.	18,772.3	24,180.7	1,942.7	1,818.2	671.4	703.2	21,386.4	26,702.1
Oct.	18,598.4	23,986.1	1,878.6	1,795.6	703.2	700.4	21,180.2	26,482.1
Nov.	18,373.9	23,841.8	1,899.6	1,866.4	721.1	689.0	20,994.6	26,397.2
Dec.	18,663.8	23,689.6	2,001.9	1,979.5	717.8	687.8	21,383.5	26,356.9
Avg.	19,010.4	23,742.0	2,039.2	1,971.2	711.0	708.8	21,760.5	26,421.9
Max.	20,007.0	! 34,266.1	2,135.2	! 2,230.1	757.9	! 849.5	22,767.6	! 35,934.1
Min.	18,373.9	* 13,231.5	1,878.6	!! 1,462.9	671.4	!! 94.9	20,994.6	!! 16,112.5

! Maximum end of month storage for period of record
!! Minimum end of month storage for period of record
* Minimum end of month storage since 1940

SUSPENDED SILT - 2005

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

2005 Date	Time Std.	Streamflow, Momentary CMS	Gravimetric Percent	Date	Time Std.	Streamflow, Momentary CMS	Gravimetric Percent	Date	Time Std.	Streamflow, Momentary CMS	Gravimetric Percent
Jan. 5	0940	93.3	0.0041	May 5	0820	52.4	0.0009	Sept. 8	0700	40.9	0.0140
13	0845	49.8	0.0041	12	0815	67.0	0.0018	14	0730	39.7	0.0043
20	0900	52.3	0.0056	19	0755	40.8	0.0022	22	0800	36.4	0.0014
27	0930	82.4	0.0034	26	0715	44.4	0.0028	25	0635	35.8	0.0016
Feb. 3	0725	63.6	0.0064	June 2	0720	44.9	0.0077	Oct. 5	0655	26.3	0.0089
10	0926	67.6	0.0140	8	0815	46.7	0.0065	13	0725	33.5	0.0013
17	0740	73.1	0.0032	15	0645	46.7	0.0063	19	0645	115.0	0.0036
24	0845	117	0.0088	22	0700	48.0	0.0062	26	0800	29.1	0.0036
Mar. 3	0900	76.7	0.0460	29	0700	49.4	0.0055	Nov. 4	0745	35.7	0.0067
9	0825	83.6	0.0135	July 13	0900	52.8	0.0019	9	0700	38.1	0.0036
17	0830	95.2	0.0127	20	0720	50.5	0.0026	16	0750	40.8	0.0067
24	0825	138	0.0123	27	0735	60.4	0.0016	23	0800	42.8	0.0032
31	0715	97.0	0.0093					30	0815	47.7	0.0035
Apr. 7	0810	96.7	0.0028	Aug. 3	0655	49.6	0.0041	Dec. 7	0855	52.2	0.0020
14	0835	106	0.0026	10	0815	84.7	0.0057	14	0745	55.7	0.0013
21	0805	88.4	0.0027	17	0750	38.7	0.0032	21	0830	54.6	0.0029
28	0910	79.0	0.0034	24	0730	37.0	0.0031	28	0830	42.2	0.0014

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

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

2005 Month	Monthly Weight Megagrams: Water	Silt	Number of Samples	Gravimetric Percentages: Average	Maximum Sample	Minimum Sample	* Silt Volume - Thousand Cubic Meters: Total 2005	Period 1952 - 2005: Average	Maximum	Minimum
Jan.	153,291	944	4	0.0006	0.0007	0.0005	0.69	10.6	62.6	0.30
Feb.	183,816	2,806	4	0.0015	0.0030	0.0007	2.06	12.1	128	0.67
Mar.	244,512	8,004	5	0.0033	0.0035	0.0030	5.88	47.6	605	0.99
April	232,088	5,534	4	0.0024	0.0035	0.0015	4.06	51.5	857	0.52
May	126,127	1,449	4	0.0011	0.0021	0.0005	1.06	18.4	318	0.36
June	121,884	755	5	0.0006	0.0008	0.0005	0.55	28.6	257	0.36
July	138,396	931	4	0.0007	0.0012	0.0005	0.68	35.5	190	0.53
Aug.	122,740	1,065	4	0.0009	0.0016	0.0005	0.78	32.5	167	0.31
Sept.	99,930	522	4	0.0005	0.0007	0.0005	0.38	15.0	72.8	0.29
Oct.	87,921	523	4	0.0006	0.0010	0.0003	0.38	8.33	124	0.22
Nov.	109,236	777	5	0.0007	0.0010	0.0003	0.57	8.28	165	0.30
Dec.	142,353	843	4	0.0006	0.0008	0.0004	0.62	8.28	54.4	0.38
Year	1,762,294	24,153	51	0.0011	0.0035	0.0003	17.70	276.5	2,706.5	5.92

* Volume calculated at 1.362 megagrams per cubic meter

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

2005 Date	Time Std.	Streamflow, Momentary CMS	Gravimetric Percent
No samples taken in 2005			

CHEMICAL ANALYSES OF WATER SAMPLES
2005

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

2005 Date	Time Standard	Streamflow Momentary CMS	Specific Conductance MicroSiemens/cm	pH Units	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 3	0920	50.2	1,590	8.1	404.16	216	100	37.6
18	0900	52.9	1,480	8.2	345.54	167	85.9	31.9
Feb. 7	0900	66.5	1,480	8.2	337.72	164	83.1	31.7
22	0750	74.1	1,420	8.0	315.56	150	78.5	29.1
Mar. 7	0745	81.7	1,060	8.0	259.97	110	60.2	26.7
21	0750	97.7	964	7.9	231.78	86	58.6	20.8
April 4	0745	96.1	1,140	8.1	262.90	111	65.8	24.0
18	0800	89.3	1,180	8.2	257.94	104	64.8	23.4
May 2	0800	71.9	1,270	8.2	302.48	139	75.4	27.8
16	0745	48.1	1,430	8.6	323.51	141	82.5	28.6
June 6	0740	45.3	1,460	8.4	342.47	165	85.0	31.7
20	0745	46.4	1,540	8.1	334.82	159	84.4	30.2
July 5	0730	54.0	1,490	8.4	336.31	169	82.7	31.6
18	0730	50.2	1,450	8.1	354.12	190	87.2	33.2
Aug. 1	1045	45.0	1,480	8.2	358.00	191	89.2	32.9
15	0710	41.7	1,500	8.1	357.91	185	89.7	32.6
Sept. 6	0910	36.9	1,580	8.3	362.80	187	91.0	33.0
19	1330	45.7	1,480	8.1	349.00	181	86.4	32.4
Oct. 3	1045	28.0	1,750	8.3	395.00	205	99.3	35.9
17	0945	30.8	1,710	8.2	393.00	204	99.7	35.0
Nov. 7	0815	39.0	1,680	8.2	397.00	209	100	35.9
21	0845	40.8	1,610	8.2	384.00	200	95.1	35.7
Dec. 5	0900	51.0	1,580	8.3	360.00	180	88.1	34.2
19	1030	55.9	1,560	8.8	360.00	165	90.5	32.7

2005 Date	Sodium ion (Na), Dissolved mg/L	Potassium ion (K) Dissolved mg/L	Sulfate ion (SO4) Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Carbonate (as CO3) mg/L	Bicarbonate (as HCO3) mg/L	Nitrate (as NO3) mg/L	Total Solids Dissolved (Calculated) mg/L
Jan. 3	189	5.7	352	184	0	229	0.71	995
18	160	4.9	303	165	0	218	0.70	872
Feb. 7	163	5.0	287	170	0	212	0.40	856
22	163	5.3	264	171	0	203	0.48	821
Mar. 7	130	4.5	167	133	0	183	0.64	627
21	110	4.5	156	113	0	178	0.52	566
April 4	124	4.9	204	131	0	185	0.38	656
18	117	4.3	211	135	0	188	0	657
May 2	143	5.2	325	162	0	199	0.38	749
16	159	5.6	271	181	9.28	204	0.42	841
June 6	162	5.9	310	179	3.19	209	0.38	889
20	172	5.7	289	198	0	215	0.52	896
July 5	157	5.3	286	184	3.26	197	0.37	855
18	156	5.4	307	163	0	200	0.48	860
Aug. 1	161	5.8	361	185	0	204	0.54	948
15	164	5.4	310	171	0	211	0.57	892
Sept. 6	169	5.6	333	175	0	215	0.70	926
19	151	5.1	325	157	0	205	0.44	870
Oct. 3	190	5.7	364	207	0	232	0.81	1,031
17	186	5.7	351	201	0	231	0.62	1,007
Nov. 7	193	5.8	350	190	0	229	0.73	1,002
21	175	5.6	337	179	0	224	0.63	951
Dec. 5	155	5.2	228	171	3.40	213	0.61	898
19	159	5.3	326	163	14	209	0.62	891

N.D. - Not Detected

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 - 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,580 *	1,490	1,050	1,060	1,250 *	1,440	1,470	1,480	1,560	1,660 *	1,780	1,540
2	1,580 *	1,440	1,060	1,090 *	1,270	1,430	1,470 *	1,430	1,550	1,710 *	1,660	1,530
3	1,590	1,440	1,100	1,110 *	1,280	1,420	1,480 *	1,350	1,560 *	1,750	1,630	1,540*
4	1,570	1,510	1,090	1,140	1,310	1,440 *	1,480 *	1,280	1,560 *	1,710	1,660	1,540*
5	1,390	1,500 *	1,080 *	1,140	1,330	1,440 *	1,490	1,390	1,570 *	1,710	1,640 *	1,580
6	1,290	1,490 *	1,070 *	1,130	1,330	1,460	1,480	1,410 *	1,580	1,700	1,630 *	1,620
7	1,300	1,480	1,060	1,140	1,340 *	1,510	1,480	1,430 *	1,540	1,740	1,680	1,580
8	1,360 *	1,440	1,040	1,130	1,350 *	1,500	1,460	1,450	1,500	1,730 *	1,660	1,550
9	1,430 *	1,440	1,050	1,140 *	1,360	1,490	1,470 *	1,450	1,470	1,720 *	1,640	1,540
10	1,490	1,400	1,050	1,140 *	1,370	1,500	1,490 *	1,270	1,510 *	1,710 *	1,600	1,530*
11	1,580	1,360	1,040	1,150	1,360	1,500 *	1,500	1,220	1,550 *	1,700	1,590 *	1,530*
12	1,580	1,330 *	1,020 *	1,140	1,290	1,490 *	1,470	1,140	1,590	1,650	1,580 *	1,520
13	1,610	1,280 *	1,010 *	1,140	1,430	1,490	1,470	1,260 *	1,580	1,610	1,560 *	1,510
14	1,630	1,250	989	1,130	1,430 *	1,480	1,450	1,380 *	1,580	1,690	1,550	1,490
15	1,590 *	1,330	989	1,150	1,430 *	1,480	1,460	1,500	1,560	1,690 *	1,640	1,390
16	1,560 *	1,380 *	959	1,160 *	1,430	1,500	1,460 *	1,590	1,560	1,710 *	1,600	1,360
17	1,520 *	1,420	965	1,170 *	1,460	1,500	1,450 *	1,550	1,530 *	1,710	1,570	1,420*
18	1,480	1,440	933	1,180	1,460	1,510 *	1,450	1,550	1,510 *	1,500	1,580	1,470*
19	1,460	1,440 *	943 *	1,190	1,450	1,520 *	1,450	1,580	1,480	1,280	1,590 *	1,560
20	1,430	1,430 *	954 *	1,170	1,450	1,540	1,440	1,580 *	1,560	1,310	1,600 *	1,580
21	1,420	1,430 *	964	1,180	1,450 *	1,520	1,460	1,570 *	1,610	1,510	1,610	1,580
22	1,420 *	1,420	911	1,190	1,440 *	1,490	1,480	1,570	1,610	1,570 *	1,600	1,550
23	1,410 *	1,460	924	1,190 *	1,440	1,490	1,470 *	1,570	1,550	1,640 *	1,550	1,520
24	1,410	1,360	874	1,200 *	1,440	1,500	1,460 *	1,550	1,570 *	1,700	1,520 *	1,570*
25	1,410	1,290	914	1,200	1,420	1,490 *	1,450	1,540	1,580 *	1,790	1,490	1,620*
26	1,390	1,240 *	953 *	1,190	1,400	1,480 *	1,370	1,550	1,600	1,820	1,520 *	1,680*
27	1,280	1,180 *	991 *	1,190	1,430	1,470	1,340	1,550 *	1,570	1,670	1,550 *	1,730
28	1,240	1,130	1,030	1,190	1,430 *	1,490	1,410	1,560 *	1,570	1,760	1,580	1,720
29	1,300 *		1,020	1,200	1,440 *	1,490	1,430	1,560	1,590	1,760 *	1,590	1,650
30	1,360 *		1,040	1,220 *	1,440 *	1,510	1,450 *	1,510	1,620	1,770 *	1,520	1,660
31	1,420		1,060		1,440		1,460 *	1,510		1,770		1,650*

* Estimated

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

SPECIFIC CONDUCTANCE OF WATER SAMPLES

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,640	1,540	1,060	1,080	1,250	1,420	1,470	1,480	1,540	1,620	1,850	1,540
2	1,660	1,460	1,070	1,090	1,260	1,430	1,230	1,430	1,360	1,430	1,750	1,540
3	1,640	1,470	1,110	1,130	1,270	1,420	1,350	1,380	1,540	1,680	1,670	1,550
4	1,620	1,540	1,110	1,140	1,290	#	1,490	1,280	1,550	1,710	1,660	1,530
5	1,430	1,600	1,110	1,150	1,320	#	1,470	1,360	1,610	1,540	1,370	1,580
6	1,330	1,480	1,070	1,150	1,240	1,440	1,470	1,430	1,580	1,710	1,460	1,680
7	1,310	1,470	1,070	1,130	1,350	1,480	1,450	1,230	1,520	1,730	1,510	1,630
8	1,370	1,460	1,040	1,260	1,350	1,500	1,450	1,490	1,500	1,750	1,640	1,580
9	1,310	1,460	1,050	1,160	1,260	1,470	1,440	1,440	1,490	1,760	1,690	1,590
10	1,310	1,430	1,030	1,170	1,390	1,500	1,460	1,320	1,530	1,230	1,630	1,590
11	1,610	1,380	1,030	1,160	1,380	1,490	1,490	1,230	1,540	1,780	1,230	1,580
12	1,610	1,270	1,000	1,140	1,280	1,470	1,470	1,170	1,620	1,670	1,540	1,560
13	1,640	1,270	1,000	1,140	1,390	1,480	1,460	1,280	1,610	1,600	1,560	1,570
14	1,690	1,280	990	1,170	1,450	1,480	1,460	1,370	1,610	1,730	1,520	1,500
15	1,710	1,350	980	1,150	1,450	1,440	1,450	1,490	1,560	1,770	1,610	1,440
16	#	1,400	990	1,160	1,440	1,500	1,440	1,620	1,560	1,500	1,630	1,390
17	1,310	1,450	960	1,180	1,450	1,500	1,470	1,570	1,520	1,730	1,580	1,480
18	1,490	1,460	950	1,190	1,450	1,250	1,340	1,540	1,450	1,660	1,600	1,300
19	1,500	1,500	920	1,190	1,430	1,510	1,450	1,590	1,470	1,300	1,620	1,560
20	1,540	1,460	970	1,180	1,450	1,520	1,450	1,560	1,580	1,310	1,620	1,590
21	1,540	1,420	950	1,190	1,230	1,520	1,460	1,500	1,630	1,500	1,630	1,620
22	1,540	1,420	910	1,190	1,230	1,420	1,470	1,600	1,640	1,600	1,620	1,600
23	1,530	1,480	940	1,180	1,480	1,450	1,460	1,570	1,580	1,700	1,570	1,560
24	1,380	1,380	880	1,200	1,420	1,470	#	1,570	1,590	1,700	1,560	1,600
25	1,520	1,310	1,260	1,200	1,410	1,450	1,450	1,550	1,610	1,740	1,410	1,680
26	1,480	1,230	960	1,190	1,410	1,430	1,380	1,570	1,610	1,830	1,450	1,680
27	1,390	1,180	1,020	1,190	1,430	1,450	1,350	1,560	1,610	1,720	1,390	1,750
28	1,270	1,140	1,040	1,200	1,450	1,460	1,220	1,570	1,600	1,760	1,610	1,750
29	1,350		1,020	1,200	1,430	1,480	1,450	1,570	1,610	1,800	1,610	1,670
30	1,430		1,050	1,220	1,440	1,360	1,470	1,550	1,640	1,530	1,560	1,690
31	1,450		1,070		1,440		1,460	1,530		1,690		1,670

- No Sample

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 2005

January		March		May		July		September		November	
3	1,620	1	1,140							1	1,590
11	1,450	15	1,540							8	1,520
February		**April**		**June**		**August**		**October**		**December**	
16	1,250	1	1,580			16	1,370	20	1,290		

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 Quartermaster Depot, Arizona		Bullhead City, Arizona	
	2005	Average 1931-2005	2005	Average 1931-2005	2005	Average 1931-2005	2005	Average 1998-2005	2005	Average 1978-2005
Jan.	24	10	22	10	39	13	21	5	46#	26
Feb.	40	10	23	10	90	13	19#	18	25#	29
Mar.	1	7	5	6	1	10	6	8	0	24
April	0	2	10	2	P	3	11	6	0	4
May	0	1	#	0	0	1	0	0	0	2
June	0	0	0	0	0	1	0	0	0	0
July	0	1	4	2	#	5	9	3	3	8
Aug.	0	8	39	9	20	18	3#	4	17	19
Sept.	#	8	1	7	2	10	0	0	0	9
Oct.	22	6	22	7	9	6	5	6	5	12
Nov.	0	4	0	4	0	6	0	3	3	11
Dec.	0	11	0	11	0	13	0	3	0	13
Yearly	#	68	#	68	#	99	#	56	#	157

Missing Data

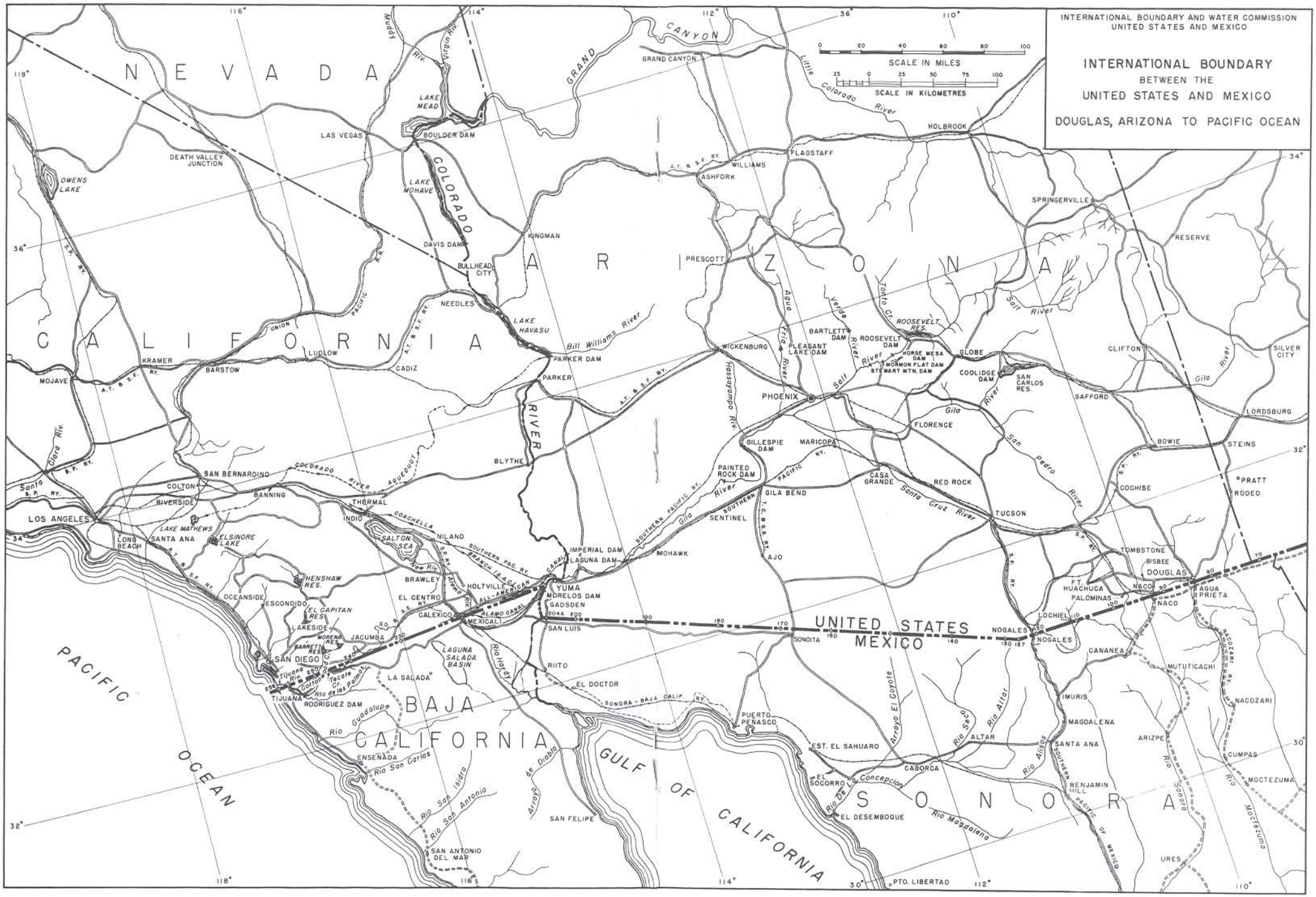
IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		El Centinela, Baja California		Delta, Baja California	
	2005	Average 1948-2005	2005	Average 1926-2005	2005	Average 1948-2005	2005	Average 1975-2005	2005	Average 1948-2005
Jan.	21	9	20	9	#	10	#	5	14	7
Feb.	23	6	20	9	#	7	#	7	19	7
Mar.	6	4	7	6	#	6	#	3	0	5
April	T	2	T	2	#	2	#	2	0	1
May	0	T	0	T	#	T	#	T	0	T
June	0	T	0	T	#	T	#	T	0	T
July	12	3	T	3	#	2	#	1	1	2
Aug.	30	8	57	9	#	5	#	4	16	6
Sept.	0	4	7	9	#	5	#	7	0	6
Oct.	13	6	23	8	#	6	#	5	12	7
Nov.	0	4	0	4	#	3	#	1	0	3
Dec.	0	8	0	16	#	7	#	7	0	10
Yearly	105	55	134	80	#	51	#	42	62	52

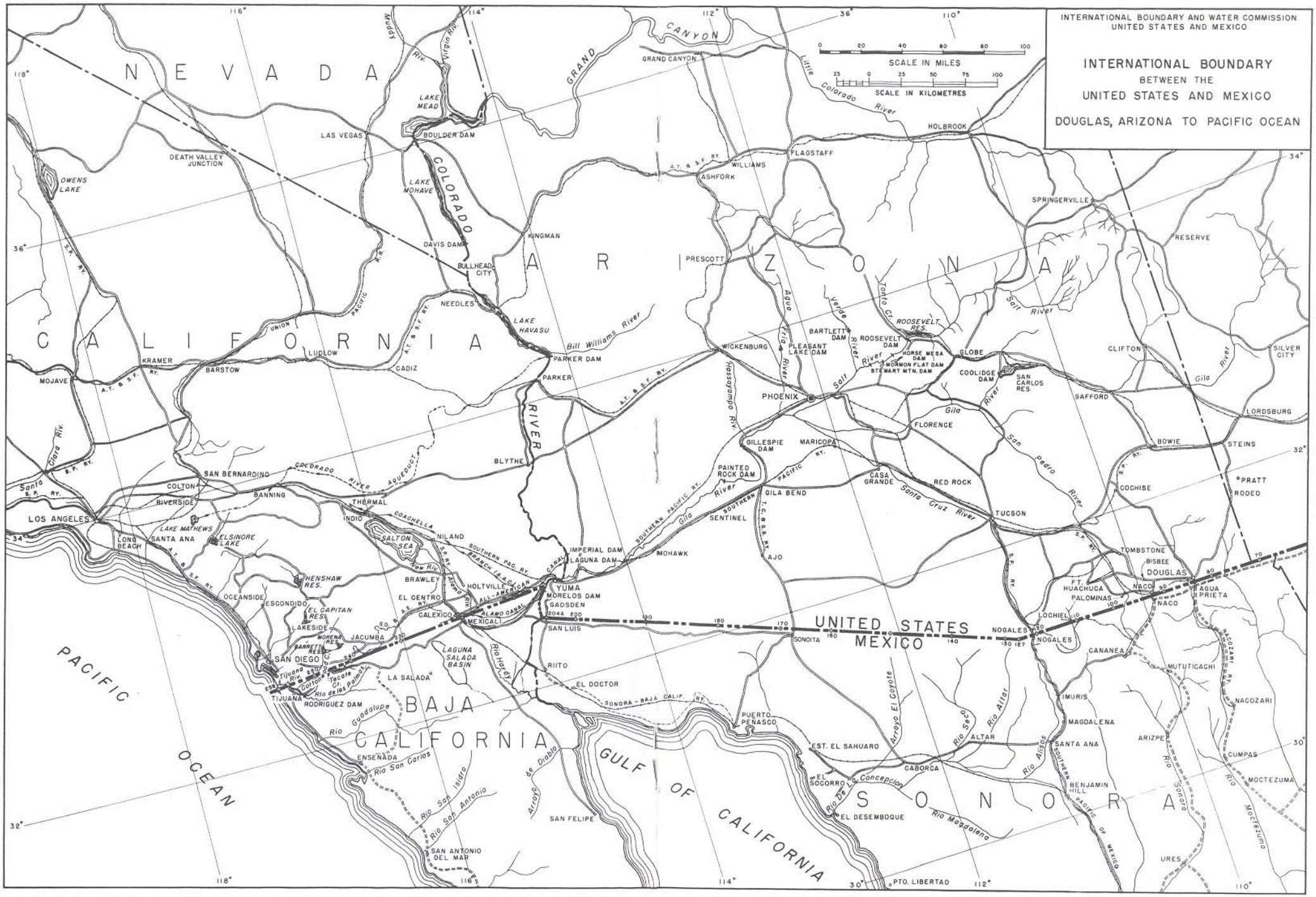
Month	San Felipe, Baja California		Riito, Sonora							
	2005	Average 1948-2005	2005	Average 1949-2005						
Jan.	22	6	15	6						
Feb.	32	6	0	6						
Mar.	9	3	11	5						
April	0	1	1	2						
May	0	T	0	T						
June	0	T	0	T						
July	0	3	0	2						
Aug.	25	9	11	5						
Sept.	0	18	0	8						
Oct.	T	8	0	8						
Nov.	0	5	0	4						
Dec.	0	8	0	9						
Yearly	88	74	38	58						

T Trace # Missing Record

WESTERN BOUNDARY WATER BULLETIN - - - INTERNATIONAL BOUNDARY AND WATER COMMISSION



WESTERN BOUNDARY WATER BULLETIN - - - INTERNATIONAL BOUNDARY AND WATER COMMISSION



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 2005.

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	1980	Bullhead City Fire Department
El Centro, California	32` 46'	115` 34'	9.14	1930	El Centro Water Department
Yuma Quartermaster Depot, Arizona	32` 44'	114` 37'	48.77	1998	Yuma Crossing State Park

IN MEXICO

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

* Not shown on rainfall map
@ Elevation above mean sea level except Brawley and El Centro, which are elevations below mean sea level
** Elevation obtained from International Boundary and Water Commission topographic maps
# Ministry of Agriculture and Hydraulic Resources

EVAPORATION IN THE COLORADO RIVER BASIN
IN MILLIMETERS

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

IN THE UNITED STATES

Month	Yuma Citrus Station, Arizona	
	2005	Average 1931-2005
Jan.	0	95
Feb.	0	115
Mar.	114	178
April	134	243
May	0	308
June	0	344
July	160	368
Aug.	162	324
Sept.	109	255
Oct.	0	182
Nov.	47.8	120
Dec.	15	90
Yearly	742	2,622

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		Riito, Sonora		San Felipe, Baja California	
	2005	Average 1948-2005	2005	Average 1926-2005	2005	Average 1948-2005	2005	Average 1949-2005	2005	Average 1948-2005
Jan.	67	104	63	63	#	82	#	76	100	119
Feb.	79	125	62	126	#	99	#	98	100	137
Mar.	164	180	166	156	#	142	#	146	169	171
April	207	245	204	196	#	193	#	187	227	200
May	287	308	275	265	#	253	#	256	251	244
June	311	332	317	287	#	287	#	286	280	260
July	311	341	333	297	#	266	#	315	276	260
Aug.	263	304	272	256	#	240	#	266	253	263
Sept.	245	254	241	203	#	198	#	215	222	229
Oct.	185	197	155	145	#	138	#	153	176	196
Nov.	126	131	72	85	#	105	#	95	138	146
Dec.	114	105	75	60	#	76	#	77	99	119
Yearly	2,359	2,629	2,235	2,082		2,489		2,246	2,291	2,407

Month	Delta, Baja California	
	2005	Average 1948-2005
Jan.	64	84
Feb.	75	106
Mar.	152	153
April	163	207
May	243	254
June	277	283
July	330	286
Aug.	224	265
Sept.	232	219
Oct.	160	155
Nov.	107	104
Dec.	76	142
Yearly	2,103	2,066

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, 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 Quartermaster Depot, Arizona				Brawley, California			
	2005				2005				2005			
	Mean	Max.	Min.	Average 1931-05	Mean	Max.	Min.	Average 1998-05	Mean	Max.	Min.	Average 1931-05
Jan.	13.2	25.6	1.7	11.6	14.5	26.7	2.8	15.2	14.3	27.2	1.1	12.5
Feb.	14.7	24.4	3.3	14.2	15.3	25.6	5.6	15.4	15.2	24.4	4.4	14.7
Mar.	18.4	32.8	3.9	17.2	18.8	33.3	6.1	19.2	18.5	33.9	3.9	17.5
April	22.1	36.1	9.4	21.4	22.2	36.7	10.0	21.6	20.6	35.0	6.7	21.0
May	#	43.9	12.2	25.3	26.9	44.4	12.2	26.1	26.1	43.3	12.2	25.1
June	30.7	46.7	16.7	30.0	30.3	46.7	16.7	30.3	29.6	45.6	15.0	29.4
July	#	#	#	33.1	34.4	48.9	20.0	33.7	34.8	49.4	19.4	33.1
Aug.	34.4	47.8	23.3	33.0	33.2	46.7	21.1	33.4	34.0	47.2	21.7	33.0
Sept.	29.1	43.9	11.7	29.5	29.6	43.3	13.3	30.4	#	#	#	30.1
Oct.	23.2#	40.0	10.0	22.7	24.2	38.9	9.4	21.6	24.4	40.0	11.7	24.0
Nov.	#	28.9	-0.6	15.5	19.7	32.2	4.4	17.5	18.8	32.2	2.8	17.0
Dec.	11.4#	25.6	-3.3	11.5	14.4	27.8	1.7	13.4	13.9	29.4	-1.7	12.8
Yearly	#	#	#	22.2	23.6	48.9	1.7	23.2	#	#	#	22.5

Month	El Centro, California				Bullhead City, Arizona							
	2005				2005							
	Mean	Max.	Min.	Average 1931-05	Mean	Max.	Min.	Average 1978-05				
Jan.	14.8	27.8	3.9	12.6	12.1#	23.9	1.1	12.5				
Feb.	15.5	24.4	6.7	14.8	14.6#	22.8	5.0	14.7				
Mar.	19.1	33.3	5.0	17.6	#	28.9	3.3	13.4				
April	21.5	34.4	9.4	21.1	22.7	36.7	10.0	22.3				
May	#	#	#	25.3	27.7#	46.1	12.8	27.5				
June	29.7	43.9	16.1	29.7	#	46.1	17.8	32.4				
July	34.6	47.2	21.7	33.2	36.3#	51.1	21.7	35.4				
Aug.	33.7	45.6	22.2	32.9	34.4	47.8	22.8	34.8				
Sept.	30.1	42.2	17.2	30.0	30.2	43.3	15.6	30.8				
Oct.	24.4	38.3	13.3	23.9	25.3	40.0	12.2	24.1				
Nov.	19.3	31.1	3.9	17.0	20.5	31.7	3.9	16.7				
Dec.	14.8	29.4	1.8	12.8	13.9	25.0	2.8	12.1				
Yearly	#	#	#	22.5	#	51.1	1.1	23.5				

IN MEXICO

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	2005		1948-2005		2005		1926-2005		2005		1948-2005	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	26	3	31	-5	27	4	34	-7	#	#	45	-9
Feb.	25	7	35	-2	26	7	34	-5	#	#	37	-6
Mar.	34	7	39	0	35	9	40	-1	#	#	45	-4
April	36	9	43	3	37	11	41	1	#	#	48	-9
May	43	12	47	6	46	14	47	6	#	#	51	1
June	46	14	52	11	47	18	49	9	#	#	57	6
July	48	21	50	13	51	22	51	13	#	#	56	7
Aug.	46	22	49	16	48	22	49	12	#	#	54	8
Sept.	46	17	50	10	45	16	50	8	#	#	57	4
Oct.	40	12	44	0	41	13	44	0	#	#	48	0
Nov.	32	2	38	-3	32	5	40	-2	#	#	46	0
Dec.	27	0	32	-5	28	2	32	-5	#	#	36	-5
Yearly	48	0	52	-5	51	2	51	-7	#	#	57	-9

Missing Data

TEMPERATURE IN THE COLORADO RIVER BASIN
IN DEGREES CELSIUS

IN MEXICO

Month	Riito, Sonora				San Felipe, Baja California				El Centinela, Baja California			
	2005		1949-2005		2005		1948-2005		2005		1975-2005	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	28	4	30	-7	30	3	37	-1	#	#	30	1
Feb.	27	4	35	-6	24	8	40	0	#	#	35	-4
Mar.	35	6	39	-7	34	10	41	0	#	#	38	4
April	37	8	43	2	34	11	45	1	#	#	46	6
May	46	12	48	5	40	13	49	5	#	#	48	9
June	48	12	51	7	43	17	51	5	#	#	49	10
July	47	20	60	11	42	23	51	9	#	#	52	20
Aug.	49	23	50	8	42	22	57	5	#	#	50	18
Sept.	45	14	48	4	40	17	52	3	#	#	50	11
Oct.	44	16	46	-1	38	14	47	-5	#	#	46	3
Nov.	33	7	48	-3	32	5	48	-6	#	#	40	3
Dec.	37	3	37	-6	26	4	39	-2	#	#	30	-3
Yearly	49	3	60	-7	43	3	57	-6	#	#	52	-4

Month	Delta, Baja California											
	2005		1948-2005									
	Max.	Min.	Max.	Min.								
Jan.	30	1	40	-4								
Feb.	25	4	40	-2								
Mar.	34	3	45	-2								
April	37	7	48	0								
May	46	11	54	0								
June	47	12	56	2								
July	50	19	57	7								
Aug.	49	21	60	15								
Sept.	46	12	57	4								
Oct.	41	10	47	1								
Nov.	32	2	50	0								
Dec.	29	-1	40	-5								
Yearly	50	-1	60	-5								

Missing Data

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

2005

The total drainage area within the Colorado River basin is about 637,000 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 Ministry of Agriculture and Hydraulic Resources of Mexico. The areas tabulated below refer to the total areas farmed, and insofar as possible, duplication of irrigated areas because of double cropping has been eliminated.

Point of Diversion from Colorado River and Designation of Areas	Total Irrigated Areas Hectares
IN THE UNITED STATES:	
Imperial Dam	
Yuma Valley Division	21,536
Reservation Division	5,800
Yuma Mesa	8,094
Yuma Aux. Project Unit "B" (Yuma Mesa)	1,116
South Gila Valley	3,966
North Gila Valley	2,544
Wellton-Mohawk	25,132
Coachella Valley	30,134
Imperial Valley	193,633
Warren Act	41
Non-Project lands adjacent to Colorado River	4,161
Total in United States	296,157
IN MEXICO:	
San Luis Valley, R. C., Sonora	16,483
Mexicali Valley	119,288
Total in Mexico	135,771
Total in United States and Mexico	431,928

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

10-2545.80 ALAMO RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Staff gage located on the right bank of the river, about 11.3 kilometers east of Calexico, California, immediately downstream from the international land boundary between the United States and Mexico and approximately three meters upstream from a 1.22-meter Cipolletti weir in the throat of a twin-tube concrete culvert which carries the river flow under the All-American Canal. On November 18, 1992 continuous gage height recording equipment was installed at the site.
RECORDS: From June 1942 through November 18, 1992 flows computed on the basis of head on the Cipolletti weir from daily staff gage readings, and weir ratings as determined by monthly current meter measurements. A continuous gage height record and mean daily discharge records are available November 19, 1992 through 2005. Records obtained and furnished by Imperial Irrigation District.
REMARKS: The flow at this station normally comprises seepage from the All-American Canal and drainage water from the Mexicali Valley which enters the United States. On September 28, 1995 the National Water Commission of Mexico completed the construction of a weir immediately upstream of the international boundary. The result is that all the Alamo River flow, or a portion thereof, is being diverted into the New River via the interconnected agricultural drainage system in Mexico. After September 28, 1995 the recorded flow at the gage is affected by this diversion.
EXTREMES: Maximum mean daily discharge, 7.31 CMS (estimated), April 13, 1946; minimum discharge, no flow July 22-23, 29-30, 1949 and numerous days after September 28, 1995. Prior to the period of record, and since 1900, considerably higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a part of its flow passed through the Alamo River channel.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.01	0	0.02	0.05	0.02	0.03	0.01	0.01	0.01	0.01	0.03
2	.01	.01	0	.02	.03	.03	.03	.01	.01	.01	.01	.02
3	.01	.01	0	.02	.04	.03	.03	.01	.01	.01	.01	.02
4	.03	.01	0	.02	.04	.03	.05	.01	.01	.01	.02	.02
5	.02	.01	0	.03	.03	.03	.04	.03	.01	.01	.01	.02
6	.01	.01	0	.03	.05	.03	.03	.02	.01	.01	.01	.02
7	.01	.01	0	.04	.03	.03	.04	.02	.01	.01	.01	.02
8	.01	.01	0	.04	.03	.02	.03	.02	.01	.02	.01	.02
9	.01	.01	.06	.04	.03	.02	.02	.02	0	.01	.01	.03
10	.01	.03	.04	.04	.03	.03	.03	.02	0	.01	.02	.03
11	.01	.03	.03	.03	.03	.03	.04	.02	0	.01	.02	.02
12	.01	.04	.03	.03	.03	.04	.03	.01	0	.01	.02	.02
13	.01	.05	.03	.03	.03	.03	.02	.01	.01	.01	.02	.03
14	.01	.05	.03	.03	.03	.03	.02	.01	.01	.01	.02	.03
15	.01	.05	.03	.03	.03	.03	.01	.01	.01	.01	.02	.02
16	.01	.03	.03	.03	.02	.03	.01	.01	.01	.02	.02	.02
17	.01	.03	.05	.03	.02	.02	.02	0	.01	.03	.02	.03
18	.01	.03	.05	.03	.02	.02	.03	0	.01	.02	.02	.03
19	.01	.04	.05	.03	.02	.02	.03	0	.01	.02	.02	.03
20	.01	.05	.05	.02	.02	.02	.02	.01	.01	.03	.02	.05
21	.01	.06	.05	.02	.02	.02	.02	.01	.01	.02	.02	.05
22	.01	.05	.05	.02	.02	.02	.02	0	.01	.03	.02	.04
23	.01	.03	.04	.03	.02	.02	.02	0	.01	.03	.02	.04
24	.01	0	.03	.03	.02	.02	.02	.01	.01	.02	.02	.03
25	.01	0	.05	.04	.02	.02	.02	.01	.01	.02	.02	.03
26	.01	0	.07	.05	.02	.02	.01	.01	.01	.01	.02	.04
27	.01	0	.05	.03	.02	.02	.01	.01	.01	.01	.02	.04
28	.01	0	.03	.04	.02	.02	.01	.01	.01	.01	.02	.04
29	.01		.03	.04	.02	.02	0	.01	.01	.01	.03	.03
30	.01		.03	.04	.03	.03	0	.01	.01	.01	.03	.03
31	.01		.03		.03		0	0		.01		.03
Sum	0.34	0.66	0.94	0.93	0.85	0.75	0.69	0.33	0.26	0.46	0.54	0.91

Current Year 2005						Period 1943-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters			
Month	High	Low	@ High Day	@ High	@ Low Day	@ Low	Average	Total	Average	Maximum	Minimum
Jan.	0.060	0.025	4	0.03	! 1	0.01	0.01	29.4	310	3,441	0
Feb.	.115	0	21	.06	!24	0	.02	57.0	285	3,481	0
Mar.	.110	0	26	.07	! 1	0	.03	81.2	325	3,890	0
April	.095	.055	26	.05	! 1	.02	.03	80.4	339	2,741	0
May	.100	.050	! 1	.05	!16	.02	.03	73.4	279	2,219	0
June	.085	.050	12	.04	! 1	.02	.03	64.8	264	2,080	0
July	.095	0	4	.05	!29	0	.02	59.6	249	2,112	0
Aug.	.065	0	5	.03	!17	0	.01	28.5	284	2,062	0
Sept.	.040	0	! 1	.01	! 9	0	.01	22.5	262	1,734	0
Oct.	.075	.035	!17	.03	! 1	.01	.01	39.7	275	2,276	0
Nov.	.070	.035	!29	.03	! 1	.01	.02	46.7	288	2,566	0
Dec.	.105	.060	21	.05	! 2	0	.03	78.6	279	2,080	0
Yearly	0.115	0		0.07		0	0.02	662	3,439	27,317	203

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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. Gage heights are in meters below mean sea level.
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 2005.
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. Gage heights shown are meters below mean sea level.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.59	5.04	6.32	7.50	6.17	4.79	4.22	4.02	3.88	3.57	3.88	4.50
2	4.62	4.93	6.23	6.66	6.03	4.79	4.19	6.20	3.88	3.62	3.79	4.50
3	5.55	5.24	5.98	6.46	5.69	4.62	4.11	5.78	3.85	3.74	3.65	4.30
4	6.17	5.35	6.26	6.43	5.66	4.62	4.08	5.61	3.94	4.02	3.62	4.45
5	5.72	5.24	6.23	6.37	5.72	4.45	4.25	4.64	3.94	3.88	3.68	4.47
6	6.03	5.32	6.12	6.43	5.61	4.36	4.25	4.53	3.85	3.71	3.68	4.50
7	6.34	5.30	6.32	6.12	5.58	4.39	4.02	4.39	3.77	3.62	3.71	4.50
8	6.09	5.30	6.40	5.95	5.58	4.50	4.02	6.91	3.68	3.51	3.74	4.30
9	5.58	5.24	6.71	5.95	5.69	4.50	4.11	8.24	3.71	3.46	3.79	4.05
10	5.24	5.10	6.77	5.92	5.78	4.42	3.99	9.12	3.71	3.46	3.82	4.30
11	5.07	6.83	6.66	6.15	5.66	4.33	4.08	7.19	3.65	3.48	3.99	5.47
12	4.79	5.66	6.51	6.91	5.47	4.25	4.30	6.83	3.62	3.60	4.16	5.30
13	4.64	6.20	6.32	7.08	5.47	4.36	4.45	6.12	3.60	3.62	4.33	5.21
14	4.42	6.88	6.17	7.05	5.38	4.73	4.45	5.35	3.60	3.57	4.22	5.07
15	4.53	6.94	6.03	6.88	5.30	4.67	4.56	4.90	3.57	3.48	4.42	4.81
16	4.81	7.02	6.00	6.77	5.27	4.45	4.39	4.81	3.62	6.88	4.30	4.73
17	4.50	6.60	6.06	6.80	5.13	4.30	4.22	4.84	3.68	6.00	4.28	4.64
18	4.30	7.79	6.12	6.51	5.07	4.28	4.25	4.73	3.68	4.76	4.53	4.62
19	4.30	7.42	6.23	6.37	5.04	4.22	4.33	5.07	3.71	4.96	4.53	4.59
20	4.33	8.55	6.20	6.37	5.07	4.08	4.28	4.98	4.47	4.73	4.39	4.64
21	4.53	8.13	6.17	6.49	5.10	4.19	4.33	4.30	3.82	4.67	4.53	4.84
22	4.62	8.24	6.20	6.63	4.96	4.25	4.42	4.11	4.02	4.67	4.16	4.98
23	4.56	8.41	6.40	6.57	4.87	4.25	4.42	4.08	4.08	4.56	4.30	4.81
24	4.53	7.73	6.06	6.40	4.84	4.42	4.36	4.02	4.08	4.45	4.73	4.70
25	4.67	6.94	6.00	6.63	4.79	4.39	4.45	4.08	3.85	4.56	4.05	4.62
26	6.88	6.54	5.95	6.97	4.79	4.30	4.36	3.99	3.79	4.53	4.11	4.93
27	5.24	6.29	5.72	6.88	4.81	4.30	4.16	3.79	3.82	4.42	3.79	5.07
28	5.41	6.20	5.86	6.68	4.81	4.33	4.25	3.88	3.82	4.47	3.96	4.93
29	5.47		6.12	6.54	4.73	4.30	4.16	3.99	3.74	4.25	4.11	4.87
30	5.35		7.39	6.37	4.64	4.13	3.99	3.96	3.68	4.02	4.22	4.76
31	5.07		7.79		4.73		3.99	3.94		3.88		4.62
Sum	157.95	180.43	195.30	196.84	163.44	131.97	131.44	158.40	114.11	130.15	122.47	146.08

Current Year 2005						Period 1943-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	@ High	Day	@ Low	Day	Average	Total	Average	Maximum	Minimum
Jan.	12.205	12.535	6.88	26	4.30	!18	5.10	13,647	13,286	27,387	2,160
Feb.	11.995	12.445	8.55	20	4.93	2	6.44	15,589	12,072	26,416	1,552
Mar.	12.080	12.340	7.79	31	5.72	27	6.30	16,874	13,797	31,213	1,243
April	12.115	12.325	7.50	1	5.92	10	6.56	17,007	13,826	34,066	1,715
May	12.350	12.555	6.17	1	4.64	30	5.27	14,121	12,617	29,740	776
June	12.535	12.630	4.79	! 1	4.08	20	4.40	11,402	10,517	25,024	1,341
July	12.560	12.645	4.56	15	3.99	!10	4.24	11,356	10,939	28,368	1,008
Aug.	11.970	12.665	9.12	10	3.79	27	5.11	13,686	12,408	34,066	1,405
Sept.	12.565	12.700	4.47	20	3.57	15	3.80	9,859	11,563	29,251	2,214
Oct.	12.315	12.720	6.88	16	3.46	! 9	4.20	11,245	11,480	28,072	2,567
Nov.	12.525	12.695	4.73	24	3.62	4	4.08	10,581	10,927	25,310	3,063
Dec.	12.430	12.625	5.47	11	4.05	9	4.71	12,621	12,884	28,104	2,175
Yearly	11.970	12.720	9.12		3.46		5.01	157,988	146,316	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 2005 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 2005.

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 2005.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- 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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	0	0	0

Current Year 2005					Period 1968-2005		
Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	Extreme-Cubic Meters per Second @ High	Extreme-Cubic Meters per Second @ Low Day	Extreme-Cubic Meters per Second @ Low	Average	Total	Volume-Thousand Cubic Meters Average	Volume-Thousand Cubic Meters Maximum	Volume-Thousand Cubic Meters Minimum
Jan.			! 1	0	! 1	0	0	0	132	641	0
Feb.			! 1	0	! 1	0	0	0	91.0	384	0
Mar.			! 1	0	! 1	0	0	0	163	1,074	0
April			! 1	0	! 1	0	0	0	158	532	0
May			! 1	0	! 1	0	0	0	171	537	0
June			! 1	0	! 1	0	0	0	160	504	0
July			! 1	0	! 1	0	0	0	191	651	0
Aug.			! 1	0	! 1	0	0	0	206	735	0
Sept.			! 1	0	! 1	0	0	0	192	677	0
Oct.			! 1	0	! 1	0	0	0	179	625	0
Nov.			! 1	0	! 1	0	0	0	158	622	0
Dec.			! 1	0	! 1	0	0	0	146	737	0
Yearly				0		0	0	0	1,947	6,610	0

@ Mean daily ! And other days

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

DESCRIPTION: During 2005 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 2005.

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 2005	PERIOD 1956 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	0	912	10,803	0
February	0	755	8,981	0
March	0	676	5,506	0
April	0	551	3,940	0
May	0	392	3,174	0
June	0	397	6,994	0
July	0	601	12,644	0
August	0	605	5,103	0
September	0	463	3,966	0
October	0	579	4,285	0
November	0	580	4,668	0
December	0	693	10,720	0
Yearly	0	7,206	34,953	0

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 2005. 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 84.64 meters below mean sea level, U. S. C. & G. S. datum.

EXTREMES: Maximum elevation during 2005 was 69.495 meters below mean sea level. Minimum elevation during 2005 was 69.860 meters below mean sea level. Extremes for period of record: 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- 2005

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.830	69.710	69.555	69.525	69.495	69.495	69.585	69.615	69.675	69.800	69.830	69.800
2	69.800	69.710	69.555	69.525	69.495	69.495	69.585	69.615	69.710	69.800	69.830	69.800
3	69.800	69.710	69.555	69.525	69.495	69.495	69.585	69.615	69.710	69.800	69.830	69.800
4	69.800	69.710	69.555	69.525	69.495	69.495	69.585	69.615	69.710	69.800	69.830	69.800
5	69.800	69.710	69.555	69.525	69.495	69.495	69.585	69.615	69.710	69.830	69.830	69.800
6	69.800	69.710	69.555	69.525	69.495	69.525	69.585	69.615	69.710	69.830	69.830	69.800
7	69.800	69.710	69.555	69.525	69.495	69.525	69.585	69.615	69.710	69.830	69.830	69.800
8	69.800	69.710	69.555	69.525	69.495	69.525	69.585	69.615	69.710	69.830	69.830	69.800
9	69.800	69.710	69.555	69.525	69.495	69.525	69.585	69.615	69.740	69.830	69.830	69.800
10	69.770	69.710	69.525	69.525	69.495	69.525	69.585	69.615	69.740	69.830	69.830	69.800
11	69.770	69.675	69.525	69.525	69.495	69.525	69.585	69.615	69.740	69.830	69.830	69.800
12	69.770	69.675	69.525	69.525	69.495	69.525	69.585	69.615	69.770	69.860	69.830	69.800
13	69.770	69.645	69.525	69.525	69.495	69.525	69.585	69.615	69.770	69.830	69.830	69.800
14	69.770	69.645	69.525	69.495	69.495	69.525	69.585	69.615	69.770	69.860	69.830	69.800
15	69.740	69.645	69.525	69.495	69.495	69.525	69.585	69.615	69.800	69.830	69.830	69.800
16	69.740	69.645	69.525	69.495	69.495	69.525	69.585	69.645	69.800	69.830	69.830	69.800
17	69.740	69.645	69.525	69.495	69.495	69.525	69.585	69.645	69.800	69.830	69.830	69.800
18	69.740	69.645	69.525	69.495	69.495	69.525	69.585	69.645	69.800	69.830	69.830	69.800
19	69.740	69.615	69.525	69.495	69.495	69.525	69.585	69.645	69.800	69.830	69.830	69.800
20	69.740	69.615	69.525	69.495	69.495	69.555	69.585	69.645	69.800	69.830	69.830	69.800
21	69.740	69.615	69.525	69.495	69.495	69.555	69.585	69.645	69.800	69.830	69.800	69.800
22	69.740	69.615	69.525	69.495	69.495	69.555	69.585	69.675	69.800	69.830	69.800	69.800
23	69.740	69.585	69.525	69.495	69.495	69.555	69.585	69.675	69.800	69.800	69.800	69.800
24	69.740	69.585	69.525	69.525	69.495	69.555	69.615	69.675	69.800	69.800	69.800	69.770
25	69.740	69.585	69.525	69.495	69.495	69.555	69.615	69.675	69.800	69.800	69.800	69.770
26	69.710	69.585	69.525	69.495	69.495	69.555	69.615	69.675	69.800	69.800	69.800	69.770
27	69.710	69.585	69.525	69.495	69.495	69.555	69.615	69.675	69.800	69.800	69.800	69.770
28	69.710	69.585	69.525	69.495	69.495	69.585	69.615	69.675	69.800	69.800	69.800	69.770
29	69.710		69.525	69.495	69.495	69.585	69.615	69.675	69.800	69.830	69.800	69.770
30	69.710		69.525	69.495	69.495	69.585	69.615	69.675	69.800	69.830	69.800	69.770
31	69.675		69.525		69.495		69.615	69.675		69.830		69.770
Avg.	69.755	69.655	69.535	69.510	69.495	69.535	69.595	69.640	69.765	69.820	69.820	69.790

Current Year 2005			Period 1935-2005		
Month	@ Extreme Elevation Meters		Elevation Meters		
	High	Low	# Average	! Maximum	! Minimum
Jan.	69.675	69.830	71.280	69.280	75.990
Feb.	69.585	69.710	71.185	69.190	75.830
Mar.	69.525	69.555	71.105	69.130	75.770
April	69.495	69.525	71.050	69.100	75.800
May	69.495	69.495	71.045	69.100	75.740
June	69.495	69.585	71.085	69.160	75.830
July	69.585	69.615	71.140	69.220	75.930
Aug.	69.615	69.675	71.200	69.250	76.020
Sept.	69.675	69.800	71.260	69.280	76.020
Oct.	69.800	69.860	71.295	69.310	76.140
Nov.	69.800	69.830	71.305	69.340	76.200
Dec.	69.770	69.800	71.275	69.340	76.080
Yearly	69.495	69.860	71.185	69.100	76.200

Area and Capacity Table

Elevation Meters Below M.S.L.	Area Hectares	Capacity 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 ! Reading near first day of month # Mean monthly

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

CHEMICAL ANAYLSIS OF WATER SAMPLES

The tables below are based on samples collected and analyzed by the California Regional Water Quality Control Board - Colorado River Basin, Region-7. The CRWQCB has sampled from 1986 to present; prior to that samples were collected and analyzed by the U.S. Geological Survey from 1974 to 1985. Samples from the New River are taken from the right bank at the road bridge, 137 meters north of the international boundary.

NEW RIVER AT INTERNATIONAL BOUNDARY

2005 Date	Time Std.	Flow CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Micro-Siemens/cm	Turbidity NTU	Fecal Coliform MPN/100mL
Jan. 20	0900	4.33	15.6	7.5	1.32	4,420	12.6	230,000
Feb. 22	0900	8.24	17.2	7.5	1.97	3,670	6.7	800,000
Apr. 26	0900	6.97	21.7	7.6	0.14	4,830	11.3	300,000
May 24	0900	4.84	27.4	7.6	0.42	5,330	57.5	230,000
June 28	0900	4.33	27.5	7.4	0	5,670	54.5	1,100,000
Aug. 29	0900	3.99	31.7	7.6	0.20	5,000	N.A.	500,000
Sep. 26	0900	3.79	25.8	7.7	0.60	4,490	59.0	9,000,000
Nov. 14	0830	4.22	19.1	7.8	1.57	4,580	42.5	700,000
Dec. 05	0900	4.47	13.7	8.1	1.75	4,540	27.6	300,000

All samples in 2005 were composites of four water samples collected hourly.
Flow provided by Imperial Irrigation District (Mean Daily)
N.A. - Not Analyzed

NEW RIVER AT INTERNATIONAL BOUNDARY

SAMPLE TYPE	COMPOSITE		COMPOSITE		COMPOSITE	
DATE	Jan. 20, 2005	DETECTION LIMIT	Feb. 22, 2005	DETECTION LIMIT	Apr. 26, 2005	DETECTION LIMIT
PARAMETER	CONCENTRATION		CONCENTRATION		CONCENTRATION	
Arsenic	7.00 ug/L	2.0 ug/L	6.0 ug/L	2.0 ug/L	5.4 ug/L	2.0 ug/L
Boron	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Cadmium	N.D.	1.0 ug/L	N.D.	1.0 ug/L	N.D.	1.0 ug/L
Chromium	N.D.	10.0 ug/L	N.D.	10.0 ug/L	N.D.	10.0 ug/L
Copper	N.D.	50.0 ug/L	N.D.	50.0 ug/L	N.D.	50.0 ug/L
Lead	N.D.	10.0 ug/L	N.D.	10.0 ug/L	N.D.	10.0 ug/L
Phenol	N.D.	0.02 mg/L	N.D.	0.02 mg/L	N.D	0.02 mg/L
MBAS	0.44 mg/L	0.1 mg/L	2.02 mg/L	0.1 mg/L	0.24 mg/L	0.1 mg/L
Zinc	N.D.	50.0 ug/L	N.D.	50.0 ug/L	N.D.	50.0 ug/L
Total Cyanide	N.D.	0.05 mg/L	N.D.	0.05 mg/L	N.D.	0.05 mg/L
Total Phosphate(PO4-P)	1.65 mg/L	0.2 mg/L	1.45 mg/L	0.2 mg/L	2.53 mg/L	0.2 mg/L
Nitrate (NO3-N)	0.20 mg/L	0.1 mg/L	0.44 mg/L	0.1 mg/L	N.D.	0.1 mg/L
Nitrite (NO2-N)	N.D.	0.1 mg/L	N.D.	0.1 mg/L	N.D.	0.1 mg/L
Ammonia (NH3-NH4-N)	7.87 mg/L	0.05 mg/L	6.45 mg/L	0.05 mg/L	5.24 mg/L	0.05 mg/L
Hardness as (CaCO3)	874 mg/L	1.0 mg/L	838 mg/L	1 mg/L	942 mg/L	1.0 mg/L
Alkalinity (CaCO3)	291 mg/L	1.0 mg/L	282 mg/L	1 mg/L	314 mg/L	1.0 mg/L
Total Dissolved Solids	3,250 mg/L	10.0 mg/L	2,646 mg/L	10.0 mg/L	2,801 mg/L	10.0 mg/L
Total Suspended Solids	21.2 mg/L	10.0 mg/L	15 mg/L	10.0 mg/L	N.D. mg/L	10.0 mg/L
Volatile Suspended Solids	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Oxygen Demand Biochem.	31.0 mg/L	2.0 mg/L	22.8 mg/L	2.0 mg/L	20.1 mg/L	2.0 mg/L
Oxygen Demand Chemical	67.6 mg/L	5.0 mg/L	94.9 ug/L	5.0 mg/L	88.6 mg/L	5.0 mg/L

SAMPLE TYPE	COMPOSITE		COMPOSITE		COMPOSITE	
DATE	May 24, 2005	DETECTION LIMIT	June 28, 2005	DETECTION LIMIT	Aug. 29, 2005	DETECTION LIMIT
PARAMETER	CONCENTRATION		CONCENTRATION		CONCENTRATION	
Arsenic	4.6 ug/L	2.0 ug/L	8.1 ug/L	2.0 ug/L	4.32 ug/L	2.0 ug/L
Boron	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Cadmium	N.D.	1.0 ug/L	N.D.	1.0 ug/L	N.D.	1.0 ug/L
Chromium	N.D.	10.0 ug/L	N.D.	10.0 ug/L	N.D.	10.0 ug/L
Copper	N.D.	50.0 ug/L	N.D.	50.0 ug/L	N.D.	50.0 ug/L
Lead	N.D.	5.0 ug/L	N.D.	10.0 ug/L	N.D.	5.0 ug/L
Phenol	N.D.	0.02 mg/L	N.D.	0.02 mg/L	N.D	0.012 mg/L
MBAS	3.35 mg/L	0.1 mg/L	2.6 mg/L	0.1 mg/L	3.04 mg/L	0.001 mg/L
Zinc	N.D.	50.0 ug/L	N.D.	50.0 ug/L	N.D.	50.0 ug/L
Total Cyanide	N.D.	0.05 mg/L	N.D.	0.05 mg/L	N.D.	0.05 mg/L
Total Phosphate(PO4-P)	2.95 mg/L	0.2 mg/L	2.46 mg/L	0.2 mg/L	2.25 mg/L	0.5 mg/L
Nitrate (NO3-N)	N.D.	0.1 mg/L	0.15 mg/L	0.1 mg/L	N.D.	0.1 mg/L
Nitrite (NO2-N)	N.D.	0.1 mg/L	N.D.	0.1 mg/L	N.D.	0.1 mg/L
Ammonia (NH3-NH4-N)	7.62 mg/L	0.05 mg/L	6.31 mg/L	0.05 mg/L	5.85 mg/L	0.1 mg/L
Hardness as (CaCO3)	969 mg/L	1.0 mg/L	956 mg/L	1 mg/L	830 mg/L	1.0 mg/L
Alkalinity (CaCO3)	342 mg/L	1.0 mg/L	262 mg/L	1 mg/L	295 mg/L	1.0 mg/L
Total Dissolved Solids	3,198 mg/L	10.0 mg/L	3,584 mg/L	10.0 mg/L	3,210 mg/L	10.0 mg/L
Total Suspended Solids	22.0 mg/L	10.0 mg/L	56 mg/L	10.0 mg/L	47 mg/L	10.0 mg/L
Volatile Suspended Solids	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Oxygen Demand Biochem.	42.2 mg/L	2.0 mg/L	38.5 mg/L	2.0 mg/L	N.A. mg/L	2.0 mg/L
Oxygen Demand Chemical	127 mg/L	5.0 mg/L	100 mg/L	2.0 mg/L	N.A. mg/L	5.0 mg/L

N.A. - Not Analyzed
N.D. - Not Detected
NOTE: CRWQCB used various labs for 2005. Each lab has its own reporting/detection limits.

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

CHEMICAL ANAYLSIS OF WATER SAMPLES

The tables below are based on samples collected and analyzed by the California Regional Water Quality Control Board - Colorado River Basin, Region-7. The CRWQCB has sampled from 1986 to present; prior to that samples were collected and analyzed by the U.S. Geological Survey from 1974 to 1985. Samples from the New River are taken from the right bank at the road bridge, 137 meters north of the international boundary.

NEW RIVER AT INTERNATIONAL BOUNDARY

SAMPLE TYPE	COMPOSITE		DETECTION	COMPOSITE		DETECTION	COMPOSITE		DETECTION
DATE	Sep. 26, 2005		LIMIT	Nov. 14, 2005		LIMIT	Dec. 5, 2005		LIMIT
PARAMETER	CONCENTRATION			CONCENTRATION			CONCENTRATION		
Arsenic	13.1	ug/L	2.0 ug/L	12.6	ug/L	2.0 ug/L	3.44	ug/L	2.0 ug/L
Boron	N.A.		N.A.	N.A.		N.A.	N.A.		N.A.
Cadmium	N.D.		1.0 ug/L	N.D.		1.0 ug/L	N.D.		1.0 ug/L
Chromium	N.D.		10.0 ug/L	N.D.		10.0 ug/L	N.D.		10.0 ug/L
Copper	N.D.		50.0 ug/L	N.D.		50.0 ug/L	N.D.		50.0 ug/L
Lead	9.09	ug/L	5.0 ug/L	7.8	ug/L	5.0 ug/L	N.D.		5.0 ug/L
Phenol	N.D.		0.02 mg/L	N.D.		0.02 mg/L	N.D		0.02 mg/L
MBAS	4.00	mg/L	0.1 mg/L	4.37	mg/L	0.1 mg/L	4.92	mg/L	0.1 mg/L
Zinc	62.4	ug/L	50.0 ug/L	252	ug/L	50.0 ug/L	N.D.		50.0 ug/L
Total Cyanide	N.D.		0.05 mg/L	N.D.		0.05 mg/L	N.D.		0.05 mg/L
Total Phosphate(PO4-P)	2.3	mg/L	0.5 mg/L	2.70	mg/L	0.5 mg/L	2.18	mg/L	0.5 mg/L
Nitrate (NO3-N)	N.D.		0.1 mg/L	N.D.	mg/L	0.1 mg/L	0.12	mg/L	0.1 mg/L
Nitrite (NO2-N)	N.D.		0.1 mg/L	N.D.		0.1 mg/L	N.D.		0.1 mg/L
Ammonia (NH3-NH4-N)	7.86	mg/L	0.05 mg/L	9.34	mg/L	0.05 mg/L	8.51	mg/L	0.1 mg/L
Hardness as (CaCO3)	783	mg/L	1.0 mg/L	807	mg/L	1 mg/L	835	mg/L	1.0 mg/L
Alkalinity (CaCO3)	294	mg/L	1.0 mg/L	331	mg/L	1 mg/L	316	mg/L	1.0 mg/L
Total Dissolved Solids	2,235	mg/L	10.0 mg/L	2,830	mg/L	10.0 mg/L	2,882	mg/L	10.0 mg/L
Total Suspended Solids	41.0	mg/L	10.0 mg/L	39	mg/L	10.0 mg/L	22.5	mg/L	10.0 mg/L
Volatile Suspended Solids	N.A.		N.A.	N.A.		N.A.	N.A.		N.A.
Oxygen Demand Biochem.	37.3	mg/L	2.0 mg/L	39.7	mg/L	2.0 mg/L	34.8	mg/L	2.0 mg/L
Oxygen Demand Chemical	116	mg/L	5.0 mg/L	90.4	mg/L	5.0 mg/L	65.8	mg/L	5.0 mg/L

NOTE: CRWQCB used various labs for 2005. Each lab has its own reporting/detection limits.
N.D.- None Detected
N.A.- Not Analyzed

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 THE INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROSIEMENS/CM @ 25 DEG C - 2005

January		February		March		April		May		June	
17	5,110	7	5,400	7	5,250	4	5,300	2	5,500	6	6,100
24	4,870	14	4,670	14	5,300	11	5,560	9	5,600	13	5,600
31	5,100	28	5,100	28	5,500	18	5,590	16	5,680	20	5,800
						25	5,900			27	6,000
July		**August**		**September**		**October**		**November**		**December**	
4	5,200	1	5,900	5	5,500	10	5,700	7	5,700	5	5,200
11	6,200	8	3,400	12	5,700	17	3,900	14	5,200	19	5,100
17	5,900	15	5,900	19	5,300	24	5,400			26	5,300
25	5,900	22	5,300	26	4,800						
		29	5,100								

CHEMICAL ANALYSES OF WATER SAMPLES

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

Samples from the station Effluent - Oxidation Ponds (also referred to as Lagoon Discharge Canal) are taken near the Zaragoza lagoons in Mexicali at 32`36'42.27" N, 115`33'12.25" W. Samples from the Alamo River are taken north of the international boundary upstream of the box culvert under the All-American Canal, at 32`40'31.14" N, 115`22'12.69" W. Flow at this point includes drainage flows across the international boundary and flows from drain interceptors along the toe of the south bank of the All-American Canal.

EFFLUENT - OXIDATION PONDS

2005 Date	Time Std.	Momentary Streamflow CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Micro-Siemens/cm	Fecal Coliform Colonies/ 100 mL	Oxygen Demand Biochemical (BOD) mg/L	Oxygen Demand Chemical (COD) mg/L
Jan. 19	1100	0.6	14.9	7.97	0.58	2,400	5,200	27	51
Feb. 9	0930	0.6	14.8	8.12	0.59	2,140	TNTC	23	41
Mar. 9	1010	1.5	19.9	7.94	0.17	2,090	TNTC	20	39
Apr. 6	0900	1.7	20.0	8.07	2.99	1,850	TNTC	17	56
May 11	0950	1.0	21.4	8.11	5.58	1,980	1,730	26	40
June 8	0940	0.8	24.7	8.11	0.89	2,240	1,090	39	73
July 6	1005	1.7	27.0	8.22	4.26	2,390	TNTC	56	164
Aug. 10	0935	1.4	30.8	8.21	5.90	2,070	#	38	86
Sept. 14	1015	1.5	23.5	8.21	0.32	2,200	11,550	43	45
Oct. 12	0915	1.6	22.0	8.11	0.06	2,260	2,622	49	128
Nov. 9	1000	1.7	20.1	7.76	0.47	2,280	TNTC	72	102

Note: Momentary Streamflow, Temperature, pH, D.O., and Specific Conductance - Data collected in the field
\# - Interference
TNTC - too numerous to count

ALAMO RIVER

2005 Date	Time Std.	Flow * CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Micro-Siemens/cm	Coliform Fecal Colonies/ 100 mL
Jan. 27	1140	0.01	16.3	7.78	8.78	5,040	26
Feb. 23	0745	0.03	15.8	7.46	8.92	3,670	120
Mar. 23	0810	0.04	18.1	7.58	8.01	4,520	102
Apr. 20	0830	0.02	19.3	7.82	8.76	4,350	0
May 26	1005	0.02	28.1	7.88	5.01	5,190	#
June 22	0720	0.02	27.7	8.04	6.65	5,020	30
July 20	0905	0.02	29.1	7.57	6.69	3,380	#
Aug. 24	0715	0.01	30.4	7.54	8.17	4,980	0
Sep. 28	0815	0.01	24.0	7.50	8.07	4,760	#
Oct. 26	0730	0.01	21.0	7.40	10.92	4,280	40
Nov. 22	0955	0.02	15.0	7.35	5.10	5,860	0
Dec. 14	0750	0.03	10.8	9.07	6.55	5,050	0

* - Flow provided by Imperial Irrigation District (Mean Daily)
\# - Interference

CHEMICAL ANALYSES OF WATER SAMPLES

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

Samples from the station New River above Agricultural Drain (also referred to as Upstream of Lagoon Discharge Canal) are taken in Mexico near the international boundary at 32`39'48.56" N, 115`29'48.83" W. Samples from the New River are taken from the right bank at the road bridge, 137 meters north of the international boundary, at 32`39'57.01" N, 115`30'09.72" W. Records of sampling extend from April 1951 through 2005.

NEW RIVER AT INTERNATIONAL BOUNDARY

2005 Date	Time Std.	Flow ** CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Micro-Siemens/cm	Fecal Coliform Colonies/ 100 mL	Oxygen Demand Biochemical (BOD) mg/L	Oxygen Demand Chemical (COD) mg/L
Jan. 19	0830	4.30	14.8	7.21	1.17	4,760	446,667	34	54
Jan. 27	1215	5.24	17.5	7.33	1.41	4,420	383,000	NS	NS
Feb. 9	0805	5.24	15.4	7.30	1.15	4,440	150,000	28	48
Feb. 23	0830	8.41	17.0	7.30	2.40	4,030	900#	NS	NS
Mar. 9	0805	6.71	20.4	7.40	0.94	4,650	380,000	25	37
Mar. 23	0915	6.40	18.7	7.34	1.44	4,890	115,000	NS	NS
Apr. 6	0800	6.43	20.9	7.35	0.41	4,840	135,000	15	58
Apr. 20	0745	6.37	20.0	7.44	1.34	5,230	155,000	NS	NS
May 11	0745	5.66	20.8	7.50	0.54	5,010	530,000	18	84
May 26	1100	4.79	28.3	7.51	0.22	5,550	#	NS	NS
June 8	0805	4.50	25.8	7.41	0.14	5,670	250,000	NS	NS
June 22	0815	4.25	29.3	7.45	0.18	5,400	380,000	40	70
July 6	1120	4.25	27.9	7.34	0.22	5,790	170,000	38	67
July 20	1000	4.28	30.8	7.18	0.81	5,700	751,667	NS	NS
Aug. 10	0755	9.12	29.8	7.29	0.09	3,280	2,350,000	49	41
Aug. 24	0800	4.02	30.7	7.39	0.29	4,350	583,333	NS	NS
Sept. 14	0830	3.60	23.9	7.57	0.13	5,000	1,375,000	23	104
Sept. 28	0920	3.82	24.8	7.51	0.07	4,590	380,000	NS	NS
Oct. 12	0745	3.60	22.8	7.43	1.20	4,910	360,000	57	147
Oct. 26	0810	4.53	22.0	7.10	1.25	4,670	216,667	NS	NS
Nov. 9	0835	3.79	20.5	7.56	1.29	4,440	203,333	74	112
Nov. 22	1100	4.16	16.8	7.41	1.08	4,570	280,000	NS	NS
Dec. 14	0800	5.07	12.7	7.61	1.05	4,270	136,667	NS	NS

Note: Temperature, pH, D.O., and Specific Conductance - Data collected in the field
** Flow reported by Imperial Irrigation District (Mean Daily)
# Interference
NS Not Sampled

NEW RIVER ABOVE AGRICULTURAL DRAIN NEAR INTERNATIONAL BOUNDARY

2005 Date	Time Std.	Momentary Streamflow CMS	Water Temperature Deg C	pH Units	Oxygen Dissolved (DO) mg/L	Specific Conductance Micro-Siemens/cm	Fecal Coliform Colonies/ 100 mL	Oxygen Demand Biochemical (BOD) mg/L	Oxygen Demand Chemical (COD) mg/L
Jan. 19	0930	4.9	14.7	7.18	0.10	5,090	336,667	27	51
Feb. 9	0840	6.2	15.5	7.19	0.21	4,810	40,000	23	41
Mar. 9	0845	7.1	20.3	7.29	0.18	5,200	235,000	20	39
Apr. 6	0830	4.0	21.1	7.37	0.19	5,140	250,000	17	56
May 11	0825	5.6	20.8	7.44	0.09	5,450	556,667	26	40
June 8	0835	3.0	25.6	7.26	0.12	6,290	513,333	39	73
July 6	0850	3.6	27.2	7.12	0.14	6,110	330,000	56	164
Aug. 10	0830	9.3	30.0	7.30	0.11	3,780	2,375,000	38	86
Sept. 14	0915	2.5	24.2	7.42	0.05	5,560	2,025,000	43	45
Oct. 12	0820	2.4	23.2	7.25	0.07	5,430	416,667	49	128
Nov. 9	0835	2.4	20.5	7.57	0.64	4,440	273,333	72	102

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


INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
TIJUANA RIVER
DRAINAGE BASIN
0 5 10 15 MILES
0 5 10 15 20 25 KILOMETERS
STREAM GAGING STATION
RESERVOIR GAGE
RAINFALL STATION
UNITED STATES
CALIFORNIA
BAJA CALIFORNIA
MEXICO
PACIFIC OCEAN
SAN DIEGO
CHULA VISTA
NESTOR
SAN YSIDRO
TIJUANA
BROWN FIELD
TIJUANA R.
LOWER OTAY DAM
DULZURA CONDUIT
MARRON VALLEY
COTTONWOOD
VALLE REDONDO
ARR. MATANUCO
ARROYO FLORIDO
EL CARRIZO
RODRIGUEZ DAM
RIO DE LAS PALMAS
VALLE DE LAS PALMAS
P.B. ROSARITO
BARRETT DAM
MORENA DAM
SAWDAY RANCH
POTRERO
TECATE
TECATE CR.
CAMPO
CR.
JACUMBA
LA RUMOROSA
EL HONGO
ARROYO SECO
ARROYO DE LA CIENAGA
ARROYO DE LAS CALABAZAS
BELEN
EL PINAL
SAN JUAN DE DIOS
PINE VALLEY CR.
COTTONWOOD CR.
LA POSTA CR.
117° 15'
117°
116° 45'
116° 30'
116° 15'
116°
32° 45'
32° 30'
32° 15'

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 2005.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 2005 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 2005	PERIOD 1937 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	3,011	1,180	20,362	0
February	5,111	2,507	41,407	0
March	3,647	3,345	55,845	0
April	2,060	1,966	28,530	0
May	177	977	18,642	0
June	0	553	10,173	0
July	0	345	7,651	0
August	1	261	8,916	0
September	0	180	6,331	0
October	68.0	158	4,817	0
November	0	258	5,633	0
December	0	695	9,472	0
Yearly	14,075	12,425	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 2005.
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 2005	PERIOD 1937 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	91.0	286	2,583	0
February	229	946	19,644	0
March	186	1,834	55,615	0
April	96.0	1,389	28,159	0
May	149	773	18,100	0
June	128	589	9,260	0
July	230	369	6,236	0
August	99.0	352	7,937	0
September	128	389	7,253	0
October	149	248	4,639	0
November	88.0	275	5,071	0
December	99.0	487	9,099	0
Yearly	1,672	7,937	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 2005. 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 49.043 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 2005	PERIOD 1937 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	7,793	1,533	29,627	0
February	8,588	3,293	67,539	0
March	6,549	5,499	62,041	0
April	2,553	2,751	26,680	0
May	82	1,267	10,509	0
June	0	597	4,818	0
July	0	362	5,042	0
August	0	188	4,472	0
September	0	190	3,858	0
October	0	117	796	0
November	0	240	2,519	0
December	0	643	6,845	0
Yearly	25,565	16,680	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 2005.
REMARKS: Barrett Dam was completed in 1921. Prior to this date the intake of Dulzura Conduit was located 2.4 kilometers upstream. The conduit carries diversions from Barrett Reservoir on Cottonwood Creek westerly across the divide into Otay Reservoir for municipal use by the City of San Diego. Prior to September 30, 1958, station was located 12.9 kilometers along the conduit from Barrett Dam, being reported as "Dulzura Conduit near Dulzura"; and the draft from Barrett Reservoir was computed from the discharges obtained at the conduit gaging station, multiplied by the factor 1.05 to allow for channel loss in the reach from the reservoir to the gaging station.
EXTREMES: Since 1937: Maximum mean daily discharge, 4.66 CMS on March 8, 1995; minimum discharge, no flow for long periods on many occasions.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- 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
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	0	0	0	0	0	0	0

Current Year 2005 | Period 1937-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	Extreme-Cubic Meters per Second @ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			! 1	0	! 1	0	0	0	584	2,899	0
Feb.			! 1	0	! 1	0	0	0	559	2,883	0
Mar.			! 1	0	! 1	0	0	0	811	7,639	0
April			! 1	0	! 1	0	0	0	1,014	5,016	0
May			! 1	0	! 1	0	0	0	1,146	3,750	0
June			! 1	0	! 1	0	0	0	1,177	4,611	0
July			! 1	0	! 1	0	0	0	1,070	4,914	0
Aug.			! 1	0	! 1	0	0	0	997	4,741	0
Sept.			! 1	0	! 1	0	0	0	796	2,862	0
Oct.			! 1	0	! 1	0	0	0	684	3,235	0
Nov.			! 1	0	! 1	0	0	0	717	3,404	0
Dec.			! 1	0	! 1	0	0	0	623	2,843	0
Yearly				0		0	0	0	10,178	40,526	0

@ Mean daily ! And other days

11-0111.00 COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located about 4.0 kilometers downstream from Barrett Dam and 0.8 kilometer upstream from Rattlesnake Canyon for measuring Barrett Dam spills; and staff gage and control weir located immediately below the dam for measuring leakage. The elevation of the gage is about 305 meters (from topographic map).

RECORDS: Data furnished by the City of San Diego, California. Prior to January 1953, the records were furnished by the City of San Diego and reviewed and revised by the United States Section of the Commission. The recorder is to be operated only when Barrett Reservoir is near or above spillway level. Spillway discharges have occurred in May 1943, March, April 1979, January to May of 1980, April, December 1982, and the entire year of 1983, January to April 1993 and January to March 1995. Spillway discharges included in the period record below were computed by the City of San Diego from the head on the spillway crest, read on the reservoir gage, and applied to a broad-crested weir formula. Records available: January 1921 through 2005. 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 2005	PERIOD 1937 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	0	393	10,114	0
February	1	2,036	86,736	0
March	3	4,157	111,775	0
April	3	2,091	45,417	0
May	3	937	28,287	0
June	5	431	13,503	0
July	1	222	5,311	0
August	5	143	4,206	0
September	4	53.0	1,554	0
October	4	45.0	1,530	0
November	5	138	5,100	0
December	4	180	6,058	0
Yearly	38	10,826	254,099	0

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 173.555 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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.48	0.45	3.06	0.34	0.19	0.01	0	0	0	0	0	0
2	.34	.40	2.66	.34	.16	.01	0	0	0	0	0	0
3	.57	.34	2.24	.34	.13	.01	0	0	0	0	0	0
4	3.48	.31	1.98	.42	.12	.01	0	0	0	0	0	0
5	2.97	.31	3.14	.40	.11	.01	0	0	0	0	0	0
6	1.39	.31	2.38	.34	.11	.01	0	0	0	0	0	0
7	1.16	.31	1.76	.31	.10	0	0	0	0	0	0	0
8	1.87	.34	1.42	.31	.10	0	0	0	0	0	0	0
9	2.52	.34	1.25	.37	.09	0	0	0	0	0	0	0
10	3.09	.31	1.10	.37	.09	0	0	0	0	0	0	0
11	8.67	.59	.99	.37	.09	0	0	0	0	0	0	0
12	7.53	3.79	.85	.34	.08	0	0	0	0	0	0	0
13	4.47	5.01	.82	.37	.07	0	0	0	0	0	0	0
14	3.40	3.12	.82	.37	.06	0	0	0	0	0	0	0
15	2.61	2.35	.68	.34	.06	0	0	0	0	0	0	0
16	1.93	1.90	.57	.34	.06	0	0	0	0	0	0	0
17	1.50	1.61	.57	.34	.05	0	0	0	0	0	0	0
18	1.19	2.52	.59	.34	.05	0	0	0	0	0	0	0
19	.96	3.14	.71	.34	.05	0	0	0	0	0	0	0
20	.82	3.60	.79	.34	.04	0	0	0	0	0	0	0
21	.74	4.08	.68	.31	.04	0	0	0	0	0	0	0
22	.65	6.85	.59	.28	.03	0	0	0	0	0	0	0
23	.57	13.4	1.59	.27	.03	0	0	0	0	0	0	0
24	.51	8.07	1.47	.24	.03	0	0	0	0	0	0	0
25	.45	5.86	1.10	.22	.03	0	0	0	0	0	0	0
26	.48	4.64	.85	.19	.02	0	0	0	0	0	0	0
27	.54	3.94	.62	.17	.02	0	0	0	0	0	0	0
28	.51	3.40	.57	.18	.02	0	0	0	0	0	0	0
29	.76		.54	.22	.01	0	0	0	0	0	0	0
30	.76		.48	.24	.01	0	0	0	0	0	0	0
31	.57		.42		.01		0	0		0		0
Sum	57.49	81.29	37.29	9.35	2.06	0.06	0	0	0	0	0	0

Current Year 2005						Period 1937-2005		
Month	Extreme Gage Meters		Extreme-Cubic Meters per Second			Volume-Thousand Cubic Meters		
	High	Low	@ High	@ Low	Average	Total	Average	Maximum	Minimum
Jan.			11 / 8.67	2 / 0.34	1.85	4,967	1,387	45,897	0
Feb.			23 / 13.4	! 4 / .31	2.90	7,023	3,437	85,134	0
Mar.			5 / 3.14	31 / .42	1.20	3,222	4,974	109,418	0
April			4 / .42	27 / .17	.31	808	2,438	49,635	0
May			1 / .19	!29 / .01	.07	178	888	22,439	0
June			! 1 / .01	! 7 / 0	0	5.2	309	7,301	0
July			! 1 / 0	! 1 / 0	0	0	99.0	3,599	0
Aug.			! 1 / 0	! 1 / 0	0	0	76.0	1,850	0
Sept.			! 1 / 0	! 1 / 0	0	0	75.0	4,209	0
Oct.			! 1 / 0	! 1 / 0	0	0	88.0	291	0
Nov.			! 1 / 0	! 1 / 0	0	0	53.0	1,378	0
Dec.			! 1 / 0	! 1 / 0	0	0	172	3,169	0
Yearly			13.4		0	0.51	16,203	13,996	220,556	0

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.01	0.31	0.08	0.08	0.03	0.02	0.01	0.01	0.01	0.01	0.01
2	.01	.01	.27	.08	.07	.03	.02	.01	.01	.01	.01	.01
3	.03	.01	.27	.08	.07	.03	.02	.01	.01	.01	.01	.01
4	.12	.01	.27	.08	.07	.03	.02	.01	.01	.01	.01	.01
5	.05	.01	.37	.08	.07	.03	.02	.01	.01	.01	.01	.01
6	.02	.02	.25	.08	.07	.03	.02	.01	.01	.01	.01	.01
7	.02	.02	.21	.08	.07	.03	.02	.01	.01	.01	.01	.01
8	.02	.02	.17	.08	.06	.03	.02	.02	.01	.01	.01	.01
9	.02	.02	.18	.08	.06	.03	.02	.01	.01	.01	.01	.01
10	.02	.02	.17	.08	.05	.03	.02	.01	.01	.01	.01	.01
11	.12	.16	.16	.07	.05	.03	.02	.01	.01	.01	.01	.01
12	.09	.28	.15	.07	.05	.03	.02	.01	.01	.01	.01	.01
13	.08	.37	.16	.07	.05	.03	.02	.01	.01	.01	.01	.01
14	.03	.17	.15	.07	.05	.03	.02	.01	.01	.01	.01	.01
15	.02	.25	.14	.07	.05	.03	.02	.01	.01	.01	.01	.01
16	.01	.15	.13	.07	.05	.03	.02	.01	.01	.01	.01	.01
17	.01	.11	.13	.06	.05	.03	.01	.01	.01	.01	.01	.01
18	.01	.28	.14	.07	.05	.03	.01	.01	.01	.01	.01	.01
19	.01	.22	.18	.07	.05	.02	.01	.01	.01	.01	.01	.01
20	.01	.37	.15	.07	.05	.02	.01	.01	.01	.01	.01	.01
21	.01	.27	.12	.06	.05	.02	.01	.01	.01	.01	.01	.01
22	.01	.57	.12	.07	.04	.02	.01	.01	.01	.01	.01	.01
23	.01	1.84	.40	.07	.04	.02	.01	.01	.01	.01	.01	.01
24	.01	.96	.20	.08	.04	.02	.01	.01	.01	.01	.01	.01
25	.01	.74	.17	.08	.04	.02	.01	.01	.01	.01	.01	.01
26	.01	.68	.13	.08	.04	.02	.01	.01	.01	.01	.01	.01
27	.01	.42	.13	.07	.04	.02	.01	.01	.01	.01	.01	.01
28	.01	.34	.13	.10	.04	.02	.01	.01	.01	.01	.01	.01
29	.01		.12	.10	.04	.02	.01	.01	.01	.01	.01	.01
30	.01		.11	.08	.04	.02	.01	.01	.01	.01	.01	.01
31	.01		.10		.04		.01	.01		.01		.01
Sum	0.82	8.33	5.69	2.28	1.62	0.78	0.47	0.32	0.30	0.31	0.30	0.31

Current Year 2005						Period 1937-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters			
Month	High	Low	@ High	Day	@ Low	Day	Average	Total	Average	Maximum	Minimum
Jan.			0.12	! 4	0.01	! 1	0.03	70.8	400	10,581	0
Feb.			1.84	23	.01	! 1	.30	720	526	5,288	0
Mar.			.40	23	.10	31	.18	492	832	11,587	0
April			.10	!28	.06	!17	.08	197	514	8,886	0
May			.08	1	.04	!22	.05	140	251	3,956	0
June			.03	! 1	.02	!19	.03	67.4	124	2,234	0
July			.02	! 1	.01	!17	.02	40.6	67.0	1,525	0
Aug.			.02	8	.01	! 1	.01	27.6	61.0	2,008	0
Sept.			.01	! 1	.01	! 1	.01	25.9	45.0	1,214	0
Oct.			.01	! 1	.01	! 1	.01	26.8	56.0	1,084	0
Nov.			.01	! 1	.01	! 1	.01	25.9	111	1,522	0
Dec.			.01	! 1	.01	! 1	.01	26.8	190	1,953	0
Yearly			1.84		0.01		0.06	1,861	3,177	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. Records obtained by the Ministry of Agriculture and Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana, Baja California, and from April 1966 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 2005. 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 94 TCM; at top of spillway gates 137 TCM.
EXTREMES: Maximum monthly inflow, 237,657 TCM, January 1993; minimum, no flow during part of most years.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 2005	PERIOD 1938 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	293	5,700	237,657	0
February	149	7,783	194,216	0
March	68.2	11,459	172,556	0
April	2.4	3,412	95,953	0
May	0	732	14,136	0
June	0	215	5,749	0
July	1.3	109	1,806	0
August	0	60.1	950	0
September	0	60.9	575	0
October	0	76.4	432	0
November	0	158	2,393	0
December	0	843	19,348	0
Yearly	514	30,608	412,673	0

11-0132.00 DIVERSIONS FROM RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Sparling flow meter located immediately below the dam in the pipeline which carries water from Rodriguez Reservoir to Gate No. 1 (Poblado Presa) and to Gate No. 2 (City Aqueduct). Formerly, water for irrigation was also diverted to the North and South Canals.
RECORDS: Direct recording by Sparling flow meter. Records through May 1961 were obtained by the Ministry of Agriculture and Hydraulic Resources; from June 1961 to March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana; and from April 1966 through 1991 by the State of Baja California Commission of Public Services for Tijuana. Since 1992, the data have been obtained by the Baja California Regional Office of the National Water Commission. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 2005.
REMARKS: Beginning in January 1937, diversions for irrigation began from both sides for the Tijuana Valley and for domestic use at the village by Rodriguez Dam and the City of Tijuana. Since February 1960, no water has been released for irrigation of farmlands.
EXTREMES: Maximum monthly diversion, 36,018 TCM, March 1996; minimum, no flow on several occasions since March 1941.

MONTHLY DISCHARGE IN THOUSAND CUBIC METERS

MONTH	CURRENT YEAR 2005	PERIOD 1938 - 2005		
		AVERAGE	MAXIMUM	MINIMUM
January	0	617	6,183	0
February	0	601	6,028	0
March	1.5	1,121	36,018	0
April	3.0	737	6,142	0
May	3.1	924	6,578	0
June	3.3	1,033	5,893	0
July	6.0	1,188	7,523	0
August	4.5	1,111	5,931	0
September	6.6	986	6,158	0
October	0	898	6,054	0
November	4.6	776	5,873	0
December	0	728	6,212	0
Yearly	32.6	10,722	94,980	0

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005.
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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.11	1.52	5.03	1.80	1.54	0	0	0	0	0	0	0
2	3.85	1.76	4.65	1.81	1.42	0	0	0	0	0	0	0
3	6.90	1.64	4.48	1.76	1.38	0	0	0	0	0	0	.32
4	31.9	1.62	4.68	1.68	1.09	0	0	0	0	0	0	.15
5	7.99	1.64	8.50	1.73	.28	0	0	0	0	0	0	.07
6	5.60	1.57	3.05	1.61	1.03	0	0	0	0	0	.09	0
7	5.73	1.63	3.40	1.67	1.43	0	0	0	0	0	.06	0
8	5.80	1.60	3.70	1.62	1.44	0	0	0	.05	0	0	0
9	5.79	1.55	3.61	1.58	1.16	0	.06	0	.05	0	0	0
10	5.84	1.48	3.45	1.64	.17	0	.06	0	0	0	0	0
11	52.1	7.64	2.97	1.60	.26	.18	0	0	0	0	0	0
12	7.75	11.4	2.98	1.57	.35	0	0	0	0	0	.05	0
13	6.32	10.1	2.89	1.60	.30	0	0	0	0	0	.26	0
14	5.60	5.85	2.80	1.56	.31	0	0	0	0	0	0	0
15	4.49	4.38	2.78	1.61	.21	0	0	0	0	0	0	0
16	2.87	3.82	2.68	1.69	.13	0	0	0	0	.02	0	0
17	2.85	3.48	2.72	1.61	.35	0	0	0	0	.41	0	0
18	2.85	7.42	2.69	1.59	.21	0	0	0	0	2.02	0	0
19	3.09	7.16	2.69	1.62	.12	0	0	0	0	.55	0	0
20	3.06	7.92	2.68	1.56	.17	0	.07	0	0	.01	0	0
21	2.62	25.3	2.67	1.53	.07	0	0	0	.05	0	0	0
22	2.21	32.5	2.66	1.54	.08	0	0	0	0	0	0	0
23	2.31	207	5.13	1.58	.02	0	0	0	0	0	0	0
24	2.22	11.6	4.90	1.58	0	0	0	0	0	0	0	0
25	1.92	9.17	4.83	1.53	0	0	0	0	0	0	0	0
26	1.86	7.16	5.00	1.40	0	0	0	0	0	.01	0	.04
27	1.79	5.97	5.13	1.29	0	0	0	0	0	.01	0	0
28	1.78	5.47	5.02	2.50	0	0	0	0	0	.01	0	0
29	1.78		2.40	2.02	0	0	.04	0	0	.03	0	0
30	1.75		2.21	1.66	0	0	0	0	0	.05	0	0
31	1.73		2.02		0		0	0		0		0
Sum	196.46	389.35	114.40	49.54	13.52	0.18	0.23	0	0.15	3.12	0.46	0.58

Current Year 2005							Period 1947-2005		
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters		
Month	High	Low	High Day	High	Low Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	13.610	12.020	11	503	31	1.73	6.34	16,974	8,767	297,879	0
Feb.	13.805	12.005	23	715	1	1.36	13.9	33,640	13,963	388,951	0
Mar.	12.735	12.025	5	21.1	31	1.84	3.69	9,884	16,048	362,019	0
April	12.375	11.980	28	9.31	!12	1.00	1.65	4,280	4,202	77,633	0
May	12.025	11.920	1	1.87	! 5	0	.44	1,168	1,989	52,545	0
June	12.005	11.920	11	.98	! 1	0	.01	15.6	687	11,960	0
July	11.975	11.920	10	.92	! 1	0	.01	19.9	497	11,400	0
Aug.	11.920	11.920	! 1	0	! 1	0	0	0	593	21,083	0
Sept.	11.975	11.920	! 9	.62	! 1	0	.01	13.0	292	5,142	0
Oct.	12.155	11.920	18	4.64	! 1	0	.10	270	478	6,859	0
Nov.	11.970	11.920	13	.83	! 1	0	.02	39.7	634	5,399	0
Dec.	12.000	11.920	3	1.35	! 1	0	.02	50.1	1,145	8,270	0
Yearly	13.805	11.920		715		0	2.10	66,354	49,295	734,832	0

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 National Water Commission of Mexico.

IN THOUSAND CUBIC METERS

	MORENA RESERVOIR, CALIFORNIA (Capacity 61,933)		BARRETT RESERVOIR, CALIFORNIA (Capacity 55,211)		RODRIGUEZ RESERVOIR, BAJA CALIFORNIA (Capacity 138,000)		TOTAL IN TIJUANA RIVER BASIN RESERVOIRS (Capacity 255,147)	
Month	2005	Average 1937-2005	2005	Average 1937-2005	2005	Average 1937-2005	2005	Average 1937-2005
Jan.	7,145	24,062	18,359	18,532	40,400	40,079	65,904	82,673
Feb.	12,031	25,372	27,087	19,568	60,630	42,484	99,748	87,424
Mar.	15,387	26,764	33,635	21,791	66,592	47,701	115,614	96,256
April	17,062	26,934	35,991	22,473	65,752	48,552	118,805	97,959
May	17,597	26,736	36,943	22,286	63,020	47,731	117,560	96,753
June	17,382	26,066	36,899	21,537	60,474	45,884	114,755	93,487
July	16,958	25,298	36,465	20,661	57,620	44,071	111,043	90,030
Aug.	16,544	24,593	35,991	19,702	54,076	42,075	106,611	86,370
Sept.	16,106	23,913	35,606	18,990	51,640	40,531	103,352	83,434
Oct.	15,739	23,455	35,309	18,340	49,792	39,047	100,840	80,831
Nov.	15,515	23,245	35,139	17,860	47,460	38,292	98,114	79,397
Dec.	15,322	23,311	35,096	18,020	46,235	38,186	96,653	79,517
Avg.	15,232	24,978	33,543	19,980	55,308	43,067	104,083	87,844
Max.	17,597	#! 76,069	36,943	*! 56,641	66,592	! 138,486	118,805	! 263,471
Min.	7,145	!! 12	18,359	!! 131	40,400	!! 0	65,904	!! 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	
	2005	Average 1906-2005	2005	Average 1907-2005	2005	Average 1951-2005	2005	Average 1950-2005	2005	Average 1900-2005
Jan.	159	97	144	88	106	54	158	88	131	78
Feb.	167	100	156	89	93	46	167	87	124	83
Mar.	44	88	41	80	31	59	40	77	41	72
April	25	41	17	37	7	23	18	37	15	34
May	1	14	1	13	0	6	4	9	1	11
June	0	3	0	2	0	1	0	1	0	2
July	7	9	2	3	0	1	33	14	12	12
Aug.	71	15	0	6	0	2	74	22	64	14
Sept.	1	11	3	6	1	5	0	12	0	9
Oct.	14	23	12	19	6	11	22	17	16	17
Nov.	2	39	1	36	1	28	1	40	3	33
Dec.	2	75	1	67	4	45	0	58	T	59
Yearly	493	515	378	446	249	281	517	462	407	424

Month	Chula Vista, California		Lower Otay Dam, California	
	2005	Average 1930-2005	2005	Average 1906-2005
Jan.	103	48	109	55
Feb.	144	49	128	50
Mar.	3	43	42	54
April	0	20	1	25
May	0	5	0	9
June	0	1	0	3
July	0	1	0	1
Aug.	0	2	0	2
Sept.	0	4	0	5
Oct.	#	10	10	13
Nov.	0	27	4	30
Dec.	1	37	1	36
Yearly	#	246	295	283

Missing record

IN MEXICO

Month	El Pinal, Baja California		El Hongo, Baja California		Ignacio Zaragoza, Baja California		Tecate, Baja California		El Carrizo, Baja California	
	2005	Average 1964-2005	2005	Average 1980-2005	2005	Average 1965-2005	2005	Average 1946-2005	2005	Average 1980-2005
Jan.	#	84	97	60	#	61	119	74	84	42
Feb.	#	90	70	68	#	73	70	60	90	57
Mar.	#	94	26	60	#	63	35	65	20	51
April	#	37	7	19	#	24	15	28	7	19
May	#	9	4	5	#	5	3	7	T	3
June	#	1	0	2	#	2	0	3	0	1
July	#	18	14	12	#	3	0	4	0	3
Aug.	#	23	57	21	#	7	0	5	T	2
Sept.	#	17	1	7	#	9	4	5	2	4
Oct.	#	16	10	16	#	15	10	15	11	17
Nov.	#	46	2	26	#	37	6	33	T	26
Dec.	#	71	0	30	#	46	3	48	3	30
Yearly		494	288	323	#	338	265	354	217	263

Missing record T Trace

RAINFALL ON THE TIJUANA RIVER WATERSHED
IN MILLIMETERS

	IN MEXICO					
	Valle de Palmas, Baja California		Rodriguez Dam, Baja California			
	2005	Average 1948-2005	2005	Average 1938-2005		
Jan.	101	43	89	45		
Feb.	53	41	86	46		
Mar.	7	39	27	42		
April	3	15	7	19		
May	0	4	T	3		
June	0	T	T	T		
July	0	2	0	T		
Aug.	0	4	0	2		
Sept.	T	5	T	5		
Oct.	4	10	8	12		
Nov.	T	19	1	22		
Dec.	0	26	3	37		
Yearly	168	202	221	234		

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 2005.

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	Ben and Kelly Tulloch

IN MEXICO

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

@ Elevation above mean sea level " Estimated from topographic maps
** Baja California State Office of the National Water Commission

EVAPORATION IN THE TIJUANA RIVER BASIN
IN MILLIMETERS

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

Types of pans used:

1. Barrett Reservoir: January 1921 through September 1926, square 0.91-meter by 0.91-meter by 0.46-meter deep floating pan. October 1926 through 2005, 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 2005, 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 2005, 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	
	2005	Average 1916-2005	2005	Average 1921-2005	2005	Average 1950-2005
Jan.	87	56	27	47	21	50
Feb.	127	55	27	54	22	58
Mar.	92	83	61	82	67	86
April	150	119	99	114	117	119
May	158	166	145	161	146	153
June	202	211	158	199	161	175
July	357	245	188	233	204	207
Aug.	393	230	174	220	185	196
Sept.	249	181	142	179	154	162
Oct.	239	128	97	125	107	118
Nov.	103	79	66	77	83	72
Dec.	99	59	48	48	63	55
Yearly	2,256	1,612	1,232	1,539	1,330	1,451

IN MEXICO

Month	Rodriguez Dam, Baja California		El Carrizo, Baja California	
	2005	Average 1939-2005	2005	Average 1980-2005
Jan.	47	97	87	132
Feb.	47	100	65	114
Mar.	88	109	101	138
April	117	138	182	179
May	157	133	234	221
June	158	188	222	265
July	192	211	244	291
Aug.	181	196	280	288
Sept.	147	163	245	243
Oct.	103	134	185	202
Nov.	99	105	197	152
Dec.	69	83	155	132
Yearly	1,405	1,670	2,197	2,337

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			
	2005			Average 1931-2005	2005			Average 1951-2005	2005			Average 1931-2005
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	11.0	26.0	0.0	9.9	9.0	23.9	-3.3	8.8	14.3#	31.1	4.4	12.2
Feb.	12.0	24.0	1.0	10.8	9.4	19.4	-1.1	9.3	14.8	24.4	5.6	12.9
Mar.	14.0	27.0	3.0	12.2	11.1	26.7	-1.7	10.3	#	23.9	7.2	13.4
April	15.0	29.0	4.0	14.6	12.8	29.4	-2.2	12.3	#	30.0	8.3	14.8
May	19.0	37.0	6.0	17.3	16.7	35.6	0.0	15.2	17.7#	25.0	10.0	16.4
June	21.0	37.0	9.0	20.6	17.8	35.6	1.7	18.6	18.9#	26.7	12.8	17.8
July	26.0	41.0	12.0	24.4	24.2	40.6	4.4	22.7	10.8#	28.9	15.6	19.9
Aug.	26.0	40.0	14.0	24.7	24.1	39.4	8.3	23.0	#	30.6	15.0	20.5
Sept.	21.0	37.0	8.0	22.6	18.7	35.6	0.0	20.5	#	33.3	11.1	19.9
Oct.	18.0	36.0	8.0	18.2	15.9	32.8	1.7	16.0	#	#	#	17.6
Nov.	16.0	30.0	2.0	13.5	12.7	28.9	-3.9	11.5	#	31.1	5.0	14.7
Dec.	13.0	27.0	1.0	10.4	10.0	25.6	-6.7	8.8	#	28.9	4.4	12.6
Yearly	17.7	41.0	0.0	16.6	15.2	40.6	-6.7	14.8	#	#	#	16.1

IN MEXICO

Month	Rodriguez Dam, Baja California				El Hongo, Baja Californa				Ignacio Zaragoza, Baja California			
	2005		1938-2005		2005		1981-2005		2005		1965-2005	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	27	5	36	-3	19	-2	26	-9	#	#	34	-11
Feb.	23	6	34	0	17	-1	27	-3	#	#	32	-9
Mar.	26	6	38	0	27	0	31	-6	#	#	42	-9
April	30	6	40	2	26	1	35	-1	#	#	38	-4
May	33	9	39	3	34	3	40	1	#	#	40	-2
June	29	12	42	8	34	4	47	2	#	#	49	-2
July	35	9	40	8	39	13	45	7	#	#	50	0
Aug.	36	15	41	10	37	10	41	3	#	#	51	0
Sept.	38	13	43	8	33	5	39	2	#	#	51	0
Oct.	36	10	42	1	30	4	37	0	#	#	49	-6
Nov.	33	7	37	-1	24	-1	30	-3	#	#	39	-9
Dec.	32	6	34	-3	21	-3	27	-8	#	#	36	-9
Yearly	38	5	43	-3	39	-3	47	-9	#	#	51	-11

Month	Tecate, Baja California				El Carrizo, Baja California				Valle de Palmas, Baja California			
	2005		1946-2005		2005		1980-2005		2005		1948-2005	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	27	-1	38	-9	28	3	32	-2	30	-1	37	-11
Feb.	22	0	38	-8	24	4	34	-2	22	1	37	-5
Mar.	29	0	36	-5	27	5	37	-4	29	-1	39	-2
April	31	1	39	-2	33	5	41	3	31	0	41	-2
May	38	4	42	1	37	8	42	5	39	4	46	1
June	39	7	44	0	33	9	42	9	36	6	48	4
July	42	10	46	2	39	10	46	8	46	7	50	6
Aug.	44	9	47	1	40	12	45	5	44	8	49	5
Sept.	39	7	46	2	41	9	43	5	41	4	47	3
Oct.	40	7	41	-3	40	9	43	6	39	4	43	0
Nov.	34	0	37	-3	35	5	35	2	36	0	38	-7
Dec.	31	0	36	-5	32	5	34	-3	35	0	35	-6
Yearly	44	-1	47	-9	41	3	46	-4	46	-1	50	-11

Missing Data

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

2005

The total area within the Tijuana River basin is 4,484 square kilometers, as determined from the best available maps from both the United States and Mexico. The drainage areas shown below are tabulated according to their downstream sequence.

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


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

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 are available for: 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 August 2002. (July 1954 to March 1955, monthly discharge only). Records from September 2002 through December 2005 obtained and furnished by the U.S. Geological Survey.
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 2005 --- 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	.02	0	0	0	0	0	0	0	0	0	0	0
4	.28	0	0	0	0	0	0	.07	0	0	0	0
5	.37	0	0	0	0	0	0	0	0	0	0	0
6	.03	.25	0	0	0	0	0	0	0	0	0	0
7	0	.07	0	0	0	0	0	.08	0	0	0	0
8	0	.01	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	.01	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	.24	0	0	0	0	0	.13	0	0	0	0
13	0	.37	0	0	0	0	0	.96	0	0	0	0
14	0	.02	0	0	0	0	0	1.25	0	0	0	0
15	0	0	0	0	0	0	0	1.13	0	0	0	0
16	0	0	0	0	0	0	0	.10	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	.03	0	0	0	0	0
19	0	0	0	0	0	0	.08	.20	0	0	0	0
20	0	0	0	0	0	0	0	.01	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	.18	0	0	0	0
24	0	0	0	0	0	0	0	2.15	0	0	0	0
25	0	0	0	0	0	0	0	1.22	0	0	0	0
26	.05	0	0	0	0	0	.42	.01	0	0	0	0
27	.10	0	0	0	0	0	.04	0	0	0	0	0
28	.15	0	0	0	0	0	0	0	0	0	0	0
29	.01		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	.02		0		0
Sum	0.96		0		0		7.52		0		0	
	1.01		0		0		0.57		0		0	

Current Year 2005						Period 1936-2005			
	Extreme Gage Meters		Extreme-Cubic Meters per Second				Volume-Thousand Cubic Meters			
Month	High	Low	High Day	High	Low Day	Low	Average	Total	Average	Maximum	Minimum
Jan.	1.690	0.970	5	0.71	! 1	0	0.03	87.3	39.2	556	0
Feb.	1.680	1.175	13	.71	! 1	0	.03	82.9	18.8	163	0
Mar.	1.175	1.065	! 1	0	! 1	0	0	0	24.7	364	0
April	1.065	1.055	! 1	0	! 1	0	0	0	16.4	213	0
May	1.055	1.040	! 1	0	! 1	0	0	0	11.7	170	0
June	1.040	1.030	! 1	0	! 1	0	0	0	119	1,961	0
July	1.815	1.030	26	1.19	! 1	0	.02	49.2	1,727	10,004	0
Aug.	2.280	1.150	14	4.05	! 1	0	.24	650	2,871	17,861	0
Sept.	1.540	1.185	1	.31	! 1	0	0	0	750	3,910	0
Oct.	1.180	1.165	! 1	0	! 1	0	0	0	431	7,528	0
Nov.	1.175	1.165	! 1	0	! 1	0	0	0	55.0	765	0
Dec.	1.165	1.160	! 1	0	! 1	0	0	0	117	2,915	0
Yearly	2.280	0.970		4.05		0	0.03	869	6,181	27,533	0

! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

SEWAGE INFLUENT, DOUGLAS, ARIZONA
INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Parshall flume in the influent line of the older trickling filter unit and a Parshall flume in the influent line of the newer extended aeration unit. The treatment plant is located about 1.6 kilometers west of the Douglas-Agua Prieta Port of Entry immediately adjacent to the international boundary in Douglas, Cochise County, Arizona.
RECORDS: Continuous monthly records since March 1948; daily records from March 18, 1948 through 1950 and from January 1952 through 2005.
REMARKS: The older 4.9 thousand cubic meters per day trickling filter unit was constructed in 1947 by the International Boundary and Water Commission. Since April 8, 1968 all sewage from Agua Prieta has been retained and treated in Mexico to be used for irrigation along with the effluent from the Douglas International Treatment Plant. On July 1, 1973, ownership and operation of the plant was transferred from the International Boundary and Water Commission to the City of Douglas. In 1980 the plant was enlarged, with the addition of the extended aeration unit bringing the total capacity up to 9.8 thousand cubic meters per day. The effluent from the Douglas Treatment Plant is discharged through a conduit to Mexico.

2005	Total Monthly Flows			Mean Daily Flows-Thousand Cubic Meters Per Day					
	Thousand Cubic Meters			Current Year 2005			Period 1952-2005		
Month	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	347	0	347	13.0	9.2	11.2	18.8	1.6	4.9
Feb.	309	0	309	13.5	8.4	11.1	18.0	2.1	4.9
Mar.	335	0	335	13.4	9.0	10.8	14.4	2.2	4.8
April	329	0	329	12.7	9.3	11.0	18.1	1.4	4.9
May	352	0	352	13.0	9.3	11.4	15.0	1.9	4.9
June	320	0	320	12.8	8.1	10.7	15.0	2.1	5.1
July	315	0	315	12.0	8.7	10.2	14.8	1.8	5.2
Aug.	315	0	315	13.5	7.7	10.1	15.1	1.4	5.3
Sept.	297	0	297	13.0	7.9	9.9	13.6	1.8	5.1
Oct.	306	0	306	12.1	7.6	9.9	13.8	2.2	5.0
Nov.	294	0	294	11.8	8.2	9.8	14.4	1.2	5.0
Dec.	302	0	302	11.5	7.7	9.8	17.9	1.7	5.0
Yearly	3,821	0	3,821	13.5	7.6	10.5	18.8	1.2	5.0

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005. Records obtained and furnished by U. S. Geological Survey prior to October 1, 1981 and from October 1, 1995 through 2005, and by the United States Section of the Commission from October 1, 1981 through September 30, 1995.
REMARKS: There are some small diversions for irrigation for a small area above this station, mostly in Mexico. Record shows approximate flow of river at international boundary.
EXTREMES: Maximum daily discharge, 623 CMS on August 14, 1940 (gage height 4.93 meters present datum), from rating curve extended above 159 CMS on basis of slope-area measurement of peak flow; no flow at times 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 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.03	0.06	0.07	0.02	0	0	0	8.41	0.96	0.40	0	0.03
2	.03	.06	.07	.02	0	0	0	4.47	.93	.42	0	.04
3	.04	.06	.07	.02	0	0	0	1.59	.91	.40	0	.04
4	.03	.06	.07	.02	0	0	0	24.1	.88	.40	0	.05
5	.03	.07	.07	.02	0	0	0	1.02	3.12	.40	0	.05
6	.03	1.08	.07	.02	0	0	0	4.08	1.36	.17	0	.05
7	.03	.71	.07	.02	0	0	0	3.57	4.16	.02	0	.05
8	.03	.15	.06	.02	0	0	0	1.70	31.7	.01	0	.05
9	.03	.09	.06	.02	0	0	0	5.32	11.9	0	0	.06
10	.03	.08	.06	.02	0	0	0	16.4	10.6	0	0	.06
11	.03	.08	.06	.02	0	0	0	3.34	2.55	0	0	.06
12	.03	2.24	.06	.02	0	0	0	6.06	.62	0	0	.06
13	.03	4.50	.05	.01	0	0	0	12.9	.40	0	0	.06
14	.03	1.10	.04	.01	0	0	0	52.7	.31	.01	0	.06
15	.03	.37	.03	.01	0	0	0	12.8	.24	.02	0	.06
16	.03	.18	.02	.01	0	0	0	3.88	.20	0	0	.06
17	.03	.13	.02	.01	0	0	0	15.4	.16	0	0	.06
18	.03	.11	.02	0	0	0	0	6.43	.13	0	0	.06
19	.03	.10	.02	0	0	0	0	9.49	.12	0	0	.05
20	.03	.09	.02	0	0	0	0	2.92	.11	0	0	.05
21	4.08	.08	.02	0	0	0	0	1.81	.10	0	0	.05
22	.99	.08	.02	0	0	0	0	1.44	.09	0	0	.05
23	.14	.08	.02	0	0	0	0	20.1	.08	0	0	.05
24	.10	.07	.02	.01	0	0	5.52	13.3	.07	0	0	.05
25	.08	.07	.02	0	0	0	1.47	4.02	.06	0	0	.05
26	.08	.07	.02	0	.02	0	.82	3.03	.05	0	0	.05
27	.08	.07	.02	0	.01	0	14.4	2.49	.05	0	.01	.04
28	.07	.07	.02	0	0	0	.02	1.64	.04	0	.02	.04
29	.06		.02	0	0	0	0	1.33	.03	0	.03	.05
30	.06		.02	0	0	0	12.7	1.16	.03	0	.03	.04
31	.06		.02		0		81.3	1.02		0		.04
Sum	6.41	11.91	1.23	0.30	0.03	0	116.23	247.92	71.96	2.25	0.09	1.57

Current Year 2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second High Day	Extreme-Cubic Meters per Second High	Extreme-Cubic Meters per Second Low Day	Extreme-Cubic Meters per Second Low	Average	Total
Jan.	1.895	0.560	21	39.9	! 1	0.03	0.21	554
Feb.	1.020	.555	!12	8.61	! 2	.05	.43	1,029
Mar.	.570	.525	! 3	.07	31	.02	.04	106
April	.540	.510	! 2	.02	!28	0	.01	25.9
May	.815	.480	26	1.36	!16	0	0	2.6
June	.490	.180	! 1	0	! 1	0	0	0
July	4.470	.175	31	182	! 1	0	3.75	10,042
Aug.	3.130	.730	14	85.0	2	.06	8.00	21,420
Sept.	3.120	.815	8	84.4	!29	.03	2.40	6,217
Oct.	.825	.780	! 1	.45	! 8	0	.07	194
Nov.	.865	.775	!28	.03	! 1	0	0	7.8
Dec.	.885	.865	!11	.07	! 1	.03	.05	136
Yearly	4.470	0.175		182		0	1.26	39,734

Period 1951-2005

Month	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.	2,166	35,987	3.0
Feb.	935	8,343	4.0
Mar.	797	9,129	16.0
April	194	1,282	0
May	62.0	502	0
June	198	3,631	0
July	5,356	21,263	0
Aug.	8,852	44,860	204
Sept.	2,077	20,160	2.0
Oct.	2,614	58,371	0
Nov.	768	19,006	0
Dec.	1,785	31,428	0
Yearly	25,804	80,483	5,427

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

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 2005.
REMARKS: There are small diversions by ground water pumping for irrigating about 80.9 hectares above this station.
EXTREMES: Maximum discharge, 362 CMS on August 15, 1984, (gage height 3.19 meters); minimum discharge, no flow for several days of many years.

MEAN DAILY DISCHARGE IN CUBIC METERS PER SECOND 2005 --- ANNUAL AND PERIOD SUMMARY

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0
2	.01	.01	.01	.01	0	0	0	0	0	0	0	0
3	.01	.01	.01	.01	0	0	0	0	0	0	0	0
4	.01	.01	.01	.01	0	0	0	0	0	0	0	0
5	.01	.01	.01	.01	0	0	0	0	0	0	0	0
6	.01	.01	.01	.01	0	0	0	0	0	0	0	0
7	.01	.01	.01	.01	0	0	0	0	0	0	0	0
8	.01	.01	.01	.01	0	0	0	0	0	0	0	0
9	.01	.01	.01	.01	0	0	0	0	0	0	0	0
10	.01	.01	.01	.01	0	0	0	0	0	0	0	0
11	.01	.01	.01	.01	0	0	0	0	0	0	0	0
12	.01	.01	.01	.01	0	0	0	0	0	0	0	0
13	.01	.01	.01	0	0	0	0	0	0	0	0	0
14	.01	.01	.01	0	0	0	0	.01	0	0	0	0
15	.01	.01	.01	0	0	0	0	0	0	0	0	0
16	.01	.01	.01	0	0	0	0	0	0	0	0	0
17	.01	.01	.01	0	0	0	0	0	0	0	0	0
18	.01	.01	.01	0	0	0	0	0	0	0	0	0
19	.01	.01	.01	0	0	0	0	0	0	0	0	0
20	.01	.01	.01	0	0	0	0	0	0	0	0	0
21	.01	.01	.01	0	0	0	0	0	0	0	0	0
22	.01	.01	.01	0	0	0	0	0	0	0	0	0
23	.01	.01	.01	0	0	0	0	.08	0	0	0	0
24	.01	.01	.01	0	0	0	0	0	0	0	0	0
25	.01	.01	.01	0	0	0	0	0	0	0	0	0
26	.01	.01	.01	0	0	0	0	0	0	0	0	0
27	.01	.01	.01	0	0	0	0	0	0	0	0	0
28	.01	.01	.01	0	0	0	0	0	0	0	0	0
29	.01		.01	0	0	0	0	0	0	0	0	0
30	.01		.01	0	0	0	0	0	0	0	0	0
31	.01		.01		0		0	0		0		0
Sum	0.31	0.28	0.31	0.12	0	0	0	0.09	0	0	0	0

Current Year 2005 | Period 1949-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	Extreme-Cubic Meters per Second @ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			! 1	0.01	! 1	0.01	0.01	26.8	328	8,822	1.6
Feb.			! 1	.01	! 1	.01	.01	24.2	119	1,233	2.2
Mar.			! 1	.01	! 1	.01	.01	26.8	131	2,594	.9
April			! 1	.01	!13	0	0	10.4	62.7	638	0
May			! 1	0	! 1	0	0	0	32.4	210	0
June			! 1	0	! 1	0	0	0	22.9	208	0
July			! 1	0	! 1	0	0	0	560	5,267	0
Aug.			23	.08	! 1	0	0	7.8	1,065	14,207	.1
Sept.			! 1	0	! 1	0	0	0	328	3,249	0
Oct.			! 1	0	! 1	0	0	0	337	5,837	0
Nov.			! 1	0	! 1	0	0	0	88.5	1,185	0
Dec.			! 1	0	! 1	0	0	0	134	1,348	0
Yearly				0.08		0	0	96.0	3,209	21,433	96.0

@ Mean daily ! And other days

09-4805.00 SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

DESCRIPTION: Water-stage recorder, cable with sit-down cable car located 8.9 kilometers east of Nogales, Arizona, 1.3 kilometers downstream from the international boundary and 9.7 kilometers upstream from the Santa Cruz bridge on State Highway No. 82. Zero of gage is 1,128.535 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 2005.
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 2005.
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 2005 --- 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	1.50	0.01	0	0	0
2	0	0	0	0	0	0	0	4.76	.01	0	0	0
3	0	0	0	0	0	0	0	1.53	0	0	0	0
4	0	0	0	0	0	0	0	1.10	0	0	0	0
5	0	0	0	0	0	0	0	1.02	0	0	0	0
6	0	0	0	0	0	0	0	2.38	0	0	0	0
7	0	0	0	0	0	0	0	1.50	0	0	0	0
8	0	0	0	0	0	0	0	1.10	.25	0	0	0
9	0	0	0	0	0	0	0	.16	.74	0	0	0
10	0	0	0	0	0	0	0	.04	.02	0	0	0
11	0	0	0	0	0	0	0	1.81	.01	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	2.97	0	0	0	0
14	0	0	0	0	0	0	0	3.43	0	0	0	0
15	0	0	0	0	0	0	0	1.50	0	0	0	0
16	0	0	0	0	0	0	0	.11	.01	0	0	0
17	0	0	0	0	0	0	0	.12	.01	0	0	0
18	0	0	0	0	0	0	.37	1.05	.01	0	0	0
19	0	0	0	0	0	0	0	.26	.01	0	0	0
20	0	0	0	0	0	0	0	.04	.01	0	0	0
21	0	0	0	0	0	0	0	.04	.01	0	0	0
22	0	0	0	0	0	0	0	.04	0	0	0	0
23	0	0	0	0	0	.03	0	4.22	0	0	0	0
24	0	0	0	0	0	0	5.86	.96	0	0	0	0
25	0	0	0	0	0	0	.13	.07	0	0	0	0
26	0	0	0	0	0	0	0	.02	0	0	.01	0
27	0	0	0	0	0	0	0	.01	0	0	0	0
28	0	0	0	0	0	0	0	.01	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	.01	0	0	0	0
31	0		0		0		3.51	.01		0		0
Sum	0	0	0	0.03	0	0	9.87	31.77	1.10	0	0.01	0

Current Year 2005 | Period 1936-2005

Month	Extreme Gage Meters High	Extreme Gage Meters Low	Extreme-Cubic Meters per Second @ High Day	@ High	Extreme-Cubic Meters per Second @ Low Day	@ Low	Average	Total	Volume-Thousand Cubic Meters Average	Maximum	Minimum
Jan.			! 1	0	! 1	0	0	0	2,730	37,352	0
Feb.			! 1	0	! 1	0	0	0	2,028	25,344	0
Mar.			! 1	0	! 1	0	0	0	1,756	24,145	0
April			! 1	0	! 1	0	0	0	569	4,263	0
May			! 1	0	! 1	0	0	0	128	1,272	0
June			23	.03	! 1	0	0	2.6	87.0	1,787	0
July			24	5.86	! 1	0	.32	853	2,748	19,255	0
Aug.			2	4.76	!12	0	1.02	2,745	5,866	56,481	12.0
Sept.			9	.74	! 3	0	.04	95.0	1,631	111,633	0
Oct.			! 1	0	! 1	0	0	0	2,257	72,806	0
Nov.			26	.01	! 1	0	0	.9	729	12,180	0
Dec.			! 1	0	! 1	0	0	0	2,630	41,405	0
Yearly				5.86		0	0.12	3,697	23,159	108,071	345

@ Mean daily ! And other days

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

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

RECORDS: Flows from the United States are deduced from total plant influent less the flows measured crossing the international boundary from Mexico. Records available: Continuous monthly record for plant influent since August 1951; daily records for plant influent, January 1952 through 2005.

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

	Total Monthly Flows				Daily Flows-Thousand Cubic Meters Per Day					
	Thousand Cubic Meters				Current Year 2005			Period 1952-2005		
Month	U.S.	Mexico	Plant*	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	687	1,096	0	1,783	65.1	45.2	57.5	93.0	2.5	27.4
Feb.	626	1,050	0	1,676	71.3	51.7	59.9	80.4	2.5	28.2
Mar.	815	940	0	1,755	60.5	51.3	56.6	85.7	2.8	27.9
April	1,039	637	0	1,676	78.9	52.7	55.9	87.9	2.6	26.5
May	449	1,194	0	1,643	56.9	41.7	53.0	69.2	2.1	25.0
June	381	1,155	0	1,536	57.7	38.4	51.2	64.9	2.6	23.5
July	402	1,218	0	1,620	74.4	47.9	52.4	74.4	2.6	24.3
Aug.	530	1,125	0	1,655	72.2	44.3	53.4	75.6	2.8	26.1
Sept.	402	1,393	0	1,795	66.5	42.8	59.8	67.9	3.0	27.5
Oct.	389	1,417	0	1,806	62.9	49.1	58.3	87.2	2.6	27.7
Nov.	277	1,496	0	1,773	64.1	54.0	59.1	84.7	3.0	27.4
Dec.	406	1,385	0	1,791	62.6	49.6	57.8	75.9	1.3	27.4
Yearly	6,403	14,106	0	20,509	74.4	38.4	56.2	93.0	1.3	26.6

* 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. Three 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 6N, Arizona		Brush Hill, Arizona	
	2005	Average 1973-2005	2005	Average 1930-2005	2005	Average 1930-2005	2005	Average 1953-2005	2005	Average 1994-2005
Jan.	0	38	0	30	48	32	35	45	73	24
Feb.	0	36	0	30	31#	28	19#	47	48	40
Mar.	0	30	0	22	#	24	#	50	23	20
April	0	13	0	10	8	11	#	57	10	26
May	0	7	0	4	11	5	8	63	7	6
June	0	13	0	18	#	12	#	71	0	20
July	0	109	0	104	136	110	104	79	161	109
Aug.	0	102	106	104	78	105	111	78	150	114
Sept.	0	52	31	43	3	43	20	71	22	39
Oct.	0	33	11	28	12	28	7	61	6	32
Nov.	0	22	0	21	#	21	#	50	0	26
Dec.	0	36	3	34	2	36	#	45	5	35
Yearly	0	491	151	448	#	455	#	715	505	491

Missing Data

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 2005

IN THE UNITED STATES

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (Meters)	RECORD BEGAN	OBSERVER
Brush Hill, Arizona	S	31` 29'	110` 42'	1,426	July 1994	Sonny & Nancy McCuistion
Canelo, Arizona	S	31` 34'	110` 32'	1,527	1930	Richard B. Macmanus
Nogales Sanitation Plant 9N, Arizona	S	31` 25'	110` 57'	1,085	June 1952	I. B. & W. C.
Patagonia, Arizona	S	31` 33'	110` 45'	1,277	1930	George R. Proctor
San Rafael #2, Arizona	S	31` 22'	110` 38'	1,481	Jan. 1973	I. B. & W. C

S Standard 203 millimeter rain gage

TEMPERATURE IN THE SANTA CRUZ RIVER BASIN
IN DEGREES CELSIUS

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

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

	Nogales Sanitation Plant - 9N		
	2005		
Month	Mean	Max.	Min.
Jan.	9.5	24.4	-5.0
Feb.	10.1	21.1	-2.8
Mar.	#	#	#
April	#	#	#
May	20.4	40.6	2.8
June	#	#	#
July	27.9	41.1	13.3
Aug.	24.9	36.7	14.4
Sept.	23.8	37.8	7.2
Oct.	18.3	33.9	1.7
Nov.	#	#	#
Dec.	#	#	#
Yearly	#	#	#

Missing Data

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

2005

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 Natural Resource Conservation Service at Douglas, Arizona and estimated from aerial photographs.

Designation of Areas	Drainage Basin-Square Kilometers			Irrigated Areas-Hectares		
	United Stated	Mexico	Total	United States	Mexico	Total
Santa Cruz River:						
Above Lochiel, Arizona Gaging Station	212	0	212	62	0	62
Above El Cajon, Mexico Gaging Station	464	324	788	40	952	992
Above Nogales, Arizona Gaging Station	479	901	1,380	40	1,091	1,131
San Pedro River:						
Above Palominas, Arizona Gaging Station	238	*1,621	1,859	289	1,400	1,689
Whitewater Draw:						
Above Douglas, Arizona Gaging Station	2,650	0	2,650	6,461	0	6,461

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

WESTERN BOUNDARY WATER BULLETIN - 2005 - INTERNATIONAL BOUNDARY AND WATER COMMISSION

CORRECTIONS TO PREVIOUS WATER BULLETINS

FOREWARD - COLORADO RIVER BELOW IMPERIAL DAM

2004 Bulletin, Page 4, Correction under COLORADO RIVER BELOW IMPERIAL DAM (Last Paragraph), should read August 1972 to August 1980, November-December 2003, July and November 2004.

GENERAL HYDROLOGIC CONDITIONS FOR 2004

2004 Bulletin, Page 6. Correction under paragraph, "TIJUANA RIVER BASIN", should read 0.3 degree Celsius below the 74-year mean - - (NOT above).

VOLUME - THOUSAND CUBIC METERS

2004 Bulletin, Page 33. Corrected Yearly Maximum to read 15,656,495 - - (NOT 5,656,495).

INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO

LOWER COLORADO RIVER
UNITED STATES & MEXICO

0 5 10 15 20 MILES

0 5 10 15 20 25 KILOMETERS

LEGEND

- Stream Gaging Station
- River Gage (Stages Only)
- Rainfall Station

AREA "A"

CALIFORNIA

BAJA CALIFORNIA

ARIZONA

LEGEND

- GAGING STATION
- RIVER GAGE (Stages Only)

SALTON SEA

CALIFORNIA

ARIZONA

SONORA

BAJA CALIFORNIA

UNITED STATES

MEXICO

Palo Verde

Brawley

El Centro

Calexico

MEXICALI

YUMA

San Luis

Algodones

Laguna Prieta

El Marítimo

Coahuila

Montague Island

Gore I.

GULF OF CALIFORNIA

IMPERIAL DAM

LAGUNA DAM

MORELOS DAM

SENATOR WASH DAM

Coachella Canal

All American Canal

East Highline Canal

West Side Canal

ALAMO RIVER

NEW RIVER

COLORADO RIVER

Cooper Canal

Rockwood Weir

Northerly Boundary

Cooper W.W.

MODE No 3

MORELOS DAM

Morelos Gaging Station

MATAMOROS CHECK

Intake Canal

Canal del Norte

Alamo Canal

Canal Alimentador Central

Pilot Knob W.W. & Power Plant

ROCKWOOD HEADING M.O.D.E. No 2

Drain 3-B

Drain 8-B (Araz)

SOU. PAC. R.R.

U.S. HWY. 80

U.S. HWY. 99

U.S. HWY 111

U.S. HWY 80

STATE HWY 98

Yuma Main Canal W.W.

Colorado River Below Yuma Main Canal W.W.

Drain No. 4

Drain #4

Gravity Canal

Gila G.F.A.R.

MODE No.1

Algodones

No Boundary

Cooper W.W. "A"

11-Mile W.W.

21-Mile W.W.

Sa. Boundary

Km. 27 W.W.

Km. 80

Km. 38 W.W.

Welton-Mohawk By-Pass Drain

Yuma Main Drain

West Main Canal W.W.

East Main Canal W.W.

242 Wells

Yuma Citrus Station

East Main Canal

Alimentador Central

Main Drain

Canal

Main Outlet Drain Extension

Colony 8th St.

Road

Drain

Main

West

Mexicali

Potable Water Plant W.W.

Ampot

Beleqsua

Delta

Delta No.1 Canal

HARDY RIVER

Solfatara Canal

Cerro Prieto Canal

Baja California Canal

Sonora Canal

Sánchez Mejorada Canal

Bacanora Canal

Ramote Canal

M.C. Rodriguez

Laguna Salada

Elite

Welton-Mohawk Drain Extension

To Tijuana

To San Felipe

El Centro

Brawley

New River

Alamo River

Santa Clara

SIERRA DE LOS CUCAPAS

SIERRA DE JUAREZ

LAGUNA SALADA BASIN

EL MAYOR

MESA ARENOSA

SAND HILLS

CHOCOLATE MTS.

115°45' 115°30' 115°15' 115°00' 114°45' 114°30'

33° 30' 33° 15' 33° 00' 32° 45' 32° 30' 32° 15' 32° 00' 31° 45'