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Water Resources Data
Puerto Rico and the U.S. Virgin Islands
Water Year 2003

By Pedro L. Díaz, Zaida Aquino, Carlos Figueroa-Alamo,
René García, and Ana V. Sánchez

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Prepared in cooperation with the Commonwealth of Puerto Rico,
the Government of the U.S. Virgin Islands, and with other agencies

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PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, the U.S. Virgin Islands, and the other Trust Territories. These records of streamflow, ground-water levels, and quality-of-water provide the hydrologic information needed by state, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division, who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to the U.S. Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, processing, and tabulations of the data:

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This report was prepared in cooperation with agencies of the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other Federal agencies under the general supervision of Pedro L. Díaz, Caribbean District Chief, San Juan, Puerto Rico.

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Water resources data for surface-water, quality-of-water, and ground-water records for the 2003 water year for Puerto Rico and the U.S. Virgin Islands consists of records of discharge, water quality of streams, and water levels of wells. This report contains discharge records for 86 streamflow-gaging stations; daily sediment records for 22 streamflow stations; stage records for 17 reservoirs; water-quality records for 17 streamflow-gaging stations, 39 ungaged stream sites, 2 lagoons, and 1 bay; and water-level records for 72 observation wells. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating local and Federal agencies in Puerto Rico and the U.S. Virgin Islands.

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SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

(Letter after station name designates type of data:
(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

	Station number	Page
RIO GUAJATACA BASIN		
Río Guajataca at Lares (c,b)	50010500	56
Lago Guajataca at Damsite near Quebradillas (e)	50010800	58
Canal Principal de Diversiones at Lago Guajataca (c,b)	50011000	60
Río Guajataca above mouth near Quebradillas (c,b)	50011400	62
RIO CAMUY BASIN		
Río Camuy near Bayaney (d)	50014800	66
RIO GRANDE DE ARECIBO BASIN		
Lago Garzas near Adjuntas (e)	50020100	70
Río Grande de Arecibo near Adjuntas (d,c,b,s)	50020500	72
Río Pellejas above Central Pellejas (d,s)	50021030	80
Río Grande de Arecibo above Utuado (d,s)	50021700	86
Río Viví below Hacienda El Progreso (d)	50022810	92
Río Grande de Arecibo below Utuado (d,s)	50024950	94
Río Grande de Arecibo near Utuado (c,b)	50025000	100
Río Saliente at Coabey near Jayuya (d,s)	50025155	102
Río Jauca at Paso Palma (d,s)	50025850	107
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Rio Caonillas above Lago Caonillas near Jayuya (c,b)	50026050	118
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Río de la Plata at Proyecto La Plata (c,b)	50043000	206
Río de la Plata at Comerío (d,s)	50043800	208
Río de la Plata near Comerio (c,b)	50044000	214
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RIO MAUNABO BASIN		
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Río Toa Vaca above Lago Toa Vaca (d)	50110900	388
Lago Toa Vaca at Damsite near Villalba (e)	50111210	390
Lago Guayabal at Damsite near Juana Díaz (e)	50111300	392
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RIO INABON BASIN		
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RIO BUCANA BASIN		
Río Cerrillos above Lago Cerrillos near Ponce (d)	50113800	400
Lago Cerrillos at Damsite near Ponce (e)	50113950	402
Río Cerrillos near Ponce (d,c,b)	50114000	404
RIO PORTUGUES BASIN		
Río Portugues at Tibes (d)	50114900	408
Río Portugués near Ponce (c,b)	50115000	410
Río Portugués at Highway 14 at Ponce (d)	50115900	412
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Río Guayanilla near Guayanilla (d)	50124200	416
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RIO YAUCO BASIN		
Lago Lucchetti at Damsite near Yauco (e)	50125780	420
Río Yauco above Diversion Monserrate near Yauco (d)	50126150	422
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Lago Loco at Damsite near Yauco (e)	50128900	424
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RIO YAGÚEZ		
Río Yagüez near Mayagüez (c,b)	50138800	456
RIO GRANDE DE AÑASCO BASIN		
Lago Guayo at Damsite near Castañer (e)	50141500	458
Río Grande de Añasco near Lares (c,b)	50143000	460
Río Grande de Añasco near San Sebastián (d,c,b)	50144000	462
RIO CULEBRINAS BASIN		
Río Culebrinas near San Sebastián (c,b)	50147600	470
Río Culebrinas at Highway 404 near Moca (d)	50147800	472
Río Culebrinas at Margarita Dam near Aguada (d,s)	50148890	474

GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

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RIO GUAJATACA BASIN
182422067015100. Local number, 165. 482
182647066552400. Local number, 202. 483

RIO CAMUY BASIN
182723066511200. Local number, 1026. 484

RIO GRANDE DE ARECIBO BASIN
182756066454700. Local number, 1051 485
182737066370900. Local number, 204. 486
182616066364100. Local number, 1052. 487
182626066345100. Local number, 1053. 488
182639066385200. Local number, 1056. 490
182209066340600. Local number, 1057. 491

RIO GRANDE DE MANATI BASIN
182544066341500. Local number, 205. 492
182549066304300. Local number, 166. 493
182506066280200. Local number, 1076. 494
182308066260400. Local number, 210. 495

RIO CIBUCO BASIN
182712066251700. Local number, 1102. 496
182615066235300. Local number, 211. 497
182647066201700. Local number, 70. 498
182330066185700. Local number, 213. 499

RIO DE LA PLATA BASIN
182526066165001. Local number, 1127. 500
182548066164401. Local number, 1128. 501
182620066163403. Local number, 1130. 502
182657066162701. Local number, 1132. 503
182654066150600. Local number, 1133. 504
182530066135400. Local number, 216. 505
180649066095500. Local number, 1134. 506

RIO HONDO TO RIO PUERTO NUEVO BASINS
182441066082600. Local number, 219. 507
182531066075900. Local number, 652. 508
182435066052700. Local number, 1153. 509
182445066043401. Local number, 1154. 510
182406066034700. Local number, 1158. 511
182451066080200. Local number, 1159. 512

RIO GRANDE DE LOIZA BASIN
181352066025300. Local number, 1176. 513
181311066022500. Local number, 1177. 514
181539066014500. Local number, 1179. 515
182515065594100. Local number, 222. 516

RIO HERRERA TO RIO ANTON RUIZ BASINS
181217065453000. Local number, 1203. 517
182131065421100. Local number, 1205. 518
181917065382701. Local number, 1207. 519
182234065440000. Local number, 1208. 520

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180415065513900. Local number, 96. 521
175855066050500. Local number, 1228. 522
1757280660722000. Local number, 1229. 523
175719066085500. Local number, 1230. 524
175858066100200. Local number, 6. 525
175947066130601. Local number, 1233. 526
175814066102200. Local number, 1239. 527

RIO SALINAS TO RIO JACAGUAS BASINS
175809066133100. Local number, 1251. 528
180104066152300. Local number, 1253. 529
175910066155500. Local number, 1254. 530
175903066165000. Local number, 1256. 531
175943066224800. Local number 1257. 532
175829066232200. Local number, 87. 534
180020066261500. Local number, 1258. 535
180602066133100. Local number, 1260. 536
175833066145800. Local number, 1261. 537
175735066151800. Local number, 1262. 538
175734066233300. Local number, 146. 539
175843066244100. Local number, 1263. 540

RIO INABON TO RIO LOCO BASINS
175950066354200. Local number, 141. 541
175934066364800. Local number, 1276. 542

RIO INABON TO RIO LOCO BASIN
180045066381600. Local number 1277. 544

RIO INABON TO RIO LOCO BASINS
180156066434000. Local number, 1278. 545
180133066503300. Local number, 132. 546

RIO GUANAJIBO BASIN
180132067033800. Local number, 143. 547
180542067084000. Local number, 1301. 548

RIO CULEBRINAS BASIN
182017067143300. Local number, 1352. 550
182442067091700. Local number, 200. 551

ST. CROIX, U.S. VIRGIN ISLANDS
174225064472000. Local number, 2. 554
174243064475100. Local number, 3. 555
174316064480800. Local number, 13. 556

ST. THOMAS, U.S. VIRGIN ISLANDS
182038064550300. Local number, 6. 558
182038064580000. Local number, 8. 559

ST. JOHN, U.S. VIRGIN ISLANDS
181956064464500. Local number, 11. 560

DISCONTINUED STREAMFLOW STATIONS

The following continuous-record streamflow stations in Puerto Rico and the U.S. Virgin Islands have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

Station number	Station name	Drainage area (mi^2)	Period of record
50007000	Quebrada de los Cedros near Isabela	6.91	1970
50010600	Río Guajataca above Lago de Guajataca	–	1984-89
50011000	Canal Diversion Lago Guajataca	--	1970
50011200	Río Guajataca below Lago Guajataca	–	1969-70,1984-87
50011400	Río Guajataca above mouth near Quebradillas	–	1969-70,1984-89
50013000	Río Camuy near Lares	7.62	1969-71
50014000	Río Criminales near Lares	4.68	1969-70
50014600	Río Camuy at Tres Pueblos Sinkhole	--	1990-96
50015700	Río Camuy near Hatillo	--	1984-96
50016000	Río Camuy near Camuy	–	1969-73
50021050	Río Pellejas below Central Pellejas	7.89	1972-75
50021500	Río Pellejas near Utuado	9.55	1969-71
50023000	Río Viví near Central Pellejas	5.66	1969-75
50027200	Río Grande de Arecibo below Lago Dos Bocas	169	1970-71
50027250	Río Grande de Arecibo below Lago Dos Bocas near Florida	170	2000-2002
50027750	Río Grande de Arecibo above Arecibo	170	1982-2002
50031500	Río Sana Muerto near Orocovis	3.68	1965-70
50035200	Río Grande de Manatí at Hwy 145 at Ciales	132	1972
50035950	Río Cialitos at Hwy 649 at Ciales	17	1970-82
50038360	Río Mavilla near Corozal	9.51	1969-70
50038600	Río Unibón near Morovis	5.29	1969-70
50038700	Río Morovis at Morovis	1.26	1968
50038900	Río Indio at Vega Baja	–	1963,66,71
50039600	Río Cibuco at Central San Vicente	–	1969-72
50043200	Río Usabon near Barranquitas	9.15	1968-69,71
50043400	Río Aibonito Tributary near Aibonito	1.13	1968-71
50044600	Río Guadiana near Naranjito	1.73	1971
50044650	Quebrada del Toro near Naranjito	0.54	1971
50044800	Quebrada Anones near Naranjito	2.32	1971
50045700	Río Lajas at Toa Alta	8.65	1966-75
50047540	Río Sabana at Vista Monte	0.80	1993,1994-2002
50047820	Río de Bayamón at Hwy 174 near Bayamón	31.90	1966
50048000	Río de Bayamón at Bayamón	71.90	1963-67
50049000	Río Piedras at Río Piedras	12.5	1971-82, 1987-93
50049310	Quebrada Josefina at Piñero Avenue	3.84	1988-91
50051150	Quebrada Blanca at El Jagual	3.25	1984-2002
50053050	Río Turabo at Borinquen	7.89	1984-90
50054000	Quebrada de las Quebradillas near Caguas	6.25	1969-71,73
50055170	Río Cagüitas near Caguas	8.27	1992-97
50055390	Río Bairoa at Bairoa	5.08	1990-2001

DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
50055650	Quebrada Caimito near Juncos	0.82	1984-87
50056000	Río Valenciano near Las Piedras	6.85	1971
50056900	Quebrada Mamey near Gurabo	2.30	1984-92
50058300	Quebrada Arena near Caguas	–	1971
50061300	Río Canovanillas near Loíza	14.40	1968-73
50062500	Río Herrera near Colonia Dolores	2.75	1968-72
50063300	Río Espíritu Santo near El Verde	2.23	1968-73
50063500	Quebrada Toronja at El Verde	0.064	1983-96
50065700	Río Mameyes at Hwy 191 at Mameyes	11.80	1967-85
50070500	Río Fajardo above Fajardo	3.69	1995-2001
50072000	Río Fajardo at Fajardo	21.60	1960-63
50073200	Río Daguao at Daguao	2.26	1966-82
50073400	Quebrada Palma at Daguao	4.84	1972-77
50074000	Río Santiago at Naguabo	4.99	1966-82
50075500	Río Blanco at Florida	11.00	1966-82
50077000	Río Blanco at Río Blanco	17.60	1973-77
50077400	Río Blanco at Colonia La Fe	18.80	1967-70
50078500	Río Anton Ruíz at Central Pasto Viejo	4.33	1968
50081500	Río Humacao near Humacao	9.23	1973
50082000	Río Humacao at Hwy 3 at Humacao	17.30	1983-85
50082200	Río Humacao near La Suiza	19.90	1965-66, 1969-71
50082800	Río Guayanés near Colonia Laura	4.69	1969-82
50083500	Río Guayanés near Yabucoa	17.20	1969-71
50084000	Río Limones near Yabucoa	7.89	1969-71
50085100	Río Guayanés at Central Roig	26.60	1965-66, 1968,70
50086100	Río del Ingenio at Comunas	5.50	1965-66, 1968-69
50086500	Río Guayanés at Playa Guayanés	34.00	1965-66, 1968-71
50087200	Caño Santiago near Central Roig	6.04	1965-71
50091000	Río Maunabo at Maunabo	12.40	1965,67, 1969-82
50091200	Río Maunabo near Maunabo	12.70	1971-72
50091400	Río Jacaboa near Lamboglia	4.13	1965-73
50091700	Río Chico at Patillas	6.82	1965, 1969-72
50091800	Río Chico at Providencia	4.90	1965, 1967-69, 1971
50094200	Río Grande de Patillas at Patillas	27.90	1967, 1969, 1971
50094300	Río Grande de Patillas at Providencia	29.00	1971
50094400	Río Nigua at Pitahaya	5.86	1965, 1969, 1970-71, 1973
50095200	Río Guamaní at Guayama	8.22	1969-71
50095500	Río Guamaní near Guayama	12.30	1969-70
50099000	Quebrada Aguas Verdes near Salinas	0.39	1989
50106500	Río Coamo near Coamo	46.00	1967-68, 1984-85, 1986
50106900	Río Coamo below Lago Coamo near Coamo	65.40	1967-68
50107200	Río Coamo at mouth near Santa Isabel	69.30	1967-68
50108200	Río Descalabrado at Las Ollas	13.90	1965, 1967-71
50108500	Río Descalabrado near Santa Isabel	18.10	1966-67
50111200	Río Toa Vaca near Villalba	21.40	1966-70

DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
50111700	Río Jacaguas near Juana Díaz	53.20	1966-68
50111750	Río Jacaguas below Quebrada Guanábana	56.30	1989
50112100	Río Jacaguas near Arús	59.60	1966-67
50112600	Río Inabón at Coto Laurel	–	1967-71
50113100	Río Guayo near Coto Laurel	11.80	1965, 1968-71
50113500	Río Inabón near Arús	30.20	1964-65
50114390	Río Bucaná at Hwy 14 Bridge near Ponce	24.9	1987-2002
50114400	Río Bucaná near Ponce	25.60	1965-81
50114700	Río Bucaná near Playa de Ponce	28.40	1964-67
50115000	Río Portugués near Ponce	8.82	1964-97
50116500	Río Portugués at Highway 2 Bypass at Ponce	20.50	1964-65
50119000	Río Matilde at Ponce	19.40	1965-66
50121000	Río Tallaboa at Peñuelas	24.20	1959-82
50122000	Río Tallaboa at Tallaboa	31.50	1959-63
50124000	Río Guayanilla nr Guayanilla	18.50	1961-69
50124500	Río Guayanilla at Guayanilla	20.80	1971-82
50125900	Río Duey above Diversion near Yauco	8.93	1977-80
50128000	Río Yauco near Yauco	45.50	1962-64, 1977-85
50129000	Río Loco near Yauco	8.50	1963-67
50129500	Río Loco near Guánica	21.00	1963-69
50129900	Laguna Cartagena near Boquerón	--	1984-86
50130320	Quebrada Mamey at Joyuda	0.38	1986-88
50136000	Río Rosario at Rosario	16.40	1975-86
50141000	Río Yahuecas near Adjuntas	15.40	1980-85
50145000	Río Grande de Añasco at El Espino	108.00	1959-66, 1961-63
50147000	Río Culebrinas at San Sebastian	16.70	1960-82
50214500	Quebrada Resaca near Monte Resaca, Culebra	0.23	1991-93
50215000	Drainage Canal at Culebra Airport, Culebra	0.08	1991-93
50231000	Quebrada Confresí Tributary near Isabel II, Vieques	0.28	1991-93
50232000	Quebrada La Mina near Esperanza, Vieques	0.68	1991-96
50233000	Quebrada Pilón at Colonia Puerto Real, Vieques	0.67	1991-96
50276000	Turpentine Run at Mariendal, St.Thomas	2.97	1963-69, 1978-86
50292600	Lameshur Bay Gut at Lameshur, St. John	0.38	1992-94
50294000	Fish Bay Gut at Fish Bay, St. John	1.48	1992-94
50295500	Cruz Bay Gut at Cruz Bay, St. John, VI	0.09	1992-93
50332000	River Gut at River	1.42	1991-93
50333500	River Gut near Golden Grove	5.40	1990-93
50333700	River Gut at Hwy 66 at Fairplanes	5.89	1990-96
50334500	Bethehem Gut at Hwy 66 at Fairplanes	4.11	1990-96
50337500	Gut 4.5 at Cane Valley	0.2	1991-93
50348000	Salt River at Canaan	0.36	1991-93
50349000	Gut 10 near Altona	0.13	1991-93

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INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and Federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 2003."

This report includes records on both surface and ground water. Specifically, it contains: (1) discharge records for 86 streamflow-gaging stations, daily sediment records for 22 sediment stations, stage records for 18 reservoirs, and (2) water-quality records for 17 streamflow-gaging stations, and for 42 ungaged stream sites, 13 lake sites, 2 lagoons, and 1 bay, and (3) water-level records for 72 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico." Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975 to 2001 water years consist of one volume each and contain data for streamflow, water quality, and ground water.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PR-02-1." These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (787) 749-4346.

COOPERATION

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the U.S. Geological Survey are:

Puerto Rico Environmental Quality Board
Puerto Rico Aqueduct and Sewer Authority
Puerto Rico Department of Agriculture
Puerto Rico Industrial Development Company
Puerto Rico Highway Authority
Puerto Rico Department of Natural and Environmental Resources
Puerto Rico Department of Health
Puerto Rico Electric Power Authority
Puerto Rico Solid Waste Management Authority
Puerto Rico Legislature
Puerto Rico Emergency Management Agency
U.S. Virgin Islands Department of Planning and Natural Resources
Puerto Rico Infrastructure Financing Authority

Funds were also provided by the U.S. Army, Corps of Engineers, for the collection of records at six gaging stations published in this report.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

Islandwide annual rainfall during water year 2003 (October 2002 to September 2003), was 93 percent below normal rainfall conditions. Annual rainfall averaged about 90 percent of normal in northern Puerto Rico, 90 percent of normal in southern Puerto Rico, 87 percent of normal in western Puerto Rico, and 106 percent of normal in eastern Puerto Rico. Normal rainfall is defined as the mean monthly rainfall for certain period of time. In Puerto Rico, the reference period used to define the monthly normal rainfall is 1971-2000 (table 1).

During nine months, the rainfall was below the monthly normal rainfall (table 1). Significant deficient rainfall conditions were registered during October (27 percent below normal), November (47 percent below normal), May (41 percent below normal), and June (31 percent below normal). This significant rainfall deficiency was registered during part of the wet seasons. Recorded rainfall during the nine below-normal months averaged from 12 to 47 percent below monthly normal rainfall. During January, April, and August the rainfall throughout the Island was above normal rainfall conditions. Monthly rainfall during April (12.33 inches) almost triplicates the normal rainfall amount for this month (4.19 inches). This abnormal rainfall condition was generated by a strong upper level trough system combined with abundant moisture conditions which produced very heavy rainfall across Puerto Rico and the U.S. Virgin Islands during April 17 and 18, 2003.

Rainfall throughout the U.S. Virgin Islands was deficient during water year 2003 with an annual rainfall average of 75 percent of normal. Monthly normal rainfall was below normal during ten months of the water year 2003. During these months, the normal rainfall averaged from 12 to 72 percent below monthly normal rainfall. As mentioned above, the U.S. Virgin Islands experienced very heavy rainfall during April 17 and 18, 2003. As much as 5.68 inches of rain was recorded at St. Thomas during 48-hour period. During April, the normal rainfall in the U.S. Virgin Islands was about 290 percent above normal.

Table 1. Islandwide monthly rainfall for the water year 2003 and monthly normal rainfall for the 30-year reference period, 1971-2000.

Data from the National Oceanographic and Atmospheric Administration

Month	2003 Water Year (inches)	30-year normal (inches)
October	5.84	7.98
November	3.48	6.53
December	3.16	4.05
January	3.76	3.20
February	2.56	2.90
March	2.24	2.96
April	12.33	4.19
May	3.94	6.67
June	3.07	4.46
July	4.32	4.88
August	6.76	6.51
September	6.33	7.91
TOTAL	57.79	62.24

Surface Water

Streamflow in Puerto Rico during most of the water year 2003 (October 1, 2002 to September 30, 2003), was below or near normal streamflow conditions, based on the index stations which are representative of the four geographical areas (figure 1). During this period of record, there was only one significant rainfall event that produced excessive rainfall which increased the streamflows islandwide. This rainfall event produced by a strong upper level trough combined with abundant moisture affected Puerto Rico and the U.S. Virgin Islands during April 17 and 18, 2003. Moderate to severe flooding occurred across areas of southern and eastern Puerto Rico.

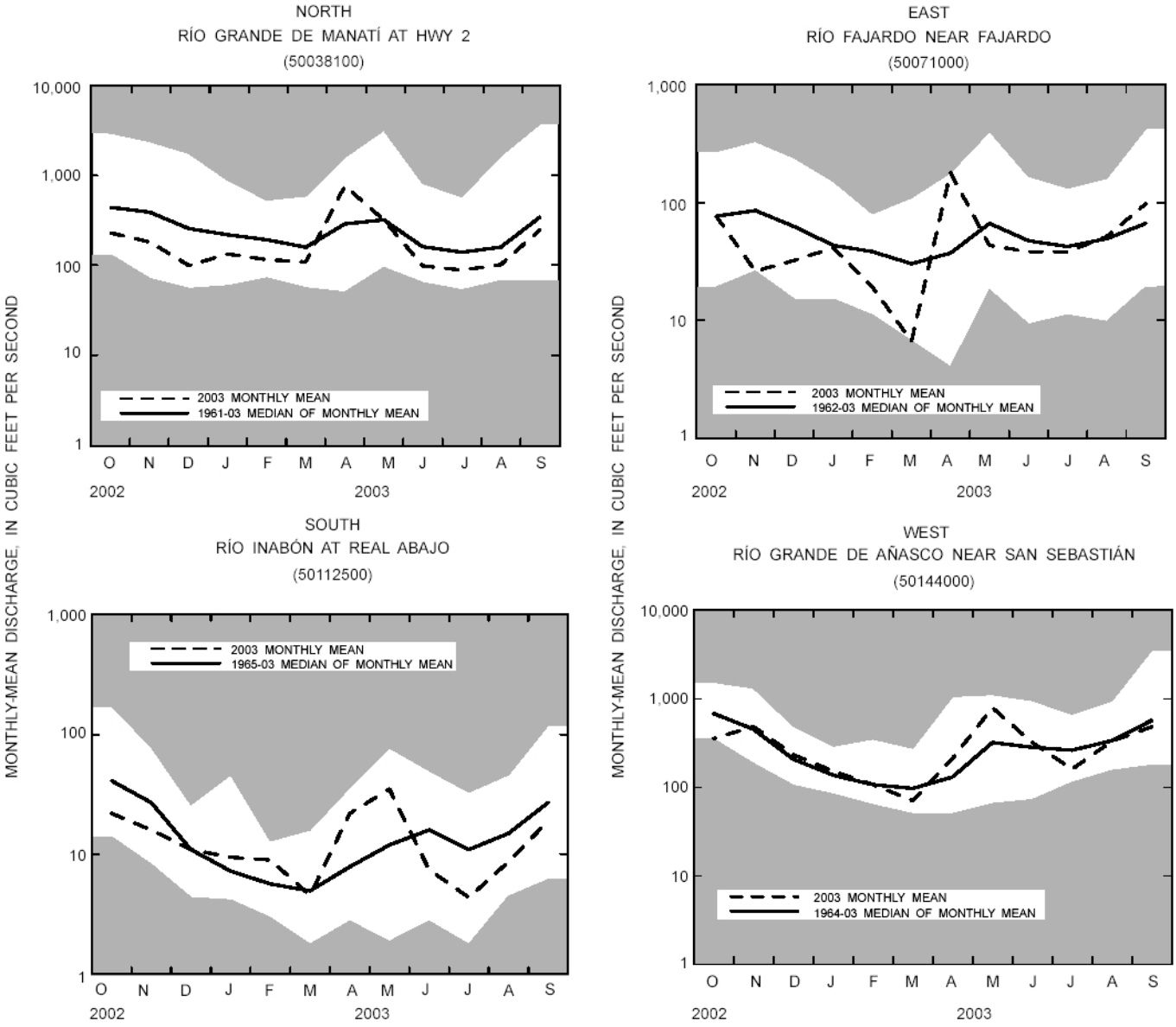
Comparisons of the monthly mean flows during water year 2003 with the long-term minimum, median, and maximum of the monthly mean flows, for the period of record at the index stations on the Río Grande de Manatí (northern area), the Río Fajardo (eastern area), the Río Inabón (southern area), and the Río Grande de Añasco (western area) are shown in figure 1. An overview describing the hydrologic conditions during water year 2003 at the four areas represented by the index stations are discussed next.

In the northern area, the Río Grande de Manatí index station registered monthly mean flows below normal during the first six months and last four months of the water year. During these ten months, the monthly mean flows were from 28 to 61 percent below of the long-term median. The monthly mean flow was above normal during April while the monthly mean flow during May equaled the long-term median of the monthly mean flows. During April, the monthly mean was 166 percent above the long-term median of the monthly mean flows.

In the eastern area, streamflow conditions, as showed by the Río Fajardo index station, were near normal during seven months of the water year. The monthly mean flow during October equaled the long-term median of the monthly mean flows. The historical minimum monthly mean flow was equaled during November and a historical minimum monthly mean flow was registered during March. During April, a historical maximum monthly mean was recorded at the Río Fajardo index station. In this station, the monthly mean flows ranged from 78 percent below normal during March to 381 percent above normal during April.

The southern area that use to be dryer than the other areas, also showed below normal streamflow conditions but in less degree compared with the northern and eastern areas. Streamflow conditions, as recorded by the Río Inabón index station, were below normal during October, November, March, June, July, August, and September. The monthly mean flow during December equaled the long-term median of the monthly mean flows. During four months, January, February, April, and May, the monthly mean flows were above the long-term median of the monthly mean flows. Monthly mean flows recorded at the Río Inabón index station ranged from 60 percent below normal during July to 192 percent above normal during May.

Streamflows registered at the Río Grande de Añasco index station serves to indicate the hydrologic conditions at the western area during water year 2003. Monthly mean flows in this area was in general, near normal or above normal during most of the water year. During November, December, January, April, May, and June, the Río Grande de Añasco index station registered monthly mean flows above the long-term median of the monthly mean flows. During October, the monthly mean flow was very close to the historical minimum monthly mean flow. Monthly mean flows were slightly below normal during the months of March, July, August, and September. The monthly mean flow during February equaled the long-term median of the monthly mean flows. At the Río Grande de Añasco index station, the monthly mean flows ranged from 48 percent below normal during October to 148 above normal during May.



Unshaded area indicates range between highest and lowest monthly-mean discharges for the period of record to water year 2003.

Figure 1. Monthly-mean discharge of selected streams in Puerto Rico.

Ground Water

In Puerto Rico and the Virgin Islands, water year 2003 was a period of declining ground-water levels. Declining water level means that storage in the aquifer is declining. In Puerto Rico, 70 percent of all wells showed a decline for the year. In the Virgin Islands, ground-water levels at all the wells declined. One region where ground-water levels rose was in the San Juan metropolitan area extending south to Caguas and Cayey and east to Luquillo and Fajardo. The only significant recharge event was the April 17-18, 2003 rainfall event. On these two days the National Weather Service identified 11 municipios that received from 7 to 22 inches of rain. The rains caused widespread flooding in northeastern Puerto Rico. At a number of wells this rainfall event caused ground-water levels to rise but not enough to reverse the downward trend for the year as a whole.

Two ground-water stations hit record highs in water year 2003 (table 2). Piezometer Ft. Buchanan 1 continued a nine-year trend of gradually rising water levels and hit a record high. The rains on April 17, 2003, caused Piezometer Carlos Arroyo 1 to reach a record high. Ten ground-water stations reached record lows in water year 2003 (table 3). Cruce Dávila NC 5 is in the Lower Aquifer of the North Coast Limestone Ground Water Province and has been declining steadily for 15 years. Most months it establishes a new record low. No other ground-water station in Puerto Rico has maintained consistently downward trends as this one. Most of the wells that reached new record lows were on the south coast from Guayama to Santa Isabel and have records that began in 1997, which means that there is no data from the drought of the mid 90s. The record lows at Jobitos Battery and Godreau 7 were significant because both of these stations reached record lows although they have records only since 1991. At these two locations, water year 2003 was drier than the mid 90s which was a time of water rationing in most areas of the island.

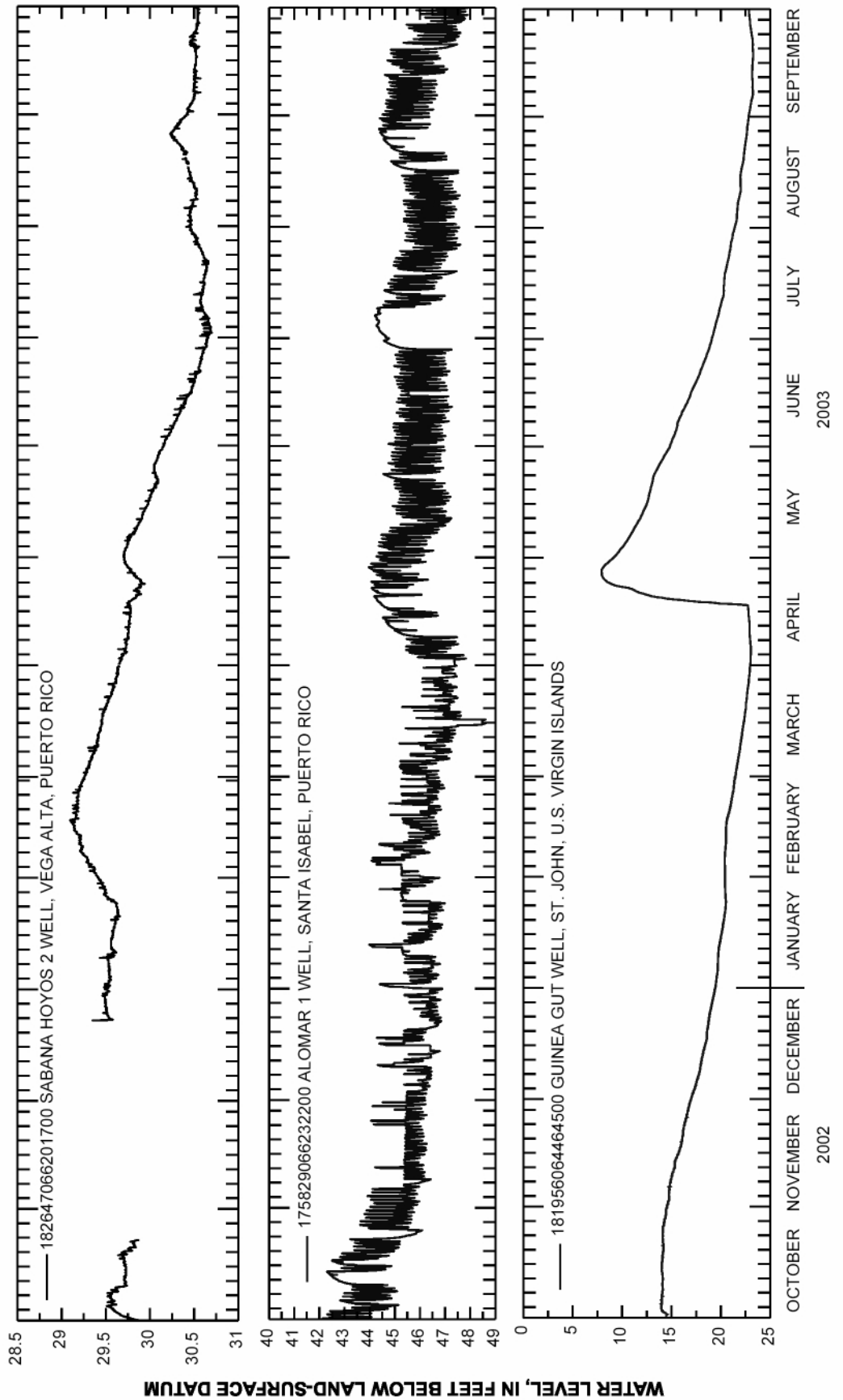


Figure 2. Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

Table 2. Highest ground-water levels recorded during 2003 water year and previous high ground-water levels at selected wells in Puerto Rico.

[PR, Puerto Rico; +, water level above land-surface datum; ft-blsd, feet below land-surface datum; mm-dd-yy, month-day-year; mm-yy, month-year]

Well name	Local number	Location	2003 highest water level (ft-blsd)	Date (mm-dd-yy)	Previous highest water level (ft-blsd)	Date (mm-dd-yy)	Period of record (mm-yy)
Piezometer Fort Buchanan 1	1159	PR	24.91	09-11-03	25.54	09-25-02	09-97 to 09-03
Piezometer Carlos Arroyo 1	1203	PR	1.55	04-17-03	1.66	11-13-99	10-97 to 09-03

Table 3. Lowest ground-water levels recorded during 2003 water year and previous lowest ground-water levels at selected wells in Puerto Rico.

[PR, Puerto Rico; ft-blsd, feet below land-surface datum; mm-dd-yy, month-day-year; mm-yy, month-year]

Well name	Local number	Location	2003 lowest water level (ft-blsd)	Date (mm-dd-yy)	Previous lowest water level (ft-blsd)	Date (mm-dd-yy)	Period of record (mm-yy)
NC-5 Cruce Dávila	205	PR	104.78	09-15-03	96.61	08-27-02	12-86 to 09-03
Piezometer Maguayo 2	1128	PR	29.49	07-21-03	29.44	06-23-01 06-24-01	06-95 to 09-03
Piezometer Higuillar 4	1130	PR	36.33	06-29-03	36.15	05-01-95 05-11-95 05-13-95 06-16-01 06-17-01	01-95 to 09-03
Algarrobo Domestic 1	1228	PR	34.62	12-09-02	34.19	07-19-01 07-20-01	05-97 to 09-03
Barranca Dug	1229	PR	24.69	03-14-03	24.21	06-07-97 06-08-97 06-09-97	04-97 to 09-03
Jobos	1239	PR	37.39	09-10-03	32.63	09-30-02	04-97 to 09-03
Coqui BTR 1	1251	PR	19.97	09-23-03	18.64	05-29-98	03-97 to 09-03
Piezometer USGS D	1254	PR	52.19	04-07-03	47.98	10-07-97	02-97 to 09-03
Godreau 7	1256	PR	36.96	08-25-03 to 09-06-03	34.87	09-03-96	09-91 to 09-03
Bauzá 1	1260	PR	232.84	08-25-03 to 09-06-03	219.20	08-26-02	10-97 to 09-03
Jobitos BTR	1263	PR	45.81	08-01-03 03-15-03	45.73	09-16-94 09-17-94	09-91 to 09-03

Water Quality

The U.S. Geological Survey, in cooperation with several Commonwealth agencies, collected water-quality data at 60 surface-water stations during water year 2003. Water-quality data collected at these stations included major ions, trace elements, nutrients, pesticides, as well as fecal indicator bacteria and physical parameters. The presence of high concentrations of fecal coliform (fig. 3) and fecal streptococcal (fig. 4) bacteria during water year 2003 continued to be one of the principal water-quality problems in Puerto Rico. Although water pollution control measures are being implemented to decrease the concentrations of these bacteria and even when there has been an improvement in the water quality of the majority of the streams in comparison with previous years, the values are still above the established water-quality standards for natural waters. Areas drained by major rivers where there is intense land use (agriculture, industry, urbanization) have, in general, fairly high concentrations of fecal indicator bacteria. The ability of communities to treat drinking water for bacteria is often inhibited by runoff with high suspended-sediment concentration and the associated turbidity problems. This is generally the principal cause in streams which suffer from intense resource utilization (agriculture and urban development) where soil movement is involved.

The U.S. Geological Survey, in cooperation with various Commonwealth and Federal agencies, collected suspended-sediment samples at 22 stations in Puerto Rico during the 2003 water year. High suspended-sediment concentrations are a common problem in many streams in Puerto Rico. Most of the streams with high suspended-sediment concentrations are related to land use, especially urban development, agriculture, and activities which disturb soil cover. High suspended-sediment concentrations affect the operation of public surface-water supply filtration plants and contribute with the storage depletion capacities of reservoirs. Table 4 summarizes the annual sediment discharge (in tons) and sediment yield (in tons/mi^2), for some of the monitored stations. Calculated sediment yields varied from a minimum of 62.7 tons/mi^2 at station 50027600, Río Grande de Arecibo near San Pedro, to a maximum of 10,500 tons/mi^2 at station 50048770, Río Piedras at El Señorial. The average sediment yield was 1,730 tons/mi^2 and the median was 1,160 tons/mi^2.

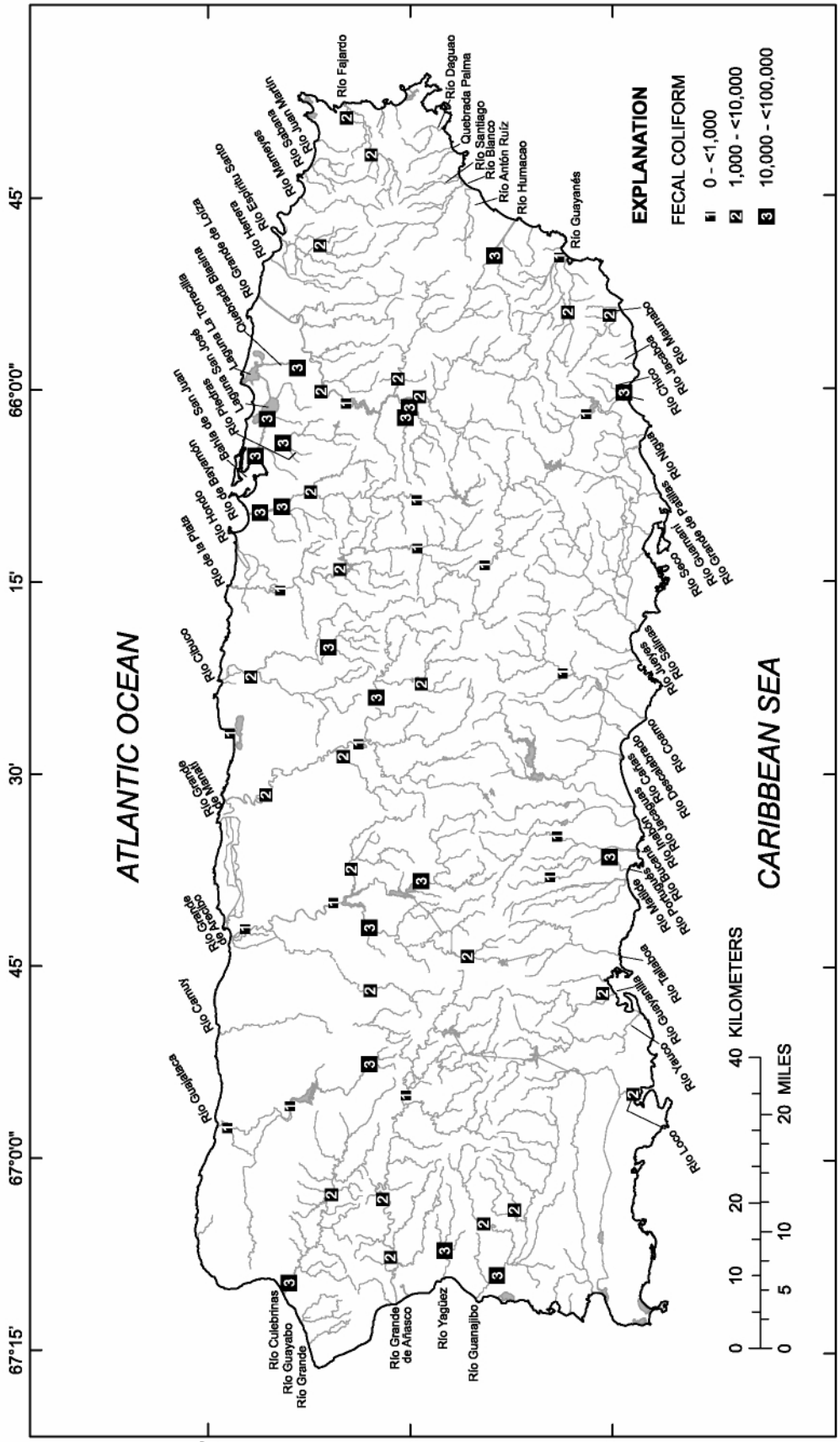


Figure 3. Location of maximum concentrations of fecal coliform bacteria at the water-quality sampling sites in Puerto Rico.

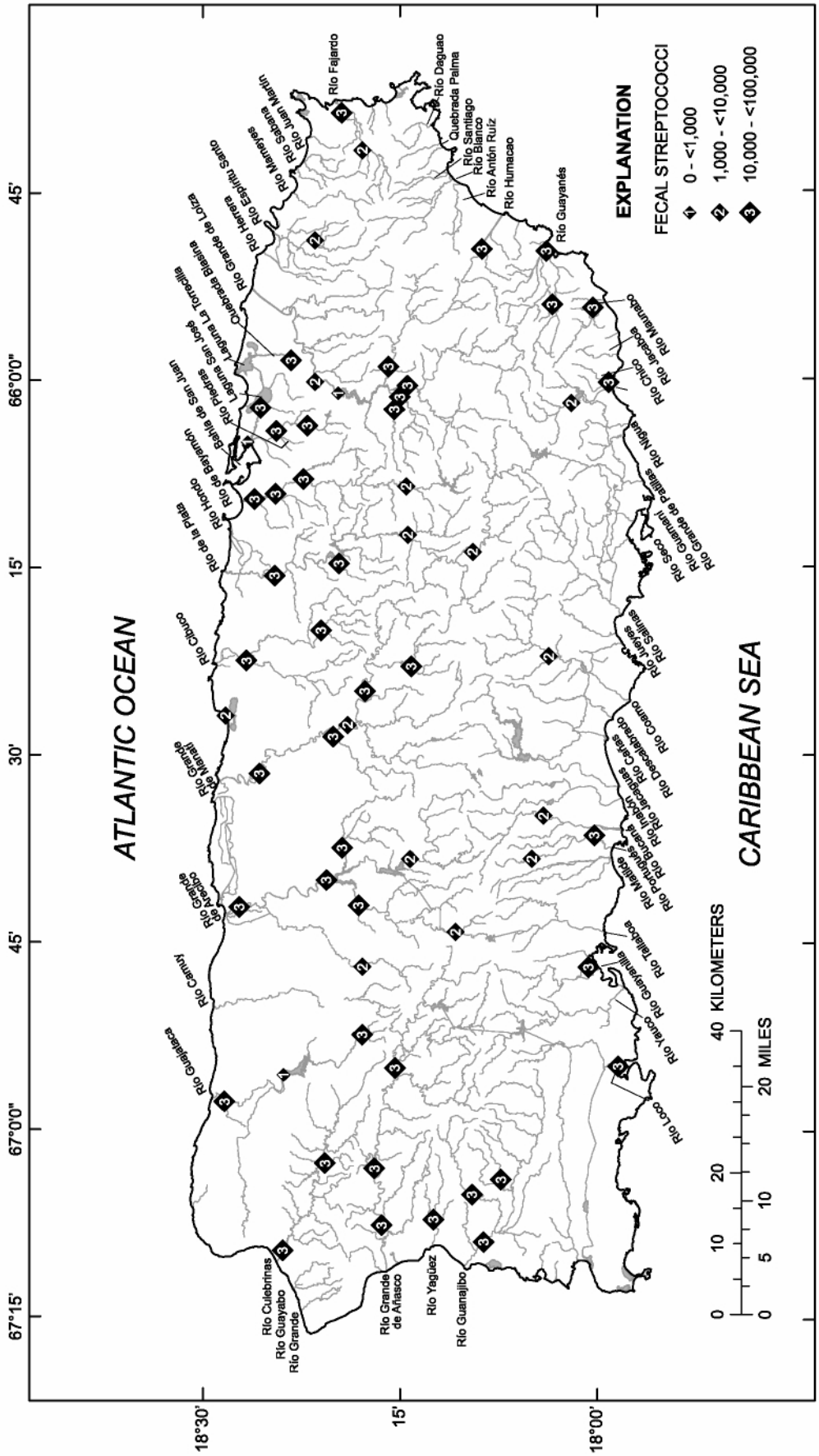


Figure 4. Location of maximum concentrations of fecal streptococci bacteria at the water-quality sampling sites in Puerto Rico.

Table 4. Sediment yields at selected sediment stations for water year 2003.

[mi^2, square miles; tons/mi^2, tons per square miles]

Station number	Station name	Drainage area, in mi^2	Annual sediment discharge, in tons	Sediment yields, in tons/mi^2
50020500	Río Grande de Arecibo near Adjuntas	12.7	28,500	2,240
50021030	Río Pellejas above Central Pellejas	6.83	8,330	1,220
50021700	Río Grande de Arecibo Above Utuado	36.0	27,500	764
50024950	Río Grande de Arecibo below Utuado	65.6	106,000	1,620
50025155	Río Saliente at Coabey near Jayuya	9.25	2,370	256
50025850	Río Jauca at Paso Palma	6.89	3,730	541
50026025	Río Caonillas at Paso Palma	37.9	23,100	609
50026400	Río Yunes at Hwy 140 near Florida	13.9	16,200	1,160
50027000	Río Limón above Lago Dos Bocas	33.2	53,700	1,620
50027600	Río Grande de Arecibo near San Pedro	173.7	10,900	63
50028000	Río Tanamá near Utuado	18.4	14,700	799
50031200	Río Grande de Manatí near Morovis	55.2	31,400	569
50035000	Río Grande de Manatí at Ciales	128	122,000	953
50043800	Río de la Plata at Comerío	109	154,000	1,410
50027000	Río Limón above Lago Dos Bocas	33.2	53,700	1,620
50048770	Río Piedras at El Señorial	7.49	78,600	10,500
50055000	Río Grande de Loíza at Caguas	89.8	67,900	756
50065500	Río Mameyes near Sabana	6.88	8,940	1,300
50071000	Río Fajardo near Fajardo	14.9	47,400	3,180
50136400	Río Rosario near Hormigueros	18.3	10,700	585
50148890	Río Culebrinas at Margarita Dam near Aguada	94.6	424,000	4,480

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from http://water.usgs.gov/hbn/

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia Rivers so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment (NAWQA) Program; (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program may be accessed from http://water.usgs.gov/nasqan/.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a network of monitoring sites that provide continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead Federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as data from the individual sites, may be accessed from http://bqs.usgs.gov/acidrain/.

The USGS National Water-Quality Assessment (NAWQA) Program is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents is measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for water-resources managers to use in making decisions and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and Federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key Federal, State, and local water-resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program may be accessed from http://water.usgs.gov/nawqa/.

The USGS National Streamflow Information Program (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and databases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from http://water.usgs.gov/nsip/.

EXPLANATION OF RECORDS

The surface- and ground-water records published in this report are for the 2002 water year that began October 1, 2001 and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 8. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, hydrologic-station records in USGS reports have been listed in order of downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary entering between two main-stream stations is listed between those stations. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is located with respect to the stream to which it is immediately tributary is indicated by an indention in that list of stations in the front of this report. Each indentation represents one rank. This downstream order and system of indentation indicates which stations are on tributaries between any two stations and the rank of the tributary on which each station is located.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These station numbers are in the same downstream order used in this report. In assigning a station number, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list composed of both types of stations. Gaps are consecutive. The complete 8-digit (or 10-digit) number for each station such as 50028000, which appears just to the left of the station name, includes a 2-digit part number “50” plus the 6-digit (or 8-digit) downstream order number “028000.” In areas of high station density, an additional two digits may be added to the station identification number to yield a 10-digit number. The stations are numbered in downstream order as described above between stations of consecutive 8-digit numbers.

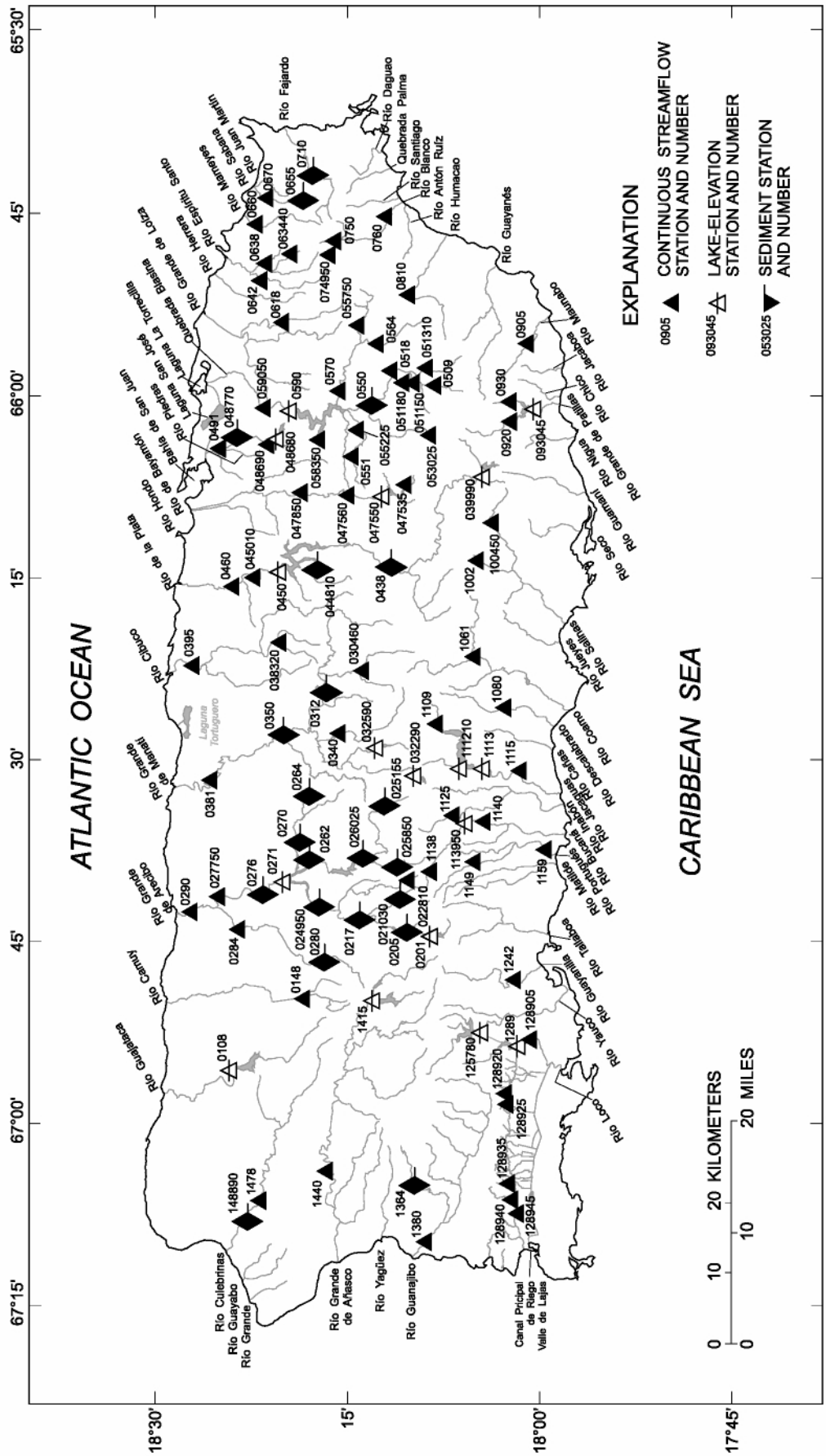


Figure 5. Location of surface-water stations in Puerto Rico.

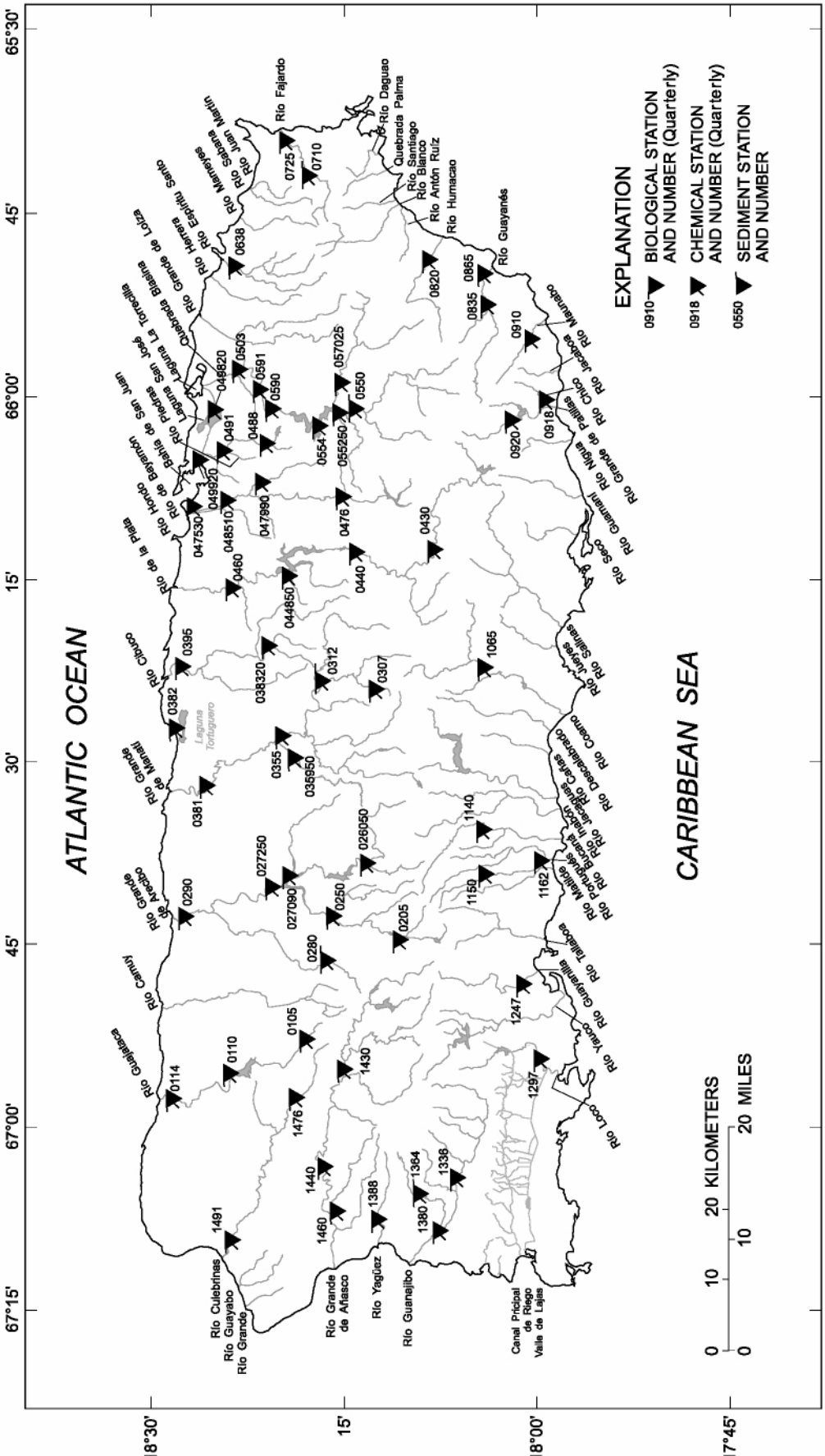


Figure 6. Location of water-quality stations in Puerto Rico.

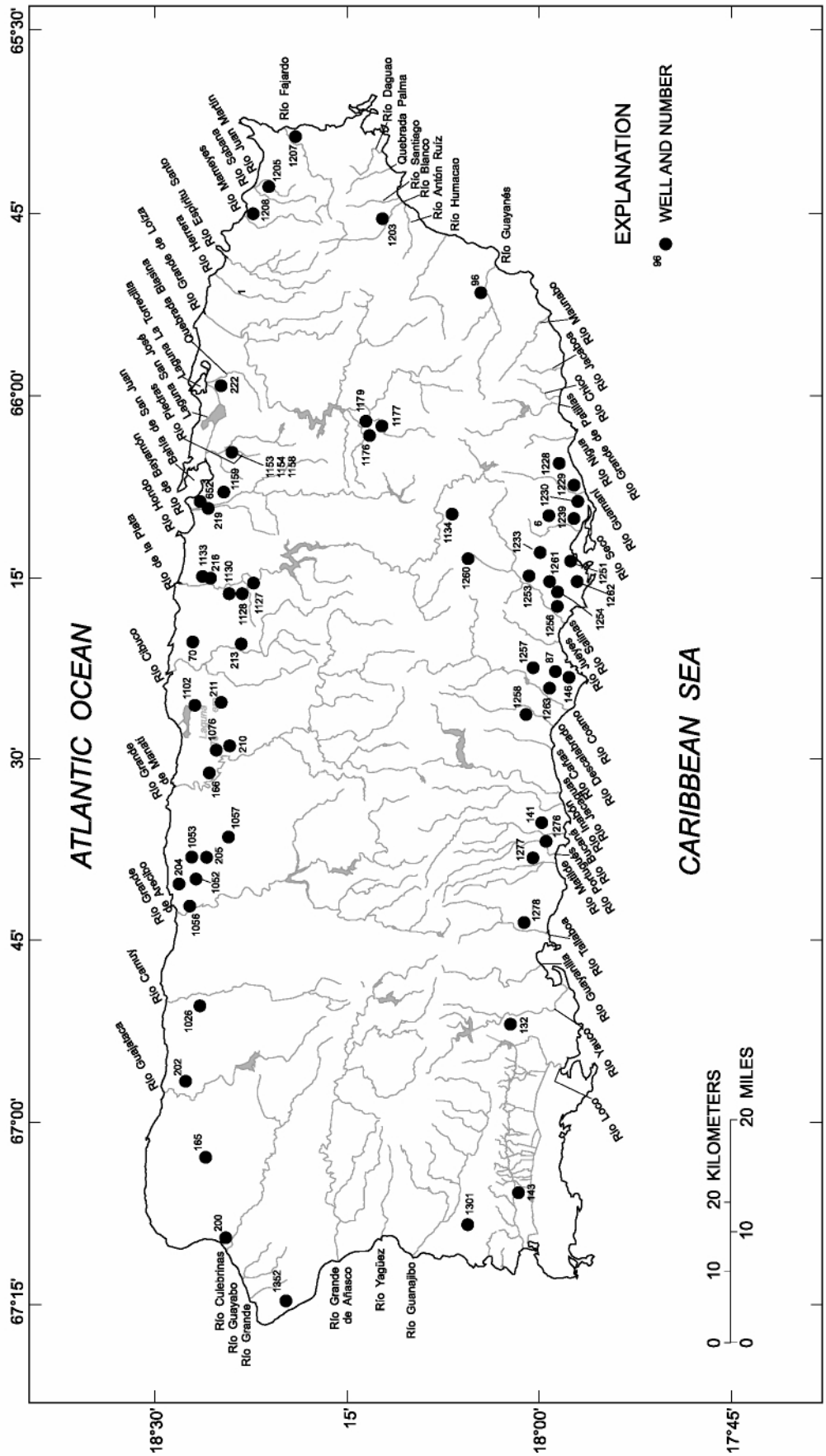


Figure 7. Location of ground-water stations in Puerto Rico.

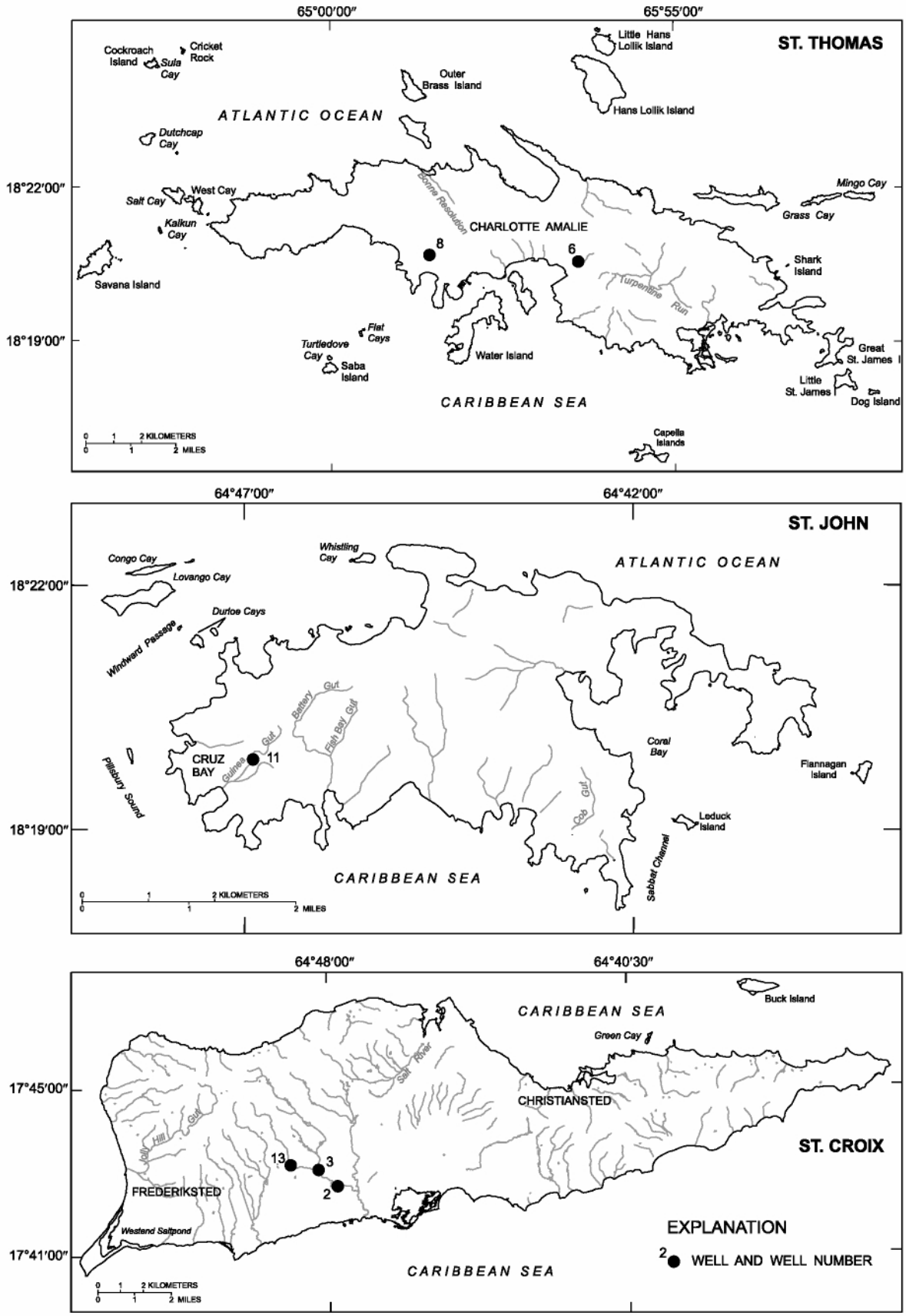


Figure 8. Location of ground-water stations in the U.S. Virgin Islands.

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig. 9).

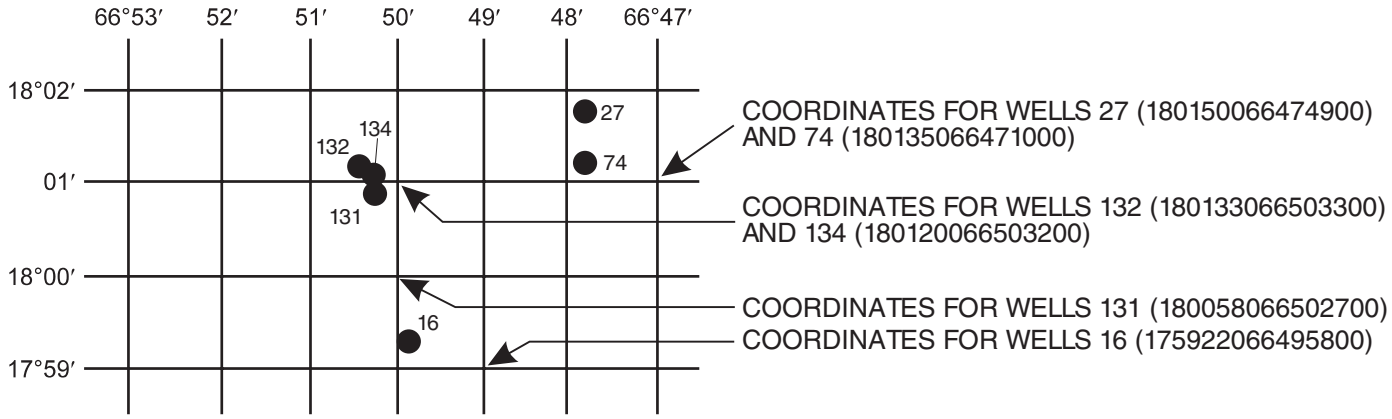


Figure 9. System for numbering wells and miscellaneous sites (latitude and longitude).

EXPLANATION OF STAGE AND WATER DISCHARGE RECORDS

Data Collection and Computation

The base data collected at gaging stations (figs. 5 and 8) consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and volume of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that is either downloaded electronically in the field to a laptop computer or similar device or is transmitted using telemetry such as GOES satellite, land-line or cellular-phone modems, or by radio transmission. Measurements of discharge are made with a current meter or acoustic Doppler current profiler, using the general methods adopted by the USGS. These methods are described in standard textbooks, USGS Water-Supply Paper 2175, and the Techniques of Water-Resources Investigations of the United States Geological Survey (TWRIs), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

For stream-gaging stations, discharge-rating tables for any stage are prepared from stage-discharge curves. If extensions to the rating curves are necessary to express discharge greater than measured, the extensions are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, or computation of flow over dams and weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily values. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features of the stream channel, the daily mean discharge is computed

by the shifting-control method in which correction factors based on individual discharge measurements and notes by engineers and observers are used when applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the controlling section, the daily mean discharge is computed by the shifting-control method.

The stage-discharge relation at some stream-gaging stations is affected by backwater from reservoirs, tributary streams, or other sources. Such an occurrence necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage at some distance from the base gage.

An index velocity is measured using ultrasonic or acoustic instruments at some stream-gaging stations and this index velocity is used to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relation is then used to calculate average discharge.

At some stations, stage-discharge relation is affected by changing stage. At these stations, the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations in the northern United States, the stage-discharge relation is affected by ice in the winter; therefore, computation of the discharge in the usual manner is impossible. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter-discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge from other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the volume or contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly changes are computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some stream-gaging stations, periods of time occur when no gage-height record is obtained or the recorded gage height is faulty and cannot be used to compute daily discharge or contents. Such a situation can happen when the recorder stops or otherwise fails to operate properly, the intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records from other stations in the same or nearby basins. Likewise, lake or reservoir volumes may be estimated on the basis of operator’s log, prior and subsequent records, inflow-outflow studies, and other information.

Data Presentation

The records published for each continuous-record surface-water discharge station (stream-gaging station) consist of five parts: (1) the station manuscript or description; (2) the data table of daily mean values of discharge for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period, by water year; (4) a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration; and (5) a hydrograph of discharge.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments follow that clarify information presented under the various headings of the station description.

LOCATION.—Location information is obtained from the most accurate maps available. The location of the gaging station with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.—Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.—This term indicates the time period for which records have been published for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that its flow reasonably can be considered equivalent to flow at the present station.

REVISED RECORDS.—If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

GAGE.—The type of gage in current use, the datum of the current gage referred to a standard datum, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.—All periods of estimated daily discharge either will be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily discharge table. (See section titled Identifying Estimated Daily Discharge.) Information is presented relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, the outlet works and spillway, and the purpose and use of the reservoir.

COOPERATION.—Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.—Information here documents major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the USGS.

REVISIONS.—Records are revised if errors in published records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (http://water.usgs.gov/nwis/nwis). Users are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent data updates. Updates to NWISWeb are made on an annual basis.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because no current or, possibly, future station manuscript would be published for these stations to document the revision in a REVISED RECORDS entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office (address given on the back of the title page of this report) to determine if the published records were revised after the station was discontinued. If, however, the data for a discontinued station were obtained by computer retrieval, the data would be current. Any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the REMARKS and in the inclusion of a stage-capacity table when daily volumes are given.

Data Table of Daily Mean Values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed TOTAL gives the sum of the daily figures for each month; the line headed MEAN gives the arithmetic average flow in cubic feet per second for the month; and the lines headed MAX and MIN give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month is expressed in cubic feet per second per square mile (line headed CFSM); or in inches (line headed IN); or in acre-feet (line headed AC-FT). Values for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if extensive regulation or diversion is in effect or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir volumes are given. These values are identified by a symbol and a corresponding footnote.

Statistics of Monthly Mean Data

A tabular summary of the mean (line headed MEAN), maximum (MAX), and minimum (MIN) of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those values. The designated period will be expressed as FOR WATER YEARS __-__, BY WATER YEAR (WY), and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. The designated period will consist of all of the station record within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript.

Summary Statistics

A table titled SUMMARY STATISTICS follows the statistics of monthly mean data tabulation. This table consists of four columns with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, WATER YEARS __-__, will consist of all of the station records within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the ANNUAL 7-DAY MINIMUM statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When the dates of occurrence do not fall within the selected water years listed in the heading, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration-curve statistics and runoff data also are given. Runoff data may be omitted if extensive regulation or diversion of flow is in effect in the drainage basin.

The following summary statistics data are provided with each continuous record of discharge. Comments that follow clarify information presented under the various line headings of the SUMMARY STATISTICS table.

ANNUAL TOTAL.—The sum of the daily mean values of discharge for the year.

ANNUAL MEAN.—The arithmetic mean for the individual daily mean discharges for the year noted or for the designated period.

HIGHEST ANNUAL MEAN.—The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.—The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.—The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.—The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.—The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. This value should not be confused with the 7-day 10-year low-flow statistic.

MAXIMUM PEAK FLOW.—The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.—The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.—The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.—Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

> Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicate the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.—The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.—The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.—The discharge that has been exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first table lists annual maximum stage and discharge at crest-stage stations, and the second table lists discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are often made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for a special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified. This identification is shown either by flagging individual daily values with the letter “e” and noting in a table footnote, “e–Estimated,” or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of Field Data and Computed Results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The degree of accuracy of the records is stated in the REMARKS in the station description. “Excellent” indicates that about 95 percent of the daily discharges are within 5 percent of the true value; “good” within 10 percent; and “fair,” within 15 percent. “Poor” indicates that daily discharges have less than “fair” accuracy. Different accuracies may be attributed to different parts of a given record.

Values of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to the nearest tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharge values listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, values of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Data Records Available

Information of a more detailed nature than that published for most of the stream-gaging stations such as discharge measurements, gage-height records, and rating tables is available from the District office. Also, most stream-gaging station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the District office (see address that is shown on the back of the title page of this report).

RECORDS OF SURFACE-WATER QUALITY

Records of surface-water quality ordinarily are obtained at or near stream gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, suspended-sediment loads for other periods of similar discharge, and computed by the subdivided-day method using the transport curves.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment are included for some stations.

Laboratory Measurements

Samples for indicator bacteria are analyzed in the mobile laboratories immediately after collection. Sediment samples are analyzed in the U.S. Geological Survey laboratories in the Kentucky District Sediment Laboratory. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this section:

Printed Output	Remark
E or e	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence verified, not quantified

RECORDS OF GROUND-WATER LEVELS

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for easy reference. See figure 9.

Water-level records are obtained from direct measurements with a steel tape at about monthly intervals at all observation wells and also from digital water-stage data logger at 60-minute intervals at selected wells. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every day and as an instantaneous observation at noon.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot.

Data Presentation

Each well record consists of three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings of the well description.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the observation well name.

AQUIFER.--This entry designates by name (if a name exists) and geologic unit open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

Water-Level Tables

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed.

For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the table. Because all values are not published for wells with data loggers, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows each water-level table.

ACCESS TO U.S. GEOLOGICAL SURVEY WATER DATA

The U.S. Geological Survey provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at http://water.usgs.gov.

Water-quality data and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each Water Discipline District Office (See address that is shown on the back of the title page of this report.)

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, and precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units. Other glossaries that also define water-related terms are accessible from http://water.usgs.gov/glossaries.html.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

Adenosine triphosphate (ATP) is an organic, phosphate-rich compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

Adjusted discharge is discharge data that have been mathematically adjusted (for example, to remove the effects of a daily tide cycle or reservoir storage).

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample. (See also "Biomass" and "Dry weight")

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that purposely is placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

Ash mass is the mass or amount of residue present after the residue from a dry-mass determination has been ashed in a muffle furnace at a temperature of 500 ºC for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m_3), and periphyton and benthic organisms in grams per square meter (g/m_2). (See also "Biomass" and "Dry mass")

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Bedload is material in transport that primarily is supported by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to the top of the bedload sampler nozzle (an elevation ranging from 0.25 to 0.5 foot). These particles are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as mass per unit area or volume of habitat.

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This also is called the Autotrophic Index.

Blue-green algae (Cyanophyta) are a group of phytoplankton and periphyton organisms with a blue pigment in addition to a green pigment called chlorophyll. Blue-green algae can cause nuisance water-quality conditions in lakes and slow-flowing rivers; however, they are found commonly in streams throughout the year. The abundance of blue-green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of blue-green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton"and "Periphyton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved-solids content of the pore water, and the lithology and porosity of the rock.

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada's first order level network in 1928.

Cell volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are used frequently in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm_3) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

sphere $4/3\ \pi r3$ cone $1/3\ \pi r2h$ cylinder $\pi r2h$.

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159….

From cell volume, total algal biomass expressed as biovolume (μm_3/mL) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and generally are reported as cells or units per milliliter (mL) or liter (L).

Cfs-day (See “Cubic foot per second-day”)

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also “Biochemical oxygen demand (BOD)”]

Clostridium perfringens (C. perfringens) is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and the presence of microorganisms that are resistant to disinfection and environmental stresses. (See also “Bacteria”)

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable bound-aries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure, as used in this report, is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [$(ft^3/s)/d$]) is the volume of water represented by a flow of 1cubic foot per second for 24 hours. It is equivalent to 86,400cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables numerically are equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted mean concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "Sediment" and "Suspended-sediment concentration")

Daily record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to data collection on a daily or near-daily basis.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data usually are downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or Universal Transverse Mercator (UTM) coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

Diatoms (Bacillariophyta) are unicellular or colonial algae with a siliceous cell wall. The abundance of diatoms in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ($\mu m^3/mL$). The abundance of diatoms in periphyton samples is given in cells per square centimeter ($cells/cm^2$) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or flow, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, and so forth, within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i \approx 1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n},$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria commonly are found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include Streptococcus feacalis, Streptococcus feacium, Streptococcus avium, and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that generally are considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warmblooded animals. E. coli are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) value of a concentration is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an E code will be reported with the value. If the analyte is identified qualitatively as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an E code even though the measured value is greater than the MDL. A value reported with an E code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<). For bacteriological data, concentrations are reported as estimated when results are based on non-ideal colony counts.

Euglenoids (Euglenophyta) are a group of algae that usually are free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fecal streptococcal bacteria are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fire algae (Pyrrhophyta) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum is not an actual physical object, the datum is usually defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term "stage," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae (Chlorophyta) are unicellular or colonial algae with chlorophyll pigments similar to those in terrestrial green plants. Some forms of green algae produce mats or floating "moss" in lakes. The abundance of green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat typically are made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

Hardness of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. See NOAA Web site: http://www.co-ops.nos.noaa.gov/tideglos.html

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum \frac{(n)(a)}{N},$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

Inch (IN., in.), in reference to streamflow, as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were distributed uniformly on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year, on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) generally is equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. The LRL replaces the term 'non-detection value' (NDV).

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L},$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e \frac{I}{I_o}.$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike-sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. See NOAA Web site: http://www.co-ops.nos.noaa.gov/tideglos.html

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also "Discharge")

Mean high or low tide is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

Measuring point (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Method of Cubatures is a method of computing discharge in tidal estuaries based on the conservation of mass equation.

Methylene blue active substances (MBAS) indicate the presence of detergents (anionic surfactants). The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (UG/G, μg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, μg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, μg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, μS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD 29) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It formerly was called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. See NOAA Web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88 (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

Nekton are the consumers in the aquatic environment and consist of large, free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

North American Vertical Datum of 1988 (NAVD 88) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or volatile mass of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method uses the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or percent of total is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, mass, or volume.

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed “acidic,” and solutions with a pH greater than 7.0 are termed “basic.” Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They usually are microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and commonly are known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one-trillionth (1 x 10-12) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7 x 1010 radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light- and dark-bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mgO/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. The oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light- and dark-bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Radioisotopes are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

Recoverable from bed (bottom) material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (See also "Bed material")

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See "Recurrence interval")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See "Gage height")

Stage-discharge relation is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2 mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0	no gravel or larger substrate	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (0.1 to 0.2 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment, and, thus, the determination represents something less than the "total" amount (that is, less than 95percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by directly analyzing the suspended mate-rial collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also "Sediment")

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom:	Animal
Phylum:	Arthropeda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	Hexagenia
Species:	Hexagenia limbata

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric ton per day.

Total is the amount of a given constituent in a representative whole-water (unfiltered) sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined at least 95 percent of the constituent in the sample.)

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also "Bacteria")

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume")

Total recoverable is the amount of a given constituent in a whole-water sample after a sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or total load is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution because of the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to USEPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of path length of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and, subsequently, analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They often are components of fuels, solvents, hydraulic fluids, paint thinners, and dry-cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human-health concern because many are toxic and are known or suspected human carcinogens.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12months. Thus, the year ending September 30, 2002, is called the "2002 water year."

Watershed (See "Drainage basin")

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976.)

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

WSP is used as an acronym for "Water-Supply Paper" in reference to previously published reports.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also "Plankton")

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals, the Techniques of Water-Resources Investigations, describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

Reports in the Techniques of Water-Resources Investigations series, which are listed below, are online at http://water.usgs.gov/pubs/twri/. Printed copies are for sale by the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office), telephone 1-888-ASK-USGS. Please telephone 1-888-ASK-USGS for current prices, and refer to the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Products can then be ordered by telephone, or online at http://www.usgs.gov/sales.html, or by FAX to (303)236-469 of an order form available online at http://mac.usgs.gov/isb/pubs/forms/. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

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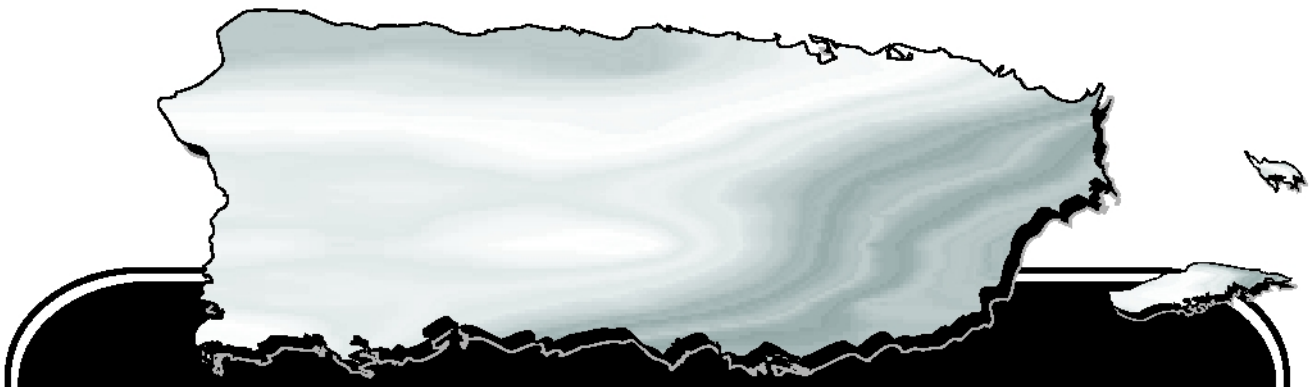

Surface and Quality-of-Water Records for Puerto Rico

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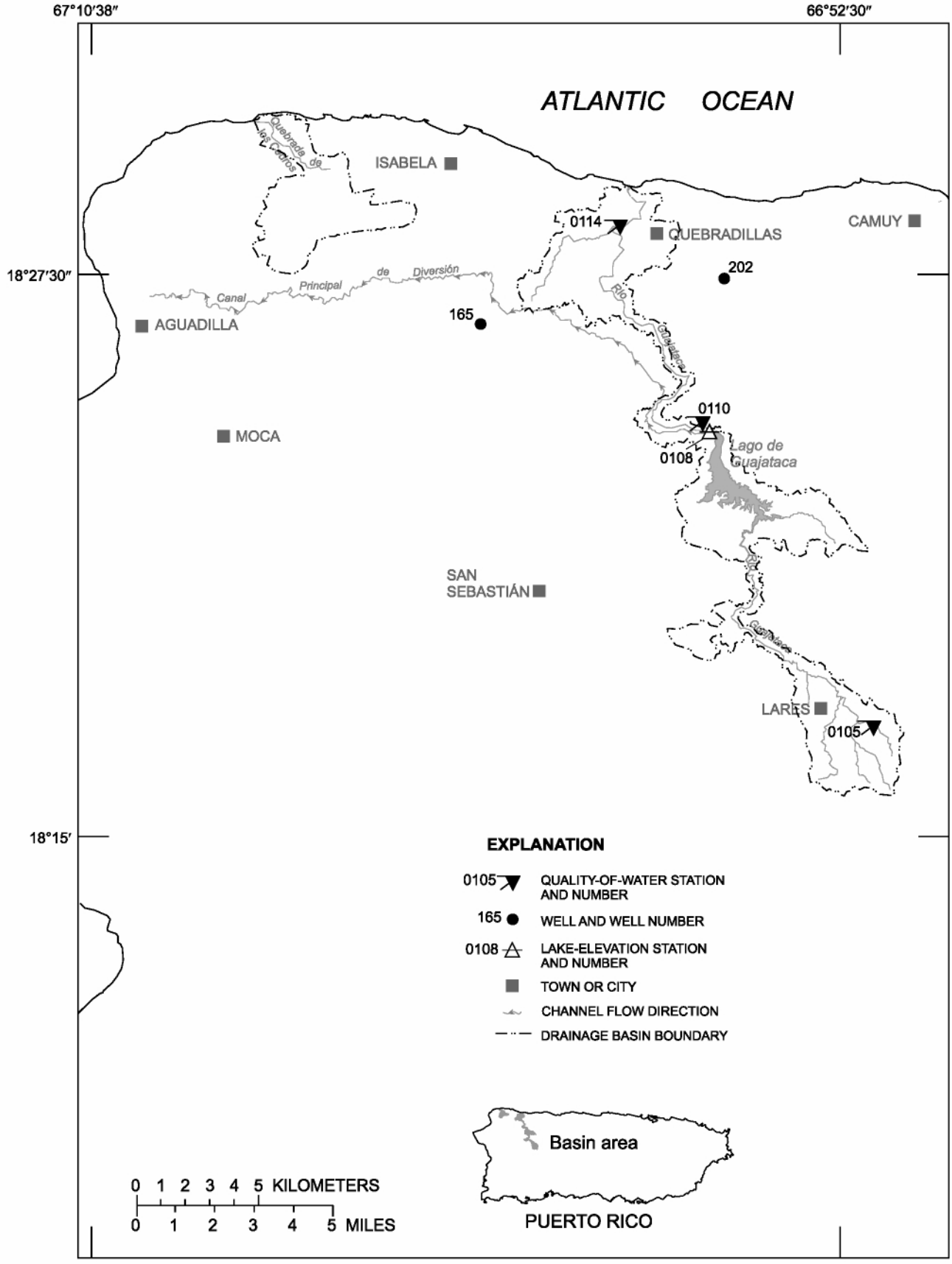


Figure 10. Río Guajataca basin.

50010500 RIO GUAJATACA AT LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anón and 0.4 mi (0.6 km) northeast of Lares Plaza.

DRAINAGE AREA.--3.16 mi^2 (8.18 km^2).

PERIOD OF RECORD.--Water years 1958-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
11...	1300	1.6	2.3	8.1	94	6.3	256	21.9	92	27.2	5.92	2.25	.5
MAR													
19...	1330	.45	2.4	8.7	--	7.9	256	23.8	97	27.8	6.58	3.93	.6
MAY													
12...	1630	11	7.5	8.1	--	7.7	224	24.5	84	25.9	4.76	2.75	.4
AUG													
20...	1615	4.5	12	7.2	--	7.5	254	26.3	--	--	--	--	--
SEP													
16...	1100	3.4	2.1	8.0	--	7.6	258	24.0	100	32.4	5.67	2.63	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
11...	11.9	119	10.7	<.17	33.7	5.3	--	168	.74	<10	.20	.03	1.74
MAR													
19...	13.0	95	12.9	.09	30.5	11.1	.2	163	.20	<10	<.20	.01	--
MAY													
12...	9.35	59	9.51	<.17	24.4	9.2	.1	121	3.64	<10	<.20	<.01	--
AUG													
20...	--	92	--	--	--	--	--	--	--	<10	.30	.11	1.49
SEP													
16...	10.2	101	11.0	<.2	26.6	8.8	--	158	--	<10	<.20	<.01	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
11...	1.80	.06	.17	.06	2.0	8.9	<10	2,000	880	--	--	--	--
MAR													
19...	.800	<.01	--	.04	--	--	<10	200	--	5,300	E1	17.8	E17
MAY													
12...	1.70	<.01	--	.03	--	--	<10	640	--	6,300	E2	23.2	29
AUG													
20...	1.50	.01	.19	.03	1.8	8.0	10	E14,000	--	57,000	--	--	--
SEP													
16...	1.40	<.01	--	.04	--	--	<10	300	--	30,000	--	--	--

50010500 RIO GUAJATACA AT LARES, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
19...	<.2	<.8	<10	<.01	40	<1	11.9	<.02	<3	<.3	<25	<.10	<16
MAY													
12...	<.2	<.8	<10	<.01	220	<1	21.6	<.02	<3	<.3	<25	<.10	<16
AUG													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50010800 LAGO GUAJATACA AT DAMSITE NEAR QUEBRADILLAS, PR

LOCATION.--Lat 18°24'02", long 66°55'25", Hydrologic Unit 21010002, on right bank, in a concrete intake tower at Damsite, 5.2 mi (8.4 km) southeast from Quebradillas Plaza, 0.5 mi (0.8 km) northeast from Iglesia San Antonio de Padua and 2.8 mi (4.5 km) from Escuela Segunda Unidad Baldorioty de Castro.

DRAINAGE AREA.--24.6 mi^2 (63.71 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guajataca was completed in 1928. The dam is a semihydraulic earthfill structure about 123 ft (37 m) high, a top width of 31 ft (9.5 m) at crest elevation of 664 ft (202.5 m), a base width of 623 ft (190 m), a crest length of 1,036 ft (316 m) and has a maximum storage capacity of 49,200 acre-feet (60.6 hm^3). The Guajataca Dam is owned by the Puerto Rico Electric Power Authority (PREPA) and provides water for the municipalities of Aguadilla, Isabela, Moca, Aguada, and Quebradillas although its primary purpose is for agricultural irrigation for the flatlands of the area. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 00-4044, January 1999.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 648.3 ft (197.60 m), September 23, 1998; minimum elevation, 608.07 ft (185.34 m) May 17, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 643.58 ft (196.16 m), November 16; minimum elevation, 629.19 ft (191.78 m), April 5.

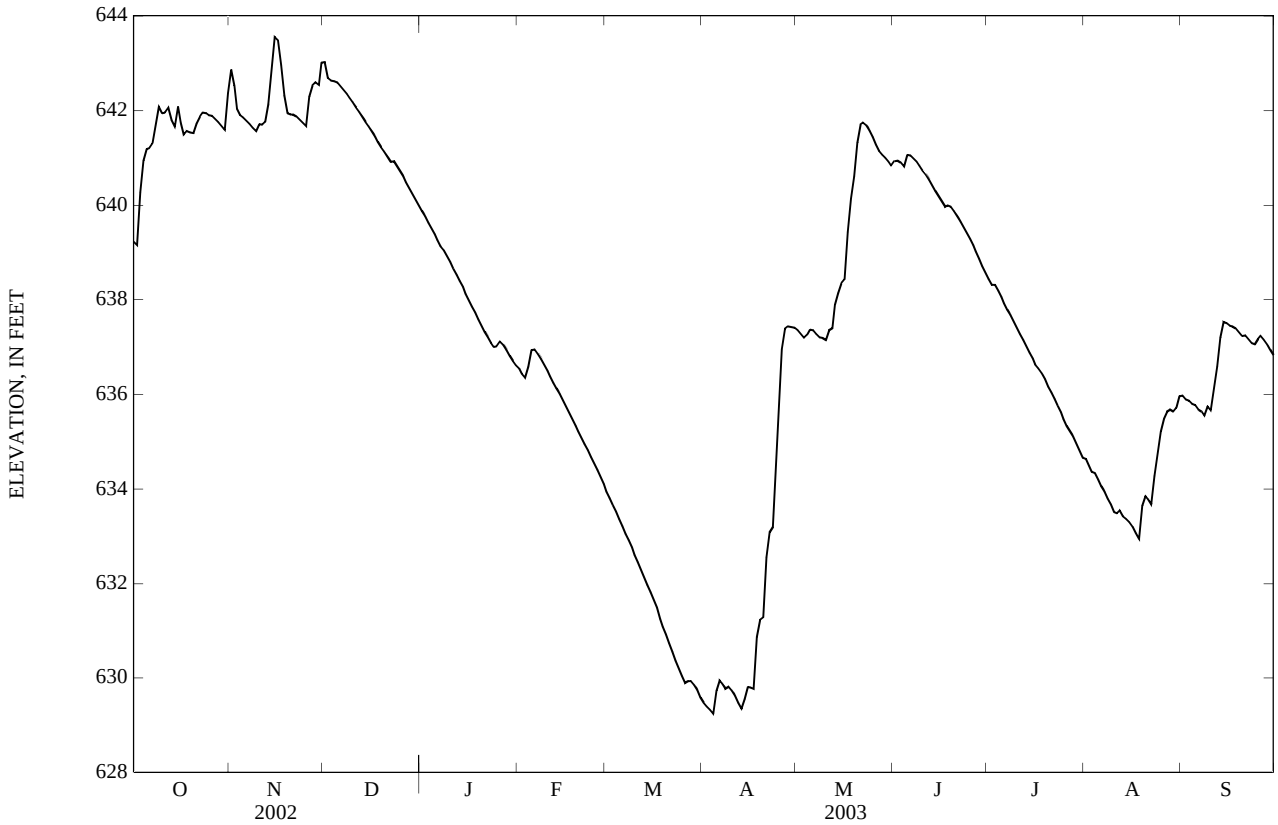
Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 00-4044, 1999)
(Elevation in ft, capacity in acre-ft)

Elevation	Contents	Elevation	Contents
557	0	616	13,393
577	916	636	26,332
597	5,253	646	34,277

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	639.22	642.87	643.03	639.88	636.54	633.95	629.48	637.36	640.93	638.44	634.63	635.97
2	639.16	642.53	642.69	639.77	636.44	633.81	629.40	637.28	640.95	638.32	634.48	635.90
3	640.27	642.04	642.63	639.63	636.36	633.66	629.33	637.20	640.90	638.32	634.36	635.87
4	640.94	641.90	642.62	639.51	636.59	633.52	629.24	637.25	640.82	638.19	634.33	635.80
5	641.19	641.85	642.59	639.39	636.93	633.36	629.73	637.37	641.06	638.06	634.20	635.77
6	641.22	641.78	642.52	639.26	636.95	633.21	629.95	637.35	641.05	637.92	634.05	635.68
7	641.29	641.71	642.43	639.13	636.86	633.05	629.88	637.28	640.99	637.79	633.95	635.63
8	641.70	641.63	642.35	639.05	636.75	632.92	629.77	637.21	640.92	637.68	633.80	635.55
9	642.08	641.56	642.27	638.93	636.62	632.76	629.82	637.19	640.83	637.54	633.67	635.74
10	641.94	641.71	642.17	638.80	636.50	632.61	629.73	637.15	640.73	637.41	633.51	635.66
11	641.96	641.70	642.07	638.66	636.38	632.45	629.62	637.36	640.64	637.28	633.49	636.12
12	642.06	641.76	641.97	638.53	636.25	632.29	629.48	637.40	640.54	637.15	633.54	636.58
13	641.80	642.13	641.87	638.40	636.12	632.13	629.36	637.90	640.42	637.02	633.42	637.21
14	641.66	642.91	641.76	638.27	636.01	631.97	629.56	638.14	640.30	636.88	633.36	637.53
15	642.08	643.56	641.66	638.13	635.88	631.82	629.82	638.34	640.19	636.76	633.30	637.51
16	641.76	643.49	641.55	637.99	635.75	631.65	629.80	638.43	640.08	636.62	633.20	637.45
17	641.48	642.96	641.44	637.86	635.61	631.49	629.77	639.43	639.97	636.55	633.07	637.44
18	641.56	642.32	641.33	637.73	635.48	631.25	630.87	640.13	639.99	636.45	632.94	637.40
19	641.54	641.94	641.23	637.59	635.34	631.09	631.22	640.60	639.97	636.33	633.64	637.32
20	641.53	641.92	641.13	637.45	635.21	630.92	631.28	641.32	639.87	636.17	633.85	637.24
21	641.73	641.92	641.02	637.32	635.08	630.74	632.55	641.70	639.77	636.04	633.78	637.25
22	641.87	641.88	640.91	637.21	634.95	630.56	633.08	641.74	639.66	635.91	633.67	637.16
23	641.96	641.81	640.93	637.09	634.82	630.37	633.18	641.69	639.53	635.76	634.27	637.09
24	641.95	641.74	640.82	637.01	634.68	630.21	634.84	641.58	639.41	635.62	634.71	637.06
25	641.90	641.67	640.71	637.02	634.54	630.04	635.91	641.44	639.29	635.47	635.22	637.16
26	641.89	642.30	640.60	637.11	634.40	629.90	636.95	641.28	639.16	635.32	635.49	637.23
27	641.83	642.53	640.48	637.05	634.25	629.93	637.38	641.15	639.02	635.22	635.63	637.15
28	641.75	642.59	640.36	636.94	634.10	629.93	637.44	641.07	638.87	635.11	635.68	637.06
29	641.67	642.54	640.24	636.81	---	629.86	637.42	641.00	638.71	634.96	635.64	636.94
30	641.60	643.02	640.12	636.71	---	629.74	637.41	640.92	638.58	634.81	635.71	636.83
31	642.37	---	640.00	636.61	---	629.59	---	640.84	---	634.66	635.96	---
MAX	642.37	643.56	643.03	639.88	636.95	633.95	637.44	641.74	641.06	638.44	635.96	637.53
MIN	639.16	641.56	640.00	636.61	634.10	629.59	629.24	637.15	638.58	634.66	632.94	635.55

50010800 LAGO GUAJATACA AT DAMSITE NEAR QUEBRADILLAS, PR—Continued



50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1958-64, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
05...	1440	70	2.9	.8	10	6.5	305	25.4	150	53.0	3.28	1.96	.2
MAR													
27...	0900	70	4.2	6.9	--	8.0	296	26.7	130	46.3	3.49	1.90	.2
MAY													
14...	0855	60	6.3	.2	--	7.2	340	25.3	160	58.1	3.61	2.09	.2
AUG													
26...	1235	70	7.8	1.4	--	7.2	313	27.1	--	--	--	--	--
SEP													
18...	0855	70	4.1	1.4	--	7.3	314	27.0	140	52.0	3.60	2.09	.2

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
05...	4.74	138	5.66	<.17	7.3	6.7	--	165	48.2	<10	.50	.12	--
MAR													
27...	5.51	130	6.56	.12	6.7	7.5	<.1	156	45.5	<10	.30	.04	--
MAY													
14...	5.48	148	8.05	<.17	7.2	9.0	<.1	182	45.7	<10	.40	.12	--
AUG													
26...	--	137	--	--	--	--	--	--	--	<10	.60	.34	--
SEP													
18...	5.10	140	7.91	<.2	7.3	9.1	--	171	49.9	<10	.50	.12	.05

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
05...	<.020	<.01	.38	<.02	--	--	<10	E8	E4	--	--	--	--
MAR													
27...	<.020	<.01	.26	<.02	--	--	<10	<1	--	E49	<2	3.3	<18
MAY													
14...	.280	<.01	.28	<.02	.68	3.0	10	E12	--	45	E2	13.1	E12
AUG													
26...	<.020	<.01	.26	<.02	--	--	10	100	--	E560	--	--	--
SEP													
18...	.060	.01	.38	<.02	.56	2.5	10	E6	--	44	--	--	--

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
27...	<.2	<.8	<10	<.01	50	<1	22.9	<.02	<3	<.3	<25	<.10	<16
MAY													
14...	<.2	<.8	M	<.01	40	<1	68.3	<.02	E1	<.3	E17	<.10	<16
AUG													
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on Highway 2, 1.6 mi (2.6 km) west of Quebradillas Plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajatac a.

DRAINAGE AREA.--Indeterminate

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instan-taneous dis-charge, cfs (00061)	Turbid-ity, wat unf lab, Hach 2100AN NTU (99872)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium adsorp-tion ratio (00931)
DEC													
06...	0915	17	2.5	6.8	79	6.8	483	23.6	220	75.5	7.24	1.33	.4
MAR													
26...	1430	7.3	4.4	8.4	--	7.5	630	25.6	260	86.4	11.1	1.07	.7
MAY													
15...	0845	12	1.8	8.9	--	8.1	234	26.2	220	75.7	8.27	1.41	.6
AUG													
26...	1050	26	5.5	6.3	--	7.5	375	25.2	--	--	--	--	--
SEP													
18...	1050	12	2.3	5.9	--	7.3	522	25.1	220	73.6	7.88	1.47	.5

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of consti-tuents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
06...	15.1	197	25.6	<.17	6.8	7.3	--	257	11.7	<10	<.20	<.01	--
MAR													
26...	27.0	231	48.9	<.17	6.7	7.6	<.1	327	6.49	<10	<.20	.02	3.29
MAY													
15...	20.6	89	37.1	<.17	6.1	8.2	<.1	211	6.71	<10	<.20	.02	--
AUG													
26...	--	154	--	--	--	--	--	--	--	<10	<.20	.02	--
SEP													
18...	18.0	201	36.5	<.2	6.7	8.2	--	273	8.90	<10	<.20	.08	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Phos-phorus, water, unfltrd mg/L (00665)	COD, high level, water, unfltrd mg/L (00340)	Fecal coli-form, M-FC 0.7u MF col/ 100 mL (31625)	Fecal strep-tococci KF MF, col/ 100 mL (31673)	Total coli-form, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recover-able, ug/L (01007)	Boron, water, unfltrd recover-able, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)
DEC													
06...	2.00	<.01	<.02	<10	76	E167	--	--	--	--	--	--	--
MAR													
26...	3.30	.01	<.02	<10	E130	--	4,700	<2	8.1	36	<.2	1.3	<10
MAY													
15...	2.10	<.01	<.02	<10	E13	--	450	<2	10.0	21	<.2	E.7	M
AUG													
26...	.820	<.01	<.02	<10	54	--	E10,600	--	--	--	--	--	--
SEP													
18...	2.10	<.01	<.02	<10	50	--	E1,800	--	--	--	--	--	--

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
DEC										
06...	--	--	--	--	--	--	--	--	--	--
MAR										
26...	<.01	60	<1	15.5	<.02	<3	<.3	<25	<.10	<16
MAY										
15...	<.01	40	<1	9.0	<.02	<3	<.3	<25	<.10	<16
AUG										
26...	--	--	--	--	--	--	--	--	--	--
SEP										
18...	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

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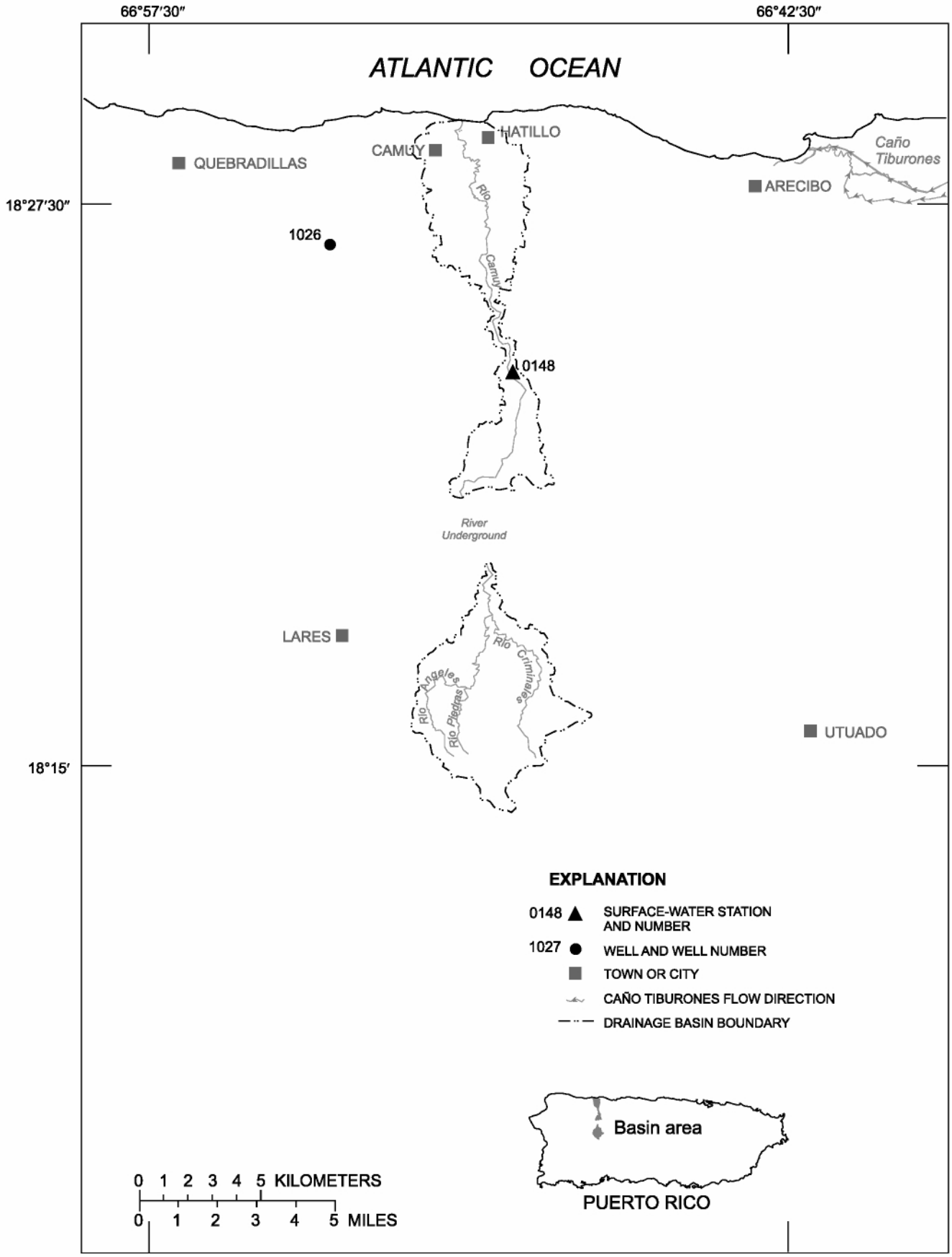


Figure 11. Río Camuy basin.

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--May 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	297	84	49	e43	32	e38	75	81	41	e41	e112
2	112	221	72	49	e43	32	75	67	85	e43	e38	e74
3	113	141	69	49	e41	31	47	60	80	e47	37	e68
4	208	93	68	48	e61	31	45	60	73	e42	e69	e71
5	206	82	74	47	e71	30	88	130	70	41	e77	e60
6	108	76	69	46	e62	30	123	138	70	42	49	e52
7	155	76	64	46	45	30	63	78	67	40	46	e49
8	189	69	63	e45	41	30	42	85	62	40	43	e65
9	169	67	63	e45	39	31	38	98	60	40	35	60
10	147	84	61	45	38	30	35	188	59	38	33	50
11	116	74	59	e44	37	30	34	168	58	37	e32	e79
12	92	79	58	43	37	30	35	172	57	e35	e43	e80
13	108	483	57	43	37	30	56	124	55	e35	e34	e100
14	138	493	58	42	38	29	78	123	54	e34	e34	e173
15	181	309	56	42	37	29	136	136	52	e34	67	73
16	159	227	55	41	36	29	62	147	52	34	e55	63
17	108	171	55	42	35	28	45	219	51	32	44	54
18	89	121	57	40	35	28	175	241	53	32	36	52
19	82	105	e53	39	34	32	174	201	71	38	66	e49
20	76	96	53	38	35	37	95	388	55	33	119	e52
21	224	94	51	38	36	33	306	280	51	33	e69	e63
22	144	87	52	e38	34	30	266	193	49	e33	e46	88
23	119	82	137	42	33	29	145	159	47	32	e46	85
24	118	79	101	e39	33	29	359	131	45	32	e147	96
25	88	77	69	e71	33	29	419	112	45	e31	e163	117
26	91	87	58	e108	33	29	262	100	45	e41	e137	236
27	85	90	55	e71	34	35	162	95	45	36	e78	174
28	74	75	52	e54	32	40	106	87	43	45	e72	125
29	69	73	51	e45	---	e41	88	82	45	42	e64	80
30	67	72	e50	e43	---	e47	80	77	42	35	e57	69
31	94	---	e49	e42	---	e33	---	74	---	35	e171	---
TOTAL	3,816	4,180	1,973	1,474	1,113	984	3,677	4,288	1,722	1,153	2,048	2,569
MEAN	123	139	63.6	47.5	39.8	31.7	123	138	57.4	37.2	66.1	85.6
MAX	224	493	137	108	71	47	419	388	85	47	171	236
MIN	67	67	49	38	32	28	34	60	42	31	32	49

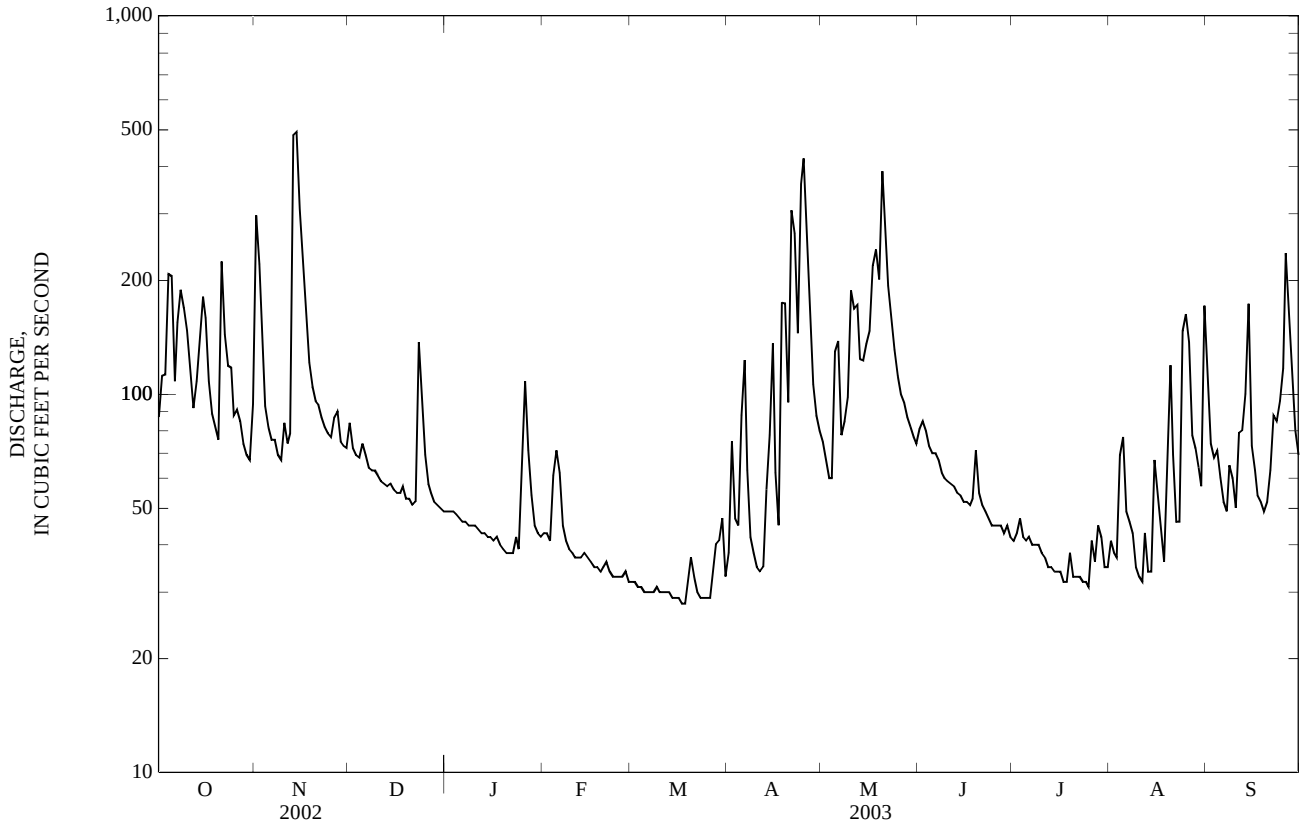
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2003, BY WATER YEAR (WY)

MEAN	197	138	76.1	58.4	49.8	47.0	94.7	165	112	72.6	95.6	183
MAX	427	310	179	163	96.4	93.7	289	624	322	109	187	726
(WY)	(1986)	(2002)	(2000)	(1997)	(1996)	(1999)	(2002)	(1986)	(1999)	(1989)	(1998)	(1998)
MIN	81.6	53.4	30.2	33.1	29.1	23.7	28.0	43.2	42.7	37.2	47.9	61.8
(WY)	(1988)	(1998)	(2001)	(1991)	(1998)	(1994)	(1994)	(1989)	(1997)	(2003)	(1993)	(1997)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1984 - 2003	
ANNUAL TOTAL	40,431		28,997			
ANNUAL MEAN	111		79.4		107	
HIGHEST ANNUAL MEAN					179	1986
LOWEST ANNUAL MEAN					61.5	1994
HIGHEST DAILY MEAN	791	Apr 8	493	Nov 14	9,010	Sep 22, 1998
LOWEST DAILY MEAN	26	Mar 23	28	Mar 17	16	Mar 18, 1994
ANNUAL SEVEN-DAY MINIMUM	27	Mar 20	29	Mar 12	17	Mar 16, 1994
MAXIMUM PEAK FLOW			5,440	Nov 13	11,600	Sep 22, 1998
MAXIMUM PEAK STAGE			16.76	Nov 13	21.69	Sep 22, 1998
INSTANTANEOUS LOW FLOW			27	Mar 16	15	Mar 22, 1994
10 PERCENT EXCEEDS	221		159		209	
50 PERCENT EXCEEDS	74		58		67	
90 PERCENT EXCEEDS	40		33		33	

e Estimated

50014800 RIO CAMUY NEAR BAYANEY, PR—Continued



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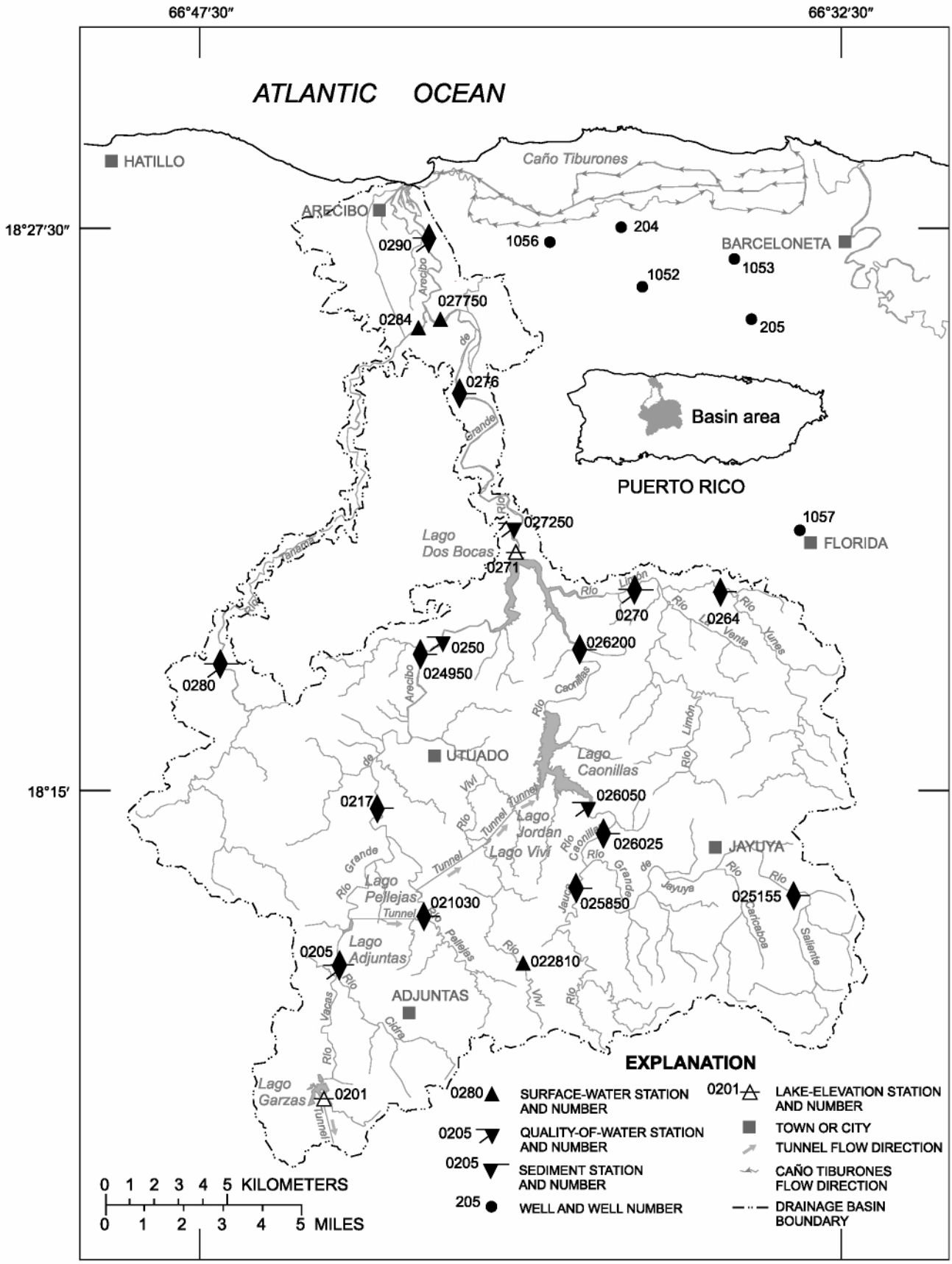


Figure 12. Río Grande de Arecibo basin.

50020100 LAGO GARZAS NEAR ADJUNTAS, PR

LOCATION.--Lat 18°08'20", long 66°44'29", Hydrologic Unit 21010002, in power gate tower of Garzas Dam on Río Vacas, 1.7 mi (2.7 km) upstream from Río Garzas, and 2.2 mi (3.5 km) southwest of Adjuntas.

DRAINAGE AREA.--15.6 mi^2 (40.4 km^2).

PERIOD OF RECORD.--January 1988 to May 1989, March 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.52 m) above mean sea level. Prior to May 25, 1988, at datum 2,376.80 ft (724.45 m), May 25 to July 13, 1988, at datum 2,338.08 ft (712.65 m), July 14, 1988, to May 25, 1989, at datum 2,337.82 ft (712.56 m), above mean sea level.

REMARKS.--Lake is formed by earthfill dam completed in 1943. Outflow from lake controlled by vertical-lift sluice gate and fixed-crest concrete spillway. Spillway elevation, 2,415.00 ft (736.09 m).Lake is used for irrigation and power production. Operated by Puerto Rico Electric Power Authorithy. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 99-4143, September 1996.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,418.28 ft (737.09 m), September 22, 1998; minimum elevation, 2,364.79 ft (720.79 m), August 23, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,416.68 ft (736.60 m), October 10; minimum elevation, 2,412.17 ft (735.23 m), June 26.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4143, 1996)
(Elevation in ft, capacity in acre-ft)

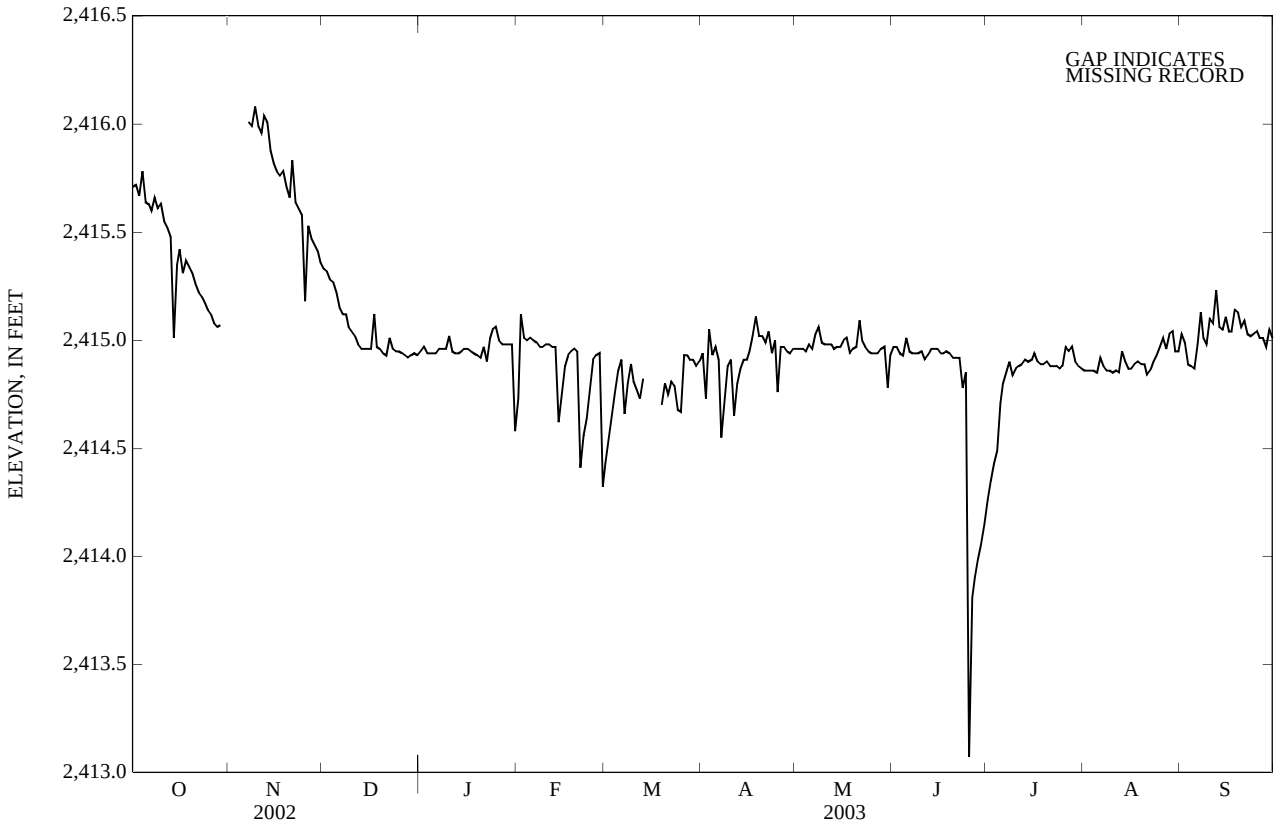
Elevation	Contents	Elevation	Contents
2,317	0	2,376	1,419
2,336	243	2,399	2,700
2,359	794	2,415	4,143

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,415.71	A	2,415.33	2,414.95	2,414.73	2,414.43	2,414.94	2,414.96	2,414.97	2,414.26	2,414.86	2,415.03
2	2,415.72	A	2,415.32	2,414.97	2,415.12	2,414.53	2,414.73	2,414.96	2,414.97	2,414.35	2,414.86	2,414.99
3	2,415.67	A	2,415.28	2,414.94	2,415.01	2,414.64	2,415.05	2,414.96	2,414.94	2,414.43	2,414.86	2,414.89
4	2,415.78	A	2,415.27	2,414.94	2,415.00	2,414.76	2,414.93	2,414.95	2,414.93	2,414.49	2,414.86	2,414.88
5	2,415.64	A	2,415.22	2,414.94	2,415.01	2,414.86	2,414.97	2,414.98	2,415.01	2,414.71	2,414.85	2,414.87
6	2,415.63	A	2,415.15	2,414.94	2,415.00	2,414.91	2,414.91	2,414.96	2,414.95	2,414.80	2,414.92	2,414.98
7	2,415.60	2,416.01	2,415.12	2,414.96	2,414.99	2,414.66	2,414.55	2,415.03	2,414.94	2,414.85	2,414.88	2,415.13
8	2,415.66	2,415.99	2,415.12	2,414.96	2,414.97	2,414.80	2,414.71	2,415.06	2,414.94	2,414.90	2,414.86	2,415.01
9	2,415.61	2,416.08	2,415.06	2,414.96	2,414.97	2,414.89	2,414.88	2,414.99	2,414.94	2,414.84	2,414.86	2,414.98
10	2,415.63	2,415.99	2,415.04	2,415.02	2,414.98	2,414.81	2,414.91	2,414.98	2,414.95	2,414.87	2,414.85	2,415.10
11	2,415.55	2,415.96	2,415.02	2,414.95	2,414.98	2,414.77	2,414.65	2,414.98	2,414.91	2,414.88	2,414.86	2,415.08
12	2,415.52	2,416.04	2,414.98	2,414.94	2,414.97	2,414.73	2,414.80	2,414.98	2,414.93	2,414.89	2,414.85	2,415.23
13	2,415.48	2,416.01	2,414.96	2,414.94	2,414.97	2,414.82	2,414.87	2,414.96	2,414.96	2,414.91	2,414.95	2,415.06
14	2,415.01	2,415.88	2,414.96	2,414.95	2,414.62	A	2,414.91	2,414.97	2,414.96	2,414.90	2,414.90	2,415.05
15	2,415.35	2,415.82	2,414.96	2,414.96	2,414.75	2,414.87	2,414.91	2,414.97	2,414.96	2,414.91	2,414.87	2,415.11
16	2,415.42	2,415.78	2,414.96	2,414.96	2,414.88	A	2,414.95	2,415.00	2,414.94	2,414.94	2,414.87	2,415.04
17	2,415.31	2,415.76	2,415.12	2,414.95	2,414.93	A	2,415.02	2,415.01	2,414.94	2,414.90	2,414.89	2,415.04
18	2,415.37	2,415.78	2,414.97	2,414.94	2,414.95	A	2,415.11	2,414.94	2,414.95	2,414.89	2,414.90	2,415.14
19	2,415.34	2,415.71	2,414.96	2,414.93	2,414.96	2,414.70	2,415.02	2,414.96	2,414.94	2,414.89	2,414.89	2,415.13
20	2,415.31	2,415.66	2,414.94	2,414.92	2,414.95	2,414.80	2,415.02	2,414.97	2,414.92	2,414.90	2,414.89	2,415.06
21	2,415.26	2,415.83	2,414.93	2,414.97	2,414.41	2,414.75	2,414.99	2,415.09	2,414.92	2,414.88	2,414.84	2,415.09
22	2,415.22	2,415.64	2,415.01	2,414.90	2,414.56	2,414.81	2,415.04	2,415.00	2,414.92	2,414.88	2,414.86	2,415.03
23	2,415.20	2,415.61	2,414.96	2,415.01	2,414.64	2,414.79	2,414.94	2,414.97	2,414.78	2,414.88	2,414.90	2,415.02
24	2,415.17	2,415.58	2,414.95	2,415.05	2,414.78	2,414.68	2,415.00	2,414.95	2,414.85	2,414.87	2,414.93	2,415.03
25	2,415.14	2,415.18	2,414.95	2,415.06	2,414.91	2,414.67	2,414.76	2,414.94	2,413.07	2,414.88	2,414.97	2,415.04
26	2,415.12	2,415.53	2,414.94	2,415.00	2,414.93	2,414.93	2,414.97	2,414.94	2,413.81	2,414.97	2,415.01	2,415.01
27	2,415.08	2,415.47	2,414.93	2,414.98	2,414.94	2,414.93	2,414.97	2,414.94	2,413.90	2,414.95	2,414.96	2,415.01
28	2,415.06	2,415.44	2,414.92	2,414.98	2,414.32	2,414.91	2,414.95	2,414.96	2,413.99	2,414.97	2,415.03	2,414.97
29	2,415.07	2,415.41	2,414.93	2,414.98	---	2,414.91	2,414.94	2,414.97	2,414.06	2,414.90	2,415.04	2,415.05
30	A	2,415.36	2,414.94	2,414.98	---	2,414.88	2,414.96	2,414.78	2,414.15	2,414.88	2,414.95	2,415.01
31	A	---	2,414.93	2,414.58	---	2,414.90	---	2,414.93	---	2,414.87	2,414.95	---
MAX	---	---	2,415.33	2,415.06	2,415.12	---	2,415.11	2,415.09	2,415.01	2,414.97	2,415.04	2,415.23
MIN	---	---	2,414.92	2,414.58	2,414.32	---	2,414.55	2,414.78	2,413.07	2,414.26	2,414.84	2,414.87

A No gage-height record

50020100 LAGO GARZAS NEAR ADJUNTAS, PR—Continued



50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR

LOCATION.--Lat 18°10'54", long 66°44'12", Hydrologic Unit 21010002, at Highway 135 bridge junction with Highway 10, 1.4 mi (2.2 km) south from Lago Adjuntas and 1.5 mi (2.4 km) northwest of Adjuntas Plaza.

DRAINAGE AREA.--12.7 mi^2 (32.9 km^2), this does not include 6.0 mi^2 (15.6 km^2) above Lago Garzas.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1946 to April 1950 (operated by Puerto Rico Water Resources Authority), March 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,443 ft (440 m), from topographic map.

REMARKS.--Records poor. Flow affected by Lago Garzas, 2.63 mi (4.23 km) and sewage treatment plant 1.1 mi (1.77 km) upstream fro m gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	59	34	37	11	11	18	32	25	8.2	8.5	105
2	27	44	34	41	294	11	19	32	27	8.6	7.7	59
3	31	126	34	40	200	11	262	29	22	7.5	7.8	79
4	184	53	42	33	62	10	54	28	17	6.9	7.5	18
5	64	38	37	31	228	11	152	30	179	14	6.8	12
6	35	34	31	31	74	14	35	32	63	8.5	10	11
7	33	32	27	31	45	16	18	58	31	7.6	13	209
8	91	30	47	31	34	11	11	68	27	9.7	9.0	61
9	176	110	33	31	29	11	14	51	26	12	7.3	24
10	312	65	27	43	27	15	16	32	25	10	6.8	200
11	114	40	28	40	28	11	19	28	25	12	8.4	282
12	78	185	e29	28	27	9.9	14	27	21	12	7.1	525
13	55	283	e27	26	26	9.2	13	26	26	15	70	226
14	38	91	e26	25	22	11	15	35	25	15	30	70
15	16	50	e26	26	13	13	17	28	25	15	20	344
16	46	113	e424	26	13	14	35	114	24	75	14	134
17	38	50	e203	26	19	13	171	62	23	24	17	64
18	142	83	139	22	22	11	580	46	21	15	17	289
19	137	75	53	22	24	11	220	25	23	13	16	346
20	151	52	44	21	24	9.7	115	30	20	11	12	162
21	92	82	38	23	22	10	86	395	18	13	11	214
22	54	e42	420	20	13	9.3	108	164	18	11	10	102
23	51	e38	107	30	12	10	75	55	15	10	8.5	67
24	45	e34	61	35	12	10	84	33	9.4	9.4	9.8	57
25	40	e25	51	110	12	11	52	27	11	12	15	59
26	38	31	48	63	18	11	29	24	9.8	13	62	54
27	35	42	43	31	22	26	42	22	8.4	23	30	42
28	34	38	38	25	19	29	40	21	8.2	21	60	36
29	126	45	36	25	---	19	33	23	8.4	21	124	70
30	52	38	37	24	---	18	32	19	8.4	12	47	54
31	60	---	35	20	---	12	---	12	---	9.7	23	---
TOTAL	2,406	2,028	2,259	1,017	1,352	399.1	2,379	1,608	789.6	455.1	696.2	3,975
MEAN	77.6	67.6	72.9	32.8	48.3	12.9	79.3	51.9	26.3	14.7	22.5	132
MAX	312	283	424	110	294	29	580	395	179	75	124	525
MIN	11	25	26	20	11	9.2	11	12	8.2	6.9	6.8	11
AC-FT	4,770	4,020	4,480	2,020	2,680	792	4,720	3,190	1,570	903	1,380	7,880
CFSM	6.11	5.32	5.74	2.58	3.80	1.01	6.24	4.08	2.07	1.16	1.77	10.4
IN.	7.05	5.94	6.62	2.98	3.96	1.17	6.97	4.71	2.31	1.33	2.04	11.64

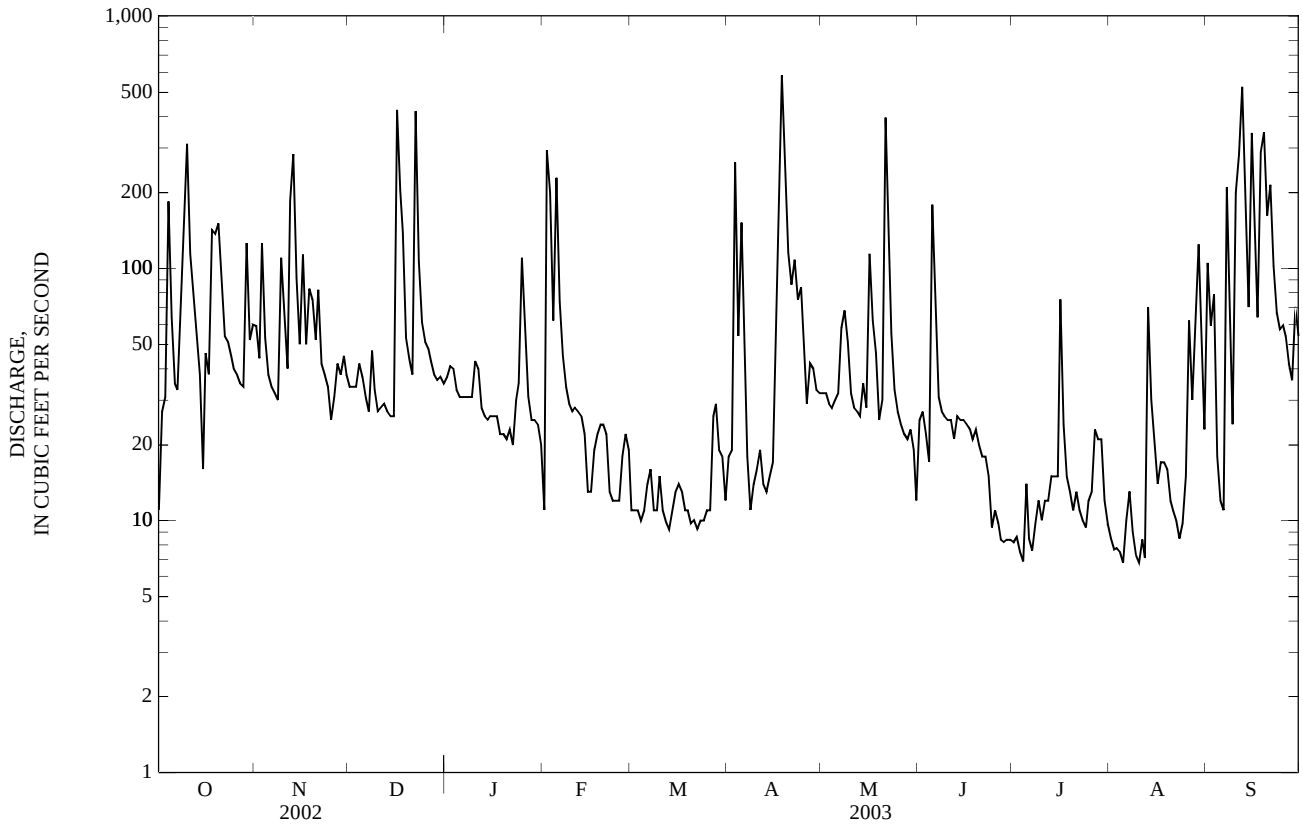
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)

MEAN	77.4	55.0	41.8	23.6	27.7	15.1	34.3	39.0	27.0	25.6	44.9	91.6
MAX	119	75.2	72.9	32.8	56.9	21.6	95.1	72.2	36.0	49.3	94.5	132
(WY)	(2001)	(2001)	(2003)	(2003)	(1950)	(1949)	(2002)	(2001)	(2000)	(1949)	(2000)	(2003)
MIN	48.6	27.3	30.8	19.7	14.8	10.2	10.4	12.2	14.7	14.7	22.5	55.8
(WY)	(2002)	(1950)	(1947)	(1948)	(2002)	(2001)	(1948)	(1948)	(2001)	(2003)	(2003)	(1947)

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003	
ANNUAL TOTAL	16,601.7		19,364.0			
ANNUAL MEAN	45.5		53.1		43.2	
HIGHEST ANNUAL MEAN					53.1	2003
LOWEST ANNUAL MEAN					39.5	2002
HIGHEST DAILY MEAN	424	Dec 16	580	Apr 18	1,510	Aug 23, 2000
LOWEST DAILY MEAN	8.6	Jul 25	6.8	Aug 5	6.8	Mar 31, 2001
ANNUAL SEVEN-DAY MINIMUM	8.9	Mar 22	8.0	Jun 28	7.1	Mar 27, 2001
MAXIMUM PEAK FLOW			4,740	Sep 12	12,000	May 6, 2001
MAXIMUM PEAK STAGE			11.21	Sep 12	15.49	May 6, 2001
ANNUAL RUNOFF (AC-FT)	32,930		38,410		31,330	
ANNUAL RUNOFF (CFSM)	3.58		4.18		3.41	
ANNUAL RUNOFF (INCHES)	48.63		56.72		46.27	
10 PERCENT EXCEEDS	94		125		90	
50 PERCENT EXCEEDS	27		28		25	
90 PERCENT EXCEEDS	11		10		11	

e Estimated



50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

LOCATION.--Lat 18°10'54", long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas Plaza.

DRAINAGE AREA.--12.7 mi^2 (32.9 km^2) this does not include 6.0 mi^2 (15.5 km^2) above Lago Garzas.

PERIOD OF RECORD.--Water years 1969-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
10...	0845	26	2.4	8.3	96	6.7	247	19.9	91	24.2	7.56	1.48	.5
MAR													
24...	1415	9.8	16	9.4	--	8.7	359	26.6	--	--	--	--	--
MAY													
20...	1215	25	1.5	8.5	--	8.2	249	25.7	96	25.5	7.81	1.54	.6
AUG													
20...	0815	12	2.5	7.7	--	7.6	294	23.4	--	--	--	--	--
SEP													
15...	1620	--	44	7.5	--	7.6	177	25.0	70	19.1	5.47	1.61	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
10...	11.3	89	12.5	<.17	26.1	5.5	--	142	--	<10	.20	<.01	--
MAR													
24...	--	114	--	--	--	--	<.1	--	--	--	.20	.03	.81
MAY													
20...	12.9	93	14.3	<.2	26.8	6.1	<.1	151	10.4	<10	<.20	.03	.49
AUG													
20...	--	110	--	--	--	--	--	--	--	<10	<.20	.02	.62
SEP													
15...	6.89	71	7.96	<.2	20.8	6.2	--	111	--	11	.30	.02	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
10...	.750	<.01	--	.06	.95	4.2	<10	460	294	--	--	--	--
MAR													
24...	.820	.01	.17	.15	1.0	4.5	--	120	--	600	--	--	--
MAY													
20...	.500	.01	--	.04	--	--	<10	E162	--	E800	<2	13.1	E13
AUG													
20...	.630	.01	--	.05	--	--	<10	150	--	2,800	--	--	--
SEP													
15...	.530	<.01	.28	.08	.83	3.7	10	4,800	--	E8,000	--	--	--

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
24...	--	--	--	--	--	--	--	--	--	--	--	<.10	<16
MAY													
20...	<.2	<.8	<10	<.01	80	<1	16.9	<.02	<3	<.3	<25	<.10	E11
AUG													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 2000 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,390 mg/L April 23, 2002; Minimum daily mean, 1 mg/L several days during 2001, 2002 and 2003.
SEDIMENT LOADS: Maximum daily mean, 14,400 tons (13,064 tonnes) May 6, 2001; Minimum daily mean, 0.03 ton (0.03 tonne) June 1, 2 , 2001 and March 5, 2003.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 741 mg/L November 12, 2002; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 2,450 tons (2,223 tonnes) September 12, 2003; Minimum daily mean, 0.03 ton (0.03 tonne) March 5, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	11	5	0.15	59	152	51	34	12	1.1
2	27	25	2.4	44	28	3.3	34	10	0.94
3	31	57	4.9	126	294	455	34	8	0.76
4	184	517	821	53	26	4.2	42	6	0.64
5	64	88	23	38	35	3.7	37	4	0.35
6	35	53	5.0	34	58	5.3	31	3	0.23
7	33	52	4.6	32	79	6.8	27	2	0.17
8	91	147	104	30	83	6.7	47	16	3.6
9	176	384	509	110	282	269	33	18	1.6
10	312	737	1,910	65	50	10	27	15	1.1
11	114	147	56	40	28	3.0	28	11	0.80
12	78	54	11	185	741	1,760	e29	e7	e0.48
13	55	36	5.3	283	665	1,540	e27	e6	e0.47
14	38	18	2.0	91	150	45	e26	e7	e0.50
15	16	7	0.27	50	48	6.5	e26	e5	e0.36
16	46	18	2.4	113	258	366	e424	e350	e1,640
17	38	11	1.4	50	46	6.2	e203	e281	e1,160
18	142	371	477	83	59	27	139	55	41
19	137	236	182	75	45	19	53	11	1.6
20	151	258	268	52	12	1.7	44	7	0.88
21	92	34	13	82	71	48	38	6	0.58
22	54	14	2.1	e42	e50	e19	420	352	1,650
23	51	14	1.9	e38	e19	e2.4	107	11	4.7
24	45	9	1.1	e34	e18	e2.1	61	3	0.42
25	40	6	0.70	e25	e17	e1.6	51	2	0.25
26	38	7	0.71	31	15	1.3	48	1	0.17
27	35	7	0.70	42	14	1.6	43	4	0.49
28	34	8	0.72	38	15	1.5	38	9	0.90
29	126	282	407	45	22	3.3	36	11	1.1
30	52	33	5.0	38	13	1.4	37	8	0.81
31	60	149	76	---	---	---	35	7	0.68
TOTAL	2,406	---	4,898.35	2,028	---	4,671.6	2,259	---	4,516.68

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	37	6	0.62	11	4	0.12	11	4	0.11
2	41	5	0.56	294	463	1,670	11	3	0.09
3	40	4	0.46	200	425	495	11	2	0.07
4	33	5	0.40	62	65	11	10	2	0.04
5	31	5	0.43	228	652	1,300	11	1	0.03
6	31	6	0.52	74	268	55	14	1	0.04
7	31	11	0.94	45	210	25	16	1	0.06
8	31	18	1.5	34	152	14	11	2	0.04
9	31	17	1.4	29	94	7.5	11	2	0.05
10	43	19	2.4	27	36	2.7	15	2	0.07
11	40	15	1.8	28	12	0.88	11	2	0.06
12	28	10	0.72	27	12	0.86	9.9	4	0.11
13	26	7	0.50	26	11	0.81	9.2	6	0.16
14	25	5	0.33	22	11	0.68	11	8	0.24
15	26	6	0.42	13	11	0.39	13	8	0.30
16	26	8	0.59	13	11	0.39	14	8	0.29
17	26	9	0.60	19	11	0.53	13	7	0.26
18	22	8	0.49	22	10	0.63	11	10	0.29
19	22	8	0.45	24	10	0.65	11	14	0.41
20	21	7	0.39	24	10	0.64	9.7	15	0.39
21	23	7	0.44	22	9	0.56	10	15	0.40
22	20	7	0.38	13	9	0.30	9.3	15	0.37
23	30	17	2.2	12	8	0.25	10	14	0.39
24	35	12	1.2	12	7	0.23	10	14	0.38
25	110	120	49	12	6	0.21	11	21	0.78
26	63	33	8.9	18	6	0.28	11	16	0.46
27	31	7	0.55	22	5	0.30	26	13	0.89
28	25	5	0.37	19	4	0.23	29	17	2.2
29	25	8	0.52	---	---	---	19	10	0.51
30	24	8	0.52	---	---	---	18	9	0.44
31	20	4	0.22	---	---	---	12	9	0.29
TOTAL	1,017	---	79.82	1,352	---	3,589.14	399.1	---	10.22
		APRIL			MAY			JUNE	
1	18	8	0.38	32	11	1.0	25	11	1.1
2	19	8	0.41	32	4	0.35	27	8	0.62
3	262	151	402	29	9	0.67	22	7	0.43
4	54	16	3.0	28	15	1.1	17	6	0.29
5	152	181	251	30	22	1.7	179	242	661
6	35	24	2.4	32	22	1.9	63	28	8.7
7	18	17	0.83	58	33	8.4	31	5	0.45
8	11	14	0.39	68	33	7.2	27	6	0.41
9	14	11	0.39	51	28	4.3	26	6	0.45
10	16	8	0.35	32	23	2.0	25	13	0.85
11	19	8	0.40	28	23	1.8	25	20	1.4
12	14	8	0.31	27	22	1.6	21	27	1.6
13	13	8	0.27	26	22	1.5	26	30	2.2
14	15	8	0.32	35	22	2.2	25	33	2.2
15	17	8	0.37	28	17	1.3	25	33	2.2
16	35	19	2.3	114	203	275	24	32	2.1
17	171	85	92	62	33	9.1	23	32	2.0
18	580	323	1,100	46	10	2.0	21	32	1.9
19	220	133	94	25	4	0.27	23	33	2.0
20	115	24	8.9	30	3	0.26	20	34	1.8
21	86	16	3.8	395	389	968	18	34	1.7
22	108	17	5.9	164	29	17	18	34	1.6
23	75	10	2.4	55	7	1.0	15	34	1.4
24	84	26	10	33	6	0.58	9.4	34	0.86
25	52	37	5.4	27	6	0.44	11	35	1.0
26	29	31	2.4	24	6	0.38	9.8	36	0.94
27	42	27	3.1	22	6	0.36	8.4	36	0.81
28	40	24	2.6	21	6	0.34	8.2	35	0.78
29	33	25	2.2	23	6	0.37	8.4	35	0.79
30	32	21	1.8	19	6	0.31	8.4	34	0.78
31	---	---	---	12	6	0.19	---	---	---
TOTAL	2,379	---	1,999.62	1,608	---	1,312.62	789.6	---	704.36

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	8.2	35	0.77	8.5	16	0.38	105	178	164
2	8.6	43	1.0	7.7	16	0.34	59	42	8.4
3	7.5	54	1.1	7.8	16	0.33	79	125	127
4	6.9	64	1.2	7.5	15	0.31	18	25	1.2
5	14	90	4.2	6.8	24	0.43	12	21	0.66
6	8.5	89	2.0	10	30	0.85	11	16	0.46
7	7.6	87	1.8	13	29	1.0	209	219	362
8	9.7	79	2.0	9.0	28	0.69	61	48	7.7
9	12	68	2.2	7.3	27	0.53	24	37	2.5
10	10	67	1.8	6.8	26	0.48	200	201	284
11	12	69	2.2	8.4	36	0.92	282	239	530
12	12	72	2.3	7.1	35	0.67	525	470	2,450
13	15	74	3.0	70	252	220	226	161	145
14	15	77	3.1	30	26	2.3	70	20	4.1
15	15	79	3.2	20	22	1.2	344	285	536
16	75	203	107	14	21	0.78	134	35	16
17	24	63	4.2	17	21	1.0	64	13	2.2
18	15	61	2.4	17	21	0.99	289	273	739
19	13	59	2.1	16	21	0.87	346	323	703
20	11	58	1.8	12	21	0.69	162	52	32
21	13	56	1.9	11	21	0.63	214	83	132
22	11	55	1.6	10	20	0.55	102	17	4.9
23	10	53	1.4	8.5	20	0.47	67	10	1.9
24	9.4	43	1.1	9.8	20	0.53	57	10	1.5
25	12	30	0.99	15	20	0.82	59	25	4.1
26	13	19	0.65	62	24	4.6	54	46	6.7
27	23	18	1.1	30	21	1.6	42	66	7.4
28	21	18	1.0	60	34	9.4	36	69	6.7
29	21	18	0.98	124	41	26	70	74	15
30	12	17	0.54	47	17	2.2	54	66	9.5
31	9.7	17	0.44	23	13	0.82	---	---	---
TOTAL	455.1	---	161.07	696.2	---	282.38	3,975	---	6,304.92
YEAR	19,364.0	28,530.78							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV 03...	1810	1,100	97	2,920	8,670
JUN 05...	2221	280	98	656	496
JUL 16...	1656	195	100	616	324
SEP 10...	1721	971	98	1,360	3,570

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
NOV													
12...	1900	1,800	36	48	62	74	88	92	98	99	100	100	9,100
SEP													
11...	1500	1,520	--	--	--	--	--	90	95	99	100	100	2,380

Date	Suspended sediment discharge, tons/d (80155)
NOV	
12...	44,300
SEP	
11...	9,790

50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR

LOCATION.--Lat 18°12'17',long 66°42'13", Hydrologic Unit 21010002, 0.2 mi (0.3 km) southeast from Escuela Lucas Valdivieso, 3.0 mi (4.8 km) north from Adjuntas Hospital and 2.0 mi (3.2 km) west from Lago Adjuntas.

DRAINAGE AREA.--2.99 mi^2 (7.74 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,148 ft (350 m), from topographic map.

REMARKS.--Records poor. Flow regulated by Lago Adjuntas with tunnel system outflow about 0.4 mi (0.6 km) upstream gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e18	28	45	33	e20	24	19	14	13	13	e19	20
2	e19	21	45	34	e80	23	20	14	13	13	e19	20
3	e19	19	44	35	e60	23	23	14	11	13	e20	43
4	e18	18	45	34	e40	23	19	14	10	13	e19	23
5	e18	18	44	33	54	22	32	15	26	13	e18	21
6	18	18	44	32	35	21	20	15	14	13	e19	20
7	e18	18	43	32	31	21	17	15	9.6	12	e20	29
8	e29	18	44	32	30	22	16	16	9.2	12	e19	25
9	e21	24	44	33	30	22	16	15	11	12	e18	22
10	e25	21	43	33	29	22	15	14	9.3	21	e17	22
11	e13	19	42	34	29	21	16	14	9.2	21	e21	58
12	e13	27	42	33	29	21	17	14	9.0	18	e18	75
13	13	20	42	33	28	20	18	14	9.2	18	e25	34
14	17	14	42	33	28	14	16	14	9.0	19	e20	23
15	15	11	41	33	29	15	15	14	8.8	19	21	60
16	14	16	41	32	28	16	16	14	8.6	22	22	29
17	14	13	101	33	28	16	24	15	9.1	19	22	44
18	18	11	47	32	28	16	70	16	9.8	19	22	61
19	15	14	41	32	28	17	20	14	12	21	23	67
20	25	13	40	31	29	16	13	23	9.8	21	22	66
21	37	11	40	29	29	17	15	46	9.5	20	21	109
22	19	10	63	29	28	17	18	70	9.4	18	21	70
23	17	10	19	30	28	17	17	22	22	18	18	66
24	17	9.9	15	32	24	17	17	16	18	19	16	58
25	17	9.5	15	40	21	17	16	14	15	20	17	62
26	17	32	23	38	22	19	17	13	13	20	22	58
27	16	57	39	32	23	25	17	13	13	20	19	50
28	16	46	37	e27	24	22	16	12	13	21	19	48
29	18	45	35	e27	---	21	16	12	13	20	22	48
30	19	46	34	e26	---	20	15	12	13	20	21	59
31	21	---	34	e25	---	19	---	11	---	20	21	---
TOTAL	574	637.4	1,274	992	892	606	586	539	359.5	548	621	1,390
MEAN	18.5	21.2	41.1	32.0	31.9	19.5	19.5	17.4	12.0	17.7	20.0	46.3
MAX	37	57	101	40	80	25	70	70	26	22	25	109
MIN	13	9.5	15	25	20	14	13	11	8.6	12	16	20
AC-FT	1,140	1,260	2,530	1,970	1,770	1,200	1,160	1,070	713	1,090	1,230	2,760
CFSM	2.71	3.11	6.02	4.69	4.66	2.86	2.86	2.55	1.75	2.59	2.93	6.78
IN.	3.13	3.47	6.94	5.40	4.86	3.30	3.19	2.94	1.96	2.98	3.38	7.57

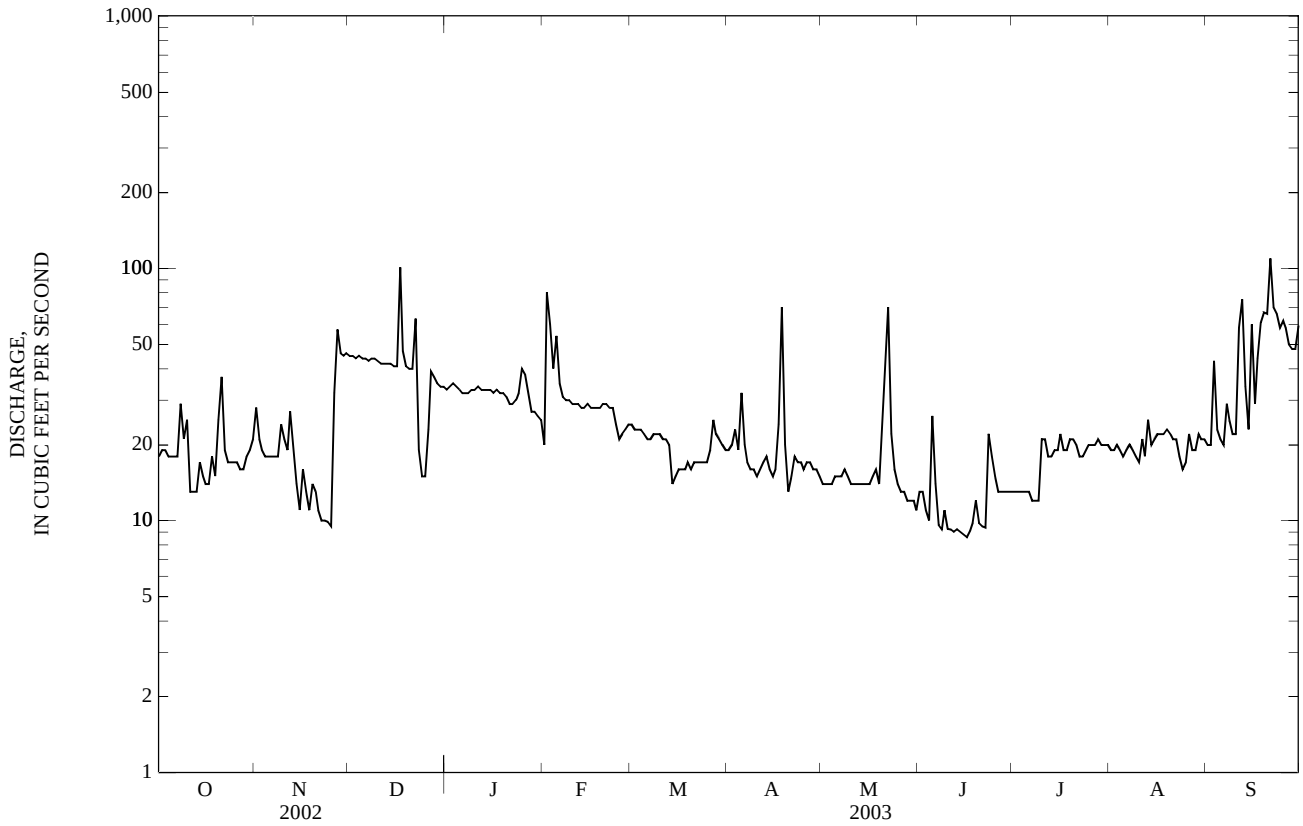
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	32.3	27.5	30.3	24.8	24.2	20.5	25.1	25.2	29.8	26.5	24.6	36.5
MAX	63.2	39.5	41.1	32.0	31.9	23.2	37.1	34.6	57.2	36.7	33.7	49.0
(WY)	(2001)	(2001)	(2003)	(2003)	(2003)	(2002)	(2002)	(2001)	(2000)	(2000)	(2000)	(2000)
MIN	15.2	21.2	19.5	12.0	18.1	18.9	18.6	17.4	12.0	17.7	20.0	24.9
(WY)	(2002)	(2003)	(2002)	(2002)	(2002)	(2001)	(2001)	(2003)	(2003)	(2003)	(2003)	(2001)

50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	8,734.3		9,018.9			
ANNUAL MEAN	23.9		24.7		25.6	
HIGHEST ANNUAL MEAN					30.3	2001
LOWEST ANNUAL MEAN					21.8	2002
HIGHEST DAILY MEAN	101	Dec 17	109	Sep 21	232	May 6, 2001
LOWEST DAILY MEAN	9.5	Nov 25	8.6	Jun 16	8.6	Jun 16, 2003
ANNUAL SEVEN-DAY MINIMUM	9.8	Feb 4	9.0	Jun 11	9.0	Jun 11, 2003
MAXIMUM PEAK FLOW			1,480	May 22	2,290	May 6, 2001
MAXIMUM PEAK STAGE			8.37	May 22	9.42	May 6, 2001
ANNUAL RUNOFF (AC-FT)	17,320		17,890		18,560	
ANNUAL RUNOFF (CFSM)	3.50		3.62		3.75	
ANNUAL RUNOFF (INCHES)	47.57		49.12		50.97	
10 PERCENT EXCEEDS	40		44		40	
50 PERCENT EXCEEDS	22		20		22	
90 PERCENT EXCEEDS	12		13		13	

e Estimated



50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 2000 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,170 mg/L September 21, 2003; Minimum daily mean, 2.0 mg/L several days during Water Years 2002 and 2003.
SEDIMENT LOADS: Maximum daily mean, 2,810 tons (2,549 tonnes) May 6, 2001; Minimum daily mean, 0.05 ton (0.04 tonne) June 8, 200 3.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,170 mg/L September 21, 2003; Minimum daily mean, 2.0 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 1,440 tons (1,306 tonnes) May 22, 2003; Minimum daily mean, 0.05 ton (0.04 tonne) June 8, 20 03.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	e18	e40	e1.9	28	91	10	45	104	13
2	e19	e40	e2.1	21	59	3.3	45	104	13
3	e19	e40	e2.1	19	58	3.0	44	104	12
4	e18	e40	e2.0	18	58	2.8	45	104	13
5	e18	e40	e2.0	18	58	2.9	44	103	12
6	18	40	1.9	18	58	2.8	44	103	12
7	e18	e40	e2.0	18	57	2.7	43	103	12
8	e29	e106	e16	18	57	2.7	44	103	12
9	e21	e43	e2.5	24	84	6.8	44	103	12
10	e25	e64	e6.7	21	41	2.3	43	103	12
11	e13	e15	e0.59	19	36	1.8	42	103	12
12	e13	e13	e0.45	27	109	17	42	103	12
13	13	13	0.44	20	41	3.1	42	103	12
14	17	26	1.4	14	16	0.65	42	103	12
15	15	19	0.77	11	9	0.25	41	102	11
16	14	17	0.66	16	25	1.7	41	102	11
17	14	15	0.57	13	11	0.38	101	867	633
18	18	32	2.3	11	8	0.25	47	141	20
19	15	50	2.1	14	18	1.0	41	104	12
20	25	173	36	13	15	0.62	40	103	11
21	37	333	147	11	6	0.18	40	103	11
22	19	52	2.8	10	7	0.19	63	372	259
23	17	19	0.84	10	7	0.19	19	11	0.59
24	17	24	1.1	9.9	6	0.17	15	15	0.60
25	17	29	1.3	9.5	6	0.16	15	20	0.76
26	17	33	1.5	32	198	53	23	24	1.5
27	16	37	1.6	57	291	48	39	28	3.0
28	16	40	1.8	46	121	15	37	32	3.2
29	18	43	2.0	45	104	13	35	36	3.4
30	19	45	2.3	46	104	13	34	39	3.6
31	21	67	5.8	---	---	---	34	40	3.6
TOTAL	574	---	252.52	637.4	---	208.94	1,274	---	1,159.25

50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	33	39	3.5	e20	e26	e1.5	24	31	2.0
2	34	39	3.6	e80	e668	e609	23	29	1.8
3	35	38	3.6	e60	e512	e131	23	25	1.6
4	34	39	3.6	e40	e255	e30	23	23	1.4
5	33	40	3.6	54	671	286	22	24	1.4
6	32	40	3.5	35	45	4.5	21	21	1.2
7	32	41	3.5	31	13	1.1	21	17	0.96
8	32	42	3.7	30	13	1.1	22	13	0.76
9	33	43	3.8	30	14	1.1	22	14	0.81
10	33	44	4.0	29	14	1.1	22	16	0.91
11	34	46	4.2	29	15	1.1	21	18	1.0
12	33	48	4.3	29	11	0.84	21	19	1.1
13	33	49	4.4	28	6	0.49	20	21	1.1
14	33	45	4.0	28	7	0.52	14	23	0.87
15	33	39	3.4	29	9	0.70	15	25	0.98
16	32	33	2.9	28	11	0.86	16	26	1.1
17	33	32	2.8	28	13	0.99	16	28	1.2
18	32	32	2.8	28	15	1.1	16	29	1.2
19	32	32	2.7	28	17	1.3	17	24	1.1
20	31	32	2.6	29	18	1.4	16	23	1.0
21	29	32	2.5	29	20	1.5	17	23	1.0
22	29	32	2.5	28	21	1.6	17	24	1.1
23	30	32	2.6	28	23	1.7	17	25	1.1
24	32	32	2.7	24	25	1.6	17	25	1.1
25	40	72	8.5	21	26	1.5	17	26	1.2
26	38	92	11	22	28	1.7	19	26	1.3
27	32	24	2.1	23	30	1.9	25	25	1.7
28	e27	e22	e1.7	24	30	2.0	22	25	1.5
29	e27	e22	e1.7	---	---	---	21	24	1.4
30	e26	e22	e1.7	---	---	---	20	23	1.2
31	e25	e25	e1.6	---	---	---	19	23	1.2
TOTAL	992	---	109.1	892	---	1,089.20	606	---	37.29
		APRIL			MAY			JUNE	
1	19	22	1.2	14	9	0.35	13	7	0.24
2	20	21	1.1	14	9	0.37	13	7	0.26
3	23	45	3.5	14	10	0.39	11	8	0.22
4	19	22	1.1	14	10	0.39	10	8	0.23
5	32	177	44	15	10	0.39	26	280	106
6	20	19	1.1	15	10	0.40	14	21	0.94
7	17	18	0.80	15	11	0.44	9.6	2	0.06
8	16	17	0.77	16	12	0.50	9.2	2	0.05
9	16	14	0.61	15	13	0.51	11	3	0.08
10	15	11	0.47	14	14	0.53	9.3	4	0.09
11	16	12	0.51	14	14	0.53	9.2	4	0.11
12	17	12	0.56	14	13	0.50	9.0	5	0.13
13	18	12	0.57	14	13	0.48	9.2	6	0.15
14	16	12	0.48	14	12	0.46	9.0	7	0.17
15	15	11	0.47	14	10	0.38	8.8	7	0.16
16	16	11	0.49	14	7	0.28	8.6	6	0.14
17	24	53	5.2	15	5	0.21	9.1	6	0.14
18	70	642	424	16	5	0.20	9.8	5	0.13
19	20	18	1.2	14	4	0.17	12	5	0.16
20	13	12	0.43	23	72	11	9.8	5	0.13
21	15	13	0.54	46	554	194	9.5	5	0.13
22	18	15	0.73	70	1,020	1,440	9.4	5	0.13
23	17	16	0.72	22	44	2.8	22	59	8.7
24	17	16	0.71	16	11	0.48	18	25	1.2
25	16	15	0.67	14	5	0.20	15	25	1.0
26	17	15	0.69	13	6	0.20	13	24	0.89
27	17	13	0.59	13	6	0.21	13	24	0.83
28	16	11	0.47	12	6	0.19	13	24	0.83
29	16	9	0.36	12	6	0.19	13	24	0.81
30	15	8	0.34	12	6	0.19	13	23	0.80
31	---	---	---	11	6	0.19	---	---	---
TOTAL	586	---	494.38	539	---	1,657.13	359.5	---	124.91

50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	13	23	0.80	e19	e50	e2.6	20	64	3.5
2	13	23	0.81	e19	e46	e2.4	20	82	4.5
3	13	23	0.80	e20	e41	e2.2	43	713	261
4	13	23	0.80	e19	e33	e1.8	23	26	1.7
5	13	24	0.82	e18	e33	e1.7	21	23	1.3
6	13	32	1.1	e19	e32	e1.6	20	21	1.2
7	12	40	1.3	e20	e30	e1.6	29	89	11
8	12	49	1.6	e19	e29	e1.6	25	42	2.8
9	12	57	1.9	e18	e29	e1.6	22	21	1.3
10	21	66	3.7	e17	e36	e1.9	22	21	1.2
11	21	74	4.1	e21	e45	e2.4	58	562	430
12	18	82	3.9	e18	e53	e2.8	75	668	609
13	18	86	4.3	e25	e62	e3.7	34	208	19
14	19	88	4.4	e20	e69	e4.1	23	200	12
15	19	91	4.6	21	57	3.3	60	512	131
16	22	93	5.5	22	40	2.4	29	318	25
17	19	95	5.0	22	38	2.2	44	255	30
18	19	97	4.9	22	39	2.3	61	241	40
19	21	88	5.1	23	39	2.4	67	241	44
20	21	75	4.3	22	40	2.4	66	242	43
21	20	62	3.4	21	41	2.4	109	1,170	1,100
22	18	49	2.4	21	40	2.2	70	435	82
23	18	37	1.8	18	39	1.9	66	348	62
24	19	31	1.5	16	38	1.6	58	267	42
25	20	29	1.6	17	36	1.7	62	231	44
26	20	38	2.1	22	35	2.1	58	64	10
27	20	50	2.7	19	34	1.8	50	57	7.7
28	21	59	3.3	19	34	1.7	48	55	7.1
29	20	32	1.8	22	33	2.0	48	54	7.0
30	20	33	1.8	21	34	1.9	59	54	8.5
31	20	49	2.6	21	46	2.6	---	---	---
TOTAL	548	---	84.73	621	---	68.9	1,390	---	3,042.8
YEAR	9,018.9	8,329.15							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
DEC 17...	1857	593	97	3,170	5,070
MAY 21...	1425	114	95	5,150	1,580

50021030 RIO PELLEJAS ABOVE CENTRAL PELLEJAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
APR													
18...	1335	672	36	49	59	65	86	92	98	99	100	100	5,830

Date	Suspended sediment discharge, tons/d (80155)
APR	
18...	10,600

50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR

LOCATION.--Lat 18°14'39", long 66°43'20", Hydrologic Unit 21010001, 0.4 mi (0.6 km) southwest from Escuela Segunda Unidad Salto Arriba, 2.2 mi (3.5 km) southwest from Utuado Plaza, 1.1 mi (1.8 km) west from Escuela Arenas Abajo and 1.0 mi (1.7 km) northwest from Escuela Puente Blanco.

DRAINAGE AREA.--36.0 mi^2 (93.2 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1989 to May 1999, monthly measurements and peak flow above 5,000 ft^3/s (142 m^3/s), June 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 508 ft (155 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Adjuntas 2.55 mi (4.10 km). Gage height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	85	20	12	6.2	6.4	e11	22	25	4.2	4.2	26
2	18	50	19	14	146	4.6	17	21	39	4.9	3.6	33
3	25	105	18	14	209	4.3	149	19	31	4.7	3.9	65
4	102	77	21	14	65	e4.2	71	19	26	4.3	5.2	18
5	86	40	26	12	225	e4.0	91	19	128	4.8	4.2	6.6
6	28	39	19	9.3	94	4.1	44	23	91	7.2	4.2	4.5
7	36	35	17	8.2	30	4.1	18	21	32	4.6	5.5	102
8	43	34	16	8.3	22	4.1	11	46	28	4.6	5.3	71
9	151	70	25	8.9	16	4.0	9.0	48	28	6.9	3.9	14
10	270	84	16	9.4	13	4.0	13	24	30	5.9	3.6	76
11	117	48	15	13	12	3.9	15	23	27	6.6	4.1	255
12	72	239	15	12	12	3.8	13	22	24	3.7	3.9	474
13	57	368	15	9.9	13	3.8	11	21	27	3.8	19	256
14	49	167	15	8.8	12	3.7	9.9	22	28	3.8	23	71
15	25	79	14	8.0	7.8	3.7	11	27	26	3.8	13	297
16	35	116	14	7.6	5.9	3.7	18	100	25	26	5.6	123
17	49	70	310	7.3	5.5	5.3	77	69	24	22	4.1	59
18	110	75	146	7.0	5.3	6.3	502	68	32	8.2	3.8	171
19	128	76	29	6.7	5.2	6.5	176	29	27	5.6	4.0	227
20	139	74	21	6.0	5.2	7.5	72	92	24	4.2	3.7	111
21	131	49	16	5.6	6.3	5.6	73	412	21	3.7	3.5	228
22	65	108	293	5.9	6.1	5.4	74	336	20	3.6	3.8	83
23	60	53	e156	6.6	4.9	5.1	75	111	28	3.4	4.0	49
24	45	47	e57	7.9	4.4	4.7	54	55	8.7	3.2	4.2	37
25	40	41	41	66	4.3	5.0	177	40	5.0	3.2	3.8	128
26	37	29	35	73	4.4	7.1	49	34	4.5	3.5	12	48
27	34	e48	24	17	4.5	13	40	31	4.1	5.8	21	28
28	34	e23	19	9.5	5.0	24	34	30	3.9	11	9.9	20
29	99	22	17	8.1	---	e27	27	29	3.8	11	52	17
30	73	28	14	7.5	---	e16	25	29	3.9	6.3	41	28
31	55	---	13	7.0	---	e11	---	21	---	4.6	13	---
TOTAL	2,225	2,379	1,476	410.5	950.0	215.9	1,966.9	1,863	824.9	199.1	296.0	3,126.1
MEAN	71.8	79.3	47.6	13.2	33.9	6.96	65.6	60.1	27.5	6.42	9.55	104
MAX	270	368	310	73	225	27	502	412	128	26	52	474
MIN	12	22	13	5.6	4.3	3.7	9.0	19	3.8	3.2	3.5	4.5
AC-FT	4,410	4,720	2,930	814	1,880	428	3,900	3,700	1,640	395	587	6,200
CFSM	1.99	2.20	1.32	0.37	0.94	0.19	1.82	1.67	0.76	0.18	0.27	2.89
IN.	2.30	2.46	1.53	0.42	0.98	0.22	2.03	1.93	0.85	0.21	0.31	3.23

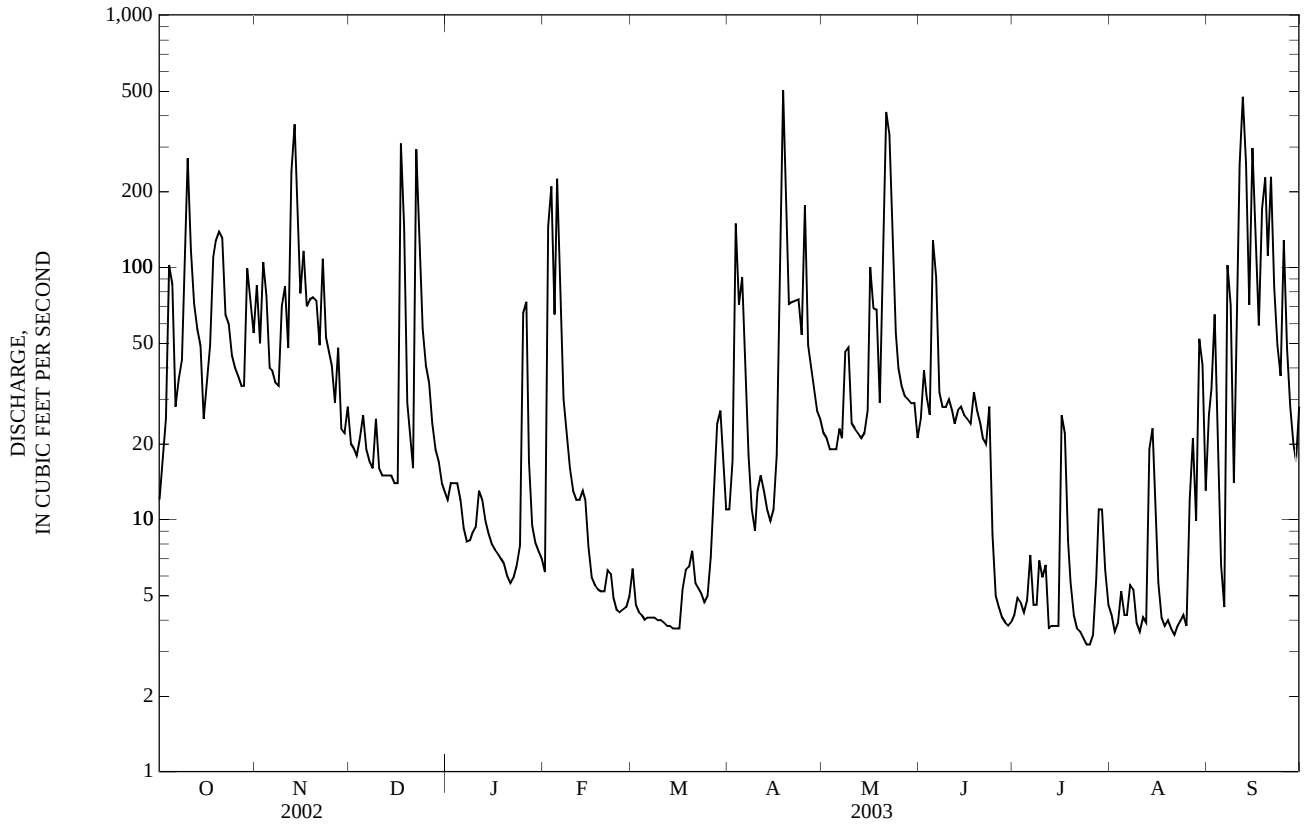
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	139	130	57.7	18.5	15.3	7.12	67.2	78.0	44.1	21.6	64.4	139
MAX	239	220	75.2	30.5	33.9	10.3	173	102	90.2	31.5	135	224
(WY)	(2001)	(2000)	(2002)	(2002)	(2003)	(2002)	(2002)	(2001)	(2000)	(2000)	(2000)	(1999)
MIN	71.5	79.3	43.4	8.38	6.06	4.55	9.58	50.3	10.2	6.42	9.55	70.6
(WY)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2000)	(2002)	(2001)	(2003)	(2003)	(2002)

50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	19,270.3		15,932.4			
ANNUAL MEAN	52.8		43.7		62.1	
HIGHEST ANNUAL MEAN					87.2	2000
LOWEST ANNUAL MEAN					43.7	2003
HIGHEST DAILY MEAN	556	Apr 23	502	Apr 18	2,210	Aug 23, 2000
LOWEST DAILY MEAN	4.3	Mar 22	3.2	Jul 24	3.2	Jul 24, 2003
ANNUAL SEVEN-DAY MINIMUM	4.3	Mar 21	3.5	Jul 20	3.5	Jul 20, 2003
MAXIMUM PEAK FLOW			4,290	Sep 12	45,600	Sep 22, 1998
MAXIMUM PEAK STAGE			7.88	Sep 12	19.72	Sep 22, 1998
ANNUAL RUNOFF (AC-FT)	38,220		31,600		44,990	
ANNUAL RUNOFF (CFSM)	1.47		1.21		1.72	
ANNUAL RUNOFF (INCHES)	19.91		16.46		23.44	
10 PERCENT EXCEEDS	106		109		146	
50 PERCENT EXCEEDS	29		20		26	
90 PERCENT EXCEEDS	7.4		4.1		5.2	

e Estimated



50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1999 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 1999.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, e1,600 mg/L May 6, 2001; Minimum daily mean, 1 mg/L several days during water years 2001, 2002 and 2003.
SEDIMENT LOADS: Maximum daily mean, e32,200 tons (e29,210 tonnes) May 6, 2001; Minimum daily mean,<0.01 ton (<0.01 tonne) July 2 4-26, 2003.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 946 mg/L September 21, 2003; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 3,600 tons (3,266 tonnes) September 12, 2003; Minimum daily mean, <0.01 ton (<0.01 tonne) Ju ly 24-26, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)
		OCTOBER			NOVEMBER			DECEMBER	
1	12	4	0.12	85	84	24	20	8	0.45
2	18	5	0.23	50	32	4.5	19	5	0.26
3	25	4	0.30	105	91	95	18	3	0.13
4	102	107	148	77	78	21	21	3	0.17
5	86	95	38	40	21	2.4	26	4	0.29
6	28	9	0.72	39	24	2.6	19	9	0.44
7	36	15	2.2	35	13	1.3	17	21	0.92
8	43	26	11	34	13	1.2	16	18	0.75
9	151	174	114	70	58	40	25	13	0.89
10	270	396	870	84	86	26	16	8	0.36
11	117	132	49	48	27	3.9	15	5	0.19
12	72	71	14	239	346	994	15	2	0.09
13	57	51	8.0	368	504	972	15	2	0.08
14	49	40	5.5	167	245	137	15	3	0.10
15	25	8	0.53	79	70	15	14	3	0.13
16	35	11	1.5	116	123	81	14	4	0.16
17	49	16	2.6	70	66	13	310	544	2,590
18	110	98	107	75	66	19	146	182	144
19	128	125	66	76	33	8.9	29	27	2.2
20	139	145	92	74	44	13	21	9	0.55
21	131	96	49	49	13	1.7	16	4	0.18
22	65	61	11	108	92	36	293	624	2,010
23	60	55	11	53	44	6.3	e156	e172	e100
24	45	40	4.9	47	37	4.7	e57	e13	e2.5
25	40	39	4.2	41	29	3.2	41	5	0.51
26	37	38	3.8	29	23	2.2	35	5	0.51
27	34	37	3.4	e48	e52	e7.1	24	6	0.41
28	34	36	3.3	e23	e44	e2.7	19	7	0.36
29	99	106	96	22	43	2.5	17	8	0.36
30	73	75	17	28	12	0.92	14	9	0.35
31	55	51	8.6	---	---	---	13	11	0.38
TOTAL	2,225	---	1,742.90	2,379	---	2,542.12	1,476	---	4,857.72

50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
	JANUARY			FEBRUARY			MARCH		
1	12	11	0.36	6.2	12	0.21	6.4	7	0.12
2	14	11	0.41	146	468	969	4.6	8	0.10
3	14	10	0.41	209	388	329	4.3	6	0.06
4	14	8	0.30	65	71	18	e4.2	e3	e0.03
5	12	6	0.18	225	266	603	e4.0	e3	e0.04
6	9.3	3	0.08	94	214	61	4.1	5	0.05
7	8.2	1	0.03	30	89	7.5	4.1	6	0.07
8	8.3	1	0.03	22	43	2.5	4.1	8	0.09
9	8.9	2	0.04	16	33	1.4	4.0	10	0.11
10	9.4	2	0.05	13	24	0.83	4.0	11	0.12
11	13	3	0.09	12	20	0.67	3.9	11	0.11
12	12	3	0.10	12	19	0.60	3.8	9	0.09
13	9.9	4	0.10	13	17	0.60	3.8	7	0.07
14	8.8	4	0.08	12	14	0.48	3.7	5	0.06
15	8.0	3	0.07	7.8	11	0.24	3.7	5	0.05
16	7.6	3	0.05	5.9	8	0.13	3.7	4	0.04
17	7.3	2	0.05	5.5	5	0.07	5.3	4	0.06
18	7.0	6	0.11	5.3	4	0.06	6.3	5	0.08
19	6.7	10	0.18	5.2	5	0.07	6.5	6	0.10
20	6.0	14	0.22	5.2	6	0.08	7.5	6	0.13
21	5.6	15	0.22	6.3	5	0.09	5.6	7	0.10
22	5.9	15	0.25	6.1	5	0.08	5.4	6	0.09
23	6.6	16	0.28	4.9	4	0.05	5.1	5	0.08
24	7.9	16	0.34	4.4	4	0.05	4.7	5	0.06
25	66	59	13	4.3	5	0.06	5.0	4	0.06
26	73	72	23	4.4	5	0.06	7.1	5	0.11
27	17	12	0.55	4.5	6	0.07	13	7	0.27
28	9.5	17	0.43	5.0	6	0.09	24	14	1.1
29	8.1	16	0.35	---	---	---	e27	e18	e1.6
30	7.5	13	0.27	---	---	---	e16	e8	e0.35
31	7.0	13	0.24	---	---	---	e11	e7	e0.20
TOTAL	410.5	---	41.87	950.0	---	1,995.99	215.9	---	5.60
	APRIL			MAY			JUNE		
1	e11	e6	e0.16	22	3	0.20	25	4	0.29
2	17	4	0.19	21	4	0.22	39	4	0.39
3	149	152	267	19	5	0.23	31	4	0.32
4	71	72	25	19	5	0.26	26	5	0.32
5	91	102	74	19	6	0.30	128	401	846
6	44	46	7.0	23	6	0.35	91	392	144
7	18	13	0.68	21	5	0.31	32	163	14
8	11	10	0.30	46	25	5.1	28	80	6.1
9	9.0	8	0.19	48	26	5.0	28	11	0.78
10	13	5	0.19	24	9	0.59	30	4	0.35
11	15	2	0.08	23	13	0.80	27	5	0.33
12	13	3	0.11	22	16	0.97	24	5	0.30
13	11	5	0.16	21	19	1.1	27	5	0.36
14	9.9	7	0.20	22	22	1.3	28	4	0.33
15	11	9	0.29	27	25	1.8	26	4	0.26
16	18	10	0.46	100	121	85	25	3	0.21
17	77	74	47	69	68	16	24	3	0.17
18	502	628	1,880	68	64	14	32	19	2.7
19	176	286	157	29	23	1.9	27	4	0.26
20	72	49	10	92	110	59	24	3	0.20
21	73	68	15	412	738	2,680	21	3	0.15
22	74	61	18	336	493	985	20	2	0.13
23	75	70	17	111	54	22	28	12	2.1
24	54	39	8.8	55	17	2.5	8.7	4	0.12
25	177	221	318	40	8	0.91	5.0	2	0.03
26	49	32	6.9	34	6	0.56	4.5	3	0.04
27	40	3	0.33	31	5	0.43	4.1	5	0.05
28	34	2	0.21	30	5	0.40	3.9	6	0.06
29	27	2	0.17	29	5	0.39	3.8	8	0.08
30	25	3	0.20	29	5	0.40	3.9	10	0.10
31	---	---	---	21	5	0.28	---	---	---
TOTAL	1,966.9	---	2,854.62	1,863	---	3,887.30	824.9	---	1,020.53

50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	4.2	11	0.13	4.2	1	0.01	26	22	6.2
2	4.9	8	0.11	3.6	1	0.01	33	31	3.8
3	4.7	4	0.06	3.9	2	0.02	65	70	36
4	4.3	1	0.02	5.2	2	0.03	18	15	1.2
5	4.8	2	0.02	4.2	2	0.02	6.6	7	0.12
6	7.2	2	0.05	4.2	1	0.01	4.5	7	0.09
7	4.6	4	0.05	5.5	1	0.02	102	136	195
8	4.6	7	0.09	5.3	2	0.02	71	83	30
9	6.9	10	0.19	3.9	3	0.03	14	12	0.49
10	5.9	13	0.21	3.6	3	0.03	76	61	60
11	6.6	13	0.23	4.1	4	0.04	255	364	680
12	3.7	11	0.11	3.9	2	0.03	474	662	3,600
13	3.8	9	0.09	19	16	4.1	256	788	570
14	3.8	7	0.07	23	9	0.91	71	419	88
15	3.8	5	0.05	13	4	0.13	297	218	209
16	26	23	6.3	5.6	6	0.09	123	123	44
17	22	17	1.3	4.1	8	0.08	59	56	9.0
18	8.2	4	0.09	3.8	6	0.06	171	175	290
19	5.6	3	0.04	4.0	5	0.05	227	193	207
20	4.2	2	0.03	3.7	3	0.03	111	146	49
21	3.7	2	0.02	3.5	2	0.02	228	946	1,620
22	3.6	2	0.02	3.8	3	0.03	83	352	89
23	3.4	1	0.01	4.0	4	0.04	49	133	18
24	3.2	1	<0.01	4.2	4	0.05	37	131	13
25	3.2	1	<0.01	3.8	5	0.05	128	537	681
26	3.5	1	<0.01	12	5	0.18	48	41	5.7
27	5.8	1	0.02	21	6	0.32	28	7	0.59
28	11	1	0.03	9.9	6	0.15	20	5	0.29
29	11	1	0.03	52	43	11	17	5	0.22
30	6.3	1	0.02	41	36	5.9	28	5	0.37
31	4.6	1	0.01	13	4	0.16	---	---	---
TOTAL	199.1	---	9.43	296.0	---	23.62	3,126.1	---	8,507.07
YEAR	15,932.4	27,488.77							

e Estimated
< Actual value is known to be less than the value shown

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
DEC 22...	1700	1,250	96	3,990	13,500

50021700 RIO GRANDE DE ARECIBO ABOVE UTUADO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
DEC													
17...	2030	2,250	35	49	60	76	85	91	96	98	99	99	5,190
JUN													
05...	2049	374	14	17	20	25	36	44	54	63	78	89	13,600

Date	Suspended sediment discharge, tons/d (80155)
DEC	
17...	31,500
JUN	
05...	13,800

50022810 RIO VIVI BELOW HACIENDA EL PROGRESO, PR

LOCATION.--Lat 18°11'21", long 66°40'20", Hydrologic Unit 21010001, 4.05 mi (6.52 km) east from Lago Adjuntas Dam, 2.90 mi (4.66 km) south of Lago Viví Dam, 3.80 mi (6.11 km) northeast from Adjuntas Plaza, 2.76 mi (4.44 km) northwest from Escuela de San Patricio.

DRAINAGE AREA.--2.99 mi^2 (7.74 km^2).

PERIOD OF RECORD.--December 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,710 ft (521 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	9.2	e4.0	3.4	2.8	2.5	e3.2	2.8	8.4	2.0	e1.4	2.2
2	e5.7	4.9	e4.0	e3.4	26	2.5	3.7	2.8	e5.9	2.1	e1.3	2.0
3	4.4	4.9	e4.1	e3.2	23	2.5	26	2.8	4.5	1.9	e1.3	6.7
4	8.8	4.2	e5.0	3.2	6.3	2.4	4.1	2.7	4.0	1.9	e1.3	1.9
5	5.3	5.8	e4.0	3.2	16	2.4	41	2.8	21	2.2	e1.3	1.4
6	3.7	4.3	3.3	3.3	e7.6	2.4	6.4	2.8	5.2	1.9	e1.5	1.3
7	4.0	3.7	3.2	3.2	e4.3	2.3	3.5	3.4	3.4	1.7	e1.6	3.8
8	15	3.6	4.9	3.0	3.8	2.2	3.0	3.3	3.1	1.8	1.4	2.0
9	7.4	16	3.4	3.1	3.4	2.2	3.0	3.0	3.1	1.8	1.3	1.5
10	20	11	3.0	3.6	3.3	2.2	2.9	2.8	2.9	e1.7	1.2	1.5
11	6.3	5.7	3.0	3.2	3.2	2.1	3.3	3.0	2.8	e1.8	1.7	33
12	4.6	12	2.9	2.9	3.1	2.2	6.1	2.9	2.8	e1.8	1.4	11
13	4.2	8.3	2.9	2.9	3.0	2.2	3.9	2.8	2.7	e2.0	5.3	7.1
14	9.1	5.8	2.8	2.9	3.0	2.4	3.1	3.2	2.7	e1.9	2.0	4.5
15	9.3	5.3	2.8	2.8	2.9	2.6	2.8	3.4	2.6	e2.0	1.6	65
16	5.8	11	2.9	2.8	2.9	e2.8	3.2	3.2	2.6	e2.0	1.4	14
17	5.2	5.8	54	2.7	3.0	e2.8	22	7.9	2.5	e2.3	1.3	6.6
18	13	e10	8.8	2.9	2.9	e2.8	75	4.1	3.0	e1.7	1.5	6.3
19	5.3	e9.0	4.5	2.9	2.8	2.9	11	3.2	4.2	e1.6	1.4	37
20	11	e6.2	3.9	2.8	2.8	3.0	4.8	3.7	2.6	e1.5	1.3	8.0
21	35	e10	3.6	2.8	2.8	e2.7	3.6	26	2.4	e1.6	1.2	12
22	8.0	e5.0	35	2.8	2.7	2.8	5.7	60	2.3	e1.5	1.3	5.7
23	5.4	e4.5	9.9	5.1	2.7	e2.9	4.5	19	2.2	e1.5	1.2	4.8
24	4.6	e3.9	5.4	7.7	2.7	e2.8	7.4	12	2.1	e1.4	1.1	4.5
25	4.2	e3.5	4.4	17	2.6	3.6	6.2	11	2.1	e1.6	1.2	15
26	4.1	e3.6	4.4	8.3	2.7	6.5	4.0	11	2.0	e1.6	3.2	7.8
27	3.8	e5.1	4.0	3.7	2.8	4.2	3.4	6.8	2.0	e2.2	1.6	5.6
28	3.7	e4.6	3.7	3.1	2.6	3.6	3.2	5.3	1.9	e2.1	1.6	4.8
29	8.2	e5.4	3.6	2.9	---	e3.0	3.0	4.7	1.9	e2.1	1.6	4.5
30	4.3	e4.5	3.5	2.8	---	e2.8	2.9	5.1	1.8	e1.5	2.7	4.3
31	15	---	3.4	2.9	---	e2.6	---	5.0	---	e1.4	1.7	---
TOTAL	251.3	196.8	208.3	120.5	147.7	86.9	275.9	232.5	110.7	56.1	50.9	285.8
MEAN	8.11	6.56	6.72	3.89	5.28	2.80	9.20	7.50	3.69	1.81	1.64	9.53
MAX	35	16	54	17	26	6.5	75	60	21	2.3	5.3	65
MIN	3.7	3.5	2.8	2.7	2.6	2.1	2.8	2.7	1.8	1.4	1.1	1.3
AC-FT	498	390	413	239	293	172	547	461	220	111	101	567
CFSM	2.71	2.19	2.25	1.30	1.76	0.94	3.08	2.51	1.23	0.61	0.55	3.19
IN.	3.13	2.45	2.59	1.50	1.84	1.08	3.43	2.89	1.38	0.70	0.63	3.56

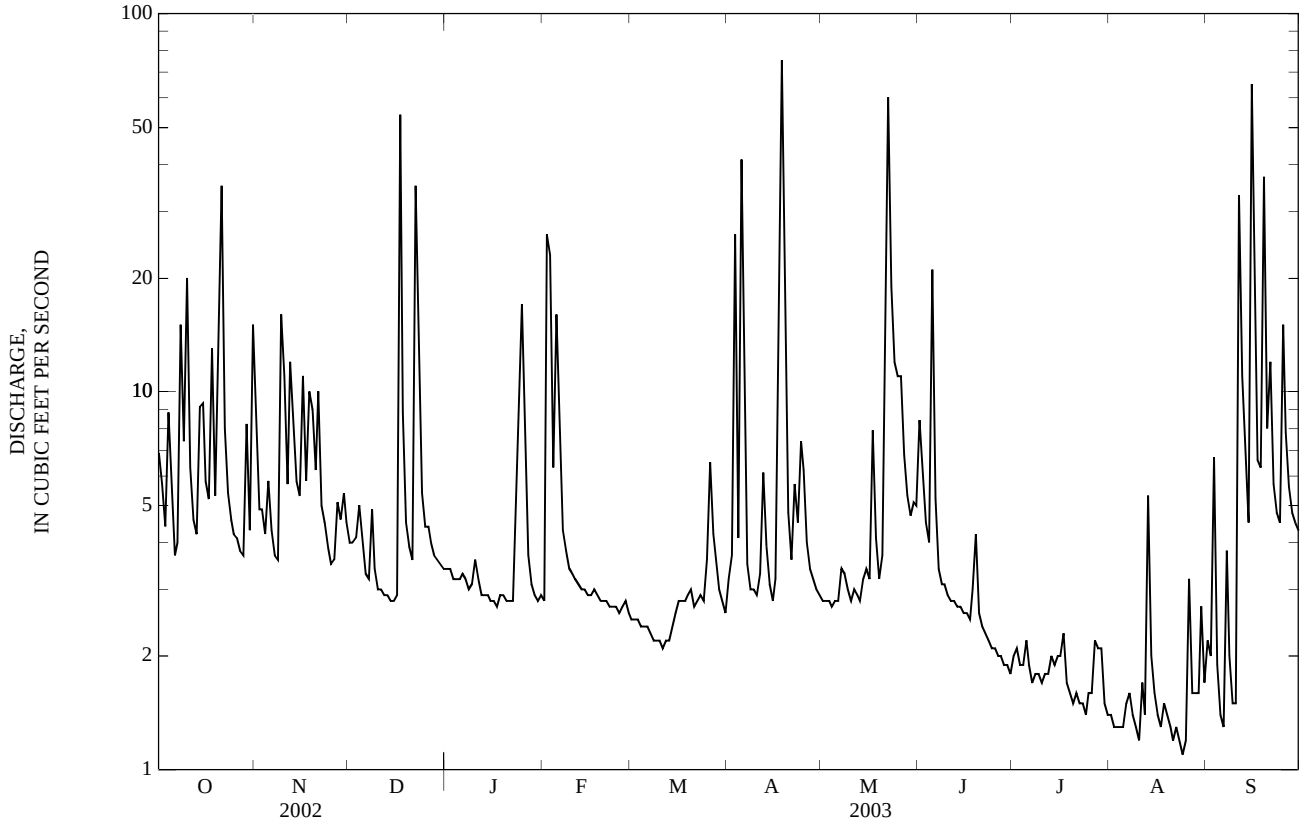
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	9.17	12.0	11.1	4.21	3.74	2.81	9.56	8.44	4.38	5.10	5.23	11.1
MAX	10.2	17.5	15.6	5.63	5.28	3.16	16.4	10.8	4.79	9.80	8.69	18.8
(WY)	(2002)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2001)	(2002)	(2001)	(2001)	(2001)
MIN	8.11	6.56	6.72	3.12	2.45	2.45	3.10	7.00	3.69	1.81	1.64	5.03
(WY)	(2003)	(2003)	(2003)	(2001)	(2001)	(2001)	(2001)	(2002)	(2003)	(2003)	(2003)	(2002)

50022810 RIO VIVI BELOW HACIENDA EL PROGRESO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	2,311.2		2,023.4			
ANNUAL MEAN	6.33		5.54		6.85	
HIGHEST ANNUAL MEAN					8.17	2002
LOWEST ANNUAL MEAN					5.54	2003
HIGHEST DAILY MEAN	69	Apr 26	75	Apr 18	108	May 6, 2001
LOWEST DAILY MEAN	2.1	Mar 24	1.1	Aug 24	1.1	Aug 24, 2003
ANNUAL SEVEN-DAY MINIMUM	2.1	Mar 22	1.2	Aug 19	1.2	Aug 19, 2003
MAXIMUM PEAK FLOW			1,020	May 22	1,150	Dec 21, 2001
MAXIMUM PEAK STAGE			6.18	May 22	6.51	Dec 21, 2001
INSTANTANEOUS LOW FLOW					1.6	Mar 17, 2001
ANNUAL RUNOFF (AC-FT)	4,580		4,010		4,970	
ANNUAL RUNOFF (CFSM)	2.12		1.85		2.29	
ANNUAL RUNOFF (INCHES)	28.75		25.17		31.15	
10 PERCENT EXCEEDS	9.9		10		12	
50 PERCENT EXCEEDS	4.4		3.2		4.1	
90 PERCENT EXCEEDS	2.9		1.6		2.1	

e Estimated



50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR

LOCATION.--Lat 18°18'07", long 66°42'15", Hydrologic Unit 21010001, 2.4 mi (3.9 km) north of Utuado Plaza, 3.4 mi (5.5 km) southwest from Lago Dos Bocas Dam, 3.5 mi (5.6 km) northwest from Lago Caonillas Dam.

DRAINAGE AREA.--65.6 mi^2 (170 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1996 to September 1998, June 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 295.28 ft (90 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e66	246	e106	e86	67	e54	79	221	149	54	45	71
2	e73	204	e103	e87	e131	e54	83	206	146	66	40	104
3	e82	165	e100	e87	e211	e53	156	205	101	56	45	180
4	154	172	e102	e87	e121	51	131	182	88	53	60	115
5	180	e112	e107	e85	e246	47	122	167	283	54	46	60
6	73	e111	e99	e83	e166	46	125	159	230	59	40	47
7	225	e106	e97	e82	e83	43	53	149	95	48	47	81
8	125	e105	e94	e80	e90	43	40	192	80	48	48	167
9	283	e141	e99	e81	e79	42	35	209	75	52	39	78
10	420	e156	e91	e80	e72	39	43	202	76	50	36	78
11	293	e119	e90	e76	e69	38	51	176	72	62	49	263
12	237	e347	e91	e76	e57	37	55	142	66	45	46	356
13	254	e464	e89	e73	e55	36	52	127	64	51	35	319
14	411	e263	e89	e72	e67	34	38	138	70	48	92	115
15	265	e160	89	e72	e65	37	39	166	63	46	66	302
16	171	e196	88	e72	e60	39	44	210	68	57	48	179
17	158	e149	271	e71	e56	40	137	383	63	86	41	84
18	163	e156	339	e71	e60	43	673	374	227	53	40	136
19	233	e155	e99	e70	e59	66	335	320	131	50	43	262
20	229	295	e94	e69	e63	53	239	553	92	47	41	218
21	e226	232	e89	e69	e64	42	320	557	76	45	36	268
22	e202	281	e369	e69	e63	40	314	551	70	41	36	238
23	261	192	485	e70	e58	38	299	341	69	39	117	121
24	157	162	e260	e68	e55	36	402	189	77	36	101	195
25	129	135	e114	e120	e46	36	734	129	62	44	64	297
26	120	115	e106	e134	e49	58	424	108	54	49	66	218
27	110	138	e97	e78	e47	121	305	97	51	49	82	127
28	106	134	e91	e72	e50	101	272	91	48	67	55	86
29	138	112	e88	76	---	133	249	84	51	58	83	72
30	125	140	e86	77	---	83	231	85	51	47	156	80
31	185	---	e85	71	---	e54	---	76	---	49	131	---
TOTAL	5,854	5,463	4,207	2,464	2,309	1,637	6,080	6,789	2,848	1,609	1,874	4,917
MEAN	189	182	136	79.5	82.5	52.8	203	219	94.9	51.9	60.5	164
MAX	420	464	485	134	246	133	734	557	283	86	156	356
MIN	66	105	85	68	46	34	35	76	48	36	35	47
AC-FT	11,610	10,840	8,340	4,890	4,580	3,250	12,060	13,470	5,650	3,190	3,720	9,750
CFSM	2.88	2.78	2.07	1.21	1.26	0.80	3.09	3.34	1.45	0.79	0.92	2.50
IN.	3.32	3.10	2.38	1.40	1.31	0.93	3.45	3.85	1.61	0.91	1.06	2.79

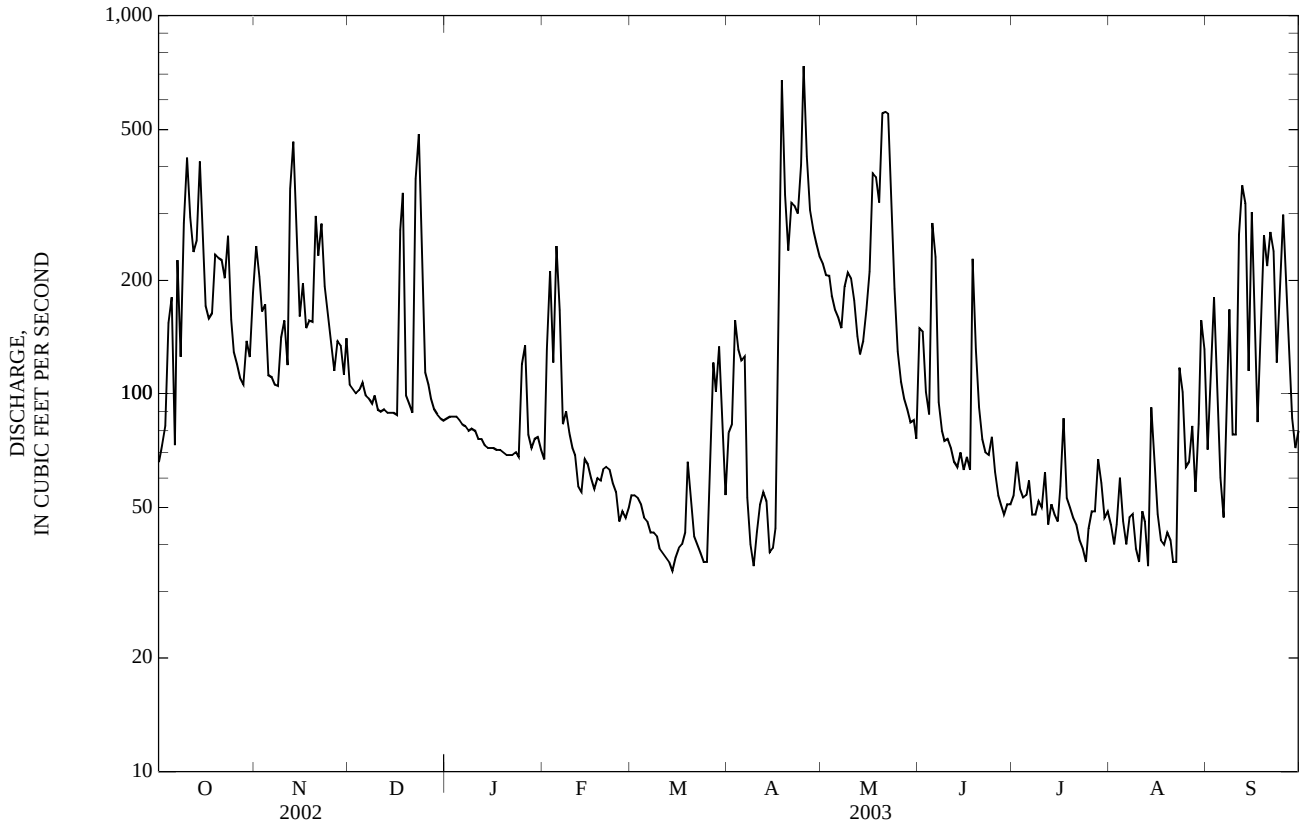
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	265	287	131	90.2	68.9	53.2	155	167	92.1	94.5	161	382
MAX	490	766	242	166	102	76.7	457	249	130	184	393	1,100
(WY)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2000)	(1998)	(1998)	(1998)
MIN	148	84.8	53.0	39.5	46.6	33.8	46.2	50.8	40.8	36.6	60.5	87.3
(WY)	(2002)	(1998)	(1998)	(1998)	(1998)	(1998)	(1997)	(1997)	(1997)	(1997)	(2003)	(1997)

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	55,792		46,051			
ANNUAL MEAN	153		126		158	
HIGHEST ANNUAL MEAN					233	2000
LOWEST ANNUAL MEAN					99.6	1997
HIGHEST DAILY MEAN	1,210	Apr 25	734	Apr 25	17,900	Sep 22, 1998
LOWEST DAILY MEAN	25	Mar 27	34	Mar 14	22	Mar 20, 1998
ANNUAL SEVEN-DAY MINIMUM	28	Mar 21	37	Mar 10	23	Mar 19, 1998
MAXIMUM PEAK FLOW			5,820	Apr 25	76,400	Sep 22, 1998
MAXIMUM PEAK STAGE			11.50	Apr 25	32.92	Sep 22, 1998
INSTANTANEOUS LOW FLOW					13	Jul 3, 2002
ANNUAL RUNOFF (AC-FT)	110,700		91,340		114,400	
ANNUAL RUNOFF (CFSM)	2.33		1.92		2.41	
ANNUAL RUNOFF (INCHES)	31.63		26.11		32.69	
10 PERCENT EXCEEDS	288		264		312	
50 PERCENT EXCEEDS	99		86		87	
90 PERCENT EXCEEDS	47		44		40	

e Estimated



50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- April 1996 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: April 1996 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 1996.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 10,600 mg/L September 10, 1996; Minimum daily mean, 2 mg/L May 31, 2003.
SEDIMENT LOADS: Maximum daily mean, e768,000 tons (e698,000 tonnes) September 22,1998; Minimum daily mean, 0.41 ton (0.37 tonne) May 31, 2003.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 3,590 mg/L April 25, 2003; Minimum daily mean, 2 mg/L May 31, 2003.
SEDIMENT LOADS: Maximum daily mean, 26,000 tons (23,590 tonnes) April 25, 2003; Minimum daily mean, .41 ton (.37 tonne) May 31, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	e66	e24	e3.8	246	453	366	e106	e44	e14
2	e73	e24	e3.8	204	233	138	e103	e44	e14
3	e82	e24	e3.8	165	194	109	e100	e44	e14
4	154	142	131	172	197	105	e102	e44	e14
5	180	146	110	e112	e132	e39	e107	e44	e14
6	73	46	9.1	e111	e132	e39	e99	e44	e14
7	225	485	1,060	e106	e53	e15	e97	e44	e14
8	125	124	44	e105	e53	e15	e94	e47	e11
9	283	306	272	e141	e93	e62	e99	e44	e14
10	420	2,730	8,160	e156	e132	e56	e91	e47	e11
11	293	337	301	e119	e139	e45	e90	e47	e11
12	237	252	209	e347	e620	e4,240	e91	e50	e12
13	254	275	271	e464	e2,730	e8,160	e89	e55	e13
14	411	1,680	4,750	e263	e131	e119	e89	e53	e13
15	265	305	247	e160	e91	e40	89	50	12
16	171	109	51	e196	e114	e59	88	47	11
17	158	83	36	e149	e95	e38	271	1,100	4,240
18	163	136	118	e156	e64	e46	339	620	1,100
19	233	196	147	e155	e64	e46	e99	e24	e13
20	229	165	141	295	131	119	e94	e21	e11
21	e226	e165	e141	232	41	26	e89	e21	e11
22	e202	e233	e138	281	208	188	e369	e620	e1,100
23	261	350	501	192	114	59	485	e1,680	e4,750
24	157	132	56	162	91	40	e260	e1,100	e4,240
25	129	168	58	135	74	27	e114	e53	e15
26	120	139	45	115	56	18	e106	e53	e15
27	110	94	28	138	95	38	e97	e47	e11
28	106	53	15	134	76	32	e91	e47	e11
29	138	93	62	112	44	14	e88	e47	e11
30	125	106	46	140	71	29	e86	e47	e11
31	185	260	301	---	---	---	e85	e47	e11
TOTAL	5,854	---	17,459.5	5,463	---	14,327	4,207	---	15,756

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	e86	e47	e11	67	43	7.9	e54	e17	e2.3
2	e87	e47	e11	e131	e65	e30	e54	e17	e2.3
3	e87	e47	e11	e211	e130	e144	e53	e17	e2.3
4	e87	e47	e11	e121	e65	e30	51	17	2.3
5	e85	e47	e11	e246	e130	e144	47	14	1.8
6	e83	e47	e11	e166	e130	e112	46	13	1.6
7	e82	e47	e11	e83	e72	e14	43	12	1.4
8	e80	e47	e11	e90	e72	e14	43	10	1.2
9	e81	e47	e11	e79	e72	e14	42	8	0.95
10	e80	e47	e11	e72	e72	e14	39	8	0.85
11	e76	e46	e9.1	e69	e35	e9.7	38	8	0.83
12	e76	e46	e9.1	e57	e27	e42	37	8	0.80
13	e73	e46	e9.1	e55	e27	e42	36	8	0.77
14	e72	e46	e9.1	e67	e35	e9.7	34	8	0.75
15	e72	e46	e9.1	e65	e35	e9.7	37	8	0.83
16	e72	e46	e9.1	e60	e35	e9.7	39	9	0.90
17	e71	e46	e9.1	e56	e35	e9.7	40	9	0.95
18	e71	e46	e9.1	e60	e35	e9.7	43	9	1.1
19	e70	e46	e9.1	e59	e35	e9.7	66	35	9.7
20	e69	e46	e9.1	e63	e35	e9.7	53	15	2.2
21	e69	e46	e9.1	e64	e35	e9.7	42	13	1.5
22	e69	e46	e9.1	e63	e35	e9.7	40	14	1.5
23	e70	e46	e9.1	e58	e27	e4.2	38	21	2.1
24	e68	e46	e9.1	e55	e27	e4.2	36	27	2.6
25	e120	e90	e43	e46	e13	e1.6	36	27	2.7
26	e134	e90	e43	e49	e13	e1.6	58	27	4.2
27	e78	e46	e9.1	e47	e13	e1.6	121	90	43
28	e72	e46	e9.1	e50	e17	e2.3	101	30	8.3
29	76	110	22	---	---	---	133	65	30
30	77	101	21	---	---	---	83	30	6.9
31	71	72	14	---	---	---	e54	e20	e2.9
TOTAL	2,464	---	398.6	2,309	---	720.4	1,637	---	141.53
		APRIL			MAY			JUNE	
1	79	59	20	221	14	8.5	149	122	131
2	83	33	7.4	206	14	7.5	146	67	29
3	156	156	231	205	74	52	101	36	10
4	131	106	67	182	56	29	88	36	8.5
5	122	124	110	167	26	12	283	400	772
6	125	132	53	159	23	9.8	230	290	287
7	53	66	9.5	149	20	8.0	95	42	11
8	40	50	5.4	192	69	42	80	33	7.1
9	35	39	3.7	209	95	67	75	26	5.4
10	43	30	3.4	202	143	131	76	34	6.9
11	51	34	4.8	176	72	39	72	43	8.3
12	55	37	5.6	142	18	6.8	66	52	9.3
13	52	30	4.3	127	17	5.7	64	60	10
14	38	24	2.5	138	44	21	70	61	11
15	39	23	2.4	166	51	37	63	61	10
16	44	27	3.7	210	130	144	68	60	11
17	137	603	300	383	376	826	63	60	10
18	673	1,610	4,260	374	268	481	227	383	592
19	335	244	302	320	178	296	131	246	87
20	239	152	127	553	1,150	4,420	92	76	20
21	320	406	550	557	589	1,640	76	26	5.3
22	314	336	480	551	767	1,620	70	24	4.5
23	299	115	120	341	191	209	69	22	4.2
24	402	1,080	4,220	189	14	7.2	77	21	4.3
25	734	3,590	26,000	129	11	3.9	62	19	3.2
26	424	216	339	108	9	2.7	54	18	2.6
27	305	22	18	97	7	2.0	51	19	2.6
28	272	20	15	91	6	1.4	48	23	2.9
29	249	18	12	84	4	0.93	51	25	3.5
30	231	16	10	85	3	0.58	51	26	3.6
31	---	---	---	76	2	0.41	---	---	---
TOTAL	6,080	---	37,286.7	6,789	---	10,131.42	2,848	---	2,073.2

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	54	26	3.9	45	31	3.7	71	23	4.9
2	66	27	4.8	40	30	3.2	104	42	15
3	56	27	4.1	45	30	3.7	180	175	164
4	53	27	3.8	60	30	4.9	115	65	28
5	54	26	3.8	46	32	4.0	60	25	4.1
6	59	26	4.1	40	42	4.5	47	23	2.9
7	48	25	3.3	47	52	6.5	81	75	66
8	48	25	3.2	48	62	8.0	167	111	85
9	52	25	3.5	39	72	7.5	78	19	4.0
10	50	24	3.3	36	69	6.6	78	41	26
11	62	24	4.0	49	63	8.1	263	265	367
12	45	25	3.1	46	55	6.9	356	491	1,450
13	51	27	3.7	35	32	3.1	319	405	513
14	48	28	3.7	92	33	8.2	115	27	8.5
15	46	30	3.7	66	37	6.6	302	308	349
16	57	35	6.9	48	36	4.7	179	170	87
17	86	38	9.6	41	34	3.7	84	72	17
18	53	23	3.3	40	31	3.4	136	150	150
19	50	20	2.7	43	30	3.5	262	527	441
20	47	20	2.6	41	29	3.2	218	541	339
21	45	21	2.5	36	28	2.7	268	635	652
22	41	21	2.3	36	28	2.7	238	544	369
23	39	25	2.6	117	145	144	121	467	153
24	36	31	3.0	101	111	68	195	570	392
25	44	37	4.4	64	41	7.1	297	781	1,060
26	49	43	5.6	66	38	6.7	218	108	72
27	49	45	5.9	82	36	8.1	127	20	6.9
28	67	46	8.4	55	36	5.3	86	14	3.2
29	58	47	7.4	83	36	8.2	72	12	2.3
30	47	43	5.4	156	114	66	80	12	2.6
31	49	36	4.7	131	86	48	---	---	---
TOTAL	1,609	---	133.3	1,874	---	470.8	4,917	---	6,834.4
YEAR	46,051	105,732.85							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR					
25...	1700	2,740	89	12,100	89,200
25...	1829	3,390	67	38,000	347,000

50024950 RIO GRANDE DE ARECIBO BELOW UTUADO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
APR													
24...	1414	2,610	38	46	51	63	77	86	97	99	100	100	12,700
24...	1525	1,540	26	35	48	65	76	85	96	98	100	100	6,360

Date	Suspended sediment discharge, tons/d (80155)
APR	
24...	89,200
24...	26,400

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

:OCATION.--Lat 18°18'11", long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado Plaza.

DRAINAGE AREA.--66.0 mi^2 (170.9 km^2) this excludes 6.0 mi^2 (15.5 km^2) upstream from Lago Garzas to Río Guayanes in the Río Tallaboa basin.

PERIOD OF RECORD.--Water years 1959-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
10...	1200	91	21	8.3	101	6.8	267	24.8	98	26.7	7.62	1.85	.5
MAR													
20...	1415	42	53	6.9	--	8.0	305	30.5	110	31.2	8.61	2.43	.6
MAY													
12...	1150	66	47	8.1	--	8.0	271	26.7	110	29.4	7.95	2.16	.5
AUG													
19...	1445	36	33	7.8	--	8.4	288	32.6	--	--	--	--	--
SEP													
19...	0930	149	170	8.1	--	7.8	206	24.2	79	21.9	6.00	2.24	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
10...	12.0	107	12.1	<.17	28.7	18.6	--	172	42.2	19	.30	.01	1.16
MAR													
20...	15.3	95	14.0	.12	29.0	26.8	<.1	184	20.8	79	.70	.06	1.22
MAY													
12...	13.0	92	11.3	<.17	26.1	18.8	<.1	164	29.3	51	.40	.07	.80
AUG													
19...	--	95	--	--	--	--	--	--	--	42	.30	.07	.94
SEP													
19...	8.04	76	8.62	<.2	22.6	11.8	--	127	51.1	150	.60	.10	.62

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
10...	1.20	.04	.29	.11	1.5	6.6	<10	E1,200	380	--	--	--	--
MAR													
20...	1.30	.08	.64	.18	2.0	8.9	10	3,700	--	28,000	E1	61.8	E9.9
MAY													
12...	.830	.03	.33	.12	1.2	5.4	<10	E1,200	--	60,000	<2	61.3	22
AUG													
19...	1.00	.06	.23	.14	1.3	5.8	<10	400	--	6,800	--	--	--
SEP													
19...	.650	.03	.50	.20	1.2	5.5	20	E17,000	--	100,000	--	--	--

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
20...	E.1	1.5	10	<.01	2,070	2	134	<.02	<3	<.3	E25	<.10	<16
MAY													
12...	<.2	1.5	20	<.01	1,830	2	123	<.02	<3	<.3	43	<.10	<16
AUG													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION.--Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA.--9.25 mi^2 (24.0 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	24	9.2	7.0	8.9	7.0	e7.6	13	19	8.5	6.2	e11
2	33	21	9.2	7.1	45	6.9	12	12	19	8.5	5.8	9.2
3	56	17	9.3	6.9	33	e6.9	8.6	12	16	8.1	5.5	e51
4	31	15	11	6.5	40	6.6	7.4	11	e15	8.0	7.8	e16
5	17	15	11	6.5	65	6.4	18	11	14	8.7	8.0	10
6	14	15	9.5	6.9	40	6.2	11	11	13	8.6	8.3	8.7
7	12	13	9.3	e7.2	22	6.1	7.0	13	14	7.6	9.8	10
8	58	12	9.5	6.3	17	e6.0	5.9	13	13	7.7	7.3	e12
9	42	13	9.4	7.2	14	6.0	5.5	12	12	8.0	6.5	e9.9
10	32	13	8.8	8.5	12	6.0	5.5	14	12	7.1	6.0	e8.0
11	20	12	8.7	12	11	6.1	15	13	11	6.9	6.3	e40
12	16	13	8.6	6.9	11	5.9	31	11	11	6.8	7.5	e95
13	15	15	8.5	e6.3	9.9	5.6	13	11	11	9.3	5.9	45
14	30	20	8.3	6.1	9.5	5.5	8.1	12	11	8.4	5.8	e23
15	56	18	8.1	6.0	9.0	5.5	6.8	11	11	e8.0	e5.7	74
16	57	15	8.2	5.8	8.8	5.9	8.8	10	11	e9.5	e6.9	34
17	36	14	10	5.9	9.4	e5.3	193	54	10	8.3	8.2	20
18	23	13	13	5.9	8.7	5.4	e226	68	21	7.2	6.0	15
19	19	11	9.3	6.7	8.0	6.5	e94	41	15	6.8	5.9	13
20	17	11	11	5.8	7.8	e6.2	50	70	11	6.7	5.2	12
21	51	13	9.3	5.7	8.0	5.6	33	131	10	6.5	5.1	14
22	28	11	38	e5.5	7.5	5.4	31	90	10	6.9	5.5	13
23	20	10	16	7.3	7.1	5.3	34	59	9.5	6.8	5.3	12
24	18	9.9	11	11	7.0	5.1	49	38	9.2	6.2	5.1	e11
25	16	9.8	9.2	49	7.1	5.1	42	29	9.0	11	5.8	108
26	15	11	8.9	45	6.9	e28	26	24	8.8	e9.3	10	32
27	14	11	9.0	15	6.8	28	20	21	8.4	6.4	8.5	15
28	13	9.8	7.8	11	e7.5	12	17	19	8.3	9.7	12	10
29	15	9.8	7.4	8.9	---	e6.5	15	18	8.0	8.8	11	8.6
30	e16	9.1	7.1	8.3	---	6.0	14	17	7.9	6.0	16	8.2
31	29	---	6.9	8.3	---	e5.0	---	16	---	5.9	18	---
TOTAL	843	404.4	320.5	312.5	447.9	234.0	1,015.2	885	359.1	242.2	236.9	748.6
MEAN	27.2	13.5	10.3	10.1	16.0	7.55	33.8	28.5	12.0	7.81	7.64	25.0
MAX	58	24	38	49	65	28	226	131	21	11	18	108
MIN	12	9.1	6.9	5.5	6.8	5.0	5.5	10	7.9	5.9	5.1	8.0
AC-FT	1,670	802	636	620	888	464	2,010	1,760	712	480	470	1,480
CFSM	2.94	1.46	1.12	1.09	1.73	0.82	3.66	3.09	1.29	0.84	0.83	2.70
IN.	3.39	1.63	1.29	1.26	1.80	0.94	4.08	3.56	1.44	0.97	0.95	3.01

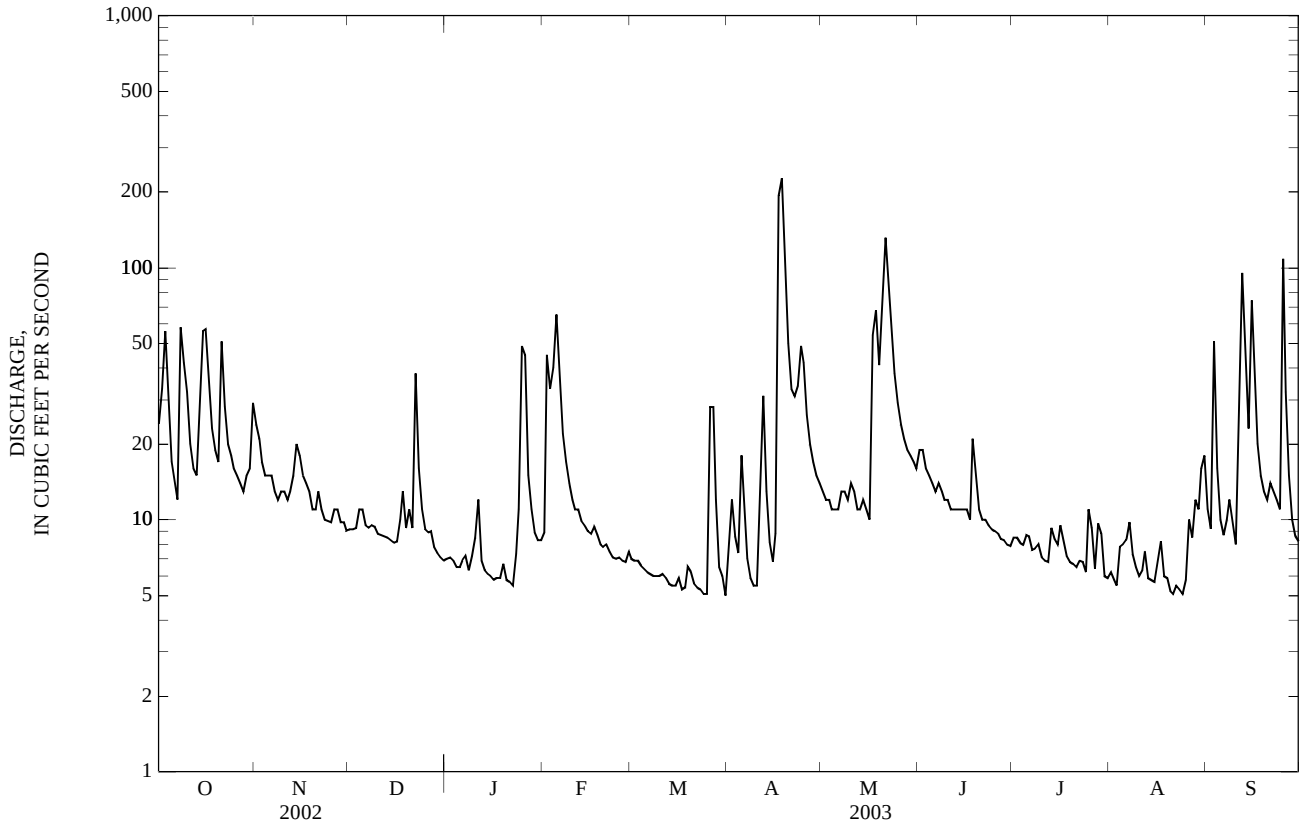
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	41.2	33.0	17.1	16.7	15.4	11.8	25.2	35.7	23.7	16.0	26.3	85.7
MAX	72.0	91.5	39.3	48.1	44.4	22.9	71.9	98.6	41.5	50.9	74.5	365
(WY)	(1996)	(2000)	(2000)	(1992)	(1996)	(2002)	(2002)	(1995)	(1999)	(1996)	(1998)	(1996)
MIN	11.6	10.0	5.41	4.13	4.67	4.79	5.95	5.35	5.30	2.83	7.64	10.8
(WY)	(1992)	(1994)	(1998)	(1995)	(1994)	(1994)	(1994)	(1990)	(1997)	(1994)	(2003)	(1994)

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	8,668.9		6,049.3			
ANNUAL MEAN	23.8		16.6		28.9	
HIGHEST ANNUAL MEAN					64.0	1996
LOWEST ANNUAL MEAN					10.9	1994
HIGHEST DAILY MEAN	274	Jun 5	226	Apr 18	4,700	Sep 10, 1996
LOWEST DAILY MEAN	6.9	Dec 31	5.0	Mar 31	2.3	Jul 27, 1994
ANNUAL SEVEN-DAY MINIMUM	8.0	Dec 25	5.4	Aug 19	2.5	Jul 23, 1994
MAXIMUM PEAK FLOW			1,820	Sep 25	18,500	Sep 21, 1998
MAXIMUM PEAK STAGE			9.41	Sep 25	20.00	Sep 21, 1998
INSTANTANEOUS LOW FLOW			4.5	Apr 1	2.1	Jul 26, 1994
ANNUAL RUNOFF (AC-FT)	17,190		12,000		20,960	
ANNUAL RUNOFF (CFSM)	2.57		1.79		3.13	
ANNUAL RUNOFF (INCHES)	34.86		24.33		42.49	
10 PERCENT EXCEEDS	42		33		55	
50 PERCENT EXCEEDS	14		10		13	
90 PERCENT EXCEEDS	9.3		6.0		5.2	

e Estimated



50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1989 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since October 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 693 mg/L July 14, 2001; Minimum daily mean, 1 mg/L several days during several years.
SEDIMENT LOADS: Maximum daily mean, 2,480 tons (2,250 tonnes) July 14, 2001; Minimum daily mean, 0.01 ton (0.01 tonne) March 19, 2001 and January 22, 2003.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, e414 mg/L April 18, 2003; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, e560 tons (e508 tonnes) April 18, 2003; Minimum daily mean, e0.01 ton (e0.01 tonne) January 22, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	24	21	4.5	24	10	0.67	9.2	2	0.05
2	33	25	4.7	21	5	0.34	9.2	2	0.05
3	56	71	39	17	5	0.24	9.3	2	0.05
4	31	21	2.1	15	4	0.18	11	2	0.06
5	17	9	0.43	15	4	0.16	11	2	0.06
6	14	7	0.26	15	4	0.17	9.5	2	0.05
7	12	7	0.23	13	4	0.15	9.3	2	0.05
8	58	74	42	12	5	0.16	9.5	2	0.05
9	42	30	3.9	13	5	0.17	9.4	2	0.05
10	32	21	2.5	13	5	0.16	8.8	2	0.05
11	20	9	0.49	12	5	0.14	8.7	2	0.05
12	16	7	0.30	13	4	0.15	8.6	2	0.05
13	15	7	0.29	15	6	0.29	8.5	2	0.05
14	30	21	2.9	20	11	1.1	8.3	2	0.04
15	56	69	32	18	7	0.38	8.1	2	0.04
16	57	54	18	15	2	0.08	8.2	2	0.03
17	36	24	2.6	14	2	0.07	10	1	0.04
18	23	12	0.78	13	2	0.07	13	1	0.04
19	19	9	0.45	11	2	0.06	9.3	2	0.04
20	17	5	0.23	11	2	0.06	11	2	0.07
21	51	49	18	13	2	0.07	9.3	3	0.07
22	28	14	1.2	11	2	0.05	38	37	11
23	20	1	0.06	10	1	0.04	16	7	0.36
24	18	1	0.05	9.9	1	0.03	11	3	0.08
25	16	1	0.04	9.8	2	0.04	9.2	2	0.05
26	15	1	0.04	11	2	0.07	8.9	2	0.05
27	14	1	0.04	11	3	0.09	9.0	2	0.05
28	13	1	0.04	9.8	3	0.09	7.8	2	0.04
29	15	3	0.19	9.8	4	0.10	7.4	2	0.03
30	e16	e3	e0.13	9.1	3	0.08	7.1	1	0.02
31	29	14	2.5	---	---	---	6.9	1	0.02
TOTAL	843	---	179.95	404.4	---	5.46	320.5	---	12.74

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	7.0	1	0.02	8.9	2	0.04	7.0	4	0.07
2	7.1	1	0.02	45	63	37	6.9	8	0.14
3	6.9	1	0.02	33	20	2.2	e6.9	e11	e0.20
4	6.5	1	0.02	40	28	3.1	6.6	10	0.17
5	6.5	1	0.02	65	110	39	6.4	7	0.12
6	6.9	1	0.02	40	34	4.2	6.2	5	0.08
7	e7.2	e1	e0.02	22	12	0.72	6.1	2	0.04
8	6.3	3	0.04	17	6	0.29	e6.0	e2	e0.04
9	7.2	5	0.09	14	2	0.06	6.0	3	0.04
10	8.5	6	0.15	12	1	0.04	6.0	3	0.05
11	12	5	0.18	11	2	0.05	6.1	3	0.05
12	6.9	3	0.06	11	2	0.06	5.9	3	0.05
13	e6.3	e1	e0.03	9.9	2	0.06	5.6	4	0.06
14	6.1	1	0.02	9.5	3	0.07	5.5	4	0.06
15	6.0	1	0.02	9.0	3	0.07	5.5	4	0.06
16	5.8	1	0.02	8.8	3	0.08	5.9	4	0.06
17	5.9	1	0.02	9.4	4	0.09	e5.3	e4	e0.06
18	5.9	1	0.02	8.7	4	0.09	5.4	4	0.06
19	6.7	1	0.02	8.0	3	0.07	6.5	4	0.07
20	5.8	1	0.02	7.8	3	0.06	e6.2	e4	e0.06
21	5.7	1	0.02	8.0	2	0.04	5.6	3	0.04
22	e5.5	e1	e0.01	7.5	1	0.02	5.4	2	0.03
23	7.3	1	0.02	7.1	1	0.02	5.3	2	0.03
24	11	1	0.04	7.0	1	0.02	5.1	3	0.04
25	49	46	20	7.1	1	0.02	5.1	3	0.04
26	45	40	8.8	6.9	1	0.02	e28	e26	e7.0
27	15	4	0.17	6.8	1	0.02	28	20	2.1
28	11	2	0.05	e7.5	e1	e0.03	12	5	0.18
29	8.9	1	0.03	---	---	---	e6.5	e3	e0.06
30	8.3	1	0.02	---	---	---	6.0	2	0.04
31	8.3	1	0.03	---	---	---	e5.0	e1	e0.02
TOTAL	312.5	---	30.02	447.9	---	87.54	234.0	---	11.12
		APRIL			MAY			JUNE	
1	e7.6	e2	e0.03	13	2	0.09	19	15	1.0
2	12	2	0.08	12	3	0.10	19	34	1.7
3	8.6	3	0.07	12	4	0.12	16	33	1.4
4	7.4	4	0.08	11	4	0.11	e15	e28	e1.1
5	18	11	1.0	11	3	0.09	14	11	0.42
6	11	6	0.18	11	2	0.06	13	6	0.20
7	7.0	4	0.07	13	2	0.07	14	5	0.19
8	5.9	3	0.04	13	2	0.07	13	5	0.16
9	5.5	2	0.04	12	2	0.07	12	4	0.14
10	5.5	2	0.03	14	7	0.39	12	3	0.11
11	15	11	1.0	13	20	0.67	11	3	0.08
12	31	27	4.0	11	19	0.55	11	2	0.07
13	13	13	0.48	11	18	0.52	11	3	0.09
14	8.1	12	0.27	12	17	0.54	11	4	0.11
15	6.8	11	0.21	11	16	0.49	11	5	0.14
16	8.8	10	0.24	10	15	0.42	11	6	0.17
17	193	328	287	54	86	40	10	5	0.14
18	e226	e414	e560	68	104	49	21	12	1.2
19	e94	e110	e33	41	30	3.8	15	5	0.25
20	50	39	5.4	70	129	48	11	3	0.10
21	33	24	2.1	131	205	160	10	4	0.11
22	31	14	1.4	90	46	12	10	4	0.12
23	34	10	1.2	59	13	2.0	9.5	5	0.13
24	49	32	7.6	38	16	1.6	9.2	5	0.12
25	42	18	2.4	29	18	1.4	9.0	5	0.12
26	26	5	0.37	24	15	0.98	8.8	5	0.11
27	20	4	0.24	21	10	0.55	8.4	5	0.11
28	17	4	0.17	19	4	0.23	8.3	5	0.10
29	15	3	0.12	18	3	0.15	8.0	5	0.10
30	14	2	0.08	17	3	0.14	7.9	4	0.10
31	---	---	---	16	3	0.13	---	---	---
TOTAL	1,015.2	---	908.90	885	---	324.34	359.1	---	9.89

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	8.5	4	0.10	6.2	5	0.09	e11	e3	e0.10
2	8.5	4	0.10	5.8	5	0.08	9.2	3	0.07
3	8.1	4	0.09	5.5	5	0.07	e51	e262	e143
4	8.0	4	0.09	7.8	4	0.09	e16	e15	e1.1
5	8.7	4	0.09	8.0	4	0.09	10	7	0.20
6	8.6	4	0.08	8.3	5	0.12	8.7	6	0.15
7	7.6	3	0.06	9.8	5	0.15	10	6	0.17
8	7.7	2	0.05	7.3	3	0.07	e12	e6	e0.19
9	8.0	2	0.04	6.5	2	0.04	e9.9	e6	e0.16
10	7.1	2	0.04	6.0	2	0.03	e8.0	e6	e0.13
11	6.9	2	0.04	6.3	2	0.03	e40	e12	e1.1
12	6.8	2	0.04	7.5	2	0.04	e95	e275	e195
13	9.3	4	0.10	5.9	2	0.03	45	40	5.7
14	8.4	6	0.13	5.8	2	0.03	e23	e11	e0.75
15	e8.0	e8	e0.17	e5.7	e2	e0.03	74	156	70
16	e9.5	e9	e0.23	e6.9	e2	e0.04	34	26	2.5
17	8.3	10	0.22	8.2	2	0.04	20	11	0.62
18	7.2	11	0.21	6.0	2	0.03	15	7	0.28
19	6.8	11	0.19	5.9	2	0.04	13	7	0.25
20	6.7	10	0.18	5.2	3	0.04	12	7	0.23
21	6.5	9	0.16	5.1	3	0.04	14	7	0.27
22	6.9	9	0.17	5.5	3	0.04	13	7	0.25
23	6.8	8	0.15	5.3	3	0.04	12	7	0.22
24	6.2	8	0.13	5.1	3	0.04	e11	e7	e0.21
25	11	11	0.53	5.8	3	0.05	108	205	369
26	e9.3	e8	e0.26	10	3	0.08	32	19	2.4
27	6.4	6	0.11	8.5	3	0.07	15	3	0.12
28	9.7	6	0.15	12	6	0.31	10	3	0.08
29	8.8	6	0.14	11	5	0.15	8.6	3	0.06
30	6.0	6	0.09	16	14	1.8	8.2	2	0.05
31	5.9	5	0.08	18	9	0.52	---	---	---
TOTAL	242.2	---	4.22	236.9	---	4.32	748.6	---	794.36
YEAR	6,049.3	2,372.86							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
SEP 25...	1656	1,180	88	2,790	8,890

50025850 RIO JAUCA AT PASO PALMA, PR

LOCATION.--Lat 18°12'50", long 66°38'44", Hydrologic Unit 21010001, 5.13 mi (8.2 km) southeast from Utuado Plaza, 4.5 mi (7.24 km) south of Lago Caonillas Dam and 6.15 mi (9.89 km) northeast from Adjuntas Plaza.

DRAINAGE AREA.--6.89 mi^2 (17.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,197 ft (365 m), from topographic map.

REMARKS.--Records fair except those for September 16-30 and estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	30	8.6	7.0	6.1	5.5	e6.4	8.5	9.5	5.8	3.9	5.5
2	14	18	8.4	7.0	47	5.4	8.1	8.2	11	5.9	4.0	4.7
3	11	25	8.2	6.8	34	5.2	12	7.8	9.4	6.0	3.7	13
4	17	17	9.0	6.4	19	5.1	9.6	7.6	9.4	5.8	3.8	6.0
5	12	16	8.8	6.4	41	4.9	12	7.4	9.1	5.8	e3.6	4.5
6	8.6	16	8.1	6.5	23	4.9	12	7.7	11	6.0	3.8	4.1
7	8.8	13	7.8	6.6	13	4.7	7.7	8.1	8.9	5.2	4.2	15
8	11	12	8.4	6.2	10	4.7	6.7	8.7	8.5	5.2	4.1	11
9	14	19	8.3	6.2	9.2	4.6	6.7	7.8	8.3	5.4	3.7	5.8
10	36	24	7.6	6.6	8.5	4.6	6.9	7.4	8.1	5.0	3.5	4.8
11	14	16	7.5	6.8	8.1	4.6	6.7	7.6	7.9	5.0	5.3	70
12	10	24	7.3	6.1	7.7	4.5	11	7.3	7.8	4.7	5.3	20
13	8.8	15	7.2	6.0	7.5	4.4	9.5	7.0	7.5	5.0	5.6	18
14	14	13	7.1	5.8	7.8	4.3	7.5	7.3	7.4	5.3	6.5	7.6
15	77	16	7.0	5.7	7.1	4.3	6.6	7.5	7.3	4.8	4.5	71
16	22	28	7.1	5.6	6.8	4.3	6.6	7.8	7.3	6.0	4.0	24
17	17	15	39	5.6	7.0	4.2	51	35	7.1	5.6	4.0	14
18	16	12	19	5.5	6.8	4.1	137	29	9.4	4.6	3.8	e12
19	14	11	8.7	6.2	6.5	4.4	37	13	9.4	4.4	3.9	19
20	13	10	7.9	5.5	6.5	4.3	18	14	7.9	4.2	3.7	16
21	78	9.9	7.4	5.4	6.3	4.2	13	62	6.9	4.1	3.6	45
22	24	10	65	5.3	6.0	4.1	14	89	6.8	4.0	3.5	19
23	18	9.4	19	5.6	5.9	3.9	18	31	6.5	4.0	3.7	14
24	16	9.1	12	10	5.7	3.9	22	16	6.4	3.7	3.5	14
25	15	8.8	9.5	17	5.9	3.9	21	12	6.1	10	3.7	82
26	14	9.0	8.8	17	5.6	9.6	15	11	6.1	11	5.1	32
27	14	9.8	8.9	7.8	5.6	16	12	9.7	6.2	4.6	5.3	17
28	13	9.0	7.9	6.7	5.8	9.6	10	9.0	6.2	4.7	4.4	9.6
29	13	9.6	7.5	6.2	---	8.9	9.6	8.6	5.9	4.5	4.9	e9.4
30	15	10	7.3	6.0	---	8.4	9.0	8.1	5.7	4.0	8.4	e9.4
31	23	---	7.0	5.9	---	e6.5	---	7.9	---	3.9	8.7	---
TOTAL	594.2	444.6	361.3	217.4	329.4	172.0	522.6	479.0	235.0	164.2	139.7	597.4
MEAN	19.2	14.8	11.7	7.01	11.8	5.55	17.4	15.5	7.83	5.30	4.51	19.9
MAX	78	30	65	17	47	16	137	89	11	11	8.7	82
MIN	8.6	8.8	7.0	5.3	5.6	3.9	6.4	7.0	5.7	3.7	3.5	4.1
AC-FT	1,180	882	717	431	653	341	1,040	950	466	326	277	1,180
CFSM	2.78	2.15	1.69	1.02	1.71	0.81	2.53	2.24	1.14	0.77	0.65	2.89
IN.	3.21	2.40	1.95	1.17	1.78	0.93	2.82	2.59	1.27	0.89	0.75	3.23

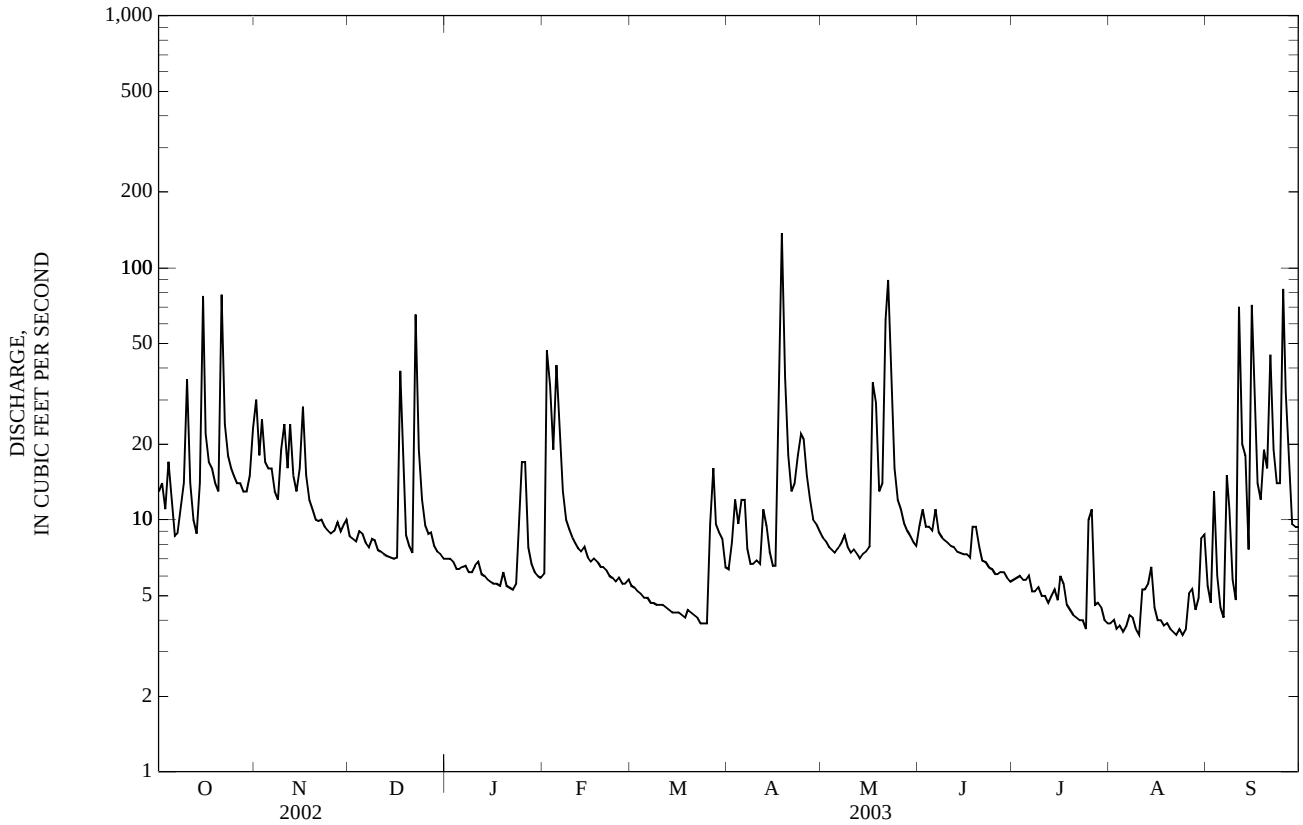
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	27.9	23.1	15.0	8.23	8.06	6.00	18.7	17.2	8.53	7.76	11.7	27.0
MAX	45.9	30.4	22.7	11.3	11.8	7.10	32.1	21.9	9.12	13.7	18.9	43.4
(WY)	(2001)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2001)	(2001)	(2001)	(2000)	(2000)
MIN	18.6	14.8	10.7	6.34	5.04	5.36	6.60	14.2	7.83	5.30	4.51	9.72
(WY)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2002)	(2003)	(2003)	(2003)	(2002)

50025850 RIO JAUCA AT PASO PALMA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	4,616.9		4,256.8			
ANNUAL MEAN	12.6		11.7		14.4	
HIGHEST ANNUAL MEAN					16.6	2001
LOWEST ANNUAL MEAN					11.7	2003
HIGHEST DAILY MEAN	83	Apr 25	137	Apr 18	235	Aug 23, 2000
LOWEST DAILY MEAN	4.8	Mar 26	3.5	Aug 10	3.5	Mar 17, 2001
ANNUAL SEVEN-DAY MINIMUM	5.0	Mar 22	3.7	Aug 19	3.6	Mar 14, 2001
MAXIMUM PEAK FLOW			870	Sep 25	1,590	May 6, 2001
MAXIMUM PEAK STAGE			5.10	Sep 25	6.59	May 6, 2001
INSTANTANEOUS LOW FLOW					3.2	Mar 17, 2001
ANNUAL RUNOFF (AC-FT)	9,160		8,440		10,410	
ANNUAL RUNOFF (CFSM)	0.000		0.000		0.000	
ANNUAL RUNOFF (INCHES)	0.00		0.00		0.00	
10 PERCENT EXCEEDS	21		19		29	
50 PERCENT EXCEEDS	9.0		7.8		8.9	
90 PERCENT EXCEEDS	5.9		4.3		4.9	

e Estimated



50025850 RIO JAUCA AT PASO PALMA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 2000 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 911 mg/L September 21, 2001; Minimum daily mean, 1 mg/L during water years 2001 and 2002.
SEDIMENT LOADS: Maximum daily mean, 1,050 tons (952 tonnes) September 21, 2001; Minimum daily mean, 0.01 ton (0.01 tonne) several days during water year 2001.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 654 mg/L April 18, 2003; Minimum daily mean, 2 mg/L April 12 and September 6, 2003.
SEDIMENT LOADS: Maximum daily mean, 646 tons (586 tonnes) April 18, 2003; Minimum daily mean, 0.02 ton (0.02 tonne) September 6, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	26	4.3	30	72	8.3	8.6	10	0.23
2	14	29	1.5	18	43	2.2	8.4	9	0.21
3	11	17	0.51	25	65	11	8.2	9	0.20
4	17	33	2.2	17	32	1.5	9.0	8	0.19
5	12	23	0.86	16	32	1.8	8.8	7	0.16
6	8.6	16	0.38	16	20	0.99	8.1	5	0.12
7	8.8	16	0.38	13	11	0.38	7.8	5	0.11
8	11	23	1.4	12	10	0.33	8.4	5	0.12
9	14	29	1.4	19	37	4.2	8.3	6	0.13
10	36	260	109	24	54	7.4	7.6	6	0.12
11	14	25	1.0	16	19	0.97	7.5	4	0.09
12	10	17	0.48	24	56	11	7.3	4	0.08
13	8.8	17	0.41	15	34	1.4	7.2	4	0.08
14	14	28	1.3	13	31	1.1	7.1	4	0.08
15	77	323	314	16	41	2.4	7.0	4	0.08
16	22	64	3.9	28	86	16	7.1	4	0.08
17	17	42	1.9	15	28	1.2	39	150	75
18	16	33	1.5	12	18	0.62	19	46	4.4
19	14	26	1.0	11	17	0.52	8.7	8	0.19
20	13	24	0.85	10	16	0.46	7.9	6	0.14
21	78	389	315	9.9	15	0.41	7.4	6	0.12
22	24	52	3.6	10	14	0.38	65	638	347
23	18	28	1.4	9.4	13	0.33	19	40	2.5
24	16	16	0.69	9.1	13	0.31	12	10	0.33
25	15	9	0.36	8.8	12	0.29	9.5	12	0.30
26	14	9	0.34	9.0	12	0.29	8.8	14	0.32
27	14	9	0.32	9.8	11	0.30	8.9	15	0.37
28	13	8	0.29	9.0	11	0.27	7.9	15	0.33
29	13	8	0.29	9.6	11	0.28	7.5	14	0.29
30	15	8	0.33	10	10	0.28	7.3	13	0.26
31	23	38	10	---	---	---	7.0	12	0.23
TOTAL	594.2	---	780.89	444.6	---	76.91	361.3	---	433.86

50025850 RIO JAUCA AT PASO PALMA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	7.0	11	0.21	6.1	5	0.08	5.5	7	0.10
2	7.0	10	0.19	47	217	183	5.4	7	0.10
3	6.8	9	0.17	34	101	15	5.2	8	0.11
4	6.4	8	0.14	19	36	2.1	5.1	8	0.11
5	6.4	7	0.13	41	145	58	4.9	8	0.10
6	6.5	6	0.11	23	55	4.2	4.9	7	0.10
7	6.6	5	0.10	13	11	0.40	4.7	7	0.09
8	6.2	7	0.12	10	7	0.20	4.7	10	0.13
9	6.2	10	0.17	9.2	7	0.17	4.6	14	0.18
10	6.6	13	0.23	8.5	6	0.14	4.6	12	0.15
11	6.8	12	0.22	8.1	6	0.12	4.6	5	0.07
12	6.1	10	0.17	7.7	5	0.11	4.5	4	0.05
13	6.0	8	0.12	7.5	5	0.09	4.4	4	0.05
14	5.8	5	0.09	7.8	4	0.09	4.3	4	0.05
15	5.7	4	0.07	7.1	5	0.09	4.3	5	0.06
16	5.6	4	0.06	6.8	10	0.19	4.3	6	0.07
17	5.6	3	0.05	7.0	18	0.34	4.2	8	0.09
18	5.5	3	0.05	6.8	24	0.44	4.1	9	0.10
19	6.2	4	0.06	6.5	21	0.37	4.4	10	0.12
20	5.5	4	0.06	6.5	15	0.27	4.3	10	0.12
21	5.4	5	0.07	6.3	10	0.17	4.2	10	0.11
22	5.3	5	0.07	6.0	8	0.13	4.1	10	0.11
23	5.6	3	0.05	5.9	7	0.11	3.9	10	0.11
24	10	28	2.6	5.7	5	0.08	3.9	10	0.10
25	17	96	5.2	5.9	4	0.07	3.9	10	0.10
26	17	68	4.8	5.6	5	0.08	9.6	17	0.93
27	7.8	7	0.16	5.6	6	0.09	16	26	1.6
28	6.7	6	0.11	5.8	6	0.10	9.6	8	0.21
29	6.2	5	0.09	---	---	---	8.9	7	0.16
30	6.0	5	0.08	---	---	---	8.4	5	0.11
31	5.9	5	0.08	---	---	---	e6.5	e6	e0.11
TOTAL	217.4	---	15.83	329.4	---	266.23	172.0	---	5.60
		APRIL			MAY			JUNE	
1	e6.4	e9	e0.15	8.5	18	0.41	9.5	9	0.22
2	8.1	6	0.12	8.2	18	0.39	11	8	0.26
3	12	16	0.92	7.8	17	0.36	9.4	8	0.21
4	9.6	12	0.38	7.6	17	0.35	9.4	8	0.21
5	12	17	0.88	7.4	17	0.34	9.1	8	0.21
6	12	11	0.43	7.7	17	0.34	11	9	0.25
7	7.7	5	0.10	8.1	16	0.36	8.9	9	0.22
8	6.7	4	0.08	8.7	16	0.38	8.5	9	0.21
9	6.7	4	0.07	7.8	16	0.33	8.3	10	0.22
10	6.9	3	0.06	7.4	16	0.31	8.1	11	0.23
11	6.7	3	0.05	7.6	15	0.31	7.9	16	0.33
12	11	2	0.06	7.3	15	0.30	7.8	21	0.45
13	9.5	3	0.07	7.0	13	0.25	7.5	27	0.55
14	7.5	3	0.07	7.3	11	0.22	7.4	29	0.58
15	6.6	4	0.08	7.5	9	0.19	7.3	17	0.33
16	6.6	5	0.09	7.8	9	0.18	7.3	5	0.10
17	51	186	64	35	133	67	7.1	14	0.26
18	137	654	646	29	80	12	9.4	12	0.31
19	37	123	15	13	26	1.0	9.4	9	0.23
20	18	30	1.5	14	147	8.8	7.9	6	0.13
21	13	14	0.49	62	256	115	6.9	3	0.06
22	14	13	0.49	89	390	280	6.8	3	0.06
23	18	27	1.6	31	85	8.8	6.5	4	0.07
24	22	42	2.9	16	34	1.5	6.4	4	0.07
25	21	38	2.4	12	24	0.80	6.1	5	0.08
26	15	15	0.60	11	14	0.40	6.1	6	0.09
27	12	14	0.45	9.7	10	0.26	6.2	6	0.10
28	10	15	0.43	9.0	10	0.23	6.2	7	0.12
29	9.6	17	0.43	8.6	9	0.22	5.9	10	0.15
30	9.0	18	0.43	8.1	9	0.20	5.7	12	0.19
31	---	---	---	7.9	9	0.19	---	---	---
TOTAL	522.6	---	740.33	479.0	---	501.42	235.0	---	6.50

50025850 RIO JAUCA AT PASO PALMA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	5.8	14	0.23	3.9	9	0.09	5.5	9	0.13
2	5.9	12	0.20	4.0	9	0.10	4.7	5	0.06
3	6.0	9	0.15	3.7	12	0.12	13	26	2.8
4	5.8	7	0.10	3.8	15	0.16	6.0	9	0.16
5	5.8	4	0.07	e3.6	e16	e0.16	4.5	5	0.06
6	6.0	5	0.08	3.8	9	0.09	4.1	2	0.02
7	5.2	5	0.08	4.2	3	0.04	15	35	6.1
8	5.2	6	0.08	4.1	5	0.06	11	21	0.71
9	5.4	6	0.09	3.7	8	0.08	5.8	14	0.23
10	5.0	6	0.08	3.5	8	0.08	4.8	14	0.17
11	5.0	6	0.08	5.3	8	0.11	70	308	203
12	4.7	6	0.08	5.3	8	0.11	20	44	2.7
13	5.0	6	0.09	5.6	8	0.12	18	38	2.4
14	5.3	7	0.10	6.5	8	0.14	7.6	15	0.31
15	4.8	7	0.09	4.5	8	0.10	71	188	54
16	6.0	6	0.10	4.0	8	0.09	24	54	3.6
17	5.6	5	0.07	4.0	8	0.09	14	47	1.8
18	4.6	4	0.05	3.8	9	0.09	e12	e46	e1.6
19	4.4	3	0.04	3.9	9	0.09	19	67	6.0
20	4.2	3	0.04	3.7	8	0.08	16	88	3.7
21	4.1	4	0.04	3.6	6	0.06	45	243	87
22	4.0	4	0.04	3.5	4	0.04	19	24	1.4
23	4.0	4	0.04	3.7	3	0.03	14	13	0.50
24	3.7	3	0.03	3.5	3	0.03	14	13	0.46
25	10	34	3.7	3.7	4	0.04	82	460	475
26	11	22	1.3	5.1	4	0.06	32	291	27
27	4.6	6	0.08	5.3	7	0.10	17	158	7.9
28	4.7	7	0.09	4.4	10	0.12	9.6	25	0.69
29	4.5	8	0.10	4.9	12	0.16	e9.4	e13	e0.44
30	4.0	8	0.09	8.4	21	0.80	e9.4	e10	e0.39
31	3.9	9	0.09	8.7	18	0.46	---	---	---
TOTAL	164.2	---	7.50	139.7	---	3.90	597.4	---	890.33
YEAR	4,256.8	3,729.30							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT					
21...	1755	312	98	2,840	2,390
SEP					
11...	1759	371	98	1,480	1,480
21...	1409	262	93	1,120	794

50025850 RIO JAUCA AT PASO PALMA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
DEC													
22...	1715	236	57	70	80	92	93	97	98	99	99	100	3,000

Date	Suspended sediment discharge, tons/d (80155)
DEC	
22...	1,910

50026025 RIO CAONILLAS AT PASO PALMA, PR

LOCATION.--Lat 18°13'53", long 66°38'14", Hydrologic Unit 21010001, 3.5 mi (5.6 km) south of Lago Caonillas Dam, 4.8 mi (7.72 km) southeast of Utuado Plaza and 2.78 mi (4.47 km) east of Lago Viví Dam.

DRAINAGE AREA.--37.9 mi^2 (98.3 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 984 ft (300 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e36	e77	26	23	23	22	e31	47	57	27	19	30
2	e71	e59	26	24	69	22	41	44	62	24	17	30
3	e97	e53	26	23	162	21	38	41	47	22	15	146
4	e90	e43	29	21	127	20	35	40	43	21	18	73
5	e58	e38	31	22	177	20	39	38	40	21	21	36
6	e42	e41	28	22	127	19	46	38	41	23	21	26
7	e65	e33	26	23	69	19	29	42	38	20	28	38
8	e77	e32	28	21	53	19	24	45	37	19	24	51
9	e93	e39	29	21	44	18	23	39	35	20	17	34
10	e85	e48	25	23	39	18	23	36	33	18	16	26
11	e61	e40	23	27	36	17	23	40	32	17	57	98
12	e48	e45	23	22	34	17	56	34	32	16	33	124
13	e44	e51	23	21	32	17	42	32	31	20	21	139
14	e83	e38	22	20	32	16	29	32	30	23	36	83
15	e152	45	22	20	30	16	23	33	29	19	31	175
16	e106	51	22	20	29	16	25	32	29	23	19	104
17	e94	40	65	19	29	16	215	83	29	22	21	64
18	e69	34	62	19	28	16	431	140	51	18	18	49
19	e59	32	29	20	27	18	211	93	51	17	18	50
20	e54	29	29	19	25	19	121	209	33	16	16	47
21	e125	32	24	18	25	18	101	506	30	18	15	133
22	e90	30	108	18	24	17	99	305	29	16	15	84
23	e61	29	75	19	23	17	122	184	26	16	16	57
24	e51	27	41	28	23	16	145	115	25	15	14	44
25	e46	26	32	88	23	16	139	88	25	25	18	163
26	e44	27	31	119	23	44	97	72	24	46	25	143
27	e39	30	32	38	23	83	76	63	23	20	26	87
28	e26	27	27	29	23	58	63	57	22	22	24	58
29	e34	32	25	24	---	44	56	52	21	24	33	48
30	e44	32	24	24	---	39	51	49	21	17	45	44
31	e51	---	24	23	---	24	---	45	---	16	51	---
TOTAL	2,095	1,160	1,037	858	1,379	742	2,454	2,674	1,026	641	748	2,284
MEAN	67.6	38.7	33.5	27.7	49.2	23.9	81.8	86.3	34.2	20.7	24.1	76.1
MAX	152	77	108	119	177	83	431	506	62	46	57	175
MIN	26	26	22	18	23	16	23	32	21	15	14	26
AC-FT	4,160	2,300	2,060	1,700	2,740	1,470	4,870	5,300	2,040	1,270	1,480	4,530
CFSM	1.78	1.02	0.88	0.73	1.30	0.63	2.16	2.27	0.90	0.55	0.64	2.01
IN.	2.05	1.14	1.02	0.84	1.35	0.73	2.41	2.62	1.01	0.63	0.73	2.24

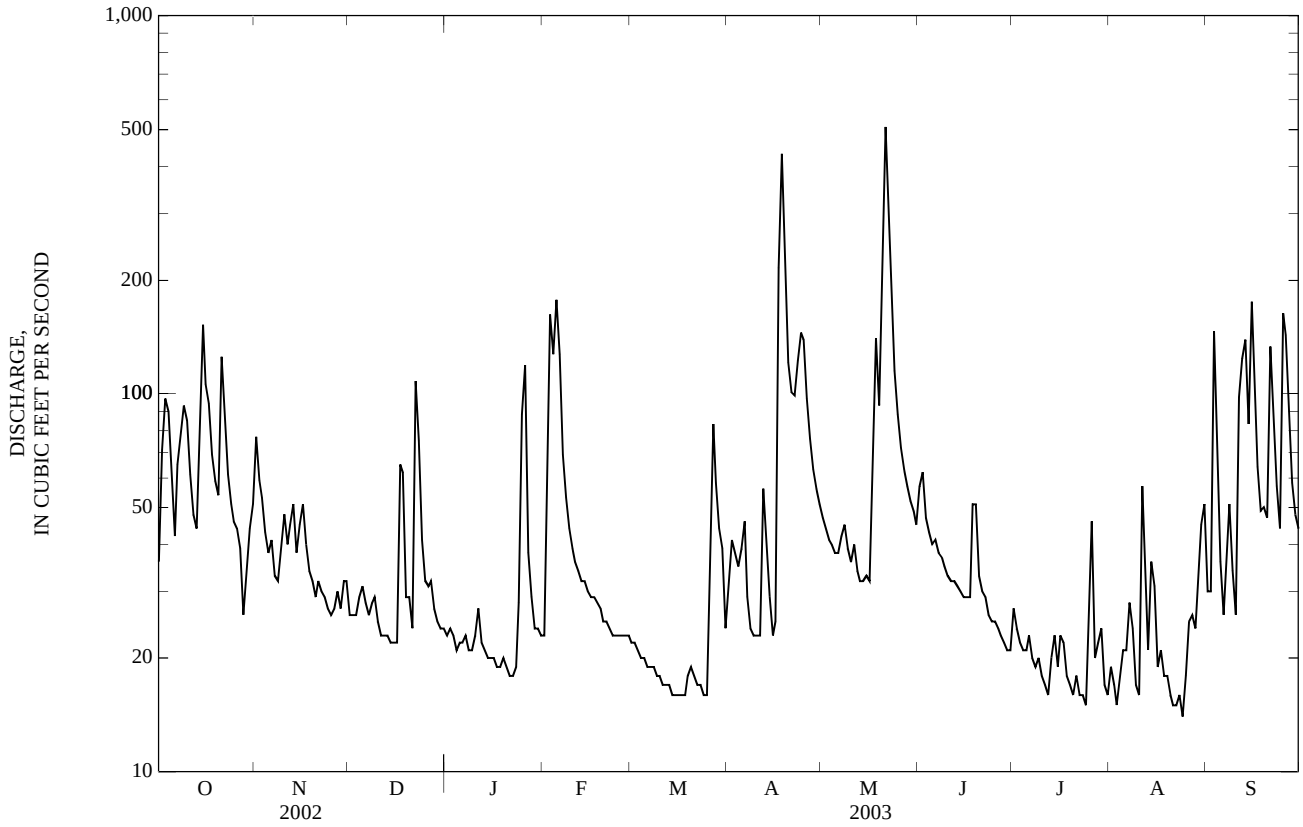
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	145	128	71.5	53.2	48.4	36.7	77.7	87.4	65.2	48.6	77.8	248
MAX	248	292	143	89.8	86.0	51.4	235	130	161	117	156	815
(WY)	(1999)	(2000)	(2000)	(1997)	(1996)	(2002)	(2002)	(1998)	(1999)	(1996)	(1998)	(1998)
MIN	63.7	38.7	21.0	19.6	24.0	23.9	17.0	29.1	16.1	15.5	24.1	33.2
(WY)	(2002)	(2003)	(1998)	(1998)	(2001)	(2003)	(1997)	(1997)	(1997)	(1997)	(2003)	(1997)

50026025 RIO CAONILLAS AT PASO PALMA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	24,315		17,098			
ANNUAL MEAN	66.6		46.8		90.6	
HIGHEST ANNUAL MEAN					137	1998
LOWEST ANNUAL MEAN					46.8	2003
HIGHEST DAILY MEAN	727	Apr 27	506	May 21	13,000	Sep 22, 1998
LOWEST DAILY MEAN	21	Mar 5	14	Aug 24	10	Jul 4, 1997
ANNUAL SEVEN-DAY MINIMUM	22	Mar 3	16	Aug 18	11	Jul 1, 1997
MAXIMUM PEAK FLOW			3,850	May 21	36,000	Sep 22, 1998
MAXIMUM PEAK STAGE			13.13	May 21	31.15	Sep 22, 1998
INSTANTANEOUS LOW FLOW			13	Jul 24	9.5	Jul 6, 1997
ANNUAL RUNOFF (AC-FT)	48,230		33,910		65,620	
ANNUAL RUNOFF (CFSM)	1.76		1.23		2.39	
ANNUAL RUNOFF (INCHES)	23.84		16.76		32.44	
10 PERCENT EXCEEDS	118		93		180	
50 PERCENT EXCEEDS	44		31		48	
90 PERCENT EXCEEDS	25		18		21	

e Estimated



50026025 RIO CAONILLAS AT PASO PALMA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- October 1995 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1995 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1996.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediments samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 24,800 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several years.
SEDIMENT LOADS: Maximum daily mean, e952,000 tons (e864,000 tonnes) September 22, 1998; Minimum daily mean, 0.04 ton (0.03 tonne) December 29-30, 1998.

EXTREMES FOR CURRENT YEAR 2003.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,640 mg/L May 21, 2003; Minimum daily mean, 2 mg/L February 22, 23, and May 11, 2003.
SEDIMENT LOADS: Maximum daily mean, 6,700 tons (6,078 tonnes) May 21, 2003; Minimum daily mean, 0.14 ton (0.13 tonne) March 15, 16, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	e36	e55	e8.5	e77	e77	e20	26	16	1.2
2	e71	e133	e26	e59	e44	e7.4	26	13	0.94
3	e97	e176	e83	e53	e46	e8.3	26	10	0.71
4	e90	e100	e29	e43	e31	e3.6	29	7	0.57
5	e58	e39	e6.5	e38	e28	e2.9	31	7	0.62
6	e42	e16	e1.9	e41	e28	e3.1	28	8	0.59
7	e65	e99	e46	e33	e27	e2.4	26	8	0.58
8	e77	e154	e94	e32	e26	e2.3	28	9	0.66
9	e93	e112	e36	e39	e30	e3.6	29	9	0.68
10	e85	e103	e36	e48	e43	e6.0	25	8	0.52
11	e61	e53	e8.8	e40	e35	e3.7	23	6	0.39
12	e48	e39	e5.1	e45	e43	e6.4	23	6	0.38
13	e44	e28	e3.3	e51	e43	e6.3	23	6	0.37
14	e83	e167	e91	e38	e34	e3.6	22	6	0.36
15	e152	e541	e417	45	34	4.1	22	6	0.35
16	e106	e137	e48	51	53	9.6	22	6	0.36
17	e94	e85	e24	40	24	2.6	65	182	141
18	e69	e31	e5.9	34	20	1.8	62	154	33
19	e59	e25	e4.0	32	17	1.4	29	79	6.3
20	e54	e25	e3.6	29	13	1.1	29	58	4.5
21	e125	e395	e320	32	13	1.1	24	36	2.4
22	e90	e99	e28	30	12	1.0	108	360	285
23	e61	e25	e4.2	29	12	0.95	75	82	20
24	e51	e22	e3.1	27	12	0.87	41	39	4.3
25	e46	e20	e2.5	26	11	0.77	32	35	3.0
26	e44	e17	e2.1	27	10	0.71	31	31	2.6
27	e39	e16	e1.6	30	8	0.67	32	28	2.4
28	e26	e17	e1.7	27	8	0.58	27	24	1.8
29	e34	e20	e1.8	32	11	1.3	25	14	0.99
30	e44	e22	e2.6	32	18	1.6	24	4	0.29
31	e51	e51	e14	---	---	---	24	4	0.23
TOTAL	2,095	---	1,359.2	1,160	---	109.75	1,037	---	517.09

50026025 RIO CAONILLAS AT PASO PALMA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	23	4	0.22	23	7	0.46	22	15	0.92
2	24	6	0.37	69	223	164	22	6	0.34
3	23	8	0.51	162	655	603	21	6	0.32
4	21	11	0.61	127	260	94	20	7	0.40
5	22	13	0.74	177	693	687	20	9	0.46
6	22	13	0.75	127	281	121	19	8	0.40
7	23	12	0.77	69	56	11	19	6	0.33
8	21	12	0.68	53	18	2.5	19	5	0.26
9	21	12	0.66	44	15	1.7	18	4	0.20
10	23	11	0.72	39	17	1.8	18	4	0.19
11	27	11	0.82	36	19	1.9	17	4	0.19
12	22	11	0.64	34	21	2.0	17	4	0.19
13	21	8	0.47	32	19	1.7	17	4	0.17
14	20	6	0.33	32	16	1.4	16	3	0.15
15	20	5	0.25	30	13	1.0	16	3	0.14
16	20	6	0.34	29	10	0.77	16	3	0.14
17	19	9	0.45	29	8	0.61	16	5	0.19
18	19	11	0.57	28	6	0.44	16	6	0.25
19	20	12	0.68	27	4	0.29	18	7	0.33
20	19	10	0.52	25	3	0.23	19	6	0.30
21	18	8	0.40	25	3	0.20	18	5	0.24
22	18	6	0.30	24	2	0.16	17	4	0.18
23	19	7	0.37	23	2	0.15	17	3	0.15
24	28	10	0.96	23	4	0.26	16	3	0.15
25	88	203	105	23	6	0.39	16	4	0.16
26	119	285	156	23	11	0.69	44	49	15
27	38	32	3.3	23	33	2.0	83	103	29
28	29	28	2.1	23	27	1.7	58	32	6.5
29	24	23	1.5	---	---	---	44	17	2.2
30	24	17	1.1	---	---	---	39	10	1.0
31	23	12	0.77	---	---	---	24	10	0.66
TOTAL	858	---	282.90	1,379	---	1,702.35	742	---	61.11
		APRIL			MAY			JUNE	
1	e31	e10	e0.80	47	5	0.63	57	41	13
2	41	10	1.1	44	5	0.59	62	29	6.3
3	38	10	0.99	41	5	0.56	47	4	0.54
4	35	9	0.88	40	6	0.60	43	22	2.5
5	39	47	7.2	38	8	0.82	40	30	3.3
6	46	49	7.3	38	11	1.1	41	23	2.5
7	29	22	1.7	42	12	1.4	38	15	1.5
8	24	18	1.1	45	10	1.2	37	9	0.93
9	23	14	0.86	39	7	0.76	35	8	0.77
10	23	12	0.71	36	4	0.44	33	8	0.68
11	23	9	0.59	40	2	0.26	32	7	0.62
12	56	24	4.7	34	3	0.28	32	7	0.60
13	42	18	2.5	32	4	0.35	31	7	0.58
14	29	8	0.60	32	5	0.43	30	7	0.56
15	23	8	0.52	33	5	0.45	29	8	0.60
16	25	9	0.60	32	5	0.43	29	11	0.89
17	215	648	688	83	244	200	29	15	1.2
18	431	1,500	2,870	140	428	253	51	71	18
19	211	749	512	93	148	47	51	26	3.9
20	121	77	26	209	1,220	1,600	33	5	0.44
21	101	53	14	506	1,640	6,700	30	4	0.35
22	99	37	9.6	305	1,040	1,130	29	5	0.37
23	122	148	71	184	439	252	26	8	0.59
24	145	382	194	115	48	15	25	12	0.83
25	139	207	92	88	33	8.0	25	15	1.0
26	97	18	4.8	72	27	5.3	24	15	0.98
27	76	12	2.6	63	22	3.7	23	14	0.87
28	63	10	1.7	57	10	1.5	22	13	0.77
29	56	7	1.1	52	5	0.77	21	17	0.96
30	51	5	0.71	49	5	0.65	21	24	1.3
31	---	---	---	45	4	0.54	---	---	---
TOTAL	2,454	---	4,519.66	2,674	---	10,227.76	1,026	---	67.43

50026025 RIO CAONILLAS AT PASO PALMA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	27	29	2.1	19	19	0.95	30	61	4.9
2	24	31	2.0	17	12	0.52	30	73	6.0
3	22	26	1.5	15	5	0.19	146	960	1,040
4	21	20	1.1	18	4	0.20	73	107	30
5	21	14	0.81	21	4	0.22	36	29	2.8
6	23	9	0.58	21	5	0.30	26	24	1.7
7	20	8	0.42	28	11	1.2	38	44	7.5
8	19	7	0.35	24	11	0.78	51	56	8.0
9	20	7	0.38	17	8	0.35	34	18	1.7
10	18	11	0.51	16	6	0.28	26	14	0.95
11	17	15	0.65	57	141	82	98	316	276
12	16	19	0.80	33	40	3.6	124	372	239
13	20	21	1.1	21	40	2.3	139	333	169
14	23	16	0.96	36	63	13	83	165	44
15	19	10	0.51	31	18	2.1	175	577	357
16	23	5	0.34	19	5	0.26	104	147	44
17	22	5	0.31	21	5	0.28	64	78	14
18	18	5	0.26	18	5	0.26	49	53	7.1
19	17	6	0.25	18	6	0.28	50	41	6.3
20	16	6	0.26	16	6	0.26	47	37	4.8
21	18	6	0.27	15	6	0.26	133	435	338
22	16	5	0.23	15	7	0.27	84	109	28
23	16	5	0.22	16	7	0.29	57	43	7.0
24	15	5	0.20	14	8	0.29	44	23	2.8
25	25	14	2.5	18	10	0.50	163	710	1,240
26	46	32	5.1	25	14	0.91	143	377	175
27	20	16	0.87	26	12	0.86	87	125	31
28	22	12	0.72	24	10	0.65	58	24	3.9
29	24	10	0.69	33	10	0.89	48	15	1.9
30	17	10	0.49	45	50	13	44	14	1.7
31	16	16	0.69	51	50	6.8	---	---	---
TOTAL	641	---	27.17	748	---	134.05	2,284	---	4,094.05
YEAR	17,098	23,102.52							

e Estimated

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

LOCATION.--Lat 18°13'26", long 66°38'22", 300 ft (9 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya Plaza.

DRAINAGE AREA.--40.4 mi^2 (104.6 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
10...	1545	24	2.9	8.4	105	7.2	236	25.6	84	22.6	6.71	1.49	.6
MAR													
20...	1100	17	3.4	8.6	--	8.2	265	24.7	96	25.6	7.69	1.61	.7
MAY													
21...	1300	111	24	7.3	--	7.7	175	24.5	64	16.6	5.44	1.87	.5
AUG													
20...	1130	14	4.7	9.1	--	8.3	255	27.8	--	--	--	--	--
SEP													
15...	1320	E300	570	8.2	--	7.7	146	24.5	53	14.6	4.08	1.95	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
10...	11.7	84	11.1	<.17	22.9	13.5	--	140	9.06	<10	.20	<.01	--
MAR													
20...	15.4	88	15.2	.10	21.2	15.9	<.1	155	7.22	<10	<.20	.02	--
MAY													
21...	9.43	56	9.50	<.2	21.9	11.3	.2	109	32.9	<10	.30	.02	--
AUG													
20...	--	89	--	--	--	--	--	--	--	--	<.20	.02	--
SEP													
15...	7.01	51	7.48	<.2	17.4	9.2	--	92	74.6	488	1.6	.08	.48

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
10...	.690	<.01	--	.05	.89	3.9	<10	E67	E80	--	--	--	--
MAR													
20...	.380	<.01	--	.05	--	--	<10	94	--	E620	E1	27.4	E15
MAY													
21...	.960	<.01	.28	.08	1.3	5.6	10	E1,200	--	6,200	<2	29.8	E13
AUG													
20...	.270	<.01	--	.04	--	--	--	64	--	300	--	--	--
SEP													
15...	.510	.03	1.5	.44	2.1	9.3	40	15,000	--	E8,000	--	--	--

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
20...	<.2	<.8	<10	<.01	90	<1	24.0	<.02	<3	<.3	<25	<.10	<16
MAY													
21...	<.2	E.4	10	<.01	770	M	59.6	<.02	<3	<.3	33	<.10	<16
AUG													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50026200 RIO CAONILLAS BLW LAGO CAONILLAS TUNNEL, PR

LOCATION.--Lat 18°17'57", long 66°38'36", Hydrologic Unit 21010001, on left bank at Río Caonillas Tunnel 1.6 mi (2.6 km) downstream of Lago Caonillas Dam, 3.1 mi (5.0 km) southeast from Central Hidroelétrica of Lago Dos Bocas, 2.6 mi (4.2 km) west from Escuela Segunda Unidad de Mameyes.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage 295 ft (90 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	e47	69	36	74	59	50	15	22	32	33	390
2	67	110	69	36	36	59	52	3.8	16	32	33	380
3	66	139	69	36	36	59	52	1.6	6.5	32	33	375
4	64	88	69	36	36	59	52	1.7	3.9	32	36	372
5	63	39	72	36	37	60	51	1.5	3.0	32	37	370
6	62	5.1	76	36	36	60	51	1.4	3.3	32	34	368
7	77	5.1	76	36	34	60	51	1.3	2.7	32	34	367
8	74	4.2	76	36	33	60	51	1.6	2.3	32	33	365
9	67	3.7	76	36	33	60	51	4.5	1.9	32	33	363
10	69	3.6	75	36	33	55	50	4.4	1.7	32	33	362
11	70	3.6	75	36	32	86	50	2.1	1.6	32	33	361
12	66	3.4	75	36	32	61	49	1.6	1.5	31	34	359
13	67	32	75	36	33	61	49	1.5	1.5	32	124	359
14	134	18	75	36	31	61	49	1.4	1.4	32	287	356
15	70	15	75	35	28	61	49	1.4	1.3	32	254	354
16	52	12	75	71	13	61	49	1.3	1.4	32	253	352
17	42	8.1	75	35	12	142	49	4.2	2.7	32	253	351
18	39	6.4	68	35	26	51	63	3.4	14	32	172	336
19	39	5.5	74	35	29	150	64	9.0	8.4	32	3.8	288
20	38	4.9	74	35	30	65	62	21	3.8	32	63	7.8
21	35	4.7	73	35	29	71	63	13	2.7	32	163	12
22	34	4.6	74	35	41	60	276	5.0	2.3	32	159	5.0
23	36	4.5	55	35	55	60	12	3.5	1.9	32	165	3.0
24	e34	4.3	37	62	55	60	18	3.2	1.7	32	163	3.3
25	e32	4.1	37	48	50	123	31	2.6	5.4	44	122	4.6
26	e32	4.6	32	51	30	62	28	2.1	25	38	84	4.0
27	e31	36	36	42	66	61	23	1.9	32	34	266	3.2
28	e30	68	36	40	59	57	21	1.7	32	33	393	2.7
29	e31	70	36	40	---	58	21	1.5	32	34	391	2.4
30	e32	68	36	39	---	62	18	1.4	31	33	419	2.2
31	e41	---	36	40	---	54	---	1.3	---	33	455	---
TOTAL	1,659	822.4	1,956	1,217	1,039	2,118	1,555	120.9	266.9	1,016	4,595.8	6,878.2
MEAN	53.5	27.4	63.1	39.3	37.1	68.3	51.8	3.90	8.90	32.8	148	229
MAX	134	139	76	71	74	150	276	21	32	44	455	390
MIN	30	3.4	32	35	12	51	12	1.3	1.3	31	3.8	2.2
AC-FT	3,290	1,630	3,880	2,410	2,060	4,200	3,080	240	529	2,020	9,120	13,640
CFSM	1.05	0.54	1.24	0.77	0.73	1.34	1.02	0.08	0.18	0.65	2.92	4.51
IN.	1.21	0.60	1.43	0.89	0.76	1.55	1.14	0.09	0.20	0.74	3.37	5.04

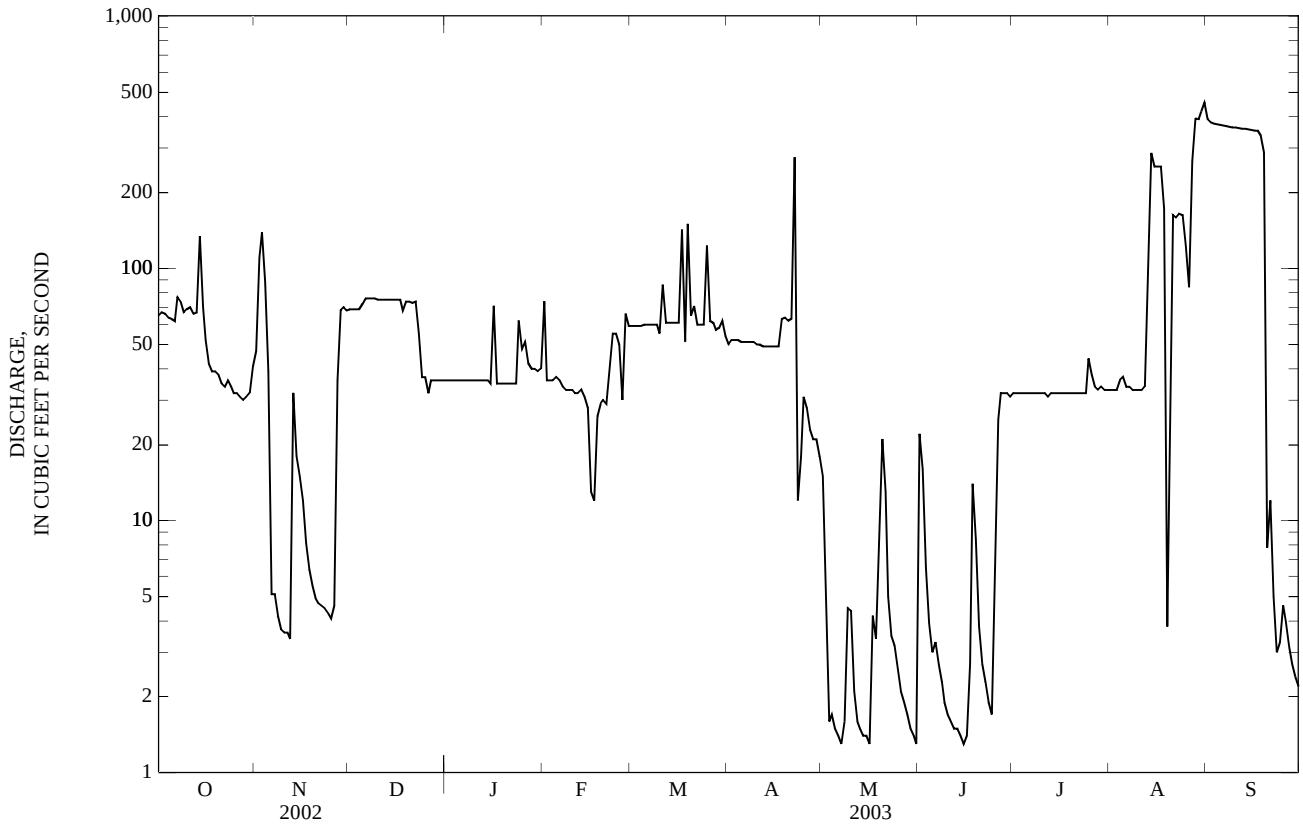
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	69.9	64.7	111	70.7	48.0	65.5	130	141	94.6	92.1	139	156
MAX	86.3	102	158	104	60.8	68.3	250	287	148	127	164	229
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2001)	(2001)	(2001)	(2003)
MIN	53.5	27.4	63.1	39.3	37.1	63.0	51.8	3.90	8.90	32.8	106	95.3
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)	(2003)	(2003)	(2003)	(2002)	(2002)

50026200 RIO CAONILLAS BLW LAGO CAONILLAS TUNNEL, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	41,350.4		23,244.2			
ANNUAL MEAN	113		63.7		97.0	
HIGHEST ANNUAL MEAN					130	2002
LOWEST ANNUAL MEAN					63.7	2003
HIGHEST DAILY MEAN	1,140	Apr 28	455	Aug 31	1,140	Apr 28, 2002
LOWEST DAILY MEAN	3.4	Nov 12	1.3	May 7	1.3	May 7, 2003
ANNUAL SEVEN-DAY MINIMUM	4.1	Nov 6	1.5	Jun 10	1.5	Jun 10, 2003
MAXIMUM PEAK FLOW			1,180	Aug 31	1,990	Apr 27, 2002
MAXIMUM PEAK STAGE			5.78	Aug 31	7.45	Apr 27, 2002
ANNUAL RUNOFF (AC-FT)	82,020		46,100		70,260	
ANNUAL RUNOFF (CFSM)	2.23		1.25		1.91	
ANNUAL RUNOFF (INCHES)	30.28		17.02		25.94	
10 PERCENT EXCEEDS	223		140		253	
50 PERCENT EXCEEDS	75		36		61	
90 PERCENT EXCEEDS	36		2.7		5.5	

e Estimated



50026200 RIO CAONILLAS BLW LAGO CAONILLAS TUNNEL, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 2000 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: January 2001 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 268 mg/L November 8, 2001; Minimum daily mean, <1 mg/L several days during Water Year 2001.
SEDIMENT LOADS: Maximum daily mean, 722 tons (655 tonnes) April 28, 2002; Minimum daily mean, 0.01 ton (0.01 tonne) several days during Water Year 2003.

EXTREMES FOR CURRENT YEAR 2003.-
SEDIMENT CONCENTRATION: Maximum daily mean, 129 mg/L August 14, 2003; Minimum daily mean, 3 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 112 tons (102 tonnes) August 14, 2003; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
	OCTOBER			NOVEMBER			DECEMBER		
1	65	14	2.6	e47	e15	e1.8	69	19	3.5
2	67	29	5.3	110	7	2.2	69	12	2.3
3	66	28	5.0	139	9	3.3	69	7	1.2
4	64	27	4.7	88	11	2.5	69	6	1.1
5	63	26	4.4	39	13	1.3	72	7	1.3
6	62	26	4.3	5.1	15	0.21	76	7	1.4
7	77	26	5.5	5.1	17	0.23	76	7	1.4
8	74	21	4.2	4.2	19	0.21	76	7	1.4
9	67	20	3.6	3.7	21	0.21	76	7	1.4
10	69	19	3.6	3.6	23	0.22	75	8	1.6
11	70	19	3.6	3.6	25	0.24	75	14	2.9
12	66	19	3.3	3.4	27	0.25	75	22	4.5
13	67	18	3.3	32	25	2.0	75	30	6.0
14	134	18	6.9	18	10	0.46	75	37	7.4
15	70	16	3.0	15	9	0.37	75	35	7.2
16	52	16	2.2	12	9	0.28	75	33	6.6
17	42	15	1.8	8.1	8	0.18	75	31	6.2
18	39	15	1.6	6.4	8	0.13	68	33	6.0
19	39	15	1.6	5.5	8	0.12	74	35	7.1
20	38	14	1.5	4.9	21	0.27	74	38	7.6
21	35	14	1.3	4.7	35	0.45	73	40	8.0
22	34	18	1.7	4.6	39	0.49	74	40	8.0
23	36	21	2.0	4.5	42	0.51	55	23	4.2
24	e34	e21	e2.0	4.3	44	0.52	37	9	0.86
25	e32	e18	e1.7	4.1	47	0.52	37	8	0.81
26	e32	e18	e1.7	4.6	49	0.60	32	8	0.66
27	e31	e18	e1.7	36	44	4.2	36	7	0.72
28	e30	e18	e1.7	68	38	7.0	36	7	0.67
29	e31	e18	e1.7	70	31	6.0	36	7	0.63
30	e32	e18	e1.7	68	25	4.6	36	6	0.59
31	e41	e15	e1.8	---	---	---	36	6	0.53
TOTAL	1,659	---	91.0	822.4	---	41.37	1,956	---	103.77

50026200 RIO CAONILLAS BLW LAGO CAONILLAS TUNNEL, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	36	5	0.47	74	5	1.4	59	5	0.80
2	36	4	0.41	36	4	0.38	59	5	0.80
3	36	4	0.35	36	4	0.38	59	5	0.80
4	36	3	0.30	36	4	0.37	59	5	0.80
5	36	3	0.29	37	4	0.37	60	5	0.81
6	36	3	0.29	36	4	0.36	60	5	0.81
7	36	3	0.29	34	4	0.34	60	5	0.81
8	36	3	0.29	33	4	0.33	60	5	0.81
9	36	3	0.29	33	4	0.31	60	5	0.74
10	36	3	0.29	33	3	0.31	55	4	0.61
11	36	3	0.29	32	3	0.30	86	6	1.7
12	36	3	0.29	32	3	0.29	61	6	0.91
13	36	3	0.29	33	3	0.30	61	5	0.83
14	36	3	0.29	31	3	0.27	61	5	0.75
15	35	3	0.29	28	3	0.24	61	4	0.68
16	71	4	1.3	13	3	0.11	61	4	0.66
17	35	5	0.48	12	3	0.10	142	7	3.6
18	35	5	0.48	26	3	0.32	51	8	1.1
19	35	5	0.48	29	3	0.24	150	9	4.1
20	35	5	0.47	30	3	0.24	65	9	1.6
21	35	5	0.47	29	3	0.23	71	9	1.7
22	35	5	0.47	41	6	0.74	60	9	1.4
23	35	5	0.47	55	9	1.3	60	9	1.4
24	62	6	1.1	55	8	1.3	60	8	1.3
25	48	5	0.63	50	8	1.0	123	9	3.2
26	51	5	0.64	30	3	0.23	62	10	1.6
27	42	4	0.50	66	4	1.1	61	10	1.6
28	40	4	0.46	59	5	0.80	57	10	1.5
29	40	4	0.43	---	---	---	58	10	1.5
30	39	4	0.43	---	---	---	62	9	1.6
31	40	4	0.43	---	---	---	54	9	1.4
TOTAL	1,217	---	13.96	1,039	---	13.66	2,118	---	41.92
		APRIL			MAY			JUNE	
1	50	9	1.2	15	7	0.28	22	5	0.41
2	52	9	1.3	3.8	7	0.07	16	4	0.19
3	52	9	1.2	1.6	7	0.03	6.5	4	0.07
4	52	7	0.98	1.7	6	0.03	3.9	4	0.04
5	51	5	0.71	1.5	6	0.03	3.0	4	0.03
6	51	3	0.47	1.4	6	0.02	3.3	4	0.04
7	51	3	0.47	1.3	6	0.02	2.7	4	0.03
8	51	4	0.54	1.6	5	0.02	2.3	4	0.02
9	51	4	0.53	4.5	5	0.06	1.9	4	0.02
10	50	4	0.52	4.4	5	0.06	1.7	4	0.02
11	50	4	0.50	2.1	5	0.03	1.6	4	0.02
12	49	4	0.48	1.6	5	0.02	1.5	4	0.01
13	49	3	0.46	1.5	5	0.02	1.5	4	0.01
14	49	3	0.45	1.4	5	0.02	1.4	3	0.01
15	49	3	0.43	1.4	5	0.02	1.3	3	0.01
16	49	3	0.42	1.3	5	0.02	1.4	3	0.01
17	49	3	0.41	4.2	5	0.05	2.7	4	0.03
18	63	4	0.68	3.4	5	0.04	14	6	0.23
19	64	5	0.83	9.0	5	0.11	8.4	7	0.16
20	62	5	0.75	21	5	0.26	3.8	9	0.09
21	63	4	0.72	13	4	0.16	2.7	8	0.06
22	276	16	18	5.0	4	0.06	2.3	7	0.04
23	12	15	0.51	3.5	4	0.04	1.9	5	0.03
24	18	13	0.63	3.2	4	0.04	1.7	5	0.02
25	31	12	0.97	2.6	4	0.03	5.4	8	0.14
26	28	10	0.78	2.1	4	0.02	25	12	0.85
27	23	9	0.54	1.9	4	0.02	32	16	1.4
28	21	8	0.45	1.7	4	0.02	32	18	1.6
29	21	8	0.42	1.5	4	0.02	32	20	1.7
30	18	7	0.36	1.4	4	0.02	31	21	1.8
31	---	---	---	1.3	4	0.01	---	---	---
TOTAL	1,555	---	36.71	120.9	---	1.65	266.9	---	9.09

50026200 RIO CAONILLAS BLW LAGO CAONILLAS TUNNEL, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	32	23	1.9	33	10	0.90	390	22	24
2	32	21	1.8	33	9	0.81	380	21	22
3	32	19	1.6	33	8	0.71	375	20	21
4	32	17	1.4	36	7	0.69	372	20	20
5	32	16	1.3	37	6	0.60	370	19	19
6	32	15	1.3	34	5	0.48	368	18	18
7	32	15	1.3	34	6	0.55	367	17	17
8	32	14	1.2	33	7	0.65	365	16	16
9	32	14	1.2	33	9	0.78	363	15	15
10	32	13	1.1	33	10	0.92	362	19	18
11	32	13	1.1	33	12	1.1	361	14	14
12	31	13	1.1	34	13	1.2	359	11	10
13	32	13	1.1	124	61	50	359	40	39
14	32	13	1.1	287	129	112	356	35	34
15	32	13	1.1	254	40	27	354	24	23
16	32	13	1.1	253	40	27	352	23	22
17	32	13	1.1	253	40	27	351	23	22
18	32	13	1.1	172	30	18	336	23	20
19	32	13	1.1	3.8	5	0.05	288	21	17
20	32	13	1.1	63	6	1.7	7.8	9	0.22
21	32	13	1.1	163	11	4.8	12	9	0.28
22	32	13	1.1	159	11	4.7	5.0	8	0.11
23	32	13	1.1	165	11	4.9	3.0	8	0.06
24	32	13	1.1	163	11	4.9	3.3	7	0.07
25	44	14	1.8	122	9	3.4	4.6	7	0.09
26	38	14	1.5	84	11	4.0	4.0	7	0.07
27	34	14	1.2	266	24	17	3.2	6	0.05
28	33	13	1.2	393	24	25	2.7	6	0.04
29	34	13	1.2	391	24	25	2.4	6	0.04
30	33	12	1.1	419	61	80	2.2	5	0.03
31	33	11	0.99	455	63	108	---	---	---
TOTAL	1,016	---	38.49	4,595.8	---	553.84	6,878.2	---	392.06
YEAR	23,244.2	1,337.52							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
AUG 13...	1816	389	97	176	185

50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR

LOCATION.--Lat 18°19'27", long 66°35'13", Hydrologic Unit 21010002, on left bank, 600 ft downstream from bridge on Highway 140, 3.1 mi (4.9 km) southwest from Florida Plaza, 2.4 mi (3.9 km) northwest from Escuela Segunda Unidad de Frontón, 1.9 mi (3.1 km) northeast from Escuela Segunda Unidad de Mameyes.

DRAINAGE AREA.--13.9 mi^2 (36.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	53	e24	13	12	9.4	e11	14	28	12	20	14
2	33	37	e19	15	12	9.3	22	13	34	13	9.4	12
3	25	34	e18	14	15	9.1	21	18	25	11	8.2	86
4	23	26	e22	12	49	8.9	15	13	e22	11	9.4	30
5	20	23	e20	12	77	8.8	15	11	e19	15	14	15
6	19	24	e18	12	39	8.7	12	11	e19	16	12	11
7	e142	22	e17	12	24	8.6	13	11	e18	13	10	12
8	e100	20	e17	11	19	8.5	10	12	e18	13	8.4	12
9	e54	19	e17	11	16	8.5	9.3	104	e17	12	7.7	9.8
10	e34	19	e16	11	15	8.2	8.8	34	e17	10	7.3	8.9
11	e31	18	e16	11	14	7.9	8.5	16	17	9.7	7.3	67
12	e35	17	e16	10	14	7.9	8.8	13	17	9.4	13	27
13	e80	70	e16	10	13	7.9	8.2	11	16	14	7.6	25
14	e70	e44	e15	10	13	7.8	7.7	11	15	12	7.4	28
15	e44	e75	e15	10	12	7.7	7.5	11	15	e10	11	14
16	e34	e35	e15	9.8	12	7.6	7.7	9.7	23	e11	7.9	12
17	e33	e27	e18	9.8	12	7.4	20	52	18	e9.8	7.1	11
18	e35	e25	e22	9.6	12	7.2	95	46	18	e8.8	6.9	10
19	e34	e23	15	9.6	11	22	43	131	20	e8.6	7.2	10
20	e29	e22	17	9.5	12	14	50	345	15	8.5	7.3	12
21	e27	e22	15	9.6	12	8.1	98	122	16	8.6	6.9	173
22	e25	e21	18	9.4	11	7.4	56	61	15	9.7	7.2	44
23	55	e20	18	9.8	10	7.3	157	52	14	9.3	12	31
24	32	e20	15	13	10	7.1	105	43	13	8.0	27	193
25	25	e19	14	72	10	6.9	116	32	13	18	28	52
26	24	e19	28	88	10	11	58	27	12	12	19	29
27	22	e18	23	23	9.9	25	31	24	12	14	11	23
28	20	e18	15	16	9.7	19	22	22	12	11	10	18
29	19	e18	14	14	---	15	18	21	11	12	12	16
30	19	e39	13	14	---	22	15	20	11	8.4	33	14
31	81	---	15	13	---	9.7	---	18	---	13	25	---
TOTAL	1,293	847	541	504.1	485.6	323.9	1,069.5	1,328.7	520	351.8	380.2	1,019.7
MEAN	41.7	28.2	17.5	16.3	17.3	10.4	35.6	42.9	17.3	11.3	12.3	34.0
MAX	142	75	28	88	77	25	157	345	34	18	33	193
MIN	19	17	13	9.4	9.7	6.9	7.5	9.7	11	8.0	6.9	8.9
AC-FT	2,560	1,680	1,070	1,000	963	642	2,120	2,640	1,030	698	754	2,020
CFSM	2.98	2.02	1.25	1.16	1.24	0.75	2.55	3.06	1.24	0.81	0.88	2.43
IN.	3.44	2.25	1.44	1.34	1.29	0.86	2.84	3.53	1.38	0.94	1.01	2.71

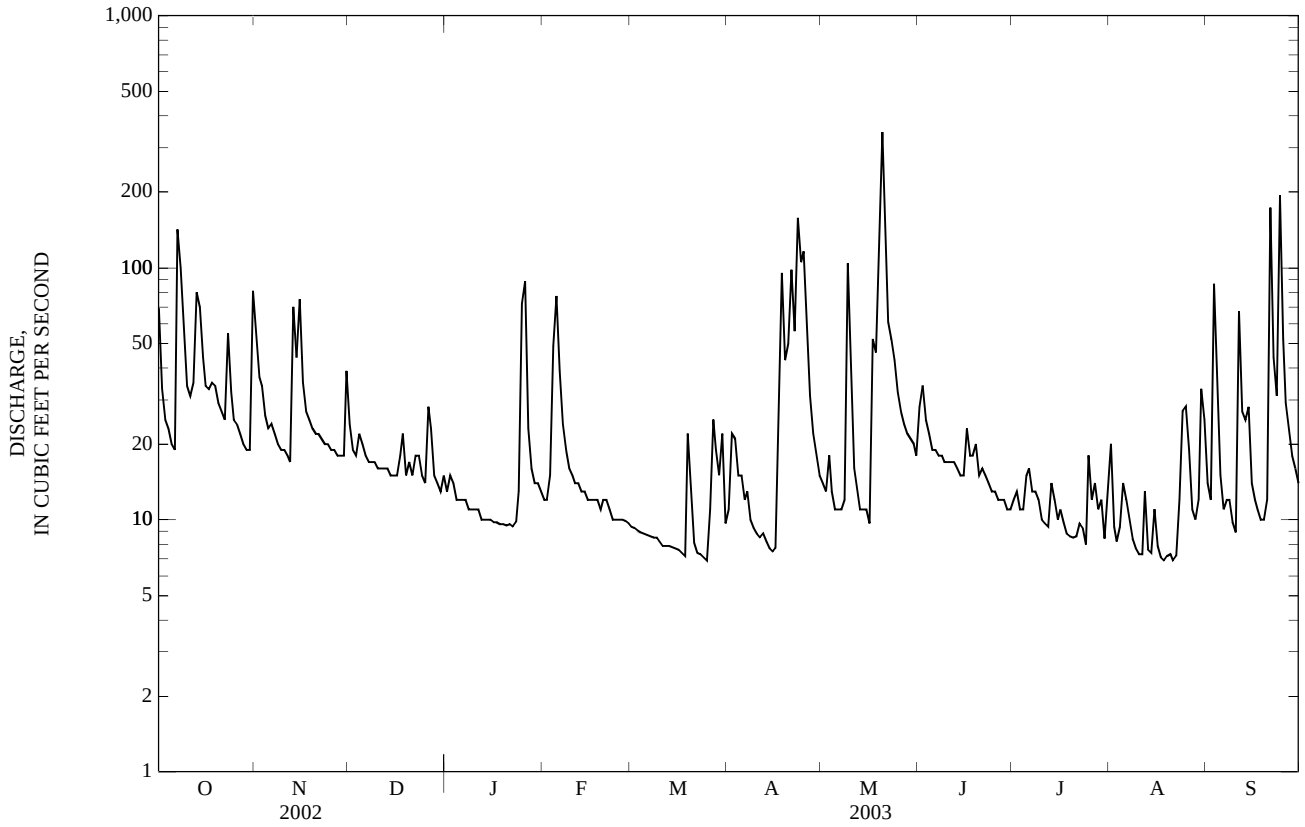
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	35.9	56.5	22.1	16.4	13.9	11.2	44.8	37.6	15.1	13.9	19.6	33.4
MAX	41.7	105	35.1	22.2	17.3	16.3	85.9	45.5	18.7	20.9	35.2	47.5
(WY)	(2003)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2002)	(2002)	(2001)	(2002)	(2002)
MIN	24.8	28.2	13.8	10.7	9.14	7.00	12.9	24.4	9.34	8.39	11.0	25.8
(WY)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2000)	(2000)

50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	11,834.4		8,664.5			
ANNUAL MEAN	32.4		23.7		27.3	
HIGHEST ANNUAL MEAN					38.8	2002
LOWEST ANNUAL MEAN					19.3	2001
HIGHEST DAILY MEAN	267	Apr 29	345	May 20	1,660	Nov 8, 2001
LOWEST DAILY MEAN	8.9	Mar 26	6.9	Mar 25	4.7	Aug 12, 2000
ANNUAL SEVEN-DAY MINIMUM	9.8	Mar 21	7.2	Aug 16	5.2	Aug 12, 2000
MAXIMUM PEAK FLOW			4,080	May 20	5,070	Nov 8, 2001
MAXIMUM PEAK STAGE			11.57	May 20	12.37	Nov 8, 2001
INSTANTANEOUS LOW FLOW			6.2	Aug 20	4.4	Aug 12, 2000
ANNUAL RUNOFF (AC-FT)	23,470		17,190		19,770	
ANNUAL RUNOFF (CFSM)	2.32		1.70		1.95	
ANNUAL RUNOFF (INCHES)	31.47		23.04		26.51	
10 PERCENT EXCEEDS	60		45		51	
50 PERCENT EXCEEDS	20		15		16	
90 PERCENT EXCEEDS	13		8.5		7.7	

e Estimated



50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 2000 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: June 2000 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 4,940 mg/L November 8, 2001; Minimum daily mean, 1 mg/L several days during Water Year 2001.
SEDIMENT LOADS: Maximum daily mean, 30,700 tons (27,850 tonnes) November 8, 2001; Minimum daily mean, 0.02 ton (0.02 tonne) several days during Water Year 2001.

EXTREMES FOR CURRENT YEAR 2003.-
SEDIMENT CONCENTRATION: Maximum daily mean, 1,230 mg/L May 20, 2003; Minimum daily mean, 2 mg/L July 24, 2003.
SEDIMENT LOADS: Maximum daily mean, 4,370 tons (3,960 tonnes) May 20, 2003; Minimum daily mean, 0.05 ton (0.04 tonne) July 24, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	69	237	217	53	123	26	e24	e32	e2.7
2	33	60	5.7	37	51	6.3	e19	e15	e0.76
3	25	18	1.2	34	34	3.5	e18	e15	e0.79
4	23	8	0.49	26	9	0.64	e22	e15	e0.79
5	20	8	0.43	23	8	0.48	e20	e15	e0.79
6	19	8	0.39	24	8	0.49	e18	e14	e0.68
7	e142	e461	e590	22	7	0.45	e17	e14	e0.68
8	e100	e275	e152	20	7	0.38	e17	e14	e0.68
9	e54	e317	e187	19	7	0.36	e17	e14	e0.68
10	e34	e100	e17	19	7	0.35	e16	e14	e0.55
11	e31	e47	e5.3	18	7	0.33	e16	e14	e0.55
12	e35	e15	e1.2	17	7	0.31	e16	e14	e0.55
13	e80	e15	e1.1	70	375	330	e16	e13	e0.52
14	e70	e232	e132	e44	e44	e5.3	e15	e13	e0.52
15	e44	e69	e8.8	e75	e103	e37	e15	e13	e0.52
16	e34	e17	e1.5	e35	e88	e11	e15	e14	e0.55
17	e33	e14	e1.0	e27	e40	e3.2	e18	e14	e0.55
18	e35	e10	e0.67	e25	e29	e2.1	e22	e15	e0.74
19	e34	e7	e0.55	e23	e18	e1.2	15	14	0.58
20	e29	e7	e0.42	e22	e15	e0.91	17	14	0.65
21	e27	e7	e0.38	e22	e15	e0.88	15	14	0.57
22	e25	e6	e0.34	e21	e15	e0.84	18	14	0.68
23	55	184	101	e20	e15	e0.79	18	14	0.68
24	32	33	3.1	e20	e15	e0.74	15	14	0.55
25	25	8	0.51	e19	e14	e0.73	14	14	0.52
26	24	7	0.44	e19	e14	e0.73	28	58	10
27	22	6	0.35	e18	e14	e0.70	23	28	2.0
28	20	6	0.31	e18	e14	e0.68	15	7	0.31
29	19	6	0.28	e18	e14	e0.77	14	5	0.19
30	19	5	0.26	e39	e71	e15	13	5	0.18
31	81	307	205	---	---	---	15	5	0.20
TOTAL	1,293	---	1,635.72	847	---	452.16	541	---	30.71

50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	13	5	0.17	12	4	0.15	9.4	11	0.28
2	15	5	0.19	12	4	0.14	9.3	11	0.28
3	14	5	0.17	15	6	0.44	9.1	11	0.28
4	12	5	0.16	49	118	20	8.9	12	0.28
5	12	5	0.15	77	360	192	8.8	12	0.28
6	12	5	0.15	39	81	9.4	8.7	12	0.28
7	12	5	0.14	24	38	2.4	8.6	12	0.27
8	11	5	0.14	19	24	1.2	8.5	10	0.23
9	11	5	0.14	16	24	1.0	8.5	9	0.20
10	11	5	0.14	15	23	0.91	8.2	7	0.16
11	11	4	0.13	14	22	0.83	7.9	8	0.18
12	10	4	0.13	14	21	0.79	7.9	10	0.21
13	10	4	0.12	13	20	0.70	7.9	11	0.23
14	10	4	0.12	13	19	0.65	7.8	12	0.24
15	10	4	0.12	12	18	0.59	7.7	10	0.21
16	9.8	4	0.11	12	17	0.55	7.6	9	0.18
17	9.8	4	0.11	12	16	0.53	7.4	7	0.14
18	9.6	4	0.11	12	15	0.47	7.2	7	0.13
19	9.6	4	0.11	11	14	0.43	22	46	7.5
20	9.5	4	0.11	12	13	0.41	14	44	1.9
21	9.6	4	0.11	12	10	0.32	8.1	14	0.31
22	9.4	4	0.10	11	7	0.22	7.4	12	0.24
23	9.8	4	0.11	10	8	0.22	7.3	12	0.24
24	13	8	0.49	10	9	0.24	7.1	12	0.22
25	72	222	102	10	10	0.26	6.9	11	0.21
26	88	274	120	10	10	0.28	11	14	0.58
27	23	26	1.8	9.9	11	0.29	25	35	2.9
28	16	5	0.22	9.7	11	0.29	19	20	1.3
29	14	5	0.19	---	---	---	15	12	0.58
30	14	5	0.18	---	---	---	22	32	2.4
31	13	5	0.17	---	---	---	9.7	12	0.32
TOTAL	504.1	---	228.09	485.6	---	235.71	323.9	---	22.76
		APRIL			MAY			JUNE	
1	e11	e10	e0.28	14	6	0.21	28	44	6.9
2	22	10	0.60	13	5	0.18	34	34	3.7
3	21	10	0.55	18	22	1.9	25	16	1.0
4	15	11	0.43	13	17	0.63	e22	e15	e0.90
5	15	16	0.63	11	14	0.43	e19	e15	e0.83
6	12	21	0.65	11	12	0.37	e19	e15	e0.82
7	13	26	0.91	11	11	0.34	e18	e15	e0.79
8	10	30	0.82	12	10	0.31	e18	e15	e0.75
9	9.3	19	0.49	104	380	529	e17	e15	e0.72
10	8.8	7	0.16	34	85	9.9	e17	e17	e0.79
11	8.5	5	0.12	16	10	0.46	17	19	0.88
12	8.8	5	0.13	13	4	0.15	17	21	0.98
13	8.2	6	0.13	11	5	0.14	16	24	1.0
14	7.7	6	0.13	11	5	0.14	15	26	1.1
15	7.5	8	0.16	11	5	0.14	15	28	1.2
16	7.7	7	0.15	9.7	5	0.13	23	46	4.3
17	20	7	0.37	52	277	171	18	19	0.94
18	95	379	203	46	147	55	18	18	0.88
19	43	86	11	131	532	671	20	18	0.97
20	50	156	60	345	1,230	4,370	15	20	0.81
21	98	283	143	122	278	122	16	22	0.96
22	56	146	24	61	131	24	15	23	0.95
23	157	560	972	52	102	16	14	25	0.91
24	105	279	121	43	58	7.2	13	27	0.94
25	116	426	371	32	18	1.6	13	28	0.96
26	58	55	12	27	16	1.1	12	30	0.97
27	31	12	0.98	24	14	0.91	12	30	0.94
28	22	10	0.57	22	13	0.77	12	29	0.92
29	18	8	0.37	21	12	0.68	11	29	0.85
30	15	6	0.25	20	12	0.62	11	28	0.84
31	---	---	---	18	11	0.57	---	---	---
TOTAL	1,069.5	---	1,925.88	1,328.7	---	5,986.88	520	---	39.50

50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	12	28	0.90	20	43	3.0	14	16	0.60
2	13	27	0.96	9.4	6	0.15	12	14	0.48
3	11	27	0.80	8.2	6	0.13	86	643	692
4	11	26	0.80	9.4	9	0.41	30	80	8.8
5	15	26	1.0	14	10	0.50	15	17	0.70
6	16	25	1.1	12	6	0.20	11	11	0.32
7	13	25	0.86	10	7	0.18	12	10	0.33
8	13	24	0.87	8.4	7	0.15	12	9	0.31
9	12	24	0.80	7.7	7	0.14	9.8	9	0.23
10	10	25	0.69	7.3	7	0.13	8.9	8	0.19
11	9.7	26	0.69	7.3	6	0.12	67	502	357
12	9.4	28	0.70	13	6	0.21	27	57	4.8
13	14	29	1.1	7.6	6	0.12	25	35	3.2
14	12	30	1.0	7.4	6	0.12	28	46	4.8
15	e10	e25	e0.69	11	6	0.16	14	13	0.52
16	e11	e28	e0.70	7.9	6	0.12	12	8	0.26
17	e9.8	e26	e0.69	7.1	6	0.11	11	8	0.23
18	e8.8	e26	e0.69	6.9	5	0.10	10	9	0.24
19	e8.6	e26	e0.69	7.2	5	0.10	10	12	0.31
20	8.5	19	0.45	7.3	5	0.10	12	14	0.47
21	8.6	12	0.28	6.9	5	0.10	173	1,030	2,150
22	9.7	5	0.12	7.2	5	0.10	44	240	30
23	9.3	3	0.07	12	16	1.4	31	48	4.5
24	8.0	2	0.05	27	63	13	193	861	2,320
25	18	27	3.1	28	52	5.7	52	147	25
26	12	4	0.13	19	25	1.4	29	14	1.1
27	14	3	0.11	11	14	0.43	23	10	0.65
28	11	3	0.09	10	14	0.39	18	8	0.41
29	12	3	0.10	12	15	0.48	16	7	0.30
30	8.4	3	0.07	33	77	17	14	5	0.20
31	13	15	1.9	25	39	3.3	---	---	---
TOTAL	351.8	---	22.20	380.2	---	49.55	1,019.7	---	5,607.95
YEAR	8,664.5	16,237.11							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV 13...	1715	392	97	3,590	3,800
JAN 25...	2130	236	95	801	510
APR 18...	1820	211	98	983	560

50026400 RIO YUNES AT HWY 140 NEAR FLORIDA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
JAN													
25...	2045	255	47	61	72	84	93	95	99	100	100	966	665

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR

LOCATION.--Lat 18°19'32", long 66°37'24", Hydrologic Unit 21010002, on right bank off Highway 146, 2.2 mi (3.5 km) northwest from Escuela Segunda Unidad de Mameyes, 3.0 mi (4.8 km) southwest from Lago Dos Bocas Dam, 3.8 mi (6.0 km) northeast from Lago Caonillas Dam.

DRAINAGE AREA.--33.2 mi^2 (86.0 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 311.6 ft (94.9 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	99	61	36	38	27	e30	35	103	33	45	41
2	68	76	49	38	36	27	50	34	87	33	27	38
3	56	73	47	37	37	26	42	52	58	30	24	121
4	50	58	55	34	81	26	32	37	50	31	39	58
5	45	54	51	34	109	25	29	32	47	35	40	35
6	43	56	46	34	71	24	32	31	46	38	31	29
7	165	56	44	33	48	24	31	33	44	33	29	29
8	189	51	44	33	43	24	25	33	42	33	26	32
9	129	50	43	33	40	24	23	212	41	32	25	27
10	e82	49	42	33	38	23	22	63	40	28	23	26
11	e63	48	41	32	37	22	21	37	39	28	32	138
12	e60	46	41	31	36	22	21	33	39	27	35	58
13	64	e155	41	31	35	22	20	31	39	36	24	48
14	108	e93.0	40	31	35	21	19	30	37	32	24	59
15	99	e171	39	30	34	21	19	30	37	28	29	35
16	72	88	39	30	33	20	19	28	47	30	25	31
17	62	68	48	30	34	20	31	151	41	27	24	28
18	62	63	56	29	32	20	157	66	63	26	24	27
19	63	59	41	29	32	29	74	441	48	25	25	27
20	62	57	42	29	32	29	70	1,120	37	25	25	30
21	58	56	40	29	32	21	147	252	39	26	24	343
22	55	e54	46	28	31	20	92	128	37	27	25	107
23	108	e52	45	29	30	20	207	109	34	26	26	86
24	70	e51	39	31	30	19	148	92	34	23	59	311
25	59	49	38	119	30	19	216	73	32	57	67	110
26	57	49	64	152	29	20	95	64	32	36	49	71
27	54	48	52	49	29	42	58	59	31	37	33	61
28	52	47	39	40	29	38	47	56	31	31	31	49
29	51	46	37	37	---	39	41	53	29	32	33	44
30	51	97	36	37	---	48	38	51	29	25	71	41
31	125	---	37	37	---	e24	---	49	---	27	74	---
TOTAL	2,432	2,019.0	1,383	1,235	1,121	786	1,856	3,515	1,313	957	1,068	2,140
MEAN	78.5	67.3	44.6	39.8	40.0	25.4	61.9	113	43.8	30.9	34.5	71.3
MAX	189	171	64	152	109	48	216	1,120	103	57	74	343
MIN	43	46	36	28	29	19	19	28	29	23	23	26
AC-FT	4,820	4,000	2,740	2,450	2,220	1,560	3,680	6,970	2,600	1,900	2,120	4,240
CFSM	2.36	2.03	1.34	1.20	1.21	0.76	1.86	3.42	1.32	0.93	1.04	2.15
IN.	2.73	2.26	1.55	1.38	1.26	0.88	2.08	3.94	1.47	1.07	1.20	2.40

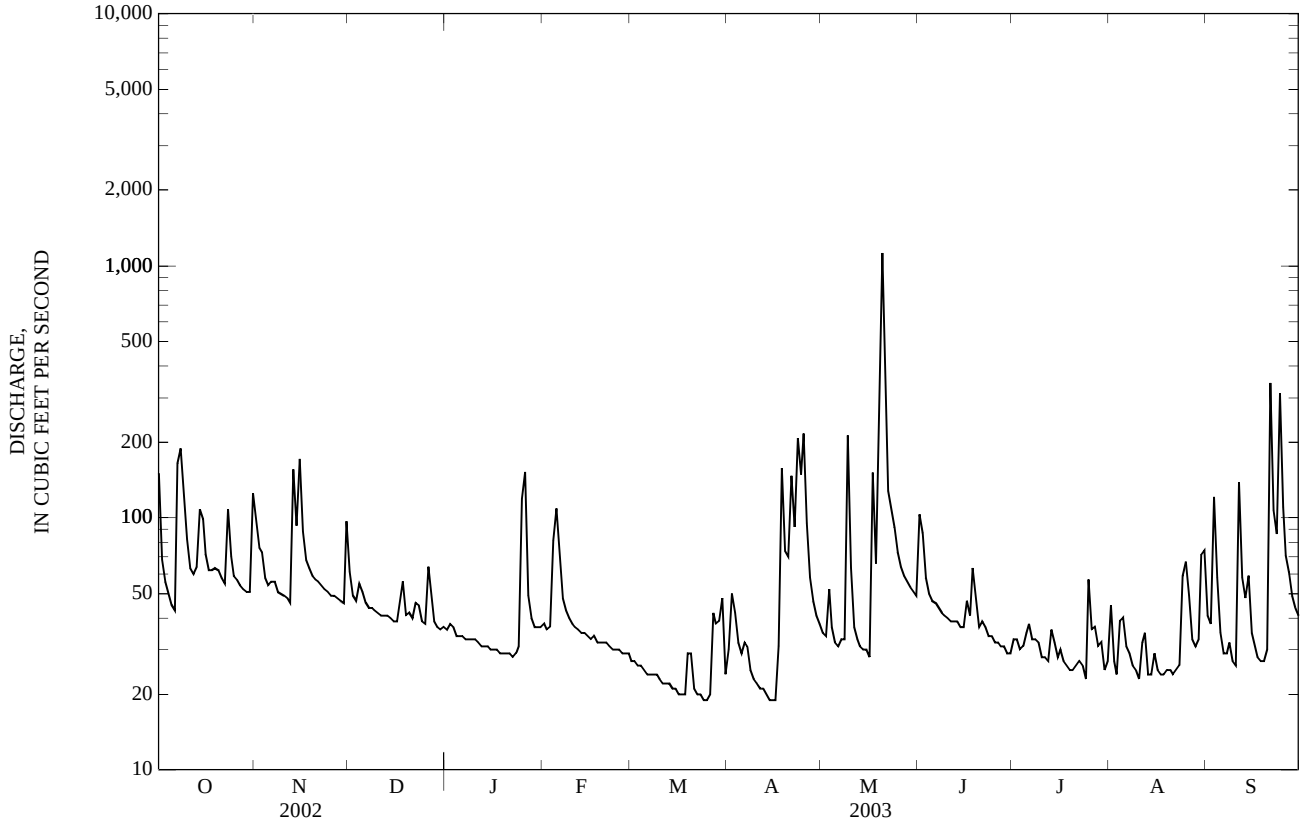
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	83.3	132	55.4	58.4	41.8	32.9	91.9	99.9	42.6	37.0	46.8	75.0
MAX	104	255	85.5	108	60.8	45.7	240	134	62.3	49.7	72.5	100
(WY)	(2001)	(2002)	(2002)	(2000)	(2000)	(2000)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)
MIN	67.3	67.3	36.1	30.1	26.9	20.5	29.7	54.7	27.4	30.9	31.7	57.3
(WY)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2003)	(2000)	(2000)

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	29,911.0		19,825.0			
ANNUAL MEAN	81.9		54.3		67.0	
HIGHEST ANNUAL MEAN					99.9	2002
LOWEST ANNUAL MEAN					46.6	2001
HIGHEST DAILY MEAN	876	Apr 29	1,120	May 20	3,990	Nov 8, 2001
LOWEST DAILY MEAN	26	Mar 25	19	Mar 24	14	Apr 18, 2001
ANNUAL SEVEN-DAY MINIMUM	27	Mar 21	20	Apr 10	16	Apr 15, 2001
MAXIMUM PEAK FLOW			10,200	May 20	11,500	Nov 8, 2001
MAXIMUM PEAK STAGE			15.14	May 20	15.63	Nov 8, 2001
INSTANTANEOUS LOW FLOW			18	Mar 25	13	Apr 18, 2001
ANNUAL RUNOFF (AC-FT)	59,330		39,320		48,510	
ANNUAL RUNOFF (CFSM)	2.47		1.64		2.02	
ANNUAL RUNOFF (INCHES)	33.51		22.21		27.40	
10 PERCENT EXCEEDS	140		92		117	
50 PERCENT EXCEEDS	55		38		42	
90 PERCENT EXCEEDS	36		25		23	

e Estimated



50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1999 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
09...	1445	44	5.0	8.8	106	7.2	205	24.1	77	21.0	5.89	1.96	.4
MAR													
18...	1500	19	E1.7	8.5	--	8.2	213	27.5	82	22.7	6.26	1.84	.5
MAY													
20...	1500	120	30	8.0	--	7.6	184	25.2	70	20.1	4.78	2.07	.4
AUG													
19...	1300	22	2.6	8.8	--	8.1	201	28.1	--	--	--	--	--
SEP													
18...	1350	27	3.8	8.4	--	8.0	203	29.1	80	22.3	5.97	2.20	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
DEC													
09...	8.63	77	9.97	<.17	28.2	4.2	--	126	14.9	<10	<.20	<.01	1.10
MAR													
18...	9.73	84	10.6	.11	27.0	4.4	<.1	133	6.93	<10	<.20	.02	.480
MAY													
20...	8.00	67	8.60	<.2	25.2	6.2	--	115	37.3	10	--	--	--
AUG													
19...	--	78	--	--	--	--	--	--	--	<10	<.20	.01	.460
SEP													
18...	8.29	79	10.1	<.2	27.9	4.6	--	129	9.48	<10	<.20	.02	.660

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)	Copper, water, unfltrd recoverable, ug/L (01042)	Cyanide water unfltrd mg/L (00720)
DEC													
09...	<.01	.04	<10	84	266	--	--	--	--	--	--	--	--
MAR													
18...	<.01	.02	<10	E9	--	E44	<2	41.7	<18	<.2	<.8	<10	<.01
MAY													
20...	--	--	<10	E510	--	E800	<2	42.7	22	<.2	E.7	<10	<.01
AUG													
19...	<.01	<.02	<10	14	--	400	--	--	--	--	--	--	--
SEP													
18...	<.01	.04	<10	190	--	750	--	--	--	--	--	--	--

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
DEC									
09...	--	--	--	--	--	--	--	--	--
MAR									
18...	50	<1	8.2	<.02	<3	<.3	E25	<.10	<16
MAY									
20...	590	<1	25.4	<.02	<3	E.2	<25	<.10	<16
AUG									
19...	--	--	--	--	--	--	--	--	--
SEP									
18...	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1999 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2001 to current year

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 2000.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,420 mg/L November 8, 2001; Minimum daily mean, 1 mg/L several days during water year 2001.
SEDIMENT LOADS: Maximum daily mean, 42,800 tons (38,830 tonnes) November 8, 2001; Minimum daily mean, 0.08 ton (0.07 tonne) February 6, 7, 2001.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,260 mg/L May 20, 2003; Minimum daily mean, 2 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 31,500 tons (28,580 tonnes) May 20, 2003; Minimum daily mean, 0.14 ton (0.13 tonne) March 12, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	150	329	585	99	131	48	61	8	1.4
2	68	114	22	76	32	7.6	49	7	0.88
3	56	11	1.8	73	31	6.7	47	6	0.81
4	50	4	0.54	58	17	2.7	55	10	1.9
5	45	4	0.48	54	15	2.1	51	6	0.77
6	43	4	0.41	56	16	2.6	46	5	0.59
7	165	291	544	56	16	2.6	44	4	0.53
8	189	368	705	51	12	1.7	44	6	0.73
9	129	132	80	50	10	1.4	43	8	0.94
10	e82	e49	e12	49	9	1.1	42	10	1.1
11	e63	e27	e5.8	48	7	0.88	41	12	1.3
12	e60	e17	e3.0	46	5	0.58	41	10	1.2
13	64	22	4.1	e155	e468	e717	41	9	0.98
14	108	142	97	e93.0	e145	e82	40	8	0.84
15	99	67	21	e171	e158	e93	39	13	1.4
16	72	21	4.2	88	52	13	39	21	2.2
17	62	15	2.6	68	11	2.0	48	32	5.1
18	62	13	2.1	63	8	1.5	56	40	6.6
19	63	10	1.8	59	8	1.3	41	35	3.8
20	62	10	1.6	57	10	1.5	42	33	3.8
21	58	10	1.5	56	12	1.9	40	32	3.4
22	55	9	1.4	e54	e14	e2.1	46	26	3.1
23	108	129	101	e52	e13	e1.8	45	17	2.1
24	70	17	3.6	e51	e10	e1.4	39	10	1.1
25	59	9	1.4	49	7	0.97	38	10	0.97
26	57	8	1.2	49	5	0.62	64	37	12
27	54	7	1.1	48	4	0.51	52	10	1.4
28	52	7	0.92	47	4	0.50	39	12	1.2
29	51	6	0.81	46	4	0.54	37	14	1.4
30	51	5	0.75	97	79	39	36	16	1.6
31	125	204	170	---	---	---	37	13	1.4
TOTAL	2,432	---	2,378.11	2,019.0	---	1,038.60	1,383	---	66.54

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	36	2	0.22	38	21	2.1	27	8	0.59
2	38	3	0.27	36	21	2.0	27	8	0.58
3	37	3	0.29	37	20	2.0	26	8	0.57
4	34	4	0.36	81	45	12	26	8	0.56
5	34	5	0.45	109	138	73	25	8	0.53
6	34	6	0.52	71	23	4.8	24	7	0.48
7	33	5	0.44	48	18	2.3	24	7	0.45
8	33	4	0.36	43	16	1.9	24	6	0.40
9	33	3	0.28	40	15	1.6	24	5	0.33
10	33	2	0.20	38	13	1.4	23	4	0.26
11	32	2	0.21	37	12	1.2	22	3	0.19
12	31	3	0.26	36	10	1.0	22	2	0.14
13	31	4	0.31	35	9	0.82	22	4	0.22
14	31	4	0.35	35	7	0.66	21	6	0.33
15	30	5	0.39	34	5	0.50	21	8	0.43
16	30	5	0.38	33	6	0.55	20	9	0.51
17	30	4	0.35	34	8	0.69	20	11	0.60
18	29	4	0.31	32	7	0.63	20	13	0.68
19	29	3	0.26	32	6	0.55	29	17	1.7
20	29	3	0.21	32	6	0.50	29	9	0.79
21	29	2	0.17	32	5	0.43	21	7	0.39
22	28	3	0.19	31	4	0.37	20	6	0.33
23	29	3	0.25	30	9	0.74	20	5	0.29
24	31	4	0.36	30	16	1.3	19	5	0.26
25	119	107	70	30	22	1.8	19	5	0.23
26	152	142	109	29	17	1.4	20	4	0.23
27	49	3	0.42	29	5	0.39	42	14	1.7
28	40	2	0.24	29	6	0.45	38	17	1.8
29	37	2	0.25	---	---	---	39	18	2.4
30	37	6	0.65	---	---	---	48	26	4.3
31	37	21	2.1	---	---	---	e24	e12	e0.79
TOTAL	1,235	---	190.05	1,121	---	117.08	786	---	23.06
		APRIL			MAY			JUNE	
1	e30	e13	e1.0	35	8	0.80	103	108	95
2	50	20	3.0	34	11	1.0	87	44	15
3	42	16	1.9	52	25	6.6	58	5	0.77
4	32	10	0.85	37	7	0.73	50	5	0.62
5	29	7	0.55	32	6	0.54	47	4	0.51
6	32	9	0.94	31	5	0.43	46	3	0.43
7	31	11	0.91	33	4	0.37	44	3	0.38
8	25	9	0.63	33	4	0.32	42	4	0.46
9	23	8	0.50	212	405	1,330	41	5	0.54
10	22	7	0.42	63	46	10	40	6	0.62
11	21	6	0.36	37	11	1.2	39	6	0.61
12	21	6	0.32	33	7	0.63	39	6	0.58
13	20	5	0.27	31	4	0.30	39	5	0.55
14	19	5	0.24	30	4	0.34	37	5	0.51
15	19	6	0.30	30	6	0.44	37	5	0.50
16	19	8	0.40	28	7	0.51	47	11	1.9
17	31	7	0.61	151	277	459	41	25	2.7
18	157	195	198	66	45	9.6	63	47	13
19	74	47	11	441	1,070	6,010	48	8	1.1
20	70	49	19	1,120	2,260	31,500	37	6	0.56
21	147	179	154	252	611	498	39	4	0.45
22	92	99	29	128	60	22	37	5	0.53
23	207	355	839	109	49	16	34	7	0.61
24	148	236	105	92	35	9.0	34	8	0.70
25	216	312	532	73	24	4.7	32	7	0.63
26	95	62	18	64	17	2.9	32	6	0.53
27	58	26	4.2	59	10	1.6	31	5	0.44
28	47	8	0.97	56	4	0.68	31	5	0.42
29	41	5	0.61	53	4	0.53	29	5	0.40
30	38	6	0.59	51	3	0.46	29	5	0.40
31	---	---	---	49	3	0.40	---	---	---
TOTAL	1,856	---	1,924.57	3,515	---	39,889.08	1,313	---	141.45

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	33	6	0.52	45	14	2.2	41	109	12
2	33	7	0.64	27	9	0.65	38	104	11
3	30	11	0.88	24	8	0.53	121	292	301
4	31	15	1.3	39	39	10	58	36	7.0
5	35	19	1.8	40	106	13	35	13	1.2
6	38	18	1.8	31	64	5.3	29	11	0.90
7	33	15	1.4	29	48	3.9	29	11	0.85
8	33	13	1.1	26	33	2.3	32	10	0.89
9	32	10	0.90	25	19	1.3	27	10	0.74
10	28	8	0.60	23	15	0.96	26	10	0.67
11	28	6	0.41	32	87	16	138	518	711
12	27	5	0.33	35	209	22	58	57	11
13	36	4	0.40	24	51	3.4	48	20	2.8
14	32	4	0.31	24	13	0.88	59	28	5.6
15	28	3	0.24	29	11	0.86	35	9	0.85
16	30	4	0.29	25	10	0.69	31	8	0.70
17	27	4	0.31	24	10	0.62	28	8	0.62
18	26	5	0.33	24	9	0.60	27	8	0.57
19	25	5	0.31	25	9	0.58	27	8	0.54
20	25	4	0.28	25	8	0.55	30	7	0.59
21	26	4	0.25	24	8	0.53	343	1,020	3,940
22	27	3	0.23	25	8	0.54	107	111	37
23	26	3	0.21	26	8	0.57	86	59	16
24	23	3	0.19	59	34	11	311	572	2,440
25	57	236	104	67	66	14	110	70	24
26	36	82	9.2	49	47	6.2	71	17	3.2
27	37	36	3.8	33	42	3.7	61	13	2.2
28	31	14	1.1	31	37	3.1	49	10	1.3
29	32	10	0.83	33	36	3.2	44	7	0.82
30	25	12	0.79	71	128	54	41	4	0.44
31	27	13	1.0	74	181	40	---	---	---
TOTAL	957	---	135.75	1,068	---	223.16	2,140	---	7,535.48
YEAR	19,825.0	53,662.93							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV 13...	1910	426	99	1,810	2,090

50027000 RIO LIMON ABOVE LAGO DOS BOCAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
NOV 13...	1710	1,170	48	60	73	89	94	98	99	100	100	100	2,920

Date	Suspended sediment discharge, tons/d (80155)
NOV 13...	9,220

50027100 LAGO DOS BOCAS AT DAMSITE NEAR UTUADO, PR

LOCATION.--Lat 18°20'16", long 66°40'05", Hydrologic Unit 21010001, on upstream side of road 146 over damsite, close to the center of dam, 10 mi (16 km) southeast of the city of Arecibo, 4.1 mi (6.6 km) north of Lago Caonillas Dam, 5.3 mi (8.53 km) northeast of Utuado Plaza, and 3.8 mi (6.1 km) southeast of Escuela Antonio S·nchez de Padilla.

DRAINAGE AREA.--169.45 mi^2 (438.87 km^2).

PERIOD OF RECORD.--March 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Dos Bocas was completed in 1942. The dam is a concrete gravity structure with a total length of 1,317 ft (401.4 m), a maximum height of 188 ft (57.3 m), and a maximum base width of 158 ft (48.2 m). No-overflow sections on each abutment have a total lenght of 957 ft (292 m). The dam and the powerplant comprise the Dos Bocas Hydroelectric Project, and provides 32,000 acre-feet (39.456 km^3). A three-unit powerplant is located on the right bank of the slitting basin. The dam is owned by Puerto Rico Electric Power Authority. The capacity of Lago Dos Bocas was computed to be 714.40 million ft^3 (20.23 million m^3) for June 1997. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 298.81 ft (91.08 m), November 8, 2001; minimum elevation, 283.88 ft (86.526 m), August 21, 2000.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 296.00 ft (90.221 m), May 20, 2003; minimum elevation, 285.32 ft (86.966 m), July 24.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

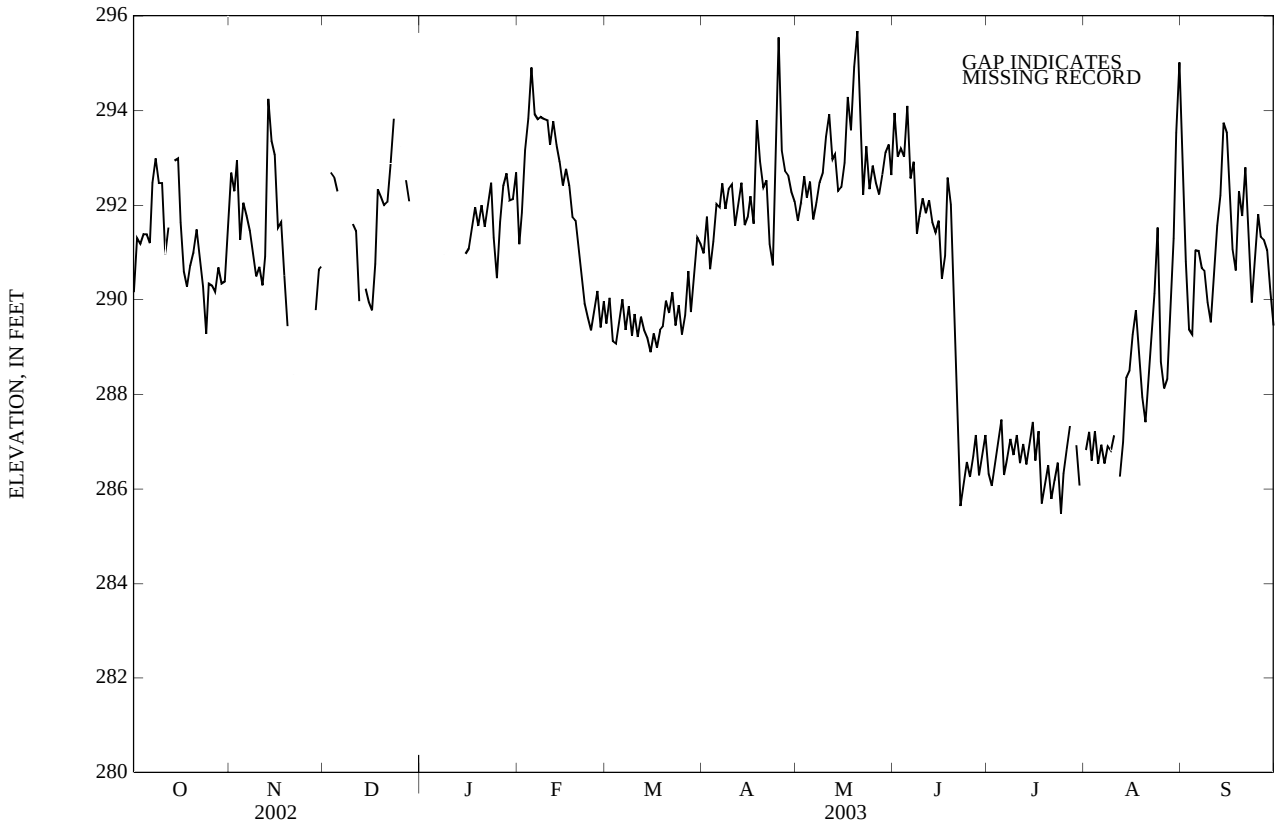
Elevation	Contents	Elevation	Contents
216	0	275	9,283
236	1,403	288	13,684
256	4,491	295	16,400

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290.16	292.69	A	A	291.17	289.49	290.98	291.67	293.95	286.32	286.82	293.15
2	291.31	292.30	A	290.94	291.83	290.03	291.75	292.06	293.02	286.06	287.20	290.81
3	291.18	292.95	292.69	A	293.16	289.13	290.64	292.60	293.20	286.55	286.59	289.37
4	291.38	291.27	292.59	A	293.83	289.07	291.22	292.16	293.03	287.03	287.21	289.26
5	291.38	292.05	292.29	A	294.91	289.52	292.02	292.50	294.10	287.46	286.52	291.05
6	291.20	291.78	A	292.46	293.92	290.01	291.95	291.70	292.56	286.30	286.93	291.04
7	292.47	291.47	A	A	293.81	289.35	292.46	292.05	292.92	286.65	286.54	290.67
8	292.99	291.01	281.81	290.95	293.87	289.86	291.91	292.48	291.38	287.06	286.90	290.62
9	292.47	290.49	A	A	293.83	289.23	292.33	292.69	291.76	286.71	286.81	289.94
10	292.47	290.69	291.61	A	293.80	289.70	292.43	293.45	292.14	287.13	287.14	289.52
11	290.96	290.31	291.45	A	293.27	289.21	291.56	293.92	291.84	286.54	A	290.64
12	291.52	290.91	289.96	A	293.77	289.64	292.03	292.97	292.11	286.95	286.25	291.56
13	A	294.25	A	290.99	293.28	289.36	292.47	293.08	291.64	286.51	286.99	292.20
14	292.94	293.37	290.23	A	292.91	289.19	291.58	292.29	291.43	286.97	288.36	293.74
15	292.98	293.06	289.95	290.97	292.42	288.89	291.77	292.38	291.67	287.40	288.50	293.54
16	291.63	291.52	289.78	291.08	292.77	289.29	292.18	292.89	290.44	286.59	289.26	292.38
17	290.60	291.64	290.75	291.52	292.41	288.99	291.61	294.29	290.92	287.22	289.77	291.06
18	290.28	290.50	292.33	291.96	291.75	289.35	293.80	293.58	292.58	285.68	288.93	290.61
19	290.73	289.44	292.17	291.56	291.67	289.42	292.92	294.92	292.01	286.10	287.93	292.29
20	291.01	---	292.00	292.00	291.12	289.98	292.37	295.68	290.38	286.50	287.40	291.77
21	291.48	288.42	292.06	291.53	290.51	289.72	292.52	293.38	288.45	285.78	288.12	292.80
22	290.90	A	292.88	292.02	289.92	290.16	291.17	292.21	285.63	286.19	289.16	291.39
23	290.28	A	293.83	292.47	289.63	289.45	290.73	293.24	286.09	286.55	290.13	289.94
24	289.27	A	A	291.30	289.35	289.89	293.39	292.33	286.56	285.47	291.52	290.79
25	290.34	A	293.23	290.45	289.75	289.26	295.55	292.83	286.26	286.32	288.68	291.81
26	290.30	289.64	A	291.65	290.18	289.67	293.15	292.47	286.69	286.84	288.13	291.33
27	290.17	A	292.53	292.42	289.41	290.60	292.73	292.23	287.14	287.33	288.33	291.27
28	290.68	289.78	292.08	292.67	289.97	289.74	292.63	292.64	286.28	A	289.99	291.05
29	290.35	290.63	A	292.10	---	290.45	292.28	293.12	286.70	286.92	291.29	290.18
30	290.39	290.69	A	292.13	---	291.32	292.08	293.28	287.14	286.06	293.53	289.45
31	291.69	---	291.09	292.69	---	291.19	---	292.63	---	A	295.01	---
MAX	---	---	---	---	294.91	291.32	295.55	295.68	294.10	---	---	293.74
MIN	---	---	---	---	289.35	288.89	290.64	291.67	285.63	---	---	289.26

A No gage-height record

50027100 LAGO DOS BOCAS AT DAMSITE NEAR UTUADO, PR—Continued



50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

LOCATION.--Lat 18°20'50", long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida Plaza.

DRAINAGE AREA.--169 mi^2 (436 km^2). This does not include 6.0 mi^2 (15.5 km^2) above Lago Garzas.

PERIOD OF RECORD.--Water years 1970-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC 09...	1200	27	7.2	6.0	74	6.4	228	25.5	85	23.4	6.40	2.02	.5
MAR 18...	1200	32	E3.2	5.9	--	7.5	234	26.0	90	24.1	7.13	2.13	.5
MAY 21...	1555	--	370	5.8	--	7.2	160	25.7	59	16.3	4.56	2.30	.4
AUG 19...	1048	--	6.7	5.4	--	7.2	216	27.7	--	--	--	--	--
SEP 18...	1550	--	18	4.7	--	7.2	213	27.5	81	22.3	6.23	2.29	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC 09...	9.73	81	10.5	<.17	24.6	11.0	--	136	--	<10	.30	.03	.69
MAR 18...	11.5	89	11.5	.12	23.4	12.9	<.1	146	12.7	<10	.30	.13	.09
MAY 21...	7.58	57	7.65	<.2	17.5	9.0	<.1	99	--	132	.90	.10	.60
AUG 19...	--	80	--	--	--	--	--	--	--	<10	.40	.23	.14
SEP 18...	9.16	78	9.95	<.2	21.1	11.1	--	129	--	10	.50	.02	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC 09...	.720	.03	.27	.03	1.0	4.5	<10	E16	121	--	--	--	--
MAR 18...	.100	.01	.17	<.02	.40	1.8	<10	E5	--	300	<2	39.0	<18
MAY 21...	.650	.05	.80	.22	1.6	6.9	10	2,800	--	E8,000	<2	87.0	E17
AUG 19...	.160	.02	.17	<.02	.56	2.5	<10	E11	--	240	--	--	--
SEP 18...	.920	<.01	.48	.02	1.4	6.3	<10	E66	--	290	--	--	--

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
18...	<.2	<.8	<10	M	90	<1	134	<.02	<3	<.3	<25	<.10	<16
MAY													
21...	<.2	4.9	20	<.01	5,270	3	220	.02	<3	E.2	27	<.10	<16
AUG													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50027600 RIO GRANDE DE ARECIBO NEAR SAN PEDRO, PR

LOCATION.--Lat 18°23'55", long 66°41'29", Hydrologic Unit 21010002, on left side of old Highway 10, 7.2 mi (11.6 km) north of Lago Dos Bocas Dam, 5.4 mi (8.69 km) from Plaza Rosario at Arecibo town and 3.8 mi (6.11 km) east from La Esperanza School.

DRAINAGE AREA.--173.7 mi^2 (449 km^2), approximately, of which an undetermined amount does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 yearly measurements only, May 2001 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 49.2 ft (15 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow affected by Lago Dos Bocas Dam 7.2 mi (11.6 km) upstream from gage. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	187	e112	100	e502	235	210	243	308	295	67	1,020
2	172	565	e98	308	172	88	58	155	549	214	60	1,090
3	329	304	e277	123	65	e238	384	56	396	53	112	1,070
4	270	722	e210	193	100	e173	266	54	117	50	165	594
5	342	229	e297	75	206	e77	56	225	227	51	280	181
6	269	183	e203	53	611	57	274	286	680	333	54	350
7	583	277	e203	52	253	e311	60	60	117	111	88	531
8	581	288	e192	506	189	49	269	53	404	86	166	622
9	705	298	e181	173	194	276	60	348	174	205	125	632
10	742	281	265	70	178	48	91	74	78	68	51	549
11	791	295	272	e78	386	e277	349	56	111	245	339	567
12	306	132	596	e154	60	51	60	317	189	55	112	575
13	289	245	204	122	154	201	47	114	146	221	48	607
14	556	931	150	59	254	159	308	306	233	62	44	185
15	797	713	345	293	269	116	64	126	154	48	377	634
16	700	808	192	139	167	141	91	60	408	288	98	875
17	567	314	246	e78	91	268	324	129	139	55	154	803
18	451	494	168	e60	312	65	350	656	59	305	426	639
19	211	483	214	234	264	272	698	690	192	156	385	203
20	261	298	e221	55	148	57	501	1,420	707	47	238	404
21	350	409	e179	e47	286	197	599	1,670	468	243	64	452
22	478	319	e163	e54	279	59	993	979	733	55	48	690
23	607	127	e160	50	240	199	564	250	131	46	83	559
24	550	60	296	396	260	133	176	505	56	301	97	327
25	178	168	334	615	134	235	635	185	129	61	812	306
26	177	164	334	370	63	149	1,240	261	111	64	377	308
27	309	87	298	69	323	61	368	213	57	49	332	224
28	132	289	180	107	74	385	238	165	305	322	148	208
29	252	e177	e201	217	---	91	206	84	62	55	176	336
30	286	e122	293	257	---	46	264	59	52	267	191	306
31	353	---	255	e67	---	191	---	243	---	60	455	---
TOTAL	12,838	9,969	7,339	5,174	6,234	4,905	9,803	10,042	7,492	4,471	6,172	15,847
MEAN	414	332	237	167	223	158	327	324	250	144	199	528
MAX	797	931	596	615	611	385	1,240	1,670	733	333	812	1,090
MIN	132	60	98	47	60	46	47	53	52	46	44	181
AC-FT	25,460	19,770	14,560	10,260	12,370	9,730	19,440	19,920	14,860	8,870	12,240	31,430
CFSM	2.38	1.91	1.36	0.96	1.28	0.91	1.88	1.86	1.44	0.83	1.15	3.04
IN.	2.75	2.13	1.57	1.11	1.34	1.05	2.10	2.15	1.60	0.96	1.32	3.39

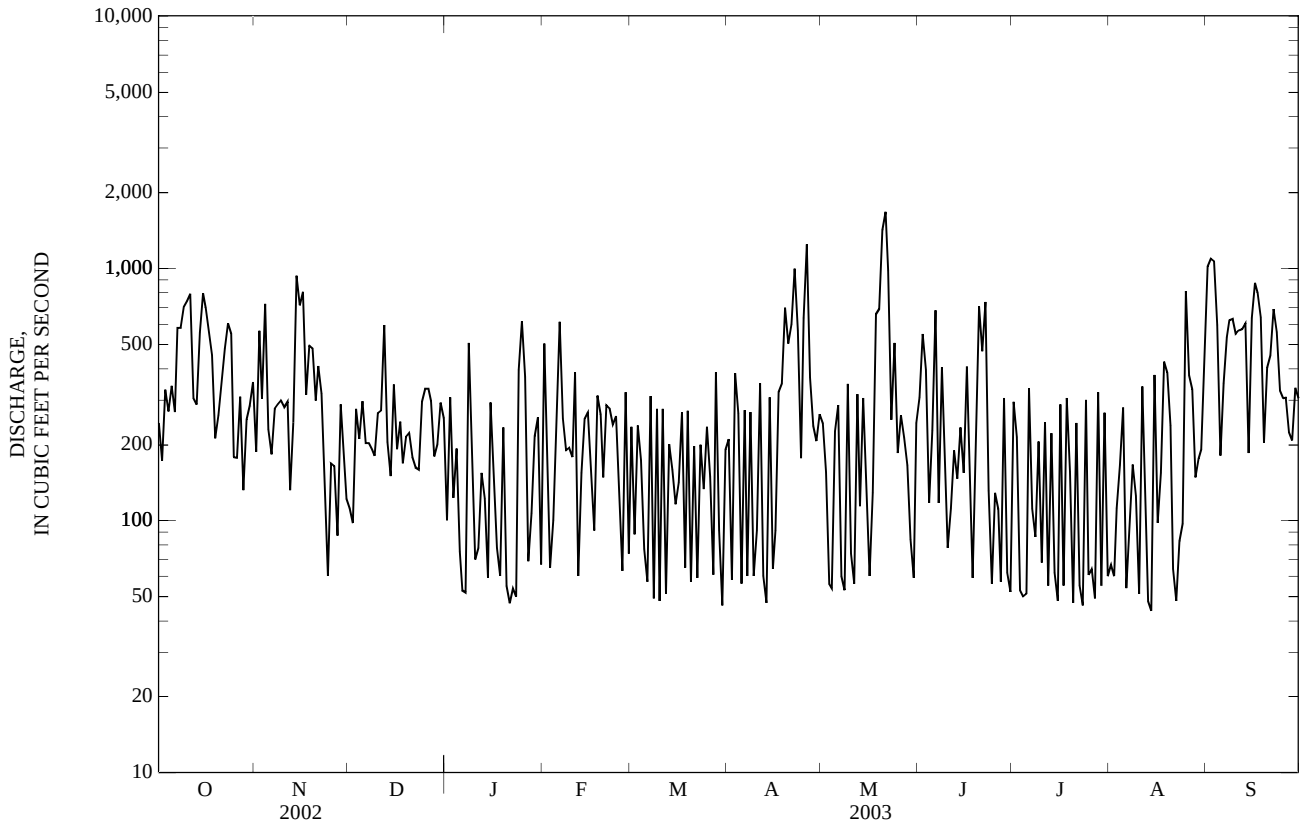
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	386	547	340	214	191	159	592	482	257	239	296	470
MAX	414	762	443	261	223	160	857	640	278	303	347	528
(WY)	(2003)	(2002)	(2002)	(2002)	(2003)	(2002)	(2002)	(2002)	(2001)	(2001)	(2002)	(2003)
MIN	358	332	237	167	160	158	327	324	245	144	199	419
(WY)	(2002)	(2003)	(2003)	(2003)	(2002)	(2003)	(2003)	(2003)	(2002)	(2003)	(2003)	(2002)

50027600 RIO GRANDE DE ARECIBO NEAR SAN PEDRO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	132,280		100,286			
ANNUAL MEAN	362		275		343	
HIGHEST ANNUAL MEAN					410	2002
LOWEST ANNUAL MEAN					275	2003
HIGHEST DAILY MEAN	2,850	Apr 30	1,670	May 21	7,130	Nov 8, 2001
LOWEST DAILY MEAN	50	Feb 9	44	Aug 14	44	Aug 14, 2003
ANNUAL SEVEN-DAY MINIMUM	113	Feb 3	83	Jan 17	83	Jan 17, 2003
MAXIMUM PEAK FLOW			2,480	May 20	14,900	Nov 8, 2001
MAXIMUM PEAK STAGE			9.03	May 20	14.72	Nov 8, 2001
ANNUAL RUNOFF (AC-FT)	262,400		198,900		248,200	
ANNUAL RUNOFF (CFSM)	2.09		1.58		1.97	
ANNUAL RUNOFF (INCHES)	28.33		21.48		26.80	
10 PERCENT EXCEEDS	695		602		656	
50 PERCENT EXCEEDS	264		214		250	
90 PERCENT EXCEEDS	132		57		65	

e Estimated



50027600 RIO GRANDE DE ARECIBO NEAR SAN PEDRO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 yearly measurements only, May 2001 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2001 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 2001.

REMARKS.-- Sediment samples were collected by local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 671 mg/L November 9, 2001; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 14,700 tons (13,336 tonnes) November 8, 2001; Minimum daily mean, 0.19 ton (0.17 tonne) July 27, 2002.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 166 mg/L April 26, 2003; Minimum daily mean, 2 mg/L November 24, 2002.
SEDIMENT LOADS: Maximum daily mean, 679 tons (616 tonnes) April 26, 2003; Minimum daily mean, 0.39 ton (0.35 tonne) July 15, 200 3.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	244	23	34	187	7	11	e112	e7	e3.4
2	172	27	32	565	20	47	e98	e3	e0.70
3	329	39	82	304	14	22	e277	e12	e19
4	270	33	58	722	25	71	e210	e13	e11
5	342	33	62	229	12	14	e297	e12	e19
6	269	31	58	183	7	11	e203	e13	e11
7	583	53	158	277	14	20	e203	e13	e11
8	581	45	128	288	13	18	e192	e6	e5.4
9	705	41	127	298	15	22	e181	e6	e5.4
10	742	49	155	281	16	22	265	14	20
11	791	23	55	295	15	15	272	12	19
12	306	15	19	132	7	3.4	596	29	88
13	289	25	40	245	9	15	204	13	11
14	556	44	101	931	34	117	150	5	4.1
15	797	48	148	713	28	84	345	9	12
16	700	41	116	808	31	100	192	6	5.4
17	567	25	53	314	18	25	246	7	7.4
18	451	24	39	494	11	15	168	6	4.6
19	211	16	14	483	8	11	214	6	6.5
20	261	18	20	298	10	7.6	e221	e6	e6.5
21	350	21	29	409	16	30	e179	e6	e4.6
22	478	24	42	319	21	25	e163	e6	e4.6
23	607	47	119	127	8	5.1	e160	e6	e4.6
24	550	25	53	60	2	0.44	296	7	9.6
25	178	11	12	168	6	4.5	334	7	11
26	177	6	10	164	9	9.6	334	8	12
27	309	14	22	87	3	0.70	298	7	10
28	132	8	5.5	289	11	19	180	8	6.2
29	252	8	13	e177	e9	e9.6	e201	e7	e6.3
30	286	11	18	e122	e7	e3.4	293	8	11
31	353	12	17	---	---	---	255	7	8.8
TOTAL	12,838	---	1,839.5	9,969	---	758.34	7,339	---	359.10

50027600 RIO GRANDE DE ARECIBO NEAR SAN PEDRO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	100	5	2.1	e502	e11	e20	235	6	5.2
2	308	7	11	172	8	5.9	88	6	1.6
3	123	6	3.2	65	6	0.96	e238	e7	e8.1
4	193	7	6.3	100	5	2.1	e173	e6	e3.4
5	75	4	0.79	206	7	5.1	e77	e6	e1.4
6	53	4	0.51	611	11	23	57	5	0.83
7	52	3	0.46	253	8	6.9	e311	e8	e11
8	506	9	22	189	7	4.8	49	7	0.88
9	173	8	7.1	194	7	5.1	276	9	10
10	70	5	0.89	178	7	4.7	48	7	0.86
11	e78	e5	e0.89	386	8	11	e277	e7	e6.5
12	e154	e6	e3.6	60	6	0.95	51	7	0.92
13	122	6	2.7	154	6	5.0	201	7	4.7
14	59	4	0.71	254	8	9.1	159	7	3.5
15	293	8	11	269	8	9.8	116	7	2.6
16	139	6	3.6	167	7	5.8	141	7	3.3
17	e78	e5	e0.89	91	5	1.9	268	8	6.7
18	e60	e4	e0.71	312	7	7.5	65	7	1.2
19	234	7	8.6	264	8	9.5	272	8	7.0
20	55	6	0.83	148	6	4.5	57	8	1.2
21	e47	e4	e0.55	286	8	10	197	8	5.2
22	e54	e6	e0.83	279	8	10	59	9	1.4
23	50	4	0.55	240	8	9.2	199	13	11
24	396	8	16	260	8	9.2	133	10	4.7
25	615	10	18	134	8	4.3	235	12	12
26	370	7	8.1	63	5	0.84	149	17	8.0
27	69	5	0.92	323	7	8.6	61	14	2.3
28	107	4	1.2	74	6	1.2	385	16	23
29	217	5	7.6	---	---	---	91	8	2.7
30	257	8	8.1	---	---	---	46	5	0.68
31	e67	e5	e0.92	---	---	---	191	10	8.6
TOTAL	5,174	---	150.65	6,234	---	196.95	4,905	---	160.47
		APRIL			MAY			JUNE	
1	210	9	8.6	243	47	64	308	60	101
2	58	6	0.95	155	39	32	549	85	183
3	384	11	19	56	16	2.5	396	103	167
4	266	16	14	54	11	1.6	117	59	23
5	56	13	1.9	225	43	37	227	67	47
6	274	17	21	286	33	49	680	50	88
7	60	11	1.8	60	10	1.6	117	20	6.3
8	269	16	21	53	9	1.4	404	25	44
9	60	4	0.73	348	29	60	174	49	25
10	91	3	0.77	74	17	3.6	78	44	9.3
11	349	11	25	56	12	1.8	111	42	14
12	60	7	1.1	317	27	49	189	43	26
13	47	6	0.73	114	13	4.0	146	35	14
14	308	16	24	306	27	44	233	44	30
15	64	18	3.2	126	12	4.6	154	46	20
16	91	19	4.5	60	15	2.5	408	41	49
17	324	76	195	129	16	15	139	35	13
18	350	81	223	656	72	145	59	36	5.8
19	698	116	287	690	71	162	192	38	22
20	501	92	159	1,420	68	291	707	29	69
21	599	122	276	1,670	94	436	468	19	48
22	993	163	528	979	43	121	733	23	71
23	564	73	155	250	31	28	131	34	12
24	176	103	59	505	38	63	56	31	4.7
25	635	78	194	185	29	17	129	28	9.4
26	1,240	166	679	261	32	32	111	25	7.6
27	368	65	98	213	33	32	57	22	3.4
28	238	48	61	165	31	26	305	30	32
29	206	41	39	84	32	7.1	62	36	6.1
30	264	47	68	59	44	6.9	52	35	4.9
31	---	---	---	243	45	73	---	---	---
TOTAL	9,803	---	3,169.28	10,042	---	1,813.6	7,492	---	1,155.5

50027600 RIO GRANDE DE ARECIBO NEAR SAN PEDRO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	295	30	28	67	12	2.2	1,020	8	22
2	214	15	18	60	12	1.9	1,090	9	26
3	53	5	0.77	112	13	6.4	1,070	10	28
4	50	5	0.62	165	8	8.7	594	11	24
5	51	4	0.60	280	12	20	181	17	8.6
6	333	13	23	54	13	1.8	350	16	17
7	111	6	1.7	88	12	4.5	531	18	28
8	86	5	1.1	166	13	9.0	622	18	33
9	205	9	11	125	18	9.3	632	18	33
10	68	6	1.3	51	30	4.2	549	18	29
11	245	9	16	339	25	30	567	18	30
12	55	4	0.57	112	8	3.3	575	18	30
13	221	10	16	48	14	1.8	607	18	32
14	62	4	0.64	44	22	2.6	185	17	8.7
15	48	3	0.39	377	21	30	634	18	33
16	288	10	20	98	6	4.0	875	20	47
17	55	4	0.55	154	7	7.1	803	20	43
18	305	11	23	426	14	30	639	17	30
19	156	8	7.8	385	15	28	203	12	6.9
20	47	4	0.57	238	16	18	404	11	12
21	243	10	16	64	26	4.4	452	9	10
22	55	5	0.71	48	16	2.1	690	8	15
23	46	4	0.54	83	15	4.5	559	9	14
24	301	12	23	97	18	5.4	327	10	8.9
25	61	9	1.6	812	41	136	306	11	8.7
26	64	9	1.5	377	17	18	308	7	6.1
27	49	8	1.0	332	15	15	224	7	4.4
28	322	13	24	148	9	5.5	208	7	4.1
29	55	9	1.4	176	3	2.1	336	7	6.8
30	267	13	20	191	3	2.9	306	7	5.8
31	60	13	2.2	455	6	9.1	---	---	---
TOTAL	4,471	---	263.56	6,172	---	427.8	15,847	---	605.0
YEAR	100,286	10,899.75							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR 26...	0439	1,620	93	430	1,880

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA.--18.4 mi^2 (47.7 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.3 ft (286.0 m) above mean sea level. Datum of gage was increased by 3.0 ft (0.91 m) on October 1978.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	81	36	25	20	12	17	23	37	23	19	23
2	38	108	34	25	19	12	18	21	36	26	19	21
3	36	59	34	25	19	12	16	21	33	23	36	23
4	54	43	37	23	25	11	15	31	32	23	33	19
5	39	39	35	22	40	11	14	41	41	22	23	18
6	35	38	32	23	30	11	16	29	38	22	31	17
7	62	36	31	23	20	12	14	33	32	22	38	58
8	44	34	31	22	19	11	13	34	31	22	28	27
9	67	34	30	22	18	11	13	27	30	23	20	20
10	118	33	29	22	17	12	12	48	32	22	19	18
11	48	32	28	22	17	11	13	36	33	22	32	41
12	41	170	27	21	16	11	13	31	28	23	27	25
13	56	168	28	21	17	11	12	28	38	19	21	34
14	79	82	28	20	18	11	13	26	33	19	28	30
15	49	57	27	21	16	11	12	41	27	18	28	22
16	40	63	27	20	15	11	12	53	27	19	23	20
17	38	53	38	20	15	11	16	101	26	20	27	19
18	36	47	37	19	14	11	53	88	58	18	26	18
19	36	45	28	20	14	15	28	82	35	17	28	19
20	34	43	27	18	15	14	30	221	29	19	20	27
21	77	e41	26	19	13	12	52	124	27	18	18	24
22	42	e40	27	20	13	11	74	127	26	20	18	25
23	47	39	200	19	13	11	41	72	25	19	41	19
24	39	37	45	21	12	11	76	57	24	19	33	151
25	35	37	30	33	12	11	223	50	24	19	30	127
26	39	39	27	45	12	13	71	46	24	18	27	61
27	34	37	26	24	13	21	38	44	24	21	22	34
28	32	39	25	21	12	19	29	40	23	25	21	28
29	33	38	25	21	---	23	26	38	23	20	23	25
30	48	44	24	21	---	30	24	36	22	17	43	24
31	63	---	24	20	---	e14	---	34	---	19	36	---
TOTAL	1,480	1,656	1,103	698	484	408	1,004	1,683	918	637	838	1,017
MEAN	47.7	55.2	35.6	22.5	17.3	13.2	33.5	54.3	30.6	20.5	27.0	33.9
MAX	118	170	200	45	40	30	223	221	58	26	43	151
MIN	32	32	24	18	12	11	12	21	22	17	18	17
AC-FT	2,940	3,280	2,190	1,380	960	809	1,990	3,340	1,820	1,260	1,660	2,020
CFSM	2.59	3.00	1.93	1.22	0.94	0.72	1.82	2.95	1.66	1.12	1.47	1.84
IN.	2.99	3.35	2.23	1.41	0.98	0.82	2.03	3.40	1.86	1.29	1.69	2.06

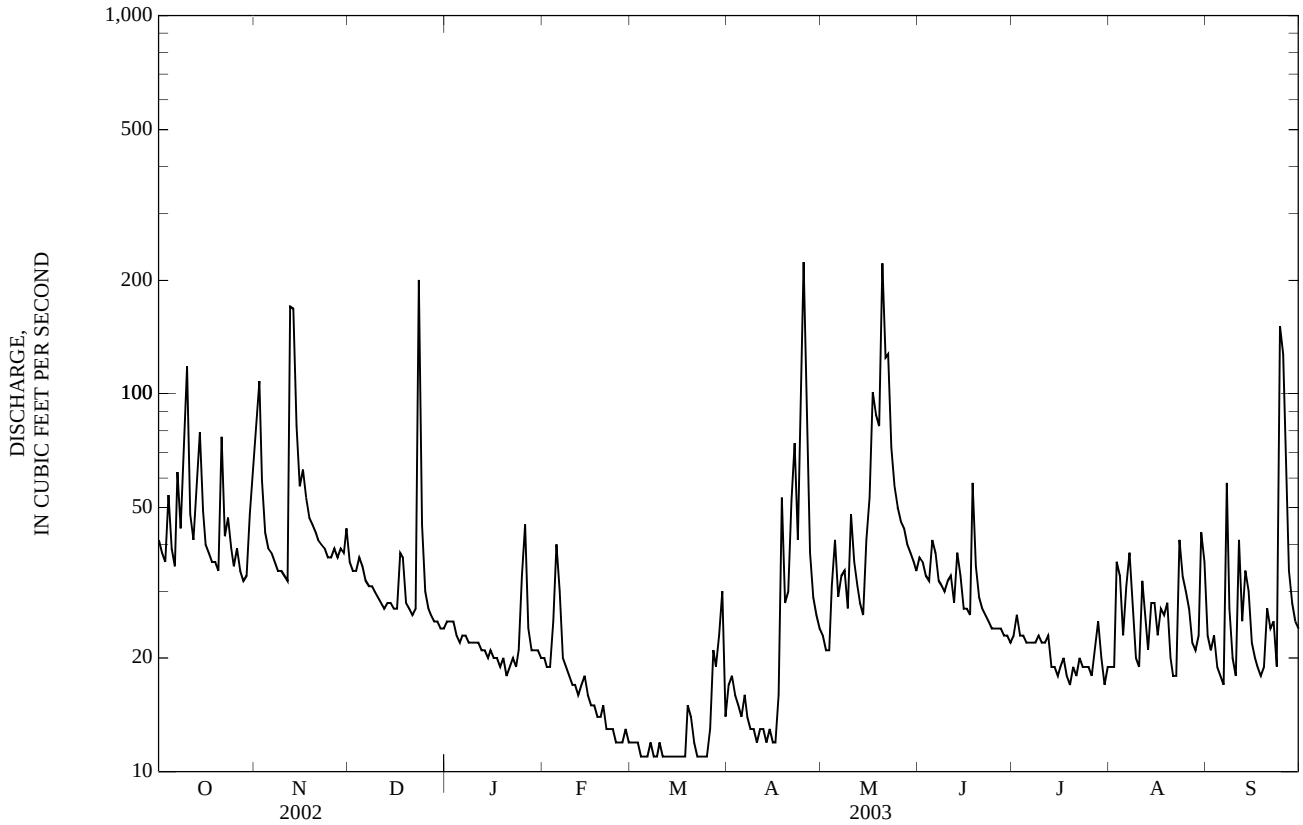
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	80.9	70.2	43.6	30.2	25.8	24.8	38.2	58.3	44.0	36.0	47.2	77.2
MAX	195	159	121	71.0	50.8	71.2	151	193	117	65.7	110	208
(WY)	(1990)	(1969)	(1966)	(1997)	(1996)	(1972)	(2002)	(1963)	(1999)	(1981)	(1979)	(1998)
MIN	25.4	25.1	18.1	14.7	13.2	11.0	9.70	12.4	15.6	9.18	15.9	25.0
(WY)	(1963)	(1995)	(1998)	(1998)	(1965)	(1984)	(1984)	(1977)	(1994)	(1994)	(1994)	(1994)

50028000 RIO TANAMA NEAR UTUADO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	21,088		11,926			
ANNUAL MEAN	57.8		32.7		48.1	
HIGHEST ANNUAL MEAN					71.7	1999
LOWEST ANNUAL MEAN					20.7	1994
HIGHEST DAILY MEAN	305	Apr 27	223	Apr 25	3,260	Sep 22, 1998
LOWEST DAILY MEAN	18	Mar 25	11	Mar 4	5.4	Aug 4, 1994
ANNUAL SEVEN-DAY MINIMUM	19	Mar 1	11	Mar 11	6.4	Jul 29, 1994
MAXIMUM PEAK FLOW			1,960	Nov 12	23,500	Sep 22, 1998
MAXIMUM PEAK STAGE			10.24	Nov 12	21.24	Sep 22, 1998
INSTANTANEOUS LOW FLOW			10	Mar 16	5.4	Aug 4, 1994
ANNUAL RUNOFF (AC-FT)	41,830		23,660		34,840	
ANNUAL RUNOFF (CFSM)	3.14		1.78		2.61	
ANNUAL RUNOFF (INCHES)	42.63		24.11		35.52	
10 PERCENT EXCEEDS	111		53		87	
50 PERCENT EXCEEDS	41		26		34	
90 PERCENT EXCEEDS	23		13		16	

e Estimated



50028000 RIO TANAMA NEAR UTUADO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
11...	1000	29	4.2	8.9	100	6.6	170	20.1	59	14.3	5.64	1.68	.4
MAR													
19...	1115	11	4.7	8.7	--	8.0	167	24.2	61	15.0	5.77	1.58	.5
MAY													
12...	1415	27	20	8.7	--	8.5	164	26.5	59	15.5	5.04	2.15	.4
AUG													
20...	1415	19	89	8.0	--	8.0	150	27.9	--	--	--	--	--
SEP													
16...	0900	21	16	8.3	--	7.7	169	23.9	63	16.3	5.42	2.12	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
11...	7.59	85	7.80	<.17	26.1	10.1	--	124	9.88	<10	<.20	<.01	--
MAR													
19...	8.32	57	8.20	.07	23.5	12.3	<.1	109	3.12	<10	<.20	.02	--
MAY													
12...	7.59	52	8.04	<.17	23.1	10.0	<.1	103	7.37	<10	<.20	.01	--
AUG													
20...	--	48	--	--	--	--	--	--	--	23	.30	.04	.83
SEP													
16...	7.18	57	8.19	<.2	24.9	10.8	--	109	6.10	<10	<.20	.01	.77

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
11...	.950	<.01	--	<.02	--	--	<10	110	E535	--	--	--	--
MAR													
19...	.600	<.01	--	<.02	--	--	<10	E61	--	2,500	<2	24.7	<18
MAY													
12...	.700	<.01	--	<.02	--	--	<10	500	--	3,000	<2	26.1	E10
AUG													
20...	.850	.02	.26	.03	1.1	5.1	10	E1,100	--	7,500	--	--	--
SEP													
16...	.780	.01	--	.02	--	--	10	150	--	3,300	--	--	--

50028000 RIO TANAMA NEAR UTUADO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
19...	<.2	<.8	<10	<.01	40	<1	13.2	<.02	<3	<.3	<25	<.10	<16
MAY													
12...	<.2	E.6	M	<.01	350	<1	33.0	<.02	<3	<.3	E24	<.10	<16
AUG													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50028000 RIO TANAMA NEAR UTUADO, PR.—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler since October 1968. Automatic sediment sampler since 1990.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; Minimum daily mean, 1 mg/L several days during several years.
SEDIMENT LOADS: Maximum daily mean, 240,000 tons (218,000 tonnes) September 22, 1998; Minimum daily mean, <0.01 ton (<0.01 tonne) several days during several years.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,190 mg/L April 25, 2003; Minimum daily mean, 2 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 2,590 tons (2,350 tonnes) April 25, 2003; Minimum daily mean, 0.07 ton (0.06 tonne) April 15 , 16, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	41	34	3.9	81	197	116	36	9	0.88
2	38	7	0.72	108	338	277	34	7	0.61
3	36	7	0.68	59	93	17	34	5	0.50
4	54	61	19	43	25	2.9	37	6	0.56
5	39	12	1.3	39	20	2.1	35	6	0.59
6	35	7	0.66	38	17	1.7	32	7	0.58
7	62	98	37	36	14	1.4	31	6	0.47
8	44	101	12	34	14	1.3	31	4	0.32
9	67	151	46	34	15	1.3	30	4	0.31
10	118	465	699	33	15	1.3	29	6	0.49
11	48	56	7.5	32	15	1.3	28	7	0.50
12	41	40	4.4	170	635	1,970	27	7	0.50
13	56	82	26	168	682	1,290	28	7	0.52
14	79	180	104	82	152	40	28	7	0.52
15	49	55	7.5	57	59	9.2	27	7	0.50
16	40	42	4.6	63	85	18	27	7	0.50
17	38	39	3.9	53	45	6.4	38	28	7.1
18	36	32	3.1	47	18	2.3	37	21	3.0
19	36	25	2.4	45	11	1.3	28	6	0.44
20	34	17	1.6	43	8	0.91	27	5	0.37
21	77	148	71	e41	e5	e0.59	26	5	0.33
22	42	41	4.8	e40	e5	e0.54	27	4	0.32
23	47	36	6.5	39	5	0.53	200	1,180	2,200
24	39	25	2.8	37	5	0.51	45	172	24
25	35	8	0.76	37	5	0.50	30	64	5.2
26	39	8	0.84	39	5	0.49	27	36	2.6
27	34	8	0.72	37	4	0.44	26	12	0.83
28	32	8	0.70	39	17	2.4	25	8	0.54
29	33	8	0.72	38	31	3.4	25	7	0.46
30	48	39	18	44	32	4.3	24	13	0.81
31	63	96	29	---	---	---	24	15	0.98
TOTAL	1,480	---	1,121.10	1,656	---	3,775.11	1,103	---	2,255.33

50028000 RIO TANAMA NEAR UTUADO, PR.—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	25	11	0.75	20	18	0.96	12	5	0.17
2	25	7	0.51	19	19	0.94	12	5	0.15
3	25	4	0.29	19	19	0.97	12	4	0.14
4	23	4	0.28	25	18	1.2	11	4	0.13
5	22	5	0.28	40	61	19	11	5	0.16
6	23	5	0.30	30	49	4.5	11	6	0.18
7	23	5	0.28	20	5	0.26	12	6	0.19
8	22	4	0.25	19	4	0.20	11	6	0.18
9	22	4	0.23	18	4	0.20	11	6	0.18
10	22	3	0.21	17	4	0.18	12	6	0.19
11	22	3	0.18	17	4	0.20	11	6	0.18
12	21	3	0.15	16	7	0.33	11	6	0.18
13	21	2	0.13	17	11	0.48	11	6	0.18
14	20	2	0.12	18	13	0.62	11	6	0.19
15	21	3	0.15	16	12	0.50	11	6	0.18
16	20	3	0.18	15	9	0.36	11	6	0.18
17	20	4	0.21	15	7	0.27	11	6	0.17
18	19	5	0.24	14	6	0.23	11	6	0.18
19	20	5	0.28	14	6	0.23	15	6	0.24
20	18	6	0.29	15	6	0.23	14	6	0.23
21	19	6	0.30	13	5	0.16	12	6	0.19
22	20	6	0.31	13	4	0.13	11	6	0.18
23	19	6	0.29	13	7	0.23	11	6	0.19
24	21	5	0.31	12	11	0.35	11	6	0.18
25	33	5	0.47	12	14	0.46	11	6	0.19
26	45	5	0.62	12	10	0.33	13	7	0.24
27	24	5	0.32	13	6	0.21	21	7	0.39
28	21	5	0.28	12	6	0.18	19	7	0.37
29	21	5	0.29	---	---	---	23	11	1.1
30	21	9	0.50	---	---	---	30	23	3.2
31	20	14	0.75	---	---	---	e14	e8	e0.31
TOTAL	698	---	9.75	484	---	33.91	408	---	10.12
		APRIL			MAY			JUNE	
1	17	7	0.31	23	12	0.72	37	6	0.59
2	18	7	0.34	21	9	0.49	36	6	0.58
3	16	7	0.31	21	6	0.34	33	6	0.53
4	15	7	0.28	31	27	5.0	32	6	0.48
5	14	7	0.28	41	46	7.5	41	31	5.0
6	16	8	0.34	29	51	4.2	38	33	3.6
7	14	8	0.32	33	25	3.2	32	20	1.8
8	13	9	0.31	34	29	2.8	31	14	1.1
9	13	11	0.38	27	19	1.4	30	13	1.0
10	12	7	0.23	48	131	80	32	12	1.0
11	13	3	0.11	36	32	3.7	33	12	1.1
12	13	3	0.10	31	24	2.1	28	12	0.92
13	12	3	0.09	28	20	1.6	38	35	7.8
14	13	2	0.08	26	17	1.1	33	7	0.65
15	12	2	0.07	41	60	15	27	8	0.56
16	12	2	0.07	53	138	56	27	9	0.65
17	16	2	0.08	101	282	213	26	10	0.69
18	53	78	17	88	207	101	58	85	26
19	28	35	3.3	82	198	98	35	35	3.4
20	30	32	3.8	221	690	1,420	29	22	1.7
21	52	76	19	124	301	157	27	17	1.3
22	74	139	58	127	377	303	26	13	0.96
23	41	51	6.3	72	226	44	25	10	0.66
24	76	228	150	57	169	26	24	7	0.47
25	223	1,190	2,590	50	116	16	24	12	0.76
26	71	130	32	46	63	7.7	24	17	1.1
27	38	36	3.7	44	18	2.2	24	8	0.54
28	29	20	1.6	40	9	0.98	23	4	0.22
29	26	14	0.98	38	17	1.7	23	4	0.25
30	24	12	0.76	36	12	1.1	22	5	0.27
31	---	---	---	34	6	0.55	---	---	---
TOTAL	1,004	---	2,890.14	1,683	---	2,577.38	918	---	65.68

50028000 RIO TANAMA NEAR UTUADO, PR.—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	23	5	0.32	19	7	0.35	23	24	1.5
2	26	7	0.46	19	6	0.33	21	18	1.0
3	23	8	0.49	36	36	7.7	23	16	1.0
4	23	9	0.54	33	33	3.8	19	15	0.78
5	22	8	0.48	23	18	1.2	18	14	0.66
6	22	7	0.44	31	26	2.9	17	14	0.61
7	22	7	0.41	38	35	4.2	58	163	131
8	22	6	0.37	28	23	1.9	27	40	3.0
9	23	6	0.38	20	12	0.63	20	32	1.7
10	22	6	0.35	19	12	0.62	18	26	1.3
11	22	6	0.36	32	39	6.1	41	76	24
12	23	6	0.38	27	87	6.5	25	20	1.4
13	19	7	0.34	21	83	4.7	34	31	3.5
14	19	7	0.35	28	87	7.2	30	24	2.3
15	18	7	0.35	28	82	6.5	22	12	0.70
16	19	9	0.47	23	72	4.4	20	11	0.61
17	20	12	0.62	27	74	6.0	19	11	0.57
18	18	14	0.68	26	64	4.5	18	13	0.67
19	17	15	0.70	28	63	5.1	19	17	0.86
20	19	11	0.56	20	23	1.3	27	24	2.2
21	18	7	0.36	18	23	1.1	24	18	1.1
22	20	4	0.21	18	23	1.1	25	17	1.5
23	19	2	0.13	41	78	29	19	14	0.73
24	19	2	0.09	33	50	5.8	151	607	1,140
25	19	8	0.38	30	26	2.5	127	398	508
26	18	14	0.65	27	31	2.3	61	100	23
27	21	14	0.78	22	29	1.8	34	38	3.5
28	25	13	0.89	21	29	1.6	28	34	2.6
29	20	11	0.59	23	42	2.6	25	30	2.0
30	17	9	0.42	43	63	11	24	26	1.6
31	19	8	0.40	36	37	5.9	---	---	---
TOTAL	637	---	13.95	838	---	140.63	1,017	---	1,863.39
YEAR	11,926	14,756.49							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR 25...	1919	1,170	84	6,260	19,800

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002, on right bank at abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA.--22.2 mi^2 (57.5 km^2).

PERIOD OF RECORD.--April 1969 to June 1971, October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	169	e79	e65	e45	30	e32	51	e74	47	43	102
2	155	212	e75	e65	e44	29	39	50	e71	50	37	60
3	155	198	e75	e64	47	29	43	48	e66	53	40	63
4	173	123	e80	e57	54	30	38	45	e67	47	73	94
5	134	107	e76	e56	62	28	e47	71	e78	48	61	53
6	99	95	e70	e58	105	30	67	83	e75	47	43	45
7	160	93	e69	e56	50	30	e46	55	e67	45	64	64
8	192	90	e67	e55	44	29	e30	64	e65	45	64	91
9	175	88	e66	e55	41	29	e31	62	e64	44	41	51
10	257	94	e63	e54	42	28	32	80	e68	42	38	46
11	160	90	e63	e53	40	28	31	108	e70	38	40	83
12	118	188	e60	e52	36	29	30	75	e61	42	80	123
13	130	e306	e60	e54	39	27	31	60	62	39	43	74
14	186	327	e61	e52	40	29	39	54	83	40	46	71
15	233	270	e58	e52	38	30	28	94	63	38	78	50
16	185	280	e57	e50	36	27	28	144	62	40	69	45
17	136	209	e59	e51	39	28	31	155	81	41	43	55
18	132	162	99	e49	39	27	97	232	141	40	61	55
19	107	131	83	e50	38	28	125	188	174	40	44	41
20	98	114	74	e47	39	30	59	389	96	41	53	49
21	168	e96	72	e48	39	28	119	440	79	41	40	107
22	176	e92	71	e51	35	28	182	e257	74	43	37	118
23	152	e90	253	e50	32	28	135	e183	64	39	59	135
24	191	e88	161	e52	32	28	163	123	56	38	83	209
25	e123	e88	81	e72	33	29	375	e101	54	40	120	244
26	e112	e89	70	e99	33	29	294	e91	51	40	126	187
27	e106	e84	67	e61	33	33	e119	e82	50	39	77	170
28	e104	e86	65	48	32	41	76	e77	47	51	51	124
29	90	e84	63	46	---	39	65	66	47	50	52	102
30	e90	e94	61	47	---	63	55	e62	47	38	87	74
31	e128	---	59	46	---	32	---	e61	---	37	213	---
TOTAL	4,551	4,237	2,417	1,715	1,187	953	2,487	3,651	2,157	1,323	2,006	2,785
MEAN	147	141	78.0	55.3	42.4	30.7	82.9	118	71.9	42.7	64.7	92.8
MAX	257	327	253	99	105	63	375	440	174	53	213	244
MIN	90	84	57	46	32	27	28	45	47	37	37	41
AC-FT	9,030	8,400	4,790	3,400	2,350	1,890	4,930	7,240	4,280	2,620	3,980	5,520
CFSM	6.61	6.36	3.51	2.49	1.91	1.38	3.73	5.31	3.24	1.92	2.91	4.18
IN.	7.63	7.10	4.05	2.87	1.99	1.60	4.17	6.12	3.61	2.22	3.36	4.67

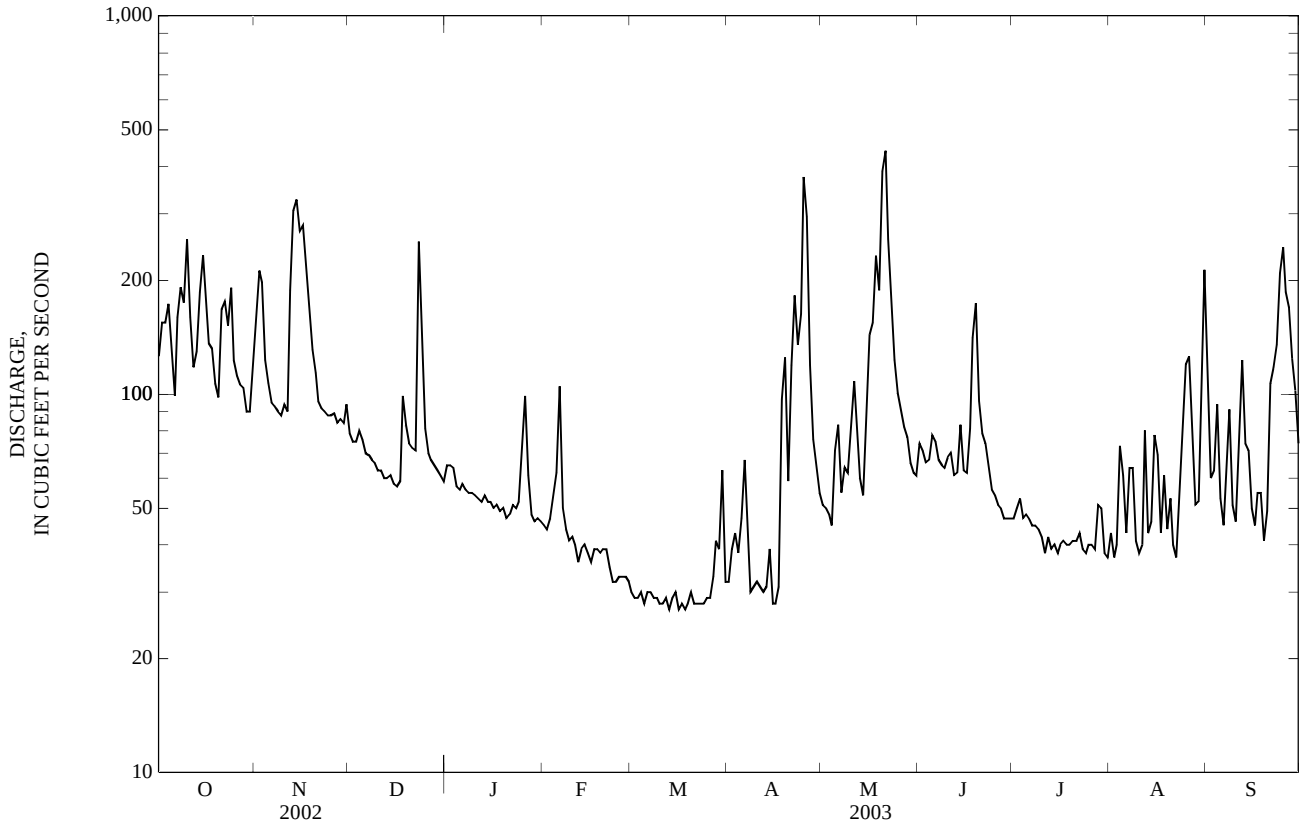
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	167	142	87.5	62.8	51.0	44.4	73.2	128	91.7	66.1	84.9	139
MAX	335	260	219	167	106	76.1	232	371	236	120	168	448
(WY)	(1990)	(1982)	(1982)	(1997)	(1996)	(1999)	(2002)	(1986)	(1999)	(1969)	(1998)	(1998)
MIN	72.1	50.4	36.4	22.3	16.8	16.6	25.9	15.8	23.3	22.0	35.1	44.9
(WY)	(1983)	(1995)	(1989)	(1989)	(1989)	(1988)	(1989)	(1989)	(1989)	(1989)	(1994)	(1994)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	39,645		29,469			
ANNUAL MEAN	109		80.7		93.5	
HIGHEST ANNUAL MEAN					133	1999
LOWEST ANNUAL MEAN					46.9	1994
HIGHEST DAILY MEAN	541	Apr 8	440	May 21	6,400	Sep 22, 1998
LOWEST DAILY MEAN	39	Mar 1	27	Mar 13	4.2	May 28, 1989
ANNUAL SEVEN-DAY MINIMUM	40	Mar 21	28	Mar 13	5.4	May 22, 1989
MAXIMUM PEAK FLOW			2,080	Nov 12	15,000	May 18, 1985
MAXIMUM PEAK STAGE			10.35	Apr 25	24.56	Sep 22, 1998
ANNUAL RUNOFF (AC-FT)	78,640		58,450		67,720	
ANNUAL RUNOFF (CFSM)	4.89		3.64		4.21	
ANNUAL RUNOFF (INCHES)	66.43		49.38		57.21	
10 PERCENT EXCEEDS	206		162		180	
50 PERCENT EXCEEDS	84		61		65	
90 PERCENT EXCEEDS	48		32		30	

e Estimated

50028400 RIO TANAMA AT CHARCO HONDO, PR—Continued



50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 13.9 mi (22.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Río Tanamá junction, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi^2 (520 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to January 1965 (monthly measurements only), February 1965 to April 1969 (occasional measurements only), May 1969 to September 1983, October 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3.73 ft (1.14 m) above mean sea level.

REMARKS.--Records poor. Flow regulated by Lago Dos Bocas dam, 13.9 mi (22.4 km) upstream. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	299	204	119	150	88	51	e50	144	147	70	49	651
2	290	407	110	97	230	53	52	154	459	81	50	695
3	196	430	110	205	69	50	64	69	450	68	48	685
4	359	471	214	102	84	92	187	63	154	60	80	462
5	313	381	274	94	93	69	61	92	184	59	83	313
6	273	138	278	79	236	47	123	116	375	72	54	121
7	353	234	247	75	273	59	59	82	235	62	67	335
8	574	247	243	94	167	44	54	79	190	61	81	459
9	587	246	227	237	113	56	52	96	266	63	53	443
10	676	252	222	85	105	44	44	104	94	62	49	397
11	668	274	221	92	143	52	57	123	93	62	63	400
12	438	213	321	227	130	45	57	103	99	58	94	468
13	313	334	338	115	65	48	38	85	85	64	63	439
14	425	726	126	76	86	44	65	154	135	59	57	317
15	704	660	224	97	140	50	42	98	136	53	101	277
16	629	724	192	95	153	51	39	159	96	64	107	565
17	489	499	233	84	61	52	50	129	264	55	77	537
18	465	443	150	67	67	44	84	347	114	61	211	512
19	249	405	123	75	191	52	449	468	178	114	301	242
20	264	353	220	63	62	51	401	1,020	336	52	203	186
21	312	325	226	73	101	46	371	1,460	256	63	124	377
22	466	391	186	62	155	43	685	809	444	56	70	508
23	465	215	306	63	162	45	538	507	297	51	67	467
24	531	130	358	76	127	44	291	325	82	61	109	411
25	353	134	256	358	117	46	399	378	75	50	258	424
26	148	138	271	384	52	48	1,120	235	76	50	457	289
27	252	134	264	162	62	49	367	201	65	47	296	364
28	245	163	242	83	58	68	243	204	74	70	228	232
29	138	237	235	75	---	106	178	111	59	60	112	239
30	259	122	254	144	---	71	177	103	60	57	158	276
31	353	---	225	86	---	e49	---	102	---	58	338	---
TOTAL	12,086	9,630	7,015	3,775	3,390	1,669	6,397	8,120	5,578	1,923	4,108	12,091
MEAN	390	321	226	122	121	53.8	213	262	186	62.0	133	403
MAX	704	726	358	384	273	106	1,120	1,460	459	114	457	695
MIN	138	122	110	62	52	43	38	63	59	47	48	121
AC-FT	23,970	19,100	13,910	7,490	6,720	3,310	12,690	16,110	11,060	3,810	8,150	23,980
CFSM	1.95	1.60	1.13	0.61	0.61	0.27	1.07	1.31	0.93	0.31	0.66	2.02
IN.	2.25	1.79	1.30	0.70	0.63	0.31	1.19	1.51	1.04	0.36	0.76	2.25

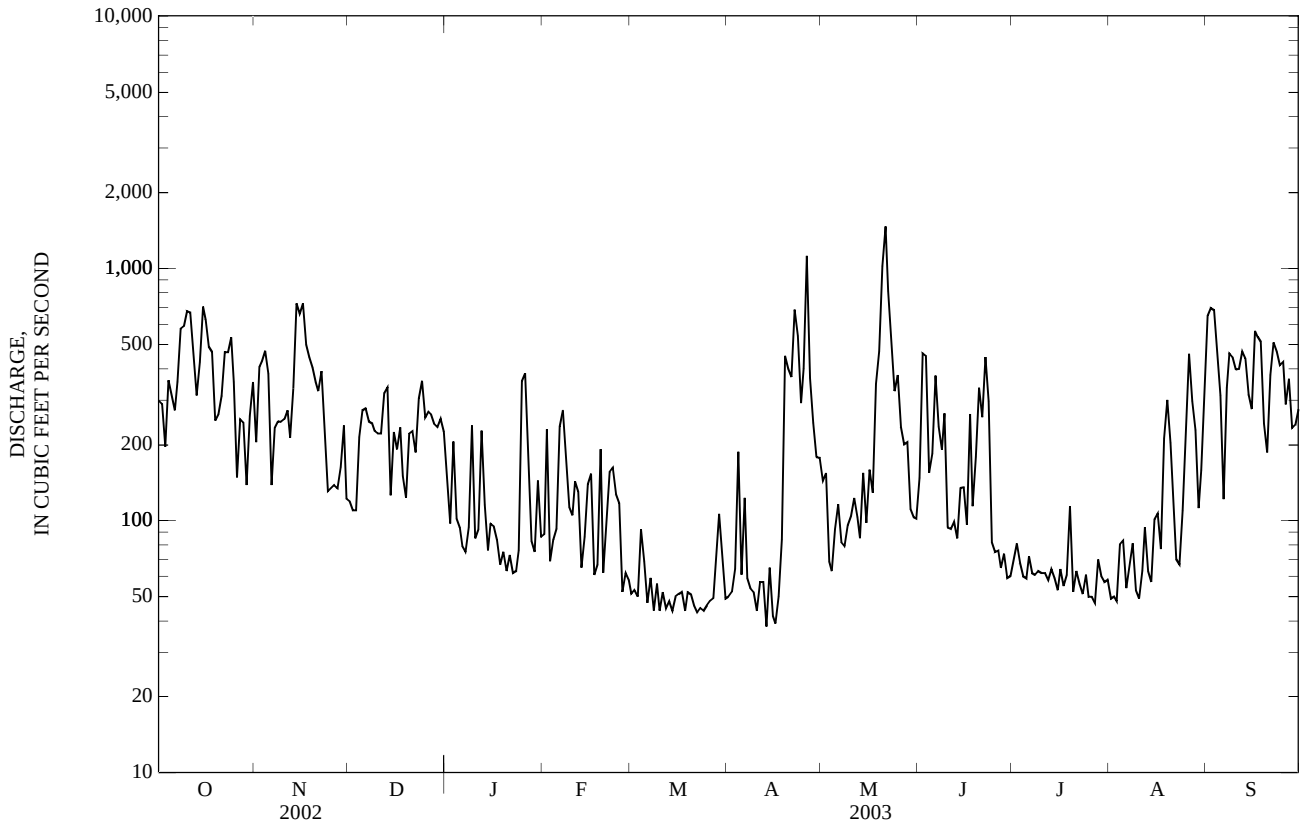
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	763	725	510	329	270	280	378	529	429	346	415	664
MAX	1,577	1,529	1,327	651	425	627	1,022	1,192	1,220	854	1,269	1,866
(WY)	(1971)	(2000)	(1982)	(1997)	(1997)	(1972)	(2002)	(1980)	(1979)	(1979)	(1979)	(1979)
MIN	331	201	150	108	85.4	53.8	89.7	188	139	62.0	133	271
(WY)	(2002)	(1998)	(1998)	(2001)	(2001)	(2003)	(2001)	(1977)	(1977)	(2003)	(2003)	(1997)

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	125,609		75,782			
ANNUAL MEAN	344		208		475	
HIGHEST ANNUAL MEAN					691	1979
LOWEST ANNUAL MEAN					208	2003
HIGHEST DAILY MEAN	3,140	Apr 30	1,460	May 21	15,900	Aug 31, 1979
LOWEST DAILY MEAN	38	Mar 5	38	Apr 13	38	Mar 5, 2002
ANNUAL SEVEN-DAY MINIMUM	56	Mar 1	46	Mar 21	46	Mar 21, 2003
MAXIMUM PEAK FLOW			1,860	May 21		
MAXIMUM PEAK STAGE			7.87	May 21	19.28	Sep 22, 1998
ANNUAL RUNOFF (AC-FT)	249,100		150,300		344,300	
ANNUAL RUNOFF (CFSM)	1.72		1.04		2.38	
ANNUAL RUNOFF (INCHES)	23.36		14.10		32.29	
10 PERCENT EXCEEDS	686		458		920	
50 PERCENT EXCEEDS	247		136		333	
90 PERCENT EXCEEDS	98		52		122	

e Estimated



50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR—Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Lago Dos Bocas, 1.9 mi (3.1 km) downstream from Río Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi^2 (520 km^2), approximately, and excludes 6.0 mi^2 (15.6 km^2) above lago Garzas.

PERIOD OF RECORD.--Water years 1963-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
12...	1500	--	4.1	9.0	109	7.0	279	25.3	120	38.8	5.99	1.75	.4
MAR													
13...	1045	43	3.3	10.7	--	8.2	299	24.5	140	48.4	4.58	1.00	.2
MAY													
06...	1230	93	23	8.2	--	8.0	270	25.6	120	42.8	4.18	1.52	.3
AUG													
11...	1230	48	5.8	10.0	--	8.3	308	28.3	--	--	--	--	--
SEP													
11...	1100	248	7.3	8.0	--	7.6	375	26.5	110	33.2	6.41	2.02	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
DEC													
12...	9.33	131	9.59	<.17	18.3	10.4	--	173	--	<10	.40	<.01	.720
MAR													
13...	6.63	131	9.25	.11	8.9	9.4	<.1	167	19.4	<10	<.20	<.01	.470
MAY													
06...	6.53	109	7.76	<.17	12.4	9.2	<.1	150	37.5	<10	<.20	.03	.740
AUG													
11...	--	123	--	--	--	--	--	--	--	<10	.30	.02	.520
SEP													
11...	9.29	99	10.4	<.2	18.4	10.2	--	149	100	<10	<.20	.02	.400

Date	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)
DEC													
12...	<.01	--	<.02	1.1	5.0	<10	E64	E82	--	--	--	--	--
MAR													
13...	<.01	--	<.02	--	--	<10	E18	--	2,500	<2	18.2	<18	<.2
MAY													
06...	<.01	--	.02	--	--	<10	260	--	5,000	<2	25.1	E9.0	<.2
AUG													
11...	<.01	.28	<.02	.82	3.6	<10	E22	--	1,200	--	--	--	--
SEP													
11...	<.01	--	<.02	--	--	<10	--	--	5,000	--	--	--	--

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Chromium, water, unfltrd recoverable, ug/L (01034)	Copper, water, unfltrd recoverable, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recoverable, ug/L (01045)	Lead, water, unfltrd recoverable, ug/L (01051)	Manganese, water, unfltrd recoverable, ug/L (01055)	Mercury water, unfltrd recoverable, ug/L (71900)	Selenium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recoverable, ug/L (01077)	Zinc, water, unfltrd recoverable, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phenolic compounds, water, unfltrd ug/L (32730)
DEC												
12...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
13...	<.8	<10	<.01	30	<1	9.7	<.02	<3	<.3	<25	<.10	<16
MAY												
06...	1.3	M	<.01	540	M	47.0	<.02	<3	<.3	<25	<.10	<16
AUG												
11...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
11...	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endosulfan, water, unfltrd ug/L (39388)	Carbophenothion, water, unfltrd ug/L (39786)	Chlordane, technical, water, unfltrd ug/L (39350)	Chlorpyrifos water unfltrd ug/L (38932)	Diazinon, water, unfltrd ug/L (39570)	Dichlorprop, water, unfltrd ug/L (82183)	Dieldrin, water, unfltrd ug/L (39380)	Disulfoton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAY													
06...	1230	<.01	<.02	<.01	<.01	<.03	<.1	<.02	<.03	<.02	<.017	<.15	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Heptachlor epoxide water unfltrd ug/L (39420)	Heptachlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Malathion, water, unfltrd ug/L (39530)	Methyl parathion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Methoxychlor, water, unfltrd ug/L (39480)	Parathion, water, unfltrd ug/L (39540)
MAY													
06...	<.02	<.02	<.009	<.01	<.014	<.30	<.02	<.012	<.016	<.014	<.009	<.015	<.02

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxaphene, water, unfltrd ug/L (39400)	Tribuphos, water, unfltrd ug/L (39040)
MAY					
06...	<.1	<.03	<.02	<1	<.03

< -- Less than

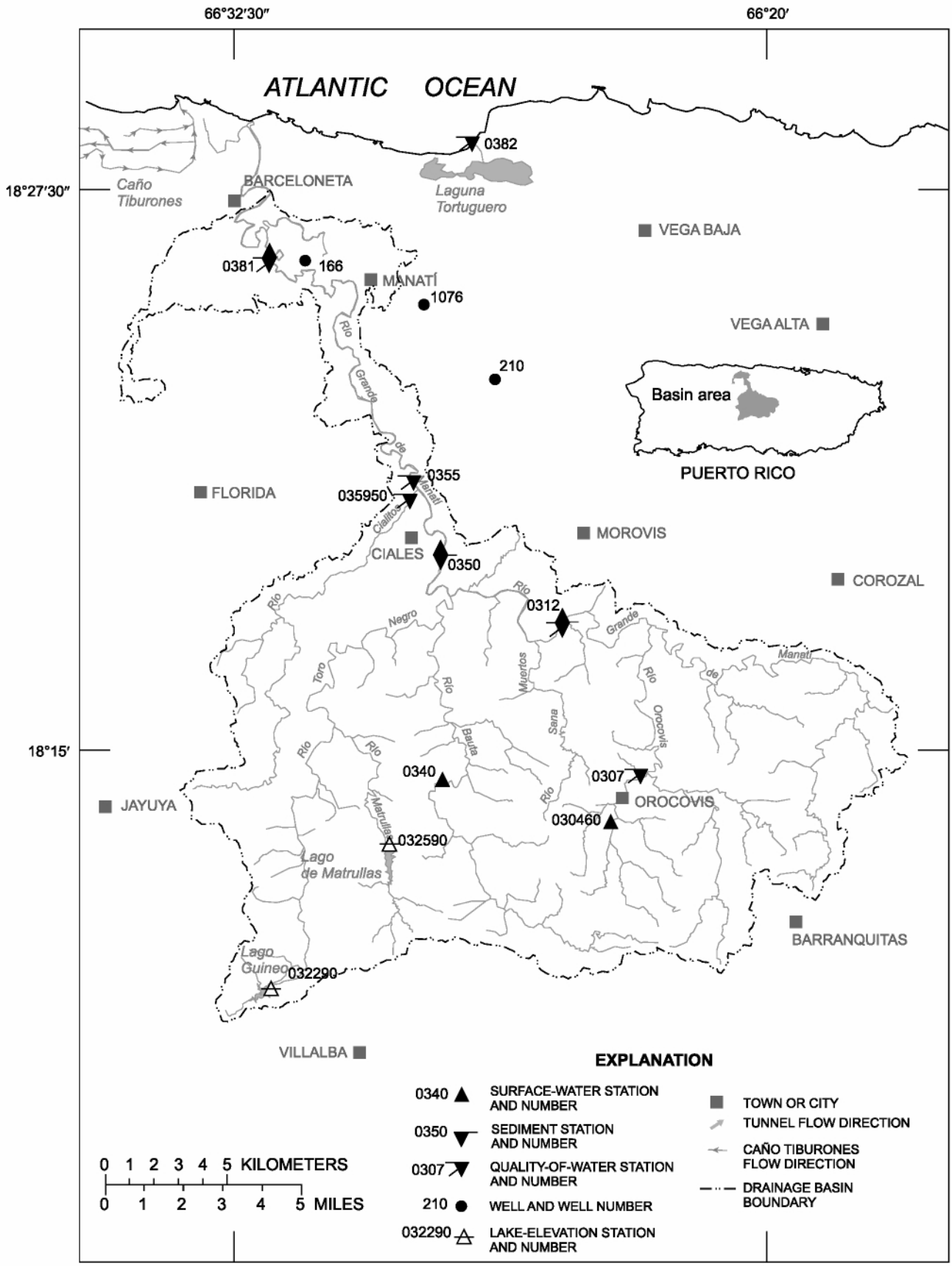


Figure 13. Río Grande de Manatí basin.

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 2.1 mi (3.4 km) upstream from Río Botijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi^2 (13.0 km^2).

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	3.7	1.2	0.81	0.93	0.80	3.1	4.1	2.9	e1.8	1.9	1.5
2	6.2	2.3	1.0	0.76	0.89	0.87	3.8	3.9	2.9	e1.7	1.9	1.5
3	6.1	2.8	1.0	0.71	0.86	0.88	3.8	3.9	2.7	2.0	1.9	11
4	3.1	2.0	1.4	0.72	6.6	0.79	3.5	3.8	2.7	2.9	1.8	5.0
5	2.7	1.7	1.2	0.76	2.8	0.77	65	3.5	2.6	3.2	1.6	3.6
6	1.9	1.7	1.2	0.75	1.3	0.81	12	3.5	2.7	2.3	1.9	3.3
7	2.1	1.7	1.1	0.73	1.1	0.84	6.0	3.3	2.6	1.7	1.9	4.5
8	9.2	1.9	1.0	0.73	0.96	0.82	4.9	3.3	2.5	2.1	1.7	7.6
9	4.2	2.0	1.1	0.72	0.85	0.83	4.5	3.2	2.6	3.3	2.7	4.0
10	2.8	2.4	1.1	0.73	0.87	0.84	3.7	3.2	2.7	2.4	1.5	1.7
11	2.6	2.0	1.1	0.75	0.93	0.74	4.1	2.9	2.4	1.4	2.4	4.3
12	2.3	1.6	1.0	0.75	0.90	0.78	4.0	2.6	2.6	1.7	2.5	12
13	1.7	1.1	1.4	0.79	0.81	0.79	3.7	2.6	2.6	5.0	2.1	7.5
14	2.8	1.1	1.8	0.77	0.79	0.80	3.7	2.4	2.5	3.7	1.9	6.2
15	3.2	1.2	0.85	0.78	0.80	0.82	4.1	2.2	2.6	2.7	3.2	9.2
16	2.9	1.2	0.82	0.90	0.86	0.82	3.9	2.3	2.6	2.4	2.7	9.9
17	2.9	0.92	1.1	0.78	0.94	0.81	62	2.6	2.3	1.7	1.9	6.1
18	1.9	0.97	1.1	0.79	0.86	0.81	92	2.8	2.1	1.6	2.1	4.1
19	2.2	1.2	0.82	0.80	0.81	4.3	24	2.7	2.3	2.0	1.8	3.7
20	2.8	0.96	0.85	0.78	0.88	2.9	9.2	3.1	2.1	2.3	1.8	4.0
21	1.2	1.1	0.80	0.77	0.85	0.99	7.3	48	2.3	2.5	1.8	4.0
22	1.3	0.96	0.98	0.76	0.81	0.87	27	7.4	2.1	4.7	1.7	3.3
23	1.5	0.97	0.86	0.77	0.79	0.86	43	4.5	2.1	3.5	1.7	2.7
24	2.6	1.0	0.72	0.93	0.77	0.72	38	4.0	2.0	2.6	1.6	2.8
25	2.4	1.1	1.3	8.3	0.81	0.77	84	3.1	2.0	2.1	1.7	2.7
26	3.1	1.1	1.2	4.8	0.83	45	21	3.2	1.9	2.0	3.1	2.4
27	2.2	1.1	0.84	1.4	0.80	23	7.2	3.0	1.9	2.3	2.1	2.4
28	1.6	1.2	0.81	0.91	0.80	10	5.2	3.2	1.9	2.7	3.2	2.4
29	2.0	1.2	0.79	0.89	---	5.6	4.7	3.3	1.8	2.3	3.1	2.2
30	2.7	1.4	0.70	0.91	---	5.4	4.3	3.0	1.8	1.9	1.5	1.7
31	6.8	---	0.71	0.91	---	3.6	---	2.9	---	2.1	1.5	---
TOTAL	93.5	45.58	31.85	36.66	32.20	118.63	562.7	147.5	70.8	76.6	64.2	137.3
MEAN	3.02	1.52	1.03	1.18	1.15	3.83	18.8	4.76	2.36	2.47	2.07	4.58
MAX	9.2	3.7	1.8	8.3	6.6	45	92	48	2.9	5.0	3.2	12
MIN	1.2	0.92	0.70	0.71	0.77	0.72	3.1	2.2	1.8	1.4	1.5	1.5
AC-FT	185	90	63	73	64	235	1,120	293	140	152	127	272
CFSM	0.60	0.30	0.20	0.24	0.23	0.76	3.73	0.95	0.47	0.49	0.41	0.91
IN.	0.69	0.34	0.24	0.27	0.24	0.88	4.16	1.09	0.52	0.57	0.47	1.02

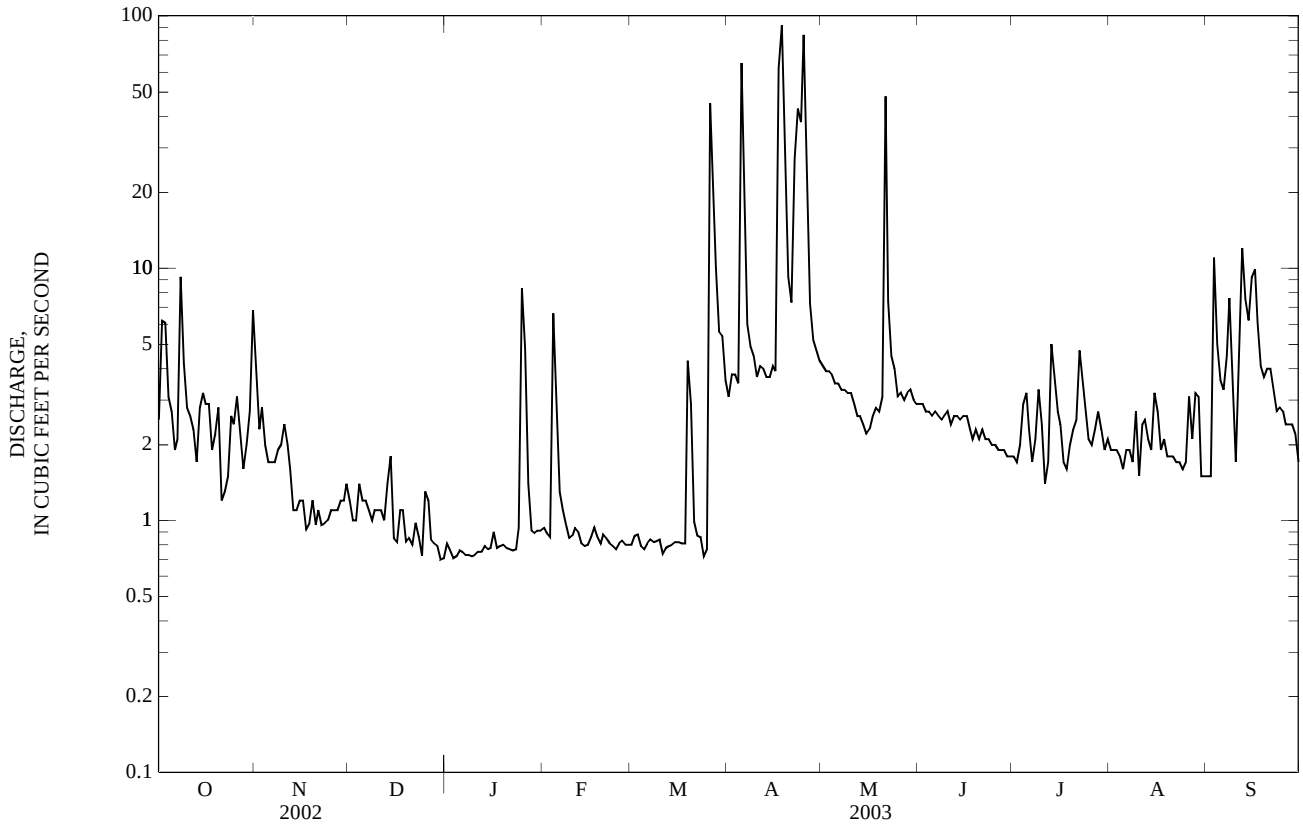
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2003, BY WATER YEAR (WY)

MEAN	15.6	11.3	6.68	6.01	4.11	2.26	6.82	12.2	4.57	3.02	4.39	21.5
MAX	58.0	39.9	17.9	34.3	15.7	5.02	21.5	45.9	17.1	9.07	12.3	83.0
(WY)	(1990)	(2000)	(2000)	(1992)	(1996)	(2002)	(2002)	(1995)	(1999)	(1996)	(1989)	(1998)
MIN	1.95	0.93	0.53	0.77	0.96	0.90	0.93	0.86	0.88	0.88	1.03	0.88
(WY)	(1994)	(1998)	(1998)	(1995)	(1995)	(1994)	(1995)	(1997)	(1994)	(1994)	(1982)	(1994)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 2003	
ANNUAL TOTAL	1,991.63		1,417.52			
ANNUAL MEAN	5.46		3.88		8.11	
HIGHEST ANNUAL MEAN					13.3	1999
LOWEST ANNUAL MEAN					1.49	1994
HIGHEST DAILY MEAN	116	Apr 25	92	Apr 18	1,570	Sep 10, 1996
LOWEST DAILY MEAN	0.70	Dec 30	0.70	Dec 30	0.20	Oct 4, 1992
ANNUAL SEVEN-DAY MINIMUM	0.88	Dec 18	0.73	Jan 3	0.33	Oct 11, 1992
MAXIMUM PEAK FLOW			699	Apr 5	8,890	Sep 10, 1996
MAXIMUM PEAK STAGE			8.86	Apr 5	17.38	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	3,950		2,810		5,880	
ANNUAL RUNOFF (CFSM)	1.08		0.772		1.61	
ANNUAL RUNOFF (INCHES)	14.73		10.48		21.91	
10 PERCENT EXCEEDS	9.7		5.1		13	
50 PERCENT EXCEEDS	3.4		2.0		2.2	
90 PERCENT EXCEEDS	1.2		0.80		0.85	

e Estimated

50030460 RIO OROCOVIS AT OROCOVIS, PR—Continued



50030700 RIO OROCOVIS NEAR OROCOVIS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis Plaza.

DRAINAGE AREA.--10.1 mi^2 (26.2 km^2).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV 19...	0900	6.7	9.2	8.2	94	7.1	353	21.5	140	36.6	13.0	1.45	.5
MAR 20...	0850	9.6	85	7.2	--	7.2	276	20.7	110	27.9	9.98	2.30	.5
MAY 07...	1300	14	--	8.0	--	8.4	297	25.2	120	29.0	11.4	1.96	.5
AUG 15...	1345	6.2	6.0	8.0	--	8.3	334	27.0	--	--	--	--	--
SEP 09...	1245	8.1	120	7.7	--	8.0	291	--	120	29.8	11.6	1.99	.5

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV 19...	14.1	148	16.3	<.17	35.9	7.7	--	214	3.85	<10	<.20	<.01	--
MAR 20...	11.3	110	15.9	.10	27.0	9.0	.2	169	.65	30	.40	.03	.84
MAY 07...	12.2	115	16.3	<.17	31.9	7.9	<.1	180	6.97	32	.20	<.01	--
AUG 15...	--	137	--	--	--	--	--	--	--	<10	.20	.02	--
SEP 09...	11.6	110	15.9	<.2	29.8	8.6	--	175	3.83	107	.50	.04	1.29

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV 19...	.970	<.01	--	.20	--	--	<10	590	510	--	--	--	--
MAR 20...	.860	.02	.37	.17	1.3	5.6	20	300	--	2,900	<2	41.7	18
MAY 07...	1.20	<.01	--	.15	1.4	6.2	<10	E540	--	34,000	<2	51.7	20
AUG 15...	1.10	<.01	.18	.16	1.3	5.8	<10	E90	--	3,600	--	--	--
SEP 09...	1.30	.01	.46	.23	1.8	8.0	10	E8,400	--	E90,000	--	--	--

50030700 RIO OROCOVIS NEAR OROCOVIS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
20...	<.2	1.8	<10	<.01	1,170	<1	53.5	<.02	<3	<.3	<25	<.10	<16
MAY													
07...	<.2	1.2	<10	<.01	700	<1	76.6	<.02	<3	<.3	E17	<.10	<16
AUG													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank, 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Río Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA.--55.2 mi^2 (143.0 km^2).

PERIOD OF RECORD.--January 1965 to current year.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. February 2, 1966, to April 27, 1967, staff gage read twice daily.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Public water-supply pumpage, about 1,000 ft (305 m) upstream from the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	69	16	11	18	11	e17	e40	27	13	54	89
2	57	48	14	13	16	10	13	e40	27	18	24	42
3	106	30	15	14	15	10	18	40	27	14	20	71
4	89	31	18	13	147	10	18	43	29	12	15	96
5	51	31	21	11	134	9.4	e36	35	24	16	13	36
6	41	30	18	12	65	9.1	e22	31	23	25	13	21
7	102	26	15	12	37	8.4	e19	30	24	19	19	23
8	110	26	15	10	29	9.1	e17	29	27	21	15	43
9	120	28	17	11	24	8.3	e16	29	23	18	13	45
10	78	26	15	13	22	7.9	e16	26	22	14	14	20
11	56	25	14	13	20	8.6	e17	25	21	12	13	19
12	53	23	14	11	22	8.2	e19	23	20	11	60	194
13	41	25	16	11	20	8.5	e18	27	20	20	23	127
14	39	31	17	10	16	8.3	e17	23	20	40	18	104
15	54	23	15	9.9	15	7.5	e16	24	23	17	16	53
16	48	23	13	9.7	14	7.1	e18	22	22	24	16	68
17	36	21	13	9.8	15	6.9	e396	23	21	20	14	43
18	36	20	15	9.6	16	6.1	e253	21	19	15	13	28
19	38	20	16	9.9	15	6.2	e142	23	18	12	14	21
20	37	20	18	9.9	13	33	e336	67	18	11	13	19
21	35	20	16	9.7	14	12	e175	724	18	14	13	120
22	33	19	16	10	14	8.9	e469	262	18	15	25	139
23	30	18	24	9.9	12	8.3	e489	107	16	25	17	72
24	32	17	15	11	11	8.1	e512	70	15	14	13	38
25	34	16	13	146	11	8.0	e351	54	14	12	16	40
26	29	15	15	230	12	55	e188	46	15	13	30	69
27	31	15	13	64	11	82	e107	40	14	27	27	30
28	26	15	12	33	11	73	e78	37	13	21	17	23
29	28	15	11	23	---	34	e62	34	13	26	65	24
30	36	16	11	20	---	38	e49	32	13	16	36	25
31	44	---	12	18	---	e27	---	29	---	23	72	---
TOTAL	1,596	742	473	798.4	769	547.9	3,904	2,056	604	558	731	1,742
MEAN	51.5	24.7	15.3	25.8	27.5	17.7	130	66.3	20.1	18.0	23.6	58.1
MAX	120	69	24	230	147	82	512	724	29	40	72	194
MIN	26	15	11	9.6	11	6.1	13	21	13	11	13	19
AC-FT	3,170	1,470	938	1,580	1,530	1,090	7,740	4,080	1,200	1,110	1,450	3,460
CFSM	0.93	0.45	0.28	0.47	0.50	0.32	2.36	1.20	0.36	0.33	0.43	1.05
IN.	1.08	0.50	0.32	0.54	0.52	0.37	2.63	1.39	0.41	0.38	0.49	1.17

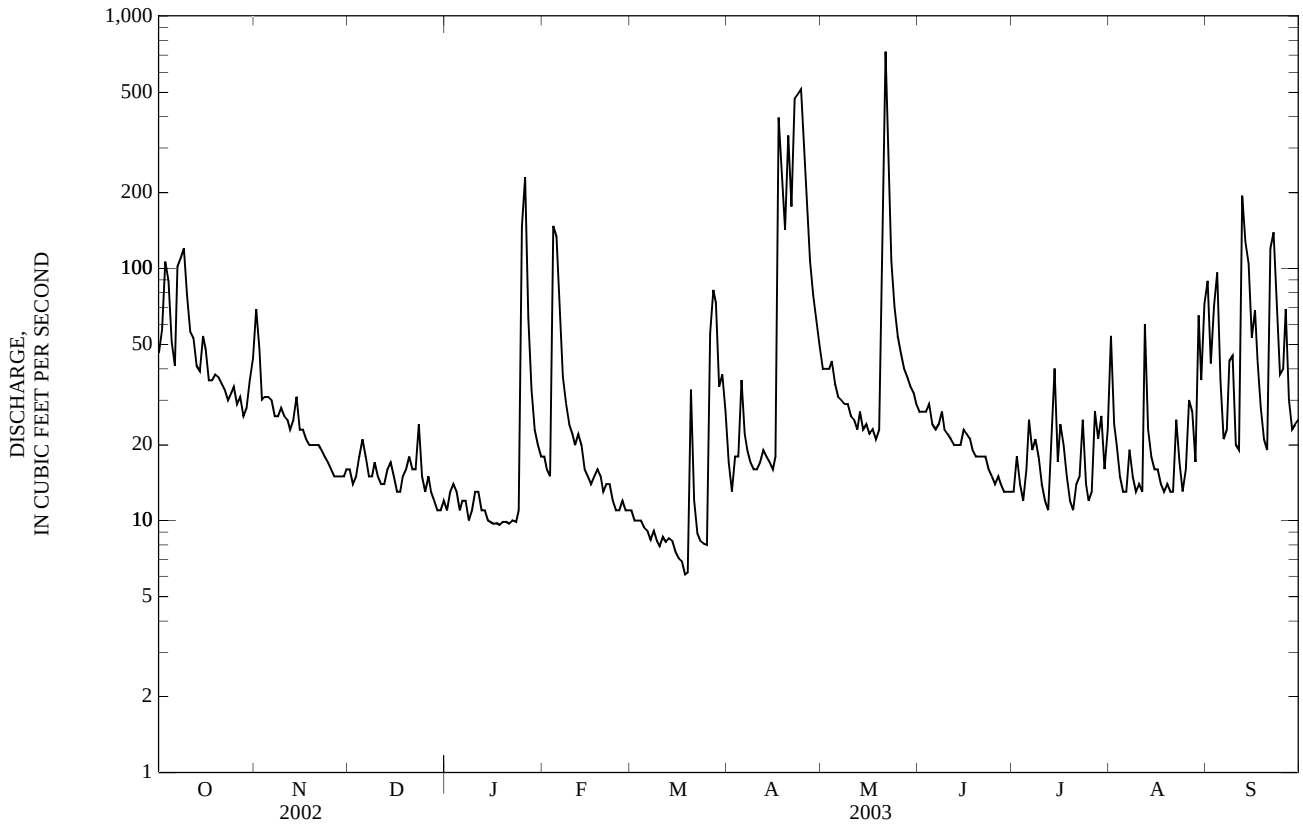
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)

MEAN	143	144	108	79.9	62.3	59.8	101	144	57.9	43.0	51.4	107
MAX	1,037	491	522	228	179	226	412	915	173	157	435	432
(WY)	(1971)	(1971)	(1966)	(1997)	(1969)	(1972)	(1969)	(1985)	(1987)	(1979)	(1979)	(1996)
MIN	20.9	11.4	8.65	10.4	15.3	12.7	8.80	15.7	6.75	5.54	9.70	6.87
(WY)	(2002)	(1995)	(1995)	(1995)	(1994)	(1984)	(1995)	(1994)	(1994)	(1994)	(1984)	(1994)

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	19,212		14,521.3			
ANNUAL MEAN	52.6		39.8		91.6	
HIGHEST ANNUAL MEAN					248	1971
LOWEST ANNUAL MEAN					24.2	1994
HIGHEST DAILY MEAN	515	Apr 25	724	May 21	17,100	May 18, 1985
LOWEST DAILY MEAN	11	Dec 29	6.1	Mar 18	3.5	May 1, 1995
ANNUAL SEVEN-DAY MINIMUM	12	Dec 25	7.2	Mar 13	4.0	Jul 22, 1994
MAXIMUM PEAK FLOW			6,680	May 21	48,000	May 18, 1985
MAXIMUM PEAK STAGE			7.89	May 21	17.89	May 18, 1985
ANNUAL RUNOFF (AC-FT)	38,110		28,800		66,350	
ANNUAL RUNOFF (CFSM)	0.954		0.721		1.66	
ANNUAL RUNOFF (INCHES)	12.95		9.79		22.54	
10 PERCENT EXCEEDS	108		71		167	
50 PERCENT EXCEEDS	36		20		47	
90 PERCENT EXCEEDS	16		11		18	

e Estimated



50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
19...	1130	17	11	9.2	114	7.3	328	25.0	130	31.4	12.6	1.77	.5
MAR													
20...	1130	38	17	8.1	--	8.3	335	25.2	140	33.4	13.1	1.95	.6
MAY													
07...	1025	29	--	9.4	--	8.3	303	25.8	120	29.0	11.7	2.28	.5
AUG													
15...	1145	15	28	8.2	--	8.0	258	28.3	--	--	--	--	--
SEP													
09...	1045	39	37	8.7	--	8.0	287	26.0	120	28.9	11.8	2.16	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
19...	13.6	145	16.6	<.17	28.3	8.1	--	199	--	<10	.20	.01	--
MAR													
20...	15.1	140	19.7	.13	26.9	8.7	<.1	203	20.9	20	<.20	.02	--
MAY													
07...	12.3	116	17.1	<.17	27.1	8.5	<.1	178	13.8	<10	<.20	.02	--
AUG													
15...	--	96	--	--	--	--	--	--	--	<10	.30	.03	--
SEP													
09...	11.4	110	15.7	<.2	25.5	8.0	--	169	--	25	.30	.03	.67

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
19...	.600	<.01	.19	.07	.80	3.5	<10	E170	E127	--	--	--	--
MAR													
20...	.170	<.01	--	.09	--	--	<10	E10,000	--	30,000	<2	53.7	28
MAY													
07...	.300	<.01	--	.04	--	--	<10	E60	--	591	<2	51.0	22
AUG													
15...	.740	<.01	.27	.05	1.0	4.6	<10	210	--	2,900	--	--	--
SEP													
09...	.680	.01	.27	.10	.98	4.3	<10	E1,300	--	E25,000	--	--	--

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
20...	<.2	1.5	<10	<.01	540	M	47.7	<.02	<3	<.3	E19	<.10	<16
MAY													
07...	<.2	E.6	<10	<.01	140	<1	23.6	<.02	<3	<.3	<25	<.10	<16
AUG													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2001 to current year.

INSTRUMENTATION.-- USDH-48 and automatic sediment sampler since 2001.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 4,350 mg/L November 8, 2001; Minimum daily mean, 3 mg/L several days during Water Year 2003.
SEDIMENT LOADS: Maximum daily mean, 60,000 tons (54,432 tonnes) November 8, 2001; Minimum daily mean, .09 ton (.08 tonne) July 1 2, 2003.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,370 mg/L May 21, 2003; Minimum daily mean, 3 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 20,300 tons (18,416 tonnes) May 21, 2003; Minimum daily mean, .09 ton (.08 tonne) July 12, 2 003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	46	194	24	69	66	15	16	17	0.74
2	57	97	16	48	42	8.7	14	17	0.65
3	106	118	45	30	21	1.7	15	17	0.71
4	89	93	25	31	21	1.7	18	17	0.82
5	51	45	6.3	31	21	1.8	21	17	0.96
6	41	44	4.9	30	21	1.6	18	17	0.80
7	102	137	71	26	20	1.4	15	16	0.67
8	110	118	42	26	20	1.4	15	16	0.65
9	120	130	44	28	20	1.5	17	16	0.72
10	78	70	15	26	20	1.4	15	16	0.64
11	56	46	7.0	25	20	1.3	14	16	0.60
12	53	41	6.0	23	20	1.2	14	16	0.60
13	41	35	3.9	25	20	1.3	16	16	0.66
14	39	32	3.4	31	19	1.6	17	15	0.69
15	54	50	11	23	19	1.2	15	15	0.61
16	48	37	5.0	23	19	1.2	13	15	0.54
17	36	23	2.3	21	19	1.1	13	15	0.51
18	36	21	2.0	20	19	1.0	15	15	0.61
19	38	21	2.1	20	19	1.0	16	15	0.62
20	37	21	2.1	20	19	0.99	18	15	0.71
21	35	21	2.0	20	19	0.98	16	15	0.65
22	33	21	1.8	19	18	0.93	16	14	0.63
23	30	21	1.7	18	18	0.88	24	14	0.94
24	32	21	1.8	17	18	0.82	15	14	0.57
25	34	20	1.9	16	18	0.77	13	14	0.49
26	29	20	1.6	15	18	0.75	15	14	0.57
27	31	20	1.7	15	18	0.74	13	14	0.50
28	26	20	1.4	15	18	0.72	12	14	0.46
29	28	20	1.5	15	17	0.70	11	14	0.41
30	36	20	2.0	16	17	0.74	11	13	0.40
31	44	34	5.5	---	---	---	12	13	0.44
TOTAL	1,596	---	360.9	742	---	56.12	473	---	19.57

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	11	13	0.40	18	16	0.79	11	11	0.34
2	13	13	0.47	16	16	0.66	10	11	0.31
3	14	13	0.48	15	15	0.59	10	11	0.31
4	13	13	0.43	147	207	165	10	11	0.29
5	11	13	0.39	134	154	60	9.4	11	0.27
6	12	12	0.40	65	60	11	9.1	10	0.26
7	12	12	0.38	37	40	4.1	8.4	10	0.23
8	10	12	0.35	29	29	2.3	9.1	10	0.25
9	11	12	0.37	24	18	1.2	8.3	10	0.22
10	13	12	0.41	22	15	0.86	7.9	10	0.21
11	13	12	0.40	20	15	0.80	8.6	10	0.22
12	11	12	0.35	22	14	0.85	8.2	9	0.21
13	11	12	0.34	20	14	0.75	8.5	9	0.21
14	10	11	0.31	16	14	0.59	8.3	9	0.20
15	9.9	11	0.30	15	14	0.55	7.5	9	0.18
16	9.7	11	0.29	14	13	0.52	7.1	9	0.17
17	9.8	11	0.29	15	13	0.55	6.9	8	0.16
18	9.6	11	0.28	16	13	0.58	6.1	8	0.14
19	9.9	11	0.29	15	13	0.53	6.2	8	0.14
20	9.9	11	0.28	13	13	0.46	33	27	3.0
21	9.7	10	0.27	14	13	0.48	12	12	0.43
22	10	10	0.28	14	12	0.48	8.9	9	0.21
23	9.9	10	0.27	12	12	0.41	8.3	9	0.19
24	11	10	0.29	11	12	0.37	8.1	8	0.19
25	146	206	283	11	12	0.37	8.0	8	0.18
26	230	390	328	12	12	0.37	55	71	51
27	64	72	14	11	12	0.35	82	86	21
28	33	33	3.0	11	11	0.34	73	46	9.3
29	23	19	1.2	---	---	---	34	23	2.2
30	20	18	0.97	---	---	---	38	20	2.0
31	18	17	0.86	---	---	---	e27	e19	e1.3
TOTAL	798.4	---	639.35	769	---	255.85	547.9	---	95.32
		APRIL			MAY			JUNE	
1	e17	e19	e0.88	e40	e11	e1.2	27	9	0.63
2	13	19	0.66	e40	e9	e1.0	27	7	0.52
3	18	19	0.92	40	8	0.87	27	5	0.40
4	18	18	0.89	43	7	0.84	29	5	0.38
5	e36	e47	e12	35	7	0.63	24	5	0.29
6	e22	e19	e1.2	31	6	0.49	23	4	0.27
7	e19	e17	e0.86	30	5	0.41	24	4	0.27
8	e17	e16	e0.79	29	4	0.35	27	5	0.36
9	e16	e16	e0.66	29	4	0.29	23	6	0.39
10	e16	e16	e0.66	26	3	0.23	22	8	0.45
11	e17	e16	e0.66	25	5	0.34	21	9	0.48
12	e19	e18	e0.86	23	7	0.46	20	8	0.44
13	e18	e19	e0.86	27	9	0.68	20	7	0.40
14	e17	e16	e0.79	23	10	0.62	20	7	0.35
15	e16	e16	e0.66	24	10	0.65	23	6	0.36
16	e18	e17	e0.86	22	10	0.63	22	5	0.29
17	e396	e651	e923	23	11	0.65	21	4	0.22
18	e253	e468	e434	21	11	0.62	19	3	0.17
19	e142	e150	e63	23	11	0.68	18	4	0.19
20	e336	---	e900	67	63	22	18	5	0.27
21	e175	e398	e617	724	2,370	20,300	18	7	0.32
22	e469	e515	e1,140	262	468	434	18	7	0.34
23	e489	e515	e1,140	107	56	18	16	7	0.31
24	e512	e947	e1,450	70	19	3.6	15	7	0.28
25	e351	e651	e923	54	15	2.2	14	7	0.27
26	e188	e270	e149	46	14	1.8	15	7	0.27
27	e107	e56	e18	40	13	1.4	14	6	0.23
28	e78	e19	e3.6	37	12	1.2	13	6	0.21
29	e62	e15	e2.2	34	11	1.1	13	5	0.20
30	e49	e14	e1.8	32	11	0.92	13	4	0.14
31	---	---	---	29	10	0.79	---	---	---
TOTAL	3,904	---	7,788.81	2,056	---	20,798.65	604	---	9.70

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	13	3	0.10	54	47	7.7	89	99	31
2	18	4	0.19	24	22	1.4	42	33	3.7
3	14	5	0.20	20	19	1.0	71	93	49
4	12	6	0.22	15	18	0.71	96	96	29
5	16	8	0.32	13	17	0.60	36	28	2.8
6	25	7	0.49	13	16	0.58	21	20	1.2
7	19	6	0.32	19	16	0.79	23	20	1.3
8	21	5	0.28	15	16	0.62	43	34	4.7
9	18	4	0.21	13	15	0.53	45	49	6.7
10	14	4	0.14	14	15	0.59	20	31	1.7
11	12	3	0.11	13	15	0.53	19	27	1.6
12	11	3	0.09	60	60	12	194	398	617
13	20	8	0.94	23	27	1.7	127	150	63
14	40	28	3.4	18	18	0.87	104	116	40
15	17	15	0.67	16	17	0.73	53	44	6.6
16	24	14	0.91	16	17	0.75	68	60	11
17	20	12	0.64	14	15	0.54	43	46	5.3
18	15	9	0.36	13	11	0.41	28	37	2.8
19	12	6	0.20	14	8	0.30	21	27	1.5
20	11	11	0.32	13	5	0.17	19	17	0.88
21	14	19	0.70	13	5	0.18	120	171	118
22	15	27	1.1	25	6	0.40	139	165	68
23	25	35	2.4	17	7	0.32	72	112	22
24	14	32	1.3	13	7	0.25	38	85	8.7
25	12	24	0.78	16	7	0.31	40	80	10
26	13	17	0.57	30	7	0.58	69	81	18
27	27	16	1.2	27	9	0.62	30	57	4.7
28	21	20	1.1	17	8	0.38	23	56	3.5
29	26	24	1.7	65	60	12	24	56	3.7
30	16	27	1.1	36	36	3.4	25	56	3.8
31	23	31	2.4	72	99	42	---	---	---
TOTAL	558	---	24.46	731	---	92.96	1,742	---	1,141.18
YEAR	14,521.3	31,282.87							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
APR													
23...	2255	984	49	58	64	74	79	85	89	94	99	99	3,340

Date	Suspended sediment load, tons/d (80155)
APR	
23...	8,870

50032290 LAGO EL GUINEO AT DAMSITE NEAR VILLALBA, PR

LOCATION.--Lat 18°09'41", long 66°31'36", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba Plaza and 1.9 mi (3.1 km) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi^2 (4.25 km^2).

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago El Guineo at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago El Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 acre-ft (2.688 hm^3) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and conveyed to the head water works of Toro Negro Hydroelectric Plant No. 2, for energy generation at Toro Negro Hydroelectric plant No. 1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,960 ft (902 m) above mean sea level and a design capacity of 7,000 ft^3/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,964.40 ft (905.55 m), September 22, 1998; minimun elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,961.01 ft (902.52 m), October 9; minimun elevation, 2,932.54 ft (893.84 m), September 15.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

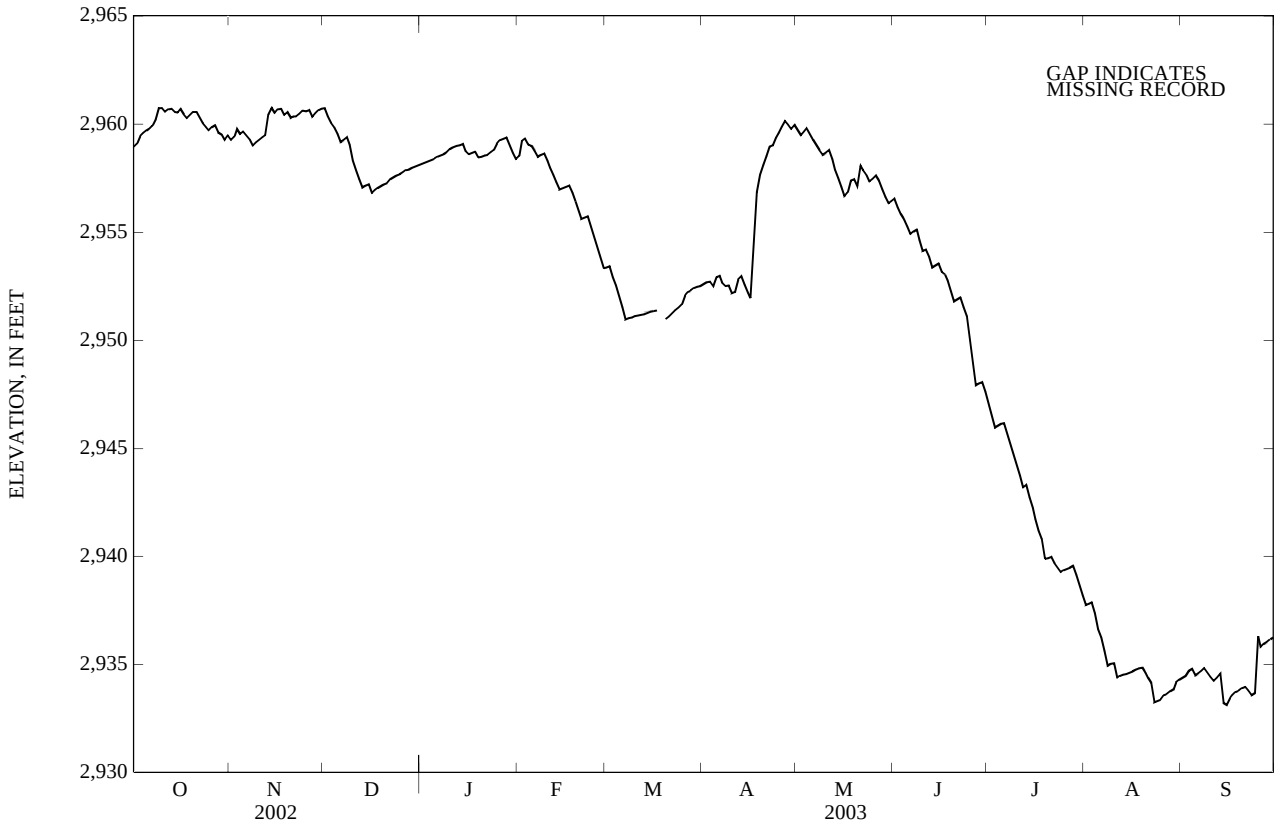
Elevation	Contents	Elevation	Contents
2,872	0	2,950	1,308
2,919	361	2,961	1,852
2,925	491	2,966	2,180
2,943	1,029		

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,958.93	2,959.26	2,960.73	2,958.18	2,958.53	2,953.38	2,952.61	2,959.71	2,956.54	2,947.05	2,937.77	2,934.39
2	2,959.07	2,959.40	2,960.36	2,958.24	2,959.19	2,953.43	2,952.69	2,959.46	2,956.16	2,946.54	2,937.83	2,934.47
3	2,959.45	2,959.78	2,960.07	2,958.29	2,959.32	2,952.93	2,952.73	2,959.66	2,955.83	2,945.97	2,937.88	2,934.70
4	2,959.59	2,959.53	2,959.86	2,958.34	2,959.05	2,952.54	2,952.50	2,959.80	2,955.58	2,946.06	2,937.37	2,934.81
5	2,959.71	2,959.65	2,959.56	2,958.41	2,959.01	2,952.04	2,952.91	2,959.54	2,955.25	2,946.14	2,936.62	2,934.51
6	2,959.80	2,959.48	2,959.17	2,958.49	2,958.76	2,951.52	2,952.99	2,959.27	2,954.91	2,946.18	2,936.26	2,934.58
7	2,959.90	2,959.28	2,959.26	2,958.54	2,958.48	2,950.98	2,952.65	2,959.03	2,955.03	2,945.71	2,935.62	2,934.72
8	2,960.22	2,958.99	2,959.37	2,958.61	2,958.57	2,951.02	2,952.50	2,958.79	2,955.12	2,945.20	2,934.96	2,934.84
9	2,960.73	2,959.15	2,959.05	2,958.69	2,958.64	2,951.06	2,952.55	2,958.57	2,954.65	2,944.73	2,935.03	2,934.62
10	2,960.73	2,959.26	2,958.32	2,958.86	2,958.32	2,951.11	2,952.19	2,958.67	2,954.14	2,944.25	2,935.07	2,934.42
11	2,960.57	2,959.37	2,957.88	2,958.94	2,957.99	2,951.15	2,952.23	2,958.78	2,954.20	2,943.74	2,934.39	2,934.24
12	2,960.69	2,959.48	2,957.45	2,958.99	2,957.65	2,951.19	2,952.82	2,958.37	2,953.87	2,943.17	2,934.46	2,934.37
13	2,960.70	2,960.44	2,957.07	2,959.03	2,957.31	2,951.22	2,952.95	2,957.89	2,953.38	2,943.29	2,934.52	2,934.57
14	2,960.57	2,960.74	2,957.15	2,959.07	2,956.97	2,951.26	2,952.58	2,957.52	2,953.45	2,942.73	2,934.57	2,933.22
15	2,960.55	2,960.50	2,957.23	2,958.75	2,957.03	2,951.31	2,952.20	2,957.10	2,953.54	2,942.25	2,934.62	2,933.13
16	2,960.67	2,960.69	2,956.81	2,958.62	2,957.09	2,951.36	2,951.95	2,956.66	2,953.17	2,941.73	2,934.69	2,933.44
17	2,960.44	2,960.72	2,956.95	2,958.66	2,957.17	2,951.39	2,954.51	2,956.84	2,953.04	2,941.20	2,934.76	2,933.57
18	2,960.27	2,960.43	2,957.04	2,958.73	2,956.82	A	2,956.86	2,957.41	2,952.79	2,940.81	2,934.82	2,933.72
19	2,960.42	2,960.55	2,957.12	2,958.45	2,956.42	A	2,957.66	2,957.47	2,952.31	2,939.88	2,934.86	2,933.80
20	2,960.56	2,960.31	2,957.21	2,958.50	2,956.05	2,950.97	2,958.11	2,957.14	2,951.81	2,939.93	2,934.63	2,933.91
21	2,960.56	2,960.35	2,957.28	2,958.54	2,955.62	2,951.10	2,958.52	2,958.08	2,951.89	2,939.99	2,934.38	2,933.98
22	2,960.29	2,960.37	2,957.45	2,958.59	2,955.68	2,951.25	2,958.96	2,957.87	2,951.97	2,939.69	2,934.16	2,933.80
23	2,960.03	2,960.49	2,957.53	2,958.69	2,955.73	2,951.38	2,959.02	2,957.65	2,951.53	2,939.49	2,933.25	2,933.57
24	2,959.86	2,960.61	2,957.64	2,958.78	2,955.26	2,951.51	2,959.37	2,957.34	2,951.11	2,939.27	2,933.32	2,933.68
25	2,959.70	2,960.59	2,957.69	2,959.07	2,954.78	2,951.65	2,959.59	2,957.47	2,949.91	2,939.35	2,933.37	2,936.30
26	2,959.84	2,960.64	2,957.79	2,959.26	2,954.29	2,952.07	2,959.89	2,957.60	2,948.85	2,939.41	2,933.57	2,935.80
27	2,959.94	2,960.32	2,957.86	2,959.33	2,953.82	2,952.24	2,960.14	2,957.37	2,947.93	2,939.49	2,933.64	2,935.95
28	2,959.62	2,960.52	2,957.91	2,959.39	2,953.33	2,952.31	2,959.97	2,956.99	2,948.00	2,939.58	2,933.77	2,936.04
29	2,959.54	2,960.64	2,957.99	2,959.03	---	2,952.41	2,959.78	2,956.63	2,948.06	2,939.14	2,933.84	2,936.17
30	2,959.27	2,960.71	2,958.05	2,958.67	---	2,952.47	2,959.94	2,956.33	2,947.61	2,938.67	2,934.17	2,936.26
31	2,959.48	---	2,958.11	2,958.37	---	2,952.51	---	2,956.42	---	2,938.19	2,934.29	---
MAX	2,960.73	2,960.74	2,960.73	2,959.39	2,959.32	---	2,960.14	2,959.80	2,956.54	2,947.05	2,937.88	2,936.30
MIN	2,958.93	2,958.99	2,956.81	2,958.18	2,953.33	---	2,951.95	2,956.33	2,947.61	2,938.19	2,933.25	2,933.13

A No gage-height record

50032290 LAGO EL GUINEO AT DAMSITE NEAR VILLALBA, PR—Continued



50032590 LAGO DE MATRULLAS AT DAMSITE NEAR OROCOVIS, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in shelter house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA.--4.46 mi^2 (11.6 km^2).

PERIOD OF RECORD.--May 1988 to current year. Prior to October 1994, published as Lago de Matrullas at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 acre-ft (5.220 hm^3) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority (PREPA) and is part of the Toro Negro Hydroelectric Project; a project developed by the PREPA for the primary purpose of generating electric power. Discharges from the power plants are collected by the Jacaguas River which flows into Guayabal Dam, at which are regulated for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,419.90 ft (737.58 m), September 10, 1996; minimum elevation, 2,375.55 ft (724.06 m), September 24 and 25, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,415.24 ft (736.16 m); October 4; minimum elevation, 2,413.54 ft (735.65 m) December 31.

Capacity Table
(based on data from the Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

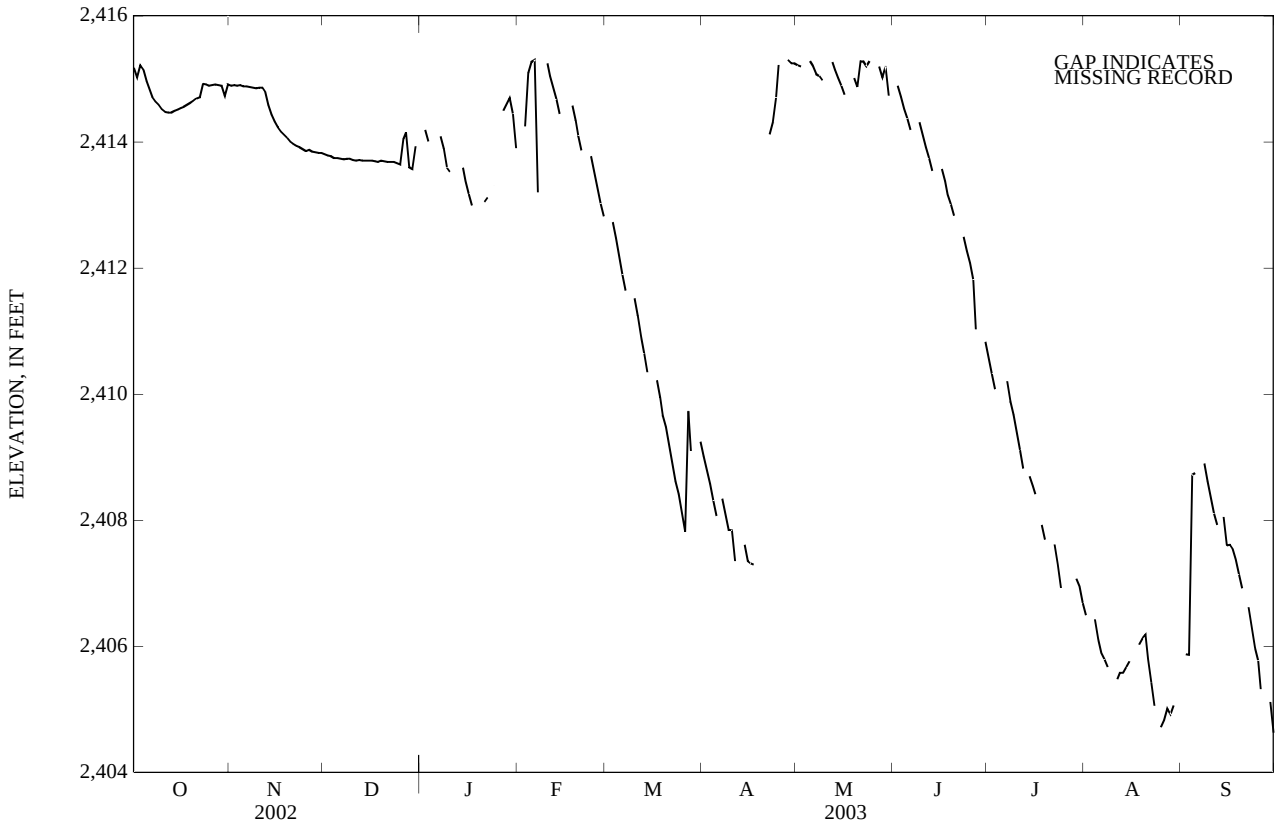
Elevation	Contents	Elevation	Contents
2,338	2	2,399	1,845
2,360	302	2,420	3,331

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,415.18	2,414.90	2,413.81	A	A	A	2,409.02	2,415.22	A	2,410.58	2,406.50	A
2	2,415.03	2,414.91	2,413.79	2,414.20	A	A	2,408.80	2,415.20	2,414.90	2,410.33	A	2,405.88
3	2,415.22	2,414.90	2,413.78	2,414.01	2,414.25	2,412.73	2,408.58	A	2,414.72	2,410.08	A	2,405.87
4	2,415.15	2,414.91	2,413.75	A	2,415.10	2,412.48	2,408.32	A	2,414.53	A	2,406.43	2,408.72
5	2,414.97	2,414.89	2,413.75	A	2,415.27	2,412.18	2,408.07	2,415.28	2,414.38	A	2,406.12	2,408.75
6	2,414.82	2,414.89	2,413.74	A	2,415.30	2,411.90	A	2,415.20	2,414.20	A	2,405.90	A
7	2,414.71	2,414.88	2,413.73	2,414.09	2,413.20	2,411.65	2,408.35	2,415.08	A	2,410.20	2,405.80	A
8	2,414.64	2,414.87	2,413.74	2,413.90	A	A	2,408.10	2,415.05	A	2,409.89	2,405.68	2,408.90
9	2,414.59	2,414.86	2,413.74	2,413.60	A	A	2,407.85	2,414.98	2,414.32	2,409.68	A	2,408.62
10	2,414.52	2,414.87	2,413.72	2,413.52	2,415.25	2,411.52	2,407.85	A	2,414.12	2,409.40	A	2,408.38
11	2,414.48	2,414.87	2,413.71	A	2,415.05	2,411.25	2,407.35	A	2,413.92	2,409.12	2,405.48	2,408.11
12	2,414.47	2,414.80	2,413.72	A	2,414.87	2,410.93	A	2,415.27	2,413.75	2,408.82	2,405.58	2,407.93
13	2,414.47	2,414.59	2,413.71	A	2,414.68	2,410.65	A	2,415.15	2,413.55	A	2,405.58	A
14	2,414.50	2,414.44	2,413.71	2,413.60	2,414.45	2,410.35	2,407.62	2,415.02	A	2,408.70	2,405.68	2,408.05
15	2,414.52	2,414.33	2,413.71	2,413.38	A	A	2,407.35	2,414.90	A	2,408.55	2,405.77	2,407.60
16	2,414.54	2,414.24	2,413.71	2,413.18	A	A	2,407.32	2,414.75	2,413.58	2,408.42	A	2,407.62
17	2,414.56	2,414.16	2,413.70	2,413.00	A	2,410.22	2,407.30	A	2,413.38	A	A	2,407.55
18	2,414.59	2,414.11	2,413.69	A	2,414.58	2,409.95	A	A	2,413.17	2,407.93	2,406.03	2,407.38
19	2,414.62	2,414.06	2,413.71	A	2,414.35	2,409.67	A	2,415.02	2,413.02	2,407.70	2,406.12	2,407.15
20	2,414.65	2,414.00	2,413.70	A	2,414.10	2,409.48	A	2,414.88	2,412.83	A	2,406.18	2,406.92
21	2,414.69	2,413.97	2,413.69	2,413.05	2,413.87	2,409.20	A	2,415.28	A	A	2,405.80	A
22	2,414.71	2,413.94	2,413.69	2,413.12	A	2,408.90	2,414.12	2,415.28	A	2,407.62	2,405.43	2,406.62
23	2,414.93	2,413.92	2,413.69	A	A	2,408.62	2,414.32	2,415.20	2,412.50	2,407.30	2,405.06	2,406.32
24	2,414.92	2,413.89	2,413.67	2,413.30	2,413.78	2,408.42	2,414.70	2,415.28	2,412.28	2,406.92	A	2,405.98
25	2,414.90	2,413.86	2,413.65	A	2,413.53	2,408.12	2,415.22	A	2,412.08	A	2,404.72	2,405.78
26	2,414.91	2,413.88	2,414.05	A	2,413.28	2,407.82	A	A	2,411.82	A	2,404.83	2,405.32
27	2,414.92	2,413.85	2,414.15	2,414.50	2,413.03	2,409.73	A	2,415.20	2,411.03	A	2,405.02	A
28	2,414.91	2,413.84	2,413.61	2,414.60	2,412.82	2,409.10	2,415.30	2,415.03	A	A	2,404.92	A
29	2,414.90	2,413.83	2,413.58	2,414.70	---	A	2,415.25	2,415.20	A	2,407.08	2,405.07	2,405.12
30	2,414.73	2,413.83	2,413.93	2,414.45	---	A	2,415.25	2,414.73	2,410.83	2,406.95	A	2,404.63
31	2,414.92	---	A	2,413.90	---	2,409.25	---	A	---	2,406.69	A	---
MAX	2,415.22	2,414.91	---	---	---	---	---	---	---	---	---	---
MIN	2,414.47	2,413.83	---	---	---	---	---	---	---	---	---	---

A No gage-height record

50032590 LAGO DE MATRULLAS AT DAMSITE NEAR OROCOVIS, PR—Continued



50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA.--16.7 mi^2 (43.3 km^2).

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	44	10	8.0	11	6.0	10	31	14	9.4	9.7	13
2	12	26	11	8.6	8.7	5.9	11	28	14	9.4	8.4	11
3	15	22	12	8.2	9.9	5.9	11	27	14	8.4	8.0	56
4	17	20	12	7.7	56	5.7	11	25	13	8.7	7.6	30
5	12	18	12	7.8	50	5.6	299	23	13	9.5	7.5	13
6	10	18	11	8.0	34	5.5	87	22	13	11	8.5	9.2
7	9.4	15	11	8.0	15	5.5	30	22	12	8.8	8.9	10
8	129	14	11	7.9	11	5.5	19	21	12	8.5	7.7	11
9	88	13	11	8.1	9.1	5.5	15	20	12	9.1	7.3	9.3
10	43	14	11	8.3	8.6	5.5	13	20	11	8.0	7.0	7.8
11	30	15	11	8.1	8.4	5.5	15	19	12	7.6	19	16
12	21	14	11	7.9	8.7	5.5	18	18	12	7.4	14	42
13	19	17	11	8.0	7.8	5.4	15	17	11	10	8.3	57
14	33	23	10	8.0	7.5	5.3	13	18	11	9.8	8.1	35
15	30	26	9.9	8.0	7.3	5.3	12	17	12	9.4	7.8	26
16	69	29	9.8	8.2	7.4	5.3	11	16	12	11	8.3	32
17	70	20	10	8.4	7.5	5.0	266	16	11	10	7.2	21
18	33	16	12	8.2	7.4	5.0	475	16	11	9.3	7.8	14
19	26	15	11	8.6	7.1	25	208	16	11	9.0	7.6	12
20	21	14	13	8.0	7.0	19	79	55	11	9.2	6.9	11
21	20	14	10	6.4	7.0	7.9	81	141	12	9.0	7.4	23
22	18	14	13	6.2	6.8	6.0	100	71	11	12	8.0	16
23	34	14	10	6.5	6.4	5.7	229	30	10	10	7.2	12
24	25	13	9.2	7.8	6.2	5.3	277	23	9.8	8.8	8.3	13
25	19	12	9.3	45	6.3	5.3	491	19	9.6	8.4	8.1	12
26	21	11	9.0	38	6.2	180	217	17	9.2	8.3	15	19
27	18	12	8.8	11	6.2	98	88	16	8.8	9.2	12	21
28	18	11	8.4	8.6	6.2	37	55	16	8.8	11	12	13
29	19	11	8.4	7.9	---	18	41	15	8.5	10	15	11
30	17	11	8.4	7.8	---	19	35	15	e8.5	8.5	21	11
31	47	---	7.9	10	---	e12	---	14	---	9.8	19	---
TOTAL	955.4	516	323.1	317.2	340.7	537.1	3,232	824	338.2	288.5	308.6	587.3
MEAN	30.8	17.2	10.4	10.2	12.2	17.3	108	26.6	11.3	9.31	9.95	19.6
MAX	129	44	13	45	56	180	491	141	14	12	21	57
MIN	9.4	11	7.9	6.2	6.2	5.0	10	14	8.5	7.4	6.9	7.8
AC-FT	1,900	1,020	641	629	676	1,070	6,410	1,630	671	572	612	1,160
CFSM	1.85	1.03	0.62	0.61	0.73	1.04	6.45	1.59	0.68	0.56	0.60	1.17
IN.	2.13	1.15	0.72	0.71	0.76	1.20	7.20	1.84	0.75	0.64	0.69	1.31

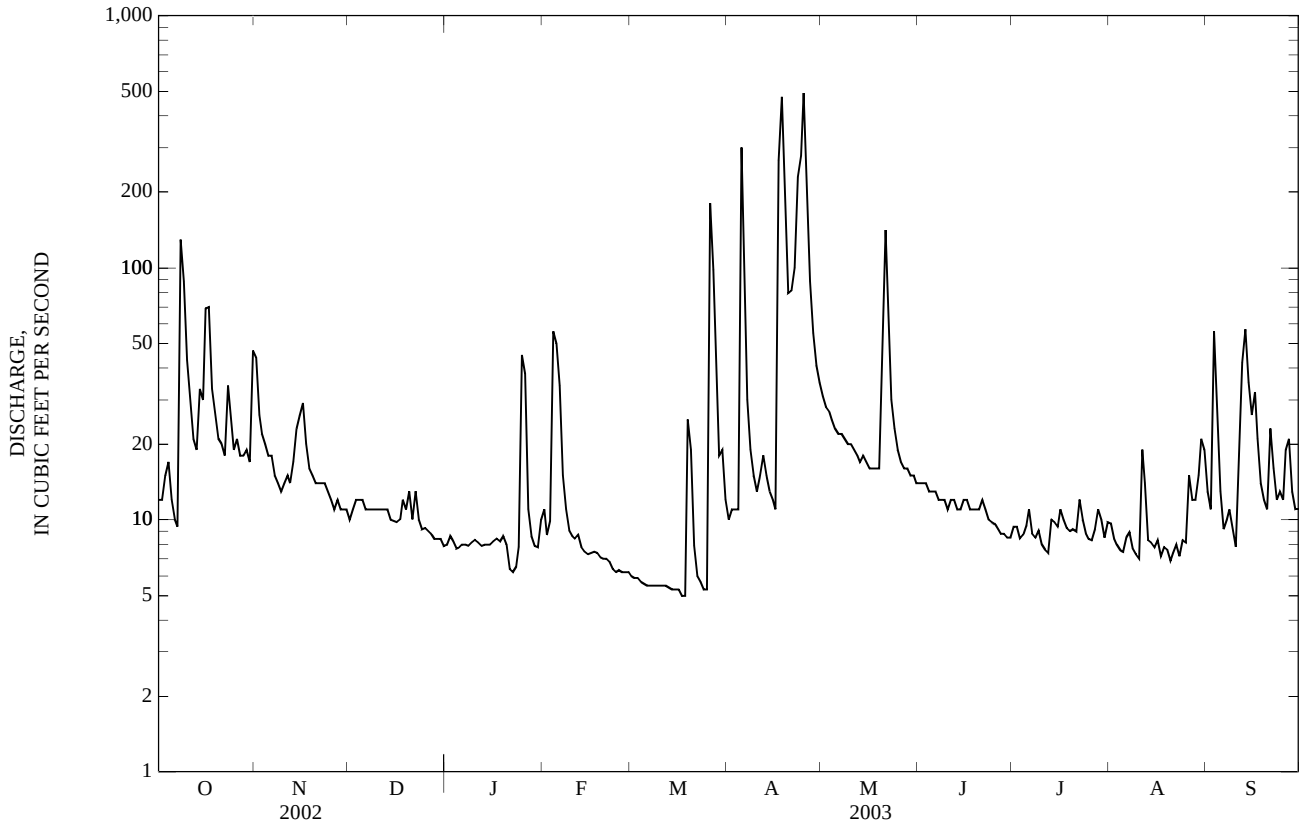
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	78.9	56.5	29.7	21.2	16.8	15.3	32.5	47.9	20.1	15.0	20.9	106
MAX	392	205	108	83.4	43.5	59.9	119	179	78.6	104	152	1,104
(WY)	(1971)	(1971)	(1971)	(1992)	(1998)	(1972)	(2002)	(1981)	(1979)	(1979)	(1979)	(1996)
MIN	12.6	7.12	4.29	3.66	5.70	4.18	4.92	4.24	3.59	3.22	3.97	3.55
(WY)	(2002)	(1995)	(1995)	(1995)	(1994)	(1994)	(1995)	(1994)	(1994)	(1994)	(1994)	(1994)

50034000 RIO BAUTA NEAR OROCOVIS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	10,162.1		8,568.1			
ANNUAL MEAN	27.8		23.5		38.4	
HIGHEST ANNUAL MEAN					117	1996
LOWEST ANNUAL MEAN					6.56	1994
HIGHEST DAILY MEAN	525	Apr 25	491	Apr 25	19,500	Sep 10, 1996
LOWEST DAILY MEAN	7.8	Jul 26	5.0	Mar 17	2.8	Jul 23, 1994
ANNUAL SEVEN-DAY MINIMUM	8.3	Jul 25	5.3	Mar 12	2.8	Jul 23, 1994
MAXIMUM PEAK FLOW			2,300	Apr 5	28,200	Sep 22, 1998
MAXIMUM PEAK STAGE			12.28	Apr 5	25.93	Sep 22, 1998
INSTANTANEOUS LOW FLOW			4.6	Mar 17	2.6	Jul 26, 1994
ANNUAL RUNOFF (AC-FT)	20,160		16,990		27,830	
ANNUAL RUNOFF (CFSM)	1.67		1.41		2.30	
ANNUAL RUNOFF (INCHES)	22.64		19.09		31.26	
10 PERCENT EXCEEDS	46		35		67	
50 PERCENT EXCEEDS	15		11		13	
90 PERCENT EXCEEDS	9.5		7.1		5.7	

e Estimated



50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36", Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Highway 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Valés, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi^2 (332 km^2), excludes 6.0 mi^2 (15.5 km^2), the runoff from which is diverted through El Guineo and Matrullas reservoirs.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office, February 1959 to September 1960 (monthly discharge measurements only), October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi^2 (342 km^2).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to April 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum. Since October 1, 1997, 2.0 ft (0.6 m) were added to gage datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	206	53	40	e39	37	e78	144	e98	50	133	280
2	109	319	51	42	e37	36	69	133	e99	61	82	134
3	148	180	53	42	e36	36	79	130	e99	54	67	256
4	155	104	56	40	e169	36	80	133	e103	49	56	341
5	110	88	59	39	e156	35	498	121	e92	55	66	154
6	100	83	54	39	e86	34	222	109	e90	74	61	100
7	255	79	50	39	e61	34	102	103	e93	63	66	97
8	320	75	50	38	e51	34	84	106	107	69	60	139
9	382	74	51	38	e47	34	77	99	86	63	53	149
10	195	72	48	39	e44	34	77	96	78	54	52	97
11	152	70	46	39	e41	34	79	89	74	49	57	159
12	124	68	46	38	e45	34	90	87	64	47	134	568
13	115	81	45	37	e39	34	87	87	59	55	82	457
14	156	94	45	36	e39	34	84	82	59	91	68	379
15	186	141	44	36	e36	33	83	85	73	62	74	183
16	170	109	41	35	e36	33	83	80	71	74	70	209
17	151	80	43	35	e36	32	693	77	68	67	86	159
18	117	73	49	35	e38	31	1,210	105	66	50	84	116
19	107	69	47	35	e36	119	788	89	82	41	82	105
20	99	66	52	35	e34	97	463	544	67	43	86	113
21	97	64	49	35	41	50	1,030	1,170	63	49	98	443
22	95	62	48	35	41	42	557	709	75	54	138	401
23	107	61	64	34	39	41	1,420	278	64	72	142	258
24	120	59	47	37	37	42	1,480	188	73	57	123	170
25	96	57	43	208	37	43	1,540	151	73	47	115	163
26	90	56	44	553	37	382	847	132	68	50	136	256
27	90	56	45	79	37	452	361	118	62	71	131	186
28	82	55	41	54	37	127	245	104	68	71	89	136
29	80	53	40	e44	---	99	193	113	61	71	154	142
30	86	54	39	e39	---	102	163	95	54	61	135	140
31	193	---	41	e39	---	e99	---	e102	---	94	267	---
TOTAL	4,392	2,708	1,484	1,914	1,412	2,310	12,862	5,659	2,289	1,868	3,047	6,490
MEAN	142	90.3	47.9	61.7	50.4	74.5	429	183	76.3	60.3	98.3	216
MAX	382	319	64	553	169	452	1,540	1,170	107	94	267	568
MIN	80	53	39	34	34	31	69	77	54	41	52	97
AC-FT	8,710	5,370	2,940	3,800	2,800	4,580	25,510	11,220	4,540	3,710	6,040	12,870
CFSM	1.11	0.71	0.37	0.48	0.39	0.58	3.35	1.43	0.60	0.47	0.77	1.69
IN.	1.28	0.79	0.43	0.56	0.41	0.67	3.74	1.64	0.67	0.54	0.89	1.89

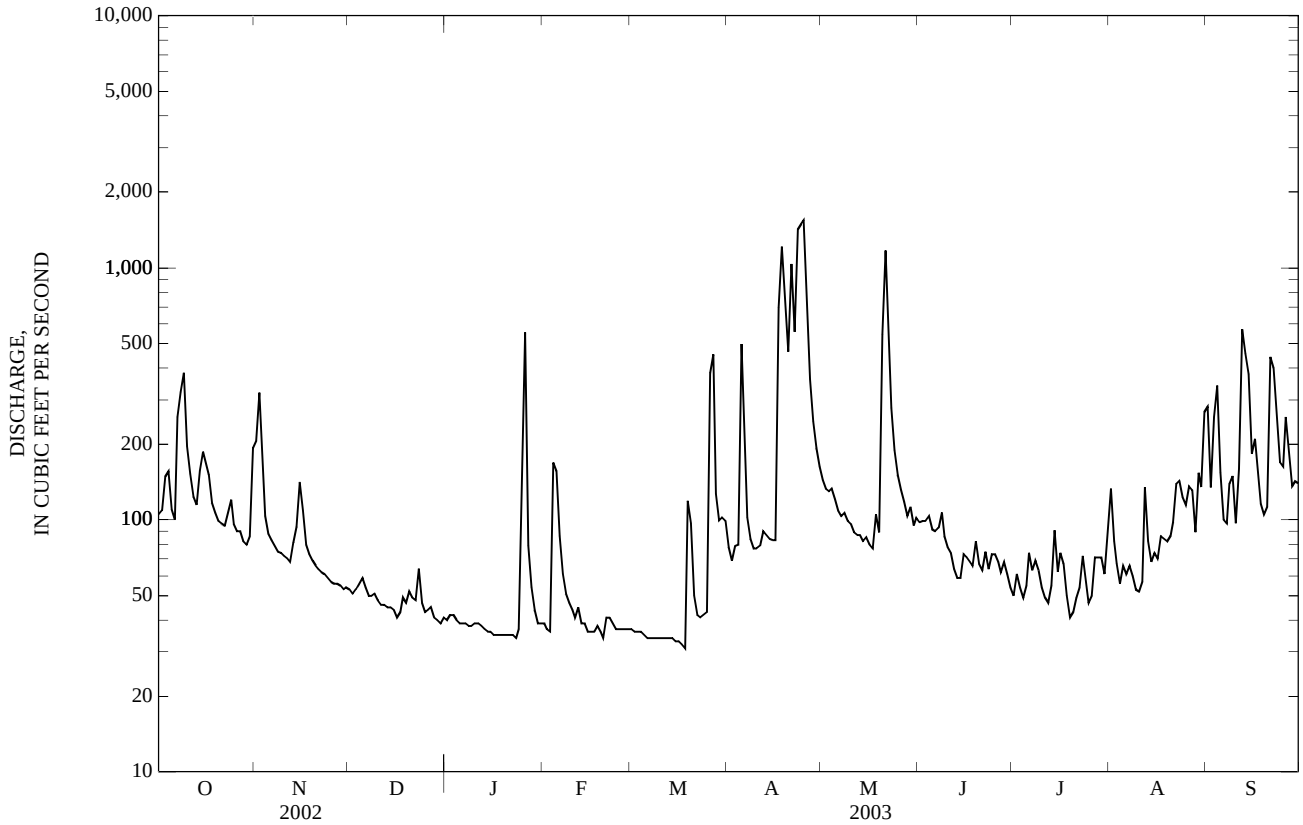
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	411	355	259	191	162	132	256	390	154	102	146	308
MAX	2,422	1,029	1,296	679	1,393	477	1,174	2,293	512	438	1,212	1,295
(WY)	(1971)	(2000)	(1966)	(1952)	(1950)	(1969)	(1969)	(1985)	(1999)	(1979)	(1979)	(1996)
MIN	66.7	34.7	29.7	26.2	41.6	29.7	28.5	29.6	17.8	14.1	27.0	23.9
(WY)	(2002)	(1995)	(1995)	(1995)	(1957)	(1994)	(1984)	(1994)	(1994)	(1994)	(1994)	(1994)

50035000 RIO GRANDE DE MANATI AT CIALES, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	60,478		46,435			
ANNUAL MEAN	166		127		240	
HIGHEST ANNUAL MEAN					520	1971
LOWEST ANNUAL MEAN					47.3	1994
HIGHEST DAILY MEAN	2,540	Apr 25	1,540	Apr 25	42,700	May 18, 1985
LOWEST DAILY MEAN	39	Dec 30	31	Mar 18	8.5	Jul 28, 1994
ANNUAL SEVEN-DAY MINIMUM	42	Dec 25	33	Mar 12	9.5	Jul 24, 1994
MAXIMUM PEAK FLOW			6,470	May 21	128,000	Sep 10, 1996
MAXIMUM PEAK STAGE			8.57	May 21	25.20	Sep 10, 1996
INSTANTANEOUS LOW FLOW			30	Mar 18	8.5	Jul 27, 1994
ANNUAL RUNOFF (AC-FT)	120,000		92,100		173,600	
ANNUAL RUNOFF (CFSM)	1.29		0.994		1.87	
ANNUAL RUNOFF (INCHES)	17.58		13.50		25.44	
10 PERCENT EXCEEDS	267		214		440	
50 PERCENT EXCEEDS	104		74		113	
90 PERCENT EXCEEDS	59		37		50	

e Estimated



50035000 RIO GRANDE DE MANATI AT CIALES, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office), February 1959 to September 1960 (monthly discharge measurements only), October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi^2 (342 km^2).

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: December 2001 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 2001.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,890 mg/L April 25, 2002; Minimum daily mean, 1 mg/L several days during Water Years 2002 and 2003.
SEDIMENT LOADS: Maximum daily mean, 35,300 tons (32,024 tonnes) April 25, 2002; Minimum daily mean, .15 ton (.14 tonne) July 18, 2003.

EXTREMES FOR CURRENT YEAR 2003.-
SEDIMENT CONCENTRATION: Maximum daily mean, 2,300 mg/L April 23, 2003; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 24,600 tons (22,317 tonnes) April 23, 2003; Minimum daily mean, .15 ton (.14 tonne) July 18, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	105	18	4.9	206	209	151	53	7	1.0
2	109	22	6.4	319	587	1,300	51	8	1.1
3	148	38	17	180	109	57	53	6	0.91
4	155	44	19	104	20	5.8	56	5	0.73
5	110	34	10	88	12	2.9	59	3	0.53
6	100	33	8.8	83	12	2.7	54	2	0.36
7	255	967	2,130	79	12	2.6	50	4	0.57
8	320	352	733	75	12	2.4	50	6	0.84
9	382	183	211	74	11	2.2	51	8	1.1
10	195	51	29	72	10	1.9	48	10	1.3
11	152	22	9.3	70	9	1.7	46	12	1.5
12	124	19	6.3	68	9	1.7	46	14	1.8
13	115	18	5.5	81	14	3.4	45	16	2.0
14	156	173	139	94	15	4.0	45	18	2.2
15	186	150	88	141	47	27	44	20	2.4
16	170	105	57	109	16	5.1	41	22	2.4
17	151	107	46	80	6	1.2	43	22	2.5
18	117	37	12	73	5	1.0	49	22	2.9
19	107	21	6.1	69	6	1.1	47	22	2.7
20	99	17	4.6	66	6	1.1	52	22	3.1
21	97	14	3.7	64	7	1.2	49	22	2.9
22	95	14	3.5	62	9	1.5	48	22	2.8
23	107	21	8.0	61	11	1.8	64	22	3.8
24	120	22	7.8	59	13	2.0	47	22	2.7
25	96	11	2.9	57	14	2.2	43	22	2.5
26	90	9	2.2	56	12	1.8	44	21	2.6
27	90	8	1.9	56	8	1.3	45	21	2.6
28	82	6	1.4	55	5	0.81	41	21	2.4
29	80	6	1.2	53	6	0.83	40	21	2.3
30	86	5	1.2	54	7	0.95	39	21	2.3
31	193	183	268	---	---	---	41	21	2.4
TOTAL	4,392	---	3,844.7	2,708	---	1,590.19	1,484	---	61.24

50035000 RIO GRANDE DE MANATI AT CIALES, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	40	21	2.3	e39	e20	e2.0	37	7	0.66
2	42	21	2.4	e37	e20	e1.9	36	6	0.61
3	42	21	2.4	e36	e20	e1.9	36	6	0.59
4	40	21	2.3	e169	e105	e57	36	6	0.62
5	39	21	2.2	e156	e107	e46	35	7	0.63
6	39	21	2.2	e86	e12	e2.9	34	7	0.65
7	39	21	2.2	e61	e22	e3.8	34	7	0.64
8	38	21	2.1	e51	e22	e3.8	34	7	0.65
9	38	21	2.1	e47	e22	e2.7	34	7	0.65
10	39	21	2.2	e44	e22	e2.7	34	6	0.57
11	39	21	2.2	e41	e22	e2.4	34	5	0.48
12	38	21	2.1	e45	e22	e2.7	34	4	0.40
13	37	21	2.0	e39	e21	e2.2	34	4	0.39
14	36	21	2.0	e39	e21	e2.2	34	4	0.40
15	36	21	2.0	e36	e21	e2.0	33	5	0.41
16	35	20	2.0	e36	e21	e2.0	33	5	0.45
17	35	20	1.9	e36	e21	e2.0	32	6	0.51
18	35	20	1.9	e38	e21	e2.0	31	7	0.58
19	35	20	1.9	e36	e21	e2.0	119	51	56
20	35	20	1.9	e34	e6	e0.65	97	28	11
21	35	20	1.9	41	6	0.61	50	10	1.3
22	35	20	1.9	41	5	0.56	42	8	0.93
23	34	20	1.9	39	5	0.52	41	8	0.85
24	37	20	2.0	37	5	0.50	42	7	0.84
25	208	344	842	37	5	0.51	43	7	0.81
26	553	860	2,320	37	6	0.58	382	918	4,690
27	79	21	5.0	37	6	0.64	452	279	487
28	54	7	1.0	37	7	0.69	127	59	21
29	e44	e20	e2.0	---	---	---	99	34	9.7
30	e39	e20	e2.0	---	---	---	102	19	5.2
31	e39	e20	e2.0	---	---	---	e99	16	3.2
TOTAL	1,914	---	3,224.0	1,412	---	149.46	2,310	---	5,297.72
		APRIL			MAY			JUNE	
1	e78	e14	e2.6	144	26	10	e98	e5	e1.5
2	69	13	2.5	133	12	4.3	e99	e5	e1.5
3	79	12	2.6	130	9	3.5	e99	e5	e1.5
4	80	11	2.4	133	7	2.5	e103	e6	e1.7
5	498	432	2,090	121	7	2.1	e92	e5	e1.3
6	222	124	96	109	6	1.9	e90	e5	e1.3
7	102	80	22	103	6	1.7	e93	e5	e1.3
8	84	73	16	106	6	1.6	107	5	1.9
9	77	66	14	99	5	1.5	86	2	0.49
10	77	58	12	96	5	1.3	78	3	0.55
11	79	51	11	89	5	1.2	74	3	0.66
12	90	44	11	87	5	1.1	64	4	0.73
13	87	37	8.7	87	4	1.0	59	6	0.95
14	84	30	6.7	82	4	0.93	59	8	1.2
15	83	22	5.0	85	6	1.3	73	7	1.4
16	83	15	3.4	80	8	1.7	71	6	1.2
17	693	701	3,130	77	8	1.7	68	7	1.2
18	1,210	1,450	7,800	105	8	2.4	66	7	1.3
19	788	785	2,230	89	9	2.1	82	8	1.7
20	463	337	557	544	451	2,100	67	7	1.3
21	1,030	1,240	7,790	1,170	2,260	20,600	63	7	1.1
22	557	362	654	709	519	1,440	75	6	1.2
23	1,420	2,300	24,600	278	112	88	64	5	0.89
24	1,480	1,750	8,410	188	55	28	73	5	0.94
25	1,540	2,190	17,300	151	32	13	73	5	0.89
26	847	764	2,400	132	11	3.8	68	4	0.78
27	361	165	167	118	7	2.1	62	4	0.67
28	245	86	58	104	6	1.7	68	4	0.69
29	193	54	28	113	4	1.3	61	3	0.58
30	163	40	18	95	2	0.62	54	3	0.47
31	---	---	---	e102	e5	e1.2	---	---	---
TOTAL	12,862	---	77,447.9	5,659	---	24,323.55	2,289	---	32.89

50035000 RIO GRANDE DE MANATI AT CIALES, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	50	3	0.43	133	32	12	280	112	106
2	61	4	0.66	82	6	1.3	134	32	12
3	54	5	0.73	67	4	0.72	256	117	209
4	49	6	0.77	56	5	0.75	341	157	178
5	55	6	0.84	66	6	1.0	154	40	17
6	74	5	1.1	61	5	0.83	100	25	6.9
7	63	5	0.83	66	4	0.73	97	25	6.5
8	69	4	0.73	60	3	0.51	139	25	9.4
9	63	3	0.51	53	2	0.31	149	25	10
10	54	2	0.30	52	2	0.28	97	23	6.1
11	49	1	0.16	57	3	0.52	159	54	41
12	47	1	0.17	134	23	9.3	568	647	2,440
13	55	2	0.25	82	10	2.2	457	430	712
14	91	2	0.47	68	7	1.2	379	168	203
15	62	2	0.30	74	5	1.1	183	8	4.7
16	74	2	0.30	70	4	0.79	209	2	1.2
17	67	1	0.23	86	7	2.3	159	3	1.5
18	50	1	0.15	84	6	1.3	116	5	1.5
19	41	2	0.19	82	6	1.4	105	6	1.7
20	43	3	0.29	86	7	1.6	113	6	1.7
21	49	3	0.44	98	8	2.0	443	445	1,440
22	54	4	0.61	138	8	3.1	401	27	39
23	72	5	0.92	142	9	3.4	258	4	3.2
24	57	4	0.59	123	10	3.2	170	4	1.6
25	47	2	0.30	115	10	3.2	163	3	1.4
26	50	1	0.18	136	12	4.5	256	48	41
27	71	2	0.38	131	20	7.0	186	17	8.8
28	71	3	0.57	89	17	4.1	136	15	5.6
29	71	4	0.73	154	34	16	142	15	5.7
30	61	4	0.59	135	22	8.2	140	15	5.6
31	94	18	12	267	92	81	---	---	---
TOTAL	1,868	---	26.72	3,047	---	175.84	6,490	---	5,521.1
YEAR	46,435	121,695.31							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
MAR 26...	2010	2,040	99	2,600	14,300

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
MAR 26...	2110	2,000	54	68	78	90	95	99	100	100	100	2,070	11,200

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, PR

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Río Cialitos, 0.5 mi (0.8 km) north of Ciales Plaza.

DRAINAGE AREA.--136 mi^2 (352 km^2) this excludes the 6 mi^2 (15.5 km^2) upstream from Lago El Guineo and Lago de Matrullas, flow from which is diverted to Río Jacaguas.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
21...	0915	76	5.0	7.5	91	6.9	275	25.0	100	25.9	9.05	1.66	.5
MAR													
21...	0850	82	15	7.0	--	7.7	260	25.5	100	25.3	9.10	2.09	.5
MAY													
02...	1200	61	3.8	8.9	--	8.1	234	26.2	92	23.3	8.09	1.93	.5
AUG													
14...	1145	51	1.7	9.0	--	8.1	264	28.3	--	--	--	--	--
SEP													
12...	1340	216	130	7.7	--	7.8	235	28.3	95	23.7	8.64	2.20	.5

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
21...	11.6	103	13.4	<.17	25.6	8.9	--	158	32.5	<10	.20	.02	--
MAR													
21...	12.5	100	13.1	.13	23.9	9.7	.2	156	34.7	<10	.30	.03	.50
MAY													
02...	10.9	89	11.0	<.17	25.5	8.5	<.1	142	23.5	<10	<.20	<.01	--
AUG													
14...	--	101	--	--	--	--	--	--	--	<10	<.20	.01	--
SEP													
12...	10.3	90	11.7	<.2	24.0	8.1	--	143	83.0	<10	.30	.06	.56

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
21...	.360	<.01	.18	.05	.56	2.5	<10	E80	E54	--	--	--	--
MAR													
21...	.510	.01	.27	.06	.81	3.6	<10	E610	--	3,100	<2	50.9	<18
MAY													
02...	.450	<.01	--	.04	--	--	<10	E13	--	450	3	41.1	E9.1
AUG													
14...	<.020	<.01	--	<.02	--	--	<10	E160	--	3,600	--	--	--
SEP													
12...	.590	.03	.24	.13	.89	3.9	10	3,700	--	8,000	--	--	--

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
21...	<.2	<.8	<10	<.01	320	<1	34.3	<.02	<3	<.3	<25	<.10	<16
MAY													
02...	<.2	<.8	<10	<.01	160	<1	25.6	<.02	E2	<.3	<25	E.07	<16
AUG													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales Plaza.

DRAINAGE AREA.--17.0 mi^2 (44.0 km^2).

PERIOD OF RECORD.--Water years 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
NOV													
19...	1415	22	16	8.3	7.2	257	25.2	99	29.0	6.54	1.70	.5	11.0
MAR													
21...	1045	12	48	8.1	7.2	227	23.5	89	26.0	5.75	2.24	.4	9.42
MAY													
02...	1400	20	4.0	8.2	8.2	245	27.9	95	27.9	6.24	1.89	.5	10.5
AUG													
14...	1230	6.7	6.2	9.2	8.3	228	28.8	--	--	--	--	--	--
SEP													
12...	1150	29	92	8.1	7.8	197	26.5	79	23.6	4.93	2.35	.4	7.81

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
19...	96	10.6	<.17	28.5	7.1	--	152	9.09	<10	<.20	.01	--	.890
MAR													
21...	82	10.9	.11	21.9	8.4	.2	134	4.51	23	.40	.04	1.58	1.60
MAY													
02...	97	10.4	<.17	29.6	6.9	<.1	151	7.98	<10	<.20	<.01	--	.670
AUG													
14...	92	--	--	--	--	--	--	--	<10	<.20	.02	--	.390
SEP													
12...	71	9.04	<.2	20.2	7.7	--	118	9.19	47	.50	.05	1.07	1.10

Date	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)
NOV													
19...	<.01	--	.08	--	--	<10	3,100	870	--	--	--	--	--
MAR													
21...	.02	.36	.11	2.0	8.9	20	4,700	--	24,000	<2	61.1	E16	<.2
MAY													
02...	<.01	--	.06	--	--	<10	E160	--	2,800	<2	52.6	E9.1	<.2
AUG													
14...	<.01	--	.05	--	--	<10	E880	--	E18,000	--	--	--	--
SEP													
12...	.03	.45	.11	1.6	7.1	20	E7,700	--	E85,000	--	--	--	--

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV												
19...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
21...	<.8	<10	<.01	630	<1	46.0	<.02	<3	<.3	E14	<.10	<16
MAY												
02...	<.8	<10	<.01	230	<1	17.7	<.02	<3	<.3	<25	<.10	<16
AUG												
14...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
12...	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR

LOCATION.--Lat 18°25'52", long 66°31'37", Hydrologic Unit 21010002, at bridge on Highway 2, and 2.3 mi (3.7 km) west of Manatí.

DRAINAGE AREA.--197 mi^2 (510 km^2), approximately, of which about 38 mi^2 (98 km^2) is partly or entirely noncontributing, excludes 6.0 mi^2 (15.5 km^2) upstream from Lago El Guineo and Lago de Matrullas.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1963-68 (annual maximum discharge only), February 1970 to current year.

REVISED RECORDS.--WRD PR-86-1: 1970-71 (M), 1975, 1979, 1982-85 (P).

GAGE.--Water-stage recorder. Elevation of gage is 14 ft (4 m), from topographic map. Prior to 1968 crest-stage gage at same site and datum 3.57 ft (1.09 m) lower.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Possible water extraction about 500 ft (152.4 m) upstream of gage by unknown source affecting low flow.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights to gage datum of major floods, pointed out by local residents, are as follows: September 13, 1928, 36.6 ft (11.16 m), September 27, 1932, 36.3 ft (11.06 m), and August 4, 1945, 34.3 ft (10.45 m).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

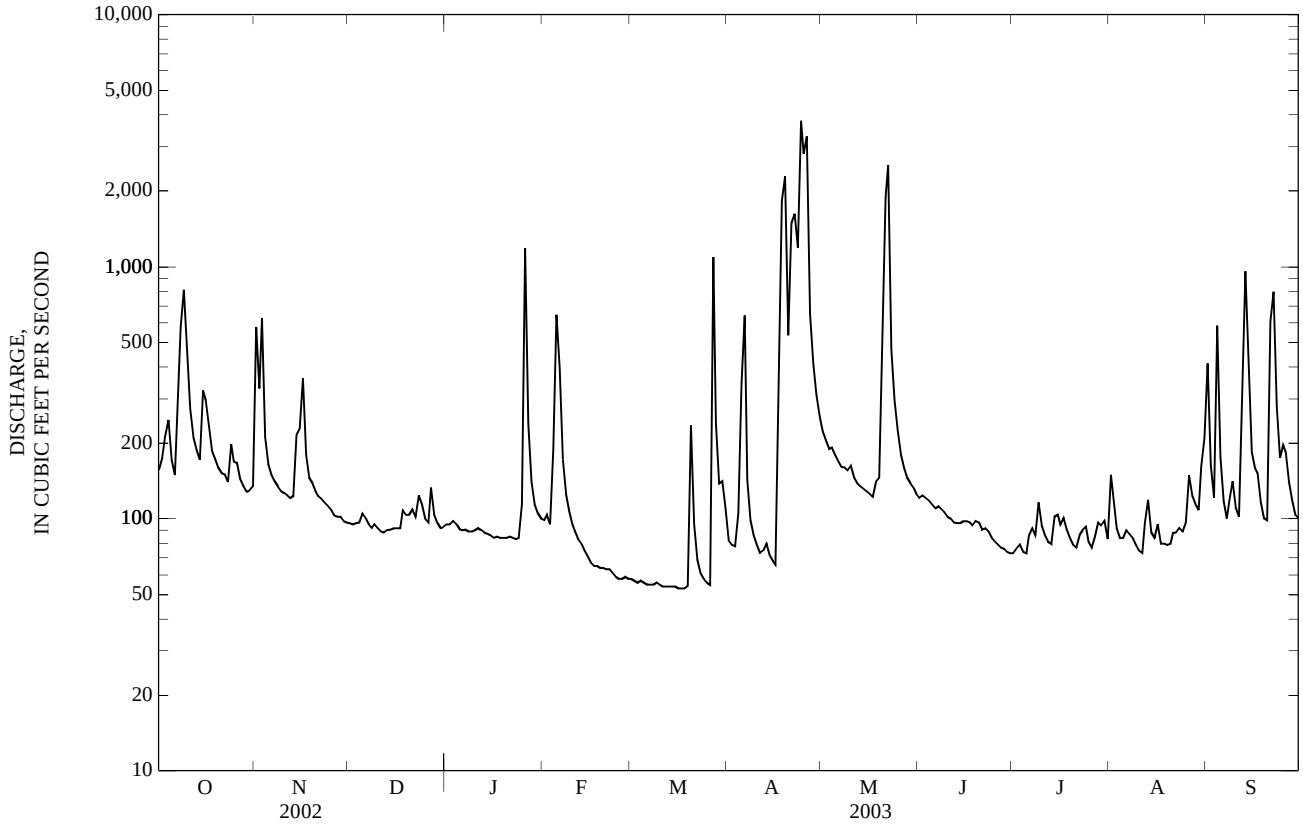
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	575	96	95	99	58	82	222	121	73	149	412
2	174	328	95	95	104	57	79	204	124	76	114	163
3	214	625	96	98	95	56	78	190	121	79	92	121
4	247	211	97	95	187	57	105	192	118	74	84	581
5	172	165	105	91	643	56	343	180	114	73	84	176
6	149	149	101	90	397	55	639	170	110	86	90	118
7	264	141	95	91	172	55	142	161	112	92	87	100
8	574	134	92	89	125	55	99	160	109	86	84	118
9	808	129	95	89	107	56	86	155	106	116	79	141
10	447	127	92	90	95	55	79	162	102	94	75	111
11	273	124	89	92	89	54	73	146	100	86	73	102
12	211	121	88	90	83	54	75	138	97	81	96	367
13	187	123	90	88	80	54	80	135	96	80	119	959
14	172	215	91	87	75	54	72	132	96	102	88	400
15	322	229	92	86	71	54	68	129	98	104	84	184
16	298	361	92	84	67	53	66	126	98	95	95	159
17	237	179	92	85	65	53	393	122	97	101	80	152
18	186	145	108	84	65	53	1,820	140	94	91	80	117
19	173	138	104	84	64	54	2,270	145	98	84	79	101
20	159	128	104	84	64	234	533	629	97	79	80	99
21	152	123	109	85	63	95	1,490	1,870	91	77	88	602
22	150	120	102	84	63	69	1,620	2,530	92	86	88	794
23	140	116	124	83	61	61	1,190	470	89	90	92	279
24	197	113	114	84	59	58	3,790	296	84	93	89	175
25	169	109	100	114	58	56	2,800	223	81	81	97	196
26	167	103	97	1,180	58	55	3,280	180	79	77	148	184
27	144	102	133	238	59	1,090	650	159	77	85	124	141
28	135	102	104	140	58	240	415	145	76	97	115	119
29	128	98	96	114	---	138	309	138	74	94	108	104
30	130	97	92	105	---	141	255	133	73	98	161	101
31	134	---	93	100	---	110	---	126	---	83	208	---
TOTAL	7,069	5,430	3,078	4,114	3,226	3,390	22,981	9,908	2,924	2,713	3,130	7,376
MEAN	228	181	99.3	133	115	109	766	320	97.5	87.5	101	246
MAX	808	625	133	1,180	643	1,090	3,790	2,530	124	116	208	959
MIN	128	97	88	83	58	53	66	122	73	73	73	99
AC-FT	14,020	10,770	6,110	8,160	6,400	6,720	45,580	19,650	5,800	5,380	6,210	14,630
CFSM	1.16	0.92	0.50	0.67	0.58	0.56	3.89	1.62	0.49	0.44	0.51	1.25
IN.	1.33	1.03	0.58	0.78	0.61	0.64	4.34	1.87	0.55	0.51	0.59	1.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2003, BY WATER YEAR (WY)

MEAN	686	634	410	263	203	176	371	612	234	150	205	595
MAX	2,958	2,383	1,717	879	444	521	1,187	3,178	815	577	1,644	3,732
(WY)	(1971)	(2002)	(2000)	(1997)	(1988)	(1972)	(2002)	(1985)	(1999)	(1979)	(1979)	(1998)
MIN	130	71.0	55.1	59.1	72.0	56.2	49.9	93.7	63.8	53.0	67.9	67.4
(WY)	(2002)	(1995)	(1998)	(1995)	(1994)	(1994)	(1995)	(1989)	(1994)	(1994)	(1984)	(1994)

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1970 - 2003	
ANNUAL TOTAL	98,874		75,339			
ANNUAL MEAN	271		206		377	
HIGHEST ANNUAL MEAN					756	1971
LOWEST ANNUAL MEAN					96.5	1994
HIGHEST DAILY MEAN	6,810	Apr 26	3,790	Apr 24	80,400	Sep 22, 1998
LOWEST DAILY MEAN	76	Aug 29	53	Mar 16	31	Jan 24, 1995
ANNUAL SEVEN-DAY MINIMUM	86	Aug 23	54	Mar 12	33	Jul 23, 1994
MAXIMUM PEAK FLOW			11,300	Apr 26	198,000	Sep 10, 1996
MAXIMUM PEAK STAGE			28.02	Apr 26	36.39	Sep 10, 1996
INSTANTANEOUS LOW FLOW			50	Mar 13	28	Jan 23, 1995
ANNUAL RUNOFF (AC-FT)	196,100		149,400		273,000	
ANNUAL RUNOFF (CFSM)	1.38		1.05		1.91	
ANNUAL RUNOFF (INCHES)	18.67		14.23		25.99	
10 PERCENT EXCEEDS	416		324		669	
50 PERCENT EXCEEDS	140		102		162	
90 PERCENT EXCEEDS	96		67		81	



50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
12...	1115	82	10	8.3	100	6.8	326	25.3	140	43.4	8.08	1.55	.4
MAR													
13...	1500	55	9.3	11.3	--	8.3	307	28.9	130	40.8	7.81	1.06	.4
MAY													
06...	1600	167	15	7.6	--	7.8	289	30.5	120	35.4	8.10	1.98	.5
AUG													
18...	1145	82	11	7.4	--	7.6	295	28.9	--	--	--	--	--
SEP													
11...	1425	93	12	8.9	--	7.8	284	30.6	120	35.1	7.75	2.20	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
12...	11.4	189	12.5	<.17	20.0	7.7	--	218	48.0	<10	.60	.07	--
MAR													
13...	11.6	131	14.4	.12	16.2	7.6	<.1	178	26.5	<10	.30	.02	--
MAY													
06...	11.6	112	13.1	<.17	22.4	8.3	<.1	168	76.0	14	<.20	.04	.48
AUG													
18...	--	125	--	--	--	--	--	--	--	11	.90	.29	--
SEP													
11...	10.3	113	12.3	<.2	22.5	8.4	--	166	41.5	11	.30	.05	.68

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
12...	.410	<.01	.53	.14	1.0	4.5	<10	E9,000	48,000	--	--	--	--
MAR													
13...	.100	<.01	.28	.09	.40	1.8	<10	3,100	--	7,900	<2	35.2	25
MAY													
06...	.490	.01	--	.07	--	--	10	E750	--	3,800	<2	50.4	E14
AUG													
18...	.080	<.01	.61	.15	.98	4.3	20	3,300	--	26,000	--	--	--
SEP													
11...	.700	.02	.25	.10	1.0	4.4	10	E1,000	--	2,900	--	--	--

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
13...	<.2	E.8	<10	<.01	260	<1	32.6	<.02	<3	<.3	<25	<.10	<16
MAY													
06...	<.2	1.2	M	<.01	710	M	70.4	<.02	<3	<.3	<25	<.10	<16
AUG													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAY													
06...	1600	<.01	<.02	<.01	<.01	<.02	<.1	<.01	<.02	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
MAY													
06...	<.01	<.01	<.009	<.01	<.014	<.30	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
MAY					
06...	<.1	<.02	<.02	<1	<.02

< -- Less than

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manatí, and 4.4 mi (7.1 km) northwest of Vega Baja Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1964-66, 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Sulfide water unfltrd mg/L (00745)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
21...	1115	10	9.4	122	7.2	1,190	28.4	94	--	<10	3.3	.13	.850
MAR													
10...	1115	5.6	6.0	--	7.9	1,360	27.7	138	--	12	1.3	.26	.450
MAY													
01...	1325	5.0	6.3	--	7.8	1,380	30.5	133	<.1	<10	1.3	.31	.480
AUG													
07...	0950	5.7	6.4	--	8.0	1,470	29.3	102	--	<10	.90	.16	.200
SEP													
24...	1600	7.7	7.7	--	8.0	1,460	31.6	109	--	<10	1.2	.16	.400

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Boron, water, unfltrd recoverable, ug/L (01022)	Copper, water, unfltrd recoverable, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recoverable, ug/L (01045)	Manganese, water, unfltrd recoverable, ug/L (01055)	Zinc, water, unfltrd recoverable, ug/L (01092)
NOV													
21...	<.01	<.02	18.4	10	E20	121	--	--	--	--	--	--	--
MAR													
10...	.01	<.02	7.7	40	<10	--	E1,800	--	--	--	--	--	--
MAY													
01...	.01	<.02	7.9	30	E12	--	250	68	<10	M	20	E2.8	31
AUG													
07...	<.01	<.02	4.9	20	30	--	320	--	--	--	--	--	--
SEP													
24...	.01	<.02	7.1	30	E18	--	76	--	--	--	--	--	--

Date	MBAS, water, unfltrd mg/L (38260)	Phenolic compounds, water, unfltrd ug/L (32730)
NOV		
21...	--	--
MAR		
10...	--	--
MAY		
01...	<.10	<16
AUG		
07...	--	--
SEP		
24...	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

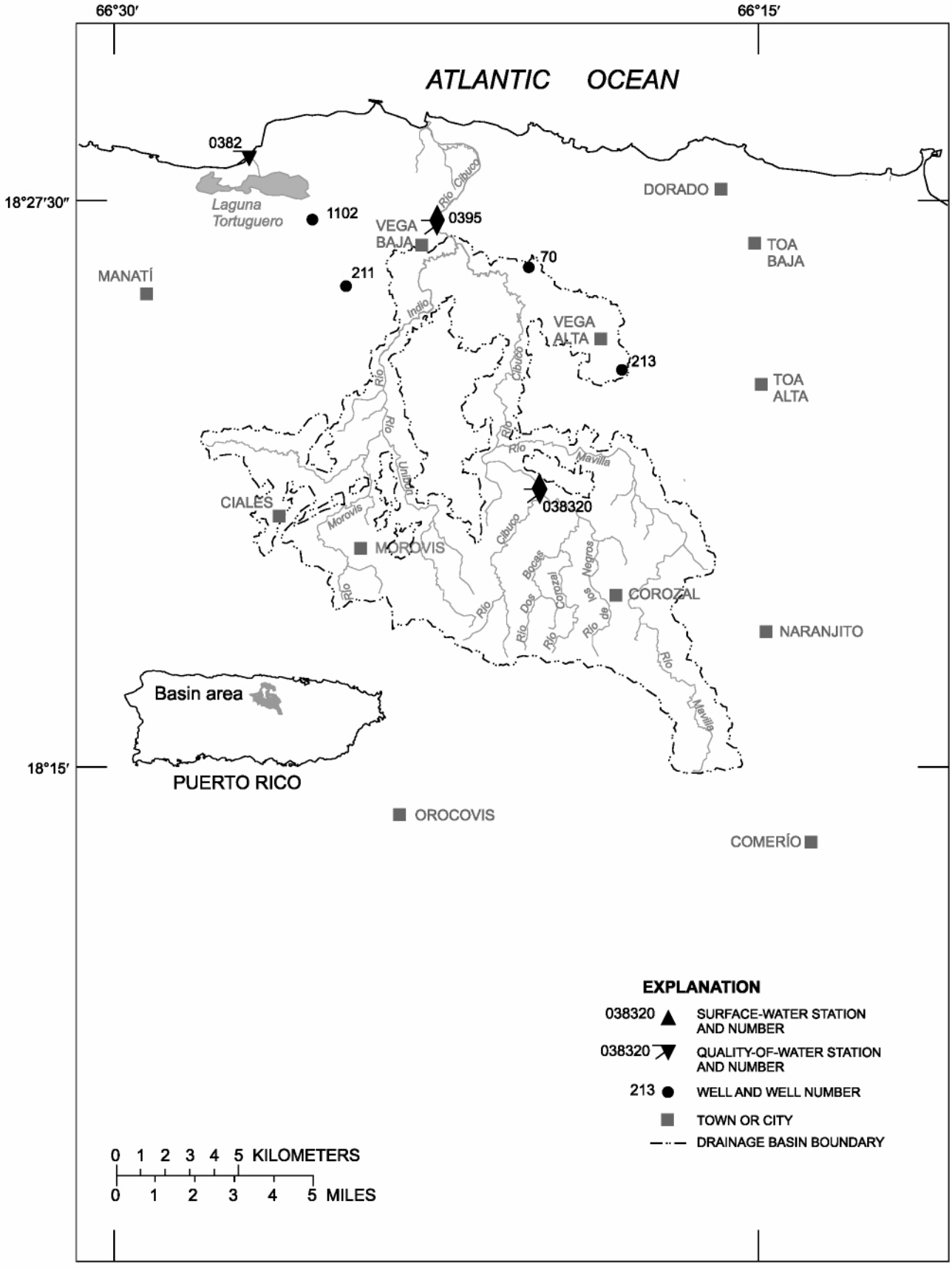


Figure 14. Río Cibuco basin.

50038320 RIO CIBUCO BELOW COROZAL, PR

LOCATION.--Lat l8°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from junction with Río Corozal and 1.4 mi (2.3 km) northwest of Corozal.

DRAINAGE AREA.--15.1 mi^2 (39.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Daily discharge affected by sewage treatment plant about 0.6 mi (1.0 km) upstream from station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

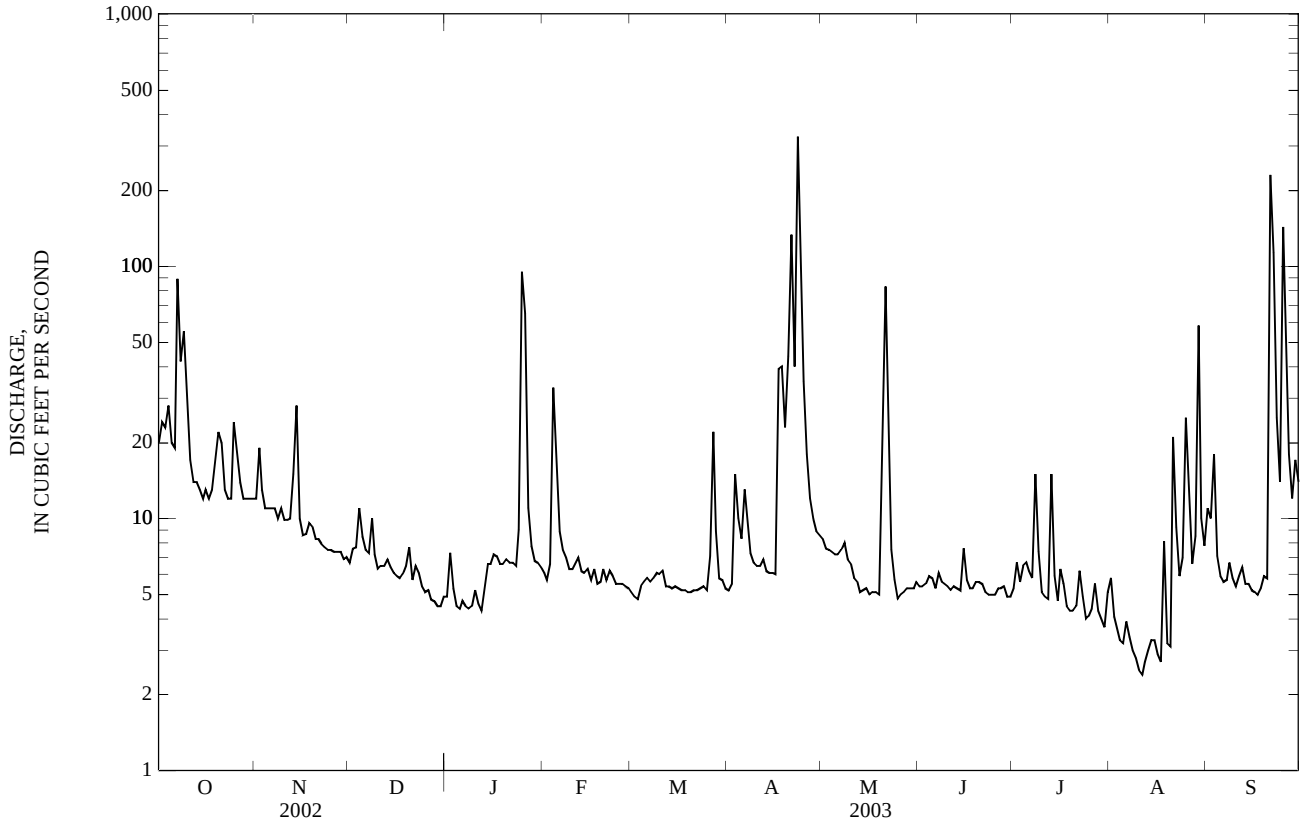
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	6.7	4.9	6.1	5.1	5.2	8.3	5.4	5.3	5.8	11
2	24	19	7.6	7.3	5.7	4.9	5.5	7.6	5.4	6.7	4.1	10
3	23	13	7.7	5.3	6.6	4.8	15	7.5	5.5	5.6	3.7	18
4	28	11	11	4.5	33	5.4	10	7.4	5.9	6.5	3.3	7.1
5	20	11	8.5	4.4	18	5.6	8.3	7.2	5.8	6.7	3.2	5.9
6	19	11	7.5	4.7	8.9	5.8	13	7.2	5.3	6.2	3.9	5.6
7	89	11	7.3	4.5	7.5	5.6	10	7.5	6.1	5.8	3.4	5.7
8	42	10	10	4.4	7.0	5.8	7.3	8.0	5.6	15	3.0	6.7
9	55	11	7.2	4.5	6.3	6.1	6.7	6.9	5.5	7.4	2.8	5.8
10	28	9.9	6.3	5.2	6.3	6.0	6.5	6.6	5.4	5.1	2.5	5.4
11	17	9.9	6.5	4.6	6.6	6.2	6.5	5.8	5.2	4.9	2.4	5.9
12	14	10	6.5	4.3	7.0	5.4	6.9	5.6	5.4	4.8	2.7	6.4
13	14	15	6.9	5.4	6.2	5.4	6.2	5.1	5.3	15	3.0	5.5
14	13	28	6.4	6.6	6.1	5.3	6.1	5.2	5.2	5.9	3.3	5.5
15	12	10	6.1	6.6	6.3	5.4	6.1	5.3	7.6	4.7	3.3	5.2
16	13	8.6	5.9	7.2	5.7	5.3	6.0	5.0	5.7	6.3	2.9	5.1
17	12	8.7	5.8	7.1	6.3	5.2	39	5.1	5.3	5.5	2.7	5.0
18	13	9.6	6.0	6.6	5.5	5.2	40	5.1	5.3	4.5	8.1	5.3
19	17	9.3	6.5	6.6	5.6	5.1	23	5.0	5.6	4.3	3.2	5.9
20	22	8.3	7.7	6.9	6.3	5.1	44	27	5.6	4.3	3.1	5.8
21	20	8.3	5.7	6.7	5.7	5.2	133	83	5.5	4.5	21	230
22	13	7.9	6.5	6.7	6.2	5.2	40	19	5.1	6.2	9.2	113
23	12	7.7	6.1	6.5	5.9	5.3	327	7.5	5.0	4.9	5.9	25
24	12	7.5	5.4	9.0	5.5	5.4	135	5.7	5.0	4.0	7.0	14
25	24	7.5	5.1	95	5.5	5.2	35	4.8	5.0	4.1	25	143
26	18	7.4	5.2	65	5.5	7.1	18	5.0	5.3	4.4	12	46
27	14	7.4	4.8	11	5.4	22	12	5.1	5.3	5.5	6.6	18
28	12	7.4	4.7	7.8	5.3	8.9	10	5.3	5.4	4.3	8.5	12
29	12	6.9	4.5	6.8	---	5.8	8.9	5.3	4.9	4.0	58	17
30	12	7.0	4.5	6.7	---	5.7	8.6	5.3	4.9	3.7	10	14
31	12	---	4.9	6.4	---	5.3	---	5.6	---	5.1	7.8	---
TOTAL	656	311.3	201.5	339.2	212.0	189.8	998.8	300.0	163.5	181.2	241.4	768.8
MEAN	21.2	10.4	6.50	10.9	7.57	6.12	33.3	9.68	5.45	5.85	7.79	25.6
MAX	89	28	11	95	33	22	327	83	7.6	15	58	230
MIN	12	6.9	4.5	4.3	5.3	4.8	5.2	4.8	4.9	3.7	2.4	5.0
AC-FT	1,300	617	400	673	421	376	1,980	595	324	359	479	1,520
CFSM	1.40	0.69	0.43	0.72	0.50	0.41	2.20	0.64	0.36	0.39	0.52	1.70
IN.	1.62	0.77	0.50	0.84	0.52	0.47	2.46	0.74	0.40	0.45	0.59	1.89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	40.6	50.6	39.1	24.5	20.8	19.7	31.2	40.9	14.6	12.0	15.7	33.3
MAX	135	155	169	69.6	51.3	65.1	111	157	44.4	35.6	50.8	191
(WY)	(1991)	(1971)	(1971)	(1992)	(1988)	(1981)	(1973)	(1986)	(1987)	(1999)	(1979)	(1996)
MIN	8.05	5.63	1.94	6.93	7.57	4.36	3.32	3.20	1.63	2.19	3.44	3.88
(WY)	(1979)	(1998)	(1998)	(1995)	(2003)	(1984)	(1984)	(1977)	(1994)	(1994)	(1978)	(1994)

50038320 RIO CIBUCO BELOW COROZAL, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	8,329.1		4,563.5			
ANNUAL MEAN	22.8		12.5		28.7	
HIGHEST ANNUAL MEAN					56.5	1971
LOWEST ANNUAL MEAN					7.47	1994
HIGHEST DAILY MEAN	440	May 1	327	Apr 23	3,190	Nov 8, 2001
LOWEST DAILY MEAN	4.5	Dec 29	2.4	Aug 11	0.91	Jul 17, 1994
ANNUAL SEVEN-DAY MINIMUM	4.8	Dec 25	2.8	Aug 8	1.2	Jun 21, 1994
MAXIMUM PEAK FLOW			2,850	Apr 23	21,400	Nov 8, 2001
MAXIMUM PEAK STAGE			11.34	Apr 23	22.68	Nov 8, 2001
ANNUAL RUNOFF (AC-FT)	16,520		9,050		20,770	
ANNUAL RUNOFF (CFSM)	1.51		0.828		1.90	
ANNUAL RUNOFF (INCHES)	20.52		11.24		25.80	
10 PERCENT EXCEEDS	42		19		50	
50 PERCENT EXCEEDS	12		6.3		13	
90 PERCENT EXCEEDS	6.5		4.6		5.1	



50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
NOV													
22...	0930	8.2	4.0	8.0	7.3	428	24.6	160	40.3	13.5	3.26	.7	20.9
MAR													
28...	0900	9.8	36	7.5	7.2	337	23.2	130	31.5	12.3	3.66	.7	17.8
MAY													
08...	1015	7.9	5.6	8.1	7.8	422	25.7	160	41.2	14.1	3.92	.7	19.9
AUG													
13...	1030	2.8	1.3	8.5	7.9	453	26.7	--	--	--	--	--	--
SEP													
24...	1045	16	21	7.7	7.7	372	25.3	140	36.5	12.8	4.22	.6	16.7

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
22...	141	27.4	<.17	31.1	14.1	--	235	5.24	<10	.50	.10	2.64	2.70
MAR													
28...	110	24.5	.13	26.0	17.7	<.1	199	5.27	22	.50	.05	1.48	1.50
MAY													
08...	143	30.5	<.17	28.9	15.7	<.1	240	5.09	<10	.70	.33	1.75	1.90
AUG													
13...	140	--	--	--	--	--	--	--	<10	.50	.10	3.42	3.50
SEP													
24...	120	26.0	<.2	26.7	18.7	--	213	8.94	10	.60	.12	1.67	1.70

Date	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)
NOV													
22...	.06	.40	.41	3.2	14.2	<10	2,700	550	--	--	--	--	--
MAR													
28...	.02	.45	.26	2.0	8.9	20	E17,000	--	E71,000	E2	47.1	25	<.2
MAY													
08...	.15	.37	.37	2.6	11.5	<10	2,400	--	60,000	<2	58.9	35	<.2
AUG													
13...	.08	.40	.83	4.0	17.7	<10	E150	--	28,000	--	--	--	--
SEP													
24...	.03	.48	.20	2.3	10.2	10	2,100	--	62,000	--	--	--	--

50038320 RIO CIBUCO BELOW COROZAL, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV												
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
28...	3.5	<10	<.01	1,000	M	63.8	<.02	E2	<.3	<25	<.10	<16
MAY												
08...	<.8	<10	<.01	90	<1	58.1	<.02	<3	<.3	<25	<.10	<16
AUG												
13...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
24...	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Highway 2, 0.6 mi (1.0 km) downstream from Río Indio and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA.--99.1 mi^2 (256.7 km^2), of which 25.4 mi^2 (65.8 km^2), does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 11, 1965, reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft^3/s (793 m^3/s).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	87	24	27	31	21	18	45	23	21	70	158
2	61	70	24	28	33	21	19	41	23	e18	37	108
3	108	179	31	41	32	20	20	38	23	e17	38	62
4	96	65	40	26	175	19	87	37	23	19	26	94
5	93	49	55	24	247	18	35	37	23	21	23	44
6	51	48	32	24	78	18	31	37	22	28	24	35
7	277	48	29	24	49	19	72	40	20	28	35	31
8	e203	42	33	23	42	20	35	40	28	26	40	43
9	e171	40	51	22	41	20	26	38	22	94	24	63
10	e149	40	31	25	34	21	25	30	21	28	21	33
11	134	38	28	24	32	20	25	30	19	20	19	30
12	103	40	29	22	31	20	29	31	18	20	23	38
13	85	51	35	21	30	19	24	28	19	42	25	34
14	76	144	31	22	27	19	21	25	18	75	40	43
15	83	114	27	23	27	18	21	28	25	28	32	27
16	e78	44	27	22	27	19	22	25	29	33	24	23
17	69	54	26	23	29	18	139	25	21	46	21	21
18	59	53	25	21	26	18	265	22	21	25	28	20
19	66	57	25	20	25	21	287	29	21	19	81	20
20	92	38	39	21	25	19	145	21	22	18	34	23
21	107	34	34	22	26	19	526	68	22	17	86	580
22	84	33	32	21	25	19	488	364	22	53	214	837
23	59	29	39	19	e23	19	354	89	18	52	74	426
24	55	28	32	20	e22	19	799	51	16	26	40	164
25	100	28	27	134	e22	18	253	39	16	22	95	67
26	170	28	27	523	23	21	142	32	16	21	212	264
27	81	26	27	98	22	69	96	28	15	37	75	60
28	56	25	25	49	21	105	71	27	15	38	53	38
29	51	25	24	37	---	29	59	26	18	44	107	37
30	49	25	24	36	---	27	50	24	21	25	209	42
31	46	---	24	33	---	22	---	23	---	22	83	---
TOTAL	2,961	1,582	957	1,475	1,225	755	4,184	1,418	620	983	1,913	3,465
MEAN	95.5	52.7	30.9	47.6	43.8	24.4	139	45.7	20.7	31.7	61.7	116
MAX	277	179	55	523	247	105	799	364	29	94	214	837
MIN	46	25	24	19	21	18	18	21	15	17	19	20
AC-FT	5,870	3,140	1,900	2,930	2,430	1,500	8,300	2,810	1,230	1,950	3,790	6,870
CFSM	0.96	0.53	0.31	0.48	0.44	0.25	1.41	0.46	0.21	0.32	0.62	1.17
IN.	1.11	0.59	0.36	0.55	0.46	0.28	1.57	0.53	0.23	0.37	0.72	1.30

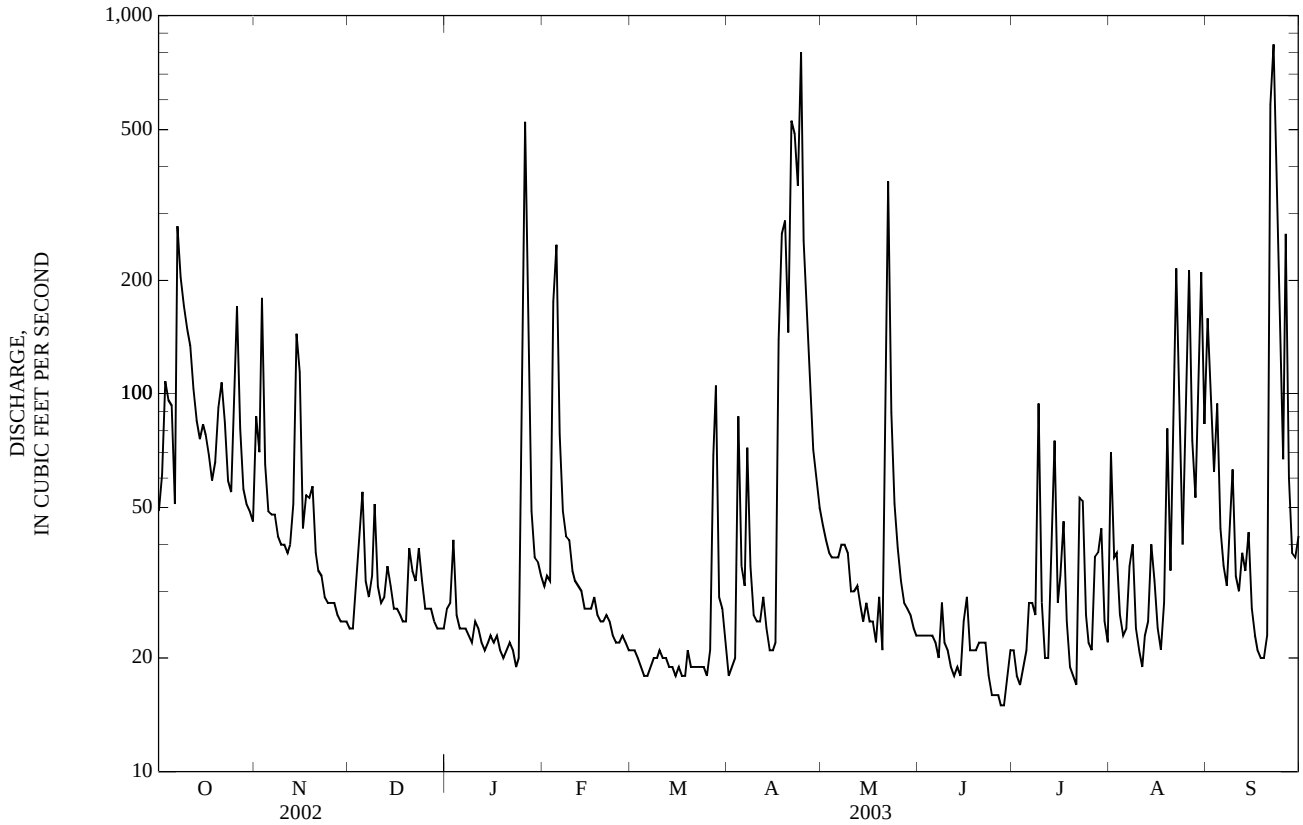
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY)

MEAN	155	200	200	104	86.6	76.4	141	171	68.8	55.4	75.1	141
MAX	559	523	1,316	339	190	339	667	655	239	235	461	690
(WY)	(1986)	(1980)	(1982)	(1997)	(1988)	(1990)	(1987)	(1985)	(1987)	(1999)	(1979)	(1996)
MIN	45.9	28.3	12.9	30.2	27.2	20.5	16.2	24.7	12.5	14.0	21.2	26.7
(WY)	(1974)	(1998)	(1998)	(1995)	(1994)	(1994)	(1984)	(1977)	(1994)	(1994)	(1978)	(1994)

50039500 RIO CIBUCO AT VEGA BAJA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	33,356		21,538			
ANNUAL MEAN	91.4		59.0		122	
HIGHEST ANNUAL MEAN					236	1982
LOWEST ANNUAL MEAN					38.5	1994
HIGHEST DAILY MEAN	905	Apr 27	837	Sep 22	14,600	Dec 13, 1981
LOWEST DAILY MEAN	24	Aug 21	15	Jun 27	7.2	May 3, 1995
ANNUAL SEVEN-DAY MINIMUM	25	Nov 26	16	Jun 23	8.1	Apr 28, 1995
MAXIMUM PEAK FLOW			2,650	Sep 21	34,000	Apr 12, 1987
MAXIMUM PEAK STAGE			14.32	Sep 21	19.10	Apr 12, 1987
INSTANTANEOUS LOW FLOW					7.2	May 2, 1995
ANNUAL RUNOFF (AC-FT)	66,160		42,720		88,140	
ANNUAL RUNOFF (CFSM)	0.922		0.595		1.23	
ANNUAL RUNOFF (INCHES)	12.52		8.08		16.68	
10 PERCENT EXCEEDS	177		107		235	
50 PERCENT EXCEEDS	55		29		55	
90 PERCENT EXCEEDS	28		19		22	

e Estimated



50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
21...	1300	34	14	6.7	83	7.1	450	25.7	180	57.1	9.31	3.47	.5
APR													
01...	0855	18	4.0	3.6	--	7.3	428	26.8	--	--	--	--	--
MAY													
08...	1400	35	14	6.4	--	7.8	408	27.5	170	53.1	8.21	3.69	.5
AUG													
13...	1310	22	1.5	8.1	--	7.9	437	28.4	--	--	--	--	--
SEP													
24...	1400	125	44	6.6	--	7.8	439	26.6	190	65.1	7.22	4.50	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
21...	16.5	170	25.6	<.17	19.0	15.8	--	249	23.0	<10	.40	.05	1.39
APR													
01...	--	160	--	--	--	--	<.1	--	--	--	.20	.02	.87
MAY													
08...	15.3	130	24.3	<.17	15.9	15.4	<.1	214	20.3	<10	.30	.06	1.18
AUG													
13...	--	146	--	--	--	--	--	--	--	<10	.20	.01	1.09
SEP													
24...	12.7	165	19.9	<.2	14.1	19.9	--	242	82.0	50	.50	.07	1.78

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
21...	1.40	.01	.35	.15	1.8	8.0	<10	330	570	--	--	--	--
APR													
01...	.880	.01	.18	.20	1.1	4.8	--	500	--	22,000	--	--	--
MAY													
08...	1.20	.02	.24	.20	1.5	6.6	<10	E780	--	E19,000	E2	46.3	35
AUG													
13...	1.10	.01	.19	.26	1.3	5.8	10	E1,600	--	35,000	--	--	--
SEP													
24...	1.80	.02	.43	.15	2.3	10.2	10	3,400	--	47,000	--	--	--

50039500 RIO CIBUCO AT VEGA BAJA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
01...	--	--	--	--	--	--	--	--	--	--	--	<.10	<16
MAY													
08...	<.2	E.6	<10	<.01	200	<1	26.3	<.02	<3	<.3	E19	E.06	<16
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

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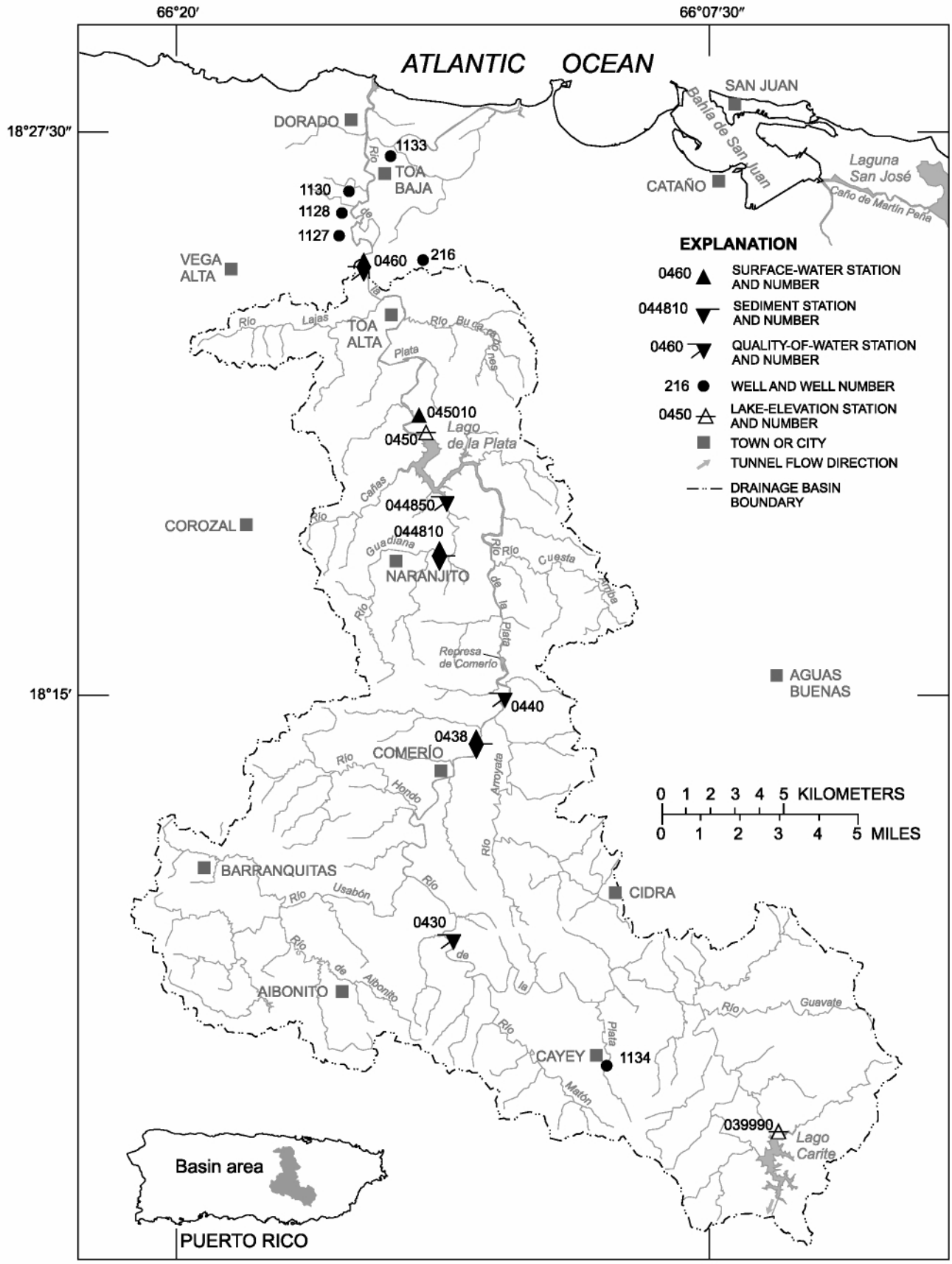


Figure 15. Río de la Plata basin.

50039990 LAGO CARITE AT GATE TOWER NEAR CAYEY, PR

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA.--8.20 mi^2 (21.2 km^2).

PERIOD OF RECORD.--May 1989 to current year. Prior to October 1994, published as Lago Carite at Gate Tower.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial, and agricultural purposes in the Guayama area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a length of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 hm^3). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,789.62 ft (545.48 m), September 21, 1998; minimum elevation, 1,761.22 ft (536.81 m), May 28, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,782.36 ft (543.26 m), September 16; minimum elevation, 1,774.37 ft (540.83 m), April 8.

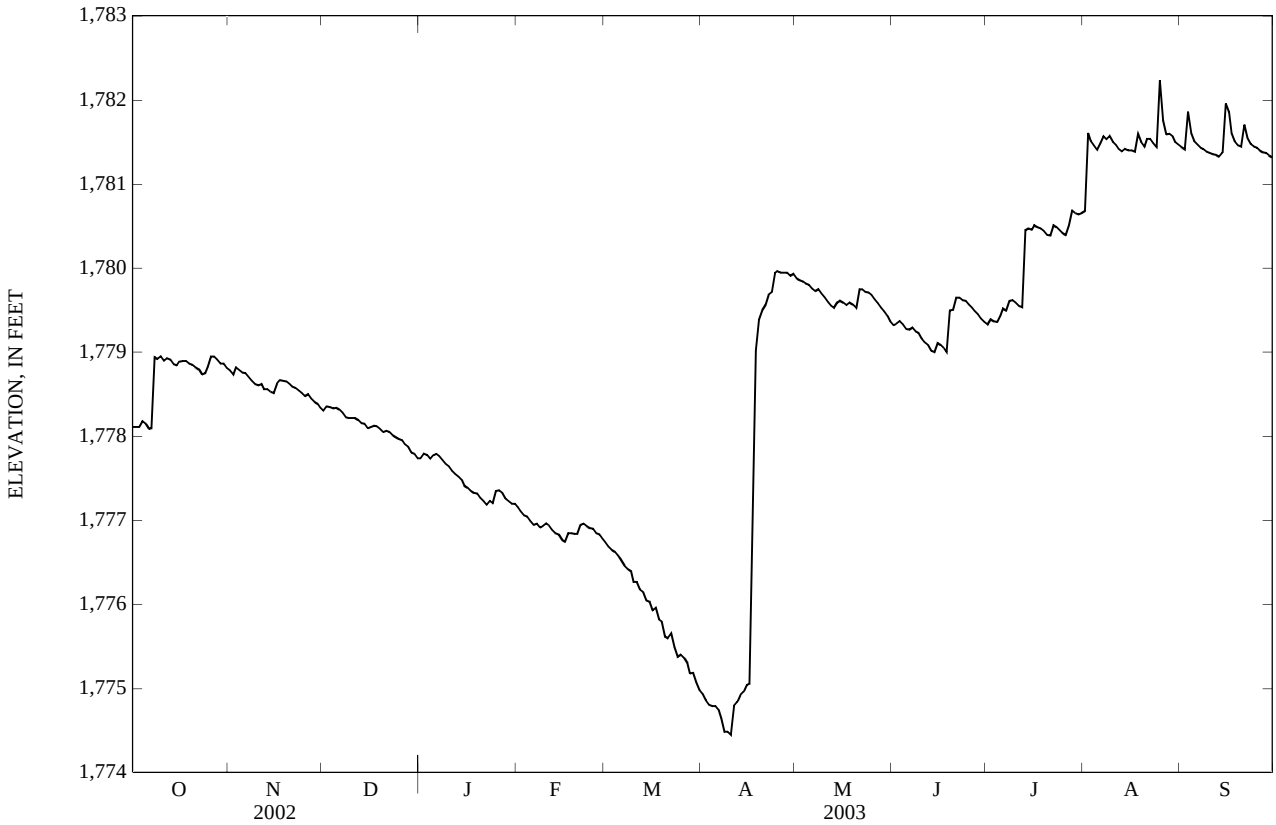
Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

Elevation	Contents	Elevation	Contents
1,746	0	1,775	6,194
1,760	2,471	1,780	7,704
1,769	4,561	1,790	11,048

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,778.11	1,778.78	1,778.30	1,777.74	1,777.15	1,776.74	1,774.94	1,779.88	1,779.32	1,779.33	1,780.68	1,781.44
2	1,778.11	1,778.74	1,778.36	1,777.79	1,777.11	1,776.69	1,774.86	1,779.86	1,779.34	1,779.39	1,781.61	1,781.42
3	1,778.11	1,778.82	1,778.35	1,777.78	1,777.06	1,776.65	1,774.81	1,779.84	1,779.37	1,779.37	1,781.52	1,781.86
4	1,778.18	1,778.79	1,778.33	1,777.73	1,777.05	1,776.63	1,774.79	1,779.82	1,779.33	1,779.36	1,781.46	1,781.61
5	1,778.15	1,778.76	1,778.34	1,777.78	1,776.99	1,776.58	1,774.79	1,779.80	1,779.28	1,779.44	1,781.41	1,781.51
6	1,778.09	1,778.75	1,778.32	1,777.79	1,776.95	1,776.52	1,774.75	1,779.76	1,779.27	1,779.52	1,781.49	1,781.47
7	1,778.10	1,778.71	1,778.28	1,777.76	1,776.96	1,776.46	1,774.65	1,779.73	1,779.29	1,779.50	1,781.57	1,781.43
8	1,778.94	1,778.66	1,778.23	1,777.72	1,776.92	1,776.42	1,774.49	1,779.75	1,779.25	1,779.61	1,781.53	1,781.42
9	1,778.92	1,778.62	1,778.22	1,777.67	1,776.93	1,776.40	1,774.49	1,779.70	1,779.23	1,779.62	1,781.57	1,781.39
10	1,778.95	1,778.61	1,778.22	1,777.64	1,776.96	1,776.27	1,774.45	1,779.65	1,779.16	1,779.59	1,781.50	1,781.37
11	1,778.90	1,778.62	1,778.22	1,777.59	1,776.94	1,776.27	1,774.79	1,779.60	1,779.12	1,779.55	1,781.46	1,781.36
12	1,778.93	1,778.56	1,778.20	1,777.55	1,776.89	1,776.18	1,774.84	1,779.55	1,779.09	1,779.54	1,781.42	1,781.35
13	1,778.91	1,778.56	1,778.16	1,777.52	1,776.85	1,776.15	1,774.92	1,779.53	1,779.02	1,780.45	1,781.39	1,781.33
14	1,778.86	1,778.53	1,778.15	1,777.48	1,776.83	1,776.05	1,774.96	1,779.59	1,779.00	1,780.47	1,781.42	1,781.37
15	1,778.84	1,778.52	1,778.10	1,777.41	1,776.77	1,776.03	1,775.04	1,779.61	1,779.11	1,780.46	1,781.40	1,781.96
16	1,778.89	1,778.62	1,778.11	1,777.39	1,776.75	1,775.93	1,775.06	1,779.59	1,779.09	1,780.51	1,781.40	1,781.86
17	1,778.90	1,778.67	1,778.13	1,777.35	1,776.85	1,775.96	1,777.14	1,779.56	1,779.05	1,780.49	1,781.39	1,781.61
18	1,778.90	1,778.66	1,778.12	1,777.33	1,776.85	1,775.82	1,779.02	1,779.59	1,779.00	1,780.47	1,781.60	1,781.51
19	1,778.87	1,778.65	1,778.09	1,777.32	1,776.84	1,775.80	1,779.39	1,779.57	1,779.50	1,780.44	1,781.50	1,781.46
20	1,778.85	1,778.62	1,778.05	1,777.27	1,776.84	1,775.62	1,779.50	1,779.53	1,779.51	1,780.40	1,781.45	1,781.45
21	1,778.82	1,778.59	1,778.07	1,777.23	1,776.95	1,775.60	1,779.56	1,779.75	1,779.65	1,780.39	1,781.54	1,781.71
22	1,778.80	1,778.58	1,778.05	1,777.18	1,776.96	1,775.65	1,779.68	1,779.75	1,779.65	1,780.51	1,781.54	1,781.55
23	1,778.74	1,778.55	1,778.01	1,777.23	1,776.93	1,775.49	1,779.71	1,779.72	1,779.62	1,780.49	1,781.49	1,781.48
24	1,778.75	1,778.52	1,777.99	1,777.21	1,776.91	1,775.38	1,779.94	1,779.71	1,779.61	1,780.45	1,781.44	1,781.45
25	1,778.83	1,778.48	1,777.97	1,777.35	1,776.90	1,775.40	1,779.96	1,779.68	1,779.57	1,780.42	1,782.23	1,781.43
26	1,778.95	1,778.50	1,777.95	1,777.36	1,776.85	1,775.36	1,779.95	1,779.63	1,779.53	1,780.40	1,781.76	1,781.40
27	1,778.95	1,778.45	1,777.91	1,777.33	1,776.83	1,775.30	1,779.95	1,779.58	1,779.49	1,780.51	1,781.59	1,781.38
28	1,778.91	1,778.41	1,777.88	1,777.26	1,776.78	1,775.18	1,779.95	1,779.53	1,779.45	1,780.69	1,781.60	1,781.37
29	1,778.87	1,778.39	1,777.81	1,777.23	---	1,775.19	1,779.91	1,779.48	1,779.40	1,780.66	1,781.57	1,781.34
30	1,778.87	1,778.34	1,777.79	1,777.20	---	1,775.07	1,779.93	1,779.43	1,779.36	1,780.64	1,781.50	1,781.32
31	1,778.81	---	1,777.74	1,777.20	---	1,774.98	---	1,779.37	---	1,780.66	1,781.47	---
MAX	1,778.95	1,778.82	1,778.36	1,777.79	1,777.15	1,776.74	1,779.96	1,779.88	1,779.65	1,780.69	1,782.23	1,781.96
MIN	1,778.09	1,778.34	1,777.74	1,777.18	1,776.75	1,774.98	1,774.45	1,779.37	1,779.00	1,779.33	1,780.68	1,781.32

50039990 LAGO CARITE AT GATE TOWER NEAR CAYEY, PR—Continued



50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR

LOCATION.--Lat 18°09'37", long 66°13'44", Hydrologic Unit 21010005, at upstream side of bridge on Highway 173, 0.4 mi (0.6 km) northeast of Proyecto La Plata, and 2.5 mi (4.0 km) upstream from Río Usabón.

DRAINAGE AREA.--63.0 mi^2 (163.2 km^2), excludes 8.2 mi^2 (21.1 km^2) upstream from Lago Carite, the flow of which is diverted to Río Guamaní.

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
20...	0945	15	2.5	7.5	95	7.5	480	25.5	140	34.3	13.5	3.82	1
FEB													
20...	0915	20	4.5	6.6	--	7.9	429	24.3	130	33.4	12.4	2.95	1
MAY													
19...	1300	21	3.7	13.3	--	8.4	498	29.0	160	37.8	15.0	4.19	1
AUG													
12...	1330	41	11	10.1	--	8.4	318	29.6	--	--	--	--	--
SEP													
10...	1500	31	4.7	10.2	--	8.3	381	30.0	130	31.6	13.1	2.56	1

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
20...	36.4	146	39.8	<.17	24.3	17.2	--	257	10.3	<10	.60	.07	3.13
FEB													
20...	35.4	134	36.3	.12	24.8	16.1	<.0	242	13.0	<10	.70	.07	2.72
MAY													
19...	38.8	143	45.8	<.2	22.9	21.4	<.1	271	15.1	<10	.60	.06	2.81
AUG													
12...	--	105	--	--	--	--	--	--	--	<10	.40	.05	1.66
SEP													
10...	25.8	125	28.9	<.2	25.9	13.1	--	216	18.2	<10	.40	.05	2.15

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
20...	3.20	.07	.53	.19	3.8	16.8	<10	E80	E64	--	--	--	--
FEB													
20...	2.80	.08	.63	.15	3.5	15.5	20	E170	--	2,700	<2	17.2	68
MAY													
19...	2.90	.09	.54	.14	3.5	15.5	<10	E17	--	450	<2	23.1	79
AUG													
12...	1.70	.04	.35	.11	2.1	9.3	10	E20	--	3,000	--	--	--
SEP													
10...	2.20	.05	.35	.14	2.6	11.5	20	64	--	500	--	--	--

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	<.2	<.8	<10	<.01	130	<1	25.7	<.02	<3	E.1	<25	E.05	<16
MAY													
19...	<.2	<.8	<10	<.01	80	<1	23.1	<.02	<5	<.3	<25	E.06	<16
AUG													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerío, 0.4 mi (0.6 km) southwest of Comerío High School, and 0.2 mi (0.3 km) northeast of Plaza de Comerío.

DRAINAGE AREA.--109 mi^2 (282 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Filtration plant more or less 500 feet upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	27	18	20	30	23	e18	75	23	60	67	154
2	41	26	20	24	26	25	17	59	23	173	406	76
3	42	25	31	28	19	29	17	45	26	60	316	185
4	52	25	36	30	231	29	22	44	36	30	104	443
5	48	37	42	23	211	26	21	33	37	74	61	185
6	41	30	56	42	81	25	42	32	25	90	50	101
7	74	25	45	48	43	24	25	31	68	87	99	80
8	59	23	31	28	32	15	16	32	54	37	83	61
9	172	22	40	21	26	13	15	32	41	58	84	47
10	155	20	29	24	29	12	18	29	28	46	157	39
11	62	18	28	20	52	13	19	25	23	25	74	285
12	53	20	28	17	59	14	148	22	22	17	74	1,720
13	42	22	32	14	54	12	91	22	20	681	46	886
14	38	25	33	14	31	10	58	30	26	421	36	267
15	38	22	31	16	25	11	35	35	22	91	36	244
16	38	20	27	16	21	11	34	40	27	72	39	1,200
17	37	23	38	23	23	9.4	5,020	30	33	134	35	707
18	36	41	266	23	65	9.1	5,710	23	21	43	63	239
19	39	40	76	17	56	10	2,270	27	325	30	162	125
20	33	29	40	15	45	48	689	87	249	24	84	86
21	28	38	35	16	37	42	534	3,230	75	22	55	2,020
22	31	28	37	16	65	19	726	1,240	69	65	388	1,130
23	29	23	59	15	58	14	1,560	231	41	283	201	278
24	29	21	50	20	36	11	4,360	109	29	66	82	139
25	28	19	33	113	32	9.0	1,660	68	25	35	52	91
26	37	20	28	324	31	59	493	46	23	50	1,970	71
27	62	20	30	111	30	200	245	36	18	73	456	57
28	47	20	23	47	27	96	145	30	18	155	231	49
29	31	18	19	27	---	34	110	30	19	139	355	44
30	27	17	17	24	---	91	92	28	15	64	194	47
31	25	---	18	22	---	e38	---	24	---	50	105	---
TOTAL	1,522	744	1,296	1,198	1,475	981.5	24,210	5,825	1,461	3,255	6,165	11,056
MEAN	49.1	24.8	41.8	38.6	52.7	31.7	807	188	48.7	105	199	369
MAX	172	41	266	324	231	200	5,710	3,230	325	681	1,970	2,020
MIN	25	17	17	14	19	9.0	15	22	15	17	35	39
MED	39	23	32	23	34	19	92	32	26	64	84	146
AC-FT	3,020	1,480	2,570	2,380	2,930	1,950	48,020	11,550	2,900	6,460	12,230	21,930
CFSM	0.45	0.23	0.39	0.36	0.49	0.29	7.44	1.73	0.45	0.97	1.83	3.40
IN.	0.52	0.26	0.44	0.41	0.51	0.34	8.30	2.00	0.50	1.12	2.11	3.79

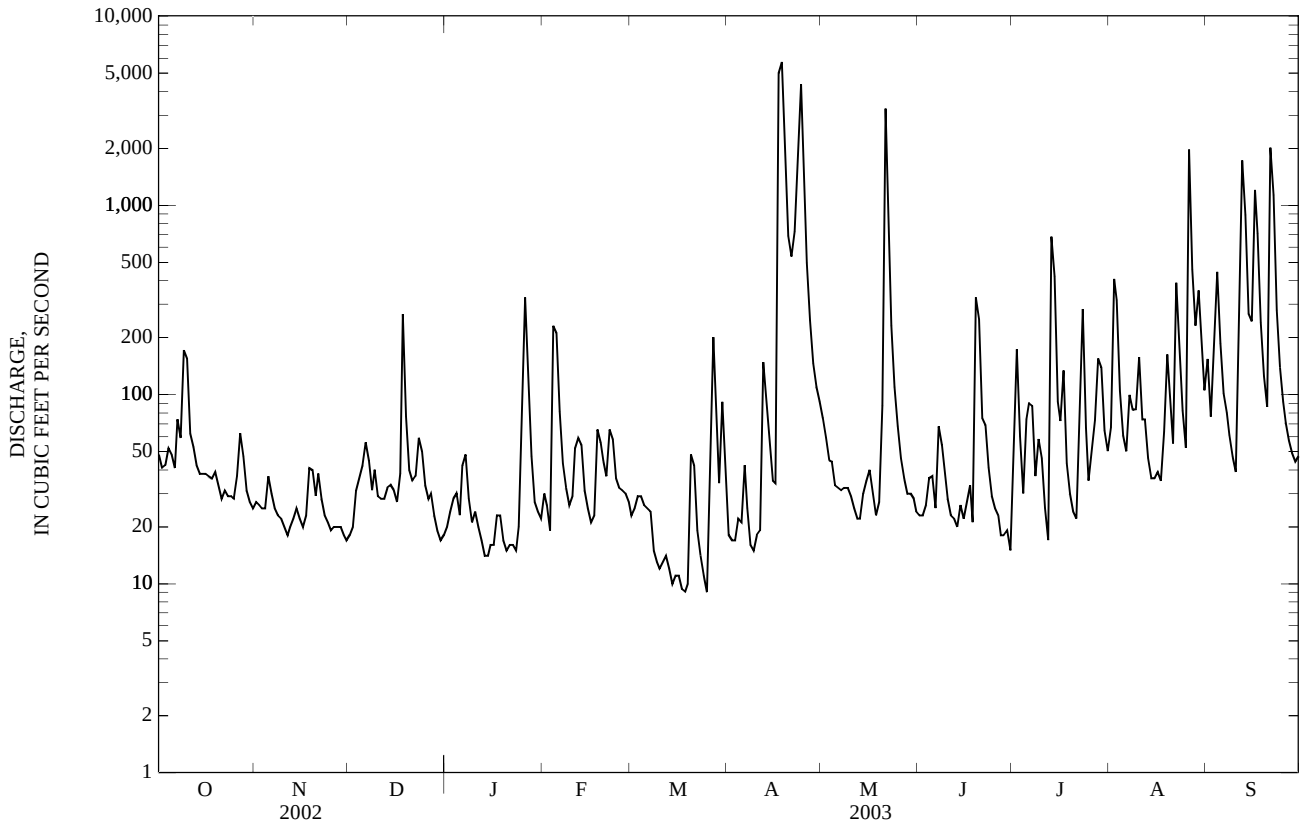
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	208	248	125	126	89.2	46.4	120	90.9	82.3	81.6	135	400
MAX	866	1,264	457	732	268	75.7	807	263	292	291	563	1,433
(WY)	(1991)	(2000)	(1999)	(1992)	(1998)	(2002)	(2003)	(1992)	(2002)	(1993)	(2000)	(1996)
MIN	40.6	19.0	17.1	21.3	24.4	20.6	22.3	19.7	13.2	10.4	12.7	26.2
(WY)	(1992)	(1995)	(1995)	(1995)	(1990)	(1993)	(1991)	(1994)	(1994)	(1994)	(1994)	(1997)

50043800 RIO DE LA PLATA AT COMERIO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	42,739		59,188.5			
ANNUAL MEAN	117		162		145	
HIGHEST ANNUAL MEAN					267	2000
LOWEST ANNUAL MEAN					35.3	1994
HIGHEST DAILY MEAN	2,470	Apr 21	5,710	Apr 18	32,400	Sep 10, 1996
LOWEST DAILY MEAN	17	Nov 30	9.0	Mar 25	5.8	Jun 25, 1994
ANNUAL SEVEN-DAY MINIMUM	19	Nov 25	10	Mar 13	7.3	Jul 31, 1994
MAXIMUM PEAK FLOW			25,300	Apr 17	127,000	Jan 5, 1992
MAXIMUM PEAK STAGE			15.46	Apr 17	29.22	Jan 5, 1992
ANNUAL RUNOFF (AC-FT)	84,770		117,400		105,200	
ANNUAL RUNOFF (CFSM)	1.08		1.49		1.34	
ANNUAL RUNOFF (INCHES)	14.65		20.29		18.18	
10 PERCENT EXCEEDS	237		244		217	
50 PERCENT EXCEEDS	45		37		41	
90 PERCENT EXCEEDS	25		18		17	

e Estimated



50043800 RIO DE LA PLATA AT COMERIO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water year 1989 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

INSTRUMENTATION.-- USD-77 sediment sampler since 1989. Automatic sediment sampler since 1989.

REMARKS.--Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L January 05, 1992; Minimum daily mean, 1 mg/L several years.
SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) January 05, 1992; Minimum daily mean, 0.04 tons (0.04 tonne) November 28, 1994.

EXTREMES FOR WATER YEARS 2003.--
SEDIMENT CONCENTRATION: Maximun daily mean, 1,210 mg/L August 26, 2003; Minimun daily mean, 1 mg/L March 3,4, 2003.
SEDIMENT LOADS: Maximun daily mean, 33,400 tons (30,300 tonnes) April 17, 2003; Minimun daily mean, 0.09 ton (0.08 tonne) March 4, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	48	13	1.6	27	9	0.63	18	8	0.38
2	41	12	1.3	26	9	0.60	20	8	0.44
3	42	11	1.3	25	9	0.58	31	8	0.67
4	52	11	1.5	25	9	0.58	36	8	0.78
5	48	10	1.3	37	9	0.86	42	8	0.91
6	41	10	1.1	30	9	0.68	56	13	2.0
7	74	19	6.0	25	8	0.58	45	11	1.4
8	59	15	2.6	23	8	0.53	31	9	0.74
9	172	41	30	22	8	0.50	40	9	0.95
10	155	36	18	20	8	0.46	29	9	0.69
11	62	18	3.0	18	8	0.42	28	9	0.66
12	53	16	2.2	20	8	0.46	28	9	0.64
13	42	13	1.5	22	8	0.50	32	8	0.73
14	38	11	1.1	25	8	0.55	33	8	0.73
15	38	9	0.92	22	8	0.48	31	8	0.70
16	38	9	0.92	20	8	0.45	27	8	0.59
17	37	9	0.89	23	8	0.52	38	8	0.82
18	36	9	0.87	41	8	0.91	266	82	80
19	39	9	0.95	40	8	0.90	76	26	5.8
20	33	9	0.78	29	8	0.64	40	11	1.2
21	28	9	0.67	38	8	0.84	35	10	0.95
22	31	9	0.73	28	8	0.62	37	10	1.0
23	29	9	0.69	23	8	0.50	59	15	2.6
24	29	9	0.69	21	8	0.45	50	12	1.7
25	28	9	0.67	19	8	0.41	33	9	0.80
26	37	9	0.87	20	8	0.44	28	9	0.67
27	62	9	1.5	20	8	0.44	30	9	0.71
28	47	9	1.1	20	8	0.44	23	9	0.53
29	31	9	0.73	18	8	0.39	19	9	0.45
30	27	9	0.62	17	8	0.37	17	9	0.38
31	25	9	0.59	---	---	---	18	8	0.40
TOTAL	1,522	---	86.69	744	---	16.73	1,296	---	111.02

50043800 RIO DE LA PLATA AT COMERIO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	20	8	0.46	30	7	0.61	23	2	0.11
2	24	8	0.53	26	7	0.52	25	2	0.10
3	28	8	0.61	19	7	0.37	29	1	0.11
4	30	8	0.65	231	66	76	29	1	0.09
5	23	8	0.50	211	47	29	26	2	0.13
6	42	12	1.6	81	17	4.1	25	5	0.36
7	48	13	1.8	43	10	1.1	24	7	0.42
8	28	11	0.86	32	9	0.79	15	7	0.27
9	21	10	0.54	26	9	0.60	13	7	0.25
10	24	9	0.57	29	8	0.63	12	7	0.23
11	20	9	0.47	52	8	1.1	13	8	0.27
12	17	9	0.41	59	8	1.2	14	8	0.32
13	14	9	0.33	54	7	1.1	12	9	0.29
14	14	9	0.32	31	7	0.60	10	9	0.26
15	16	9	0.37	25	7	0.47	11	9	0.27
16	16	9	0.37	21	7	0.40	11	7	0.21
17	23	8	0.52	23	7	0.43	9.4	5	0.13
18	23	8	0.51	65	16	3.5	9.1	5	0.11
19	17	8	0.39	56	13	2.0	10	4	0.12
20	15	8	0.33	45	10	1.3	48	12	2.6
21	16	8	0.35	37	9	0.94	42	13	1.5
22	16	8	0.34	65	17	3.3	19	8	0.38
23	15	8	0.33	58	12	1.9	14	7	0.25
24	20	8	0.43	36	6	0.59	11	6	0.18
25	113	16	6.7	32	5	0.42	9.0	6	0.14
26	324	99	102	31	4	0.32	59	9	2.2
27	111	36	11	30	3	0.23	200	36	24
28	47	21	2.8	27	2	0.15	96	10	2.6
29	27	9	0.68	---	---	---	34	8	0.70
30	24	8	0.50	---	---	---	91	15	4.3
31	22	8	0.46	---	---	---	e38	e18	e1.8
TOTAL	1,198	---	137.73	1,475	---	133.67	981.5	---	44.70
		APRIL			MAY			JUNE	
1	e18	e18	e0.91	75	13	2.6	23	6	0.39
2	17	16	0.71	59	11	1.8	23	7	0.43
3	17	14	0.64	45	10	1.2	26	7	0.48
4	22	12	0.71	44	9	1.0	36	7	0.63
5	21	10	0.56	33	8	0.70	37	6	0.64
6	42	9	0.97	32	7	0.61	25	6	0.41
7	25	7	0.49	31	6	0.53	68	12	2.8
8	16	6	0.27	32	6	0.50	54	6	0.91
9	15	6	0.26	32	5	0.45	41	5	0.58
10	18	7	0.31	29	5	0.43	28	5	0.35
11	19	7	0.35	25	6	0.40	23	4	0.27
12	148	28	14	22	6	0.38	22	4	0.24
13	91	18	4.6	22	7	0.42	20	4	0.24
14	58	9	1.4	30	8	0.63	26	5	0.34
15	35	8	0.72	35	9	0.82	22	5	0.31
16	34	7	0.66	40	9	1.0	27	6	0.42
17	5,020	1,000	33,400	30	10	0.77	33	6	0.53
18	5,710	1,180	31,300	23	7	0.47	21	5	0.32
19	2,270	327	4,170	27	5	0.38	325	71	132
20	689	105	228	87	14	7.0	249	59	50
21	534	74	111	3,230	971	20,100	75	23	4.7
22	726	125	367	1,240	373	1,800	69	20	3.8
23	1,560	338	1,750	231	27	18	41	18	2.0
24	4,360	1,190	23,700	109	11	3.2	29	15	1.2
25	1,660	494	3,260	68	9	1.7	25	13	0.90
26	493	88	127	46	9	1.1	23	11	0.71
27	245	44	30	36	8	0.76	18	10	0.48
28	145	19	7.7	30	7	0.58	18	9	0.42
29	110	16	4.8	30	6	0.51	19	13	0.67
30	92	14	3.6	28	6	0.41	15	17	0.70
31	---	---	---	24	5	0.35	---	---	---
TOTAL	24,210	---	98,486.66	5,825	---	21,948.70	1,461	---	207.87

50043800 RIO DE LA PLATA AT COMERIO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	60	28	9.9	67	27	4.9	154	34	17
2	173	43	33	406	129	330	76	19	3.9
3	60	16	2.7	316	104	110	185	45	58
4	30	12	0.97	104	33	9.5	443	105	132
5	74	22	7.9	61	25	4.1	185	77	39
6	90	22	6.0	50	20	2.7	101	67	18
7	87	15	3.7	99	21	5.8	80	57	12
8	37	12	1.2	83	14	3.2	61	53	8.7
9	58	11	1.8	84	13	3.3	47	50	6.4
10	46	11	1.4	157	34	16	39	49	5.2
11	25	10	0.70	74	15	2.9	285	116	312
12	17	10	0.47	74	17	3.3	1,720	402	5,390
13	681	475	2,800	46	20	2.4	886	191	643
14	421	202	316	36	23	2.2	267	93	78
15	91	29	7.7	36	25	2.4	244	49	39
16	72	18	4.4	39	22	2.3	1,200	250	1,110
17	134	31	14	35	16	1.5	707	159	347
18	43	12	1.4	63	11	2.0	239	77	50
19	30	10	0.82	162	35	16	125	63	22
20	24	10	0.63	84	20	4.8	86	50	12
21	22	9	0.53	55	11	1.6	2,020	508	10,600
22	65	14	4.2	388	75	112	1,130	294	1,360
23	283	67	63	201	39	22	278	66	52
24	66	37	6.7	82	24	5.5	139	33	13
25	35	28	2.7	52	16	2.2	91	12	3.1
26	50	27	4.1	1,970	1,210	8,080	71	10	1.9
27	73	31	6.3	456	147	203	57	9	1.4
28	155	37	17	231	74	46	49	9	1.1
29	139	33	13	355	80	77	44	8	0.94
30	64	29	5.0	194	23	13	47	7	0.87
31	50	28	3.7	105	16	4.5	---	---	---
TOTAL	3,255	---	3,340.92	6,165	---	9,096.1	11,056	---	20,337.51
YEAR	59,188.5	153,948.30							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR 24...	1950	10,900	98	1,800	53,000

50043800 RIO DE LA PLATA AT COMERIO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMET

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
APR 17...	1420	15,500	50	62	73	85	90	94	98	99	100	100	4,530

Date	Suspended sediment discharge, tons/d (80155)
APR 17...	190,000

50044000 RIO DE LA PLATA NEAR COMERIO, PR

LOCATION.--Lat 18°14'33", long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerío Plaza.

DRAINAGE AREA.--139 mi^2 (360 km^2), excludes 8.2 mi^2 (21.1 km^2) upstream from Lago Carite, the flow of which is diverted to Río Guamaní.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
18...	1030	41	5.4	9.4	118	7.5	472	26.3	160	36.8	16.0	3.19	1
MAR													
19...	0840	15	E2.6	8.1	--	8.0	468	24.6	160	36.8	16.9	3.03	1
MAY													
05...	1145	42	1.4	10.1	--	8.5	432	28.2	150	36.4	15.4	2.85	.7
AUG													
08...	1450	79	7.5	8.3	--	8.3	410	30.2	--	--	--	--	--
SEP													
10...	1210	52	7.6	8.0	--	8.3	375	26.5	140	31.8	14.1	2.57	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
18...	32.5	154	38.9	<.17	28.1	18.1	--	266	29.2	<10	.40	.02	--
MAR													
19...	35.0	160	44.7	.14	28.6	18.4	<.1	280	11.1	<10	.30	.02	.51
MAY													
05...	20.3	153	29.8	<.17	24.1	24.9	<.1	246	28.2	<10	.20	.02	--
AUG													
08...	--	122	--	--	--	--	--	--	--	<10	.30	.02	1.29
SEP													
10...	21.9	133	25.6	<.2	27.4	12.6	--	216	30.1	<10	.30	.03	.73

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
18...	1.50	<.01	.38	.14	1.9	8.4	<10	210	240	--	--	--	--
MAR													
19...	.520	.01	.28	.12	.82	3.6	E10	E100	--	430	<2	38.8	83
MAY													
05...	.810	<.01	.18	.08	1.0	4.5	<10	E64	--	800	4	54.2	36
AUG													
08...	1.30	.01	.28	.11	1.6	7.1	10	30	--	3,400	--	--	--
SEP													
10...	.740	.01	.27	.10	1.0	4.6	10	E80	--	E1,900	--	--	--

50044000 RIO DE LA PLATA NEAR COMERIO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
19...	E.2	<.8	<10	<.01	90	<1	17.7	<.02	<3	<.3	<25	<.10	<16
MAY													
05...	<.2	E.5	<10	<.01	40	<1	24.8	<.02	6	<.3	E17	<.10	E8
AUG													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50044810 RIO GUADIANA NEAR GUADIANA, PR

LOCATION.--Lat 18°13'42", long 66°18'05", Hydrologic Unit 21010005, at right bank 1.1 mi (2.1 km) east of Plaza de Naranjito, 0.9 mi (1.4 km) west from intersection of roads 167 and 164 at km 1.77 and 2.6 mi (4.2 km) northwest from Represa Comerío.

DRAINAGE AREA.--8.60 mi^2 (22.3 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 2001 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 229 ft (69.8 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	3.5	3.4	3.1	3.0	3.1	e3.2	4.4	3.2	3.4	6.1	6.3
2	3.7	3.2	3.8	3.2	2.7	3.0	3.4	4.2	3.3	3.3	8.4	6.5
3	4.0	3.2	3.5	2.2	2.6	2.9	6.0	4.2	3.5	3.2	5.0	5.4
4	3.9	3.1	4.6	2.3	24	3.0	3.5	4.0	3.3	3.2	4.4	4.8
5	3.5	3.2	3.6	2.5	7.6	3.0	3.3	4.1	3.2	3.6	4.2	4.8
6	4.0	3.3	3.4	2.6	4.4	2.9	3.4	4.1	3.2	3.3	5.4	4.9
7	4.3	3.1	3.1	2.5	3.9	2.9	3.3	4.5	3.6	3.0	5.5	5.0
8	4.5	3.0	3.7	2.5	3.7	2.9	3.3	4.3	3.3	5.0	4.4	7.4
9	7.4	3.3	3.5	2.4	3.5	2.8	3.1	4.1	3.2	3.1	4.1	4.9
10	4.2	3.2	3.1	2.3	3.3	2.9	3.4	4.1	3.1	2.9	4.1	4.6
11	3.5	2.9	2.7	2.3	3.1	2.9	3.6	3.8	3.1	2.9	4.4	7.1
12	3.3	3.5	2.8	2.2	3.2	2.9	3.7	4.1	3.0	2.8	4.4	5.3
13	3.1	5.2	3.4	2.1	3.4	3.0	3.3	3.7	3.2	10	5.0	21
14	3.3	4.2	3.2	2.3	3.3	3.0	3.1	3.9	3.1	4.5	4.9	12
15	3.3	3.4	2.9	2.2	3.3	3.1	3.3	3.8	3.7	4.7	4.4	9.6
16	3.2	3.3	2.9	2.2	3.4	2.9	3.3	3.6	3.3	5.6	4.2	9.9
17	3.4	3.1	2.8	2.2	3.4	3.0	12	3.7	3.2	4.5	4.1	10
18	3.5	3.2	2.8	2.1	3.4	2.8	32	3.8	3.3	4.0	5.5	11
19	5.9	3.4	3.2	2.3	3.4	2.8	12	3.7	3.6	4.0	4.2	12
20	5.7	e3.4	3.3	2.3	3.3	3.0	7.5	28	3.4	4.4	4.0	15
21	3.9	e3.7	3.3	1.8	3.4	2.9	23	59	3.8	4.0	9.1	161
22	3.6	e3.6	3.7	1.6	3.2	3.1	14	9.9	3.4	4.7	6.4	17
23	3.5	3.6	3.1	1.7	3.1	2.9	138	4.9	3.3	4.5	4.8	11
24	3.7	3.4	2.9	4.1	3.2	3.1	39	4.0	3.3	4.2	4.5	9.1
25	4.5	3.6	2.9	99	3.1	2.9	13	3.6	3.3	4.0	8.0	13
26	3.8	3.5	2.8	25	3.1	5.5	7.7	3.5	3.3	4.4	6.8	10
27	3.4	3.6	2.7	5.4	3.1	7.7	5.9	3.3	3.2	4.5	5.0	8.5
28	3.5	3.4	2.6	3.8	3.1	4.3	5.3	3.3	3.4	4.4	7.1	7.8
29	3.6	3.5	2.6	3.3	---	4.3	4.9	3.2	3.3	4.3	12	8.4
30	3.4	3.4	2.6	3.4	---	3.8	4.6	3.2	3.3	4.0	7.1	8.7
31	3.5	---	2.7	3.1	---	e3.4	---	3.1	---	7.1	6.5	---
TOTAL	121.7	103.0	97.6	200.0	117.2	102.7	375.1	205.1	99.4	131.5	174.0	422.0
MEAN	3.93	3.43	3.15	6.45	4.19	3.31	12.5	6.62	3.31	4.24	5.61	14.1
MAX	7.4	5.2	4.6	99	24	7.7	138	59	3.8	10	12	161
MIN	3.1	2.9	2.6	1.6	2.6	2.8	3.1	3.1	3.0	2.8	4.0	4.6
AC-FT	241	204	194	397	232	204	744	407	197	261	345	837
CFSM	0.49	0.43	0.39	0.80	0.52	0.41	1.55	0.82	0.41	0.53	0.70	1.75
IN.	0.56	0.48	0.45	0.92	0.54	0.47	1.73	0.95	0.46	0.61	0.80	1.95

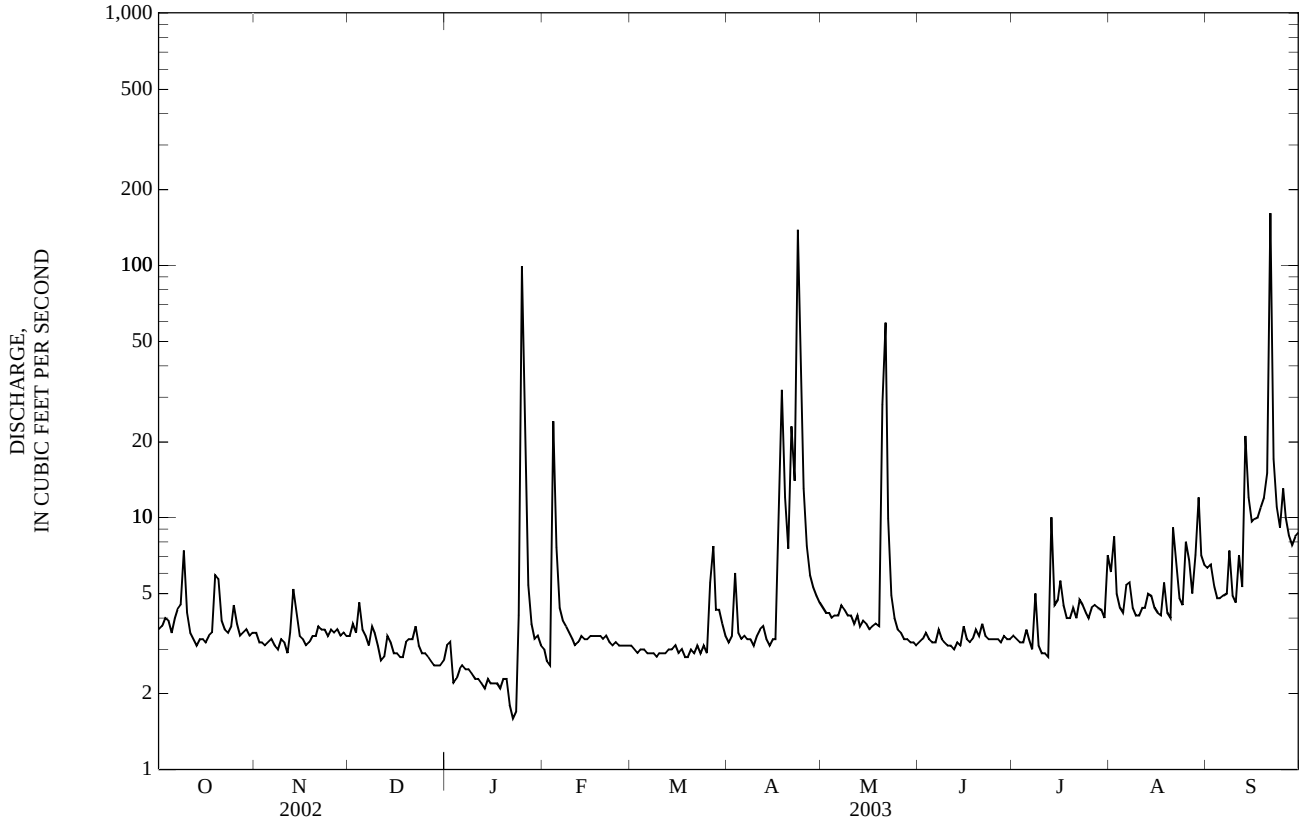
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	5.73	33.4	12.0	9.40	7.37	6.31	12.6	11.2	4.82	4.53	5.29	7.51
MAX	7.54	63.5	20.9	12.4	10.6	9.31	18.6	16.1	6.91	5.33	6.15	14.1
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2003)
MIN	3.93	3.43	3.15	6.45	4.19	3.31	6.68	6.62	3.31	4.02	4.11	2.65
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)	(2003)	(2001)	(2002)	(2001)

50044810 RIO GUADIANA NEAR GUADIANA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	3,021.3		2,149.3			
ANNUAL MEAN	8.28		5.89		10.5	
HIGHEST ANNUAL MEAN					15.0	2002
LOWEST ANNUAL MEAN					5.89	2003
HIGHEST DAILY MEAN	136	May 1	161	Sep 21	1,570	Nov 8, 2001
LOWEST DAILY MEAN	2.6	Dec 28	1.6	Jan 22	1.6	Jan 22, 2003
ANNUAL SEVEN-DAY MINIMUM	2.7	Dec 25	2.0	Jan 17	2.0	Sep 28, 2001
MAXIMUM PEAK FLOW			4,570	Sep 21	8,280	Nov 8, 2001
MAXIMUM PEAK STAGE			9.93	Sep 21	12.69	Nov 8, 2001
ANNUAL RUNOFF (AC-FT)	5,990		4,260		7,580	
ANNUAL RUNOFF (CFSM)	1.03		0.731		1.30	
ANNUAL RUNOFF (INCHES)	13.94		9.92		17.63	
10 PERCENT EXCEEDS	14		7.9		14	
50 PERCENT EXCEEDS	6.3		3.5		4.8	
90 PERCENT EXCEEDS	3.3		2.8		2.9	

e Estimated



50044810 RIO GUADIANA NR GUADIANA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 2001 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2001 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 2001.

REMARKS.-- Sediment samples were collected by local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1,620 mg/L September 21, 2003; Minimum daily mean, 1 mg/L May 16-19, 2003.
SEDIMENT LOADS: Maximum daily mean, e25,000 tons (e63,504 tonnes) November 8, 2001; Minimum daily mean, <0.01 ton (<0.01 tonne) May 16, 17, 19, 2003.

EXTREMES FOR CURRENT YEAR 2003.-
SEDIMENT CONCENTRATION: Maximum daily mean, 1,620 mg/L September 21, 2003; Minimum daily mean, 1 mg/L May 16-19, 2003.
SEDIMENT LOADS: Maximum daily mean, 9,810 tons (4,360 tonnes) September 21, 2003; Minimum daily mean, <0.01 ton (<0.01 tonne) Ma y 16, 17, 19, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)	Mean discharge (cfs)	Mean concen-tration (mg/l)	Load (tons/ day)
		OCTOBER			NOVEMBER			DECEMBER	
1	3.6	11	0.11	3.5	9	0.08	3.4	7	0.06
2	3.7	11	0.11	3.2	9	0.08	3.8	7	0.07
3	4.0	10	0.11	3.2	9	0.08	3.5	7	0.07
4	3.9	9	0.09	3.1	9	0.07	4.6	7	0.09
5	3.5	8	0.07	3.2	9	0.07	3.6	7	0.07
6	4.0	7	0.07	3.3	9	0.08	3.4	7	0.06
7	4.3	6	0.07	3.1	8	0.07	3.1	7	0.06
8	4.5	5	0.06	3.0	8	0.07	3.7	7	0.07
9	7.4	18	0.73	3.3	8	0.07	3.5	7	0.06
10	4.2	10	0.11	3.2	8	0.07	3.1	7	0.06
11	3.5	10	0.09	2.9	8	0.06	2.7	7	0.05
12	3.3	10	0.09	3.5	8	0.08	2.8	7	0.05
13	3.1	10	0.08	5.2	24	0.90	3.4	7	0.06
14	3.3	10	0.09	4.2	13	0.19	3.2	7	0.06
15	3.3	10	0.09	3.4	7	0.07	2.9	7	0.05
16	3.2	10	0.08	3.3	7	0.07	2.9	7	0.05
17	3.4	10	0.09	3.1	7	0.06	2.8	7	0.05
18	3.5	10	0.09	3.2	7	0.06	2.8	7	0.05
19	5.9	20	0.49	3.4	7	0.07	3.2	7	0.06
20	5.7	16	0.30	e3.4	e7	e0.06	3.3	7	0.06
21	3.9	10	0.10	e3.7	e7	e0.07	3.3	7	0.06
22	3.6	10	0.09	e3.6	e7	e0.07	3.7	7	0.07
23	3.5	10	0.09	3.6	7	0.07	3.1	7	0.06
24	3.7	10	0.09	3.4	7	0.07	2.9	7	0.05
25	4.5	9	0.11	3.6	7	0.07	2.9	7	0.05
26	3.8	9	0.10	3.5	7	0.07	2.8	7	0.05
27	3.4	9	0.09	3.6	7	0.07	2.7	7	0.05
28	3.5	9	0.09	3.4	7	0.07	2.6	6	0.05
29	3.6	9	0.09	3.5	7	0.07	2.6	6	0.04
30	3.4	9	0.08	3.4	7	0.06	2.6	6	0.05
31	3.5	9	0.08	---	---	---	2.7	6	0.05
TOTAL	121.7	---	4.03	103.0	---	3.05	97.6	---	1.79

50044810 RIO GUADIANA NR GUADIANA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	3.1	6	0.05	3.0	75	0.59	3.1	8	0.07
2	3.2	6	0.05	2.7	58	0.42	3.0	10	0.08
3	2.2	6	0.04	2.6	41	0.29	2.9	10	0.08
4	2.3	6	0.04	24	158	28	3.0	9	0.07
5	2.5	6	0.04	7.6	88	1.9	3.0	9	0.07
6	2.6	6	0.04	4.4	76	0.91	2.9	8	0.06
7	2.5	6	0.04	3.9	68	0.72	2.9	9	0.07
8	2.5	6	0.04	3.7	60	0.59	2.9	10	0.08
9	2.4	6	0.04	3.5	51	0.48	2.8	11	0.08
10	2.3	6	0.04	3.3	43	0.39	2.9	12	0.09
11	2.3	6	0.04	3.1	34	0.28	2.9	11	0.09
12	2.2	6	0.04	3.2	26	0.22	2.9	11	0.08
13	2.1	6	0.03	3.4	18	0.16	3.0	10	0.08
14	2.3	6	0.04	3.3	10	0.09	3.0	9	0.07
15	2.2	6	0.04	3.3	9	0.08	3.1	8	0.07
16	2.2	6	0.04	3.4	8	0.07	2.9	8	0.06
17	2.2	6	0.04	3.4	7	0.07	3.0	7	0.06
18	2.1	6	0.03	3.4	7	0.07	2.8	7	0.05
19	2.3	6	0.04	3.4	8	0.07	2.8	6	0.05
20	2.3	6	0.04	3.3	8	0.08	3.0	6	0.05
21	1.8	6	0.03	3.4	9	0.08	2.9	5	0.04
22	1.6	6	0.03	3.2	8	0.07	3.1	5	0.04
23	1.7	6	0.03	3.1	7	0.06	2.9	5	0.04
24	4.1	17	0.43	3.2	5	0.05	3.1	4	0.03
25	99	766	864	3.1	4	0.04	2.9	4	0.03
26	25	230	26	3.1	5	0.04	5.5	25	0.87
27	5.4	160	2.3	3.1	6	0.05	7.7	45	2.0
28	3.8	143	1.5	3.1	7	0.06	4.3	36	0.42
29	3.3	126	1.1	---	---	---	4.3	30	0.35
30	3.4	109	1.0	---	---	---	3.8	24	0.25
31	3.1	92	0.77	---	---	---	e3.4	e21	e0.19
TOTAL	200.0	---	897.99	117.2	---	35.93	102.7	---	5.67
		APRIL			MAY			JUNE	
1	e3.2	e20	e0.18	4.4	15	0.18	3.2	3	0.03
2	3.4	20	0.18	4.2	15	0.17	3.3	4	0.04
3	6.0	36	0.96	4.2	15	0.17	3.5	5	0.05
4	3.5	22	0.21	4.0	15	0.16	3.3	6	0.05
5	3.3	18	0.16	4.1	15	0.16	3.2	5	0.05
6	3.4	16	0.14	4.1	14	0.16	3.2	5	0.04
7	3.3	14	0.12	4.5	14	0.17	3.6	4	0.04
8	3.3	12	0.11	4.3	14	0.17	3.3	3	0.03
9	3.1	10	0.08	4.1	14	0.16	3.2	3	0.02
10	3.4	8	0.07	4.1	14	0.16	3.1	2	0.02
11	3.6	6	0.06	3.8	14	0.14	3.1	2	0.02
12	3.7	4	0.04	4.1	11	0.13	3.0	3	0.02
13	3.3	5	0.04	3.7	8	0.08	3.2	3	0.02
14	3.1	6	0.05	3.9	5	0.05	3.1	3	0.03
15	3.3	8	0.07	3.8	2	0.02	3.7	3	0.03
16	3.3	9	0.08	3.6	1	<0.01	3.3	4	0.03
17	12	58	2.7	3.7	1	<0.01	3.2	4	0.04
18	32	210	48	3.8	1	0.01	3.3	5	0.05
19	12	50	2.3	3.7	1	<0.01	3.6	6	0.06
20	7.5	26	0.54	28	207	78	3.4	7	0.07
21	23	129	16	59	563	391	3.8	9	0.09
22	14	36	1.8	9.9	46	2.4	3.4	10	0.09
23	138	1,170	2,750	4.9	3	0.05	3.3	11	0.10
24	39	314	63	4.0	3	0.03	3.3	12	0.10
25	13	131	4.9	3.6	3	0.03	3.3	12	0.11
26	7.7	32	0.67	3.5	5	0.05	3.3	13	0.12
27	5.9	25	0.39	3.3	4	0.03	3.2	14	0.12
28	5.3	20	0.29	3.3	2	0.02	3.4	11	0.10
29	4.9	16	0.22	3.2	2	0.02	3.3	8	0.07
30	4.6	15	0.19	3.2	2	0.02	3.3	5	0.04
31	---	---	---	3.1	2	0.02	---	---	---
TOTAL	375.1	---	2,893.55	205.1	---	473.79	99.4	---	1.68

50044810 RIO GUADIANA NR GUADIANA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	3.4	4	0.04	6.1	36	0.62	6.3	22	0.41
2	3.3	5	0.04	8.4	43	1.2	6.5	15	0.27
3	3.2	5	0.04	5.0	33	0.45	5.4	14	0.20
4	3.2	5	0.04	4.4	30	0.36	4.8	12	0.16
5	3.6	5	0.05	4.2	27	0.31	4.8	10	0.12
6	3.3	5	0.05	5.4	26	0.37	4.9	8	0.10
7	3.0	5	0.04	5.5	26	0.38	5.0	7	0.09
8	5.0	20	0.52	4.4	26	0.30	7.4	16	0.55
9	3.1	5	0.05	4.1	26	0.29	4.9	7	0.09
10	2.9	6	0.05	4.1	26	0.28	4.6	7	0.09
11	2.9	7	0.05	4.4	25	0.30	7.1	24	1.0
12	2.8	8	0.06	4.4	25	0.30	5.3	11	0.16
13	10	32	2.7	5.0	25	0.34	21	122	28
14	4.5	7	0.08	4.9	25	0.34	12	19	0.77
15	4.7	5	0.07	4.4	25	0.30	9.6	9	0.24
16	5.6	8	0.18	4.2	25	0.28	9.9	9	0.24
17	4.5	4	0.05	4.1	25	0.27	10	9	0.25
18	4.0	4	0.04	5.5	33	0.66	11	9	0.26
19	4.0	3	0.03	4.2	30	0.34	12	9	0.29
20	4.4	5	0.05	4.0	28	0.31	15	31	1.4
21	4.0	7	0.07	9.1	57	3.2	161	1,620	9,810
22	4.7	9	0.11	6.4	38	0.66	17	136	6.5
23	4.5	11	0.13	4.8	33	0.43	11	88	2.5
24	4.2	13	0.15	4.5	30	0.36	9.1	70	1.7
25	4.0	15	0.16	8.0	36	1.1	13	64	3.9
26	4.4	17	0.20	6.8	25	0.47	10	19	0.53
27	4.5	16	0.19	5.0	19	0.25	8.5	12	0.29
28	4.4	14	0.17	7.1	28	0.63	7.8	10	0.21
29	4.3	13	0.15	12	44	2.2	8.4	9	0.20
30	4.0	12	0.13	7.1	18	0.36	8.7	8	0.19
31	7.1	27	1.2	6.5	22	0.47	---	---	---
TOTAL	131.5	---	6.89	174.0	---	18.13	422.0	---	9,860.71
YEAR	2,149.3	14,203.21							

e Estimated
< Actual value is known to be less than the value shown

50044850 RIO GUADIANA NEAR NARANJITO, PR

LOCATION.--Lat 18°18'39", long 66°13'28", at steel-cross bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito Plaza.

DRAINAGE AREA.--4.0 mi^2 (10.3 km^2).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
18...	1215	4.0	2.9	7.3	95	7.3	407	28.1	150	36.2	15.1	2.27	.7
MAR													
19...	1045	2.7	<1.0	6.8	--	7.4	425	27.4	160	38.3	16.0	2.68	.9
MAY													
05...	1345	5.2	<1.0	7.5	--	8.1	397	30.0	160	38.0	15.7	3.45	1
AUG													
08...	1245	4.8	8.6	7.2	--	8.2	363	30.3	--	--	--	--	--
SEP													
10...	1000	12	21	8.0	--	8.0	366	27.7	150	34.1	15.8	2.70	.6

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
18...	19.9	140	26.4	<.17	27.0	17.0	--	228	--	<10	.40	.01	--
MAR													
19...	25.3	150	36.5	.15	26.7	19.1	<.1	255	1.85	<10	<.20	.01	.79
MAY													
05...	27.6	130	33.5	<.17	26.7	17.4	<.1	240	3.38	<10	.20	.01	--
AUG													
08...	--	123	--	--	--	--	--	--	--	<10	<.20	.02	--
SEP													
10...	16.5	128	24.4	<.2	26.8	17.5	--	214	--	15	.30	.02	.95

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
18...	1.30	<.01	.39	.25	1.7	7.5	<10	300	690	--	--	--	--
MAR													
19...	.800	.01	--	.28	--	--	<10	310	--	3,700	2	54.9	39
MAY													
05...	.920	<.01	.19	.21	1.1	5.0	<10	E160	--	3,700	E1	38.0	56
AUG													
08...	.950	<.01	--	.25	--	--	<10	E1,900	--	25,000	--	--	--
SEP													
10...	.960	.01	.28	.21	1.3	5.6	<10	E1,300	--	23,000	--	--	--

50044850 RIO GUADIANA NEAR NARANJITO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
19...	<.2	E.4	<10	<.01	20	<1	17.4	<.02	<3	<.3	E19	<.10	<16
MAY													
05...	<.2	<.8	<10	<.01	50	<1	15.2	<.02	<3	<.3	39	<.10	<16
AUG													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50045000 LAGO LA PLATA AT DAMSITE NEAR TOA ALTA, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Corozal.

DRAINAGE AREA.--181 mi^2 (469 km^2).

PERIOD OF RECORD.--February 1989 to current year. Prior to October 1994, published as Lago La Plata at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 acre-ft (45.6 hm^3) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Río de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with six bascule gates. The spillway crest has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by the Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 00-4045, October 1998.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 170.90 ft (52.09 m), September 10, 1996; minimum elevation, 107.95 ft (32.90 m), February 21, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 167.98 ft (51.20 m), August 29; minimum elevation, 135.36 ft (41.26 m), January 2 4.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 00-4045, Puerto Rico, 1998)
(Elevation in ft, capacity in acre-ft)

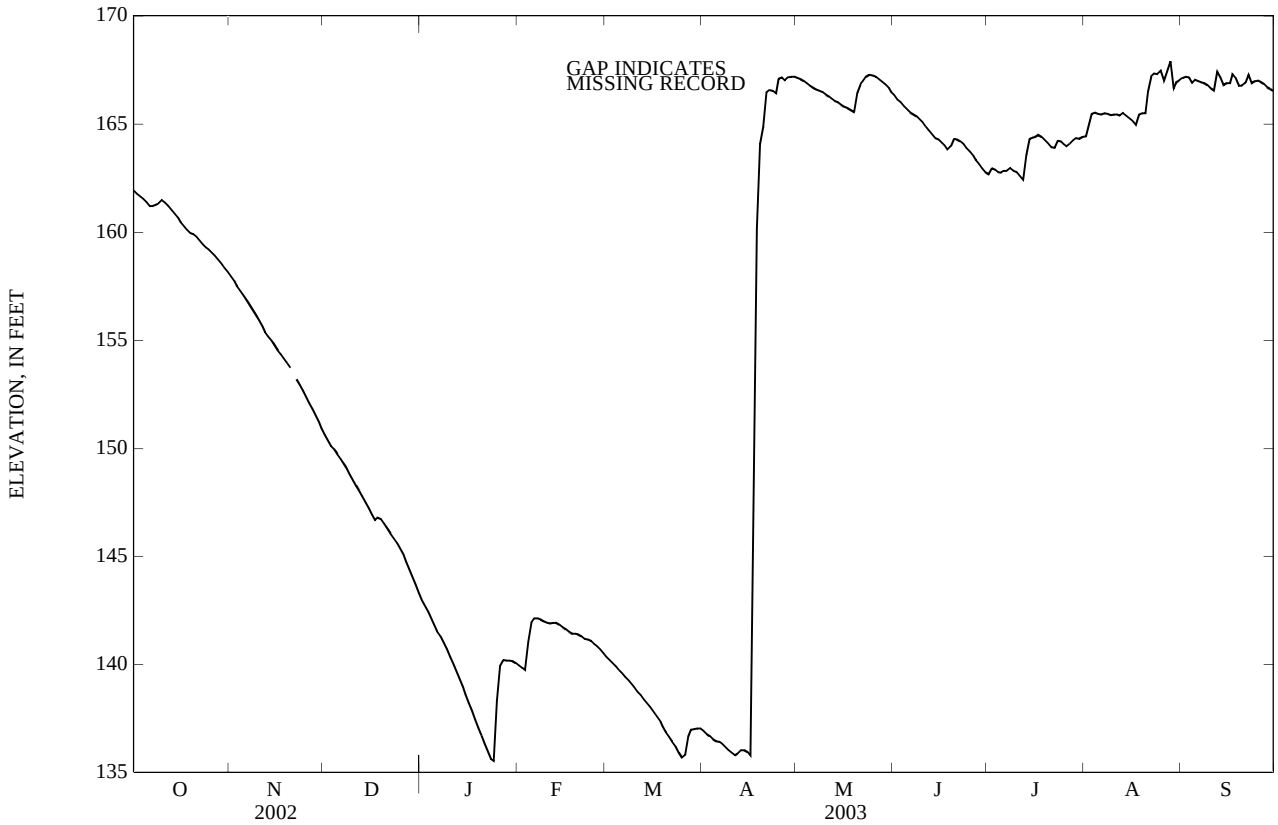
Elevation	Contents	Elevation	Contents
82	0	144	12,915
105	1,873	164	24,021
125	5,943	171	28,748

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161.91	157.96	150.63	142.96	139.96	140.36	136.92	167.14	166.35	162.70	164.44	167.13
2	161.78	157.74	150.37	142.71	139.87	140.21	136.77	167.09	166.14	162.95	164.99	167.18
3	161.65	157.51	150.10	142.42	139.76	140.07	136.69	166.99	166.01	162.89	165.47	167.16
4	161.55	157.31	149.95	142.11	141.05	139.91	136.54	166.90	165.84	162.78	165.54	166.90
5	161.39	157.09	149.73	141.79	141.93	139.73	136.45	166.78	165.69	162.76	165.47	167.04
6	161.21	156.87	149.50	141.51	142.13	139.58	136.41	166.68	165.53	162.85	165.46	167.00
7	161.22	156.62	149.27	141.30	142.14	139.42	136.33	166.59	165.44	162.85	165.52	166.94
8	161.27	156.37	149.05	141.01	142.09	139.26	136.18	166.54	165.36	162.95	165.48	166.89
9	161.32	156.14	148.80	140.72	142.00	139.10	136.03	166.47	165.24	162.85	165.42	166.80
10	161.47	155.91	148.53	140.37	141.92	138.93	135.91	166.36	165.08	162.77	165.45	166.66
11	161.36	155.64	148.27	140.04	141.89	138.74	135.81	166.27	164.89	162.61	165.44	166.58
12	161.20	155.37	148.02	139.68	141.92	138.57	135.90	166.17	164.71	162.42	165.39	167.44
13	161.03	155.17	147.76	139.33	141.93	138.39	136.05	166.07	164.52	163.59	165.50	167.16
14	160.85	155.00	147.49	138.98	141.83	138.20	136.03	166.01	164.36	164.33	165.40	166.82
15	160.67	154.76	147.23	138.61	141.72	138.02	135.96	165.90	164.30	164.39	165.27	166.90
16	160.48	154.52	146.93	138.24	141.64	137.81	135.80	165.81	164.13	164.41	165.14	166.89
17	160.29	154.33	146.66	137.86	141.52	137.62	148.20	165.75	163.99	164.49	164.98	167.31
18	160.12	154.12	146.80	137.45	141.43	137.40	160.16	165.65	163.83	164.40	165.46	167.15
19	159.98	153.93	146.72	137.07	141.42	137.14	164.07	165.56	163.96	164.27	165.52	166.78
20	159.91	153.71	146.52	136.72	141.39	136.88	164.88	166.46	164.31	164.11	165.50	166.77
21	159.80	A	146.28	136.33	141.30	136.66	166.44	166.83	164.28	163.95	166.52	166.91
22	159.61	153.18	146.06	135.98	141.20	136.42	166.58	166.98	164.19	163.92	167.18	167.27
23	159.44	152.96	145.83	135.61	141.17	136.20	166.53	167.20	164.07	164.24	167.35	166.90
24	159.28	152.69	145.62	135.52	141.09	135.92	166.42	167.28	163.89	164.21	167.32	167.00
25	159.21	152.39	145.38	138.33	140.95	135.67	167.10	167.26	163.72	164.07	167.47	167.03
26	159.04	152.10	145.09	139.95	140.82	135.80	167.17	167.18	163.55	163.98	167.02	166.97
27	158.89	151.82	144.77	140.21	140.68	136.68	167.02	167.09	163.34	164.09	167.46	166.86
28	158.73	151.53	144.43	140.19	140.52	136.97	167.16	166.96	163.16	164.24	167.90	166.71
29	158.56	151.23	144.07	140.19	---	137.01	167.19	166.83	162.96	164.36	166.67	166.63
30	158.35	150.93	143.70	140.14	---	137.04	167.20	166.69	162.77	164.31	166.92	166.53
31	158.15	---	143.31	140.06	---	137.04	---	166.48	---	164.40	167.01	---
MAX	161.91	---	150.63	142.96	142.14	140.36	167.20	167.28	166.35	164.49	167.90	167.44
MIN	158.15	---	143.31	135.52	139.76	135.67	135.80	165.56	162.77	162.42	164.44	166.53

A No gage-height record

50045000 LAGO LA PLATA AT DAMSITE NEAR TOA ALTA, PR—Continued



50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 mi^2 (448 km^2).

PERIOD OF RECORD.--July 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage 66 ft (20 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by the Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. G age-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	0.44	0.33	0.78	0.14	0.37	e0.28	49	8.5	2.3	6.7	20
2	3.2	0.38	0.34	0.65	0.14	0.23	e0.42	83	24	2.4	4.8	25
3	2.9	0.28	0.34	0.58	0.15	0.22	e1.6	145	6.1	2.3	8.3	25
4	5.6	0.23	0.66	0.56	0.53	0.19	e2.3	178	6.1	2.4	7.9	309
5	2.7	0.20	0.49	0.58	0.31	0.18	e3.2	146	9.5	2.6	11	18
6	3.4	0.17	0.34	0.42	0.18	0.18	e1.5	118	4.9	3.7	4.2	22
7	3.0	0.17	0.30	0.38	0.16	0.19	e0.34	90	4.4	3.6	10	25
8	3.9	0.16	0.37	0.35	0.14	0.17	e0.22	78	3.9	3.3	5.3	19
9	3.0	0.19	0.36	1.1	0.18	0.17	e0.19	38	4.4	3.3	8.9	10
10	3.2	0.69	0.31	0.50	0.18	0.17	0.15	25	8.3	5.5	14	14
11	2.5	0.15	1.2	0.30	0.18	0.16	0.37	28	7.2	4.6	3.8	57
12	2.0	0.10	0.51	0.14	0.18	0.15	0.35	29	5.1	2.9	6.5	408
13	1.9	0.10	0.41	0.09	0.18	0.17	0.34	21	3.9	5.1	15	753
14	1.7	0.14	0.33	0.08	0.18	0.18	0.40	16	6.1	4.2	5.6	327
15	1.9	0.09	1.7	0.44	0.19	0.18	0.53	9.0	5.8	6.8	5.2	17
16	2.2	0.05	0.39	0.22	0.20	0.17	0.74	2.2	3.2	7.9	4.6	520
17	2.1	0.75	0.79	0.13	0.23	0.17	1.9	3.3	4.1	4.6	11	258
18	2.5	0.17	0.31	0.12	0.31	0.18	15	3.9	3.1	5.7	15	175
19	2.0	0.11	0.24	0.12	1.4	0.18	313	3.6	3.2	3.2	6.2	191
20	2.5	0.12	0.26	0.37	0.26	0.20	250	4.0	3.7	5.0	11	20
21	1.7	0.17	0.28	0.65	0.23	0.21	257	3,480	3.6	8.8	14	1,520
22	1.2	0.17	0.62	0.23	1.1	0.24	658	1,040	3.6	16	18	733
23	1.1	0.19	0.30	0.18	0.38	e0.25	2,850	107	3.5	3.7	26	297
24	1.4	0.16	0.31	0.76	0.17	e0.23	3,920	13	3.5	3.4	29	4.2
25	1.6	0.16	0.69	2.3	0.23	e0.42	1,180	8.4	e3.5	4.4	12	5.1
26	1.3	0.18	0.69	0.98	0.26	e0.29	377	18	e3.6	4.8	1,210	21
27	0.96	1.1	0.67	0.16	0.26	e1.2	247	16	3.2	2.0	82	18
28	0.76	0.70	0.67	0.13	1.0	e0.25	13	13	3.2	2.4	20	23
29	0.71	0.40	0.69	0.15	---	e0.48	33	5.6	2.8	9.4	956	17
30	0.58	0.35	0.70	0.14	---	e1.9	18	5.7	2.5	3.3	55	29
31	0.56	---	0.72	0.14	---	e0.32	---	8.3	---	3.5	22	---
TOTAL	67.67	8.27	16.32	13.73	9.05	9.60	10,145.83	5,785.0	158.5	143.1	2,609.0	5,880.3
MEAN	2.18	0.28	0.53	0.44	0.32	0.31	338	187	5.28	4.62	84.2	196
MAX	5.6	1.1	1.7	2.3	1.4	1.9	3,920	3,480	24	16	1,210	1,520
MIN	0.56	0.05	0.24	0.08	0.14	0.15	0.15	2.2	2.5	2.0	3.8	4.2
AC-FT	134	16	32	27	18	19	20,120	11,470	314	284	5,170	11,660
CFSM	0.01	0.00	0.00	0.00	0.00	0.00	1.96	1.08	0.03	0.03	0.49	1.13
IN.	0.01	0.00	0.00	0.00	0.00	0.00	2.18	1.25	0.03	0.03	0.56	1.27

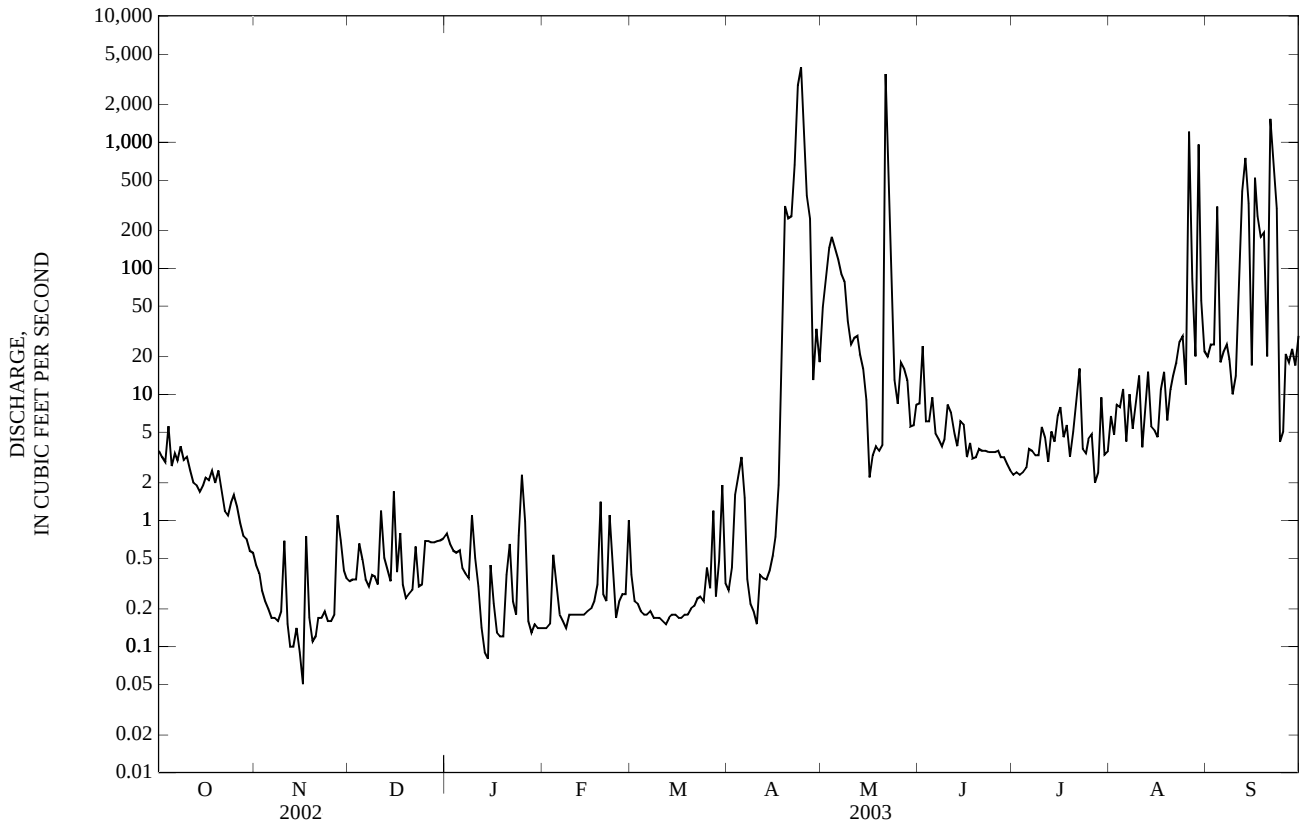
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	165	242	162	172	45.7	10.7	58.9	92.2	33.7	52.6	57.0	774
MAX	1,107	1,368	926	1,581	241	83.2	338	494	220	384	322	8,046
(WY)	(1991)	(2000)	(1999)	(1992)	(1998)	(1990)	(2003)	(1993)	(1993)	(1993)	(2000)	(1996)
MIN	0.05	0.00	0.00	0.19	0.14	0.02	0.01	0.00	0.00	0.04	0.02	0.00
(WY)	(1992)	(1995)	(1995)	(1990)	(1995)	(1995)	(1995)	(1994)	(1994)	(1994)	(1989)	(1991)

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	14,277.40		24,846.37			
ANNUAL MEAN	39.1		68.1		157	
HIGHEST ANNUAL MEAN					714	1996
LOWEST ANNUAL MEAN					8.62	1997
HIGHEST DAILY MEAN	1,810	Apr 21	3,920	Apr 24	141,000	Sep 10, 1996
LOWEST DAILY MEAN	0.01	Aug 29	0.05	Nov 16	0.00	Jul 14, 1989
ANNUAL SEVEN-DAY MINIMUM	0.15	Nov 19	0.14	Jan 28	0.00	Jul 14, 1989
MAXIMUM PEAK FLOW			21,500	May 21	197,000	Sep 10, 1996
MAXIMUM PEAK STAGE			17.49	May 21	42.26	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	28,320		49,280		113,900	
ANNUAL RUNOFF (CFSM)	0.226		0.394		0.910	
ANNUAL RUNOFF (INCHES)	3.07		5.35		12.37	
10 PERCENT EXCEEDS	12		42		201	
50 PERCENT EXCEEDS	2.1		2.1		1.8	
90 PERCENT EXCEEDS	0.31		0.17		0.00	

e Estimated



50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR

LOCATION.--Lat 18°24'41", long 66°15'39", Hydrologic Unit 21010005, on left bank at downstream side of bridge on Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi^2 (539 km^2), excludes 8.2 mi^2 (21.2 km^2) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi^2 (518 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1959 (measurement only), January 1960 to current year. Prior to October 1984, published as Río de La Plata at Toa Alta, Puerto Rico; October 1984 to September 1988 published as 50046900.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 9.15 ft (2.789 m), above mean sea level. Prior to October 1984, at site about 1.0 mi (1.6 km) upstream at mean sea level datum.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station. Flow affected by water extraction for La Virgencita water treatment plant by the Puerto Rico Aqueduct and Sewer Authority of about 3.99 ft^3/s (0.11 m^3/s). Located about 1,000 feet upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges and elevations of major floods, as pointed out by local residents are as follows: September 13, 1928, 120,000 ft^3/s (3,400 m^3/s), gage height 37.4 ft (11.40 m); June 16, 1943, 82,000 ft^3/s (2,322 m^3/s), gage height 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	33	23	18	15	15	e11	37	30	15	31	75
2	32	32	20	18	16	13	12	41	33	17	27	60
3	30	28	18	19	19	11	19	36	34	16	28	49
4	76	25	49	17	211	11	32	e32	29	15	31	202
5	79	25	29	20	208	11	50	69	53	16	31	295
6	41	28	19	19	33	14	36	42	36	18	47	46
7	195	33	19	17	24	11	35	32	28	22	47	41
8	723	30	35	17	27	11	18	29	25	24	53	42
9	308	28	32	21	27	12	19	25	24	36	35	34
10	76	31	22	23	29	13	17	21	22	e22	31	28
11	45	35	19	19	26	11	25	27	23	26	34	41
12	37	75	20	17	18	9.0	20	23	24	24	37	49
13	36	65	20	18	15	9.0	13	21	23	155	71	1,490
14	35	46	19	18	15	10	14	22	22	54	80	452
15	37	45	18	18	19	11	21	24	31	27	36	133
16	38	31	17	18	18	7.5	22	26	41	31	38	127
17	29	83	16	20	19	8.1	132	25	25	26	34	909
18	28	46	15	18	16	8.8	110	25	29	21	136	69
19	28	34	15	17	15	8.3	214	21	36	20	159	411
20	31	25	21	20	25	11	422	123	26	20	47	e60
21	138	21	30	21	23	12	552	3,050	26	20	611	891
22	74	23	21	19	16	9.1	729	4,260	22	58	1,030	2,570
23	33	22	17	15	15	10	3,150	436	20	31	131	360
24	27	21	18	23	15	6.7	5,860	109	19	23	69	222
25	29	27	17	142	17	12	3,900	55	17	23	134	37
26	41	27	17	379	16	37	662	43	18	23	1,660	30
27	33	25	16	43	15	56	463	41	17	34	544	30
28	29	23	16	20	14	17	93	37	17	93	117	29
29	27	23	17	29	---	22	47	34	16	44	1,370	43
30	26	23	15	22	---	32	48	31	16	26	452	33
31	24	---	18	16	---	11	---	28	---	28	111	---
TOTAL	2,419	1,013	648	1,101	926	440.5	16,746	8,825	782	1,008	7,262	8,858
MEAN	78.0	33.8	20.9	35.5	33.1	14.2	558	285	26.1	32.5	234	295
MAX	723	83	49	379	211	56	5,860	4,260	53	155	1,660	2,570
MIN	24	21	15	15	14	6.7	11	21	16	15	27	28
AC-FT	4,800	2,010	1,290	2,180	1,840	874	33,220	17,500	1,550	2,000	14,400	17,570
CFSM	0.38	0.16	0.10	0.17	0.16	0.07	2.68	1.37	0.13	0.16	1.13	1.42
IN.	0.43	0.18	0.12	0.20	0.17	0.08	2.99	1.58	0.14	0.18	1.30	1.58

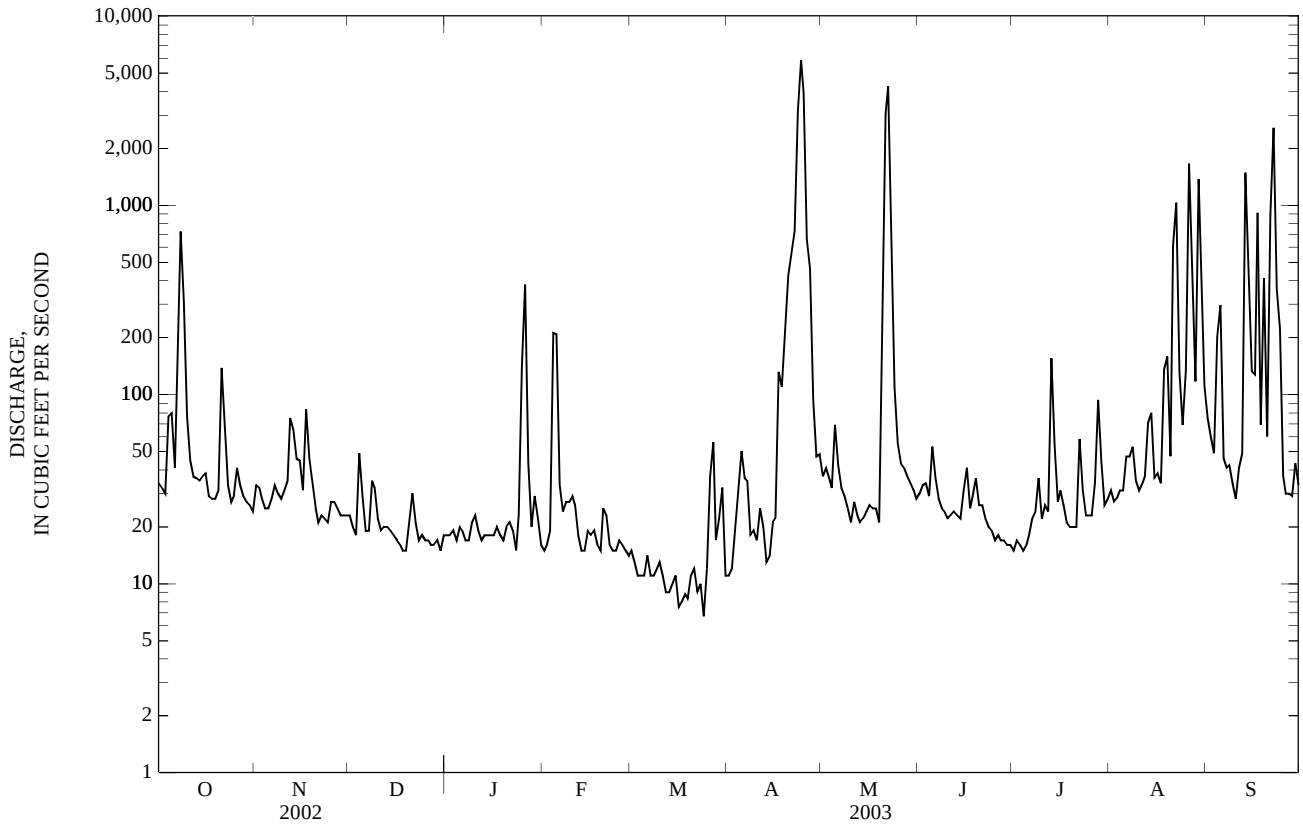
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	442	465	339	179	125	88.5	181	309	147	135	236	419
MAX	4,813	2,015	1,352	929	409	468	722	1,939	847	690	1,677	3,173
(WY)	(1971)	(1985)	(1971)	(1992)	(1989)	(1969)	(1987)	(1985)	(1970)	(1961)	(1979)	(1996)
MIN	18.8	18.4	14.8	16.9	16.0	8.31	5.07	7.63	11.4	13.2	16.5	19.2
(WY)	(1995)	(1995)	(1995)	(1984)	(1983)	(1986)	(1984)	(1984)	(1977)	(1994)	(1976)	(1991)

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	38,200		50,028.5			
ANNUAL MEAN	105		137		254	
HIGHEST ANNUAL MEAN					824	1971
LOWEST ANNUAL MEAN					31.5	1994
HIGHEST DAILY MEAN	3,360	Apr 21	5,860	Apr 24	68,100	Sep 10, 1996
LOWEST DAILY MEAN	15	Dec 18	6.7	Mar 24	2.7	Apr 17, 1984
ANNUAL SEVEN-DAY MINIMUM	17	Dec 24	9.0	Mar 13	2.9	Apr 15, 1984
MAXIMUM PEAK FLOW			18,000	May 21	160,000	Sep 10, 1996
MAXIMUM PEAK STAGE			17.53	May 21	27.33	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	75,770		99,230		183,700	
ANNUAL RUNOFF (CFSM)	0.503		0.659		1.22	
ANNUAL RUNOFF (INCHES)	6.83		8.95		16.56	
10 PERCENT EXCEEDS	173		147		468	
50 PERCENT EXCEEDS	32		27		72	
90 PERCENT EXCEEDS	19		15		18	

e Estimated



50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'41", long 66°15'39", at Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Lago La Plata.

DRAINAGE AREA.--208 mi^2 (539 km^2), exclude 8.2 mi^2 (21.2 km^2) upstream from Lago Carite, flow from which is diverted to Río Guamaní.

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
22...	1200	23	1.4	11.6	149	7.4	474	28.3	180	53.9	10.1	2.74	.7
MAR													
28...	1130	15	16	3.6	--	7.0	366	27.8	140	43.3	7.13	4.40	.7
MAY													
16...	1300	25	10	6.6	--	7.5	518	28.5	200	57.8	12.8	3.60	.8
AUG													
08...	0945	50	4.1	4.0	--	7.3	407	29.1	--	--	--	--	--
SEP													
12...	0945	52	3.0	8.9	--	7.4	455	29.4	180	52.1	12.2	3.35	.7

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
22...	22.4	166	30.2	<.17	17.5	15.3	--	252	15.9	<10	.90	.04	.84
MAR													
28...	17.9	130	24.6	.14	11.2	14.8	<.1	201	8.29	11	1.9	1.10	.24
MAY													
16...	25.5	174	38.1	<.2	21.1	18.5	<.1	282	18.9	<10	.60	.27	.88
AUG													
08...	--	141	--	--	--	--	--	--	--	<10	.50	.16	.80
SEP													
12...	22.0	166	30.9	<.2	19.7	15.2	--	255	36.1	<10	.80	.22	.66

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
22...	.860	.02	.86	.04	1.8	7.8	<10	E60	<10	--	--	--	--
MAR													
28...	.320	.08	.80	.12	2.2	9.8	20	E680	--	36,000	E1	52.9	42
MAY													
16...	1.00	.12	.33	.04	1.6	7.1	10	E12	--	140	E1	70.6	56
AUG													
08...	.880	.08	.34	.05	1.4	6.1	20	84	--	3,000	--	--	--
SEP													
12...	.760	.10	.58	.05	1.6	6.9	10	270	--	6,000	--	--	--

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
28...	<.2	<.8	<10	<.01	280	<1	381	<.02	<3	<.3	<25	E.05	<16
MAY													
16...	<.2	<.8	<10	<.01	160	<1	188	<.02	<3	<.3	E22	<.10	<16
AUG													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAY													
16...	1300	<.01	<.02	<.01	<.01	<.02	<.1	<.01	E.01	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
MAY													
16...	<.01	<.01	<.009	<.01	<.014	<.10	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
MAY					
16...	<.1	<.02	<.02	<1	<.02

< -- Less than
E -- Estimated value

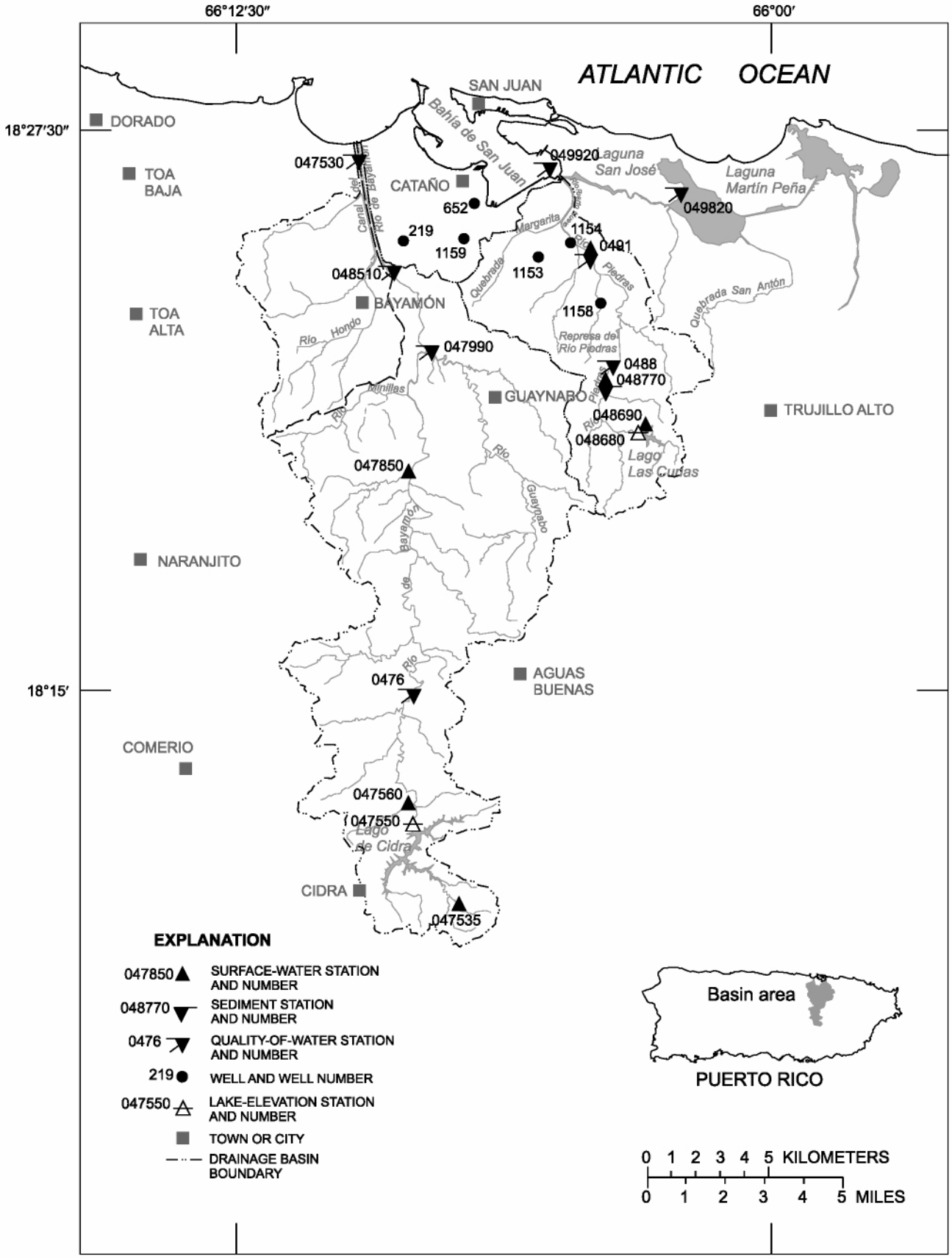


Figure 16. Río Hondo to Río Puerto Nuevo basins.

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATAÑO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", long 66°09'36", at Río Hondo Channel, 800 ft (245 m) below junction with Río Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
DEC													
17...	0920	11	7.0	105	7.8	41,300	28.6	4,600	298	939	275	50	7,840
MAR													
10...	1420	12	16.3	--	8.3	30,600	28.8	3,400	240	690	162	42	5,690
MAY													
16...	1520	23	15.2	--	8.5	43,200	33.0	4,500	302	906	322	47	7,200
AUG													
07...	1300	--	2.8	--	7.4	33,600	29.1	--	--	--	--	--	--
SEP													
22...	1045	110	2.0	--	7.2	1,430	28.0	170	30.0	21.9	10.1	6	170

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
DEC													
17...	143	13,800	.75	6.0	1,830	--	25,100	<10	.60	.21	.09	.120	.03
MAR													
10...	157	10,100	.64	7.3	1,310	.5	18,300	31	1.0	.03	--	<.020	<.01
MAY													
16...	125	13,300	.9	3.1	1,800	.2	23,900	67	.70	.01	--	<.020	<.01
AUG													
07...	70	--	--	--	--	--	--	32	.70	.38	.24	.270	.03
SEP													
22...	79	331	<.2	6.2	47.1	--	663	130	1.0	.52	.28	.320	.04

Date	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
DEC													
17...	.39	.09	.72	3.2	160	700	900	--	--	--	--	--	--
MAR													
10...	.97	.13	--	--	120	E130	--	E1,900	<6	28.1	2,040	<1.3	E1.2
MAY													
16...	.69	.09	--	--	230	E100	--	E1,100	<8	45.9	3,360	E1.2	1.3
AUG													
07...	.32	.17	.97	4.3	10	30,000	--	E85,000	--	--	--	--	--
SEP													
22...	.48	.19	1.3	5.8	20	E120,000	--	230,000	--	--	--	--	--

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATAÑO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
DEC											
17...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	<50	<.01	<80	E3	144	E.01	<8	.6	<125	.18	<16
MAY											
16...	70	<.01	<20	E6	172	E.01	<10	.7	<25	E.08	19
AUG											
07...	--	--	--	--	--	--	--	--	--	--	--
SEP											
22...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50047535 RIO DE BAYAMON AT ARENAS, PR

LOCATION.--Lat 18°10'11", long 66°07'18", Hydrologic Unit 21010005, at left bank, 2.6 mi (4.2 km) southeast of Plaza de Cidra, 0.6 mi (0.9 km) southwest from Escuela Segunda Unidad de Bayamón and 2.7 mi (4.3 km) northeast from Central Cayey.

DRAINAGE AREA.--0.45 mi^2 (1.16 km^2).

PERIOD OF RECORD.--July 1992 to September 1993, October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,378 ft (420 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.27	0.14	0.15	0.23	0.28	0.23	e0.43	0.22	0.16	1.3	1.2	0.82
2	0.27	0.15	0.15	0.24	0.25	0.20	0.22	0.21	0.22	3.6	3.1	0.75
3	0.21	0.19	0.14	0.18	0.65	0.19	0.26	0.22	0.56	0.62	0.67	0.39
4	0.21	0.14	0.16	0.16	1.9	0.17	0.25	0.21	0.41	0.47	0.39	0.27
5	0.19	0.13	0.28	0.61	0.92	0.16	0.55	0.19	0.28	0.44	0.28	0.21
6	0.19	0.12	0.15	0.47	0.48	0.15	0.22	0.22	0.66	0.96	0.33	0.17
7	0.20	0.11	0.16	0.27	0.80	0.15	0.19	0.22	0.52	0.51	0.29	0.15
8	0.20	0.11	0.20	0.20	0.47	0.15	0.17	0.30	0.31	0.42	0.27	0.16
9	0.21	0.11	0.20	0.19	0.31	0.15	0.24	0.25	0.22	0.39	0.31	0.15
10	0.22	0.11	0.16	0.22	0.59	0.15	0.38	0.25	0.17	0.23	0.26	0.26
11	0.21	0.13	0.16	0.18	0.48	0.15	1.2	0.23	0.15	0.16	0.31	0.21
12	0.21	0.14	0.15	0.17	0.38	0.15	0.91	0.22	0.21	0.14	0.22	0.19
13	0.22	0.13	0.16	0.15	0.35	0.14	0.53	0.21	0.18	7.5	0.19	0.18
14	0.20	0.11	0.15	0.15	0.27	0.15	0.26	0.24	0.15	0.98	0.15	0.17
15	0.19	0.12	0.15	0.15	0.21	0.15	0.19	0.21	0.21	0.50	0.15	0.29
16	0.18	0.14	0.18	0.13	0.22	0.15	0.21	0.19	0.20	1.1	e0.15	0.34
17	0.19	0.13	1.2	0.16	0.74	0.15	16	0.17	0.16	0.47	e0.45	0.20
18	0.20	0.12	0.64	0.36	0.56	0.15	16	0.29	0.15	0.26	e0.88	0.18
19	0.19	0.13	0.28	0.24	0.33	1.2	2.5	0.25	2.2	0.21	0.46	0.16
20	0.19	0.11	0.27	0.22	0.31	0.53	3.7	0.19	0.63	0.18	0.27	0.17
21	0.19	0.10	0.36	0.20	0.38	0.20	5.6	8.5	0.34	0.20	5.4	12
22	0.18	0.11	0.52	0.18	0.32	0.19	3.4	1.3	0.20	5.2	1.5	1.2
23	0.18	0.11	0.34	0.22	0.23	0.18	5.6	0.59	0.15	1.3	0.55	0.51
24	0.22	0.11	0.20	0.64	0.20	0.18	22	0.34	0.16	0.58	0.31	0.38
25	0.19	0.12	0.17	2.6	0.23	0.16	2.2	0.21	0.14	0.33	0.29	0.31
26	0.27	0.14	0.17	1.2	0.22	0.23	0.93	0.18	0.12	0.28	5.6	0.28
27	0.19	0.12	0.15	0.49	0.28	0.23	0.62	0.18	0.12	0.55	0.56	0.30
28	0.16	0.12	0.15	0.28	0.31	0.21	0.44	0.17	0.22	2.0	4.9	0.28
29	0.14	0.13	0.15	0.26	---	0.23	0.32	0.17	0.13	0.81	1.7	0.27
30	0.15	0.12	0.14	0.30	---	0.21	0.29	0.17	0.13	0.41	0.70	0.36
31	0.14	---	0.14	0.31	---	e0.18	---	0.17	---	0.80	0.44	---
TOTAL	6.16	3.75	7.58	11.36	12.67	6.82	85.81	16.47	9.46	32.90	32.28	21.31
MEAN	0.20	0.12	0.24	0.37	0.45	0.22	2.86	0.53	0.32	1.06	1.04	0.71
MAX	0.27	0.19	1.2	2.6	1.9	1.2	22	8.5	2.2	7.5	5.6	12
MIN	0.14	0.10	0.14	0.13	0.20	0.14	0.17	0.17	0.12	0.14	0.15	0.15
AC-FT	12	7.4	15	23	25	14	170	33	19	65	64	42
CFSM	0.44	0.28	0.54	0.81	1.01	0.49	6.36	1.18	0.70	2.36	2.31	1.58
IN.	0.51	0.31	0.63	0.94	1.05	0.56	7.09	1.36	0.78	2.72	2.67	1.76

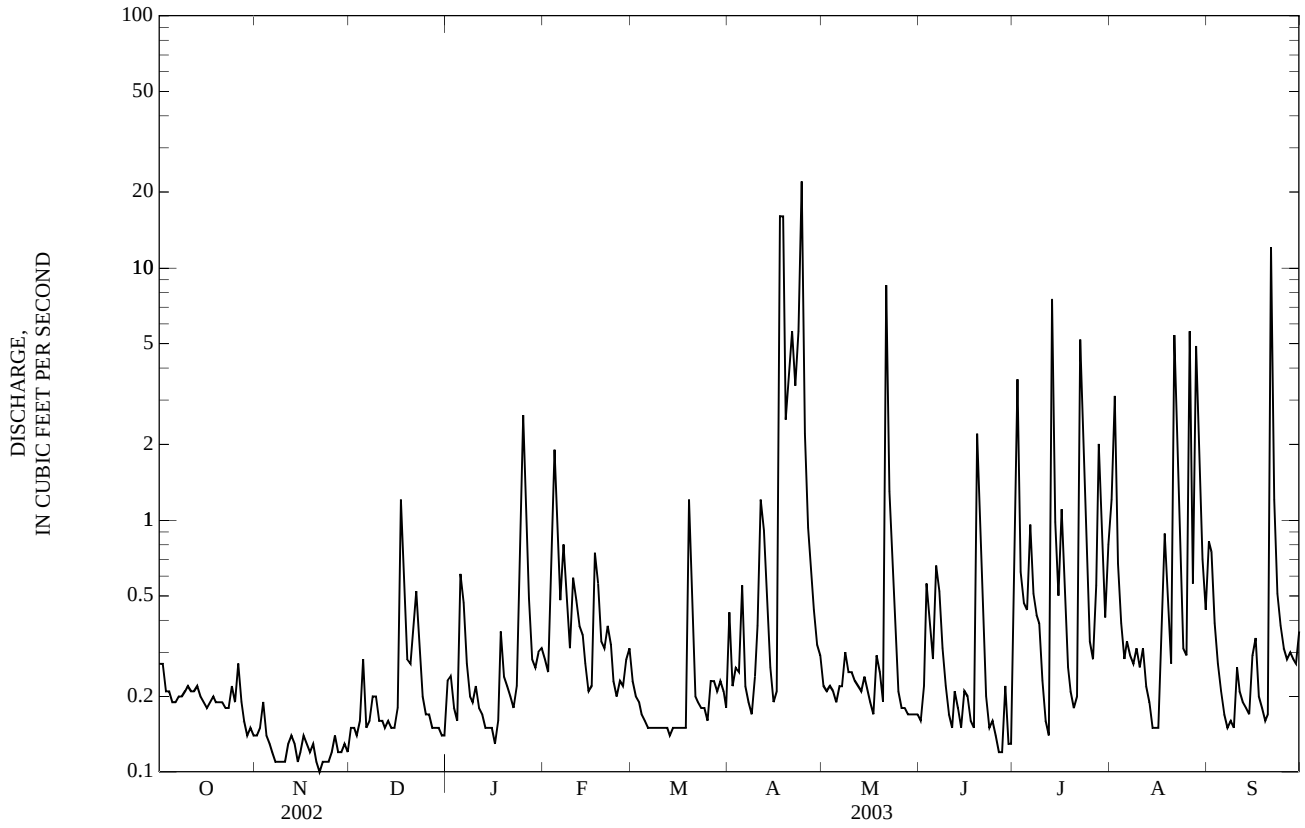
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

MEAN	0.59	1.08	1.09	0.59	0.57	0.26	0.66	0.49	0.59	0.73	0.96	2.05
MAX	1.73	3.82	4.63	1.17	2.38	0.65	2.86	2.02	1.79	2.12	1.87	6.52
(WY)	(1998)	(2000)	(1999)	(2000)	(1998)	(1998)	(2003)	(1993)	(1996)	(1993)	(1996)	(1998)
MIN	0.20	0.12	0.05	0.34	0.16	0.10	0.09	0.10	0.10	0.09	0.46	0.20
(WY)	(2003)	(2003)	(1998)	(2002)	(1993)	(1993)	(1997)	(1999)	(1998)	(1998)	(1992)	(1997)

50047535 RIO DE BAYAMON AT ARENAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003	
ANNUAL TOTAL	225.50		246.57			
ANNUAL MEAN	0.62		0.68		0.81	
HIGHEST ANNUAL MEAN					1.16	1996
LOWEST ANNUAL MEAN					0.31	1997
HIGHEST DAILY MEAN	28	Sep 15	22	Apr 24	141	Sep 10, 1996
LOWEST DAILY MEAN	0.10	Mar 25	0.10	Nov 21	0.02	Jul 3, 1997
ANNUAL SEVEN-DAY MINIMUM	0.11	Nov 18	0.11	Nov 18	0.03	Jun 28, 1997
MAXIMUM PEAK FLOW			285	Apr 24	1,150	Sep 21, 1998
MAXIMUM PEAK STAGE			5.58	Apr 24	7.89	Sep 21, 1998
INSTANTANEOUS LOW FLOW			0.09	Nov 20	0.02	Jul 15, 1997
ANNUAL RUNOFF (AC-FT)	447		489		589	
ANNUAL RUNOFF (CFSM)	1.37		1.50		1.81	
ANNUAL RUNOFF (INCHES)	18.64		20.38		24.55	
10 PERCENT EXCEEDS	0.85		0.94		1.1	
50 PERCENT EXCEEDS	0.21		0.22		0.21	
90 PERCENT EXCEEDS	0.14		0.14		0.08	

e Estimated



50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA.--8.26 mi^2 (21.39 km^2).

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 acre-ft (6.53 hm^3) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure, approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated ogee crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 99-4144, November 1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,328.09 ft (404.80 m), September 10, 1996; minimum elevation 1,295.86 ft (394.98 m), April 22,1995.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,319.73 ft (402.25 m), May 24; minimum elevation, 1,304.37 ft (397.57 m), March 19.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4144, 1997)
(Elevation in ft, capacity in acre-ft)

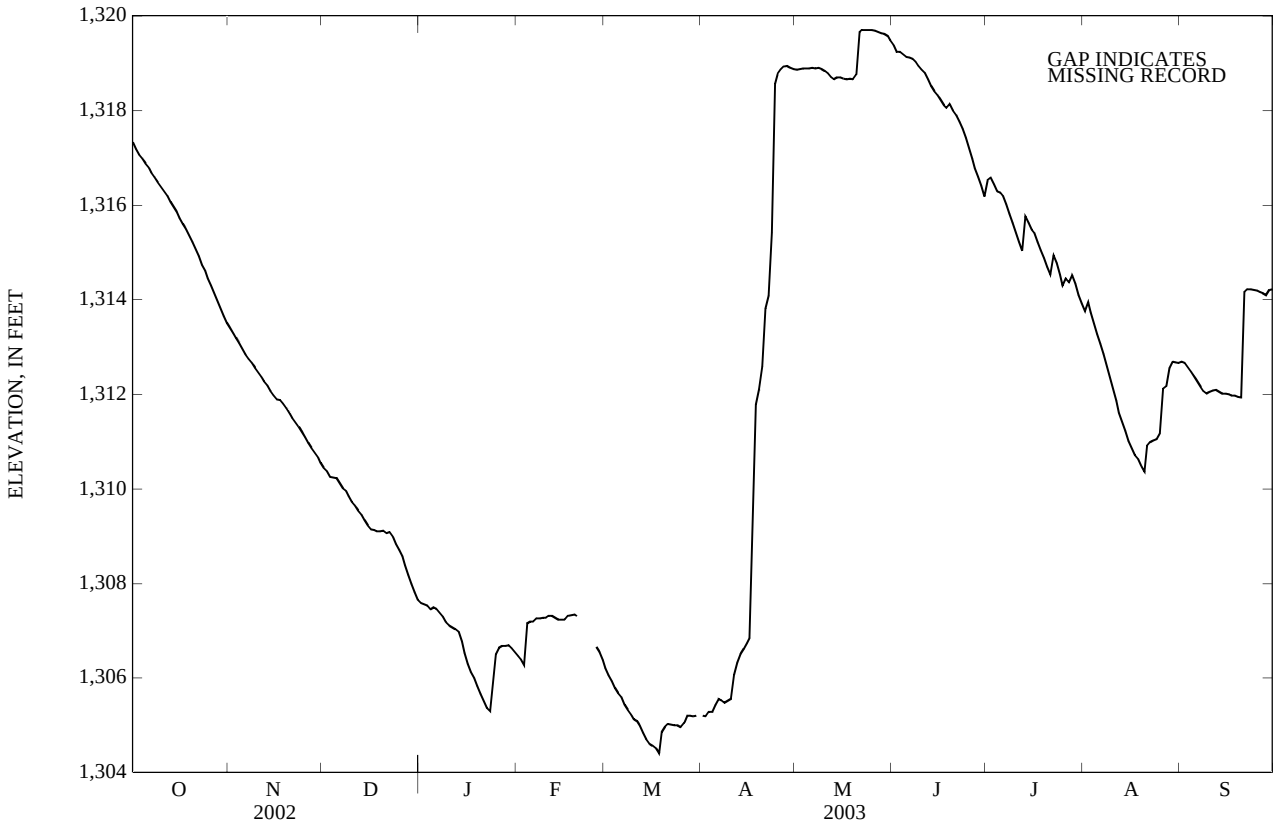
Elevation	Contents	Elevation	Contents
1,260	0	1,309	2,059
1,276	97	1,315	3,170
1,296	762	1,322	4,670

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,317.33	1,313.39	1,310.44	1,307.59	1,306.47	1,306.21	1,305.21	1,318.87	1,319.39	1,316.52	1,313.76	1,312.69
2	1,317.19	1,313.29	1,310.38	1,307.56	1,306.40	1,306.06	1,305.19	1,318.88	1,319.24	1,316.58	1,313.95	1,312.66
3	1,317.07	1,313.19	1,310.26	1,307.53	1,306.28	1,305.94	1,305.29	1,318.90	1,319.25	1,316.44	1,313.73	1,312.57
4	1,316.99	1,313.09	1,310.24	1,307.45	1,307.16	1,305.79	1,305.28	1,318.90	1,319.19	1,316.29	1,313.51	1,312.47
5	1,316.88	1,312.96	1,310.23	1,307.49	1,307.20	1,305.68	1,305.44	1,318.90	1,319.14	1,316.27	1,313.27	1,312.37
6	1,316.80	1,312.84	1,310.12	1,307.46	1,307.20	1,305.60	1,305.56	1,318.91	1,319.13	1,316.20	1,313.07	1,312.26
7	1,316.69	1,312.74	1,310.01	1,307.39	1,307.26	1,305.44	1,305.53	1,318.90	1,319.10	1,316.02	1,312.85	1,312.15
8	1,316.59	1,312.66	1,309.96	1,307.30	1,307.26	1,305.33	1,305.48	1,318.91	1,319.03	1,315.82	1,312.61	1,312.07
9	1,316.49	1,312.56	1,309.85	1,307.18	1,307.27	1,305.23	1,305.52	1,318.88	1,318.95	1,315.63	1,312.37	1,312.02
10	1,316.39	1,312.46	1,309.73	1,307.12	1,307.28	1,305.14	1,305.56	1,318.84	1,318.87	1,315.43	1,312.13	1,312.06
11	1,316.29	1,312.37	1,309.64	1,307.07	1,307.32	1,305.09	1,306.07	1,318.78	1,318.80	1,315.23	1,311.87	1,312.08
12	1,316.20	1,312.27	1,309.54	1,307.03	1,307.32	1,304.99	1,306.33	1,318.71	1,318.66	1,315.03	1,311.61	1,312.09
13	1,316.07	1,312.19	1,309.45	1,306.98	1,307.28	1,304.84	1,306.50	1,318.67	1,318.52	1,315.77	1,311.42	1,312.05
14	1,315.96	1,312.07	1,309.34	1,306.77	1,307.24	1,304.71	1,306.61	1,318.71	1,318.41	1,315.63	1,311.23	1,312.01
15	1,315.85	1,311.97	1,309.23	1,306.53	1,307.24	1,304.61	1,306.74	1,318.70	1,318.32	1,315.48	1,311.02	1,312.02
16	1,315.72	1,311.90	1,309.14	1,306.30	1,307.24	1,304.57	1,306.84	1,318.68	1,318.21	1,315.41	1,310.87	1,312.00
17	1,315.61	1,311.88	1,309.13	1,306.13	1,307.32	1,304.52	1,309.42	1,318.66	1,318.11	1,315.23	1,310.72	1,311.97
18	1,315.49	1,311.80	1,309.10	1,306.00	1,307.33	1,304.41	1,311.79	1,318.68	1,318.05	1,315.05	1,310.64	1,311.97
19	1,315.36	1,311.70	1,309.11	1,305.83	1,307.34	1,304.85	1,312.11	1,318.67	1,318.14	1,314.88	1,310.48	1,311.95
20	1,315.22	1,311.59	1,309.12	1,305.67	1,307.30	1,304.96	1,312.58	1,318.76	1,318.00	1,314.70	1,310.37	1,311.94
21	1,315.08	1,311.50	1,309.06	1,305.51	A	1,305.03	1,313.82	1,319.65	1,317.90	1,314.53	1,310.91	1,314.16
22	1,314.92	1,311.41	1,309.09	1,305.37	A	1,305.02	1,314.09	1,319.70	1,317.77	1,314.94	1,310.98	1,314.22
23	1,314.74	1,311.31	1,309.00	1,305.30	A	1,305.00	1,315.41	1,319.71	1,317.62	1,314.78	1,311.03	1,314.22
24	1,314.61	1,311.20	1,308.83	1,305.87	A	1,305.00	1,318.57	1,319.71	1,317.43	1,314.54	1,311.05	1,314.21
25	1,314.45	1,311.10	1,308.71	1,306.51	A	1,304.96	1,318.77	1,319.70	1,317.21	1,314.31	1,311.17	1,314.20
26	1,314.31	1,310.97	1,308.57	1,306.64	1,306.66	1,305.04	1,318.87	1,319.69	1,316.99	1,314.45	1,312.11	1,314.17
27	1,314.14	1,310.86	1,308.39	1,306.68	1,306.55	1,305.21	1,318.93	1,319.66	1,316.78	1,314.37	1,312.16	1,314.14
28	1,313.98	1,310.77	1,308.19	1,306.68	1,306.38	1,305.20	1,318.95	1,319.64	1,316.61	1,314.52	1,312.56	1,314.10
29	1,313.81	1,310.67	1,307.99	1,306.70	---	1,305.19	1,318.91	1,319.63	1,316.41	1,314.34	1,312.69	1,314.21
30	1,313.65	1,310.55	1,307.82	1,306.62	---	1,305.21	1,318.88	1,319.58	1,316.19	1,314.10	1,312.68	1,314.22
31	1,313.50	---	1,307.65	1,306.54	---	A	---	1,319.49	---	1,313.92	1,312.67	---
MAX	1,317.33	1,313.39	1,310.44	1,307.59	---	---	1,318.95	1,319.71	1,319.39	1,316.58	1,313.95	1,314.22
MIN	1,313.50	1,310.55	1,307.65	1,305.30	---	---	1,305.19	1,318.66	1,316.19	1,313.92	1,310.37	1,311.94

A No gage-height record

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR—Continued



50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION.--Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA.--8.32 mi^2 (21.5 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	20	12	13	e31	e28	e13	e13	19	27	24	e11
2	29	23	12	13	e21	e24	e14	e13	27	29	25	e10
3	23	19	13	9.6	e18	e23	e13	e13	20	29	21	e10
4	18	20	9.8	11	e30	e20	e19	e13	18	28	21	e10
5	18	22	11	13	e18	e18	e19	e13	17	29	22	e10
6	18	22	14	11	e16	e13	e14	12	17	31	21	e10
7	19	17	12	12	e15	e17	e27	12	17	31	22	e11
8	18	14	12	13	e15	e17	e21	13	18	34	22	e10
9	18	13	14	13	e14	e14	e34	17	21	34	22	e10
10	18	14	14	12	e16	e16	e30	20	22	35	21	e10
11	19	14	12	11	e16	e13	e17	18	19	29	21	e10
12	19	16	12	9.6	e15	e13	e18	15	23	26	24	e11
13	22	16	14	9.5	e16	e13	e20	16	26	32	16	e11
14	21	16	13	23	e16	e14	e18	15	26	26	13	e11
15	20	14	13	21	e15	e16	e20	15	25	28	12	e11
16	20	14	13	15	e14	e13	e20	15	23	28	11	e11
17	21	12	13	13	e18	e12	e11	15	20	21	11	e12
18	22	15	9.4	14	e21	e11	e12	13	17	16	11	e12
19	21	e16	5.4	15	e14	e9.6	e11	13	18	16	11	e12
20	22	e13	5.6	15	e18	e8.4	e10	15	18	17	9.6	e11
21	26	14	10	15	e20	e8.6	e12	14	18	17	9.1	e12
22	34	15	8.8	13	e20	e8.5	e10	13	16	20	9.0	e11
23	34	15	13	13	e20	e9.5	e12	13	18	24	7.9	e11
24	34	14	17	12	e19	e7.4	e14	12	29	29	8.3	e10
25	33	14	14	12	e16	e7.5	e11	11	28	29	9.8	e9.6
26	31	15	21	10	e17	e8.5	e9.3	11	29	30	10	e10
27	32	15	22	10	e20	e8.9	e10	12	30	22	10	e10
28	29	14	23	e10	e22	e8.6	e12	12	31	22	e9.7	e11
29	33	13	20	e11	---	e11	e12	12	28	23	e10	e10
30	33	14	19	e32	---	e12	e12	12	29	24	e11	e10
31	30	---	18	e35	---	e14	---	20	---	25	e11	---
TOTAL	757	473	420.0	439.7	511	417.5	475.3	431	667	811	466.4	318.6
MEAN	24.4	15.8	13.5	14.2	18.2	13.5	15.8	13.9	22.2	26.2	15.0	10.6
MAX	34	23	23	35	31	28	34	20	31	35	25	12
MIN	18	12	5.4	9.5	14	7.4	9.3	11	16	16	7.9	9.6
AC-FT	1,500	938	833	872	1,010	828	943	855	1,320	1,610	925	632
CFSM	2.94	1.90	1.63	1.70	2.19	1.62	1.90	1.67	2.67	3.14	1.81	1.28
IN.	3.38	2.11	1.88	1.97	2.28	1.87	2.13	1.93	2.98	3.63	2.09	1.42

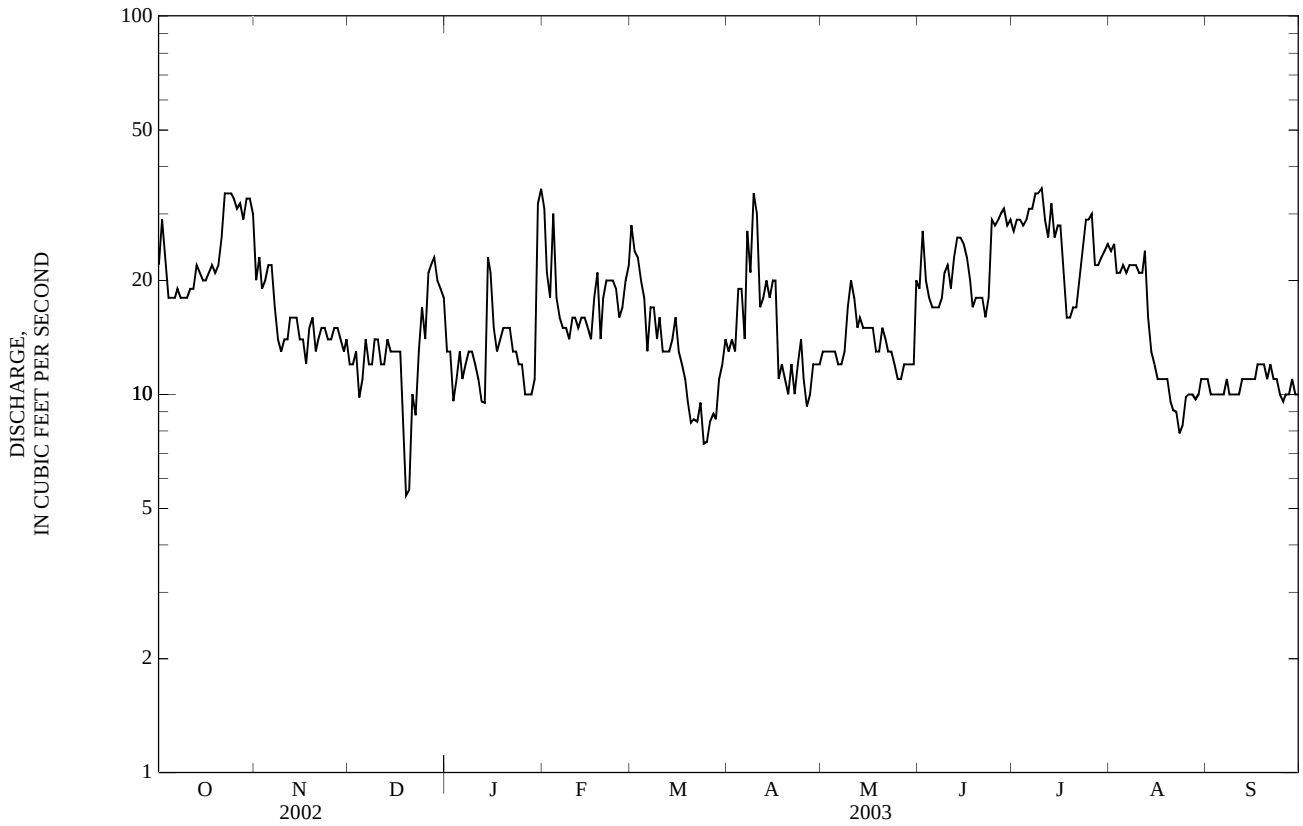
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)

MEAN	15.6	19.8	26.0	18.3	17.2	16.4	14.2	13.3	13.6	16.0	14.1	34.6
MAX	31.2	41.2	117	59.6	36.5	26.3	24.5	23.2	22.2	39.6	29.2	233
(WY)	(1999)	(1992)	(2000)	(1992)	(1991)	(1998)	(1996)	(1998)	(2003)	(1993)	(1996)	(1996)
MIN	3.74	3.73	3.63	5.45	7.24	9.93	5.72	4.13	3.47	1.56	1.18	1.64
(WY)	(1995)	(2002)	(2002)	(1995)	(1994)	(2002)	(1997)	(1993)	(1994)	(1994)	(1995)	(1994)

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003	
ANNUAL TOTAL	5,593.5		6,187.5			
ANNUAL MEAN	15.3		17.0		18.2	
HIGHEST ANNUAL MEAN					36.1	1996
LOWEST ANNUAL MEAN					5.93	1994
HIGHEST DAILY MEAN	81	Jul 24	35	Jan 31	5,420	Sep 10, 1996
LOWEST DAILY MEAN	3.6	Mar 14	5.4	Dec 19	0.60	Aug 6, 1992
ANNUAL SEVEN-DAY MINIMUM	4.0	May 19	8.3	Mar 20	0.80	May 1, 1995
MAXIMUM PEAK FLOW					15,000	Sep 10, 1996
MAXIMUM PEAK STAGE					27.34	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	11,090		12,270		13,190	
ANNUAL RUNOFF (CFSM)	1.84		2.04		2.19	
ANNUAL RUNOFF (INCHES)	25.01		27.67		29.74	
10 PERCENT EXCEEDS	28		28		27	
50 PERCENT EXCEEDS	13		15		13	
90 PERCENT EXCEEDS	6.0		10		3.2	

e Estimated



50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'39", long 66°08'39", at bridge on Highway 156 and 2.9 mi (4.7 km) west of Aguas Buenas Plaza.

DRAINAGE AREA.--18.5 mi^2 (47.9 km^2).

PERIOD OF RECORD.--Water years 1958-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
NOV													
20...	1245	16	11	8.5	7.1	276	24.3	95	21.5	9.91	2.66	.7	16.0
FEB													
20...	1320	19	4.9	8.9	8.4	301	23.9	110	25.9	11.3	2.00	.8	18.2
MAY													
19...	1605	20	30	8.0	8.0	248	25.4	89	21.0	8.97	2.61	.6	13.4
AUG													
12...	1615	36	10	7.8	8.2	258	27.7	--	--	--	--	--	--
SEP													
08...	1305	17	6.6	8.1	8.1	293	25.8	110	25.0	11.5	2.23	.6	13.9

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
20...	96	18.7	<.17	22.4	8.3	--	157	6.69	<10	.30	.04	--	.470
FEB													
20...	112	19.1	.09	25.4	9.8	<.0	179	9.15	<10	.70	.01	--	.580
MAY													
19...	84	15.7	<.2	21.8	9.7	.2	143	7.63	<10	.30	.02	.45	.460
AUG													
12...	90	--	--	--	--	--	--	--	<10	.40	<.01	--	.300
SEP													
08...	98	21.1	<.2	24.1	8.8	--	166	7.63	<10	.20	.01	--	.500

Date	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)
NOV													
20...	<.01	.26	.02	.77	3.4	<10	510	410	--	--	--	--	--
FEB													
20...	<.01	.69	<.02	1.3	5.7	20	E140	--	3,000	<2	18.9	31	<.2
MAY													
19...	.01	.28	<.02	.76	3.4	10	E170	--	2,500	<2	21.8	21	<.2
AUG													
12...	<.01	--	<.02	.70	3.1	10	98	--	2,400	--	--	--	--
SEP													
08...	<.01	.19	<.02	.70	3.1	10	E80	--	E6,400	--	--	--	--

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV												
20...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
20...	<.8	<10	<.01	130	<1	31.3	<.02	<3	E.1	<25	<.10	<16
MAY												
19...	E.8	<10	<.01	560	<1	43.6	E.01	<5	<.3	<25	<.10	E11
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
08...	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50047850 RIO DE BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi (2.1 km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA.--41.8 mi^2 (108.3 km^2).

PERIOD OF RECORD.--September 1964 to October 1970, June 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	7.6	5.6	6.0	7.0	5.7	e7.8	11	7.9	5.9	32	10
2	10	7.5	6.5	7.2	6.6	5.7	7.8	10	7.8	6.1	114	12
3	9.8	7.4	6.3	7.0	6.8	5.7	8.7	9.8	8.9	5.8	38	12
4	12	7.3	12	5.9	91	5.6	7.5	9.9	8.3	6.8	23	8.5
5	10	7.1	7.4	5.8	53	5.6	9.7	9.8	8.0	7.2	22	6.7
6	10	7.1	6.1	6.0	e12	5.5	8.1	10	7.7	7.3	25	6.0
7	9.6	6.9	6.0	5.6	e7.5	e5.3	e7.2	12	8.3	6.8	36	9.1
8	14	6.6	10	5.2	e6.8	e5.2	e6.7	14	9.3	9.7	23	9.6
9	12	6.9	7.8	5.2	e6.3	e5.2	e6.5	12	7.7	7.5	21	6.1
10	13	7.0	6.6	5.2	e6.1	e5.1	e6.3	9.3	7.4	6.2	19	5.7
11	10	6.6	6.7	4.9	e6.0	e5.1	e6.1	8.7	7.3	6.0	23	6.7
12	9.6	7.6	6.9	5.1	e5.9	e5.3	e6.0	8.6	7.1	5.7	19	5.8
13	9.3	8.3	7.3	5.7	e7.0	e5.4	e8.5	8.2	7.1	e20	37	7.6
14	9.7	6.8	6.9	5.0	e6.5	e5.4	e6.0	10	7.1	e15	18	6.6
15	9.3	6.6	6.3	4.9	e6.1	e5.3	e5.2	9.2	9.9	e13	14	5.2
16	9.2	6.7	6.0	4.9	e7.2	e5.2	5.2	7.7	8.1	21	10	5.0
17	8.3	6.8	5.8	4.8	e7.1	e5.1	194	7.5	7.7	19	8.9	4.8
18	8.9	7.2	5.9	4.8	e6.5	e5.2	261	8.8	7.5	11	61	4.7
19	10	9.7	6.0	5.0	e6.3	e5.2	150	9.1	9.4	9.3	16	4.8
20	12	6.7	6.4	5.1	e6.1	e5.1	72	90	7.8	8.7	9.5	5.3
21	9.9	6.6	6.4	4.9	e5.9	e5.1	183	198	7.3	9.3	152	43
22	8.7	6.3	7.3	4.9	e5.9	e5.2	188	83	7.0	13	50	30
23	9.6	6.4	9.2	5.3	e5.8	e5.2	884	35	6.6	21	20	12
24	9.8	6.2	6.9	12	e5.7	e5.3	524	16	6.5	12	13	9.0
25	11	6.1	6.8	113	e8.0	e5.2	121	11	6.3	12	18	8.1
26	12	6.0	6.9	87	e6.2	e50	43	9.4	6.1	12	47	8.3
27	8.9	5.8	6.3	12	e6.0	87	25	9.0	6.0	25	13	7.9
28	8.2	5.8	6.4	8.6	5.7	19	18	8.7	6.0	21	16	7.5
29	8.0	5.7	5.9	9.8	---	18	12	8.5	5.8	19	102	7.9
30	7.9	5.6	5.7	8.3	---	e11	11	8.5	5.8	13	26	8.8
31	8.3	---	6.0	8.1	---	e9.1	---	7.8	---	24	13	---
TOTAL	310.0	204.9	212.3	383.2	317.0	327.0	2,799.3	670.5	223.7	379.3	1,039.4	284.7
MEAN	10.0	6.83	6.85	12.4	11.3	10.5	93.3	21.6	7.46	12.2	33.5	9.49
MAX	14	9.7	12	113	91	87	884	198	9.9	25	152	43
MIN	7.9	5.6	5.6	4.8	5.7	5.1	5.2	7.5	5.8	5.7	8.9	4.7
AC-FT	615	406	421	760	629	649	5,550	1,330	444	752	2,060	565
CFSM	0.24	0.16	0.16	0.30	0.27	0.25	2.23	0.52	0.18	0.29	0.80	0.23
IN.	0.28	0.18	0.19	0.34	0.28	0.29	2.49	0.60	0.20	0.34	0.93	0.25

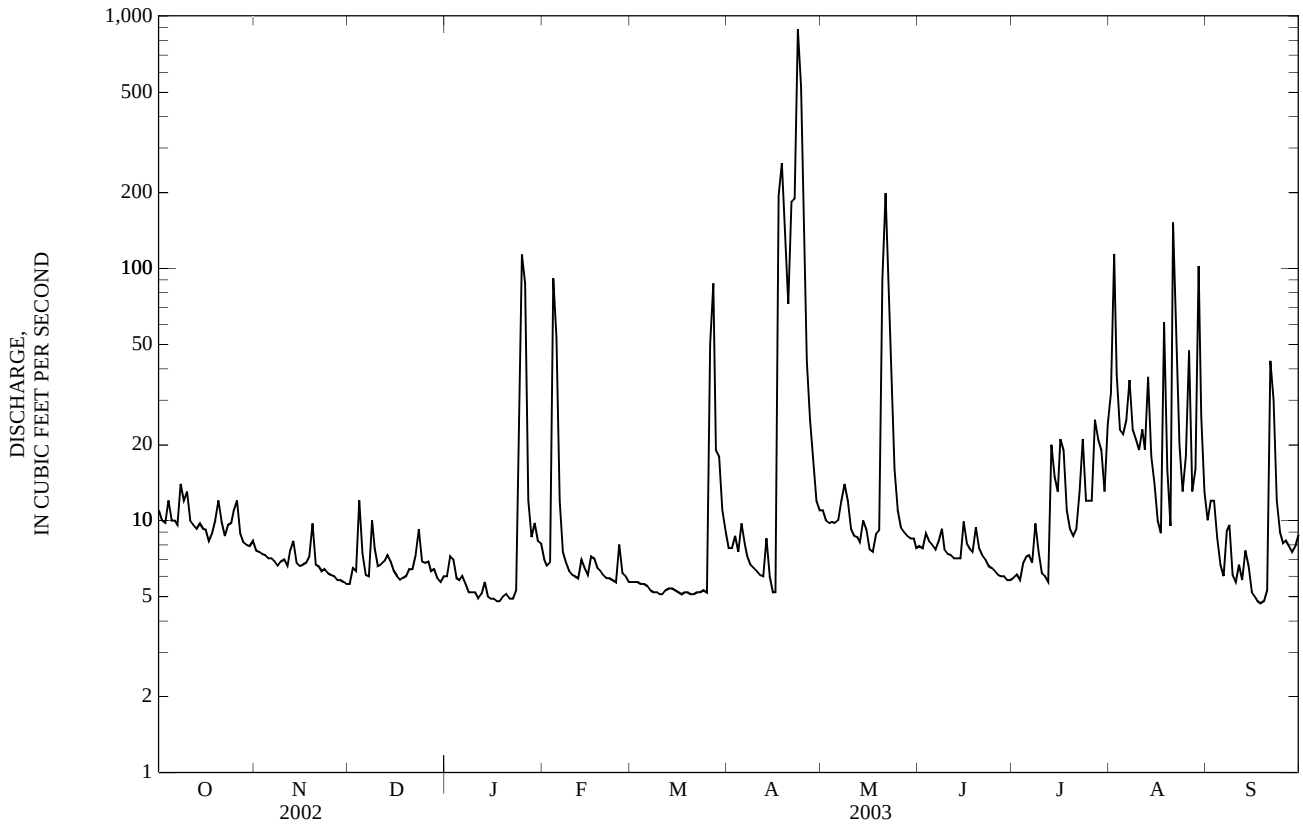
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	38.0	59.7	53.6	35.9	22.7	16.9	26.0	33.8	19.0	22.1	42.1	59.3
MAX	129	232	263	159	75.3	52.9	93.3	131	60.8	79.2	137	360
(WY)	(1991)	(2000)	(1966)	(1969)	(1989)	(1990)	(2003)	(1966)	(1970)	(1999)	(1970)	(1996)
MIN	4.30	6.83	3.45	5.30	4.75	3.58	5.36	4.85	3.68	4.01	7.47	6.02
(WY)	(1969)	(2003)	(1998)	(1968)	(1965)	(1965)	(1965)	(1994)	(1994)	(1994)	(1994)	(1967)

50047850 RIO DE BAYAMON NR BAYAMON, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	8,323.2		7,151.3			
ANNUAL MEAN	22.8		19.6		35.8	
HIGHEST ANNUAL MEAN					69.5	1999
LOWEST ANNUAL MEAN					10.9	1994
HIGHEST DAILY MEAN	388	Apr 20	884	Apr 23	8,640	Sep 10, 1996
LOWEST DAILY MEAN	5.6	Nov 30	4.7	Sep 18	2.2	Apr 19, 1965
ANNUAL SEVEN-DAY MINIMUM	5.8	Nov 25	4.9	Jan 15	2.4	Apr 14, 1965
MAXIMUM PEAK FLOW			4,470	Apr 23	65,000	Sep 10, 1996
MAXIMUM PEAK STAGE			11.06	Apr 23	29.07	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	16,510		14,180		25,930	
ANNUAL RUNOFF (CFSM)	0.546		0.469		0.856	
ANNUAL RUNOFF (INCHES)	7.41		6.36		11.63	
10 PERCENT EXCEEDS	45		24		61	
50 PERCENT EXCEEDS	12		7.7		13	
90 PERCENT EXCEEDS	6.8		5.3		5.4	

e Estimated



50047990 RIO GUAYNABO NEAR BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamón Plaza.

DRAINAGE AREA.--73.2 mi^2 (189.6 km^2).

PERIOD OF RECORD.--Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
OCT													
28...	1230	30	4.9	64	6.9	444	28.7	170	46.5	12.3	2.78	.8	25.0
JAN													
28...	1355	4.8	6.0	75	7.5	494	26.9	180	50.2	12.9	3.42	.9	27.0
APR													
01...	1238	3.9	6.4	--	7.7	495	29.0	180	51.7	12.8	3.08	.9	27.7
JUN													
04...	1245	5.8	7.0	--	7.7	472	28.1	--	--	--	--	--	--
SEP													
22...	1315	29	6.8	--	7.5	401	29.2	150	40.4	11.3	3.09	.7	18.5

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
OCT													
28...	166	28.9	<.2	30.5	14.6	--	260	22	.80	.36	.61	.700	.09
JAN													
28...	169	34.9	.15	26.6	25.6	<.0	282	<10	.70	.36	1.03	1.10	.07
APR													
01...	172	33.0	.15	30.0	19.5	<.1	281	<10	.40	.08	.67	.700	.03
JUN													
04...	166	--	--	--	--	--	--	<10	--	--	--	--	--
SEP													
22...	158	25.3	<.2	23.7	18.6	--	236	19	.40	.10	.95	.980	.03

Date	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
OCT													
28...	.44	.24	1.5	6.6	20	E800	200	--	--	--	--	--	--
JAN													
28...	.34	.20	1.8	8.0	E10	1,700	--	27,000	E2	108	53	<.2	<.8
APR													
01...	.32	.18	1.1	4.9	<10	320	--	4,100	<2	94.9	50	<.2	<.8
JUN													
04...	--	--	--	--	<10	2,900	--	--	--	--	--	--	--
SEP													
22...	.30	.14	1.4	6.1	20	6,000	--	E120,000	--	--	--	--	--

50047990 RIO GUAYNABO NEAR BAYAMON, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
OCT											
28...	--	--	--	--	--	--	--	--	--	--	--
JAN											
28...	<10	<.01	230	<1	135	<.02	<3	<.3	<25	<.10	<16
APR											
01...	<10	<.01	200	<1	169	<.02	<3	<.3	<25	<.10	<16
JUN											
04...	--	--	--	--	--	--	--	--	--	--	--
SEP											
22...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 mi (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi^2 (186.2 km^2).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
28...	0955	38	120	6.2	77	7.1	423	26.9	160	44.1	12.9	2.38	.8
JAN													
28...	1130	18	17	6.1	73	7.4	431	24.4	160	43.4	13.0	2.83	.8
APR													
01...	1100	--	13	5.5	--	7.5	450	27.0	170	45.7	13.6	2.60	.8
JUN													
04...	1430	--	13	8.1	--	7.8	462	29.8	--	--	--	--	--
SEP													
22...	1520	86	170	7.0	--	7.5	310	29.5	120	29.8	10.4	2.82	.6

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
28...	22.6	161	27.6	<.2	28.7	13.3	--	248	--	134	.80	.13	.58
JAN													
28...	23.4	150	27.9	.13	25.7	20.6	<.0	247	12.3	21	.50	.22	1.04
APR													
01...	22.6	161	28.1	.13	26.9	17.3	<.1	253	--	13	.30	.12	.44
JUN													
04...	--	165	--	--	--	--	--	--	--	17	--	--	--
SEP													
22...	13.8	110	18.8	<.2	21.3	12.3	--	175	40.5	52	.70	.09	.76

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
28...	.660	.08	.67	.28	1.5	6.5	<10	2,100	E1,820	--	--	--	--
JAN													
28...	1.10	.06	.28	.11	1.6	7.1	E10	2,100	--	63,000	E1	74.1	37
APR													
01...	.470	.03	.18	.08	.77	3.4	<10	2,900	--	E17,000	<2	68.8	38
JUN													
04...	--	--	--	--	--	--	<10	E1,500	--	--	--	--	--
SEP													
22...	.800	.04	.61	.17	1.5	6.6	<10	E18,000	--	E140,000	--	--	--

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
28...	<.2	E.6	<10	<.01	700	M	159	<.02	<3	<.3	<25	<.10	<16
APR													
01...	<.2	E.5	<10	<.01	560	M	256	<.02	<3	<.3	<25	<.10	<16
JUN													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
22...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
01...	1100	<.01	E.02	<.01	<.01	<.02	<.1	<.01	E.01	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
01...	<.01	<.01	<.009	<.01	<.014	<.10	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
01...	<.1	<.02	<.02	<1	<.02

< -- Less than
E -- Estimated value

50048680 LAGO LAS CURIAS AT DAMSITE NEAR RIO PIEDRAS, PR

LOCATION.--Lat 18°20'40", long 66°03'03", Hydrologic Unit 21010005, at Lago Las Curias Dam on Río Piedras, 4.15 mi (6.67 km) south of University of Puerto Rico Tower, 1.6 mi (2.57 km) northwest from Escuela José F. Díaz and 0.8 mi (1.28 km) north of Escuela Cupey Alto.

DRAINAGE AREA.--0.97 mi^2 (2.51 km^2).

PERIOD OF RECORD.--April 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Las Curias was completed in 1946. The reservoir has a capacity of 1,135 acre-ft (1.40 hm^3) at spillway crest elevation 315.78 ft (96.25 m) for water supply. The dam is earthfill and has a crest elevation of 327.3 ft (99.75 m). Masonry parapet walls continous from abutment on each side of the 25 ft (7.62 m) wide crest. The dam is about 82.0 ft (25.0 m) high and 984.2 ft (300.0 m) long. The morning-glory inlet conduit spillway in located along the left abutment of the dam and has an uncontrolled capacity of about 5,000 ft^3/s (141.6 m^3/s) at reservoir elevation 321.5 ft (98.0 m). This dam is operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 317.16 ft (96.67 m), August 21, 2003; minimum elevation, 313.04 ft (95.41 m), October 5, 1998.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 317.16 ft (96.67 m), August 21; minimum elevation, 315.47 ft (96.16 m), March 26.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

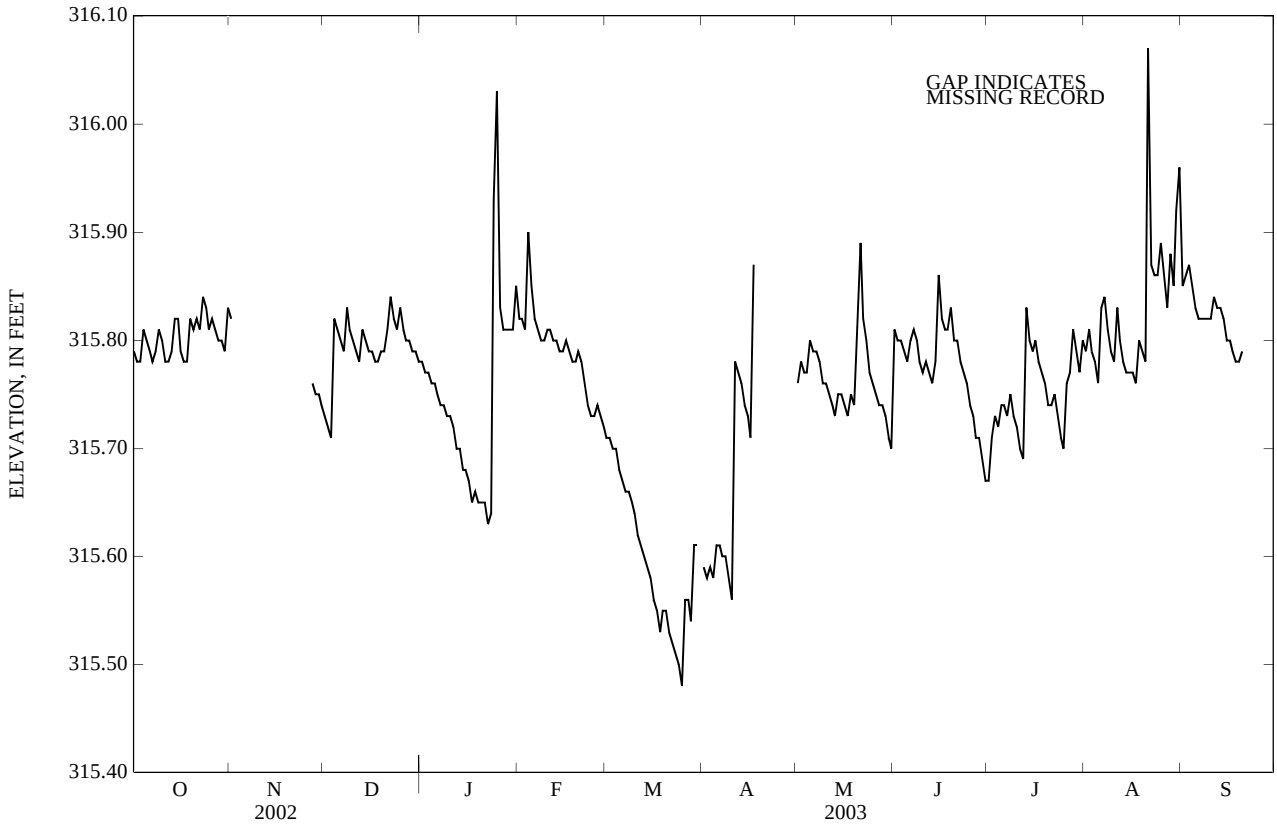
Elevation	Contents	Elevation	Contents
284.7	154	313.0	677
298.2	462	314.3	1,078
307.1	770	317.5	1,232

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	315.79	315.82	315.73	315.78	315.82	315.71	315.59	315.76	315.81	315.67	315.79	315.85
2	315.78	A	315.72	315.77	315.82	315.71	315.58	315.78	315.80	315.71	315.81	315.86
3	315.78	A	315.71	315.77	315.81	315.70	315.59	315.77	315.80	315.73	315.79	315.87
4	315.81	A	315.82	315.76	315.90	315.70	315.58	315.77	315.79	315.72	315.78	315.85
5	315.80	A	315.81	315.76	315.85	315.68	315.61	315.80	315.78	315.74	315.76	315.83
6	315.79	A	315.80	315.75	315.82	315.67	315.61	315.79	315.80	315.74	315.83	315.82
7	315.78	A	315.79	315.74	315.81	315.66	315.60	315.79	315.81	315.73	315.84	315.82
8	315.79	A	315.83	315.74	315.80	315.66	315.60	315.78	315.80	315.75	315.81	315.82
9	315.81	A	315.81	315.73	315.80	315.65	315.58	315.76	315.78	315.73	315.79	315.82
10	315.80	A	315.80	315.73	315.81	315.64	315.56	315.76	315.77	315.72	315.78	315.82
11	315.78	A	315.79	315.72	315.81	315.62	315.78	315.75	315.78	315.70	315.83	315.84
12	315.78	A	315.78	315.70	315.80	315.61	315.77	315.74	315.77	315.69	315.80	315.83
13	315.79	A	315.81	315.70	315.80	315.60	315.76	315.73	315.76	315.83	315.78	315.83
14	315.82	A	315.80	315.68	315.79	315.59	315.74	315.75	315.78	315.80	315.77	315.82
15	315.82	A	315.79	315.68	315.79	315.58	315.73	315.75	315.86	315.79	315.77	315.80
16	315.79	A	315.79	315.67	315.80	315.56	315.71	315.74	315.82	315.80	315.77	315.80
17	315.78	A	315.78	315.65	315.79	315.55	315.87	315.73	315.81	315.78	315.76	315.79
18	315.78	A	315.78	315.66	315.78	315.53	A	315.75	315.81	315.77	315.80	315.78
19	315.82	A	315.79	315.65	315.78	315.55	A	315.74	315.83	315.76	315.79	315.78
20	315.81	A	315.79	315.65	315.79	315.55	A	315.82	315.80	315.74	315.78	315.79
21	315.82	A	315.81	315.65	315.78	315.53	A	315.89	315.80	315.74	316.07	A
22	315.81	A	315.84	315.63	315.76	315.52	A	315.82	315.78	315.75	315.87	315.83
23	315.84	A	315.82	315.64	315.74	315.51	A	315.80	315.77	315.73	315.86	A
24	315.83	A	315.81	315.93	315.73	315.50	A	315.77	315.76	315.71	315.86	A
25	315.81	A	315.83	316.03	315.73	315.48	A	315.76	315.74	315.70	315.89	A
26	315.82	A	315.81	315.83	315.74	315.56	A	315.75	315.73	315.76	315.86	A
27	315.81	315.76	315.80	315.81	315.73	315.56	A	315.74	315.71	315.77	315.83	A
28	315.80	315.75	315.80	315.81	315.72	315.54	A	315.74	315.71	315.81	315.88	A
29	315.80	315.75	315.79	315.81	---	315.61	A	315.73	315.69	315.79	315.85	A
30	315.79	315.74	315.79	315.81	---	315.61	A	315.71	315.67	315.77	315.92	A
31	315.83		315.78	315.85	---	A	---	315.70	---	315.80	315.96	---
MAX	315.84	---	315.84	316.03	315.90	---	---	315.89	315.86	315.83	316.07	---
MIN	315.78	---	315.71	315.63	315.72	---	---	315.70	315.67	315.67	315.76	---

A No gage-height record

50048680 LAGO LAS CURIAS AT DAMSITE NEAR RIO PIEDRAS, PR—Continued



50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR

LOCATION.--Lat 18°20'44", long 66°03'15", Hydrologic Unit 21010005, at 0.2 miles (0.3 km) from Lago Las Curias Dam on Río Piedras, 4.1 mi (6.6 km) south of University of Puerto Rico Tower, 2.6 mi (4.1 km) northwest from Lago Loíza spillway crest and 0.8 mi (1.4 km) north of Escuela Cupey Alto.

DRAINAGE AREA.--1.08 mi^2 (2.79 km^2).

PERIOD OF RECORD.--August 1997 to current year.

GAGE.--Water stage recorder. Elevation of gage is 262.47 ft (80.0 km), from topographic map.

REMARKS.--Records poor. Flow completly regulated by Lago Las Curias Dam, 0.20 mi (0.32 km) from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.31	0.95	0.22	0.32	1.4	0.21	0.15	0.52	0.46	0.39	e0.80	8.5
2	0.30	0.76	0.25	0.34	0.67	0.24	0.14	0.39	1.0	0.51	e0.70	2.2
3	0.28	0.57	0.26	0.48	0.54	0.22	0.15	0.40	0.74	0.51	e0.60	1.1
4	0.68	0.47	0.72	0.33	11	0.25	0.13	0.37	0.51	0.58	e0.50	1.9
5	0.74	0.38	0.76	0.24	5.9	0.26	0.13	0.45	0.31	0.58	e2.5	1.8
6	0.33	0.31	0.33	0.34	1.9	0.27	0.12	0.64	0.53	0.59	e3.0	1.5
7	0.24	0.28	0.34	0.28	0.86	0.25	0.11	0.58	0.65	0.77	e3.5	2.3
8	0.30	0.31	0.82	0.24	0.54	0.27	0.11	0.73	0.62	0.64	e3.0	1.6
9	0.61	0.35	0.93	0.26	0.46	0.25	0.11	0.58	0.49	0.63	e2.0	1.5
10	0.78	0.34	0.44	0.31	0.59	0.25	0.11	0.58	0.44	0.66	e1.5	1.4
11	0.53	0.32	0.34	0.28	0.49	0.24	0.20	0.58	0.40	0.57	e2.0	2.8
12	0.30	0.53	0.37	0.27	0.69	0.24	0.33	0.59	0.46	0.55	e2.5	1.8
13	0.25	0.57	0.58	0.26	0.41	0.23	0.25	0.61	0.43	3.3	e3.0	1.3
14	0.46	0.56	0.42	0.26	0.39	0.23	0.27	0.59	0.52	1.9	e3.0	1.7
15	0.62	0.35	0.35	0.25	0.50	0.23	0.28	0.60	7.2	0.77	e2.5	2.2
16	0.79	0.31	0.32	0.26	0.46	0.24	0.36	0.64	2.3	0.79	e2.0	1.6
17	0.53	0.33	0.23	0.27	0.68	0.24	5.8	0.61	0.61	0.88	e2.0	1.5
18	0.35	1.3	0.22	0.28	0.40	0.23	12	0.66	0.66	0.59	e2.8	1.1
19	0.40	1.4	0.23	0.27	0.57	0.26	4.5	0.66	1.2	0.62	e4.0	1.1
20	0.98	0.39	0.41	0.27	0.46	0.24	4.2	1.1	1.0	0.61	e5.0	1.1
21	0.58	0.48	0.59	0.25	0.52	0.23	11	6.4	0.68	0.62	e7.0	16
22	0.53	0.45	2.4	0.26	1.0	0.21	6.2	2.7	0.74	e0.78	e13	5.3
23	1.8	0.28	1.2	0.27	0.58	0.20	5.8	0.71	0.48	e0.72	6.7	1.9
24	1.5	0.25	0.62	4.1	0.24	0.19	4.2	0.71	0.42	e0.66	4.0	1.4
25	1.1	0.25	0.71	17	0.23	0.18	1.1	0.41	0.42	e0.58	7.5	1.1
26	0.90	0.28	0.71	11	0.24	0.21	1.4	0.28	0.32	e0.68	8.6	1.1
27	0.75	0.30	0.34	1.3	0.27	0.19	0.67	0.25	0.38	e3.5	3.1	0.84
28	0.55	0.22	0.25	0.41	0.24	0.15	0.50	0.31	0.39	e2.5	5.4	0.74
29	0.43	0.22	0.29	0.49	---	0.18	0.38	0.40	0.43	e2.1	4.7	1.4
30	0.40	0.23	0.30	0.56	---	0.15	0.35	0.40	0.39	e2.0	17	2.1
31	1.3	---	0.32	3.9	---	0.15	---	0.31	---	e1.5	24	---
TOTAL	19.62	13.74	16.27	45.35	32.23	6.89	61.05	24.76	25.18	32.08	147.90	71.88
MEAN	0.63	0.46	0.52	1.46	1.15	0.22	2.04	0.80	0.84	1.03	4.77	2.40
MAX	1.8	1.4	2.4	17	11	0.27	12	6.4	7.2	3.5	24	16
MIN	0.24	0.22	0.22	0.24	0.23	0.15	0.11	0.25	0.31	0.39	0.50	0.74
AC-FT	39	27	32	90	64	14	121	49	50	64	293	143
CFSM	0.59	0.42	0.49	1.35	1.07	0.21	1.88	0.74	0.78	0.96	4.42	2.22
IN.	0.68	0.47	0.56	1.56	1.11	0.24	2.10	0.85	0.87	1.10	5.09	2.48

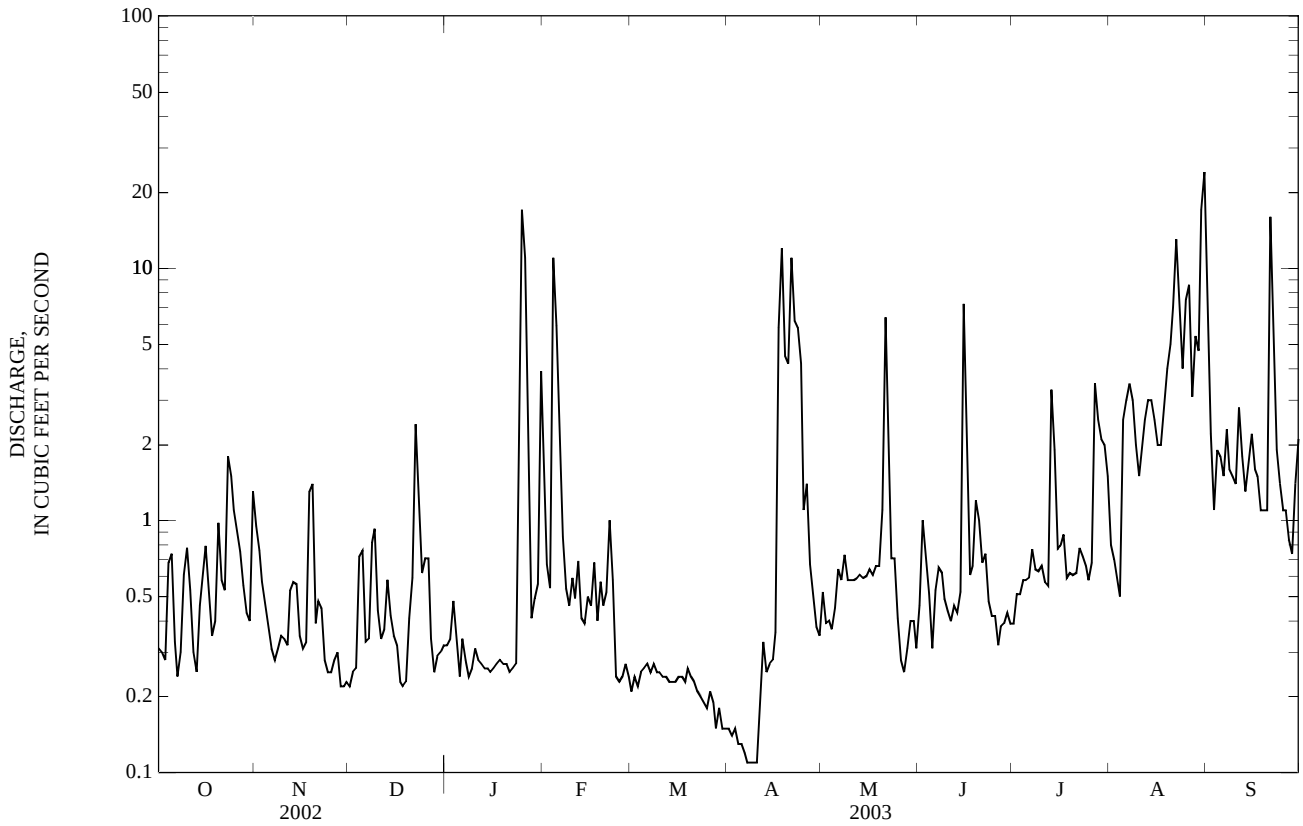
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

MEAN	3.71	5.35	4.12	2.21	1.61	0.82	1.76	1.52	1.33	1.39	3.28	3.29
MAX	5.90	11.4	10.2	4.63	2.51	2.52	4.11	4.03	3.64	3.51	7.06	12.2
(WY)	(1999)	(2000)	(1999)	(1999)	(1999)	(1999)	(2002)	(2002)	(1999)	(1999)	(1998)	(1998)
MIN	0.63	0.46	0.51	0.83	1.15	0.22	0.63	0.29	0.50	0.33	0.73	0.70
(WY)	(2003)	(2003)	(1998)	(1998)	(2003)	(2003)	(2000)	(1998)	(2002)	(2000)	(2002)	(2001)

50048690 QUEBRADA LAS CURIAS BELOW LAS CURIAS DAM, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	508.87		496.95			
ANNUAL MEAN	1.39		1.36		2.57	
HIGHEST ANNUAL MEAN					3.95	1999
LOWEST ANNUAL MEAN					1.36	2003
HIGHEST DAILY MEAN	29	May 10	24	Aug 31	139	Nov 8, 2001
LOWEST DAILY MEAN	0.18	Sep 8	0.11	Apr 7	0.11	Apr 7, 2003
ANNUAL SEVEN-DAY MINIMUM	0.22	Sep 4	0.12	Apr 4	0.12	Apr 4, 2003
MAXIMUM PEAK FLOW			136	Aug 31	431	Aug 11, 1998
MAXIMUM PEAK STAGE			9.68	Aug 31	11.70	Aug 11, 1998
ANNUAL RUNOFF (AC-FT)	1,010		986		1,860	
ANNUAL RUNOFF (CFSM)	1.29		1.26		2.38	
ANNUAL RUNOFF (INCHES)	17.53		17.12		32.29	
10 PERCENT EXCEEDS	2.4		3.0		5.8	
50 PERCENT EXCEEDS	0.44		0.54		0.69	
90 PERCENT EXCEEDS	0.26		0.24		0.27	

e Estimated



50048770 RIO PIEDRAS AT EL SEÑORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riveras of Señorial Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--7.49 mi^2 (19.4 km^2).

PERIOD OF RECORDS.--March 1988 to current year.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records poor. Low flow is affected by discharges from water treatment plant of PRASA and others dispersed pollution po ints directly to the river. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	8.5	4.8	6.0	7.0	4.8	e3.9	4.5	52	5.6	6.6	42
2	6.1	6.0	5.5	6.2	5.6	5.6	6.7	4.5	7.3	17	22	36
3	7.0	5.8	5.0	6.4	5.6	5.3	9.7	4.5	8.0	6.9	5.2	16
4	15	6.3	57	5.8	105	4.7	5.1	5.4	6.0	4.9	6.6	14
5	6.8	5.6	7.1	5.1	43	5.8	7.0	21	7.9	7.5	5.7	12
6	6.8	5.3	5.6	5.0	11	4.6	4.4	7.2	9.4	6.4	43	10
7	6.1	5.5	5.5	4.9	7.4	4.5	4.3	16	7.2	6.0	64	13
8	18	6.0	21	7.6	6.3	4.7	5.3	8.5	7.1	10	10	14
9	12	6.6	6.6	6.3	6.3	4.5	4.2	5.8	7.2	6.0	6.7	10
10	12	9.0	6.2	4.9	7.9	4.4	4.1	5.4	5.2	4.8	5.6	9.9
11	6.3	6.7	5.8	4.8	6.6	4.3	49	4.5	15	3.9	27	19
12	5.7	16	5.6	5.0	7.9	4.3	6.6	4.3	4.9	4.0	7.2	11
13	6.9	6.3	12	5.0	5.8	4.3	6.2	4.2	4.7	70	6.3	10
14	17	5.7	5.8	5.0	7.6	4.3	4.8	7.8	8.0	8.4	6.8	9.4
15	11	5.5	6.1	5.9	6.3	5.0	5.8	5.3	117	5.6	5.1	8.9
16	6.6	12	5.5	5.1	6.0	4.7	5.2	6.6	10	18	7.8	9.2
17	5.5	7.2	5.6	7.8	7.2	4.6	89	4.3	6.7	5.4	4.6	8.4
18	5.1	20	5.8	10	5.5	4.0	130	8.6	17	4.7	35	7.8
19	9.1	12	6.9	6.4	5.5	7.9	25	4.5	19	4.8	6.3	7.9
20	8.4	6.2	8.3	8.8	7.5	4.2	37	49	5.9	4.5	6.6	14
21	9.3	5.5	21	7.5	6.9	3.9	105	155	19	5.2	563	172
22	7.6	5.3	28	5.5	6.4	3.9	45	22	5.8	12	131	22
23	18	5.1	8.7	7.6	5.1	4.5	113	7.0	5.0	4.7	87	20
24	9.9	5.1	6.1	86	5.1	4.4	28	5.6	4.7	4.4	37	9.6
25	7.0	5.7	16	165	5.3	4.4	11	5.2	4.4	4.6	88	7.8
26	12	6.7	6.2	79	5.1	49	8.2	4.9	4.3	12	65	8.2
27	6.1	5.8	5.3	12	5.0	9.9	5.9	4.8	4.5	18	28	7.2
28	5.5	5.4	5.1	6.6	5.8	6.6	5.1	4.8	5.8	21	57	6.8
29	5.2	7.3	5.6	12	---	70	4.8	4.7	4.5	6.7	41	8.9
30	5.3	4.7	9.1	7.9	---	9.2	4.8	4.8	4.3	5.3	124	10
31	14	---	6.4	25	---	e6.0	---	4.3	---	20	147	---
TOTAL	281.3	218.8	309.2	536.1	315.7	268.3	744.1	405.0	387.8	318.3	1,656.1	555.0
MEAN	9.07	7.29	9.97	17.3	11.3	8.65	24.8	13.1	12.9	10.3	53.4	18.5
MAX	18	20	57	165	105	70	130	155	117	70	563	172
MIN	5.1	4.7	4.8	4.8	5.0	3.9	3.9	4.2	4.3	3.9	4.6	6.8
AC-FT	558	434	613	1,060	626	532	1,480	803	769	631	3,280	1,100
CFSM	1.21	0.97	1.33	2.31	1.51	1.16	3.31	1.74	1.73	1.37	7.13	2.47
IN.	1.40	1.09	1.54	2.66	1.57	1.33	3.70	2.01	1.93	1.58	8.23	2.76

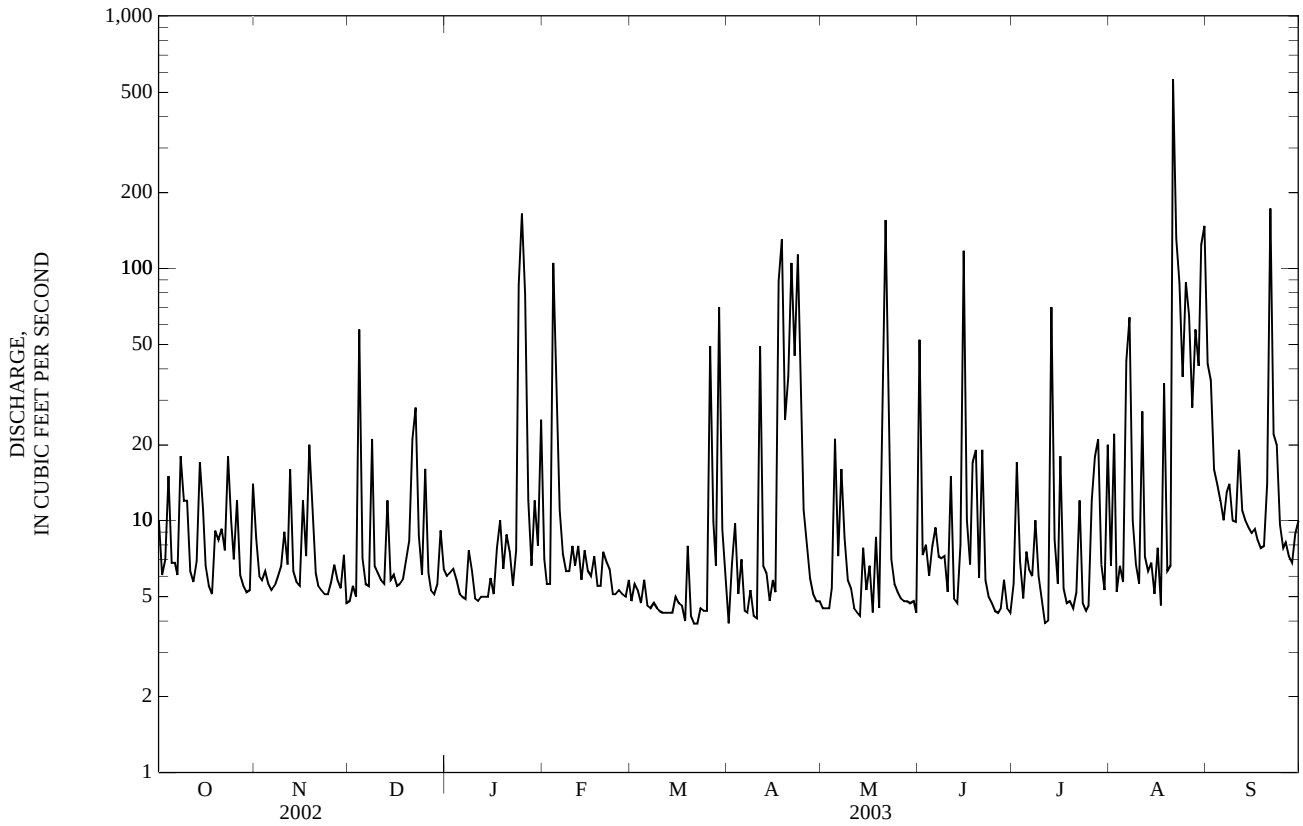
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

MEAN	26.6	29.0	21.5	16.5	13.1	11.0	14.1	15.4	12.9	14.8	24.3	29.0
MAX	57.3	79.5	66.3	29.1	23.6	20.1	34.4	47.2	25.5	38.0	66.9	80.8
(WY)	(1991)	(2000)	(1999)	(2000)	(1991)	(1999)	(2002)	(1992)	(1999)	(1993)	(1992)	(1998)
MIN	8.48	5.93	4.32	6.95	2.70	1.85	2.83	3.38	2.66	4.22	6.60	6.90
(WY)	(1992)	(1996)	(1996)	(1995)	(1996)	(1996)	(1995)	(1994)	(1994)	(1994)	(1990)	(1991)

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	5,523.4		5,995.7			
ANNUAL MEAN	15.1		16.4		18.9	
HIGHEST ANNUAL MEAN					28.6	1999
LOWEST ANNUAL MEAN					7.76	1994
HIGHEST DAILY MEAN	212	May 10	563	Aug 21	1,650	Sep 10, 1996
LOWEST DAILY MEAN	4.7	Nov 30	3.9	Mar 21	0.84	Aug 13, 1995
ANNUAL SEVEN-DAY MINIMUM	5.5	Nov 27	4.4	Mar 8	0.97	Jun 30, 1996
MAXIMUM PEAK FLOW			5,140	Aug 21	5,390	Sep 10, 1996
MAXIMUM PEAK STAGE			15.20	Aug 21	15.46	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	10,960		11,890		13,720	
ANNUAL RUNOFF (CFSM)	2.02		2.19		2.53	
ANNUAL RUNOFF (INCHES)	27.43		29.78		34.35	
10 PERCENT EXCEEDS	26		31		39	
50 PERCENT EXCEEDS	8.4		6.6		8.3	
90 PERCENT EXCEEDS	5.5		4.5		3.2	

e Estimated



50048770 RIO PIEDRAS AT EL SENORIAL, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1988 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1998 and from October 2001 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler and automatic sediment sampler since 1988.

REMARKS.-- Sediment samples were collected by local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L September 18, 1989; Minimum daily mean, 2 mg/L several years.
SEDIMENT LOADS: Maximum daily mean, e165,000 tons (e150,000 tonnes) September 22, 1998; Minimum daily mean, 0.02 ton (0.02 tonne) June 9, 1994.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 7,870 mg/L August 21, 2003; Minimum daily mean, 2 mg/L February 7-9, 2003.
SEDIMENT LOADS: Maximum daily mean, 34,700 tons (31,480 tonnes) August 21, 2003; Minimum daily mean, 0.03 ton (0.03 tonne) Februry 8, 9, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	10	77	4.7	8.5	22	0.86	4.8	9	0.12
2	6.1	17	0.28	6.0	7	0.11	5.5	9	0.13
3	7.0	27	0.58	5.8	7	0.11	5.0	9	0.12
4	15	155	19	6.3	7	0.11	57	2,900	939
5	6.8	18	0.34	5.6	7	0.10	7.1	29	0.57
6	6.8	29	0.60	5.3	6	0.09	5.6	18	0.27
7	6.1	13	0.22	5.5	6	0.09	5.5	13	0.20
8	18	120	15	6.0	11	0.31	21	481	84
9	12	58	4.3	6.6	21	0.64	6.6	172	3.1
10	12	61	5.6	9.0	35	1.8	6.2	127	2.1
11	6.3	9	0.16	6.7	18	0.64	5.8	82	1.3
12	5.7	9	0.13	16	101	13	5.6	37	0.57
13	6.9	8	0.14	6.3	15	0.26	12	78	6.9
14	17	141	24	5.7	12	0.18	5.8	10	0.15
15	11	73	5.1	5.5	11	0.16	6.1	9	0.15
16	6.6	25	0.44	12	75	9.0	5.5	9	0.14
17	5.5	19	0.29	7.2	13	0.30	5.6	9	0.13
18	5.1	14	0.20	20	123	22	5.8	8	0.13
19	9.1	44	4.0	12	37	1.9	6.9	18	0.76
20	8.4	64	1.5	6.2	10	0.17	8.3	25	0.75
21	9.3	52	2.3	5.5	10	0.15	21	485	153
22	7.6	33	0.69	5.3	10	0.14	28	494	124
23	18	219	45	5.1	10	0.14	8.7	25	0.67
24	9.9	43	2.2	5.1	10	0.13	6.1	9	0.16
25	7.0	32	0.61	5.7	10	0.15	16	373	86
26	12	93	7.4	6.7	10	0.17	6.2	13	0.23
27	6.1	14	0.24	5.8	9	0.15	5.3	9	0.13
28	5.5	7	0.10	5.4	9	0.14	5.1	9	0.12
29	5.2	6	0.09	7.3	9	0.18	5.6	8	0.12
30	5.3	6	0.09	4.7	9	0.12	9.1	24	1.6
31	14	110	21	---	---	---	6.4	12	0.22
TOTAL	281.3	---	166.30	218.8	---	53.30	309.2	---	1,406.84

50048770 RIO PIEDRAS AT EL SENORIAL, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	6.0	9	0.15	7.0	7	0.13	4.8	19	0.25
2	6.2	19	0.43	5.6	5	0.07	5.6	20	0.31
3	6.4	9	0.16	5.6	3	0.05	5.3	21	0.30
4	5.8	9	0.14	105	1,710	1,140	4.7	22	0.27
5	5.1	9	0.12	43	279	69	5.8	22	0.35
6	5.0	9	0.12	11	3	0.10	4.6	23	0.29
7	4.9	8	0.11	7.4	2	0.04	4.5	24	0.29
8	7.6	10	0.32	6.3	2	0.03	4.7	25	0.31
9	6.3	12	0.23	6.3	2	0.03	4.5	25	0.31
10	4.9	10	0.13	7.9	6	0.18	4.4	26	0.31
11	4.8	10	0.13	6.6	5	0.09	4.3	27	0.31
12	5.0	10	0.13	7.9	6	0.13	4.3	28	0.32
13	5.0	10	0.13	5.8	7	0.11	4.3	28	0.33
14	5.0	10	0.13	7.6	8	0.17	4.3	29	0.34
15	5.9	9	0.15	6.3	9	0.16	5.0	27	0.37
16	5.1	9	0.13	6.0	10	0.17	4.7	25	0.33
17	7.8	9	0.19	7.2	12	0.23	4.6	24	0.30
18	10	9	0.25	5.5	13	0.19	4.0	22	0.24
19	6.4	9	0.16	5.5	14	0.20	7.9	48	3.8
20	8.8	19	0.55	7.5	24	0.85	4.2	9	0.10
21	7.5	7	0.14	6.9	14	0.25	3.9	7	0.07
22	5.5	7	0.11	6.4	14	0.25	3.9	7	0.07
23	7.6	7	0.15	5.1	15	0.21	4.5	7	0.08
24	86	409	471	5.1	16	0.22	4.4	6	0.08
25	165	989	883	5.3	17	0.24	4.4	6	0.07
26	79	417	184	5.1	17	0.24	49	791	825
27	12	33	1.1	5.0	18	0.24	9.9	14	0.39
28	6.6	6	0.10	5.8	19	0.29	6.6	11	0.19
29	12	41	4.2	---	---	---	70	1,250	1,110
30	7.9	5	0.11	---	---	---	9.2	14	0.41
31	25	43	9.3	---	---	---	e6.0	e8	e0.12
TOTAL	536.1	---	1,557.07	315.7	---	1,213.87	268.3	---	1,945.91
		APRIL			MAY			JUNE	
1	e3.9	e8	e0.08	4.5	9	0.11	52	1,020	839
2	6.7	7	0.13	4.5	9	0.11	7.3	9	0.18
3	9.7	20	1.2	4.5	8	0.10	8.0	28	1.2
4	5.1	7	0.10	5.4	8	0.11	6.0	9	0.15
5	7.0	7	0.13	21	359	110	7.9	8	0.17
6	4.4	7	0.08	7.2	7	0.14	9.4	21	1.6
7	4.3	7	0.08	16	154	21	7.2	8	0.16
8	5.3	6	0.09	8.5	35	2.2	7.1	8	0.15
9	4.2	6	0.07	5.8	7	0.11	7.2	8	0.16
10	4.1	6	0.07	5.4	7	0.10	5.2	8	0.11
11	49	654	296	4.5	7	0.09	15	141	32
12	6.6	10	0.17	4.3	7	0.08	4.9	10	0.13
13	6.2	9	0.16	4.2	7	0.07	4.7	9	0.12
14	4.8	9	0.12	7.8	67	3.3	8.0	9	0.20
15	5.8	9	0.14	5.3	7	0.10	117	2,310	2,590
16	5.2	8	0.12	6.6	7	0.12	10	33	1.3
17	89	1,890	2,150	4.3	6	0.07	6.7	9	0.16
18	130	4,170	4,520	8.6	62	4.9	17	223	52
19	25	288	33	4.5	7	0.08	19	504	175
20	37	998	415	49	1,020	604	5.9	13	0.22
21	105	1,740	1,010	155	2,520	5,200	19	471	193
22	45	336	59	22	217	29	5.8	10	0.16
23	113	1,810	2,660	7.0	23	0.44	5.0	10	0.13
24	28	179	25	5.6	10	0.14	4.7	10	0.12
25	11	17	0.51	5.2	9	0.13	4.4	9	0.11
26	8.2	12	0.28	4.9	8	0.11	4.3	9	0.11
27	5.9	12	0.19	4.8	8	0.10	4.5	9	0.11
28	5.1	11	0.15	4.8	8	0.10	5.8	19	0.47
29	4.8	11	0.14	4.7	8	0.10	4.5	9	0.11
30	4.8	10	0.13	4.8	8	0.10	4.3	9	0.10
31	---	---	---	4.3	8	0.09	---	---	---
TOTAL	744.1	---	11,172.14	405.0	---	5,977.10	387.8	---	3,888.43

50048770 RIO PIEDRAS AT EL SENORIAL, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	5.6	19	0.85	6.6	18	0.33	42	154	23
2	17	377	119	22	378	129	36	265	104
3	6.9	25	0.76	5.2	13	0.18	16	13	0.55
4	4.9	8	0.11	6.6	8	0.14	14	8	0.28
5	7.5	22	0.60	5.7	7	0.12	12	7	0.23
6	6.4	8	0.13	43	906	475	10	6	0.18
7	6.0	7	0.12	64	1,110	1,230	13	12	0.52
8	10	52	3.0	10	15	0.46	14	12	0.63
9	6.0	8	0.14	6.7	10	0.17	10	9	0.25
10	4.8	7	0.09	5.6	9	0.14	9.9	8	0.21
11	3.9	7	0.07	27	724	399	19	29	3.2
12	4.0	7	0.08	7.2	10	0.20	11	10	0.28
13	70	930	657	6.3	9	0.16	10	10	0.27
14	8.4	19	0.43	6.8	9	0.16	9.4	9	0.24
15	5.6	17	0.25	5.1	8	0.12	8.9	9	0.22
16	18	304	73	7.8	16	0.83	9.2	9	0.22
17	5.4	19	0.28	4.6	8	0.09	8.4	9	0.20
18	4.7	18	0.23	35	2,230	952	7.8	8	0.18
19	4.8	17	0.22	6.3	17	0.29	7.9	8	0.17
20	4.5	16	0.19	6.6	13	0.24	14	30	2.1
21	5.2	15	0.20	563	7,870	34,700	172	3,470	6,670
22	12	74	4.6	131	1,170	577	22	53	4.6
23	4.7	16	0.20	87	965	1,060	20	41	6.8
24	4.4	15	0.18	37	111	16	9.6	12	0.32
25	4.6	15	0.18	88	402	188	7.8	10	0.21
26	12	69	6.4	65	97	25	8.2	10	0.21
27	18	241	39	28	19	1.5	7.2	9	0.18
28	21	655	147	57	108	27	6.8	9	0.17
29	6.7	19	0.34	41	71	11	8.9	12	0.32
30	5.3	15	0.22	124	1,130	927	10	10	0.30
31	20	176	40	147	1,830	2,580	---	---	---
TOTAL	318.3	---	1,094.87	1,656.1	---	43,301.13	555.0	---	6,820.04
YEAR	5,995.7	78,597.00							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
DEC 04...	1455	221	79	7,650	4,560
SEP 21...	1500	363	21	25,900	25,400

50048770 RIO PIEDRAS AT EL SENORIAL, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
DEC 04...	1300	183	32	41	56	70	77	81	89	94	98	100	8,140
AUG 21...	1230	560	5	6	6	7	9	10	13	20	88	99	64,800
SEP 21...	1630	1,170	18	19	21	25	30	34	50	77	95	98	18,700

Date	Suspended sediment discharge, tons/d (80155)
DEC 04...	4,020
AUG 21...	97,900
SEP 21...	59,200

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Señorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--8.17 mi^2 (20.9 km^2).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV 04...	1215	5.6	9.4	9.5	121	7.8	427	27.8	160	42.1	13.0	2.10	.9
JAN 27...	1240	13	67	7.6	91	7.6	400	24.2	140	37.6	12.2	3.00	1
MAR 31...	1000	7.9	8.2	7.6	--	7.8	440	24.1	--	--	--	--	--
JUN 03...	1300	8.4	17	7.2	--	7.8	396	28.1	--	--	--	--	--
SEP 23...	1140	9.5	4.6	6.2	--	7.6	437	28.4	160	41.8	13.2	3.60	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV 04...	25.4	156	32.2	<.17	33.1	14.0	--	255	--	<10	.70	.03	--
JAN 27...	26.3	140	33.2	.15	27.0	19.4	.0	243	8.20	58	.70	.13	.96
MAR 31...	--	148	--	--	--	--	<.1	--	--	--	.50	.29	.80
JUN 03...	--	134	--	--	--	--	--	--	--	<10	--	--	--
SEP 23...	25.0	150	32.8	.2	29.2	17.8	--	253	6.50	<10	1.7	1.20	.83

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV 04...	.740	<.01	.67	.10	1.4	6.4	<10	E1,700	E727	--	--	--	--
JAN 27...	.980	.02	.57	.14	1.7	7.4	<10	E12,000	--	E80,000	E1	93.9	45
MAR 31...	.830	.03	.21	.13	1.3	5.9	--	E10,000	--	E98,000	--	--	--
JUN 03...	--	--	--	--	--	--	20	35,000	--	--	--	--	--
SEP 23...	.930	.10	.50	.20	2.6	11.6	10	E95,000	--	500,000	--	--	--

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
27...	<.2	1.0	<10	<.01	2,070	M	132	E.01	<3	<.3	<25	<.10	<16
MAR													
31...	--	--	--	--	--	--	--	--	--	--	--	<.10	<16
JUN													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
23...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAR													
31...	1000	<.01	E.02	<.01	<.01	<.02	<.1	<.01	E.01	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
MAR													
31...	<.01	<.01	<.009	<.01	<.014	<.10	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
MAR					
31...	<.1	<.02	<.02	<1	<.02

< -- Less than
E -- Estimated value

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Piñeiro near Expreso Las Américas (Luis A. Ferré) and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.2 mi^2 (39.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records poor. Mean daily discharge affected by sewage discharges (approximately 2.0 ft^3/s (0.06 m^3/s)), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	e30	e16	38	21	12	e13	14	56	22	32	70
2	37	e20	e18	23	16	13	15	15	39	32	53	70
3	36	e16	e18	16	16	12	44	15	24	20	27	32
4	42	e17	e120	15	e108	12	17	16	19	18	28	34
5	37	e15	e20	14	e220	13	15	25	20	19	28	27
6	38	e16	e16	13	e23	12	12	19	22	27	104	26
7	37	e14	e16	13	19	12	12	24	22	19	66	29
8	65	15	e40	15	17	12	13	19	21	32	34	28
9	106	18	e18	16	21	12	13	57	22	26	30	24
10	51	39	e16	13	24	12	13	17	20	20	27	23
11	31	16	e16	13	18	12	98	15	110	19	56	69
12	34	26	e16	13	18	11	18	15	19	19	31	24
13	28	e16	e28	13	15	10	16	21	19	123	31	27
14	188	e16	e16	13	17	9.8	16	34	21	25	29	22
15	166	e18	e16	13	15	10	21	17	258	24	85	21
16	40	e25	e18	13	16	10	15	16	32	52	28	21
17	32	e18	e18	15	18	9.8	144	17	23	23	25	20
18	28	e36	e16	21	15	9.4	275	19	28	22	60	20
19	30	e20	21	15	15	14	41	13	58	23	27	24
20	49	e17	21	18	17	10	93	72	23	22	31	147
21	34	e16	57	15	17	9.2	272	540	84	24	961	508
22	29	e15	45	12	15	9.6	77	65	20	84	255	42
23	e120	e15	20	14	14	10	415	40	17	23	133	34
24	e45	e15	17	133	19	9.7	53	35	16	23	68	23
25	e30	e16	30	211	16	9.8	27	33	16	24	136	20
26	e26	e20	18	136	14	181	22	32	17	31	100	22
27	e40	e15	16	24	15	20	18	29	17	46	60	19
28	e25	e16	15	18	13	19	17	28	19	37	111	18
29	e20	e25	15	22	---	425	16	26	17	27	89	27
30	e18	e16	40	56	---	24	16	26	18	26	428	24
31	e45	---	22	41	---	e16	---	22	---	56	383	---
TOTAL	1,553	577	779	1,005	772	961.3	1,837	1,336	1,097	988	3,556	1,495
MEAN	50.1	19.2	25.1	32.4	27.6	31.0	61.2	43.1	36.6	31.9	115	49.8
MAX	188	39	120	211	220	425	415	540	258	123	961	508
MIN	18	14	15	12	13	9.2	12	13	16	18	25	18
AC-FT	3,080	1,140	1,550	1,990	1,530	1,910	3,640	2,650	2,180	1,960	7,050	2,970
CFSM	3.30	1.27	1.65	2.13	1.81	2.04	4.03	2.84	2.41	2.10	7.55	3.28
IN.	3.80	1.41	1.91	2.46	1.89	2.35	4.50	3.27	2.68	2.42	8.70	3.66

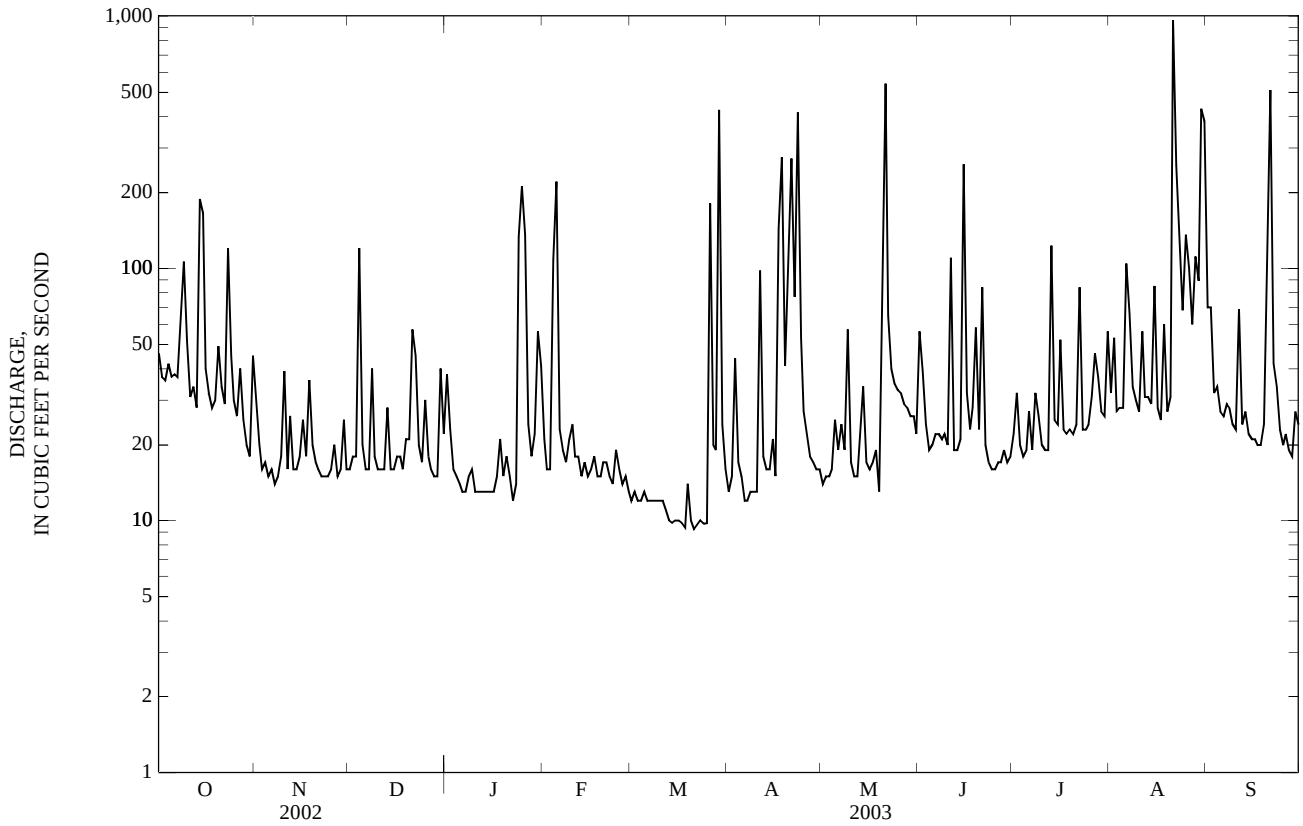
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2003, BY WATER YEAR (WY)

MEAN	68.1	76.4	52.6	43.5	38.9	34.4	51.1	43.8	38.4	44.9	60.5	86.7
MAX	138	235	168	97.4	86.9	78.5	150	97.5	81.9	97.4	115	261
(WY)	(1999)	(1993)	(1993)	(1993)	(1995)	(1972)	(1972)	(1992)	(1995)	(1993)	(2003)	(1996)
MIN	16.6	19.2	18.8	12.9	10.8	11.5	13.6	4.12	19.6	12.8	20.2	26.3
(WY)	(1992)	(2003)	(1992)	(1973)	(1992)	(1994)	(1995)	(1972)	(2000)	(1994)	(1993)	(1972)

50049100 RIO PIEDRAS AT HATO REY, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1972 - 2003	
ANNUAL TOTAL	13,999		15,956.3			
ANNUAL MEAN	38.4		43.7		52.6	
HIGHEST ANNUAL MEAN					84.0	1993
LOWEST ANNUAL MEAN					28.7	1994
HIGHEST DAILY MEAN	444	Apr 20	961	Aug 21	4,550	Sep 10, 1996
LOWEST DAILY MEAN	12	Mar 26	9.2	Mar 21	1.2	Jun 28, 1972
ANNUAL SEVEN-DAY MINIMUM	13	Mar 21	10	Mar 12	1.2	Jul 5, 1972
MAXIMUM PEAK FLOW			7,260	Aug 21	10,500	Sep 10, 1996
MAXIMUM PEAK STAGE			19.15	Aug 21	22.11	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	27,770		31,650		38,090	
ANNUAL RUNOFF (CFSM)	2.52		2.88		3.46	
ANNUAL RUNOFF (INCHES)	34.26		39.05		47.00	
10 PERCENT EXCEEDS	67		84		109	
50 PERCENT EXCEEDS	24		21		23	
90 PERCENT EXCEEDS	16		13		11	

e Estimated



50049100 RIO PIEDRAS AT HATO REY, PR—Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", long 66°04'10", at bridge on Avenida Piñero at Expreso Las Americas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi^2 (39.9 km^2).

PERIOD OF RECORD.--Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
05...	1545	15	4.5	4.2	55	7.1	530	29.3	170	47.3	11.5	3.65	1
JAN													
27...	1630	23	19	5.6	70	7.5	437	26.5	150	43.4	10.8	3.90	1
MAR													
31...	1300	17	7.7	6.2	--	7.7	488	28.5	--	--	--	--	--
JUN													
03...	1030	19	20	5.3	--	7.6	325	26.4	--	--	--	--	--
SEP													
23...	1420	24	9.2	5.8	--	7.5	418	30.1	160	44.3	10.9	3.65	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
05...	31.5	171	41.1	<.17	31.0	14.0	--	282	11.6	<10	2.8	2.10	.75
JAN													
27...	29.1	152	35.0	.15	26.7	18.7	.0	259	16.1	14	2.4	1.40	1.03
MAR													
31...	--	162	--	--	--	--	<.1	--	--	--	.90	.48	.93
JUN													
03...	--	110	--	--	--	--	--	--	--	<10	--	--	--
SEP													
23...	24.0	147	30.9	<.2	25.7	15.6	--	243	16.0	11	.70	.35	.83

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
05...	.880	.13	.70	.34	3.7	16.3	10	E79,000	8,600	--	--	--	--
JAN													
27...	1.10	.07	1.0	.25	3.5	15.5	E20	E110,000	--	E960,000	E1	100	62
MAR													
31...	1.00	.07	.42	.13	1.9	8.4	--	E16,000	--	E190,000	--	--	--
JUN													
03...	--	--	--	--	--	--	20	E15,000	--	--	--	--	--
SEP													
23...	.890	.06	.35	.12	1.6	7.0	20	E11,000	--	76,000	--	--	--

50049100 RIO PIEDRAS AT HATO REY, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
27...	<.2	E.5	<10	<.01	680	<1	82.5	E.01	<3	<.3	35	.20	<16
MAR													
31...	--	--	--	--	--	--	--	--	--	--	--	.18	<16
JUN													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
23...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Caño de Martin Peña, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Trans-parency Secchi disc, inches (00077)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
OCT													
02...	0800	49.0	2.2	31	7.6	12,600	29.8	87	<10	2.3	.73	<.020	<.01
DEC													
18...	0930	--	2.9	--	6.9	19,700	27.4	--	--	--	--	--	--
MAR													
05...	0915	--	1.1	--	7.2	7,000	25.7	71	<10	3.0	.85	<.020	.02
JUN													
12...	0920	--	5.0	--	7.4	5,370	26.8	52	11	--	--	--	--

Date	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L as NO3 (71887)	Organic carbon, water, unfltrd mg/L (00680)	Fecal coli-form, M-FC 0.7u MF col/ 100 mL (31625)	Fecal strep-tococci KF MF, col/ 100 mL (31673)
OCT					
02...	.22	--	7.2	>6,000	--
DEC					
18...	.33	7.6	6.5	--	<100
MAR					
05...	.45	--	8.1	E600	--
JUN					
12...	--	--	7.7	190,000	--

< -- Less than
> -- Greater than
E -- Estimated value

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constitución, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Trans-parency Secchi disc, inches (00077)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
OCT													
01...	0850	29.0	.6	8	6.8	29,500	29.7	170	44	2.8	2.00	<.020	.01
DEC													
18...	0820	38.0	3.8	55	7.7	42,800	25.9	130	35	1.2	.71	.040	.02
MAR													
04...	0855	29.4	2.7	39	7.6	42,100	26.8	140	<10	1.1	1.00	.060	.04
JUN													
10...	0950	--	4.1	--	7.6	53,500	28.4	130	14	--	--	--	--

Date	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L as NO3 (71887)	Organic carbon, water, unfltrd mg/L (00680)	Fecal coli-form, M-FC 0.7u MF col/ 100 mL (31625)	Fecal strep-tococci KF MF, col/ 100 mL (31673)
OCT					
01...	.34	--	7.1	E88,000	--
DEC					
18...	.13	5.5	3.7	E15,000	E500
MAR					
04...	.12	5.1	2.8	26,000	--
JUN					
10...	--	--	16.4	250,000	--

< -- Less than
E -- Estimated value

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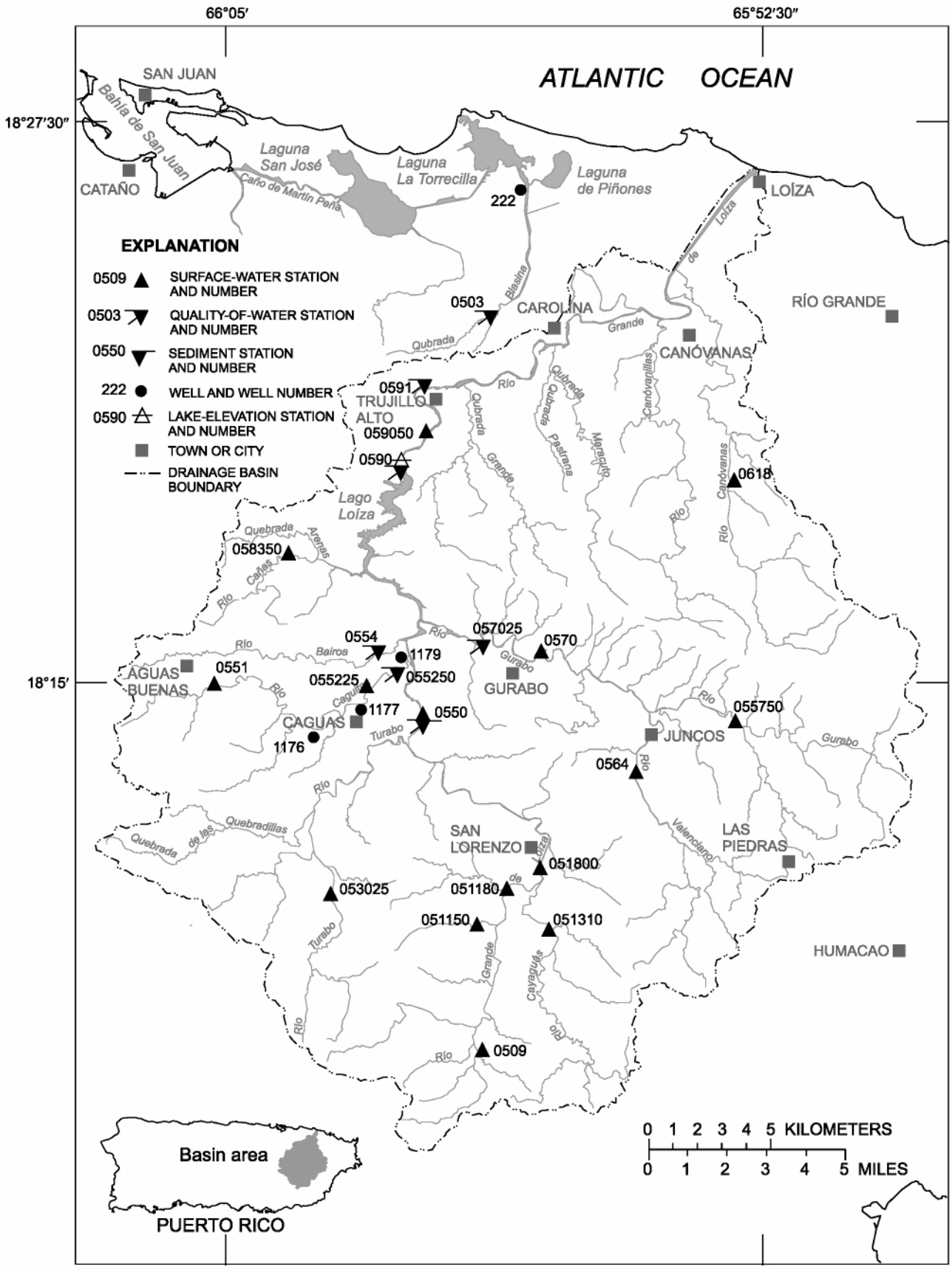


Figure 17. Río Grande de Loíza basin.

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina Plaza.

DRAINAGE AREA.--2.96 mi^2 (7.67 km^2).

PERIOD OF RECORD.--Water years 1973 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
05...	1315	5.2	4.7	5.3	68	7.2	612	28.0	210	65.3	10.7	3.97	1
JAN													
28...	1615	7.3	14	6.2	77	7.5	526	26.6	190	59.2	10.5	3.62	1
APR													
01...	1510	7.4	3.2	6.7	--	7.8	564	27.1	200	62.5	10.4	3.51	1
JUN													
04...	1040	4.1	12	6.6	--	7.8	440	27.4	--	--	--	--	--
SEP													
23...	0945	11	14	6.0	--	7.6	488	27.1	190	59.6	9.15	3.84	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
05...	34.3	221	42.5	<.17	30.7	11.9	--	332	4.70	<10	4.8	4.20	.32
JAN													
28...	30.6	192	40.1	.12	25.6	15.6	<.0	301	5.89	23	1.3	.67	1.14
APR													
01...	33.5	191	45.0	.13	31.1	13.5	<.1	314	6.25	<10	1.8	1.20	1.12
JUN													
04...	--	153	--	--	--	--	--	--	--	<10	--	--	--
SEP													
23...	25.4	176	29.2	<.2	21.5	24.5	--	279	8.06	15	.80	.26	1.12

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
05...	.410	.09	.60	.52	5.2	23.1	20	E11,000	E1,140	--	--	--	--
JAN													
28...	1.30	.16	.63	.17	2.6	11.5	E20	20,000	--	E100,000	E1	86.2	55
APR													
01...	1.40	.28	.60	.23	3.2	14.2	20	E7,500	--	73,000	<2	66.0	61
JUN													
04...	--	--	--	--	--	--	10	4,600	--	--	--	--	--
SEP													
23...	1.20	.08	.54	.14	2.0	8.9	20	E7,300	--	67,000	--	--	--

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
28...	<.2	<.8	<10	<.01	340	M	216	E.02	<3	<.3	26	<.10	<16
APR													
01...	<.2	<.8	<10	<.01	200	<1	51.6	E.01	<3	<.3	<25	.12	<16
JUN													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
23...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Río Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--6.00 mi^2 (15.54 km^2).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

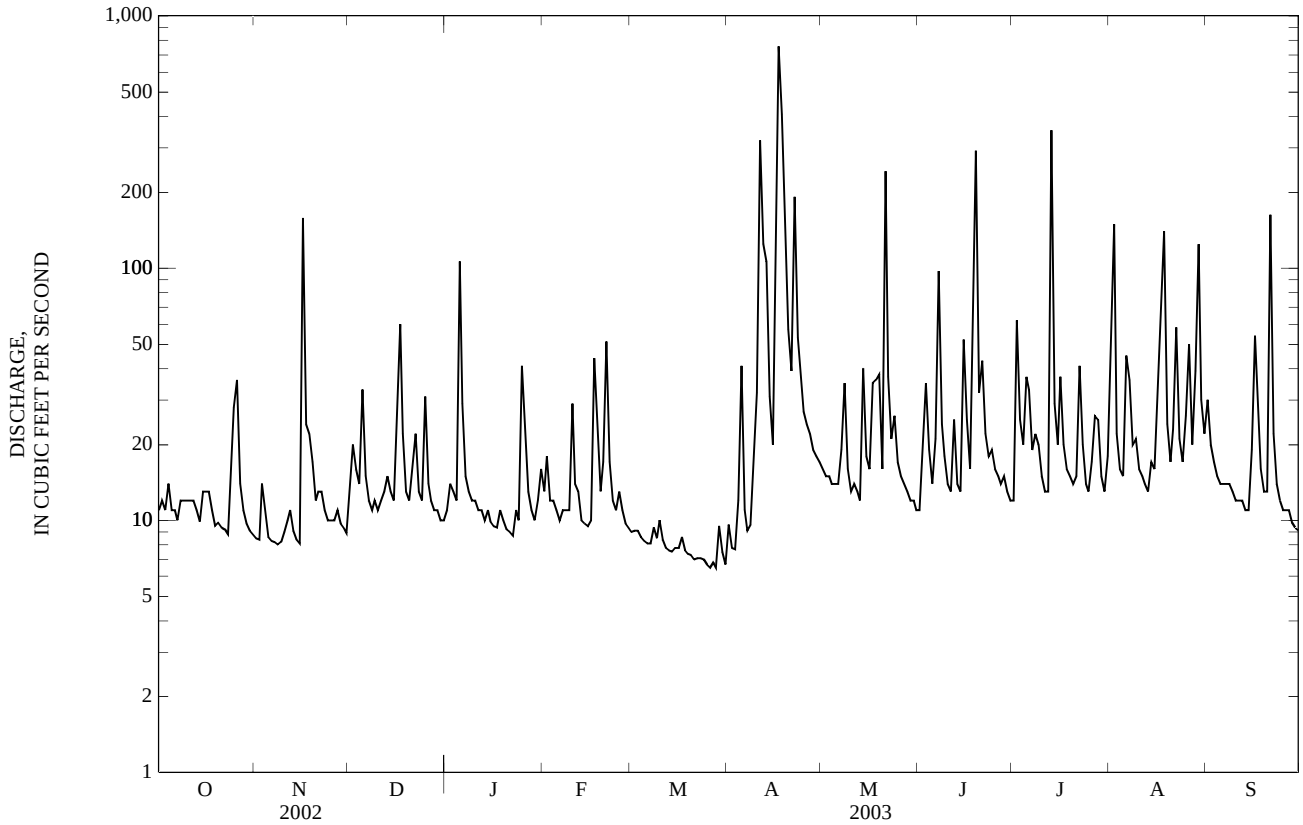
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.5	14	11	13	9.0	9.6	16	11	12	41	30
2	12	8.4	20	14	18	9.1	7.8	15	18	62	149	20
3	11	14	16	13	12	9.1	7.7	15	35	25	22	17
4	14	11	14	12	12	8.6	12	14	19	20	16	15
5	11	8.6	33	106	11	8.3	41	14	14	37	15	14
6	11	8.3	15	29	10	8.1	11	14	21	33	45	14
7	10	8.2	12	15	11	8.1	9.1	19	97	19	36	14
8	12	8.0	11	13	11	9.4	9.6	35	24	22	20	14
9	12	8.2	12	12	11	8.5	18	16	18	20	21	13
10	12	9.0	11	12	29	10	32	13	14	15	16	12
11	12	10	12	11	14	8.4	320	14	13	13	15	12
12	12	11	13	11	13	7.8	125	13	25	13	14	12
13	11	9.1	15	10	10	7.6	106	12	14	351	13	11
14	9.9	8.4	13	11	9.7	7.5	31	40	13	29	17	11
15	13	8.1	12	9.9	9.5	7.8	20	18	52	20	16	19
16	13	158	28	9.5	10	7.8	48	16	25	37	39	54
17	13	24	60	9.4	44	8.6	755	35	16	20	77	29
18	11	22	22	11	22	7.6	408	36	43	16	140	16
19	9.5	17	13	10	13	7.4	123	38	292	15	24	13
20	9.8	12	12	9.2	17	7.3	57	16	32	14	17	13
21	9.4	13	16	9.0	51	7.0	39	242	43	15	23	163
22	9.2	13	22	8.7	17	7.1	191	37	22	41	58	22
23	8.8	11	13	11	12	7.1	53	21	18	20	21	14
24	16	10	12	10	11	7.0	37	26	19	14	17	12
25	28	10	31	41	13	6.7	27	17	16	13	26	11
26	36	10	14	24	11	6.5	24	15	15	17	50	11
27	14	11	12	13	9.7	6.8	22	14	14	26	20	11
28	11	9.7	11	11	9.3	6.5	19	13	15	25	39	9.8
29	9.7	9.3	11	10	---	9.5	18	12	13	15	124	9.3
30	9.1	8.9	10	12	---	7.5	17	12	12	13	30	9.1
31	8.8	---	10	16	---	6.7	---	11	---	18	22	---
TOTAL	390.2	477.7	520	504.7	434.2	244.4	2,597.8	829	983	1,010	1,183	625.2
MEAN	12.6	15.9	16.8	16.3	15.5	7.88	86.6	26.7	32.8	32.6	38.2	20.8
MAX	36	158	60	106	51	10	755	242	292	351	149	163
MIN	8.8	8.0	10	8.7	9.3	6.5	7.7	11	11	12	13	9.1
AC-FT	774	948	1,030	1,000	861	485	5,150	1,640	1,950	2,000	2,350	1,240
CFSM	2.10	2.65	2.80	2.71	2.58	1.31	14.4	4.46	5.46	5.43	6.36	3.47
IN.	2.42	2.96	3.22	3.13	2.69	1.52	16.11	5.14	6.09	6.26	7.33	3.88

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY)

MEAN	40.3	44.8	26.4	20.6	18.3	14.7	17.8	30.2	35.8	33.6	36.5	57.2
MAX	123	122	59.5	56.1	38.0	53.6	86.6	77.5	122	92.3	90.0	351
(WY)	(1986)	(1988)	(1999)	(1992)	(1982)	(1998)	(2003)	(1985)	(1979)	(1993)	(1979)	(1998)
MIN	12.6	8.34	6.65	8.16	6.36	5.07	4.64	7.20	6.79	12.2	9.30	11.8
(WY)	(2003)	(1990)	(1990)	(1990)	(1979)	(1979)	(1979)	(1999)	(2001)	(2000)	(1991)	(1981)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003	
ANNUAL TOTAL	9,614.8		9,799.2			
ANNUAL MEAN	26.3		26.8		31.4	
HIGHEST ANNUAL MEAN					62.7	1998
LOWEST ANNUAL MEAN					14.5	1990
HIGHEST DAILY MEAN	779	May 30	755	Apr 17	4,690	Sep 22, 1998
LOWEST DAILY MEAN	6.7	May 22	6.5	Mar 26	3.1	May 7, 1979
ANNUAL SEVEN-DAY MINIMUM	7.5	May 16	6.8	Mar 22	3.6	May 1, 1979
MAXIMUM PEAK FLOW			4,430	Jul 13	45,000	Sep 21, 1998
MAXIMUM PEAK STAGE			10.48	Jul 13	26.37	Sep 21, 1998
INSTANTANEOUS LOW FLOW			2.1	Mar 31	2.1	Mar 31, 2003
ANNUAL RUNOFF (AC-FT)	19,070		19,440		22,720	
ANNUAL RUNOFF (CFSM)	4.39		4.47		5.23	
ANNUAL RUNOFF (INCHES)	59.61		60.76		71.01	
10 PERCENT EXCEEDS	33		40		50	
50 PERCENT EXCEEDS	12		13		15	
90 PERCENT EXCEEDS	8.3		8.7		7.2	

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR—Continued



50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on right bank 50 ft upstream from bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loíza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi^2 (9.69 km^2).

PERIOD OF RECORD.--January 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.0	1.0	2.2	1.6	0.79	e1.3	1.1	0.91	2.2	5.1	5.0
2	1.5	1.0	1.0	2.4	3.5	0.76	1.1	1.1	1.0	3.0	9.4	4.0
3	1.7	25	1.2	1.8	1.7	0.66	1.1	1.0	3.6	6.0	3.7	3.5
4	1.6	2.1	1.5	1.5	2.2	0.78	1.0	1.0	1.6	2.6	2.7	2.8
5	1.4	1.3	1.4	58	2.1	0.62	7.8	0.99	1.3	1.9	2.3	2.9
6	1.9	1.2	1.3	6.8	1.6	0.59	2.4	1.0	3.6	2.8	22	2.8
7	1.8	1.1	1.0	1.8	6.7	0.57	1.3	1.0	71	2.0	8.4	2.7
8	1.5	1.1	1.0	1.4	2.0	0.58	1.2	1.5	9.5	1.8	3.5	2.6
9	1.7	1.1	1.3	1.3	2.2	0.59	3.8	1.2	4.4	2.6	2.6	2.5
10	1.5	1.1	1.2	1.3	2.0	0.58	21	1.0	3.4	2.8	2.3	2.4
11	3.5	1.4	1.2	1.2	2.0	0.57	173	0.90	3.5	2.6	15	2.3
12	4.9	1.2	1.3	1.1	2.9	0.54	95	0.88	3.3	2.4	3.7	2.5
13	1.7	1.1	1.1	1.1	1.7	0.53	9.2	0.95	3.0	30	2.6	2.5
14	1.5	1.0	1.1	1.0	1.4	0.54	1.8	2.4	2.7	5.8	2.3	2.6
15	1.8	1.0	1.1	1.0	1.3	0.62	1.1	2.6	2.7	3.9	3.4	2.9
16	1.8	1.3	1.2	1.0	1.6	0.63	2.1	2.1	3.6	14	3.5	3.9
17	1.9	6.2	18	1.0	3.8	0.92	335	1.4	2.9	4.6	8.6	3.2
18	1.8	2.2	4.9	1.1	2.5	0.62	307	13	3.0	3.6	8.1	3.1
19	1.7	1.6	1.8	1.1	2.0	1.6	160	4.0	28	3.3	3.9	2.6
20	1.5	1.7	1.6	1.0	2.2	1.5	76	2.3	2.7	3.0	2.6	2.5
21	1.3	1.8	1.7	0.99	2.0	0.75	67	91	4.6	2.8	21	67
22	2.1	1.8	1.9	0.90	1.6	0.64	185	12	2.5	21	57	43
23	1.4	1.7	1.8	1.7	1.2	0.62	51	3.6	3.0	6.4	6.7	19
24	1.3	1.5	1.5	2.0	1.0	0.77	17	2.7	3.2	3.6	4.4	14
25	1.4	1.3	8.2	83	1.1	0.57	7.9	1.7	2.6	2.9	13	11
26	1.7	1.4	2.3	16	1.0	0.46	4.0	1.5	2.5	2.8	15	8.8
27	1.5	1.3	1.9	1.9	0.94	0.62	2.5	1.3	2.5	3.9	6.6	7.3
28	1.2	1.2	1.5	1.4	0.87	0.84	1.8	1.2	2.8	23	4.5	5.7
29	1.2	1.1	1.4	1.2	---	0.59	1.5	1.2	2.3	5.4	18	4.5
30	1.1	1.1	1.3	1.2	---	e0.81	1.2	0.99	2.1	3.4	6.7	4.6
31	1.0	---	1.4	3.9	---	e0.91	---	1.0	---	4.6	4.5	---
TOTAL	53.4	68.9	70.1	203.29	56.71	22.17	1,541.1	159.61	183.81	180.7	273.1	244.2
MEAN	1.72	2.30	2.26	6.56	2.03	0.72	51.4	5.15	6.13	5.83	8.81	8.14
MAX	4.9	25	18	83	6.7	1.6	335	91	71	30	57	67
MIN	1.0	1.0	1.0	0.90	0.87	0.46	1.0	0.88	0.91	1.8	2.3	2.3
AC-FT	106	137	139	403	112	44	3,060	317	365	358	542	484
CFSM	0.46	0.61	0.60	1.75	0.54	0.19	13.7	1.38	1.64	1.56	2.36	2.18
IN.	0.53	0.69	0.70	2.02	0.56	0.22	15.33	1.59	1.83	1.80	2.72	2.43

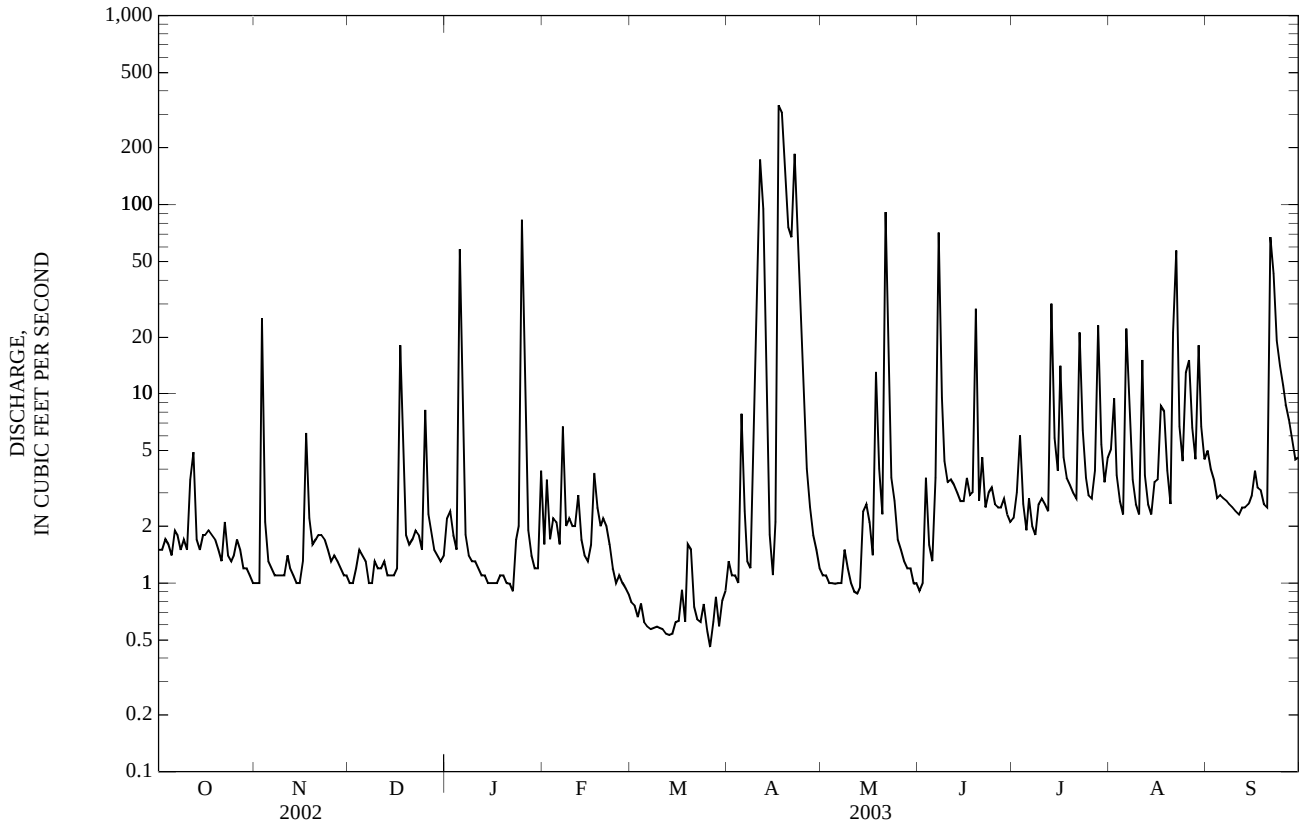
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2003, BY WATER YEAR (WY)

MEAN	8.92	11.8	5.69	4.87	3.28	3.09	5.05	5.33	5.55	5.08	7.36	15.3
MAX	36.2	33.4	22.8	23.4	10.3	17.4	51.4	35.8	17.5	20.5	14.5	76.5
(WY)	(1986)	(1988)	(1988)	(1992)	(1984)	(1989)	(2003)	(1985)	(1996)	(1993)	(1996)	(1996)
MIN	1.72	2.30	1.17	1.16	1.23	0.72	0.66	0.86	0.75	0.99	1.51	1.39
(WY)	(2003)	(2003)	(1990)	(1990)	(1990)	(2003)	(1995)	(1995)	(2001)	(2001)	(1994)	(2001)

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1984 - 2003	
ANNUAL TOTAL	1,477.96		3,057.09			
ANNUAL MEAN	4.05		8.38		6.77	
HIGHEST ANNUAL MEAN					12.4	1996
LOWEST ANNUAL MEAN					2.67	2001
HIGHEST DAILY MEAN	173	Aug 31	335	Apr 17	1,750	Sep 10, 1996
LOWEST DAILY MEAN	0.64	Apr 14	0.46	Mar 26	0.25	Jul 22, 2001
ANNUAL SEVEN-DAY MINIMUM	0.77	Mar 31	0.56	Mar 8	0.28	Jul 17, 2001
MAXIMUM PEAK FLOW			1,420	Apr 22	15,000	Sep 10, 1996
MAXIMUM PEAK STAGE			10.47	Apr 22	20.87	Sep 10, 1996
INSTANTANEOUS LOW FLOW			0.43	Mar 26	0.23	Jul 21, 2001
ANNUAL RUNOFF (AC-FT)	2,930		6,060		4,910	
ANNUAL RUNOFF (CFSM)	1.08		2.24		1.81	
ANNUAL RUNOFF (INCHES)	14.70		30.41		24.60	
10 PERCENT EXCEEDS	3.1		11		9.5	
50 PERCENT EXCEEDS	1.3		1.9		2.0	
90 PERCENT EXCEEDS	0.83		0.97		0.89	

e Estimated



50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'24", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA.--10.2 mi^2 (26.4 km^2).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to October 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about 100 ft (30.5 m) downstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

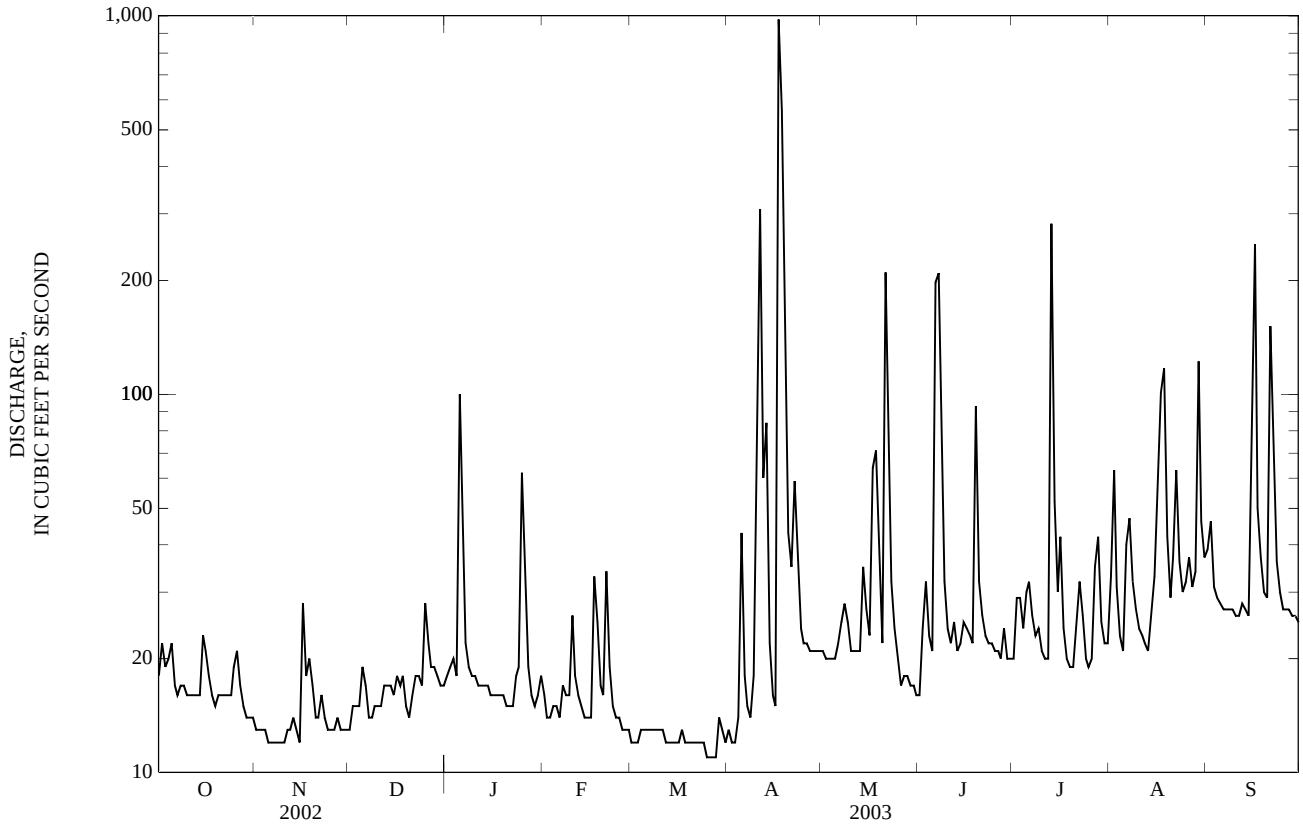
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	13	13	18	16	12	13	21	16	20	33	39
2	22	13	15	19	14	12	12	20	24	29	63	46
3	19	13	15	20	14	12	12	20	32	29	31	31
4	20	13	15	18	15	13	14	20	23	24	23	29
5	22	12	19	100	15	13	43	20	21	30	21	28
6	17	12	17	42	14	13	18	22	198	32	40	27
7	16	12	14	22	17	13	15	25	209	26	47	27
8	17	12	14	19	16	13	14	28	63	23	32	27
9	17	12	15	18	16	13	18	25	32	24	27	27
10	16	12	15	18	26	13	44	21	24	21	24	26
11	16	13	15	17	18	13	309	21	22	20	23	26
12	16	13	17	17	16	12	60	21	25	20	22	28
13	16	14	17	17	15	12	84	21	21	282	21	27
14	16	13	17	17	14	12	22	35	22	52	26	26
15	23	12	16	16	14	12	16	27	25	30	33	62
16	21	28	18	16	14	12	15	23	24	42	61	249
17	18	18	17	16	33	13	977	64	23	24	101	50
18	16	20	18	16	25	12	562	71	22	20	117	37
19	15	17	15	16	17	12	115	35	93	19	42	30
20	16	14	14	15	16	12	43	22	32	19	29	29
21	16	14	16	15	34	12	35	210	26	24	37	151
22	16	16	18	15	19	12	59	80	23	32	63	73
23	16	14	18	18	15	12	39	32	22	26	36	36
24	16	13	17	19	14	12	24	24	22	20	30	30
25	19	13	28	62	14	11	22	20	21	19	32	27
26	21	13	22	30	13	11	22	17	21	20	37	27
27	17	14	19	19	13	11	21	18	20	35	31	27
28	15	13	19	16	13	11	21	18	24	42	34	26
29	14	13	18	15	---	14	21	17	20	25	122	26
30	14	13	17	16	---	13	21	17	20	22	46	25
31	14	---	17	18	---	12	---	16	---	22	37	---
TOTAL	535	422	525	700	480	380	2,691	1,031	1,170	1,073	1,321	1,319
MEAN	17.3	14.1	16.9	22.6	17.1	12.3	89.7	33.3	39.0	34.6	42.6	44.0
MAX	23	28	28	100	34	14	977	210	209	282	122	249
MIN	14	12	13	15	13	11	12	16	16	19	21	25
AC-FT	1,060	837	1,040	1,390	952	754	5,340	2,040	2,320	2,130	2,620	2,620
CFSM	1.69	1.38	1.66	2.21	1.68	1.20	8.79	3.26	3.82	3.39	4.18	4.31
IN.	1.95	1.54	1.91	2.55	1.75	1.39	9.81	3.76	4.27	3.91	4.82	4.81

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2003, BY WATER YEAR (WY)

MEAN	60.8	69.0	45.8	33.8	29.1	23.1	24.2	43.5	42.8	41.4	52.0	75.2
MAX	176	196	163	99.5	74.1	64.1	89.7	155	140	118	202	330
(WY)	(1986)	(1988)	(1988)	(1998)	(1997)	(1998)	(2003)	(1985)	(1979)	(1979)	(1979)	(1998)
MIN	14.4	14.1	12.5	14.6	11.0	11.3	10.7	9.68	10.9	15.4	14.5	16.9
(WY)	(1992)	(2003)	(1992)	(1990)	(1992)	(1992)	(1980)	(1990)	(1994)	(1994)	(1991)	(1980)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	9,713		11,647			
ANNUAL MEAN	26.6		31.9		45.1	
HIGHEST ANNUAL MEAN					89.7	1979
LOWEST ANNUAL MEAN					18.6	1990
HIGHEST DAILY MEAN	543	May 30	977	Apr 17	5,120	Sep 10, 1996
LOWEST DAILY MEAN	11	Aug 28	11	Mar 25	7.1	Feb 4, 1981
ANNUAL SEVEN-DAY MINIMUM	12	Nov 4	11	Mar 22	8.5	Jun 19, 1994
MAXIMUM PEAK FLOW			3,750	Apr 17	14,200	Aug 22, 2001
MAXIMUM PEAK STAGE			14.99	Apr 17	24.21	Aug 22, 2001
ANNUAL RUNOFF (AC-FT)	19,270		23,100		32,670	
ANNUAL RUNOFF (CFSM)	2.61		3.13		4.42	
ANNUAL RUNOFF (INCHES)	35.42		42.48		60.06	
10 PERCENT EXCEEDS	31		42		69	
50 PERCENT EXCEEDS	19		20		24	
90 PERCENT EXCEEDS	13		13		13	

50051310 RIO CAYAGUAS AT CERRO GORDO, PR—Continued



50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09", long 65°57'42", Hydrologic Unit 21010005, at downstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi^2 (64.8 km^2).

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated discharges, which are poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	31	31	41	53	33	27	e57	49	56	111	90
2	50	30	38	46	42	35	28	e56	69	111	213	104
3	59	82	57	50	52	35	22	58	118	101	103	78
4	56	59	39	37	45	33	33	57	88	83	78	74
5	64	33	69	205	49	30	101	54	74	123	68	67
6	45	30	53	125	43	28	58	56	256	131	143	64
7	47	29	37	65	79	29	34	67	400	90	159	59
8	43	27	33	48	55	28	31	82	176	75	108	60
9	56	28	37	43	53	30	49	65	107	91	94	59
10	50	30	37	40	91	28	137	53	89	71	82	55
11	56	33	32	38	65	29	590	50	85	60	95	53
12	50	34	40	35	60	26	257	47	98	56	82	58
13	43	30	37	34	45	23	222	46	78	576	66	56
14	38	27	39	35	39	24	109	89	72	136	76	55
15	48	25	32	33	38	23	73	79	107	92	122	103
16	54	126	49	28	38	26	87	59	94	165	76	270
17	53	77	90	30	106	26	1,770	68	77	95	266	89
18	41	67	95	33	88	26	1,320	173	71	80	282	84
19	37	57	43	38	64	29	405	123	467	72	134	62
20	36	39	36	29	63	28	205	68	134	68	93	62
21	40	37	43	29	112	23	182	634	123	81	116	390
22	40	46	66	28	74	22	598	202	93	160	259	156
23	39	34	63	36	55	21	253	99	81	111	118	79
24	39	31	44	50	45	23	157	90	82	76	91	67
25	73	31	79	140	46	21	123	75	72	68	106	60
26	84	31	66	112	44	18	101	67	67	65	166	59
27	58	33	48	61	38	21	88	60	63	118	109	58
28	41	29	38	44	36	24	79	55	73	181	98	54
29	35	27	36	38	---	32	e72	53	63	101	253	51
30	35	26	32	40	---	35	e64	53	58	79	124	50
31	32	---	32	65	---	20	---	49	---	76	96	---
TOTAL	1,484	1,219	1,471	1,676	1,618	829	7,275	2,844	3,484	3,448	3,987	2,626
MEAN	47.9	40.6	47.5	54.1	57.8	26.7	242	91.7	116	111	129	87.5
MAX	84	126	95	205	112	35	1,770	634	467	576	282	390
MIN	32	25	31	28	36	18	22	46	49	56	66	50
AC-FT	2,940	2,420	2,920	3,320	3,210	1,640	14,430	5,640	6,910	6,840	7,910	5,210
CFSM	1.91	1.63	1.90	2.16	2.31	1.07	9.70	3.67	4.65	4.45	5.14	3.50
IN.	2.21	1.81	2.19	2.49	2.41	1.23	10.83	4.23	5.18	5.13	5.93	3.91

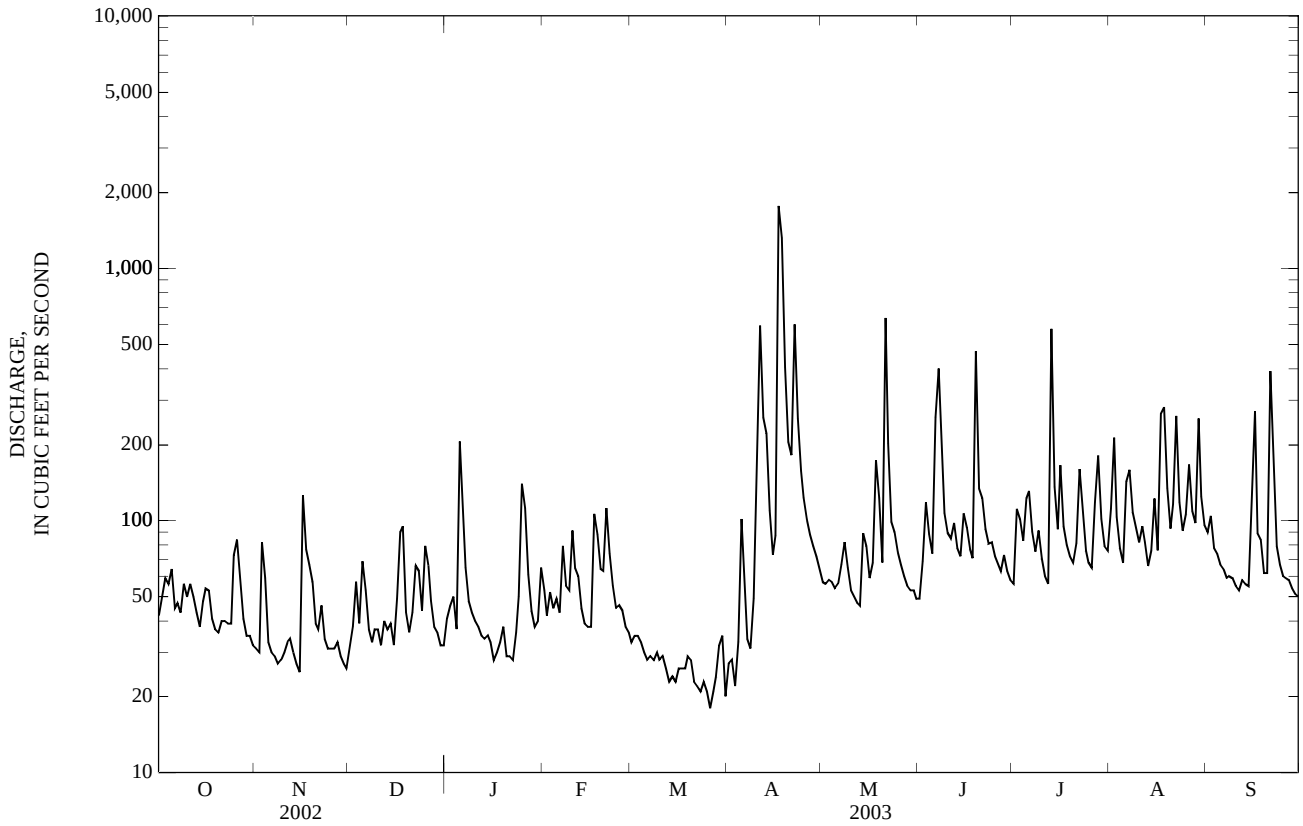
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY)

MEAN	137	142	103	98.7	73.9	52.8	60.6	69.4	99.3	85.9	113	183
MAX	340	298	253	192	160	158	242	186	290	208	196	631
(WY)	(1999)	(2000)	(1999)	(1992)	(1998)	(1998)	(2003)	(1992)	(1992)	(1993)	(1996)	(1996)
MIN	47.9	40.6	47.5	43.6	21.0	17.4	16.8	25.2	22.5	40.2	39.3	59.7
(WY)	(2003)	(2003)	(2003)	(2001)	(1992)	(1992)	(1992)	(1995)	(2001)	(2001)	(1994)	(1990)

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	25,146		31,961			
ANNUAL MEAN	68.9		87.6		103	
HIGHEST ANNUAL MEAN					154	1996
LOWEST ANNUAL MEAN					66.5	2001
HIGHEST DAILY MEAN	759	Apr 20	1,770	Apr 17	10,000	Sep 10, 1996
LOWEST DAILY MEAN	21	Mar 25	18	Mar 26	6.3	Apr 29, 1992
ANNUAL SEVEN-DAY MINIMUM	22	Mar 20	21	Mar 21	7.4	Apr 25, 1992
MAXIMUM PEAK FLOW			7,810	Apr 17	56,800	Sep 10, 1996
MAXIMUM PEAK STAGE			16.86	Apr 17	35.62	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	49,880		63,390		74,790	
ANNUAL RUNOFF (CFSM)	2.76		3.50		4.13	
ANNUAL RUNOFF (INCHES)	37.42		47.56		56.11	
10 PERCENT EXCEEDS	103		136		178	
50 PERCENT EXCEEDS	48		58		63	
90 PERCENT EXCEEDS	30		29		27	

e Estimated



50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.12 mi (1.8 km) south of Villa Borinquén, 1.35 mi (2.17 km), north from Mercedes Palma school and 0.83 mi (1.34 km) east from Atravezada school on Road 763.

DRAINAGE AREA.--7.49 mi^2 (18.5 km^2).

PERIOD OF RECORD.--January 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.2	8.5	11	12	8.5	e9.9	16	18	13	24	21
2	12	9.6	11	13	11	8.4	10	15	20	28	62	19
3	11	13	12	12	11	8.2	11	14	24	16	26	17
4	13	11	9.5	9.8	13	7.9	13	13	20	20	19	16
5	13	9.3	18	40	14	7.4	19	13	19	21	17	15
6	11	8.9	11	20	11	7.3	15	13	70	35	24	15
7	12	8.6	9.4	13	16	7.0	13	14	70	19	31	15
8	11	8.6	9.5	11	15	7.1	14	14	30	21	21	15
9	12	8.9	11	10	13	e6.8	19	12	23	22	27	14
10	23	9.2	9.6	10	24	e7.1	24	12	21	16	19	14
11	14	9.0	13	9.5	16	6.6	90	11	21	15	31	13
12	11	8.5	11	9.2	16	6.4	48	11	23	14	20	13
13	11	8.2	11	9.2	12	6.2	58	11	21	140	17	13
14	11	7.9	10	8.9	11	6.0	27	17	20	30	18	12
15	11	8.0	9.3	8.6	11	6.1	23	14	27	20	19	18
16	11	15	13	8.5	12	6.1	26	12	25	52	17	18
17	11	11	21	8.5	32	6.4	370	13	22	21	55	13
18	10	12	16	11	24	6.0	258	23	22	17	61	12
19	9.6	10	11	9.8	16	8.3	92	19	154	16	28	12
20	9.9	9.0	10	8.7	15	7.2	45	13	31	14	20	13
21	10	9.3	13	8.4	26	6.3	35	143	26	18	57	145
22	15	9.3	24	7.9	16	5.8	136	48	20	72	56	42
23	11	8.4	15	11	12	7.2	63	30	18	30	29	25
24	11	8.3	12	11	11	6.0	90	26	18	19	22	22
25	17	8.4	17	98	12	5.8	46	21	16	16	26	20
26	21	8.3	14	31	10	5.9	30	21	15	15	57	20
27	14	8.4	12	17	9.3	6.3	24	19	14	33	25	19
28	11	8.0	10	13	8.9	6.7	20	17	18	54	26	18
29	10	7.8	9.4	12	---	10	19	16	14	28	34	18
30	9.9	7.7	9.0	13	---	9.1	17	16	13	20	22	18
31	9.8	---	9.1	15	---	e8.9	---	15	---	20	20	---
TOTAL	378.2	278.8	379.3	479.0	410.2	219.0	1,664.9	652	853	875	930	645
MEAN	12.2	9.29	12.2	15.5	14.7	7.06	55.5	21.0	28.4	28.2	30.0	21.5
MAX	23	15	24	98	32	10	370	143	154	140	62	145
MIN	9.6	7.7	8.5	7.9	8.9	5.8	9.9	11	13	13	17	12
MED	11	8.9	11	11	12	6.8	25	15	21	20	25	16
AC-FT	750	553	752	950	814	434	3,300	1,290	1,690	1,740	1,840	1,280
CFSM	1.71	1.30	1.71	2.16	2.05	0.99	7.77	2.95	3.98	3.95	4.20	3.01
IN.	1.97	1.45	1.98	2.50	2.14	1.14	8.67	3.40	4.44	4.56	4.85	3.36

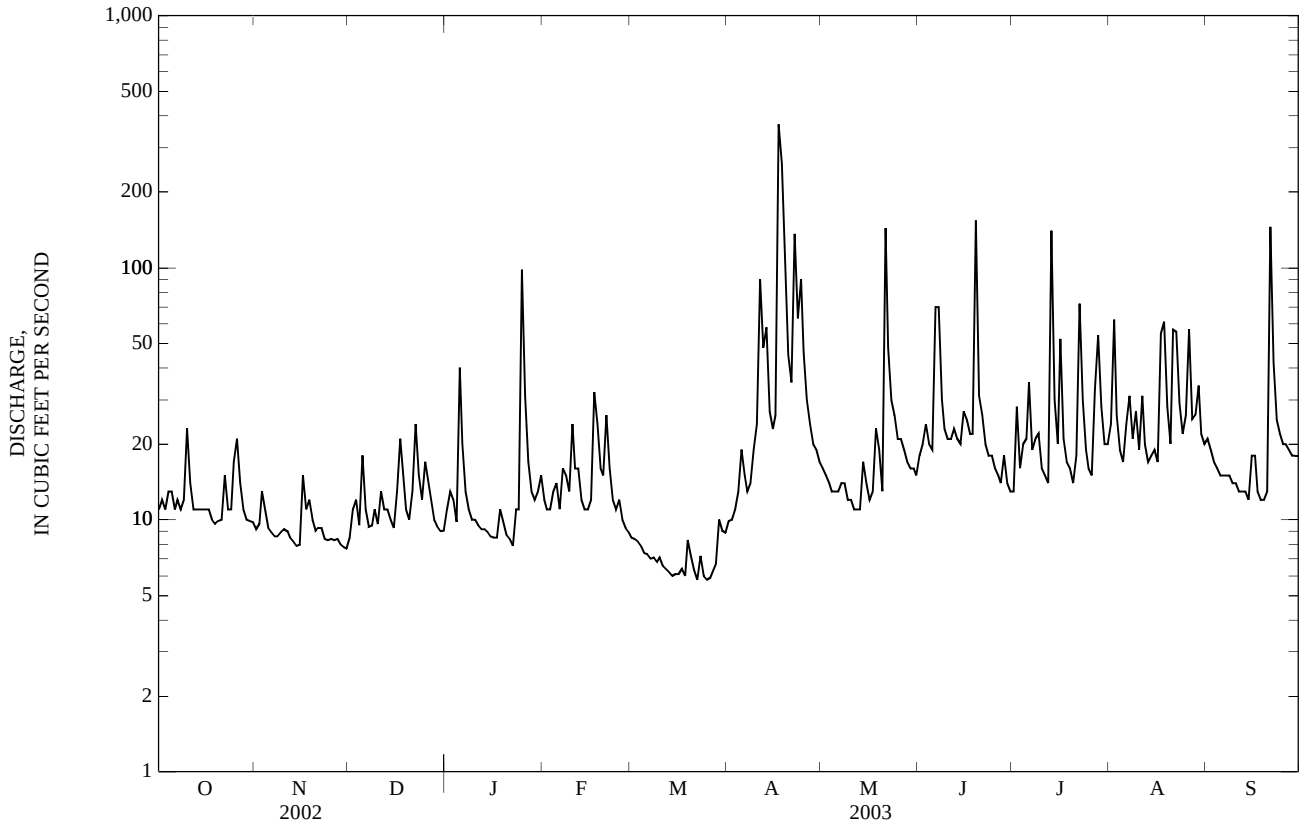
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY)

MEAN	24.9	26.7	21.7	21.6	16.4	12.1	14.4	15.4	24.0	20.5	23.0	41.5
MAX	51.3	70.5	42.7	47.5	25.0	26.9	55.5	31.9	67.9	54.6	41.4	123
(WY)	(1998)	(2000)	(1999)	(1992)	(1997)	(1998)	(2003)	(1993)	(1996)	(1993)	(1996)	(1996)
MIN	10.3	9.29	10.6	7.85	8.93	7.06	6.18	6.11	6.07	8.25	6.98	12.1
(WY)	(1994)	(2003)	(1994)	(1990)	(1990)	(2003)	(1990)	(1994)	(2001)	(2001)	(1994)	(2001)

50053025 RIO TURABO ABOVE BORINQUEN, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	6,518.5		7,764.4			
ANNUAL MEAN	17.9		21.3		22.3	
HIGHEST ANNUAL MEAN					38.1	1996
LOWEST ANNUAL MEAN					12.1	1994
HIGHEST DAILY MEAN	237	Sep 15	370	Apr 17	1,940	Sep 10, 1996
LOWEST DAILY MEAN	6.2	Mar 23	5.8	Mar 22	3.3	Aug 17, 1994
ANNUAL SEVEN-DAY MINIMUM	6.4	Mar 20	6.2	Mar 12	3.8	Aug 11, 1994
MAXIMUM PEAK FLOW			1,840	Sep 21	15,200	Sep 10, 1996
MAXIMUM PEAK STAGE			9.51	Sep 21	22.60	Sep 10, 1996
INSTANTANEOUS LOW FLOW			5.1	Mar 24	2.6	Jul 17, 1997
ANNUAL RUNOFF (AC-FT)	12,930		15,400		16,140	
ANNUAL RUNOFF (CFSM)	2.50		2.98		3.12	
ANNUAL RUNOFF (INCHES)	33.96		40.45		42.40	
10 PERCENT EXCEEDS	25		31		36	
50 PERCENT EXCEEDS	12		14		12	
90 PERCENT EXCEEDS	8.1		8.4		6.5	

e Estimated



50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

DRAINAGE AREA.--89.8 mi^2 (233 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959 (low-flow measurement only), February to November 1959 (monthly measurements only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	58	42	53	83	43	e31	97	60	86	118	89
2	86	57	57	70	59	40	39	94	76	162	325	120
3	96	193	81	72	67	40	37	86	133	176	162	95
4	94	116	64	57	159	41	35	89	129	116	99	83
5	105	64	75	250	101	38	164	90	82	159	86	77
6	146	53	91	246	68	40	112	86	342	208	268	72
7	97	49	60	96	87	37	54	89	688	142	236	68
8	85	45	54	68	82	39	47	96	359	100	157	71
9	102	43	59	60	70	38	43	98	151	125	108	73
10	100	50	56	55	91	37	203	78	126	89	102	70
11	111	60	51	53	92	39	804	75	103	72	106	77
12	97	60	58	48	78	35	533	69	96	72	137	89
13	83	54	55	46	63	33	354	74	94	1,180	79	109
14	75	45	56	46	52	28	158	97	82	314	76	100
15	70	41	50	44	48	30	106	125	118	167	196	104
16	94	134	54	40	46	30	96	86	110	297	100	399
17	86	126	203	38	91	35	3,670	66	73	179	544	107
18	78	101	211	41	109	33	3,470	229	61	125	452	90
19	71	85	73	49	91	84	1,060	155	683	109	212	94
20	72	62	65	41	68	73	542	92	174	100	95	73
21	71	55	61	39	114	39	542	1,450	127	118	125	1,280
22	74	64	71	34	105	33	1,100	663	134	326	622	392
23	76	55	108	40	71	31	663	228	119	262	198	125
24	66	51	67	90	57	37	739	145	91	107	113	80
25	92	50	88	493	58	33	341	105	57	80	110	69
26	128	52	111	304	52	27	208	92	67	76	368	66
27	109	53	74	110	48	55	149	88	70	127	190	77
28	78	53	59	72	46	37	116	76	84	320	158	69
29	68	47	53	59	---	28	105	71	85	160	388	69
30	64	43	50	56	---	47	102	64	78	91	162	84
31	61	---	46	82	---	34	---	62	---	96	90	---
TOTAL	2,721	2,019	2,303	2,852	2,156	1,214	15,623	5,015	4,652	5,741	6,182	4,371
MEAN	87.8	67.3	74.3	92.0	77.0	39.2	521	162	155	185	199	146
MAX	146	193	211	493	159	84	3,670	1,450	688	1,180	622	1,280
MIN	61	41	42	34	46	27	31	62	57	72	76	66
AC-FT	5,400	4,000	4,570	5,660	4,280	2,410	30,990	9,950	9,230	11,390	12,260	8,670
CFSM	0.98	0.75	0.83	1.02	0.86	0.44	5.80	1.80	1.73	2.06	2.22	1.62
IN.	1.13	0.84	0.95	1.18	0.89	0.50	6.47	2.08	1.93	2.38	2.56	1.81

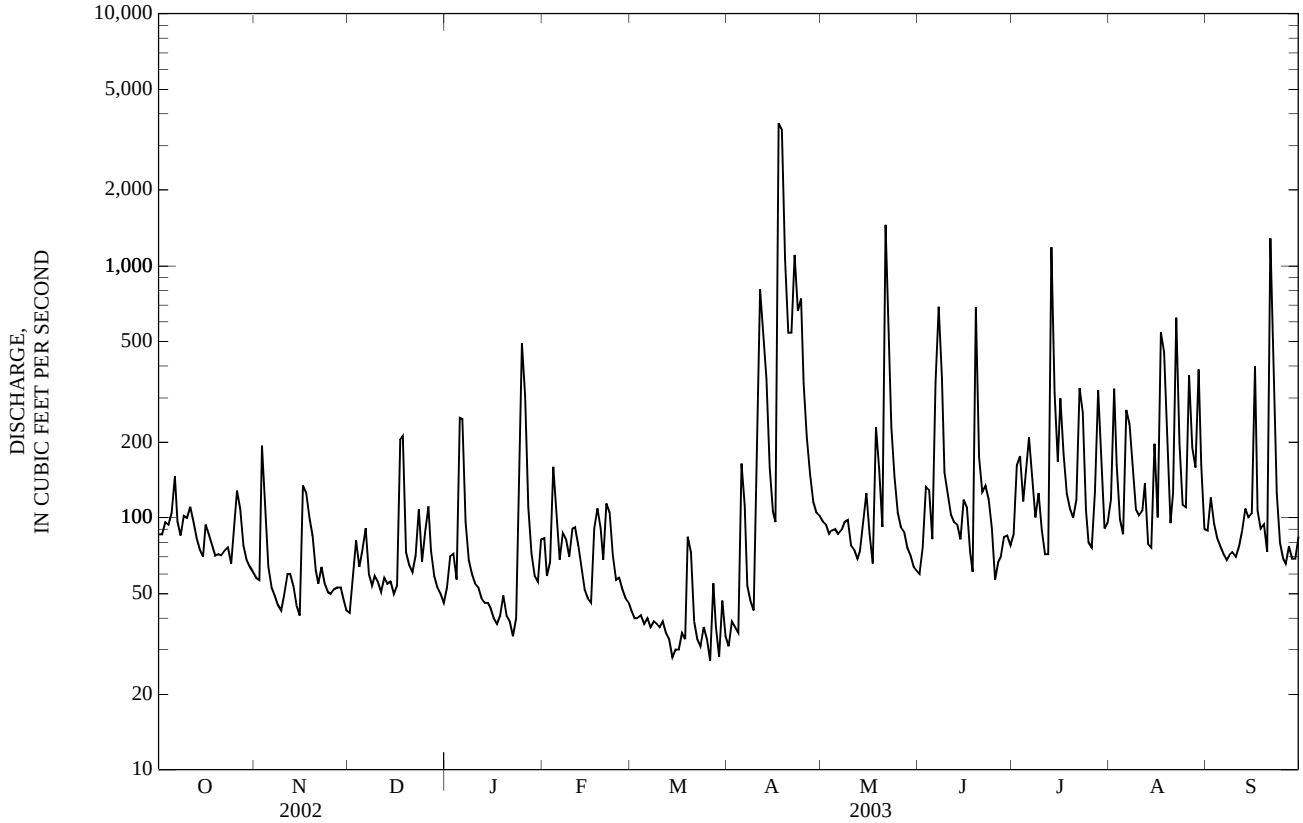
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	342	315	222	149	111	91.7	102	214	232	214	263	315
MAX	1,910	1,131	714	559	291	306	521	863	1,283	660	949	1,438
(WY)	(1971)	(1988)	(1988)	(1992)	(1984)	(1989)	(2003)	(1985)	(1979)	(1961)	(1979)	(1960)
MIN	44.2	64.9	33.6	45.3	35.6	23.2	30.6	33.7	34.1	21.8	51.4	37.4
(WY)	(1968)	(1968)	(1968)	(1968)	(1968)	(1968)	(1995)	(1974)	(1975)	(1974)	(1994)	(1967)

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	49,147		54,849			
ANNUAL MEAN	135		150		212	
HIGHEST ANNUAL MEAN					526	1979
LOWEST ANNUAL MEAN					82.3	1967
HIGHEST DAILY MEAN	1,950	Apr 20	3,670	Apr 17	25,300	Sep 6, 1960
LOWEST DAILY MEAN	27	Mar 26	27	Mar 26	11	Apr 8, 1968
ANNUAL SEVEN-DAY MINIMUM	29	Mar 21	32	Mar 12	11	Apr 8, 1968
MAXIMUM PEAK FLOW			12,900	Apr 18	83,000	Sep 10, 1996
MAXIMUM PEAK STAGE			15.22	Apr 18	32.32	Sep 10, 1996
INSTANTANEOUS LOW FLOW			22	Mar 27	17	Aug 18, 1994
ANNUAL RUNOFF (AC-FT)	97,480		108,800		153,700	
ANNUAL RUNOFF (CFSM)	1.50		1.67		2.36	
ANNUAL RUNOFF (INCHES)	20.36		22.72		32.11	
10 PERCENT EXCEEDS	202		255		350	
50 PERCENT EXCEEDS	84		84		105	
90 PERCENT EXCEEDS	45		41		40	

e Estimated



50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
08...	1220	42	63	5.6	72	7.0	304	28.2	92	23.8	7.77	1.99	1
JAN													
29...	1215	55	32	7.0	85	--	278	25.5	82	21.2	7.09	2.33	1
APR													
02...	1015	40	38	5.5	--	7.4	325	27.5	96	25.4	7.98	1.89	1
JUN													
05...	1145	88	74	7.0	--	7.5	247	29.4	--	--	--	--	--
SEP													
03...	1015	97	--	7.0	--	--	222	29.1	72	18.4	6.23	1.74	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
08...	25.3	98	23.3	<.17	32.8	14.2	--	188	21.5	55	.60	.14	.65
JAN													
29...	20.6	86	20.3	.12	30.8	13.5	.0	168	--	31	.80	.26	.69
APR													
02...	27.7	98	24.9	.15	33.2	16.3	<.1	196	21.1	32	.40	.16	.54
JUN													
05...	--	74	--	--	--	--	--	--	--	15	--	--	--
SEP													
03...	17.0	71	16.5	<.2	31.4	8.3	--	142	37.0	31	.40	.10	.43

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
08...	.690	.04	.46	.17	1.3	5.7	<10	E1,700	E180	--	--	--	--
JAN													
29...	.730	.04	.54	.17	1.5	6.8	<10	3,100	--	51,000	<2	39.3	36
APR													
02...	.580	.04	.24	.17	.98	4.3	10	2,600	--	33,000	<2	37.4	36
JUN													
05...	--	--	--	--	--	--	<10	E8,600	--	E100,000	--	--	--
SEP													
03...	.450	.02	.30	.10	.85	3.8	10	4,000	--	40,000	--	--	--

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
29...	<.2	<.8	<10	<.01	940	M	241	<.02	<3	<.3	E17	<.10	<16
APR													
02...	E.1	E.6	<10	<.01	1,220	M	289	<.02	<3	<.3	<25	<.10	<16
JUN													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

INSTRUMENTATION.-- USDH-48 sediment sampler since October 1983. Automatic sediment sampler since 1984.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L November 27, 1987; Minimum daily mean, 5 mg/L September 30, 2001.
SEDIMENT LOADS: Maximum daily mean, 396,000 tons (359,000 tonnes) September 10, 1996; Minimum daily mean, 0.65 ton (0.59 tonne) May 25, 1995.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 868 mg/L April 11, 2003; Minimum daily mean, 20 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 10,100 tons (9,163 tonnes) April 17, 2003; Minimum daily mean, 3.4 ton (3.1 tonne) March 26, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	86	20	4.6	58	108	17	42	151	17
2	86	20	4.7	57	108	17	57	153	23
3	96	20	5.2	193	169	170	81	155	34
4	94	20	5.1	116	152	49	64	157	27
5	105	20	5.7	64	108	19	75	159	32
6	146	109	68	53	92	13	91	160	39
7	97	196	52	49	89	12	60	156	25
8	85	135	31	45	89	11	54	151	22
9	102	122	33	43	89	10	59	146	23
10	100	132	37	50	89	12	56	141	21
11	111	144	44	60	89	14	51	136	19
12	97	126	33	60	88	14	58	132	21
13	83	121	27	54	88	13	55	127	19
14	75	117	24	45	88	11	56	122	19
15	70	113	21	41	88	9.8	50	117	16
16	94	111	28	134	145	81	54	112	16
17	86	111	26	126	153	53	203	175	147
18	78	110	23	101	137	38	211	200	131
19	71	110	21	85	127	29	73	117	23
20	72	110	21	62	129	22	65	111	20
21	71	110	21	55	131	19	61	110	18
22	74	110	22	64	133	23	71	111	22
23	76	109	23	55	135	20	108	139	41
24	66	109	19	51	137	19	67	109	20
25	92	120	30	50	139	19	88	125	33
26	128	152	53	52	141	20	111	143	44
27	109	144	43	53	143	20	74	110	22
28	78	120	25	53	145	21	59	101	16
29	68	110	20	47	147	18	53	98	14
30	64	109	19	43	149	17	50	98	13
31	61	109	18	---	---	---	46	97	12
TOTAL	2,721	---	807.3	2,019	---	810.8	2,303	---	949

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
	JANUARY			FEBRUARY			MARCH		
1	53	96	14	83	100	22	43	55	6.5
2	70	95	18	59	100	16	40	54	5.8
3	72	94	18	67	99	18	40	53	5.8
4	57	94	14	159	161	79	41	53	5.9
5	250	188	230	101	118	33	38	53	5.4
6	246	223	165	68	108	20	40	53	5.7
7	96	140	37	87	107	25	37	52	5.3
8	68	115	21	82	107	24	39	52	5.5
9	60	115	19	70	106	20	38	52	5.3
10	55	115	17	91	116	30	37	51	5.2
11	53	115	16	92	112	29	39	51	5.3
12	48	115	15	78	102	21	35	51	4.9
13	46	115	14	63	97	17	33	50	4.5
14	46	115	14	52	93	13	28	50	3.8
15	44	115	14	48	88	11	30	50	4.0
16	40	114	12	46	83	10	30	50	4.0
17	38	114	12	91	108	34	35	49	4.7
18	41	114	13	109	98	30	33	49	4.3
19	49	114	15	91	77	19	84	105	34
20	41	114	13	68	76	14	73	109	22
21	39	114	12	114	109	40	39	72	7.7
22	34	114	11	105	106	32	33	50	4.5
23	40	114	12	71	77	15	31	49	4.1
24	90	132	39	57	73	11	37	48	4.8
25	493	309	521	58	70	11	33	47	4.2
26	304	247	231	52	66	9.3	27	46	3.4
27	110	144	43	48	62	8.1	55	80	18
28	72	115	23	46	59	7.3	37	90	9.0
29	59	103	16	---	---	---	28	88	6.8
30	56	101	15	---	---	---	47	87	11
31	82	101	22	---	---	---	34	85	7.6
TOTAL	2,852	---	1,636	2,156	---	618.7	1,214	---	229.0
	APRIL			MAY			JUNE		
1	e31	e83	e6.7	97	127	33	60	136	22
2	39	81	8.4	94	126	32	76	135	28
3	37	79	7.9	86	125	29	133	150	57
4	35	78	7.5	89	124	30	129	162	60
5	164	148	101	90	123	30	82	135	30
6	112	145	47	86	122	28	342	236	366
7	54	112	16	89	121	29	688	376	857
8	47	111	14	96	119	31	359	276	290
9	43	110	13	98	118	31	151	183	75
10	203	194	122	78	117	25	126	158	54
11	804	868	2,650	75	116	24	103	141	39
12	533	335	493	69	115	21	96	126	32
13	354	263	269	74	114	23	94	123	31
14	158	174	77	97	130	37	82	123	27
15	106	145	41	125	167	61	118	141	46
16	96	137	36	86	104	24	110	140	44
17	3,670	680	10,100	66	103	18	73	118	23
18	3,470	472	9,300	229	193	135	61	117	19
19	1,060	466	1,460	155	147	62	683	364	846
20	542	330	512	92	130	32	174	185	93
21	542	346	521	1,450	629	9,760	127	134	46
22	1,100	409	2,020	663	382	741	134	133	48
23	663	378	726	228	210	135	119	132	42
24	739	384	945	145	154	60	91	131	32
25	341	271	259	105	139	39	57	131	20
26	208	203	114	92	138	34	67	130	23
27	149	181	73	88	137	33	70	130	25
28	116	162	51	76	137	28	84	130	29
29	105	143	41	71	137	26	85	130	30
30	102	129	36	64	136	24	78	130	28
31	---	---	---	62	136	23	---	---	---
TOTAL	15,623	---	30,067.5	5,015	---	11,638	4,652	---	3,362

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	86	130	30	118	138	44	89	58	14
2	162	168	83	325	239	264	120	58	19
3	176	183	89	162	168	77	95	58	15
4	116	138	43	99	130	35	83	58	13
5	159	160	76	86	127	29	77	58	12
6	208	201	115	268	210	209	72	58	11
7	142	162	63	236	208	146	68	58	11
8	100	137	37	157	171	77	71	58	11
9	125	154	52	108	131	38	73	58	11
10	89	126	31	102	126	35	70	58	11
11	72	124	24	106	135	41	77	58	12
12	72	123	24	137	159	62	89	58	14
13	1,180	421	3,020	79	121	26	109	58	17
14	314	245	217	76	116	24	100	58	16
15	167	173	78	196	186	107	104	58	16
16	297	225	215	100	135	36	399	257	378
17	179	180	88	544	323	553	107	66	20
18	125	150	51	452	300	410	90	58	14
19	109	149	44	212	194	120	94	57	15
20	100	149	40	95	128	33	73	57	11
21	118	148	47	125	142	65	1,280	606	7,010
22	326	240	265	622	363	621	392	289	369
23	262	219	167	198	203	114	125	164	56
24	107	137	40	113	144	44	80	124	27
25	80	134	29	110	144	44	69	114	21
26	76	135	28	368	261	280	66	114	20
27	127	152	55	190	182	109	77	114	24
28	320	251	227	158	164	83	69	113	21
29	160	177	81	388	273	304	69	113	21
30	91	138	34	162	111	57	84	113	25
31	96	138	36	90	58	14	---	---	---
TOTAL	5,741	---	5,429	6,182	---	4,101	4,371	---	8,235
YEAR	54,849	67,883.3							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR					
17...	1225	5,390	96	2,120	30,800
22...	1810	4,180	97	1,260	14,200

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)
APR													
17...	1140	5,060	50	58	65	77	89	97	99	100	100	100	4,470
MAY													
21...	1807	9,420	52	60	67	79	91	--	--	--	--	--	3,430
SEP													
21...	1903	5,830	68	78	83	75	96	98	--	--	--	--	3,160

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Suspended sediment discharge, tons/d (80155)
APR	
17...	61,000
MAY	
21...	87,300
SEP	
21...	49,700

50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas, 3.9 mi (6.3 km) northwest from Caguas, and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA.--5.30 mi^2 (13.7 km^2).

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	2.8	2.8	3.1	3.1	2.8	2.6	4.7	2.6	2.1	5.5	4.4
2	4.0	3.0	3.0	3.1	2.9	2.9	2.7	4.5	3.2	2.2	29	3.8
3	3.9	3.4	3.1	2.8	2.9	2.7	e7.4	4.2	4.1	3.4	6.7	3.5
4	4.3	3.2	4.0	2.6	30	2.8	e4.8	4.0	2.9	2.3	5.4	3.3
5	4.1	3.2	3.4	3.8	8.6	2.6	e17	4.9	2.6	4.2	4.7	3.1
6	4.1	3.2	3.1	3.4	4.4	2.6	e2.8	4.5	2.8	4.5	6.9	3.0
7	3.6	2.7	3.4	2.8	3.8	2.6	e2.1	3.4	6.6	2.7	7.3	3.7
8	3.9	2.8	3.8	2.9	3.5	2.6	e3.5	3.4	3.7	2.5	5.1	4.2
9	3.7	3.2	3.4	2.8	3.6	2.6	e4.8	3.3	3.1	2.4	4.8	3.9
10	3.7	3.2	3.1	2.8	3.5	2.8	e14	3.1	2.8	2.2	4.5	3.9
11	3.6	3.1	3.1	2.7	3.5	2.6	e39	3.0	2.7	2.1	4.5	4.0
12	3.7	3.0	3.2	2.6	3.5	2.5	e17	3.0	2.9	2.0	4.2	3.9
13	3.4	2.9	3.2	2.5	3.4	2.3	e4.8	2.9	2.6	24	3.8	4.3
14	3.2	2.9	3.0	2.6	3.2	2.3	e3.5	4.0	2.6	5.3	4.0	4.0
15	3.2	2.8	3.1	2.4	3.1	2.4	2.8	3.3	3.4	5.7	3.9	3.6
16	3.1	3.2	3.2	2.4	3.3	2.4	2.8	2.9	2.8	7.7	3.5	3.4
17	3.2	3.3	3.4	2.4	3.7	2.4	36	2.8	2.6	5.3	4.2	3.3
18	3.4	7.5	3.3	2.5	3.4	2.3	47	3.8	2.5	4.1	5.0	3.3
19	3.5	4.5	3.2	2.5	3.2	12	14	3.4	3.5	3.5	3.7	3.8
20	3.6	3.3	3.4	2.3	3.3	3.7	5.4	5.1	2.8	3.7	3.5	3.8
21	3.5	3.2	3.4	2.4	3.7	2.8	18	14	4.2	3.7	5.7	18
22	3.4	3.1	3.4	2.2	3.2	2.7	13	12	3.0	7.2	6.8	5.7
23	3.3	3.1	3.3	3.0	3.0	3.2	220	6.3	2.7	5.2	4.1	4.1
24	3.3	3.0	2.9	6.6	2.9	2.8	181	4.5	2.4	3.9	3.6	3.7
25	3.1	3.0	4.2	24	3.3	2.7	18	3.9	2.2	3.5	6.1	5.8
26	3.3	3.0	3.2	8.8	2.9	5.6	8.5	3.4	2.2	5.6	11	4.2
27	3.0	3.0	2.8	3.9	2.8	4.1	6.6	3.3	2.2	5.0	4.6	3.6
28	2.9	3.0	2.8	3.3	2.8	3.0	5.9	3.1	2.9	6.1	6.1	3.2
29	2.9	2.9	2.9	3.2	---	2.7	5.3	3.0	2.2	5.0	8.4	3.6
30	3.0	2.9	2.9	3.2	---	2.9	4.9	2.8	2.2	4.3	5.4	4.0
31	2.9	---	3.0	3.2	---	2.7	---	2.7	---	8.5	4.4	---
TOTAL	107.8	97.4	100.0	118.8	124.5	97.1	715.2	133.2	89.0	149.9	186.4	130.1
MEAN	3.48	3.25	3.23	3.83	4.45	3.13	23.8	4.30	2.97	4.84	6.01	4.34
MAX	4.3	7.5	4.2	24	30	12	220	14	6.6	24	29	18
MIN	2.9	2.7	2.8	2.2	2.8	2.3	2.1	2.7	2.2	2.0	3.5	3.0
AC-FT	214	193	198	236	247	193	1,420	264	177	297	370	258
CFSM	0.66	0.61	0.61	0.72	0.84	0.59	4.50	0.81	0.56	0.91	1.13	0.82
IN.	0.76	0.68	0.70	0.83	0.87	0.68	5.02	0.93	0.62	1.05	1.31	0.91

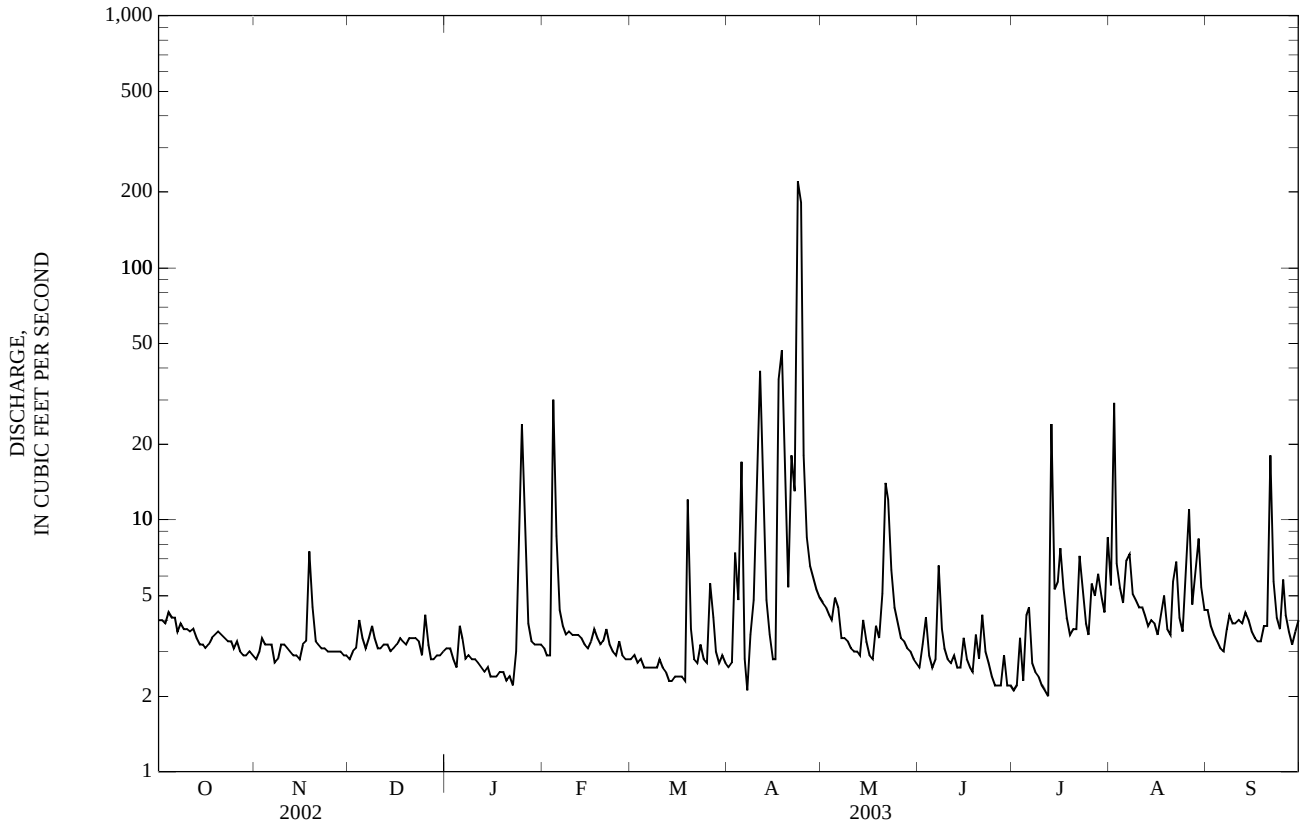
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY)

MEAN	9.01	11.2	10.4	8.47	5.99	4.88	6.91	5.24	4.83	6.08	7.52	13.1
MAX	20.9	32.7	39.2	16.7	10.1	8.87	23.8	18.0	12.1	18.6	18.9	52.9
(WY)	(1991)	(2000)	(1999)	(1992)	(1999)	(1990)	(2003)	(1993)	(1999)	(1993)	(2000)	(1996)
MIN	3.17	2.66	2.34	2.48	2.96	2.09	1.84	2.00	1.84	1.86	1.85	2.43
(WY)	(1996)	(1995)	(1995)	(1995)	(1995)	(1996)	(1995)	(1997)	(1997)	(1994)	(1994)	(1997)

50055100 RIO CAGÜITAS NEAR AGUAS BUENAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	2,159.7		2,049.4			
ANNUAL MEAN	5.92		5.61		7.91	
HIGHEST ANNUAL MEAN					14.5	1999
LOWEST ANNUAL MEAN					4.31	1997
HIGHEST DAILY MEAN	149	Apr 20	220	Apr 23	1,260	Sep 10, 1996
LOWEST DAILY MEAN	1.9	Aug 27	2.0	Jul 12	1.0	Aug 1, 1997
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 21	2.3	Jun 25	1.2	Apr 30, 1996
MAXIMUM PEAK FLOW			1,920	Apr 23	4,490	Sep 10, 1996
MAXIMUM PEAK STAGE			16.27	Apr 23	21.22	Sep 10, 1996
INSTANTANEOUS LOW FLOW			1.8	Jul 11	0.82	Jul 29, 1997
ANNUAL RUNOFF (AC-FT)	4,280		4,060		5,730	
ANNUAL RUNOFF (CFSM)	1.12		1.06		1.49	
ANNUAL RUNOFF (INCHES)	15.16		14.38		20.28	
10 PERCENT EXCEEDS	8.8		6.6		12	
50 PERCENT EXCEEDS	4.0		3.3		4.7	
90 PERCENT EXCEEDS	2.8		2.6		2.2	

e Estimated



50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at Calle 4 Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Río Grande de Loíza, and 0.95 mi (1.53 km) northeast from Caguas Plaza.

DRAINAGE AREA.--11.7 mi^2 (30.3 km^2).

PERIOD OF RECORD.--December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Low flow affected by pluvial discharges above 50 ft (15.24 m), upstream from station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	5.8	9.9	7.1	11	e7.0	e7.9	22	13	9.5	27	17
2	11	8.9	10	7.9	9.1	e6.9	8.1	23	21	9.7	123	17
3	8.8	6.7	12	7.2	8.6	e6.7	19	25	26	18	24	13
4	9.4	6.8	26	6.6	142	e6.5	11	24	15	13	17	12
5	8.3	6.6	15	26	e45	e6.4	43	24	12	26	15	11
6	14	6.6	9.8	13	e30	e6.3	15	28	15	e20	74	11
7	9.0	6.7	16	9.8	e25	e6.2	10	15	60	13	35	12
8	8.0	6.2	32	10	e15	e6.1	8.8	14	20	12	17	14
9	8.1	6.8	20	8.3	e16	e6.0	12	12	14	10	15	11
10	37	7.5	11	7.6	e18	e10	31	12	13	9.4	13	11
11	11	8.8	12	6.8	e15	e7.0	120	12	12	e9.5	13	11
12	9.3	9.4	9.5	6.9	e13	e6.0	49	12	11	e9.5	13	11
13	9.9	6.6	11	7.4	e10	e5.9	17	12	10	148	12	14
14	9.4	6.3	8.2	7.2	e8.0	e5.8	12	23	10	24	13	11
15	8.8	5.4	7.2	5.8	e6.0	e5.7	12	14	22	37	13	11
16	7.0	8.8	13	4.5	e6.0	e5.6	13	13	12	30	13	11
17	4.5	12	50	4.0	e15	e5.5	276	12	10	19	16	10
18	9.7	64	18	3.9	e11	e5.5	417	35	11	14	22	13
19	7.6	37	4.5	2.7	e7.0	e35	98	17	26	12	13	19
20	27	17	8.1	e2.8	e7.0	e25	70	16	14	11	10	11
21	12	12	7.9	e6.7	e18	13	106	146	e20	14	57	382
22	7.3	13	4.6	3.7	e10	8.6	68	175	11	35	76	65
23	6.5	12	3.7	9.6	e8.0	8.4	942	45	10	20	18	27
24	7.1	8.9	3.6	135	e7.0	12	621	24	9.5	13	13	22
25	6.4	8.7	21	238	e12	8.5	96	19	9.6	11	29	22
26	11	8.5	13	81	e9.0	7.7	42	16	9.1	21	43	28
27	6.4	8.2	9.1	24	e8.0	25	32	15	9.3	25	18	21
28	5.3	8.6	7.3	14	e6.0	11	27	14	16	33	47	19
29	4.6	9.3	6.9	16	---	9.2	24	13	9.5	17	25	37
30	5.3	9.7	6.5	12	---	8.7	21	12	8.7	13	24	22
31	5.8	---	6.6	14	---	e7.8	---	12	---	26	14	---
TOTAL	306.5	342.8	393.4	709.5	495.7	295.0	3,228.8	856	459.7	682.6	862	896
MEAN	9.89	11.4	12.7	22.9	17.7	9.52	108	27.6	15.3	22.0	27.8	29.9
MAX	37	64	50	238	142	35	942	175	60	148	123	382
MIN	4.5	5.4	3.6	2.7	6.0	5.5	7.9	12	8.7	9.4	10	10
MED	8.8	8.7	9.9	7.6	10	7.0	29	16	12	14	17	14
AC-FT	608	680	780	1,410	983	585	6,400	1,700	912	1,350	1,710	1,780
CFSM	0.84	0.98	1.08	1.95	1.51	0.81	9.19	2.36	1.31	1.88	2.37	2.55
IN.	0.97	1.09	1.25	2.25	1.57	0.94	10.26	2.72	1.46	2.17	2.74	2.85

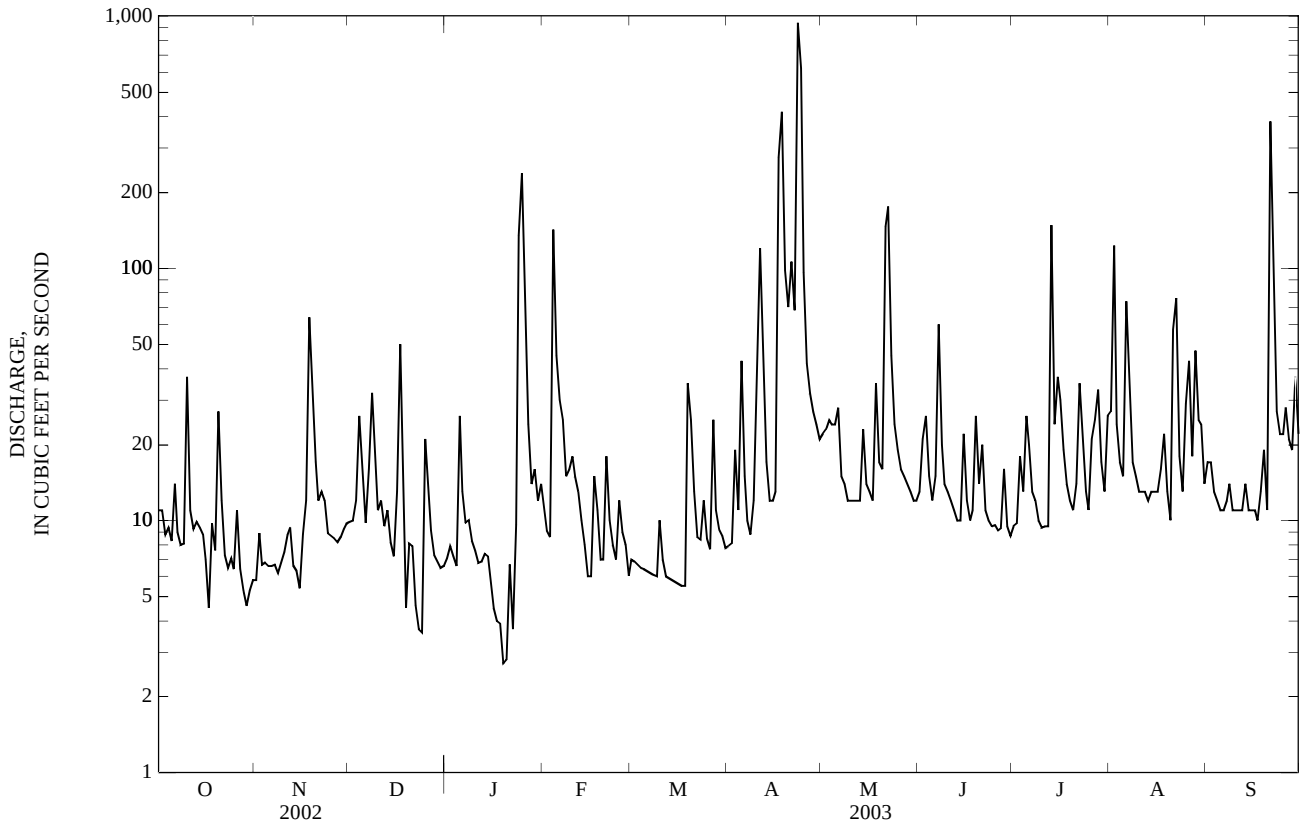
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)

MEAN	36.9	46.6	34.1	34.0	24.0	16.8	26.2	22.5	23.7	28.8	40.7	82.1
MAX	130	114	123	120	67.9	42.6	108	59.8	55.9	74.6	109	364
(WY)	(1999)	(1999)	(1999)	(1992)	(1998)	(1998)	(2003)	(1993)	(1999)	(1993)	(1998)	(1996)
MIN	9.89	11.4	8.87	14.2	10.8	7.54	5.49	3.35	2.86	4.13	3.82	8.82
(WY)	(2003)	(2003)	(1995)	(1995)	(1992)	(1994)	(1994)	(1994)	(1994)	(1994)	(1994)	(1994)

50055225 RIO CAGÜITAS AT VILLA BLANCA AT CAGUAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003	
ANNUAL TOTAL	7,409.2		9,528.0			
ANNUAL MEAN	20.3		26.1		35.6	
HIGHEST ANNUAL MEAN					64.0	1998
LOWEST ANNUAL MEAN					11.9	1994
HIGHEST DAILY MEAN	413	Apr 20	942	Apr 23	8,600	Sep 10, 1996
LOWEST DAILY MEAN	3.6	Dec 24	2.7	Jan 19	1.3	Jun 8, 1994
ANNUAL SEVEN-DAY MINIMUM	6.0	Oct 27	4.0	Jan 16	1.4	Jun 8, 1994
MAXIMUM PEAK FLOW			7,980	Apr 23	25,000	Sep 10, 1996
MAXIMUM PEAK STAGE			17.29	Apr 23	23.89	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	14,700		18,900		25,830	
ANNUAL RUNOFF (CFSM)	1.73		2.23		3.04	
ANNUAL RUNOFF (INCHES)	23.54		30.27		41.36	
10 PERCENT EXCEEDS	31		37		53	
50 PERCENT EXCEEDS	11		12		16	
90 PERCENT EXCEEDS	7.4		6.4		6.8	

e Estimated



50055250 RIO CAGÜITAS AT HIGHWAY 30 AT CAGUAS, PR

LOCATION.--Lat 18°15'11", long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas Plaza.

DRAINAGE AREA.--14.1 mi^2 (36.5 km^2).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
31...	1135	8.6	9.7	4.1	52	6.8	577	27.5	180	50.2	14.3	2.19	1
FEB													
03...	1150	23	12	4.1	--	7.7	577	25.4	200	54.0	15.0	2.67	1
APR													
03...	1100	8.6	8.2	4.0	--	7.4	564	25.8	190	52.4	14.0	2.36	1
JUL													
01...	1350	8.1	5.8	4.7	--	7.3	602	30.0	--	--	--	--	--
SEP													
05...	0930	9.4	17	2.1	--	7.3	559	27.1	190	50.6	15.8	3.60	1

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
31...	34.0	154	39.8	<.2	36.4	52.2	--	322	7.43	12	1.4	.89	.51
FEB													
03...	35.9	171	41.5	.15	34.9	56.5	<.0	343	21.2	15	2.1	1.70	.38
APR													
03...	35.5	151	40.5	.16	34.8	58.8	<.1	329	7.68	10	1.8	1.40	.36
JUL													
01...	--	158	--	--	--	--	--	--	--	<10	3.2	3.00	.12
SEP													
05...	33.6	169	41.0	<.2	33.0	44.1	--	323	8.23	22	3.9	3.40	.08

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
31...	.600	.09	.51	.27	2.0	8.9	<10	E6,700	E400	--	--	--	--
FEB													
03...	.500	.12	.40	.31	2.6	11.5	20	E9,300	--	74,000	E1	47.6	61
APR													
03...	.490	.13	.40	.32	2.3	10.1	10	E730	--	52,000	<2	42.8	60
JUL													
01...	.200	.08	.20	.46	3.4	15.1	20	E10,000	--	--	--	--	--
SEP													
05...	.120	.04	.50	.60	4.0	17.8	30	28,000	--	220,000	--	--	--

50055250 RIO CAGÜITAS AT HIGHWAY 30 AT CAGUAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
03...	<.2	E.6	<10	<.01	660	M	346	<.02	<3	<.3	<25	<.10	<16
APR													
03...	<.2	<.8	<10	<.01	120	M	321	<.02	<3	<.3	<25	<.10	<16
JUL													
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50055400 RIO BAIROA NEAR CAGUAS, PR

LOCATION.--Lat 18°15'28", long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loíza, and 1.4 mi (2.3 km) north of Caguas Plaza.

DRAINAGE AREA.--5.4 mi^2 (14.0 km^2).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
29...	0925	3.6	7.3	6.2	76	7.2	423	25.1	160	40.2	15.2	3.11	.7
FEB													
03...	1500	15	360	4.1	--	7.8	456	25.6	86	22.7	7.20	2.46	.6
APR													
03...	0910	3.6	4.2	4.4	--	7.4	456	24.4	160	40.1	15.4	3.33	.8
JUL													
01...	1150	3.6	4.8	6.3	--	7.6	438	28.7	--	--	--	--	--
SEP													
05...	1130	3.0	8.0	5.9	--	7.4	418	27.8	160	38.1	15.4	3.60	.7

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
29...	21.8	148	32.1	<.2	32.0	14.4	--	248	2.40	<10	.20	.06	.75
FEB													
03...	12.2	127	16.7	.11	15.2	10.0	<.0	163	6.44	408	2.5	1.60	.58
APR													
03...	24.0	151	33.4	.17	32.0	15.6	<.1	255	2.46	<10	.90	.69	.71
JUL													
01...	--	139	--	--	--	--	--	--	--	<10	.70	.54	.68
SEP													
05...	21.0	138	32.1	.2	28.1	13.4	--	235	1.89	<10	.40	.14	.93

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
29...	.770	.02	.14	.24	.97	4.3	<10	E220	310	--	--	--	--
FEB													
03...	.670	.09	.90	.73	3.2	14.0	20	E150,000	--	E80,000	M	134	31
APR													
03...	.850	.14	.21	.38	1.8	7.7	10	E1,300	--	8,000	2	76.8	34
JUL													
01...	.740	.06	.16	.32	1.4	6.4	10	E1,700	--	--	--	--	--
SEP													
05...	1.00	.07	.26	.28	1.4	6.2	10	E1,000	--	32,000	--	--	--

50055400 RIO BAIROA NEAR CAGUAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
03...	<.2	33.6	70	<.01	13,000	6	633	.03	<3	<.3	76	E.07	<16
APR													
03...	<.2	<.8	<10	M	150	M	120	<.02	<3	<.3	<25	E.06	<16
JUL													
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi^2 (57.8 km^2).

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e8.5	e8.8	e7.2	11	e4.6	3.9	22	18	13	26	46
2	10	e7.9	e8.4	e9.5	103	e4.5	4.3	22	21	17	41	18
3	8.9	e8.5	e11	e8.2	26	e4.3	4.0	17	42	17	18	81
4	8.3	e9.0	e12	e8.3	137	e4.7	21	16	35	14	14	34
5	7.8	7.8	e24	e39	102	e4.6	310	17	21	14	12	18
6	7.4	7.6	e15	e34	41	e4.2	42	15	26	18	53	15
7	7.3	7.5	e12	e11	35	e4.0	21	15	91	15	43	14
8	8.5	7.3	e11	e8.1	16	e3.9	24	16	39	13	20	16
9	20	7.4	e15	e7.3	11	e3.8	74	15	25	13	16	17
10	10	13	e14	e8.3	24	e3.8	64	14	21	13	15	15
11	11	17	e10	e7.7	21	e4.2	1,430	12	22	12	44	13
12	16	15	e9.8	e6.8	15	e3.6	361	12	20	12	26	13
13	13	11	e9.3	e6.4	9.5	e3.6	177	40	19	58	16	49
14	9.3	8.4	e10	e6.5	7.3	e3.6	151	79	17	21	14	32
15	17	7.6	e9.3	e6.5	6.4	4.0	151	99	269	15	15	14
16	54	10	e11	e6.5	6.5	3.5	188	91	51	33	14	113
17	22	23	e50	e6.4	11	3.6	3,410	26	26	19	13	28
18	13	27	e34	e6.4	8.9	3.7	545	95	20	14	34	19
19	e11	e21	e11	e7.3	7.4	6.3	202	84	20	13	20	15
20	e10	e15	e9.6	e6.6	6.1	7.3	94	27	19	12	18	19
21	e13	e13	e11	e6.9	6.7	3.9	200	688	21	13	15	33
22	e13	23	e11	e6.2	7.7	3.7	261	75	18	16	285	21
23	e30	11	e10	e6.4	6.8	3.7	144	40	16	15	33	13
24	e22	e9.9	e12	e9.2	5.8	3.9	150	121	15	13	19	12
25	e22	e9.5	e9.8	e138	8.1	3.6	e57	34	14	12	18	11
26	e54	e13	e15	e62	7.4	3.2	e48	26	14	11	60	10
27	e24	e14	e14	e17	5.3	3.2	e33	22	13	13	26	10
28	e12	e10	e9.6	e12	4.8	6.3	e39	20	16	51	25	9.6
29	e8.9	e9.7	e8.2	e9.5	---	7.8	30	20	14	19	32	9.4
30	e8.4	e9.3	e7.0	e10	---	9.7	25	18	13	14	56	9.3
31	e8.5	---	e7.0	12	---	5.1	---	18	---	13	48	---
TOTAL	493.3	361.9	409.8	497.2	657.7	139.9	8,264.2	1,816	976	546	1,089	727.3
MEAN	15.9	12.1	13.2	16.0	23.5	4.51	275	58.6	32.5	17.6	35.1	24.2
MAX	54	27	50	138	137	9.7	3,410	688	269	58	285	113
MIN	7.3	7.3	7.0	6.2	4.8	3.2	3.9	12	13	11	12	9.3
AC-FT	978	718	813	986	1,300	277	16,390	3,600	1,940	1,080	2,160	1,440
CFSM	0.71	0.54	0.59	0.72	1.05	0.20	12.4	2.63	1.46	0.79	1.58	1.09
IN.	0.82	0.60	0.68	0.83	1.10	0.23	13.79	3.03	1.63	0.91	1.82	1.21

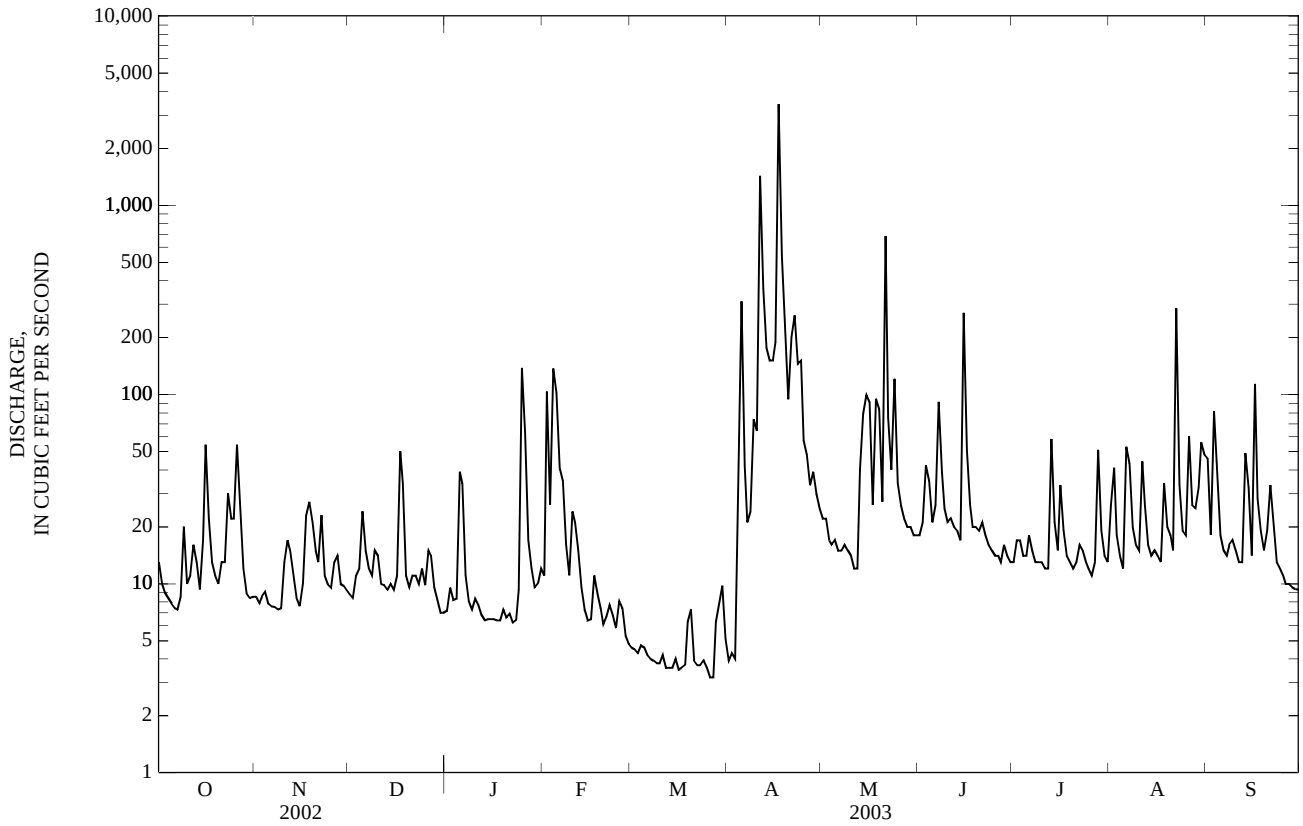
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY)

MEAN	51.8	78.7	44.8	34.2	25.5	10.8	31.1	31.0	38.3	36.1	42.3	77.6
MAX	161	252	166	103	66.7	18.1	275	123	117	147	110	196
(WY)	(1991)	(2000)	(1999)	(1996)	(1995)	(1991)	(2003)	(1992)	(1992)	(1993)	(1998)	(1998)
MIN	4.01	12.1	10.7	6.34	8.90	4.51	5.29	4.83	9.65	6.64	10.2	21.4
(WY)	(1993)	(2003)	(1998)	(1995)	(2001)	(2003)	(1995)	(1990)	(2000)	(2000)	(1993)	(1997)

50055750 RIO GURABO BELOW EL MANGO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	9,556.3		15,978.3			
ANNUAL MEAN	26.2		43.8		42.5	
HIGHEST ANNUAL MEAN					54.4	2000
LOWEST ANNUAL MEAN					22.0	1994
HIGHEST DAILY MEAN	1,790	May 30	3,410	Apr 17	4,040	Sep 10, 1996
LOWEST DAILY MEAN	4.5	Mar 23	3.2	Mar 26	1.1	Oct 27, 1992
ANNUAL SEVEN-DAY MINIMUM	4.7	Mar 19	3.6	Mar 21	1.4	Oct 22, 1992
MAXIMUM PEAK FLOW			11,600	Apr 17	19,100	Sep 10, 1996
MAXIMUM PEAK STAGE			20.76	Apr 17	24.12	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	18,950		31,690		30,820	
ANNUAL RUNOFF (CFSM)	1.17		1.96		1.91	
ANNUAL RUNOFF (INCHES)	15.94		26.65		25.92	
10 PERCENT EXCEEDS	29		59		74	
50 PERCENT EXCEEDS	11		14		12	
90 PERCENT EXCEEDS	6.4		6.4		4.9	

e Estimated



50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION.--Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos Plaza.

DRAINAGE AREA.--16.4 mi^2 (42.5 km^2).

PERIOD OF RECORD.--January 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS.--Records poor. Minor diversion from public water-supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: September 6, 1960, 37,100 ft^3/s (1,050 m^3/s), October 9, 1970, 18,200 ft^3/s (515 m^3/s).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	4.8	5.2	16	19	5.5	e12	28	24	13	26	31
2	41	4.5	8.7	20	13	5.3	5.8	25	34	31	28	25
3	22	4.4	11	14	9.8	5.1	3.3	23	47	55	21	20
4	33	3.9	23	11	45	7.1	4.2	22	38	19	17	20
5	23	3.5	30	138	41	7.8	429	29	35	20	16	18
6	11	3.3	13	50	21	4.8	53	21	46	26	92	15
7	8.1	3.3	10	17	71	5.4	27	25	348	14	38	14
8	74	3.5	14	12	31	4.6	23	29	85	11	24	13
9	42	5.5	17	11	19	5.3	32	23	51	11	19	13
10	17	20	11	13	23	5.6	129	19	37	9.5	16	11
11	13	31	9.0	10	15	5.0	850	19	35	8.3	17	14
12	34	7.7	9.1	8.8	16	4.5	e120	19	34	8.5	13	32
13	16	5.8	9.2	8.4	10	5.7	e50	22	31	123	12	69
14	8.4	6.1	13	8.6	9.0	2.9	e20	35	24	23	12	31
15	14	3.9	8.3	8.1	8.0	2.9	e17	39	63	16	32	21
16	33	30	16	7.6	9.0	2.9	30	42	45	42	12	407
17	23	24	175	7.5	22	4.7	3,050	31	24	18	58	49
18	12	30	56	8.4	15	3.9	941	77	21	13	69	31
19	7.5	15	21	7.6	11	41	305	47	162	12	29	24
20	6.4	9.3	18	7.2	19	12	145	27	38	11	21	24
21	9.8	9.7	21	7.7	25	4.4	142	1,040	57	19	24	209
22	7.5	8.3	18	7.4	10	3.4	201	191	27	51	344	64
23	5.8	7.3	23	8.1	7.6	3.4	93	96	20	21	55	32
24	6.5	6.9	16	15	7.8	5.3	66	67	18	14	29	24
25	11	8.6	39	143	10	3.4	54	54	16	11	27	21
26	54	26	21	42	7.0	2.7	73	45	14	11	50	20
27	13	10	15	15	6.1	3.2	49	37	13	28	41	17
28	7.2	7.2	12	8.9	5.9	6.2	40	32	18	195	31	16
29	5.2	5.7	11	8.9	---	12	35	28	12	40	82	15
30	4.7	5.6	10	9.3	---	e18	30	24	11	26	47	15
31	4.8	---	10	45	---	e3.9	---	23	---	24	34	---
TOTAL	584.9	314.8	673.5	694.5	506.2	207.9	7,029.3	2,239	1,428	924.3	1,336	1,315
MEAN	18.9	10.5	21.7	22.4	18.1	6.71	234	72.2	47.6	29.8	43.1	43.8
MAX	74	31	175	143	71	41	3,050	1,040	348	195	344	407
MIN	4.7	3.3	5.2	7.2	5.9	2.7	3.3	19	11	8.3	12	11
AC-FT	1,160	624	1,340	1,380	1,000	412	13,940	4,440	2,830	1,830	2,650	2,610
CFSM	1.15	0.64	1.32	1.37	1.10	0.41	14.3	4.40	2.90	1.82	2.63	2.67
IN.	1.33	0.71	1.53	1.58	1.15	0.47	15.94	5.08	3.24	2.10	3.03	2.98

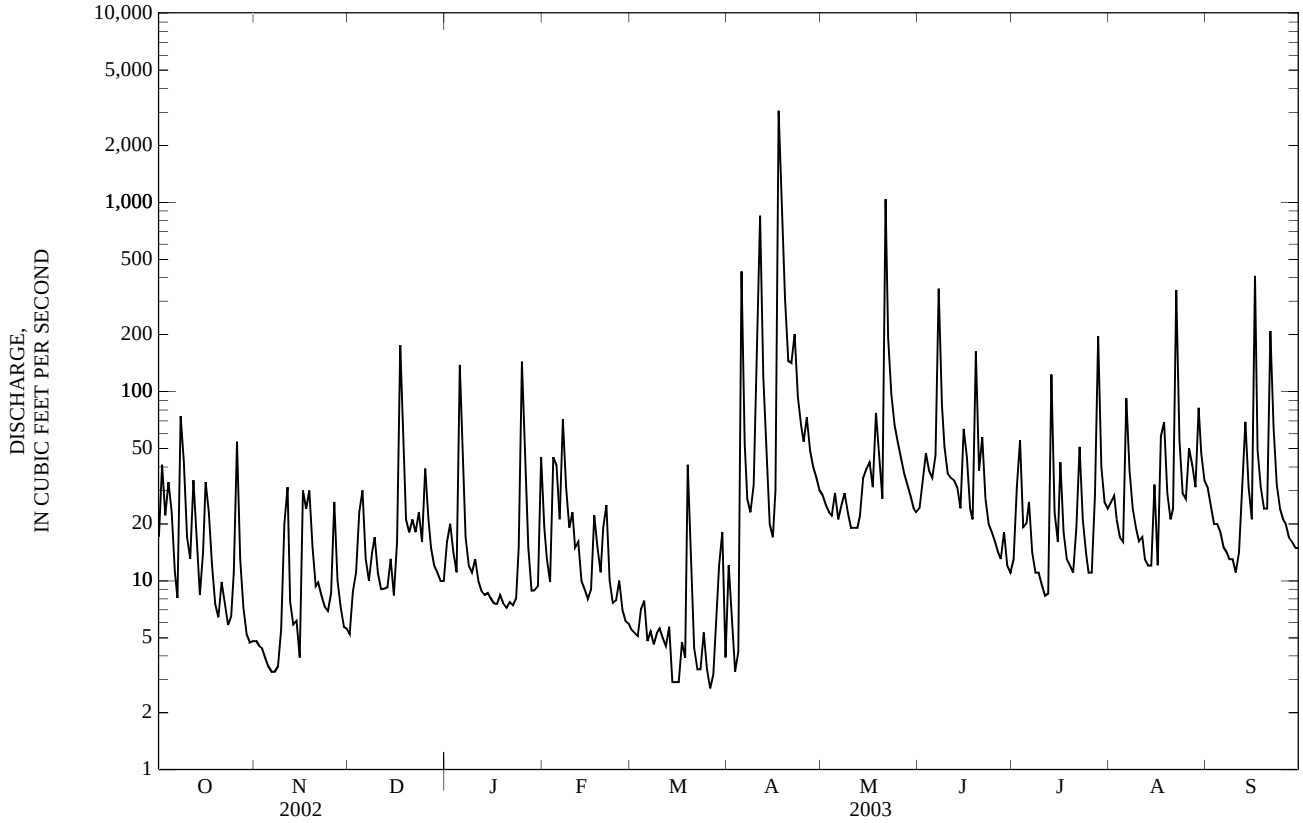
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2003, BY WATER YEAR (WY)

MEAN	72.7	88.0	52.6	26.9	19.6	17.5	22.7	45.1	47.3	43.3	60.4	83.6
MAX	293	461	550	79.6	47.9	39.7	234	268	188	163	231	285
(WY)	(1986)	(1988)	(1988)	(1998)	(1984)	(1973)	(2003)	(1985)	(1979)	(1981)	(1979)	(1998)
MIN	18.9	10.5	11.0	11.4	7.21	6.04	5.17	5.02	3.86	4.61	4.71	10.8
(WY)	(2003)	(2003)	(1990)	(1976)	(1974)	(2000)	(1995)	(1990)	(2001)	(1994)	(1994)	(1987)

50056400 RIO VALENCIANO NEAR JUNCOS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1971 - 2003	
ANNUAL TOTAL	9,532.7		17,253.4			
ANNUAL MEAN	26.1		47.3		48.5	
HIGHEST ANNUAL MEAN					121	1988
LOWEST ANNUAL MEAN					17.1	1990
HIGHEST DAILY MEAN	619	Apr 20	3,050	Apr 17	9,100	Dec 8, 1987
LOWEST DAILY MEAN	3.3	Nov 6	2.7	Mar 26	1.2	Jun 22, 2001
ANNUAL SEVEN-DAY MINIMUM	3.8	Nov 2	3.7	Mar 21	1.6	Jun 17, 2001
MAXIMUM PEAK FLOW			13,000	Apr 17	40,000	Dec 8, 1987
MAXIMUM PEAK STAGE			17.05	Apr 17	25.63	Dec 8, 1987
ANNUAL RUNOFF (AC-FT)	18,910		34,220		35,100	
ANNUAL RUNOFF (CFSM)	1.59		2.88		2.95	
ANNUAL RUNOFF (INCHES)	21.62		39.14		40.14	
10 PERCENT EXCEEDS	37		63		72	
50 PERCENT EXCEEDS	11		18		18	
90 PERCENT EXCEEDS	4.9		5.5		6.4	

e Estimated



50057000 RIO GURABO AT GURABO, PR

LOCATION.--Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--60.2 mi^2 (156 km^2).

PERIOD OF RECORD.--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to October 1, 1989 datum 5.0 ft (1.5 m) lower.

REMARKS.--Records fair, except for March 20 to April 9, and estimated mean daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low flow affected by diversions for water supply about 400 ft (121 m) upstream from station by PRASA.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	31	30	20	51	23	e55	84	38	30	40	110
2	41	30	29	25	82	23	28	82	43	36	67	56
3	36	30	38	22	74	22	26	80	68	55	44	106
4	32	30	41	23	140	23	31	76	75	37	34	87
5	37	30	55	80	128	23	639	77	46	31	31	48
6	37	29	43	71	93	22	111	76	50	39	89	41
7	28	29	35	31	74	21	65	74	465	32	83	40
8	27	30	33	22	64	21	e94	76	123	28	48	39
9	79	30	48	20	46	20	e73	68	57	27	39	40
10	88	37	43	22	51	20	105	61	46	26	36	40
11	43	59	32	20	55	22	2,670	57	48	25	54	37
12	48	46	31	17	47	19	399	56	43	25	59	35
13	45	45	30	16	39	19	136	91	40	159	38	174
14	31	38	33	16	34	19	89	148	35	53	34	116
15	29	34	32	16	31	19	71	164	503	36	41	45
16	53	38	35	16	31	21	89	142	134	58	38	408
17	58	61	128	15	35	20	12,100	86	53	43	52	71
18	33	74	92	15	39	21	2,120	117	43	33	73	51
19	32	55	37	18	33	41	724	173	98	29	59	54
20	29	44	31	16	31	e86	347	67	54	28	45	46
21	38	42	36	17	37	e67	590	2,460	57	32	44	120
22	38	49	35	16	33	e48	635	335	46	43	258	78
23	80	41	34	15	28	22	314	96	37	41	89	42
24	62	38	39	24	27	24	436	227	35	30	57	36
25	61	36	36	374	30	24	166	72	33	28	52	33
26	134	48	46	170	32	23	143	59	31	28	103	30
27	67	52	40	56	25	24	115	51	30	33	73	29
28	40	38	25	42	24	24	108	46	35	136	57	27
29	33	34	21	36	---	25	97	43	32	55	85	28
30	31	31	19	38	---	35	89	41	29	37	103	26
31	30	---	19	53	---	e57	---	38	---	34	113	---
TOTAL	1,457	1,209	1,226	1,342	1,414	878	22,665	5,323	2,427	1,327	2,038	2,093
MEAN	47.0	40.3	39.5	43.3	50.5	28.3	756	172	80.9	42.8	65.7	69.8
MAX	134	74	128	374	140	86	12,100	2,460	503	159	258	408
MIN	27	29	19	15	24	19	26	38	29	25	31	26
AC-FT	2,890	2,400	2,430	2,660	2,800	1,740	44,960	10,560	4,810	2,630	4,040	4,150
CFSM	0.78	0.67	0.66	0.72	0.84	0.47	12.5	2.85	1.34	0.71	1.09	1.16
IN.	0.90	0.75	0.76	0.83	0.87	0.54	14.01	3.29	1.50	0.82	1.26	1.29

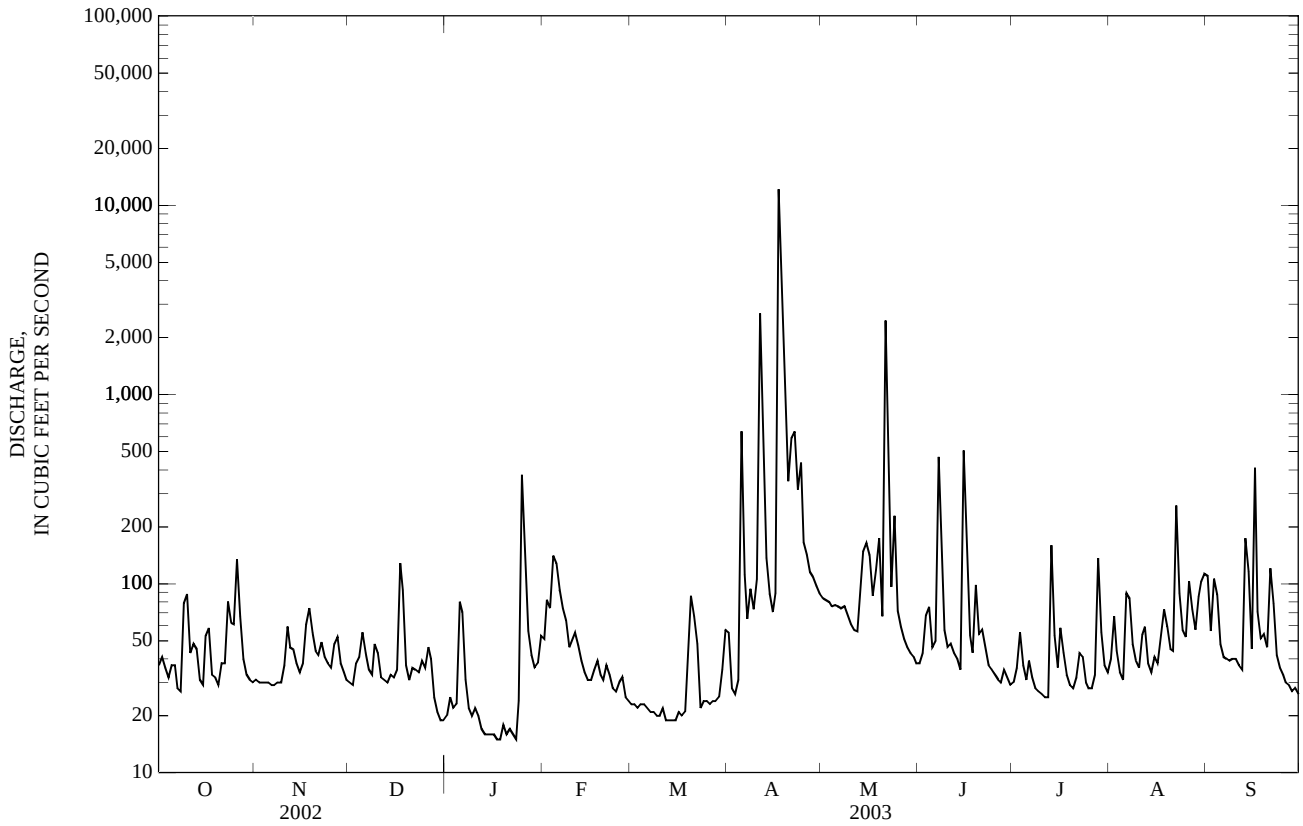
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

MEAN	212	214	145	63.6	47.1	37.6	57.8	133	120	105	156	224
MAX	1,414	1,045	863	204	131	97.5	756	746	468	376	610	1,225
(WY)	(1971)	(1988)	(1988)	(1992)	(1989)	(1985)	(2003)	(1985)	(1970)	(1993)	(1979)	(1960)
MIN	16.0	23.7	10.7	16.4	12.6	11.2	13.1	12.7	16.8	14.9	24.8	8.76
(WY)	(1968)	(1996)	(1968)	(1968)	(1968)	(1965)	(1995)	(1990)	(1972)	(2000)	(1967)	(1967)

50057000 RIO GURABO AT GURABO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	21,064.5		43,399			
ANNUAL MEAN	57.7		119		127	
HIGHEST ANNUAL MEAN					286	1979
LOWEST ANNUAL MEAN					42.2	1967
HIGHEST DAILY MEAN	2,390	May 30	12,100	Apr 17	26,200	Sep 10, 1996
LOWEST DAILY MEAN	7.9	Mar 21	15	Jan 17	3.7	May 27, 1996
ANNUAL SEVEN-DAY MINIMUM	8.8	Mar 17	16	Jan 12	5.2	May 25, 1996
MAXIMUM PEAK FLOW			43,500	Apr 17	62,100	Sep 10, 1996
MAXIMUM PEAK STAGE			29.15	Apr 17	31.44	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	41,780		86,080		91,660	
ANNUAL RUNOFF (CFSM)	0.959		1.98		2.10	
ANNUAL RUNOFF (INCHES)	13.02		26.82		28.56	
10 PERCENT EXCEEDS	76		121		199	
50 PERCENT EXCEEDS	32		40		46	
90 PERCENT EXCEEDS	16		23		16	

e Estimated



50057025 RIO GURABO NEAR GURABO, PR

LOCATION.--Lat 18°15'56", long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo Plaza.

DRAINAGE AREA.--62.8 mi^2 (162.7 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
OCT													
31...	1020	19	3.2	41	6.6	361	28.2	100	24.5	10.3	4.42	1	22.4
FEB													
18...	1400	12	4.2	--	7.5	447	27.7	140	32.3	13.8	5.11	1	31.5
APR													
03...	1240	28	3.8	--	7.2	441	27.4	140	31.9	14.3	4.14	1	32.5
JUN													
05...	1400	44	3.7	--	7.8	345	28.5	--	--	--	--	--	--
SEP													
05...	1430	87	4.6	--	7.3	192	31.0	62	14.5	6.18	3.66	.7	12.0

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
OCT													
31...	111	24.1	<.2	28.0	11.1	--	191	<10	1.3	.45	.89	.920	.03
FEB													
18...	145	31.5	.16	32.2	13.3	<.0	247	14	1.2	.36	1.87	2.00	.13
APR													
03...	144	34.8	.15	32.0	15.0	<.1	251	27	.80	.34	1.01	1.10	.09
JUN													
05...	110	--	--	--	--	--	--	<10	--	--	--	--	--
SEP													
05...	58	13.1	<.2	16.7	6.5	--	108	41	1.2	.35	.66	.790	.13

Date	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
OCT													
31...	.85	.29	2.2	9.8	20	E1,400	230	--	--	--	--	--	--
FEB													
18...	.84	.37	3.2	14.2	<10	E700	--	4,100	<2	76.2	44	<.2	<.8
APR													
03...	.46	.29	1.9	8.4	20	4,800	--	8,000	E2	93.7	54	<.2	E.8
JUN													
05...	--	--	--	--	20	2,200	--	E19,000	--	--	--	--	--
SEP													
05...	.85	.28	2.0	8.8	30	E1,300	--	34,000	--	--	--	--	--

50057025 RIO GURABO NEAR GURABO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
OCT											
31...	--	--	--	--	--	--	--	--	--	--	--
FEB											
18...	<10	<.01	410	<1	474	<.02	<3	<.3	<25	<.10	<16
APR											
03...	<10	<.01	1,190	M	1,050	<.02	<3	<.3	E19	<.10	<16
JUN											
05...	--	--	--	--	--	--	--	--	--	--	--
SEP											
05...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off Road 798, upstream side of bridge on Highway 52, 0.5 mi (0.8 km) northeast from Escuela Segunda Unidad de Francisco Valdés, and 0.8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi^2 (19.5 km^2).

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	15	4.7	3.4	4.1	3.6	2.8	4.4	3.9	3.0	e5.3	5.9
2	5.8	6.4	5.4	3.8	3.8	3.5	2.8	4.2	3.7	3.0	7.7	5.8
3	5.7	5.3	4.4	3.5	4.1	3.5	2.9	4.2	4.4	2.9	4.4	5.5
4	5.7	4.8	11	3.3	48	3.4	3.1	4.2	3.4	3.2	7.7	5.1
5	5.7	5.0	5.5	3.3	9.5	3.6	4.7	4.1	3.3	3.4	3.9	5.1
6	5.7	5.2	4.5	3.3	5.2	3.5	3.2	4.3	3.2	3.1	4.3	4.7
7	5.4	4.8	4.2	3.1	4.5	3.4	2.8	11	4.7	3.4	4.7	8.5
8	7.3	4.6	9.0	3.0	4.2	3.3	2.9	6.2	3.3	4.0	3.8	7.7
9	6.0	5.3	5.6	3.0	3.9	3.3	2.8	5.0	3.6	3.2	3.6	4.8
10	12	4.7	4.7	2.9	4.0	3.1	2.9	4.8	3.3	3.0	3.4	4.6
11	5.9	4.5	5.1	2.9	4.0	3.1	25	5.0	3.2	2.9	3.4	5.0
12	5.6	9.2	4.6	2.7	3.9	3.2	11	5.1	3.1	2.9	3.4	4.6
13	5.5	5.3	5.2	2.6	3.8	3.2	7.4	4.4	3.0	26	6.2	12
14	5.7	4.8	4.3	2.6	3.9	3.2	6.7	5.1	2.9	e3.7	9.0	5.5
15	6.5	4.7	4.2	2.5	3.7	3.1	6.3	4.6	5.2	e3.6	3.9	4.3
16	5.8	4.7	4.2	2.6	3.8	3.1	6.5	4.3	3.5	e6.4	3.5	4.7
17	5.4	4.7	4.2	2.7	4.1	3.2	47	4.2	3.2	e3.5	3.3	4.1
18	5.4	5.3	4.1	2.7	3.8	3.0	103	8.3	3.1	e3.0	16	4.1
19	7.3	5.2	4.0	2.7	3.7	3.0	26	5.3	4.2	e3.1	5.2	4.3
20	7.5	4.6	4.9	2.7	3.7	3.3	25	16	4.2	e3.4	4.1	4.2
21	12	4.6	4.5	2.8	3.7	3.1	48	25	3.2	e3.6	27	194
22	5.4	4.6	5.0	2.6	3.7	3.0	29	7.7	3.0	e5.4	21	e11
23	5.7	4.5	4.0	3.2	3.6	3.2	130	5.2	2.9	e3.7	6.5	e5.3
24	5.3	4.5	3.9	28	3.6	3.1	35	4.2	2.8	e3.2	5.3	e4.5
25	6.4	4.4	5.0	67	3.9	2.9	8.8	3.9	2.9	e3.1	17	e4.3
26	6.3	4.4	3.8	20	3.9	6.1	6.6	4.0	2.9	e3.6	11	e4.3
27	5.0	4.5	3.6	5.2	3.7	7.3	5.2	4.2	3.0	e3.9	5.4	e4.3
28	5.4	4.5	3.5	4.4	3.6	3.5	4.7	4.1	3.1	e5.4	9.0	e4.1
29	5.0	4.8	3.4	4.8	---	3.1	4.6	3.9	3.0	e3.9	94	e4.3
30	4.9	4.9	3.4	4.1	---	2.9	4.5	4.0	3.0	e3.4	10	e4.8
31	5.2	---	3.5	4.2	---	2.8	---	4.0	---	20	6.4	---
TOTAL	192.5	159.8	147.4	205.6	159.4	106.6	571.2	184.9	102.2	149.9	319.4	351.4
MEAN	6.21	5.33	4.75	6.63	5.69	3.44	19.0	5.96	3.41	4.84	10.3	11.7
MAX	12	15	11	67	48	7.3	130	25	5.2	26	94	194
MIN	4.9	4.4	3.4	2.5	3.6	2.8	2.8	3.9	2.8	2.9	3.3	4.1
AC-FT	382	317	292	408	316	211	1,130	367	203	297	634	697
CFSM	0.82	0.71	0.63	0.88	0.76	0.46	2.53	0.79	0.45	0.64	1.37	1.56
IN.	0.95	0.79	0.73	1.02	0.79	0.53	2.82	0.91	0.50	0.74	1.58	1.74

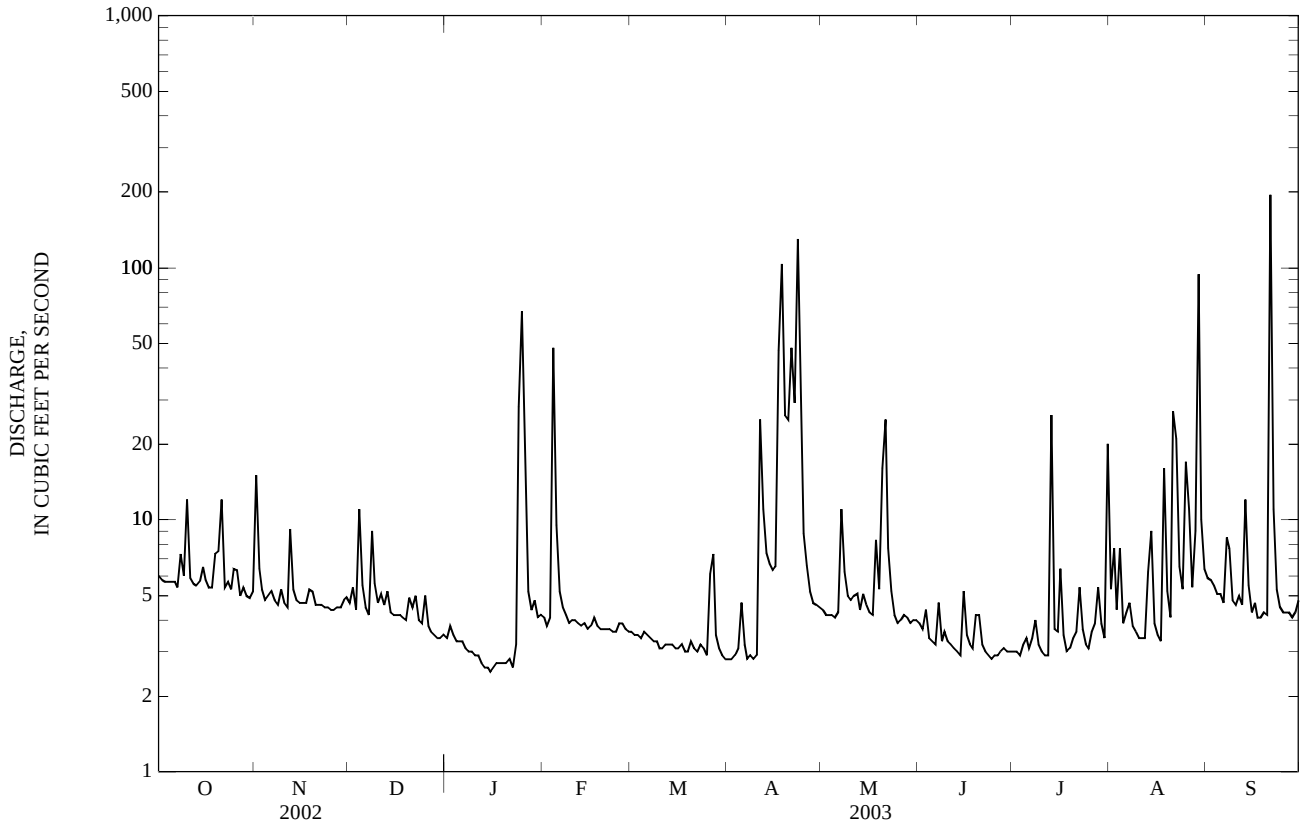
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2003, BY WATER YEAR (WY)

MEAN	19.6	19.4	18.1	12.8	10.2	6.19	7.94	8.38	9.07	8.79	15.3	23.9
MAX	51.0	53.8	50.7	24.5	18.8	12.0	23.7	19.5	35.2	25.9	36.8	81.6
(WY)	(1999)	(1999)	(2002)	(1992)	(1995)	(1999)	(2002)	(1992)	(1999)	(1999)	(1996)	(1996)
MIN	4.60	5.33	4.75	4.48	4.29	2.48	3.24	2.50	1.78	3.40	4.36	4.25
(WY)	(1992)	(2003)	(2003)	(1994)	(1994)	(1994)	(1995)	(1994)	(1994)	(1990)	(1990)	(1997)

50058350 RIO CAÑAS AT RIO CAÑAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1990 - 2003	
ANNUAL TOTAL	3,843.4		2,650.3			
ANNUAL MEAN	10.5		7.26		13.6	
HIGHEST ANNUAL MEAN					24.8	1999
LOWEST ANNUAL MEAN					5.77	1994
HIGHEST DAILY MEAN	173	Apr 26	194	Sep 21	1,670	Sep 10, 1996
LOWEST DAILY MEAN	3.4	Dec 29	2.5	Jan 15	1.1	Jun 8, 1994
ANNUAL SEVEN-DAY MINIMUM	3.7	Dec 25	2.6	Jan 12	1.2	Jun 8, 1994
MAXIMUM PEAK FLOW			2,080	Sep 21	7,500	Sep 10, 1996
MAXIMUM PEAK STAGE			17.35	Sep 21	24.60	Sep 10, 1996
INSTANTANEOUS LOW FLOW			2.4	Jan 15	1.0	Jun 21, 1994
ANNUAL RUNOFF (AC-FT)	7,620		5,260		9,870	
ANNUAL RUNOFF (CFSM)	1.40		0.964		1.81	
ANNUAL RUNOFF (INCHES)	18.99		13.09		24.57	
10 PERCENT EXCEEDS	18		9.0		26	
50 PERCENT EXCEEDS	6.9		4.3		6.2	
90 PERCENT EXCEEDS	4.3		3.0		3.0	

e Estimated



50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Q	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Sulfide water unfltrd mg/L (00745)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
OCT														
29...	1135	93	93	.2	3	6.6	302	28.1	100	--	<10	.70	.24	<.020
JAN														
29...	1525	155	155	.4	5	6.9	322	26.0	105	--	<10	.70	.29	.210
APR														
23...	1350	154	--	2.2	--	6.8	176	28.1	49	<.1	32	.80	.10	.700
JUN														
03...	1445	139	139	1.9	--	7.0	208	29.2	65	--	10	--	--	--
SEP														
03...	1215	174	179	2.0	--	7.0	247	29.4	78	--	<10	.50	.16	.060

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Boron, water, unfltrd recoverable, ug/L (01022)	Copper, water, unfltrd recoverable, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recoverable, ug/L (01045)	Manganese, water, unfltrd recoverable, ug/L (01055)	Zinc, water, unfltrd recoverable, ug/L (01092)
OCT													
29...	<.01	.14	--	10	E29	16	--	--	--	--	--	--	--
JAN													
29...	.03	.10	4.0	--	E37	--	208	--	--	--	--	--	--
APR													
23...	.07	.18	6.6	20	E1,100	--	650	20	20	<.01	3,140	108	E24
JUN													
03...	--	--	--	20	50	--	--	--	--	--	--	--	--
SEP													
03...	.03	.07	2.5	10	40	--	280	--	--	--	--	--	--

Date	MBAS, water, unfltrd mg/L (38260)	Phenolic compounds, water, unfltrd ug/L (32730)
OCT		
29...	--	--
JAN		
29...	--	--
APR		
23...	<.10	<16
JUN		
03...	--	--
SEP		
03...	--	--

< -- Less than
E -- Estimated value

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, PR

LOCATION.--Lat 18°19'49", long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto Plaza.

DRANAIGE AREA.--208 mi^2 (539 km^2).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year. Prior to October 1994, published as Lago Loíza at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Loíza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm^3). Out flow from lake is controlled by five slide gates in power plant and pump intake structure, four sluicegates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station. New capacity table based on U.S. Geological Survey Water-Resources Investigations Report 97-4108, November 1994 .

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), September 18, 1989; minimum elevation, 108.52 ft (33.08 m), July 18, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 135.13 ft (41.19 m), April 17; minimum elevation, 126.85 ft (38.66 m), April 5.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 97-4108, 1994)
(Elevation in ft, capacity in acre-ft)

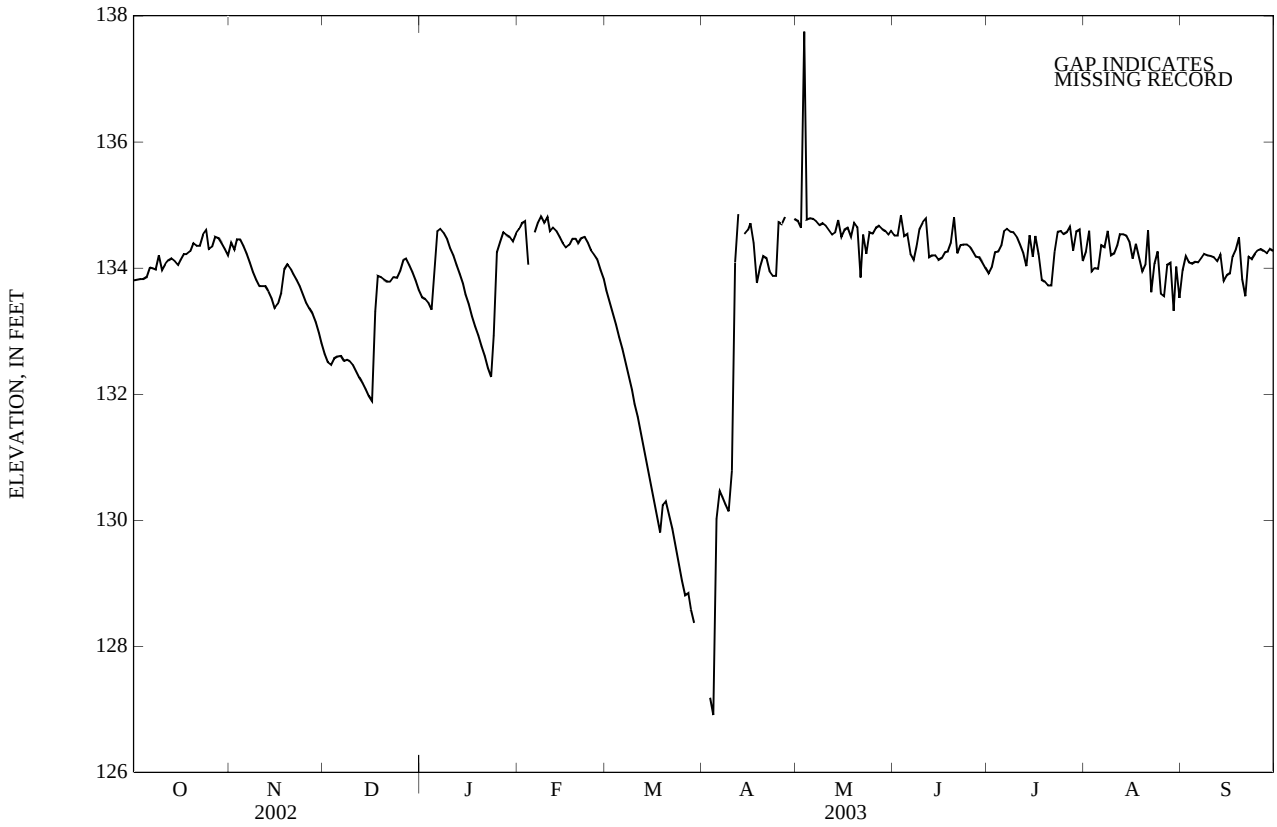
Elevation	Contents	Elevation	Contents
75	0	125	5,861
95	73	131	9,218
115	2,205	135	11,504

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133.81	134.41	132.64	133.54	134.62	133.65	A	134.75	134.52	133.92	134.27	133.97
2	133.82	134.30	132.51	133.51	134.71	133.47	A	134.64	134.52	134.02	134.59	134.19
3	133.83	134.46	132.47	133.45	134.74	133.29	127.19	137.75	134.83	134.26	133.94	134.09
4	133.83	134.46	132.57	133.34	134.05	133.11	126.91	134.77	134.51	134.27	134.00	134.07
5	133.86	134.36	132.60	134.00	A	132.91	130.02	134.79	134.54	134.37	133.99	134.10
6	134.01	134.24	132.61	134.58	134.57	132.72	130.47	134.78	134.23	134.58	134.37	134.09
7	134.00	134.09	132.53	134.62	134.72	132.50	130.38	134.74	134.13	134.62	134.34	134.16
8	133.98	133.94	132.55	134.56	134.82	132.29	130.25	134.68	134.38	134.58	134.59	134.23
9	134.20	133.82	132.53	134.47	134.72	132.07	130.14	134.71	134.62	134.57	134.20	134.21
10	133.97	133.72	132.47	134.32	134.81	131.85	130.78	134.67	134.72	134.50	134.24	134.19
11	134.06	133.72	132.37	134.20	134.58	131.65	134.08	134.60	134.78	134.38	134.37	134.17
12	134.12	133.72	132.27	134.05	134.64	131.38	134.85	134.53	134.17	134.25	134.54	134.11
13	134.15	133.64	132.18	133.91	134.59	131.12	A	134.56	134.21	134.03	134.54	134.22
14	134.11	133.52	132.08	133.76	134.50	130.86	134.54	134.76	134.20	134.52	134.52	133.80
15	134.05	133.36	131.97	133.59	134.40	130.59	134.60	134.50	134.13	134.17	134.42	133.89
16	134.13	133.43	131.89	133.43	134.33	130.32	134.71	134.61	134.16	134.51	134.15	133.92
17	134.23	133.61	133.31	133.24	134.37	130.06	134.40	134.64	134.26	134.23	134.39	134.18
18	134.23	133.98	133.88	133.08	134.47	129.81	133.77	134.50	134.27	133.82	134.17	134.30
19	134.27	134.06	133.86	132.94	134.47	130.23	134.02	134.72	134.41	133.79	133.95	134.49
20	134.40	133.99	133.82	132.76	134.40	130.30	134.19	134.65	134.80	133.73	134.06	133.83
21	134.36	133.91	133.79	132.61	134.48	130.08	134.16	133.85	134.24	133.73	134.60	133.56
22	134.36	133.82	133.79	132.42	134.50	129.87	133.95	134.53	134.37	134.26	133.62	134.18
23	134.53	133.72	133.86	132.28	134.41	129.60	133.88	134.23	134.38	134.58	134.07	134.14
24	134.60	133.59	133.85	132.93	134.29	129.33	133.88	134.57	134.38	134.59	134.27	134.23
25	134.30	133.45	133.96	134.26	134.22	129.05	134.73	134.55	134.34	134.54	133.60	134.29
26	134.34	133.36	134.13	134.42	134.13	128.81	134.70	134.64	134.26	134.57	133.55	134.31
27	134.50	133.28	134.15	134.57	133.97	128.84	134.81	134.67	134.18	134.66	134.05	134.28
28	134.48	133.15	134.05	134.53	133.83	128.59	A	134.62	134.17	134.28	134.08	134.24
29	134.40	132.98	133.94	134.50	---	128.38	A	134.59	134.09	134.58	133.32	134.31
30	134.31	132.81	133.81	134.43	---	A	134.78	134.53	134.00	134.61	134.02	134.28
31	134.21	---	133.66	134.55	---	A	---	134.59	---	134.11	133.52	---
MAX	134.60	134.46	134.15	134.62	---	---	---	137.75	134.83	134.66	134.60	134.49
MIN	133.81	132.81	131.89	132.28	---	---	---	133.85	134.00	133.73	133.32	133.56

A No gage-height record

50059000 LAGO LOIZA AT DAMSITE NEAR TRUJILLO ALTO, PR—Continued



50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR

LOCATION.--Lat 18°20'33", long 66°00'20", Hydrologic Unit 21010005, on left bank of Highway 175, 1.1 mi (1.8 km) downstream of Lago Loíza Dam.

DRAINAGE AREA.--209 mi^2 (541 km^2).

PERIOD OF RECORD.--December 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 32 ft (10 m), from topographic map.

REMARKS.--Records poor. Flow regulated by Lago Loíza Dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	1.9	2.8	2.4	7.0	1.3	e0.11	32	1.2	0.99	1.8	81
2	4.2	1.9	2.8	2.3	5.4	1.3	0.09	58	1.2	1.2	395	3.1
3	4.1	1.8	2.5	2.4	43	1.3	0.09	1.9	1.1	1.4	451	127
4	4.5	1.7	3.3	2.6	1,180	1.2	0.11	1.4	265	1.3	1.5	219
5	4.4	1.7	2.7	2.3	57	1.1	0.21	1.3	1.8	1.3	0.90	1.7
6	4.4	1.9	8.9	2.3	74	1.2	0.24	1.3	420	1.4	133	1.6
7	4.3	2.1	3.5	2.2	21	1.3	0.21	24	1,490	1.2	427	1.6
8	4.4	2.7	3.8	2.3	7.0	1.2	0.16	41	371	1.4	1.4	1.5
9	4.8	2.3	3.7	2.2	20	1.1	0.16	1.6	1.4	1.2	238	1.5
10	415	2.5	3.4	2.3	7.7	0.97	0.14	1.2	1.2	1.5	2.0	1.5
11	4.5	2.6	3.4	2.5	150	0.91	5,860	1.1	1.1	1.3	0.80	4.1
12	3.0	2.3	3.3	2.1	1.7	0.88	639	1.1	322	0.87	0.67	2.2
13	3.0	2.3	3.6	2.1	1.4	0.85	350	1.2	3.9	1,810	0.71	165
14	3.9	2.4	2.8	2.0	1.5	0.79	257	21	1.4	3.8	0.70	515
15	4.2	2.0	2.2	1.9	1.4	0.91	0.69	274	849	202	46	1.6
16	3.5	1.8	2.2	1.8	1.3	0.71	0.49	32	291	114	194	1,140
17	3.2	1.7	2.1	1.8	1.3	0.60	19,900	1.7	1.6	160	215	2.1
18	3.3	1.9	2.1	2.2	1.2	0.53	9,760	294	1.4	237	583	1.4
19	3.2	2.0	2.2	2.0	1.2	0.66	2,540	100	801	1.2	305	1.8
20	4.1	1.8	2.4	2.0	1.6	0.74	1,250	100	2.2	0.93	1.4	341
21	226	1.9	2.9	1.9	1.7	0.63	2,030	5,610	408	0.85	375	3,280
22	4.0	5.8	3.7	1.8	1.5	0.88	2,300	1,080	1.9	1.0	2,220	349
23	5.8	2.7	3.2	1.9	1.4	0.73	2,380	487	1.3	0.90	118	261
24	4.2	2.4	2.6	3.0	1.4	0.62	2,430	182	1.1	0.89	2.1	2.1
25	220	2.3	3.0	1,520	1.4	0.48	152	60	1.2	0.79	510	1.9
26	238	2.8	2.9	793	1.4	0.92	285	1.8	1.3	1.2	558	2.4
27	5.0	3.1	2.8	6.6	1.7	0.88	94	1.1	1.1	1.8	7.9	1.7
28	2.5	3.2	2.4	16	1.5	0.22	97	15	1.1	705	124	1.6
29	2.6	2.9	2.3	5.4	---	1.4	94	1.6	1.0	1.5	1,370	1.7
30	2.5	2.9	2.4	4.9	---	0.51	35	0.99	1.0	0.91	104	1.8
31	2.0	---	2.4	11	---	e0.18	---	1.1	---	307	441	---
TOTAL	1,202.8	71.3	94.3	2,409.2	1,596.7	27.00	50,455.70	8,430.39	5,247.5	3,565.83	8,828.88	6,516.9
MEAN	38.8	2.38	3.04	77.7	57.0	0.87	1,682	272	175	115	285	217
MAX	415	5.8	8.9	1,520	1,180	1.4	19,900	5,610	1,490	1,810	2,220	3,280
MIN	2.0	1.7	2.1	1.8	1.2	0.18	0.09	0.99	1.0	0.79	0.67	1.4
AC-FT	2,390	141	187	4,780	3,170	54	100,100	16,720	10,410	7,070	17,510	12,930
CFSM	0.19	0.01	0.01	0.37	0.27	0.00	8.05	1.30	0.84	0.55	1.36	1.04
IN.	0.21	0.01	0.02	0.43	0.28	0.00	8.98	1.50	0.93	0.63	1.57	1.16

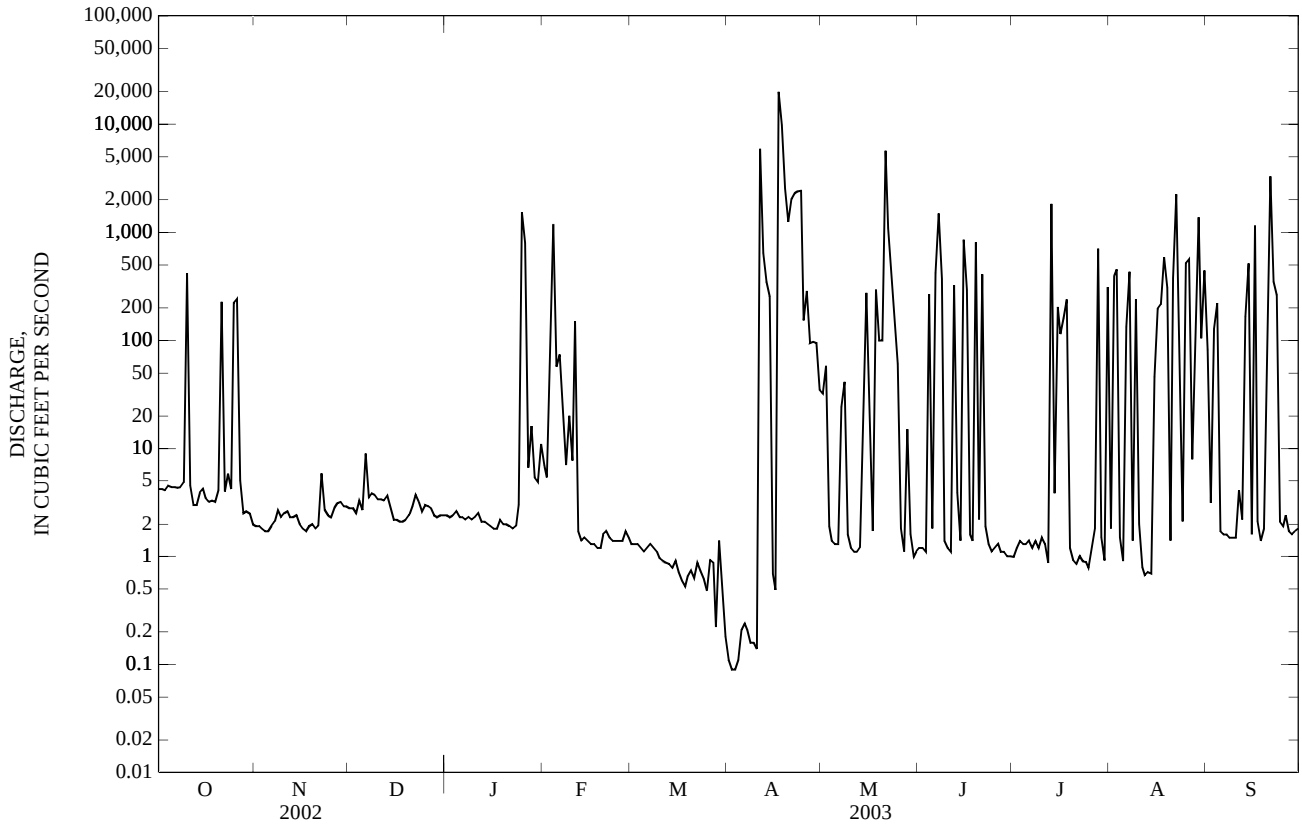
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

MEAN	350	560	355	152	70.5	41.2	149	102	162	132	265	741
MAX	1,281	2,732	2,603	733	242	299	1,682	367	784	672	718	4,255
(WY)	(1999)	(1988)	(1988)	(1992)	(1989)	(1989)	(2003)	(1992)	(1987)	(1993)	(1988)	(1996)
MIN	38.8	2.38	3.04	2.49	4.52	0.87	1.20	1.03	1.96	1.62	2.21	29.7
(WY)	(2003)	(2003)	(2003)	(1995)	(1990)	(2003)	(1995)	(1995)	(1994)	(1994)	(1994)	(1990)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	51,770.4		88,446.50			
ANNUAL MEAN	142		242		257	
HIGHEST ANNUAL MEAN					652	1988
LOWEST ANNUAL MEAN					37.8	1994
HIGHEST DAILY MEAN	5,030	Apr 20	19,900	Apr 17	110,000	Sep 10, 1996
LOWEST DAILY MEAN	1.4	Aug 28	0.09	Apr 2	0.09	Apr 2, 2003
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 23	0.15	Mar 31	0.15	Mar 31, 2003
MAXIMUM PEAK FLOW			59,300	Apr 17	223,000	Sep 10, 1996
MAXIMUM PEAK STAGE			28.88	Apr 17	49.31	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	102,700		175,400		186,500	
ANNUAL RUNOFF (CFSM)	0.679		1.16		1.23	
ANNUAL RUNOFF (INCHES)	9.21		15.74		16.74	
10 PERCENT EXCEEDS	307		383		442	
50 PERCENT EXCEEDS	4.5		2.3		8.1	
90 PERCENT EXCEEDS	2.2		0.89		2.1	

e Estimated

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR—Continued



50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

LOCATION.--Lat 18°21'35", long 66°00'15", 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto Plaza, and 2.2 mi (3.5 km) northeast of Lago Loíza Reservoir.

DRAINAGE AREA.--213 mi^2 (552 km^2).

PERIOD OF RECORD.--Water years 1981 to current year.

REMARKS: Flow controlled by Lago Loíza.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
29...	1335	5.8	3.9	10.2	138	7.6	433	31.2	160	40.9	13.8	2.75	1
JAN													
29...	1715	7.8	4.1	8.6	108	7.6	467	27.1	160	41.0	13.8	2.89	1
APR													
02...	1300	3.7	5.3	11.6	--	8.0	502	30.0	170	43.7	15.8	2.68	1
JUN													
06...	0950	5.2	34	6.2	--	7.6	318	28.4	--	--	--	--	--
SEP													
03...	1400	11	--	5.7	--	7.7	478	32.3	190	46.8	16.8	2.71	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
29...	28.2	162	27.9	<.2	29.5	15.6	--	256	4.01	<10	.30	.04	--
JAN													
29...	34.0	163	31.2	.15	28.9	19.4	<.0	269	5.71	<10	.40	.07	2.33
APR													
02...	33.8	175	34.4	.17	29.5	18.0	<.1	283	2.82	<10	.60	.14	.43
JUN													
06...	--	106	--	--	--	--	--	--	--	59	--	--	--
SEP													
03...	28.3	175	27.7	<.2	29.2	19.0	--	276	8.04	<10	.40	.04	.95

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
29...	.480	<.01	.26	.10	.78	3.5	<10	E82	<10	--	--	--	--
JAN													
29...	2.40	.07	.33	.11	2.8	12.4	E10	E1,000	--	E8,600	E1	38.8	58
APR													
02...	.480	.05	.46	.12	1.1	4.8	20	110	--	560	E1	36.1	68
JUN													
06...	--	--	--	--	--	--	10	66	--	4,400	--	--	--
SEP													
03...	.970	.02	.36	.08	1.4	6.1	10	280	--	3,800	--	--	--

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
29...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
29...	<.2	<.8	<10	<.01	100	<1	102	<.02	<3	<.3	E24	<.10	<16
APR													
02...	<.2	<.8	<10	<.01	130	<1	316	<.02	<3	<.3	<25	E.05	<16
JUN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at about 100 ft upstream from bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loíza.

DRAINAGE AREA.--9.84 mi^2 (25.5 km^2).

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	9.5	5.8	5.5	9.6	5.1	e4.1	17	7.0	5.8	23	9.5
2	11	9.3	5.4	5.8	9.4	5.0	4.3	16	7.1	8.3	70	9.4
3	12	9.0	6.8	6.7	12	5.7	5.9	14	e7.2	8.9	15	77
4	9.8	9.2	15	6.8	116	5.3	8.1	14	e7.6	6.9	8.8	25
5	9.5	8.8	13	9.0	104	4.8	197	13	6.4	7.0	6.9	9.3
6	9.2	8.5	7.5	17	41	4.9	26	13	6.3	8.6	28	6.9
7	9.2	8.3	6.3	8.4	21	4.5	8.9	12	15	7.3	20	6.2
8	9.4	8.0	7.5	5.9	17	4.3	6.3	11	14	7.3	9.7	6.4
9	12	8.7	7.5	5.1	11	4.5	17	11	8.4	7.4	8.1	6.7
10	27	14	7.0	5.1	11	4.4	25	10	6.9	6.2	7.6	6.3
11	15	19	7.4	4.9	12	4.5	357	9.6	6.1	5.3	6.8	24
12	11	14	6.2	4.8	11	4.4	54	9.6	6.3	5.1	12	7.3
13	10	12	7.8	5.0	9.7	4.1	19	9.4	6.3	32	7.2	13
14	9.3	8.8	7.8	5.0	8.2	4.0	13	12	6.2	13	6.2	17
15	9.5	11	8.6	4.7	7.7	4.0	12	14	145	8.2	7.7	6.2
16	32	15	22	5.0	7.7	4.2	17	10	36	13	7.7	109
17	22	20	21	5.0	11	4.0	1,030	9.6	13	18	5.6	13
18	13	28	10	4.8	11	4.0	288	11	9.6	8.6	16	7.7
19	11	20	7.0	4.6	8.5	3.9	153	17	8.8	6.7	12	5.9
20	16	11	15	4.9	7.8	4.2	73	11	8.7	5.8	14	6.8
21	12	8.1	8.8	5.4	7.9	3.9	173	31	8.5	5.6	82	30
22	12	15	9.2	5.2	8.0	4.2	94	30	8.1	8.4	212	15
23	11	8.6	9.2	5.2	7.5	4.2	83	15	6.8	8.7	29	7.7
24	20	7.2	7.2	5.4	7.0	4.1	62	35	6.9	5.9	13	6.2
25	23	6.9	7.3	194	7.7	4.0	47	12	6.8	5.5	29	5.5
26	45	6.7	7.3	74	8.9	3.7	33	9.8	6.4	10	93	5.2
27	23	7.4	7.2	14	6.2	4.2	26	8.9	6.0	12	25	4.6
28	12	6.7	5.5	8.4	5.7	4.0	23	7.8	7.4	13	21	4.4
29	11	6.5	4.8	7.5	---	3.9	20	7.8	7.0	12	23	4.9
30	10	5.9	4.9	7.7	---	5.0	18	7.6	6.0	6.5	16	5.0
31	11	---	5.2	9.6	---	e4.6	---	7.2	---	11	12	---
TOTAL	460.9	331.1	271.2	460.4	505.5	135.6	2,897.6	416.3	401.8	288.0	847.3	461.1
MEAN	14.9	11.0	8.75	14.9	18.1	4.37	96.6	13.4	13.4	9.29	27.3	15.4
MAX	45	28	22	194	116	5.7	1,030	35	145	32	212	109
MIN	9.2	5.9	4.8	4.6	5.7	3.7	4.1	7.2	6.0	5.1	5.6	4.4
AC-FT	914	657	538	913	1,000	269	5,750	826	797	571	1,680	915
CFSM	1.51	1.12	0.89	1.51	1.83	0.44	9.82	1.36	1.36	0.94	2.78	1.56
IN.	1.74	1.25	1.03	1.74	1.91	0.51	10.95	1.57	1.52	1.09	3.20	1.74

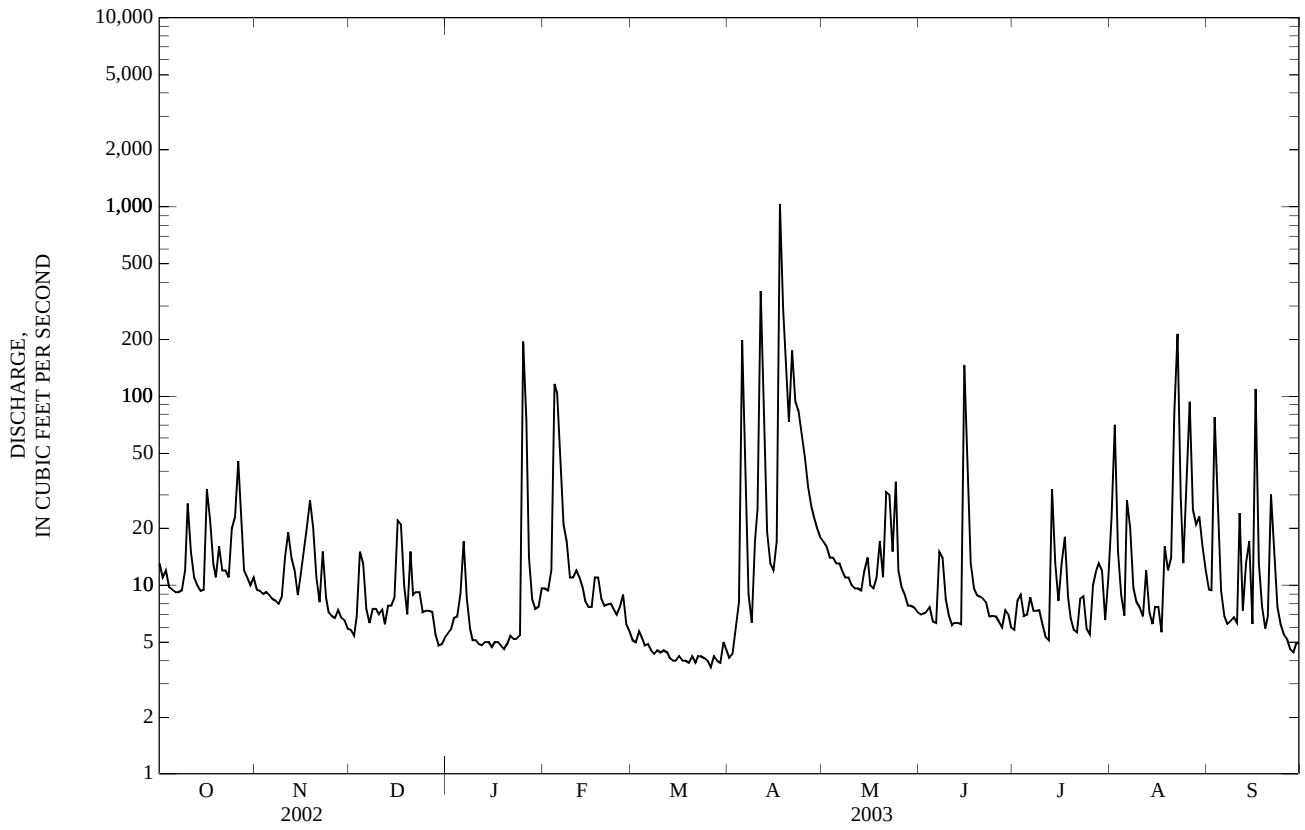
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	40.1	45.8	34.4	25.4	19.1	13.3	17.5	25.8	17.0	17.3	25.8	39.3
MAX	273	125	116	62.4	48.4	36.2	96.6	93.2	63.7	63.7	137	196
(WY)	(1971)	(1985)	(1971)	(1969)	(1988)	(1969)	(2003)	(1969)	(1970)	(1979)	(1979)	(1996)
MIN	6.74	6.66	5.82	6.66	4.04	3.54	4.36	4.28	2.80	3.72	5.69	5.20
(WY)	(1968)	(1981)	(1968)	(1977)	(1977)	(1977)	(1994)	(1974)	(1974)	(1974)	(1991)	(1967)

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	7,068.9		7,476.8			
ANNUAL MEAN	19.4		20.5		27.0	
HIGHEST ANNUAL MEAN					58.0	1971
LOWEST ANNUAL MEAN					10.5	1994
HIGHEST DAILY MEAN	752	May 30	1,030	Apr 17	4,230	Sep 10, 1996
LOWEST DAILY MEAN	4.6	Aug 28	3.7	Mar 26	0.80	Jul 24, 1977
ANNUAL SEVEN-DAY MINIMUM	6.0	Dec 25	4.0	Mar 23	1.5	Jul 18, 1977
MAXIMUM PEAK FLOW			5,090	Apr 17	17,300	Sep 21, 1998
MAXIMUM PEAK STAGE			10.53	Apr 17	15.90	Sep 21, 1998
INSTANTANEOUS LOW FLOW			3.4	Mar 26	0.80	Jul 24, 1977
ANNUAL RUNOFF (AC-FT)	14,020		14,830		19,550	
ANNUAL RUNOFF (CFSM)	1.97		2.08		2.74	
ANNUAL RUNOFF (INCHES)	26.72		28.27		37.25	
10 PERCENT EXCEEDS	28		28		45	
50 PERCENT EXCEEDS	11		8.7		12	
90 PERCENT EXCEEDS	6.3		4.9		5.2	

e Estimated



50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest at El Yunque, 0.6 mi (1.0 km) upstream from Río Espíritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA.--1.01 mi^2 (2.62 km^2).

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.3	e1.4	14	e2.9	1.2	2.5	2.5	1.4	1.1	5.8	5.0
2	22	2.1	e2.0	13	e1.6	1.2	1.6	2.4	2.6	6.4	21	14
3	5.0	12	e5.6	5.7	e2.0	1.3	17	2.1	12	4.0	3.2	19
4	3.1	3.0	e18	2.9	e25	1.2	10	2.0	2.9	5.3	2.1	5.9
5	2.6	2.2	e7.1	7.5	13	1.0	42	1.8	1.5	6.0	1.8	3.6
6	2.5	1.9	3.7	3.4	5.8	0.90	4.1	1.7	1.9	7.7	22	3.0
7	2.1	1.7	2.3	2.5	8.9	0.83	2.0	1.8	34	3.9	11	2.7
8	7.9	1.5	8.9	1.9	4.4	0.79	1.7	1.7	5.0	10	6.3	8.4
9	4.2	1.6	3.7	1.7	6.4	0.75	12	3.3	8.3	7.5	6.9	6.2
10	2.6	1.9	9.5	1.6	8.5	1.0	28	1.9	3.1	2.9	3.2	2.9
11	2.5	4.9	4.5	1.5	7.9	1.3	44	1.8	2.1	1.7	2.6	6.7
12	7.0	9.7	6.1	e1.4	9.3	1.6	6.0	1.5	8.0	1.4	2.0	2.7
13	3.8	2.4	17	e1.2	4.5	0.83	3.4	1.4	2.7	27	1.8	2.1
14	2.0	1.6	5.3	e1.0	3.2	0.73	3.9	14	3.8	3.4	2.8	1.9
15	2.6	1.4	4.0	0.96	2.8	0.72	30	4.9	28	2.2	5.6	4.7
16	2.4	4.9	3.0	e1.0	5.5	0.71	13	2.0	7.8	5.2	1.8	10
17	2.0	14	2.3	e0.98	24	0.80	146	3.5	3.5	5.3	1.4	2.4
18	1.7	14	1.9	e0.92	4.6	0.74	42	11	2.7	2.0	15	1.7
19	13	14	2.0	e1.3	3.4	1.0	32	4.8	9.5	2.0	3.9	2.6
20	14	e3.6	11	e0.99	4.9	0.96	9.4	2.0	3.2	1.5	15	15
21	9.5	e2.8	21	e1.3	4.1	0.63	19	14	19	1.6	55	33
22	10	e4.9	16	e0.98	2.8	0.81	9.7	16	3.5	22	35	6.9
23	3.9	e2.4	3.3	e0.93	2.2	1.3	19	26	2.4	3.4	6.1	3.0
24	22	e2.0	3.3	e0.99	1.7	1.3	17	23	2.1	1.9	3.9	2.4
25	19	e2.6	3.4	e50	3.9	0.78	6.0	3.8	1.8	1.5	29	2.0
26	21	e4.7	2.2	e4.0	1.9	0.56	7.3	2.7	1.6	1.6	30	2.2
27	5.6	e5.8	1.9	e1.4	1.4	0.66	4.5	2.2	1.4	3.4	5.9	2.1
28	3.6	e2.4	1.5	e1.4	1.3	0.74	3.8	1.8	3.5	24	14	1.6
29	4.2	e1.7	1.4	e1.1	---	0.48	3.2	1.6	1.5	3.2	12	2.5
30	2.8	e1.4	1.4	e3.7	---	1.3	2.8	1.4	1.2	1.9	16	6.8
31	2.7	---	2.2	e5.1	---	0.56	---	1.3	---	9.9	5.1	---
TOTAL	209.7	131.4	176.9	136.35	167.9	28.68	542.9	161.9	182.0	180.9	347.2	183.0
MEAN	6.76	4.38	5.71	4.40	6.00	0.93	18.1	5.22	6.07	5.84	11.2	6.10
MAX	22	14	21	50	25	1.6	146	26	34	27	55	33
MIN	1.7	1.4	1.4	0.92	1.3	0.48	1.6	1.3	1.2	1.1	1.4	1.6
AC-FT	416	261	351	270	333	57	1,080	321	361	359	689	363
CFSM	6.70	4.34	5.65	4.35	5.94	0.92	17.9	5.17	6.01	5.78	11.1	6.04
IN.	7.72	4.84	6.52	5.02	6.18	1.06	20.00	5.96	6.70	6.66	12.79	6.74

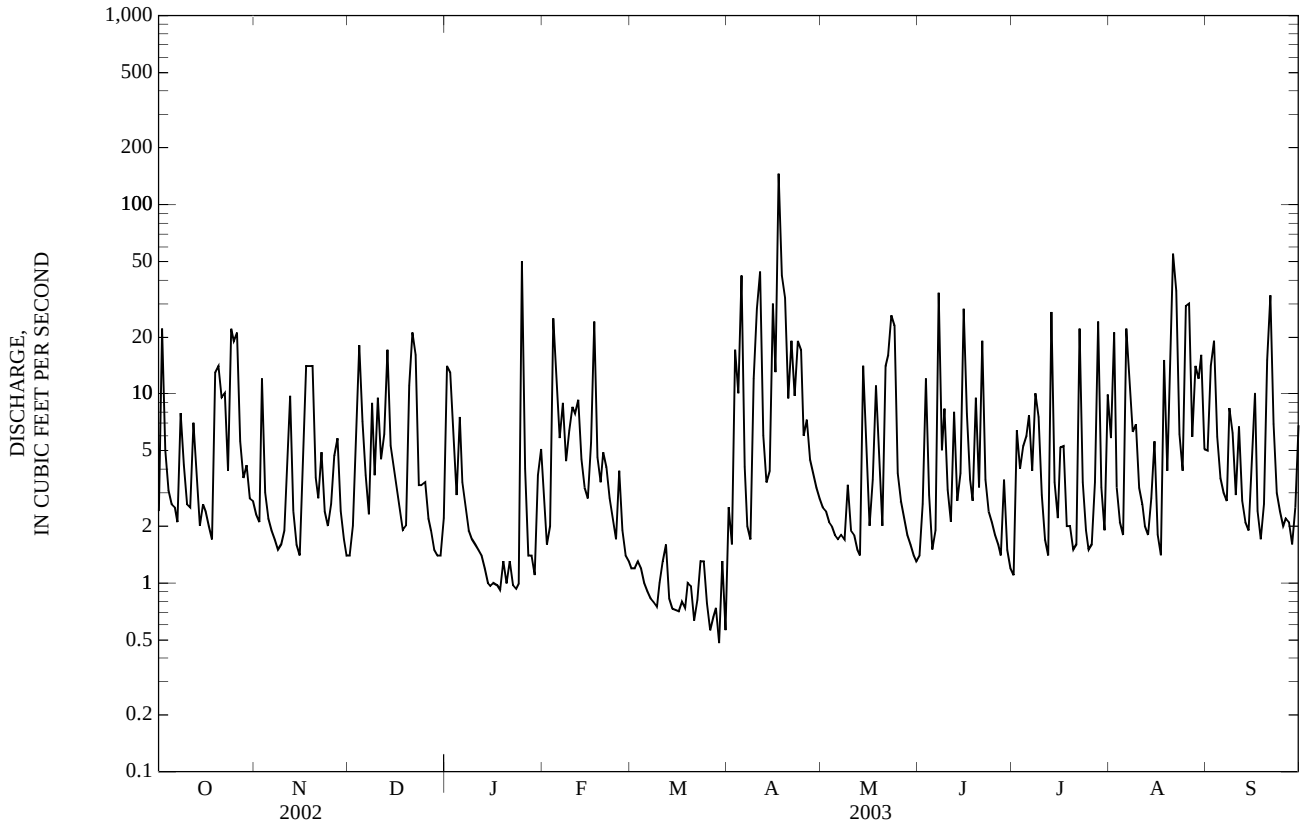
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	5.66	9.26	9.36	7.22	5.79	4.48	5.68	6.95	5.49	5.83	7.38	7.47
MAX	16.8	19.8	22.3	14.1	11.9	14.3	18.1	14.3	13.7	12.7	14.2	23.2
(WY)	(1986)	(1985)	(2000)	(2002)	(1988)	(1990)	(2003)	(1992)	(1987)	(1983)	(1988)	(1998)
MIN	0.22	2.47	0.92	3.42	1.56	0.93	0.90	2.00	0.98	1.90	0.50	2.45
(WY)	(1993)	(1991)	(1990)	(1985)	(1992)	(2003)	(1997)	(1999)	(1985)	(2000)	(1993)	(1986)

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	2,702.80		2,448.83			
ANNUAL MEAN	7.40		6.71		6.67	
HIGHEST ANNUAL MEAN					9.74	2002
LOWEST ANNUAL MEAN					3.91	1994
HIGHEST DAILY MEAN	82	May 30	146	Apr 17	346	Sep 10, 1996
LOWEST DAILY MEAN	0.65	Mar 26	0.48	Mar 29	0.00	Aug 14, 1993
ANNUAL SEVEN-DAY MINIMUM	0.90	Mar 20	0.73	Mar 25	0.01	Mar 31, 1994
MAXIMUM PEAK FLOW			1,410	Apr 17	2,230	Dec 7, 1987
MAXIMUM PEAK STAGE			8.82	Apr 17	9.42	Dec 7, 1987
INSTANTANEOUS LOW FLOW			0.20	Apr 1	0.00	Aug 13, 1993
ANNUAL RUNOFF (AC-FT)	5,360		4,860		4,840	
ANNUAL RUNOFF (CFSM)	7.33		6.64		6.61	
ANNUAL RUNOFF (INCHES)	99.55		90.19		89.79	
10 PERCENT EXCEEDS	19		17		16	
50 PERCENT EXCEEDS	3.4		3.0		2.7	
90 PERCENT EXCEEDS	1.4		1.2		0.59	

e Estimated



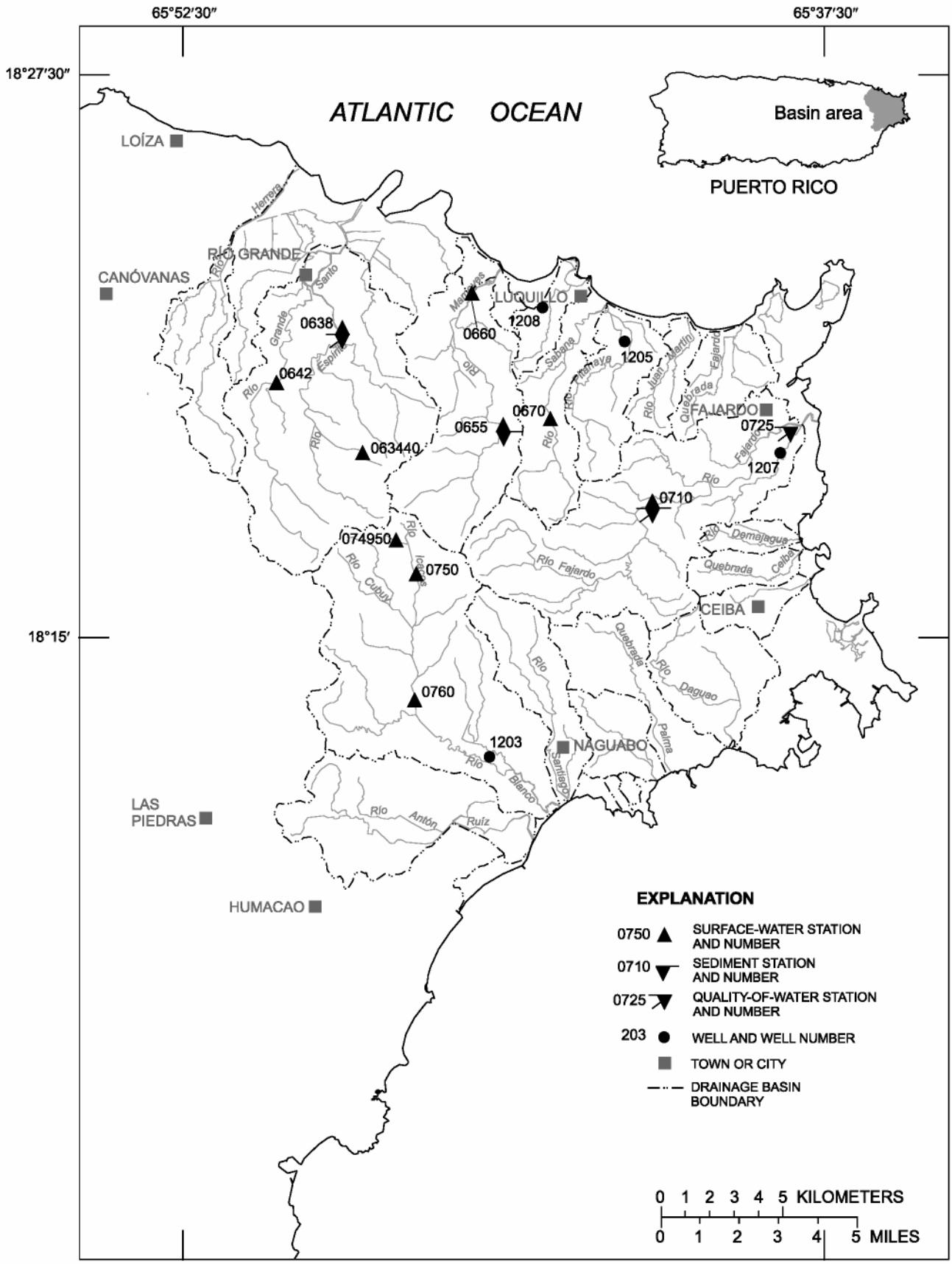


Figure 18. Northeastern river basins -- Río Herrera to Río Antón Ruíz basins.

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, on upstream left side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km) southeast of Río Grande.

DRAINAGE AREA.--8.62 mi^2 (22.33 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1963 (annual low flow and occasional measurements only), August 1966 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	20	12	37	33	14	e13	22	16	19	41	37
2	123	18	15	38	21	14	15	21	19	37	104	61
3	37	48	29	28	18	16	31	20	41	27	27	78
4	26	23	81	17	132	15	43	19	24	31	20	46
5	23	18	34	33	63	14	419	19	17	31	18	30
6	22	17	26	22	32	13	55	19	18	42	76	27
7	20	17	21	16	34	12	18	19	124	29	54	27
8	31	16	37	15	25	12	14	19	36	39	35	41
9	32	19	31	14	30	12	23	23	37	50	41	39
10	26	22	37	13	32	13	93	19	25	27	25	27
11	22	19	27	13	33	15	293	17	19	22	20	39
12	26	42	31	12	38	17	39	17	29	20	19	25
13	25	17	56	12	23	12	22	17	21	254	18	23
14	18	14	33	12	19	11	22	42	20	31	19	27
15	32	12	27	12	18	11	113	32	103	22	28	27
16	26	20	25	12	19	11	64	18	49	36	18	54
17	20	42	22	12	83	11	2,100	18	28	45	17	24
18	17	58	20	11	29	10	377	40	24	23	42	20
19	48	64	19	19	24	12	188	30	42	21	27	21
20	81	21	43	13	27	12	65	18	27	19	53	74
21	45	18	62	19	24	10	346	45	73	21	402	174
22	52	26	56	13	23	10	75	61	30	82	245	52
23	36	16	33	11	19	11	88	87	24	31	43	26
24	160	15	31	11	17	14	69	78	23	21	31	22
25	85	17	34	527	24	11	42	26	21	19	217	20
26	92	25	25	100	19	9.1	39	21	21	19	174	20
27	35	29	24	27	16	9.2	33	19	20	31	46	21
28	25	16	20	21	15	9.3	30	18	29	77	66	19
29	33	14	19	18	---	8.4	26	17	21	29	83	24
30	23	12	17	40	---	15	24	17	20	21	69	36
31	22	---	20	55	---	e9.4	---	16	---	39	38	---
TOTAL	1,283	715	967	1,203	890	373.4	4,779	854	1,001	1,215	2,116	1,161
MEAN	41.4	23.8	31.2	38.8	31.8	12.0	159	27.5	33.4	39.2	68.3	38.7
MAX	160	64	81	527	132	17	2,100	87	124	254	402	174
MIN	17	12	12	11	15	8.4	13	16	16	19	17	19
AC-FT	2,540	1,420	1,920	2,390	1,770	741	9,480	1,690	1,990	2,410	4,200	2,300
CFSM	4.80	2.76	3.62	4.50	3.69	1.40	18.5	3.20	3.87	4.55	7.92	4.49
IN.	5.54	3.09	4.17	5.19	3.84	1.61	20.62	3.69	4.32	5.24	9.13	5.01

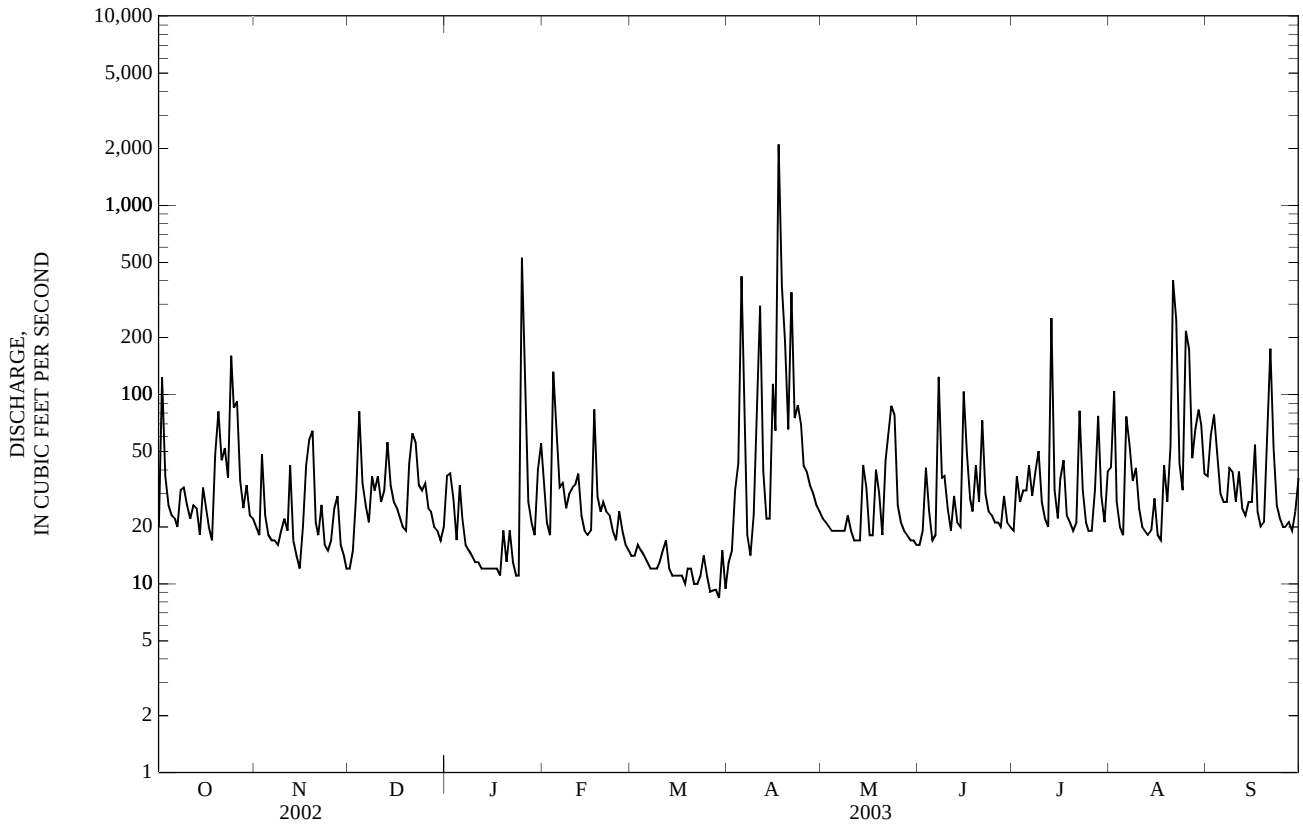
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY)

MEAN	61.0	87.5	78.9	56.0	49.3	37.4	47.5	62.7	44.3	50.6	63.2	62.5
MAX	202	196	248	119	117	153	159	185	120	114	126	235
(WY)	(1971)	(1985)	(1999)	(1969)	(1982)	(1990)	(2003)	(1979)	(1970)	(1983)	(1998)	(1998)
MIN	12.3	23.8	16.8	18.5	10.8	9.53	6.27	14.9	10.0	11.1	18.5	17.7
(WY)	(1969)	(2003)	(1994)	(1977)	(1983)	(1996)	(1984)	(1973)	(1975)	(1975)	(1994)	(1971)

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	16,107		16,557.4			
ANNUAL MEAN	44.1		45.4		58.5	
HIGHEST ANNUAL MEAN					98.6	1979
LOWEST ANNUAL MEAN					21.6	1994
HIGHEST DAILY MEAN	731	May 30	2,100	Apr 17	2,600	Dec 7, 1987
LOWEST DAILY MEAN	12	Aug 28	8.4	Mar 29	3.6	Apr 2, 1996
ANNUAL SEVEN-DAY MINIMUM	15	Mar 20	10	Mar 25	4.0	May 28, 1999
MAXIMUM PEAK FLOW			15,600	Apr 17	21,200	Aug 13, 1990
MAXIMUM PEAK STAGE			13.96	Apr 17	16.62	Aug 13, 1990
ANNUAL RUNOFF (AC-FT)	31,950		32,840		42,380	
ANNUAL RUNOFF (CFSM)	5.12		5.26		6.79	
ANNUAL RUNOFF (INCHES)	69.51		71.45		92.21	
10 PERCENT EXCEEDS	72		74		122	
50 PERCENT EXCEEDS	29		24		26	
90 PERCENT EXCEEDS	17		13		10	

e Estimated



50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
05...	1045	19	3.7	8.3	101	6.7	108	25.0	35	7.41	4.03	.35	.6
FEB													
18...	1100	28	6.2	8.9	--	7.5	86	23.3	24	5.10	2.85	.41	.6
APR													
11...	1210	241	28	8.5	--	6.9	64	--	16	3.36	1.77	.47	.5
JUL													
14...	1140	30	7.2	8.2	--	7.1	79	26.0	--	--	--	--	--
SEP													
04...	1540	40	8.6	7.8	--	7.3	70	28.2	22	4.56	2.48	.39	.5

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
05...	7.53	35	7.74	<.17	17.3	1.9	--	67	3.39	<10	.30	<.01	--
FEB													
18...	6.33	23	8.72	.01	12.7	1.9	<.0	52	3.88	<10	.20	.01	--
APR													
11...	4.95	13	7.91	.04	7.8	2.8	.2	37	24.0	16	.40	.02	.09
JUL													
14...	--	22	--	--	--	--	--	--	--	<10	<.20	.01	--
SEP													
04...	5.30	20	7.07	<.2	12.5	1.6	--	46	4.94	<10	.20	<.01	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
05...	.080	<.01	--	<.02	.38	1.7	<10	360	E260	--	--	--	--
FEB													
18...	.050	<.01	.19	<.02	.25	1.1	E20	E57	--	2,700	<2	4.4	E12
APR													
11...	.100	.01	.38	.03	.50	2.2	20	E1,700	--	E8,000	<2	6.8	E14
JUL													
14...	.060	<.01	--	<.02	--	--	10	240	--	6,000	--	--	--
SEP													
04...	.030	<.01	--	<.02	.23	1.0	20	260	--	4,200	--	--	--

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
18...	<.2	<.8	<10	<.01	210	<1	7.0	<.02	<3	<.3	<25	<.10	<16
APR													
11...	<.2	1.1	<10	<.01	720	<1	28.0	<.02	<3	<.3	<25	<.10	<16
JUL													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'42", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) about 350 feet upstream side of bridge at Highway 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Río Grande.

DRAINAGE AREA.--7.31 mi^2 (18.9 km^2).

PERIOD OF RECORD.--May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	7.4	6.4	12	20	e8.3	4.4	17	6.8	4.9	38	23
2	23	6.8	6.8	18	16	e8.4	4.8	16	7.7	17	134	37
3	12	8.9	13	19	15	e9.6	7.3	15	11	8.2	18	145
4	8.5	7.7	45	10	236	e8.5	20	14	9.2	13	11	45
5	7.6	6.5	15	17	140	e7.2	433	13	7.0	8.4	8.9	21
6	7.8	6.1	9.9	19	31	5.9	25	13	6.6	16	70	18
7	7.5	6.0	8.4	10	40	5.8	7.9	13	75	8.9	37	17
8	9.7	5.9	16	8.3	19	5.6	6.1	12	19	17	16	17
9	16	6.8	14	7.5	16	5.3	24	12	10	20	22	27
10	8.0	28	18	7.2	20	5.4	77	11	9.3	9.1	13	17
11	8.2	16	12	6.9	23	5.9	343	11	6.9	6.0	13	24
12	8.9	23	13	6.5	19	5.9	37	10	7.2	5.2	13	16
13	7.0	9.5	30	6.4	13	5.2	17	9.8	6.9	118	8.6	104
14	6.3	6.8	17	6.5	10	4.8	13	25	7.5	17	8.3	37
15	8.5	6.1	27	6.5	9.9	5.2	46	24	174	8.3	11	15
16	19	16	36	6.5	10	5.9	42	12	34	29	7.7	224
17	12	29	14	6.5	78	5.1	1,380	11	13	43	6.8	33
18	9.8	42	11	6.3	20	4.9	312	17	8.7	9.8	16	17
19	7.5	41	10	7.0	14	5.1	175	15	14	7.0	14	15
20	35	12	24	6.7	14	5.2	68	9.7	11	6.1	35	105
21	16	36	30	11	15	4.8	274	88	31	6.5	317	161
22	18	29	30	7.0	14	4.7	112	34	12	51	368	47
23	11	11	17	6.2	9.8	5.2	106	20	7.7	16	37	e21
24	94	8.6	16	6.2	8.6	5.9	56	25	6.5	8.0	19	e17
25	55	8.7	19	423	18	4.7	37	12	5.9	6.4	163	15
26	112	17	11	109	e13	4.6	30	8.8	5.6	8.2	212	14
27	20	14	13	16	e9.6	5.0	35	8.0	5.4	26	34	13
28	11	12	9.6	11	e9.2	5.1	29	7.5	9.4	64	76	12
29	13	7.6	8.7	10	---	4.6	23	7.2	6.5	18	73	14
30	8.5	6.6	8.4	19	---	6.0	19	6.9	5.1	9.2	61	20
31	8.0	---	8.9	23	---	4.9	---	6.7	---	71	30	---
TOTAL	597.2	442.0	518.1	835.2	861.1	178.7	3,763.5	504.6	539.9	656.2	1,891.3	1,291
MEAN	19.3	14.7	16.7	26.9	30.8	5.76	125	16.3	18.0	21.2	61.0	43.0
MAX	112	42	45	423	236	9.6	1,380	88	174	118	368	224
MIN	6.3	5.9	6.4	6.2	8.6	4.6	4.4	6.7	5.1	4.9	6.8	12
AC-FT	1,180	877	1,030	1,660	1,710	354	7,460	1,000	1,070	1,300	3,750	2,560
CFSM	2.64	2.02	2.29	3.69	4.21	0.79	17.2	2.23	2.46	2.90	8.35	5.89
IN.	3.04	2.25	2.64	4.25	4.38	0.91	19.15	2.57	2.75	3.34	9.62	6.57

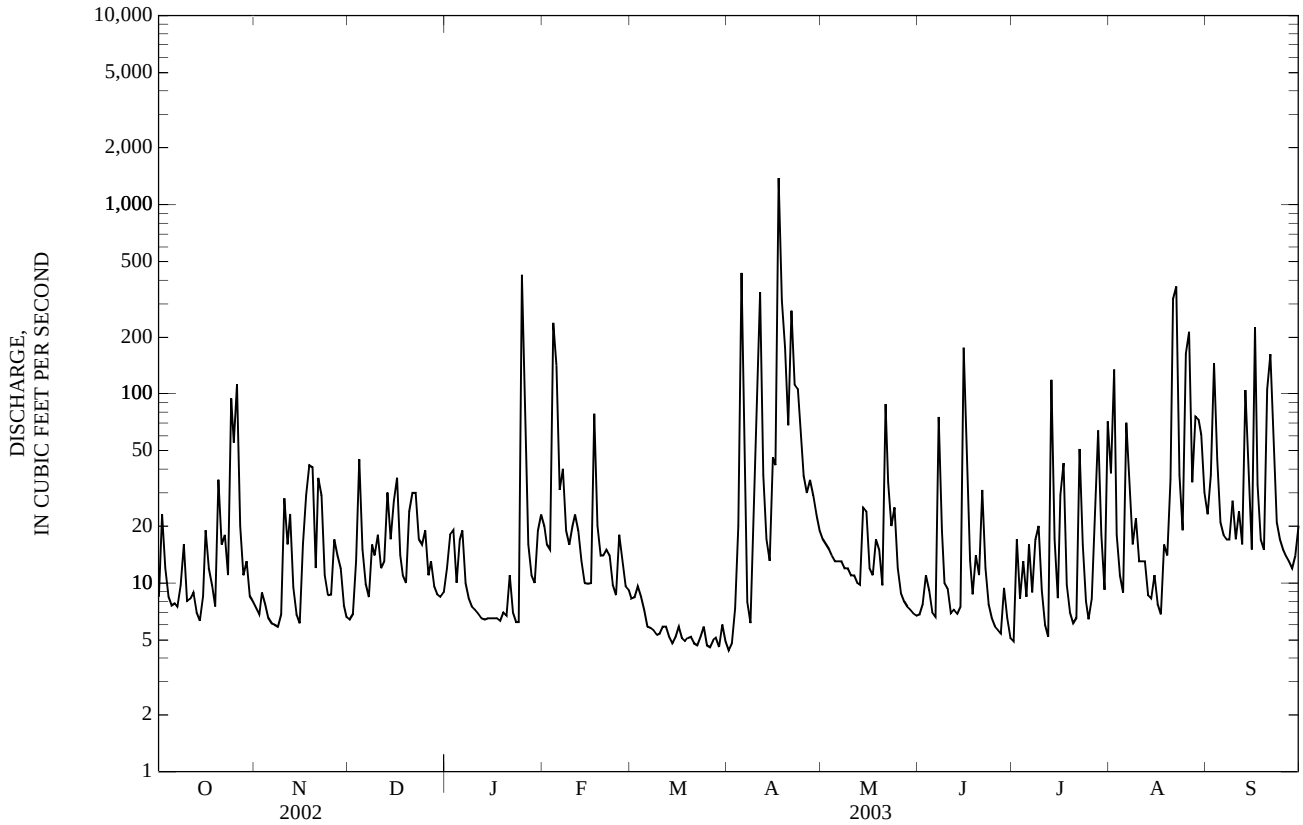
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	54.3	67.2	53.0	44.1	30.4	19.7	31.6	45.5	28.9	33.6	45.1	50.3
MAX	392	172	140	151	76.4	54.4	125	203	86.5	109	90.0	153
(WY)	(1971)	(1970)	(1971)	(1969)	(1969)	(1969)	(2003)	(1969)	(1968)	(1969)	(1968)	(1975)
MIN	8.45	14.3	12.0	10.1	5.80	4.50	6.29	10.2	6.22	8.66	7.39	12.4
(WY)	(1969)	(1981)	(1998)	(1977)	(1977)	(1977)	(1995)	(1974)	(1975)	(1994)	(1991)	(1967)

50064200 RIO GRANDE NEAR EL VERDE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	12,018.6		12,078.8			
ANNUAL MEAN	32.9		33.1		40.7	
HIGHEST ANNUAL MEAN					87.1	1969
LOWEST ANNUAL MEAN					17.3	1994
HIGHEST DAILY MEAN	949	May 30	1,380	Apr 17	3,470	May 21, 1969
LOWEST DAILY MEAN	5.9	Nov 8	4.4	Apr 1	2.2	Aug 15, 1991
ANNUAL SEVEN-DAY MINIMUM	6.8	Nov 2	4.9	Mar 26	2.5	Aug 10, 1991
MAXIMUM PEAK FLOW			14,800	Apr 17	22,000	Sep 21, 1998
MAXIMUM PEAK STAGE			17.44	Apr 17	19.30	Sep 21, 1998
INSTANTANEOUS LOW FLOW			4.1	Apr 1	1.6	Mar 13, 1977
ANNUAL RUNOFF (AC-FT)	23,840		23,960		29,480	
ANNUAL RUNOFF (CFSM)	4.50		4.53		5.57	
ANNUAL RUNOFF (INCHES)	61.16		61.47		75.63	
10 PERCENT EXCEEDS	57		62		80	
50 PERCENT EXCEEDS	16		13		17	
90 PERCENT EXCEEDS	8.4		6.0		6.7	

e Estimated



50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Río de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA.--6.88 mi^2 (17.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	e30	25	34	44	18	30	27	35	17	49	51
2	215	e28	43	38	31	18	18	25	42	58	139	52
3	45	e36	46	30	27	17	33	24	66	33	30	36
4	37	e29	92	23	155	16	47	23	36	33	22	31
5	30	e27	33	61	68	15	234	23	25	28	20	38
6	32	e25	27	28	41	15	42	22	35	31	100	29
7	27	e23	23	23	58	15	30	25	242	26	88	25
8	87	22	34	21	35	14	31	23	53	32	46	189
9	47	26	26	21	35	14	58	44	58	43	38	77
10	116	30	47	19	38	16	79	22	31	28	26	35
11	45	33	30	18	39	16	210	26	27	21	21	43
12	48	56	32	18	45	16	76	20	46	20	22	29
13	41	24	44	19	35	14	44	19	25	239	20	31
14	33	21	30	22	28	14	51	186	29	34	43	27
15	85	20	28	21	26	17	163	57	111	25	37	82
16	38	39	28	22	29	16	143	28	61	68	18	127
17	32	59	27	21	77	17	1,670	37	39	52	17	31
18	31	65	23	25	34	16	331	92	32	18	49	28
19	122	65	25	23	29	18	212	51	68	17	24	25
20	96	28	45	22	37	17	104	26	31	15	60	103
21	77	31	63	24	31	15	98	120	66	18	160	245
22	65	32	50	19	27	15	86	172	31	67	224	62
23	61	25	32	20	27	18	113	191	24	22	43	32
24	119	25	40	22	22	20	125	123	28	20	28	25
25	111	28	36	352	32	15	64	50	26	24	138	23
26	e106	33	39	116	22	14	91	48	22	21	186	23
27	e47	50	30	37	20	15	48	44	19	34	49	20
28	e40	26	25	31	19	14	38	44	31	108	73	18
29	41	22	22	32	---	15	32	52	19	25	65	27
30	33	21	21	62	---	20	29	42	17	26	78	45
31	e36	---	24	103	---	15	---	38	---	79	50	---
TOTAL	1,967	979	1,090	1,327	1,111	495	4,330	1,724	1,375	1,282	1,963	1,609
MEAN	63.5	32.6	35.2	42.8	39.7	16.0	144	55.6	45.8	41.4	63.3	53.6
MAX	215	65	92	352	155	20	1,670	191	242	239	224	245
MIN	24	20	21	18	19	14	18	19	17	15	17	18
AC-FT	3,900	1,940	2,160	2,630	2,200	982	8,590	3,420	2,730	2,540	3,890	3,190
CFSM	9.22	4.74	5.11	6.22	5.77	2.32	21.0	8.08	6.66	6.01	9.20	7.80
IN.	10.64	5.29	5.89	7.18	6.01	2.68	23.41	9.32	7.43	6.93	10.61	8.70

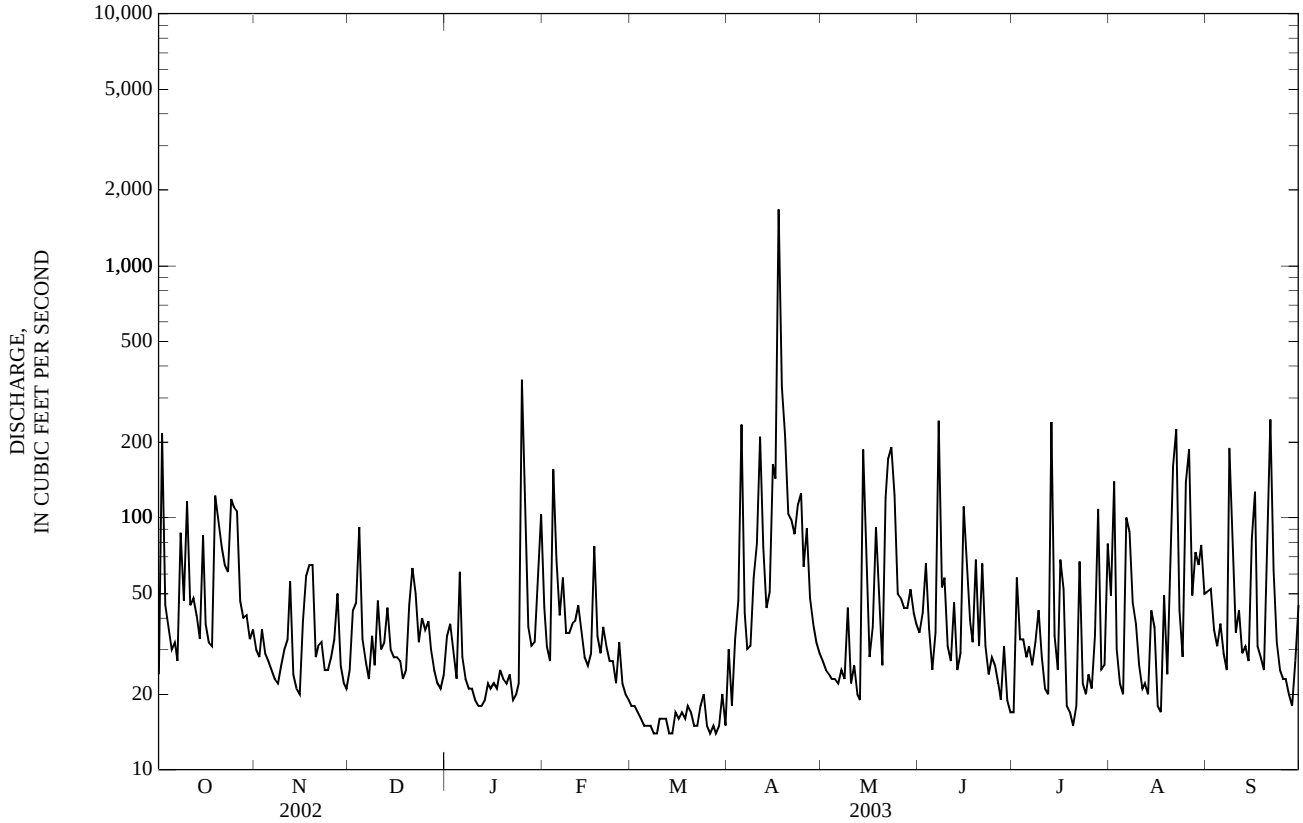
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	63.5	80.2	63.6	54.3	40.7	34.8	45.3	61.5	52.0	47.9	56.0	61.8
MAX	240	191	164	105	68.0	79.7	144	147	112	93.4	85.2	166
(WY)	(1971)	(1985)	(1971)	(1969)	(1988)	(1990)	(2003)	(1970)	(1970)	(1969)	(2000)	(1989)
MIN	20.3	32.6	16.6	25.0	21.7	16.0	14.5	18.7	12.4	20.3	20.4	26.6
(WY)	(1969)	(2003)	(1990)	(1985)	(1968)	(2003)	(1984)	(1973)	(1985)	(1994)	(1994)	(1986)

50065500 RIO MAMEYES NEAR SABANA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	17,437		19,252			
ANNUAL MEAN	47.8		52.7		55.6	
HIGHEST ANNUAL MEAN					78.0	1971
LOWEST ANNUAL MEAN					33.1	1994
HIGHEST DAILY MEAN	597	May 30	1,670	Apr 17	2,780	Sep 18, 1989
LOWEST DAILY MEAN	11	Mar 22	14	Mar 8	6.9	Apr 20, 1970
ANNUAL SEVEN-DAY MINIMUM	12	Mar 20	15	Mar 8	9.4	Jun 12, 1985
MAXIMUM PEAK FLOW			15,700	Apr 17	20,500	Sep 18, 1989
MAXIMUM PEAK STAGE			11.96	Apr 17	13.19	Sep 18, 1989
INSTANTANEOUS LOW FLOW			13	Mar 9	5.1	Apr 8, 1970
ANNUAL RUNOFF (AC-FT)	34,590		38,190		40,310	
ANNUAL RUNOFF (CFSM)	6.94		7.67		8.09	
ANNUAL RUNOFF (INCHES)	94.28		104.10		109.87	
10 PERCENT EXCEEDS	92		103		102	
50 PERCENT EXCEEDS	31		31		34	
90 PERCENT EXCEEDS	17		18		16	

e Estimated



50065500 RIO MAMEYES NEAR SABANA, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1992 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1992 to September 2003.

INSTRUMENTATION.-- USDH-48 and automatic sediment samplers since 1993.

REMARKS.-- During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 484 mg/L September 10, 1996; Minimum daily mean, 1 mg/L several days during several years.
SEDIMENT LOADS: Maximum daily mean, 6,940 tons (6,296 tonnes) April 17, 2003; Minimum daily mean, 0.03 ton (0.03 tonne) October 05, 1994 and June 19, 2001.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 402 mg/L April 17, 2003; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 6,940 tons (6,296 tonnes) April 17, 2003; Minimum daily mean, 0.04 ton (.04 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	24	2	0.15	e30	e5	e0.38	25	2	0.13
2	215	41	55	e28	e4	e0.37	43	5	0.84
3	45	6	0.74	e36	e4	e0.53	46	7	0.95
4	37	4	0.38	e29	e4	e0.32	92	15	5.9
5	30	4	0.29	e27	e4	e0.24	33	3	0.29
6	32	3	0.30	e25	e3	e0.22	27	3	0.22
7	27	3	0.23	e23	e3	e0.20	23	3	0.19
8	87	16	15	22	3	0.17	34	3	0.28
9	47	6	1.0	26	3	0.18	26	3	0.21
10	116	20	13	30	2	0.19	47	6	1.1
11	45	7	0.83	33	4	0.44	30	3	0.24
12	48	6	0.78	56	9	1.6	32	3	0.26
13	41	5	0.60	24	4	0.25	44	7	0.90
14	33	5	0.43	21	4	0.20	30	3	0.25
15	85	12	6.9	20	3	0.18	28	3	0.22
16	38	5	0.53	39	3	0.33	28	3	0.22
17	32	4	0.35	59	8	1.8	27	3	0.22
18	31	4	0.33	65	8	1.6	23	3	0.18
19	122	28	40	65	9	2.0	25	3	0.20
20	96	15	6.6	28	5	0.36	45	3	0.37
21	77	10	2.9	31	4	0.34	63	9	2.2
22	65	6	1.0	32	4	0.32	50	4	0.53
23	61	5	0.91	25	4	0.24	32	4	0.32
24	119	21	21	25	3	0.22	40	5	0.72
25	111	18	7.3	28	3	0.24	36	3	0.34
26	e106	e20	e7.4	33	3	0.26	39	5	0.58
27	e47	e7	e1.0	50	3	0.37	30	3	0.26
28	e40	e6	e0.64	26	3	0.18	25	3	0.20
29	41	5	0.61	22	2	0.14	22	3	0.17
30	33	5	0.47	21	2	0.12	21	3	0.15
31	e36	e5	e0.49	---	---	---	24	3	0.17
TOTAL	1,967	---	187.16	979	---	13.99	1,090	---	18.81

50065500 RIO MAMEYES NEAR SABANA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	34	4	0.45	44	6	0.73	18	4	0.20
2	38	2	0.24	31	4	0.35	18	4	0.17
3	30	2	0.18	27	3	0.21	17	3	0.14
4	23	2	0.13	155	25	14	16	2	0.10
5	61	9	2.5	68	8	1.7	15	2	0.07
6	28	3	0.23	41	5	0.51	15	1	0.05
7	23	3	0.18	58	7	1.4	15	1	0.04
8	21	3	0.16	35	4	0.37	14	1	0.04
9	21	3	0.15	35	4	0.37	14	1	0.04
10	19	3	0.13	38	4	0.41	16	1	0.04
11	18	2	0.12	39	4	0.42	16	1	0.04
12	18	2	0.11	45	4	0.48	16	1	0.04
13	19	2	0.11	35	4	0.38	14	1	0.04
14	22	2	0.13	28	4	0.29	14	1	0.04
15	21	2	0.11	26	4	0.25	17	1	0.05
16	22	2	0.11	29	3	0.25	16	1	0.04
17	21	2	0.10	77	11	2.9	17	1	0.05
18	25	2	0.11	34	3	0.29	16	1	0.04
19	23	2	0.10	29	4	0.27	18	1	0.05
20	22	1	0.09	37	4	0.40	17	1	0.05
21	24	1	0.09	31	4	0.36	15	1	0.04
22	19	1	0.07	27	5	0.34	15	1	0.04
23	20	1	0.06	27	5	0.36	18	1	0.05
24	22	1	0.06	22	5	0.31	20	1	0.05
25	352	74	130	32	6	0.49	15	1	0.04
26	116	14	6.6	22	6	0.35	14	1	0.04
27	37	6	0.64	20	5	0.30	15	1	0.04
28	31	6	0.47	19	5	0.25	14	1	0.04
29	32	5	0.40	---	---	---	15	1	0.04
30	62	9	2.6	---	---	---	20	1	0.06
31	103	15	6.5	---	---	---	15	1	0.04
TOTAL	1,327	---	152.93	1,111	---	28.74	495	---	1.81
		APRIL			MAY			JUNE	
1	30	2	0.13	27	2	0.15	35	1	0.09
2	18	2	0.11	25	1	0.08	42	1	0.11
3	33	5	0.66	24	1	0.07	66	9	2.3
4	47	6	0.86	23	1	0.07	36	5	0.52
5	234	56	192	23	1	0.08	25	3	0.20
6	42	10	1.2	22	1	0.08	35	2	0.16
7	30	6	0.51	25	2	0.10	242	81	147
8	31	2	0.17	23	2	0.10	53	10	1.6
9	58	4	1.5	44	6	1.1	58	11	1.9
10	79	11	2.6	22	2	0.11	31	4	0.31
11	210	21	16	26	2	0.13	27	2	0.18
12	76	7	1.4	20	2	0.11	46	7	1.0
13	44	5	0.59	19	2	0.10	25	3	0.21
14	51	5	0.68	186	39	50	29	3	0.23
15	163	20	20	57	7	1.3	111	16	5.3
16	143	22	11	28	4	0.30	61	7	1.2
17	1,670	402	6,940	37	6	0.86	39	5	0.50
18	331	71	105	92	13	3.2	32	4	0.37
19	212	39	32	51	7	1.1	68	9	1.9
20	104	20	5.8	26	5	0.32	31	5	0.45
21	98	18	5.6	120	36	42	66	10	2.0
22	86	9	2.0	172	55	88	31	4	0.30
23	113	17	6.6	191	48	57	24	3	0.19
24	125	68	49	123	19	8.8	28	2	0.18
25	64	27	4.8	50	7	0.93	26	2	0.14
26	91	17	5.2	48	5	0.65	22	2	0.12
27	48	7	0.96	44	4	0.47	19	2	0.10
28	38	5	0.55	44	3	0.34	31	2	0.17
29	32	4	0.36	52	2	0.27	19	2	0.10
30	29	3	0.24	42	1	0.12	17	2	0.09
31	---	---	---	38	1	0.10	---	---	---
TOTAL	4,330	---	7,407.52	1,724	---	258.04	1,375	---	168.92

50065500 RIO MAMEYES NEAR SABANA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	17	2	0.09	49	8	1.2	51	3	0.54
2	58	20	7.1	139	24	26	52	4	0.72
3	33	5	0.41	30	3	0.26	36	6	0.54
4	33	4	0.38	22	1	0.08	31	5	0.43
5	28	4	0.30	20	2	0.10	38	6	0.81
6	31	4	0.31	100	12	7.4	29	5	0.41
7	26	3	0.25	88	13	5.0	25	4	0.30
8	32	3	0.27	46	6	0.76	189	71	111
9	43	3	0.35	38	4	0.47	77	14	4.5
10	28	3	0.20	26	4	0.25	35	3	0.25
11	21	2	0.13	21	3	0.16	43	5	0.69
12	20	2	0.12	22	2	0.12	29	6	0.45
13	239	71	203	20	2	0.11	31	6	0.46
14	34	5	0.50	43	4	0.86	27	5	0.39
15	25	4	0.28	37	2	0.28	82	13	9.4
16	68	8	4.6	18	2	0.10	127	20	12
17	52	12	3.0	17	2	0.09	31	5	0.39
18	18	2	0.11	49	6	0.92	28	4	0.31
19	17	2	0.09	24	3	0.18	25	4	0.27
20	15	2	0.06	60	10	3.2	103	33	33
21	18	1	0.06	160	38	84	245	48	51
22	67	9	2.3	224	28	27	62	12	2.8
23	22	2	0.14	43	7	0.82	32	5	0.39
24	20	2	0.11	28	5	0.37	25	3	0.20
25	24	2	0.13	138	29	30	23	2	0.15
26	21	2	0.11	186	40	31	23	3	0.18
27	34	2	0.19	49	6	0.86	20	3	0.19
28	108	24	12	73	7	1.6	18	4	0.19
29	25	6	0.43	65	6	1.2	27	4	0.32
30	26	4	0.30	78	11	3.7	45	5	0.57
31	79	12	5.0	50	6	1.0	---	---	---
TOTAL	1,282	---	242.32	1,963	---	229.09	1,609	---	232.85
YEAR	19,252	8,942.18							

e Estimated

50066000 RIO MAMEYES AT MAMEYES, PR

LOCATION.--Lat 18°22'27", long 65°45'50", Hydrologic Unit 21010005, on right bank, at bridge on Highway 3, 3.1 mi (5.0 km), southwest from Luquillo, 0.4 mi (0.6 km) downstream from Quebrada Anón, and 2.9 mi (4.7 km) east from Escuela Juan González.

DRAINAGE AREA.--13.5 mi^2 (34.7 km^2).

PERIOD OF RECORD.--July 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 16.4 ft (5.0 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Discharges above 5,000 ft^3/s (141.6 m^3/s), are based on a rating curve extension and are rated poor. Low flow affected by water supply intake about 1,000 ft (305 m), upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	30	e19	43	55	16	e25	35	31	e23	47	63
2	371	26	e20	51	28	16	13	33	42	e71	108	58
3	90	99	e40	42	21	17	15	32	62	46	34	43
4	60	38	e80	23	205	e17	54	31	38	43	26	41
5	47	29	e42	87	99	e15	485	30	29	37	23	40
6	43	22	e37	37	45	e15	199	30	34	42	86	40
7	32	20	e28	23	63	e14	26	33	208	37	88	34
8	96	18	e45	17	35	15	19	29	67	41	48	201
9	85	21	e25	16	30	13	24	45	62	60	46	92
10	169	27	53	15	33	18	85	29	40	43	30	47
11	74	e20	30	13	38	15	310	31	35	31	27	69
12	67	e72	30	12	49	16	94	26	49	29	26	40
13	57	e22	60	12	35	10	39	25	34	229	27	39
14	36	16	36	12	24	9.1	40	152	34	43	40	39
15	92	e15	27	11	21	9.6	180	67	138	29	48	58
16	58	e48	28	13	21	10	263	34	73	43	26	175
17	34	e79	26	12	99	11	e2,000	35	47	70	28	48
18	32	e94	20	13	37	9.7	e650	89	43	28	74	42
19	130	e125	21	22	29	10	e300	59	91	27	40	36
20	164	e36	59	13	38	13	e140	32	45	24	71	78
21	117	e25	86	22	29	8.4	e120	96	81	27	127	533
22	99	e36	85	15	26	10	e110	236	45	80	244	156
23	116	e23	56	11	25	13	e130	214	36	32	71	95
24	172	e18	47	16	20	17	e140	148	38	24	44	80
25	159	e22	48	660	34	9.4	e70	59	34	23	152	72
26	145	e21	47	208	23	9.0	e100	47	30	22	263	72
27	70	e40	45	44	18	9.8	e53	41	30	33	74	66
28	49	e20	31	28	17	8.8	e43	37	40	96	87	60
29	56	e18	27	26	---	9.2	e40	35	e32	33	101	76
30	40	e17	23	61	---	14	e37	32	e30	25	88	97
31	42	---	22	105	---	e7.5	---	31	---	44	53	---
TOTAL	2,831	1,097	1,243	1,683	1,197	385.5	5,804	1,853	1,598	1,435	2,247	2,590
MEAN	91.3	36.6	40.1	54.3	42.8	12.4	193	59.8	53.3	46.3	72.5	86.3
MAX	371	125	86	660	205	18	2,000	236	208	229	263	533
MIN	29	15	19	11	17	7.5	13	25	29	22	23	34
AC-FT	5,620	2,180	2,470	3,340	2,370	765	11,510	3,680	3,170	2,850	4,460	5,140
CFSM	6.82	2.73	2.99	4.05	3.19	0.93	14.4	4.46	3.98	3.45	5.41	6.44
IN.	7.86	3.05	3.45	4.67	3.32	1.07	16.11	5.14	4.44	3.98	6.24	7.19

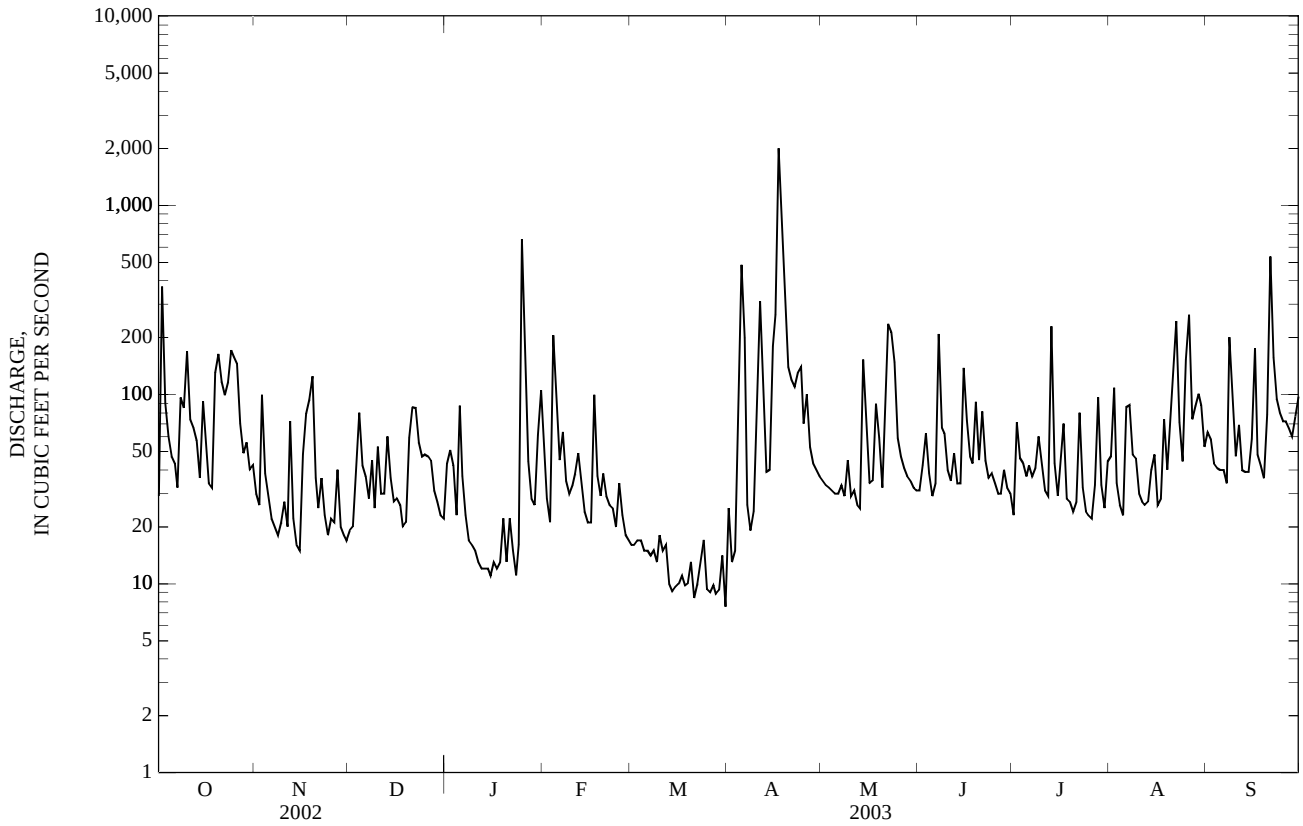
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

MEAN	94.5	134	133	74.0	46.8	33.8	88.3	79.4	52.7	48.8	84.0	103
MAX	135	271	264	122	72.5	80.6	193	129	86.2	93.0	126	274
(WY)	(1999)	(2000)	(1999)	(1999)	(2000)	(1998)	(2003)	(1998)	(1998)	(1999)	(2000)	(1998)
MIN	58.8	36.6	18.4	43.4	34.5	12.4	17.5	32.7	36.2	25.8	38.9	51.4
(WY)	(2001)	(2003)	(1998)	(2001)	(2002)	(2003)	(2000)	(1999)	(2001)	(2000)	(2002)	(2001)

50066000 RIO MAMEYES AT MAMEYES, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	23,184.0		23,963.5			
ANNUAL MEAN	63.5		65.7		81.8	
HIGHEST ANNUAL MEAN					101	1998
LOWEST ANNUAL MEAN					52.3	2001
HIGHEST DAILY MEAN	1,230	May 30	2,000	Apr 17	2,660	Sep 21, 1998
LOWEST DAILY MEAN	9.1	Mar 25	7.5	Mar 31	6.0	Apr 29, 2000
ANNUAL SEVEN-DAY MINIMUM	11	Mar 20	9.7	Mar 25	7.3	Apr 23, 2000
MAXIMUM PEAK FLOW			17,300	Apr 17		
MAXIMUM PEAK STAGE			13.93	Apr 17	15.64	Aug 22, 2001
ANNUAL RUNOFF (AC-FT)	45,990		47,530		59,280	
ANNUAL RUNOFF (CFSM)	4.74		4.90		6.11	
ANNUAL RUNOFF (INCHES)	64.36		66.53		82.97	
10 PERCENT EXCEEDS	129		126		164	
50 PERCENT EXCEEDS	35		38		39	
90 PERCENT EXCEEDS	17		15		16	

e Estimated



50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA.--3.96 mi^2 (10.3 km^2).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by Puerto Rico Aqueduct and Sewer Authority Water Intake 1.0 mi (1.6 km) upstream, and purification plant 0.2 mi (0.32 km). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	7.0	3.3	4.4	e4.0	1.9	3	9.4	7.0	3.3	e7.3	9.7
2	56	5.7	4.5	4.0	e3.2	2.0	1.2	9.0	9.9	7.0	e18	10
3	8.1	5.9	5.1	3.9	e3.0	1.8	1.3	8.2	7.8	5.3	e4.6	33
4	4.7	5.8	13	2.8	e11	1.6	2.3	7.8	6.5	4.7	e3.3	10
5	3.5	4.8	5.1	25	7.7	1.5	77	7.4	6.0	3.0	3.0	20
6	4.0	4.4	3.4	5.9	4.3	1.6	9.9	7.2	9.0	3.6	9.1	11
7	2.8	4.1	2.7	3.3	9.3	1.7	1.5	7.4	51	3.0	18	7.7
8	28	3.9	4.6	e2.5	4.2	1.6	1.2	6.9	14	3.9	9.4	146
9	14	4.4	3.4	e2.5	3.4	1.4	1.1	8.2	8.1	4.8	6.6	30
10	90	3.9	6.8	e2.3	3.5	2.9	2.4	6.5	6.6	e3.1	3.9	13
11	13	e4.9	4.9	e2.2	3.5	2.2	67	9.7	5.4	2.5	3.9	13
12	7.4	e9.1	4.6	e2.2	e4.0	1.7	12	6.4	5.8	e2.5	4.7	8.7
13	4.8	e3.6	7.2	e2.3	e3.4	1.6	3.0	5.8	4.9	e60	4.9	28
14	4.0	e3.0	3.9	e2.8	e3.0	1.6	4.4	89	4.9	e10	15	14
15	4.7	e2.8	2.9	e2.7	e2.9	1.4	84	22	18	e7.0	8.7	58
16	4.4	e6.3	5.1	3	e3.1	1.3	151	7.8	9.4	e15	4.0	102
17	2.9	e10	3.1	2.7	e6.4	1.2	1,120	27	6.3	13	3.6	21
18	2.8	e11	2.7	2.5	e3.4	1	217	26	5.5	4.8	9.3	15
19	55	e11	4.3	3.2	e2.4	e3.5	70	24	11	4.4	5.8	14
20	39	5.2	5.6	2.6	4.6	e2.8	37	9.3	5.7	3.5	15	24
21	12	3.9	6.4	2.9	3.3	e1.4	28	30	8.3	5.4	59	132
22	37	3.9	8.8	2.8	2.8	e1.5	23	75	5.3	11	83	31
23	65	4.7	5.2	2.9	2.4	e1.8	32	30	4.5	4.6	17	16
24	43	4.2	4.3	3.1	2.0	e3.5	54	18	4.9	3.7	7.9	13
25	20	3.7	4.7	e60	3.5	1.1	21	11	4.1	3.7	38	11
26	e50	3.2	14	e8.6	2.5	1.1	25	9.2	3.9	3.2	74	11
27	e23	11	6.0	e3.6	2.1	1.2	15	8.4	3.9	4.2	15	9.8
28	e12	4.3	3.5	e3.2	1.8	1.1	12	7.8	5.0	12	13	8.6
29	e15	2.9	2.9	e3.2	---	1.4	11	7.3	3.6	4.1	13	11
30	e8.0	2.8	2.5	e5.2	---	1.4	10	6.9	3.4	3.2	11	11
31	14	---	3.0	e7.9	---	1	---	6.5	---	e11	9.9	---
TOTAL	650.9	161.4	157.5	186.2	110.7	52.8	2,097.3	515.1	249.7	230.5	498.9	842.5
MEAN	21.0	5.38	5.08	6.01	3.95	1.70	69.9	16.6	8.32	7.44	16.1	28.1
MAX	90	11	14	60	11	3.5	1,120	89	51	60	83	146
MIN	2.8	2.8	2.5	2.2	1.8	1.0	1.1	5.8	3.4	2.5	3.0	7.7
AC-FT	1,290	320	312	369	220	105	4,160	1,020	495	457	990	1,670
CFSM	5.30	1.36	1.28	1.52	1.00	0.43	17.7	4.20	2.10	1.88	4.06	7.09
IN.	6.11	1.52	1.48	1.75	1.04	0.50	19.70	4.84	2.35	2.17	4.69	7.91

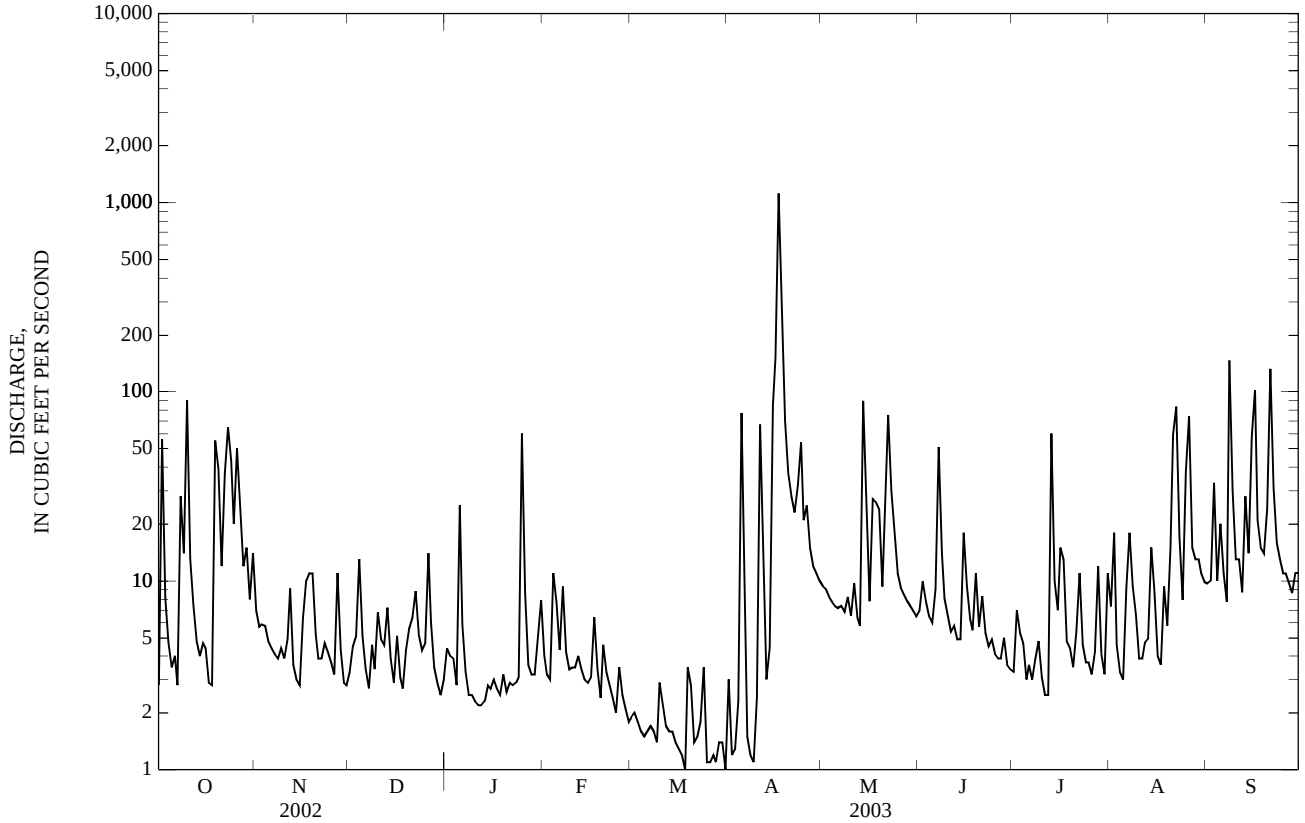
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	22.7	33.9	26.3	15.7	11.8	9.93	13.9	28.2	18.3	14.6	17.9	23.8
MAX	66.4	82.2	64.1	48.5	23.2	36.0	69.9	63.9	50.6	36.0	39.9	74.2
(WY)	(1986)	(2000)	(1982)	(1996)	(1997)	(1987)	(2003)	(1982)	(1987)	(1996)	(1995)	(1996)
MIN	6.48	5.38	3.92	6.01	2.94	1.70	2.20	4.65	3.64	2.82	3.09	7.23
(WY)	(1983)	(2003)	(1990)	(2003)	(1983)	(2003)	(1984)	(1994)	(1997)	(2000)	(1994)	(1987)

50067000 RIO SABANA AT SABANA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	4,338.8		5,753.5			
ANNUAL MEAN	11.9		15.8		19.8	
HIGHEST ANNUAL MEAN					31.9	1996
LOWEST ANNUAL MEAN					7.85	1994
HIGHEST DAILY MEAN	204	Apr 16	1,120	Apr 17	1,120	Apr 17, 2003
LOWEST DAILY MEAN	1.7	Sep 22	1.0	Mar 18	0.96	Apr 10, 1983
ANNUAL SEVEN-DAY MINIMUM	2.0	Mar 20	1.2	Mar 25	1.0	Apr 6, 1983
MAXIMUM PEAK FLOW			8,050	Apr 17	9,600	Jan 5, 1992
MAXIMUM PEAK STAGE			18.69	Apr 17	19.74	Jan 5, 1992
INSTANTANEOUS LOW FLOW					0.86	Apr 17, 1983
ANNUAL RUNOFF (AC-FT)	8,610		11,410		14,330	
ANNUAL RUNOFF (CFSM)	3.00		3.98		5.00	
ANNUAL RUNOFF (INCHES)	40.76		54.05		67.88	
10 PERCENT EXCEEDS	20		29		37	
50 PERCENT EXCEEDS	5.5		5.2		8.4	
90 PERCENT EXCEEDS	2.8		2.2		2.6	

e Estimated



50071000 RIO FAJARDO NEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraíso, and 3.3 mi (5.3 km) southwest of F ajardo.

DRAINAGE AREA.--14.9 mi^2 (38.6 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 137.60 ft (41.940 m) above mean sea level. Due to flood damage, gage datum has had changes as follows: March 24, 1961, to May 5, 1969, 138.95 ft (42.352 m); May 6, 1969, to March 16, 1972, 135.05 ft (41.163 m); March 17, 1972, to M arch 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply about 0.25 mi (0.40 km) upstream from gaging station (estimated mean daily discharges is 9.0 ft^3/s (0.255 m^3/s)). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	32	13	e12	40	7.0	13	26	28	11	50	36
2	53	24	14	e14	28	6.7	10	23	36	66	134	29
3	22	23	24	e22	20	8.0	11	22	40	23	30	153
4	16	22	36	e23	63	6.1	24	20	43	25	19	41
5	15	19	21	e27	36	5.4	129	19	23	14	15	94
6	16	17	18	e22	24	4.5	59	18	103	12	68	47
7	13	17	15	e15	26	4.2	14	18	223	11	112	38
8	205	16	20	e13	17	3.9	12	18	59	12	34	371
9	104	20	17	e8.0	14	3.8	29	20	35	21	33	133
10	305	42	52	7.4	13	4.4	42	16	26	12	20	48
11	40	23	20	7.2	16	5.0	231	22	23	8.9	17	57
12	32	30	18	7.0	21	5.8	35	15	24	8.6	21	34
13	30	36	21	6.5	13	3.6	19	13	20	385	17	44
14	20	23	19	7.0	11	2.5	27	125	19	38	28	44
15	146	17	21	6.6	11	3.0	213	68	64	32	32	214
16	31	47	23	6.7	11	3.1	133	28	39	90	15	207
17	21	40	22	6.6	36	3.0	2,870	25	33	41	13	56
18	22	49	18	6.2	17	3.8	515	76	31	21	15	87
19	52	46	e18	8.0	13	28	202	35	49	18	22	48
20	85	25	e40	8.3	13	15	104	21	32	15	43	55
21	37	21	e38	7.9	12	6.7	82	255	46	15	37	538
22	96	25	e69	6.5	12	6.0	74	95	25	40	244	125
23	57	22	e58	7.1	9.7	5.7	78	82	19	20	44	70
24	180	19	e55	18	8.4	9.5	175	67	17	14	26	58
25	181	19	e68	607	21	5.5	63	39	15	13	94	53
26	321	19	e144	183	11	4.6	57	32	14	11	169	49
27	62	28	e41	24	8.3	4.2	42	29	13	25	48	44
28	39	17	e23	20	7.6	7.0	34	26	21	79	63	41
29	35	14	e18	16	---	4.1	30	24	14	23	48	47
30	32	13	e18	31	---	19	28	22	11	15	45	51
31	75	---	e14	128	---	6.2	---	22	---	45	34	---
TOTAL	2,355	765	996	1,282.0	533.0	205.3	5,355	1,321	1,145	1,164.5	1,590	2,912
MEAN	76.0	25.5	32.1	41.4	19.0	6.62	178	42.6	38.2	37.6	51.3	97.1
MAX	321	49	144	607	63	28	2,870	255	223	385	244	538
MIN	12	13	13	6.2	7.6	2.5	10	13	11	8.6	13	29
AC-FT	4,670	1,520	1,980	2,540	1,060	407	10,620	2,620	2,270	2,310	3,150	5,780
CFSM	5.10	1.71	2.16	2.78	1.28	0.44	12.0	2.86	2.56	2.52	3.44	6.51
IN.	5.88	1.91	2.49	3.20	1.33	0.51	13.37	3.30	2.86	2.91	3.97	7.27

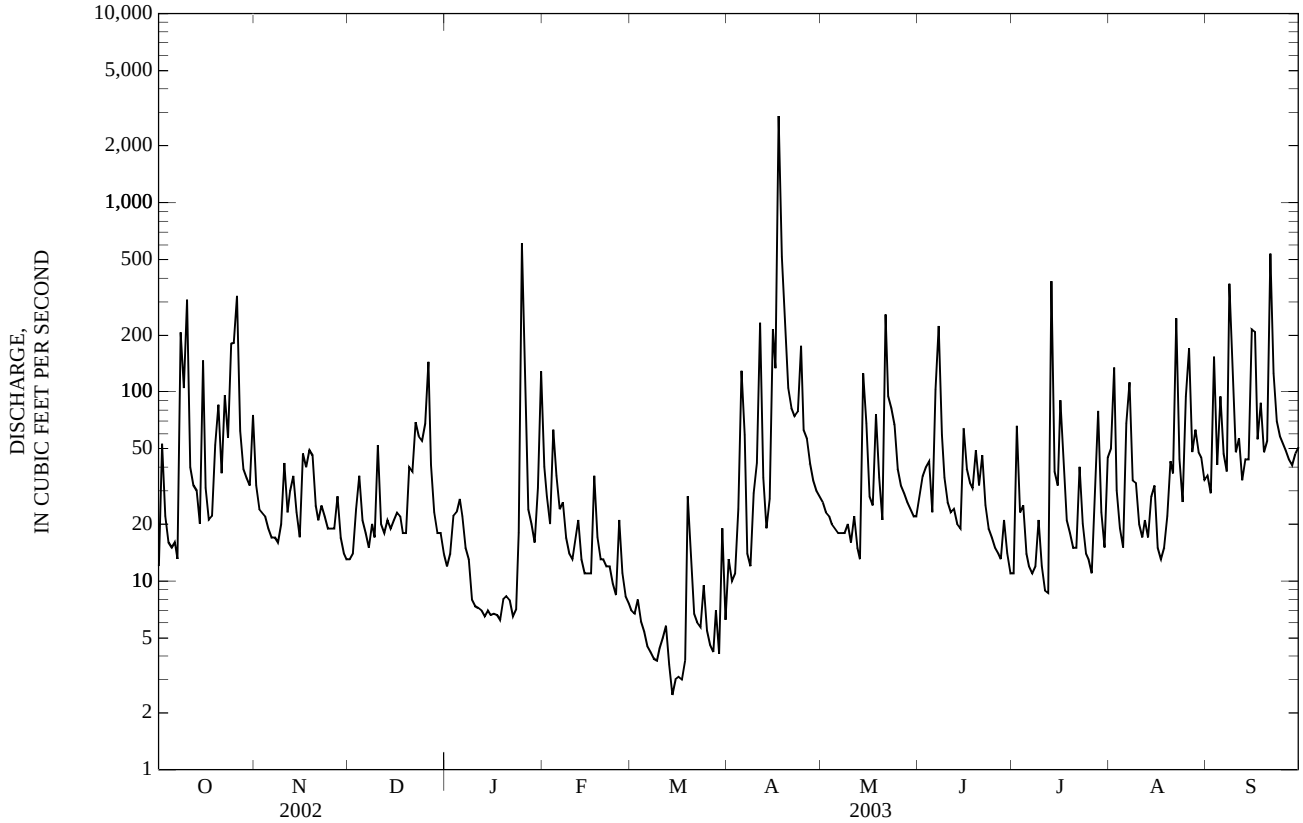
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	93.1	110	85.1	50.0	37.8	33.3	46.6	85.6	58.1	48.1	57.7	87.7
MAX	260	328	237	150	80.4	109	178	399	166	132	159	421
(WY)	(1971)	(2000)	(1976)	(1996)	(1982)	(1987)	(2003)	(1979)	(1962)	(1969)	(1979)	(1989)
MIN	19.1	25.5	14.9	15.4	10.8	6.62	4.02	17.7	10.0	10.6	9.70	18.9
(WY)	(1969)	(2003)	(1990)	(1977)	(1983)	(2003)	(1984)	(1973)	(1985)	(2000)	(1994)	(1994)

50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1961 - 2003	
ANNUAL TOTAL	18,169.9		19,623.8			
ANNUAL MEAN	49.8		53.8		66.5	
HIGHEST ANNUAL MEAN					140	1979
LOWEST ANNUAL MEAN					19.0	1994
HIGHEST DAILY MEAN	610	Apr 16	2,870	Apr 17	8,800	Sep 18, 1989
LOWEST DAILY MEAN	4.9	Mar 26	2.5	Mar 14	1.0	May 6, 1984
ANNUAL SEVEN-DAY MINIMUM	5.8	Mar 20	3.5	Mar 12	1.5	Apr 18, 1984
MAXIMUM PEAK FLOW			14,500	Apr 17	21,700	Sep 18, 1989
MAXIMUM PEAK STAGE			14.14	Apr 17	20.00	Sep 18, 1989
INSTANTANEOUS LOW FLOW					0.86	May 3, 1984
ANNUAL RUNOFF (AC-FT)	36,040		38,920		48,160	
ANNUAL RUNOFF (CFSM)	3.34		3.61		4.46	
ANNUAL RUNOFF (INCHES)	45.36		48.99		60.62	
10 PERCENT EXCEEDS	105		99		130	
50 PERCENT EXCEEDS	23		23		31	
90 PERCENT EXCEEDS	12		7.3		10	

e Estimated



50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
07...	1445	17	2.7	8.7	115	6.9	130	29.4	33	7.15	3.71	.91	.9
JAN													
30...	1445	53	15	8.5	--	7.0	83	24.7	19	4.11	2.18	.88	.7
APR													
14...	1130	18	4.1	9.3	--	7.3	123	27.9	32	7.18	3.53	.95	.8
JUL													
02...	1045	117	120	8.0	--	6.8	78	25.8	--	--	--	--	--
SEP													
04...	1045	38	9.6	7.2	--	7.0	105	27.4	28	6.07	3.20	1.34	.7

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
07...	11.4	38	11.8	<.17	25.8	3.6	--	87	4.03	<10	<.20	.02	--
JAN													
30...	7.00	21	8.33	.03	17.7	3.1	.0	56	8.11	13	<.20	.01	--
APR													
14...	10.9	36	12.9	.09	23.4	3.7	<.1	84	4.05	<10	<.20	.01	--
JUL													
02...	--	16	--	--	--	--	--	--	--	112	.40	.01	.14
SEP													
04...	8.92	28	10.4	<.2	21.7	4.0	--	72	7.39	<10	.30	<.01	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
07...	.130	<.01	--	<.02	--	--	<10	210	E50	--	--	--	--
JAN													
30...	.150	<.01	--	<.02	--	--	<10	E580	--	E9,800	<2	17.6	E14
APR													
14...	.080	<.01	--	<.02	--	--	<10	88	--	2,800	<2	21.9	24
JUL													
02...	.150	.01	.39	.08	.55	2.4	30	3,300	--	--	--	--	--
SEP													
04...	.290	<.01	--	<.02	.59	2.6	<10	890	--	8,000	--	--	--

50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
30...	<.2	<.8	<10	<.01	520	<1	33.6	<.02	<3	<.3	<25	<.10	<16
APR													
14...	<.2	<.8	<10	<.01	250	<1	13.8	<.02	<3	<.3	37	<.10	E9
JUL													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
14...	1130	<.01	<.02	<.01	<.01	<.05	<.1	<.04	<.05	<.02	<.017	<.30	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
14...	<.03	<.03	<.009	<.01	<.014	<.30	<.04	<.012	<.016	<.014	<.009	<.015	<.03

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
14...	<.1	<.05	<.02	<1	<.05

< -- Less than

50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1982 to September 1986 and October 1995 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler and automatic sediment sampler since October 1983.

EXTREMES FOR PERIOD OF RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 2,210 mg/L October 6, 1985; Minimum daily mean, 1 mg/L several years.
SEDIMENT LOADS: Maximum daily mean, 34,600 tons (31,390 tonnes) April 17, 003; Minimum daily mean,<0.01 tons (<0.01 tonnes) July 9, 2001.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATION: Maximum daily mean, 1850 mg/L April 17, 2003; Minimum daily mean, 1 mg/L several days.
SEDIMENT LOADS: Maximum daily mean, 34,600 tons (31,390 tonnes) April 17, 2003; Minimum daily mean, 0.02 tons (0.02 tonnes) March 13, 14, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	12	5	0.16	32	16	1.4	13	3	0.11
2	53	28	6.2	24	12	0.82	14	3	0.11
3	22	13	0.81	23	11	0.67	24	3	0.19
4	16	9	0.41	22	10	0.59	36	14	1.9
5	15	8	0.35	19	9	0.46	21	10	0.59
6	16	8	0.34	17	8	0.36	18	8	0.38
7	13	7	0.24	17	7	0.31	15	5	0.23
8	205	59	247	16	6	0.25	20	8	0.64
9	104	60	103	20	5	0.26	17	8	0.37
10	305	166	369	42	18	3.6	52	30	6.1
11	40	24	2.6	23	8	0.47	20	14	0.75
12	32	19	1.6	30	6	0.45	18	13	0.61
13	30	14	1.2	36	15	2.6	21	12	0.67
14	20	10	0.53	23	4	0.28	19	12	0.60
15	146	68	153	17	4	0.18	21	11	0.64
16	31	26	2.5	47	21	3.2	23	11	0.68
17	21	9	0.52	40	18	2.2	22	11	0.63
18	22	7	0.45	49	25	3.6	18	10	0.50
19	52	20	23	46	20	2.7	e18	e10	e0.50
20	85	46	29	25	7	0.48	e40	e18	e2.2
21	37	11	1.1	21	3	0.20	e38	e18	e2.2
22	96	47	17	25	3	0.20	e69	e35	e5.9
23	57	31	5.5	22	3	0.18	e58	e31	e5.5
24	180	91	220	19	3	0.15	e55	e31	e5.5
25	181	94	63	19	3	0.16	e68	e35	e5.9
26	321	163	219	19	3	0.15	e144	e68	e153
27	62	35	5.9	28	3	0.22	e41	e18	e2.2
28	39	20	2.1	17	3	0.14	e23	e11	e0.68
29	35	13	1.2	14	3	0.11	e18	e13	e0.61
30	32	8	0.66	13	3	0.10	e18	e13	e0.61
31	75	35	9.9	---	---	---	e14	e3	e0.11
TOTAL	2,355	---	1,487.27	765	---	26.49	996	---	200.61

50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	e12	e3	e0.11	40	29	3.4	7.0	4	0.08
2	e14	e3	e0.11	28	23	1.8	6.7	4	0.07
3	e22	e11	e0.63	20	22	1.2	8.0	4	0.09
4	e23	e11	e0.63	63	39	9.2	6.1	7	0.11
5	e27	e11	e0.63	36	26	2.6	5.4	9	0.13
6	e22	e11	e0.63	24	26	1.7	4.5	11	0.13
7	e15	e9	e0.62	26	26	1.8	4.2	9	0.11
8	e13	e9	e0.62	17	25	1.1	3.9	8	0.08
9	e8.0	e5	e0.12	14	25	0.91	3.8	6	0.07
10	7.4	5	0.10	13	24	0.87	4.4	5	0.06
11	7.2	5	0.10	16	24	1.0	5.0	4	0.05
12	7.0	5	0.09	21	24	1.3	5.8	3	0.05
13	6.5	5	0.09	13	23	0.82	3.6	2	0.02
14	7.0	5	0.09	11	23	0.70	2.5	3	0.02
15	6.6	5	0.08	11	23	0.68	3.0	4	0.03
16	6.7	5	0.08	11	22	0.67	3.1	5	0.04
17	6.6	5	0.08	36	24	3.0	3.0	6	0.05
18	6.2	4	0.07	17	5	0.21	3.8	6	0.06
19	8.0	4	0.09	13	4	0.14	28	17	4.0
20	8.3	4	0.10	13	4	0.14	15	7	0.32
21	7.9	4	0.09	12	4	0.13	6.7	6	0.11
22	6.5	4	0.07	12	4	0.12	6.0	6	0.10
23	7.1	4	0.08	9.7	3	0.09	5.7	6	0.09
24	18	9	0.62	8.4	3	0.07	9.5	6	0.16
25	607	323	975	21	8	0.69	5.5	7	0.11
26	183	101	134	11	4	0.12	4.6	8	0.10
27	24	32	2.1	8.3	4	0.09	4.2	9	0.10
28	20	26	1.4	7.6	4	0.08	7.0	9	0.16
29	16	25	1.1	---	---	---	4.1	8	0.09
30	31	31	4.2	---	---	---	19	12	0.81
31	128	73	56	---	---	---	6.2	5	0.08
TOTAL	1,282.0	---	1,179.73	533.0	---	34.63	205.3	---	7.48
		APRIL			MAY			JUNE	
1	13	4	0.13	26	9	0.64	28	9	0.83
2	10	3	0.08	23	10	0.64	36	8	1.0
3	11	4	0.16	22	11	0.66	40	10	1.6
4	24	8	0.62	20	12	0.66	43	11	1.8
5	129	61	92	19	13	0.67	23	4	0.25
6	59	25	7.6	18	14	0.68	103	41	47
7	14	3	0.12	18	15	0.72	223	107	154
8	12	3	0.11	18	15	0.73	59	13	2.4
9	29	8	3.1	20	13	0.66	35	7	0.62
10	42	14	3.8	16	10	0.42	26	5	0.36
11	231	124	151	22	7	0.41	23	5	0.31
12	35	8	0.76	15	4	0.17	24	5	0.33
13	19	5	0.26	13	4	0.15	20	5	0.27
14	27	5	0.37	125	56	42	19	5	0.25
15	213	97	196	68	24	8.1	64	32	6.2
16	133	67	42	28	2	0.16	39	20	2.2
17	2,870	1,850	34,600	25	1	0.10	33	18	1.6
18	515	174	524	76	13	3.9	31	14	1.3
19	202	39	22	35	1	0.11	49	24	3.8
20	104	20	5.9	21	1	0.06	32	12	1.1
21	82	12	2.7	255	107	237	46	24	3.8
22	74	9	1.9	95	35	11	25	14	0.94
23	78	17	5.0	82	29	8.1	19	13	0.65
24	175	77	103	67	18	4.2	17	10	0.46
25	63	13	2.5	39	8	0.83	15	8	0.33
26	57	14	2.5	32	8	0.66	14	7	0.26
27	42	5	0.62	29	11	0.82	13	11	0.36
28	34	4	0.41	26	14	0.97	21	15	0.86
29	30	6	0.48	24	16	1.0	14	19	0.72
30	28	8	0.57	22	13	0.75	11	22	0.69
31	---	---	---	22	9	0.50	---	---	---
TOTAL	5,355	---	35,769.69	1,321	---	327.47	1,145	---	236.29

50071000 RIO FAJARDO NEAR FAJARDO, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	11	21	0.62	50	18	3.0	36	4	0.40
2	66	44	15	134	89	96	29	4	0.32
3	23	3	0.19	30	5	0.41	153	233	570
4	25	7	0.44	19	3	0.17	41	20	2.4
5	14	18	0.65	15	3	0.12	94	46	31
6	12	28	0.91	68	28	15	47	31	4.0
7	11	35	1.1	112	89	67	38	28	2.9
8	12	28	0.88	34	19	1.8	371	474	2,000
9	21	19	1.1	33	14	1.2	133	68	40
10	12	13	0.42	20	12	0.66	48	16	2.1
11	8.9	12	0.28	17	11	0.49	57	14	2.2
12	8.6	11	0.26	21	10	0.57	34	10	0.98
13	385	582	3,060	17	9	0.41	44	18	3.1
14	38	10	1.1	28	12	1.6	44	7	0.91
15	32	13	2.1	32	41	3.8	214	152	295
16	90	52	17	15	34	1.4	207	112	162
17	41	35	4.6	13	32	1.2	56	6	0.94
18	21	8	0.48	15	30	1.2	87	5	1.2
19	18	5	0.26	22	27	1.6	48	5	0.59
20	15	5	0.19	43	23	3.1	55	9	2.5
21	15	4	0.16	37	24	5.4	538	565	1,400
22	40	24	3.0	244	133	135	125	92	40
23	20	23	1.3	44	64	7.5	70	35	6.8
24	14	15	0.54	26	62	4.4	58	23	3.6
25	13	14	0.48	94	73	21	53	12	1.7
26	11	13	0.41	169	88	61	49	9	1.2
27	25	14	0.99	48	24	3.3	44	8	0.95
28	79	18	4.1	63	12	2.0	41	7	0.77
29	23	13	0.83	48	8	1.0	47	6	0.75
30	15	11	0.44	45	5	0.60	51	5	0.73
31	45	31	8.8	34	4	0.40	---	---	---
TOTAL	1,164.5	---	3,128.63	1,590	---	442.33	2,912	---	4,579.04
YEAR	19,623.8	47,419.66							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR 17...	1115	6,790	69	6,700	123,000
SEP 21...	0655	1,470	91	1,890	7,510

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspnd. sediment, sieve diametr percent <.125mm (70332)	Suspnd. sediment, sieve diametr percent <.25mm (70333)	Suspnd. sediment, sieve diametr percent <.5 mm (70334)	Suspnd. sediment, sieve diametr percent <1 mm (70335)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
APR 17...	1455	7,290	76	94	100	100	100	6,720	132,000

50072500 RIO FAJARDO BELOW FAJARDO, PR

LOCATION.--Lat 18°19'35", long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo Plaza.

DRAINAGE AREA.--23.4 mi^2 (60.6 km^2).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
07...	1210	20	3.4	9.8	127	7.5	157	28.5	41	8.72	4.56	.97	.9
JAN													
30...	1145	35	22	8.8	--	7.3	185	25.6	47	10.5	4.97	1.47	.9
APR													
14...	1400	47	110	9.4	--	8.0	156	29.3	51	12.2	5.04	1.17	1
JUL													
02...	1315	136	68	7.6	--	7.0	964	25.8	--	--	--	--	--
SEP													
04...	1300	45	16	8.9	--	7.3	116	28.6	29	6.39	3.16	1.50	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
07...	13.5	42	14.9	<.17	23.8	4.0	--	95	5.13	<10	<.20	.02	--
JAN													
30...	14.4	44	19.6	.08	23.5	5.4	.0	106	9.93	17	<.20	.01	--
APR													
14...	16.9	43	24.4	.10	22.5	6.0	<.1	114	14.5	106	.30	.02	.07
JUL													
02...	--	21	--	--	--	--	--	--	--	34	.20	.01	--
SEP													
04...	10.0	30	10.9	<.2	19.7	4.3	--	74	8.92	<40	.40	.02	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
07...	.060	<.01	--	<.02	--	--	<10	200	E6	--	--	--	--
JAN													
30...	.330	<.01	--	.02	--	--	10	180	--	6,300	<2	48.4	27
APR													
14...	.090	.02	.28	.09	.39	1.7	<10	E1,700	--	42,000	<2	86.5	33
JUL													
02...	.130	<.01	.19	.04	.33	1.5	20	E910	--	--	--	--	--
SEP													
04...	.250	<.01	.38	.03	.65	2.9	10	E740	--	7,800	--	--	--

50072500 RIO FAJARDO BELOW FAJARDO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
30...	<.2	E.5	<10	<.01	840	M	64.8	E.01	<3	<.3	E14	<.10	<16
APR													
14...	<.2	1.7	<10	<.01	3,910	2	188	.03	<3	<.3	59	<.10	<16
JUL													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50074950 QUEBRADA GUABA NEAR NAGUABO, PR

LOCATION.--Lat 18°17'02", long 65°47'20", Hydrologic Unit 21010005, on right bank, off Highway 191 at El Yunque Caribbean National Forest, 4.8 mi (7.7 km) southeast of Campamento Eliza Colberg, 1.3 mi (2.1 km) southeast of Mt. Britton, 2.0 mi (3.2 km) northwest of Pico del Este and 7.3 mi (11.7 km) southeast of Río Grande Plaza.

DRAINAGE AREA.--0.12 mi^2 (0.31 km^2).

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.18	0.21	0.15	0.26	0.36	0.19	0.13	e1.5	e1.1	e0.42	e0.58	e0.66
2	0.47	0.20	0.18	0.33	0.31	0.20	0.11	e1.4	e0.50	e1.3	e2.4	e1.2
3	0.23	0.25	0.18	0.26	0.28	0.18	0.20	e1.6	e0.77	e0.57	e0.52	e0.72
4	0.21	0.20	0.35	0.26	1.4	0.16	0.17	e2.0	e0.86	e0.58	e0.50	e0.52
5	0.20	0.19	0.19	0.41	0.47	0.17	2.9	e2.3	e0.44	e0.45	e0.47	e0.52
6	0.20	0.18	0.18	0.30	0.36	0.16	e0.32	e2.5	e0.47	e0.46	e1.5	e0.50
7	0.18	0.17	0.16	0.30	0.46	0.16	e0.25	e3.0	e3.0	e0.40	e1.2	e0.49
8	0.49	0.17	0.22	0.28	0.33	0.15	e0.26	e2.6	e1.4	e0.54	e0.58	e0.91
9	0.26	0.17	0.16	0.27	0.30	0.15	e0.40	e1.6	e1.8	e0.58	e0.60	e1.0
10	0.41	0.39	0.30	0.25	0.36	0.17	e0.74	e2.2	e1.5	e0.41	e0.46	e0.49
11	0.24	0.24	0.18	0.28	0.33	0.17	e2.2	e1.3	e1.2	e0.40	e0.45	e0.58
12	0.22	0.31	0.17	0.26	0.32	0.16	e0.52	e0.64	e1.0	e0.40	e0.44	e0.46
13	0.21	0.21	0.19	0.26	0.28	0.15	e0.47	e0.63	e1.1	e2.9	e0.44	e0.84
14	0.20	0.19	0.16	0.26	0.28	0.15	e0.62	e1.6	e1.0	e0.44	e0.65	e0.49
15	0.77	0.19	0.17	0.27	0.26	0.15	e2.0	e1.4	e2.7	e0.44	e0.58	e1.0
16	0.25	0.35	0.28	0.27	0.28	0.14	e1.4	e2.0	e1.1	e1.3	e0.44	e1.3
17	0.22	0.34	0.23	0.25	0.71	0.14	e21	e1.4	e0.88	e0.65	e0.44	e0.49
18	0.21	0.37	0.18	0.30	0.34	0.14	e6.3	e3.0	e0.90	e0.50	e0.52	e0.58
19	0.64	0.29	0.19	0.27	0.28	0.14	e6.2	e2.2	e2.1	e0.47	e0.47	e0.84
20	0.32	0.22	0.32	0.33	0.31	0.13	e3.0	e1.2	e1.5	e0.44	e0.84	e1.6
21	0.37	0.38	0.38	0.28	0.30	0.14	e3.6	e2.4	e2.1	e0.47	e1.5	e2.1
22	0.35	0.25	0.32	0.28	0.27	0.14	e3.8	e1.8	e1.0	e1.1	e2.9	e0.72
23	0.27	0.22	0.28	0.31	0.25	0.14	e1.6	e2.8	e0.87	e0.50	e0.65	e0.52
24	1.0	0.21	0.36	0.30	0.27	0.12	e1.4	e2.2	e0.72	e0.46	e0.52	e0.46
25	0.56	0.20	0.29	4.2	0.37	0.12	e0.86	e0.90	e0.55	e0.44	e1.9	e0.42
26	0.69	0.26	0.32	0.62	0.25	0.12	e0.77	e0.90	e0.60	e0.44	e1.9	e0.42
27	0.29	0.21	0.29	0.40	0.23	0.11	e0.69	e1.2	e0.41	e0.84	e0.58	e0.41
28	0.25	0.18	0.28	0.34	0.20	0.11	e0.62	e0.82	e0.60	e1.6	e0.98	e0.41
29	0.24	0.17	0.26	0.33	---	0.14	e1.1	e0.53	e0.41	e0.50	e0.96	e0.49
30	0.22	0.15	0.25	0.41	---	0.12	e1.7	e0.58	e0.42	e0.43	e1.0	e0.78
31	0.23	---	0.26	0.75	---	0.11	---	e1.4	---	e1.4	e0.66	---
TOTAL	10.58	7.07	7.43	13.89	10.16	4.53	65.33	51.60	33.00	21.83	27.63	21.92
MEAN	0.34	0.24	0.24	0.45	0.36	0.15	2.18	1.66	1.10	0.70	0.89	0.73
MAX	1.0	0.39	0.38	4.2	1.4	0.20	21	3.0	3.0	2.9	2.9	2.1
MIN	0.18	0.15	0.15	0.25	0.20	0.11	0.11	0.53	0.41	0.40	0.44	0.41
AC-FT	21	14	15	28	20	9.0	130	102	65	43	55	43
CFSM	2.84	1.96	2.00	3.73	3.02	1.22	18.1	13.9	9.17	5.87	7.43	6.09
IN.	3.28	2.19	2.30	4.31	3.15	1.40	20.25	16.00	10.23	6.77	8.57	6.80

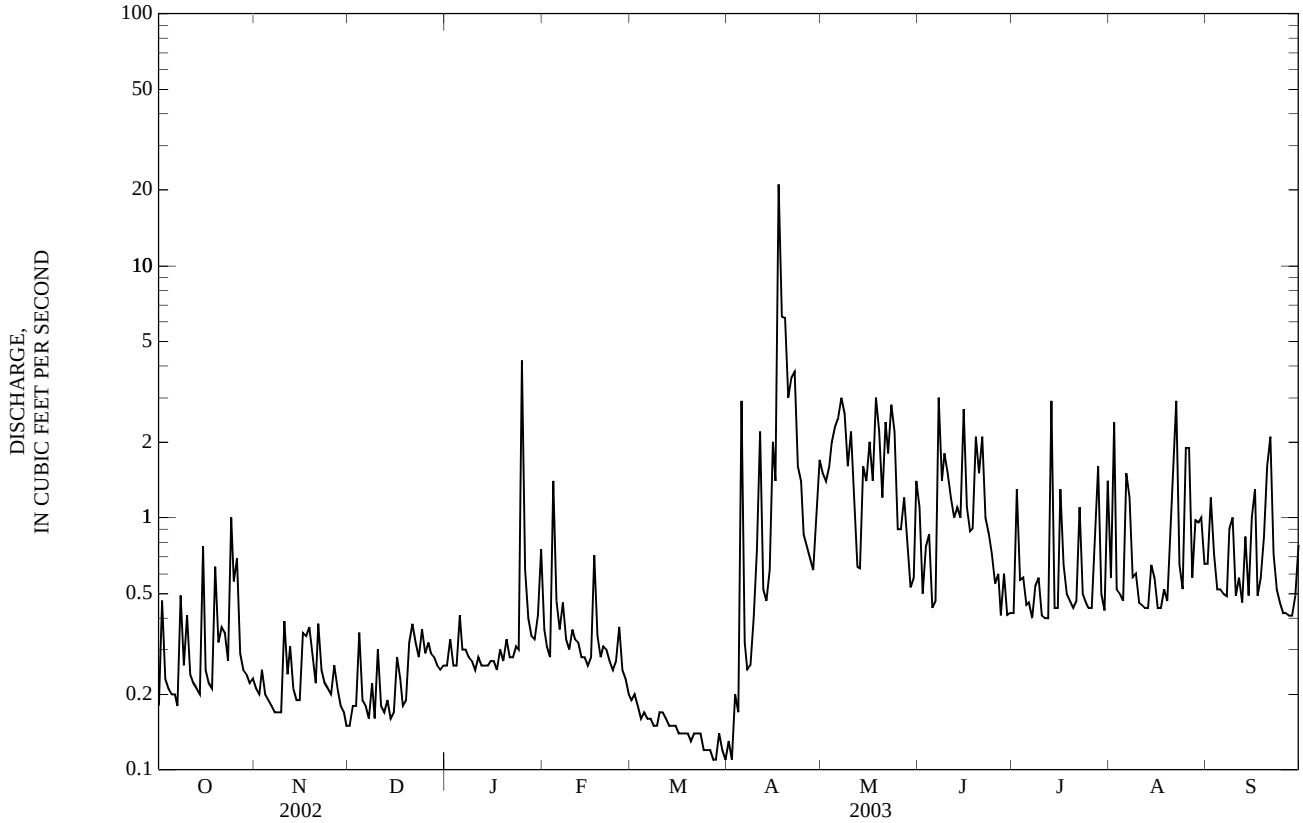
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

MEAN	0.47	0.58	0.57	0.49	0.41	0.24	0.47	0.50	0.41	0.44	0.48	0.60
MAX	0.89	1.19	1.24	0.67	0.71	0.32	2.18	1.66	1.10	1.18	0.89	1.42
(WY)	(1998)	(2000)	(2000)	(1997)	(2000)	(2001)	(2003)	(2003)	(2003)	(1992)	(2003)	(1996)
MIN	0.25	0.24	0.22	0.28	0.28	0.15	0.20	0.13	0.18	0.22	0.19	0.34
(WY)	(1993)	(2003)	(1994)	(1994)	(2002)	(2003)	(2000)	(1999)	(2000)	(1994)	(1993)	(1993)

50074950 QUEBRADA GUABA NEAR NAGUABO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003	
ANNUAL TOTAL	138.00		274.97			
ANNUAL MEAN	0.38		0.75		0.47	
HIGHEST ANNUAL MEAN					0.75	2003
LOWEST ANNUAL MEAN					0.32	1994
HIGHEST DAILY MEAN	8.5	May 30	21	Apr 17	23	Sep 10, 1996
LOWEST DAILY MEAN	0.09	Mar 27	0.11	Mar 27	0.06	May 31, 1999
ANNUAL SEVEN-DAY MINIMUM	0.10	Mar 22	0.12	Mar 25	0.07	May 27, 1999
MAXIMUM PEAK FLOW			133	Apr 17	133	Apr 17, 2003
MAXIMUM PEAK STAGE			11.20	Apr 17	11.20	Apr 17, 2003
INSTANTANEOUS LOW FLOW					0.05	May 1, 1997
ANNUAL RUNOFF (AC-FT)	274		545		339	
ANNUAL RUNOFF (CFSM)	3.15		6.28		3.90	
ANNUAL RUNOFF (INCHES)	42.78		85.24		52.99	
10 PERCENT EXCEEDS	0.59		1.6		0.79	
50 PERCENT EXCEEDS	0.28		0.41		0.30	
90 PERCENT EXCEEDS	0.16		0.17		0.15	

e Estimated



50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, at Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Río Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

DRAINAGE AREA.--1.26 mi^2 (3.26 km^2).

PERIOD OF RECORD.--July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953 -62, annual low-flow measurements 1962-66, October 1979 to current year.

REVISED RECORDS.--WDR PR-02-1: 1995-2001 (M).

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic ma p.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.5	7.2	6.2	5.9	10	5.2	5.0	7.8	6.4	6.5	9.5	10
2	e9.9	6.9	8.3	8.2	7.8	6.0	4.6	7.6	8.0	19	38	19
3	e6.5	10	8.4	6.3	7.2	5.4	8.1	7.3	13	8.6	7.7	11
4	e6.0	6.7	18	5.3	38	5.2	7.3	7.2	11	8.9	6.7	8.4
5	4.8	6.2	7.2	10	16	5.0	59	7.1	6.2	6.4	6.4	8.5
6	5.3	6.1	6.4	5.8	8.2	4.9	7.9	6.9	9.1	6.8	21	8.1
7	4.5	7.1	5.9	5.3	12	4.8	6.3	7.2	41	5.9	18	7.4
8	18	6.4	9.4	5.1	7.1	4.8	7.4	7.0	9.6	8.8	8.7	14
9	6.9	6.1	6.2	5.0	7.3	4.7	16	8.1	15	9.3	10	16
10	13	13	12	4.9	10	5.2	26	6.8	7.6	6.1	7.3	7.8
11	6.3	6.7	7.7	4.8	9.3	5.5	54	6.9	6.9	5.8	6.7	9.5
12	6.9	11	7.1	4.7	9.0	4.9	8.3	6.3	8.4	5.6	6.4	7.1
13	6.1	5.8	9.4	4.7	6.6	4.6	6.4	6.2	6.6	44	6.4	12
14	5.0	e5.5	7.3	4.7	6.2	4.6	10	24	8.5	7.2	9.9	8.0
15	32	e5.5	7.4	4.6	6.0	4.8	41	11	33	7.3	8.3	16
16	8.7	e10	8.8	4.7	6.9	4.6	21	8.5	14	20	6.3	21
17	8.1	e10	7.1	4.6	22	4.5	e438	7.7	12	10	6.2	7.9
18	6.8	e11	5.8	6.1	8.5	4.7	56	19	8.5	6.5	7.3	9.4
19	25	11	7.1	4.9	6.7	4.6	37	7.9	12	6.0	6.7	13
20	15	5.8	13	6.0	8.8	4.4	16	6.9	9.4	5.8	12	25
21	17	13	15	5.0	7.9	4.3	28	30	22	6.2	24	32
22	12	9.3	11	4.5	6.4	4.3	20	14	8.2	16	44	11
23	7.6	7.3	7.1	4.9	5.9	5.0	15	18	7.1	6.8	8.5	7.7
24	32	6.8	13	4.6	6.6	4.5	12	18	6.8	5.9	7.2	7.1
25	25	6.5	7.3	86	11	4.3	10	7.9	6.4	5.7	29	6.8
26	32	11	7.4	20	6.0	4.3	12	7.1	6.2	5.7	29	6.6
27	9.9	8.3	6.2	9.0	5.7	4.2	9.5	6.7	6.0	13	8.8	6.4
28	8.1	6.2	5.6	7.7	5.5	4.2	8.9	6.4	8.2	23	15	6.1
29	7.8	5.2	5.3	11	---	5.9	8.3	6.2	5.9	7.2	13	7.7
30	7.4	5.4	5.2	15	---	5.7	8.1	6.0	5.8	6.1	16	12
31	8.3	---	5.9	30	---	3.6	---	5.9	---	21	10	---
TOTAL	366.4	237.0	257.7	309.3	268.6	148.7	967.1	303.6	328.8	321.1	414.0	342.5
MEAN	11.8	7.90	8.31	9.98	9.59	4.80	32.2	9.79	11.0	10.4	13.4	11.4
MAX	32	13	18	86	38	6.0	438	30	41	44	44	32
MIN	4.5	5.2	5.2	4.5	5.5	3.6	4.6	5.9	5.8	5.6	6.2	6.1
AC-FT	727	470	511	613	533	295	1,920	602	652	637	821	679
CFSM	9.38	6.27	6.60	7.92	7.61	3.81	25.6	7.77	8.70	8.22	10.6	9.06
IN.	10.82	7.00	7.61	9.13	7.93	4.39	28.55	8.96	9.71	9.48	12.22	10.11

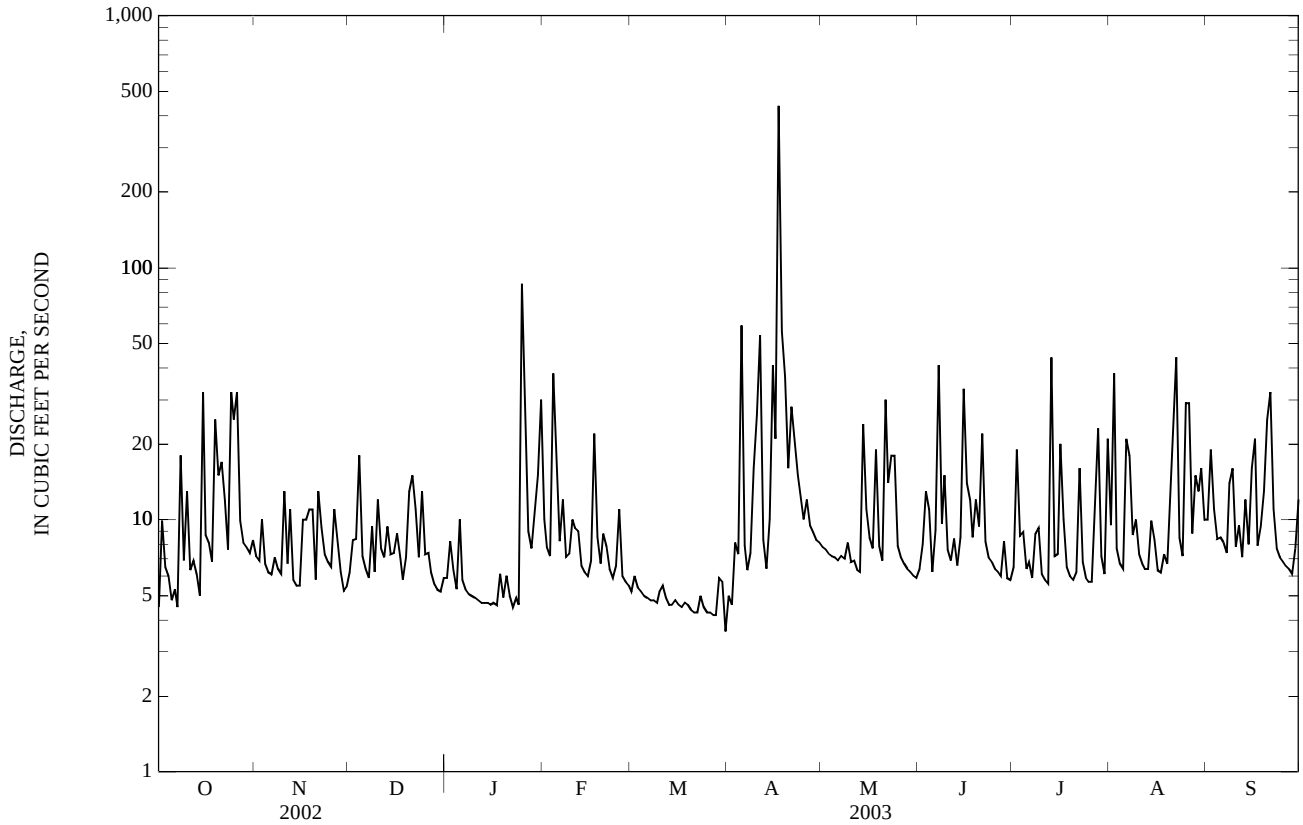
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	15.5	18.7	16.1	13.5	13.1	9.80	12.4	15.3	11.9	12.9	14.5	17.3
MAX	32.1	46.8	34.6	27.0	44.0	26.2	34.4	26.4	20.5	38.9	24.5	40.5
(WY)	(1986)	(1951)	(1999)	(1952)	(1950)	(1949)	(1950)	(1948)	(1996)	(1952)	(1945)	(1996)
MIN	4.78	7.90	4.99	6.65	4.86	3.96	4.77	5.25	5.19	6.44	5.91	7.03
(WY)	(1993)	(2003)	(1990)	(1994)	(1983)	(1951)	(1984)	(1999)	(1985)	(1994)	(1993)	(1986)

50075000 RIO ICACOS NEAR NAGUABO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1945 - 2003	
ANNUAL TOTAL	4,131.4		4,264.8			
ANNUAL MEAN	11.3		11.7		14.2	
HIGHEST ANNUAL MEAN					21.0	1952
LOWEST ANNUAL MEAN					7.92	1994
HIGHEST DAILY MEAN	203	May 30	438	Apr 17	571	Sep 10, 1996
LOWEST DAILY MEAN	4.5	Oct 1	3.6	Mar 31	1.5	Mar 22, 1946
ANNUAL SEVEN-DAY MINIMUM	4.9	Jul 31	4.4	Mar 22	2.0	Apr 7, 1946
MAXIMUM PEAK FLOW			Not determined	Apr 17	Not determined	Apr 17, 2003
MAXIMUM PEAK FLOW					2,860	Apr 21, 1983
MAXIMUM PEAK STAGE					8.96	Apr 21, 1983
ANNUAL RUNOFF (AC-FT)	8,190		8,460		10,300	
ANNUAL RUNOFF (CFSM)	8.98		9.27		11.3	
ANNUAL RUNOFF (INCHES)	121.97		125.91		153.31	
10 PERCENT EXCEEDS	18		20		27	
50 PERCENT EXCEEDS	7.8		7.3		8.2	
90 PERCENT EXCEEDS	5.3		4.9		4.8	

e Estimated



50076000 RIO BLANCO NEAR FLORIDA, PR

LOCATION.--Lat 18°13'45", long 65°47'06", Hydrologic Unit 21010005, on left bank of Highway 191, 0.5 mi (0.8 km) upstream from Quebrada Sonadora, 0.7 mi (1.1 km) upstream from intersection of Highway 191 and 31, 0.8 mi (1.3 km) south of Florida.

DRAINAGE AREA.--12.3 mi^2 (31.9 km^2).

PERIOD OF RECORD.--October 1982 to January 1985, July 2002 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50 ft (15 m), from topographic map.

REMARKS.-Records fair, except those for estimated daily discharges, which are poor. Low flow affected by diversion for water supply and hydroelectric power generation.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	28	26	31	51	21	e48	39	38	45	78	82
2	81	22	32	50	62	30	32	42	44	113	185	90
3	34	30	48	55	39	30	40	41	60	49	58	94
4	28	27	93	30	300	25	167	40	59	79	50	64
5	26	23	44	83	219	23	540	39	37	46	43	53
6	27	21	35	44	69	22	63	38	64	47	162	60
7	24	20	28	35	104	21	36	40	233	41	118	58
8	136	20	51	29	46	17	38	38	63	47	60	73
9	61	18	44	25	37	19	88	39	61	58	68	122
10	128	105	82	24	45	24	184	35	43	39	51	55
11	54	41	38	20	50	21	405	37	40	36	48	64
12	61	65	36	21	55	22	90	33	44	34	47	50
13	42	23	61	21	33	20	47	34	40	247	43	88
14	29	21	38	25	30	19	56	145	46	54	52	63
15	186	19	47	22	26	18	198	101	336	57	57	77
16	71	76	81	22	31	19	149	55	89	113	43	137
17	e46	131	61	22	153	22	5,850	46	61	73	43	63
18	46	121	46	21	55	21	426	125	54	46	62	83
19	66	77	32	23	40	75	270	56	66	41	51	83
20	101	33	113	22	39	25	123	42	55	40	74	118
21	93	135	108	29	47	20	199	437	95	39	64	172
22	98	71	93	22	36	16	131	89	52	e33	187	85
23	46	41	58	22	29	22	91	118	45	e26	74	54
24	176	35	76	32	32	24	72	106	43	e31	54	42
25	142	37	50	534	78	19	60	52	38	36	105	42
26	314	43	84	159	35	18	61	45	42	33	204	45
27	53	53	48	37	28	18	66	41	36	61	59	45
28	32	33	35	29	27	18	56	38	54	110	101	43
29	31	29	31	28	---	20	50	36	38	51	79	49
30	29	27	33	61	---	37	47	36	36	42	93	63
31	36	---	32	120	---	e53	---	35	---	107	81	---
TOTAL	2,321	1,425	1,684	1,698	1,796	759	9,683	2,098	2,012	1,874	2,494	2,217
MEAN	74.9	47.5	54.3	54.8	64.1	24.5	323	67.7	67.1	60.5	80.5	73.9
MAX	314	135	113	534	300	75	5,850	437	336	247	204	172
MIN	24	18	26	20	26	16	32	33	36	26	43	42
AC-FT	4,600	2,830	3,340	3,370	3,560	1,510	19,210	4,160	3,990	3,720	4,950	4,400
CFSM	6.09	3.86	4.42	4.45	5.21	1.99	26.2	5.50	5.45	4.91	6.54	6.01
IN.	7.02	4.31	5.09	5.14	5.43	2.30	29.29	6.35	6.09	5.67	7.54	6.71

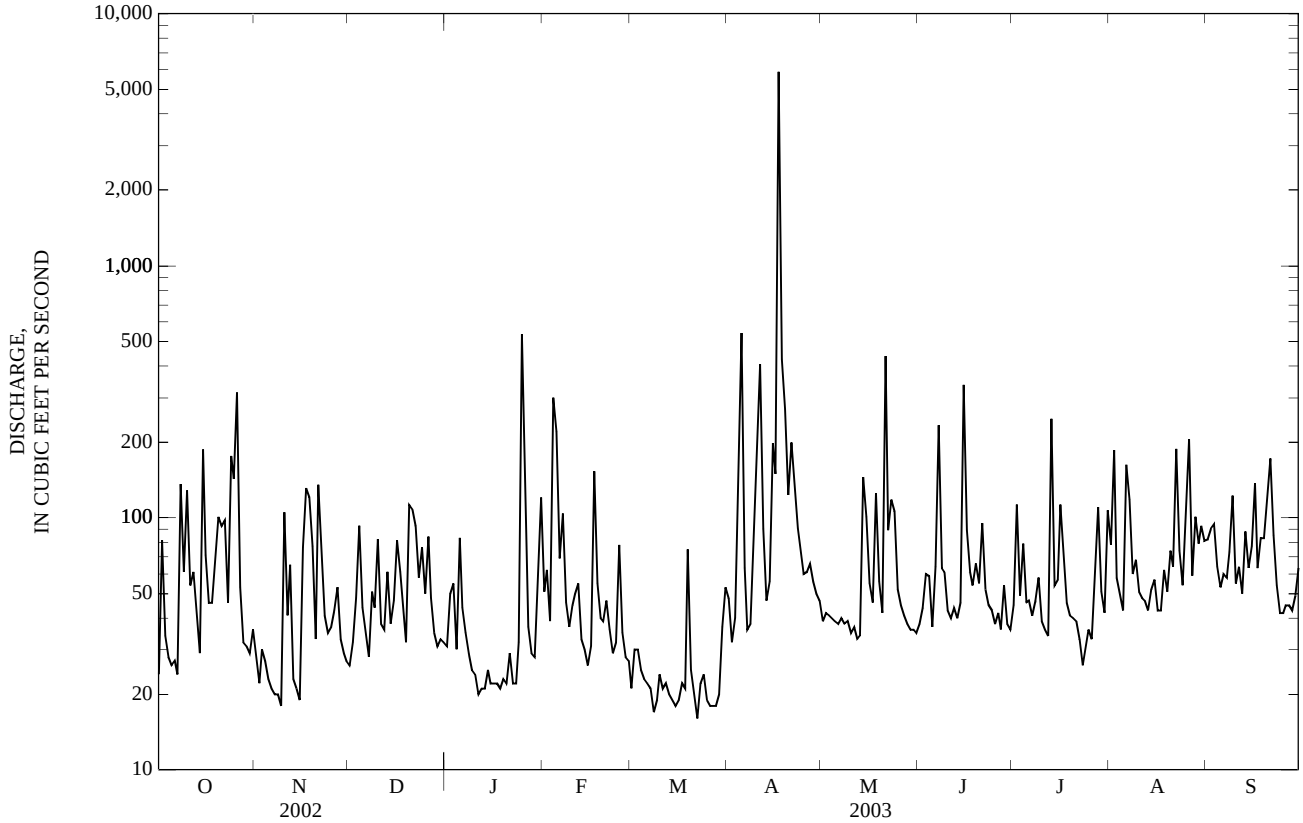
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	69.7	97.2	69.3	48.3	49.9	29.9	140	70.3	68.3	68.8	83.9	66.6
MAX	89.3	190	96.0	54.8	68.0	38.7	323	78.7	75.9	103	119	75.1
(WY)	(1985)	(1985)	(1983)	(2003)	(1984)	(1983)	(2003)	(1983)	(1984)	(1983)	(1983)	(2002)
MIN	50.5	47.5	54.3	41.7	16.8	24.5	20.2	64.5	62.0	50.0	49.4	49.0
(WY)	(1983)	(2003)	(2003)	(1983)	(1983)	(2003)	(1984)	(1984)	(1983)	(1984)	(1984)	(1983)

50076000 RIO BLANCO NEAR FLORIDA, PR—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	30,061			
ANNUAL MEAN	82.4		68.6	
HIGHEST ANNUAL MEAN			82.4	2003
LOWEST ANNUAL MEAN			55.7	1984
HIGHEST DAILY MEAN	5,850	Apr 17	5,850	Apr 17, 2003
LOWEST DAILY MEAN	16	Mar 22	9.6	Apr 10, 1983
ANNUAL SEVEN-DAY MINIMUM	19	Mar 22	10	Apr 7, 1983
MAXIMUM PEAK FLOW	50,600	Apr 17	50,600	Apr 17, 2003
MAXIMUM PEAK STAGE	24.40	Apr 17	24.40	Apr 17, 2003
INSTANTANEOUS LOW FLOW			8.8	Apr 10, 1983
ANNUAL RUNOFF (AC-FT)	59,630		49,730	
ANNUAL RUNOFF (CFSM)	6.70		5.58	
ANNUAL RUNOFF (INCHES)	90.92		75.83	
10 PERCENT EXCEEDS	124		128	
50 PERCENT EXCEEDS	46		41	
90 PERCENT EXCEEDS	22		18	

e Estimated



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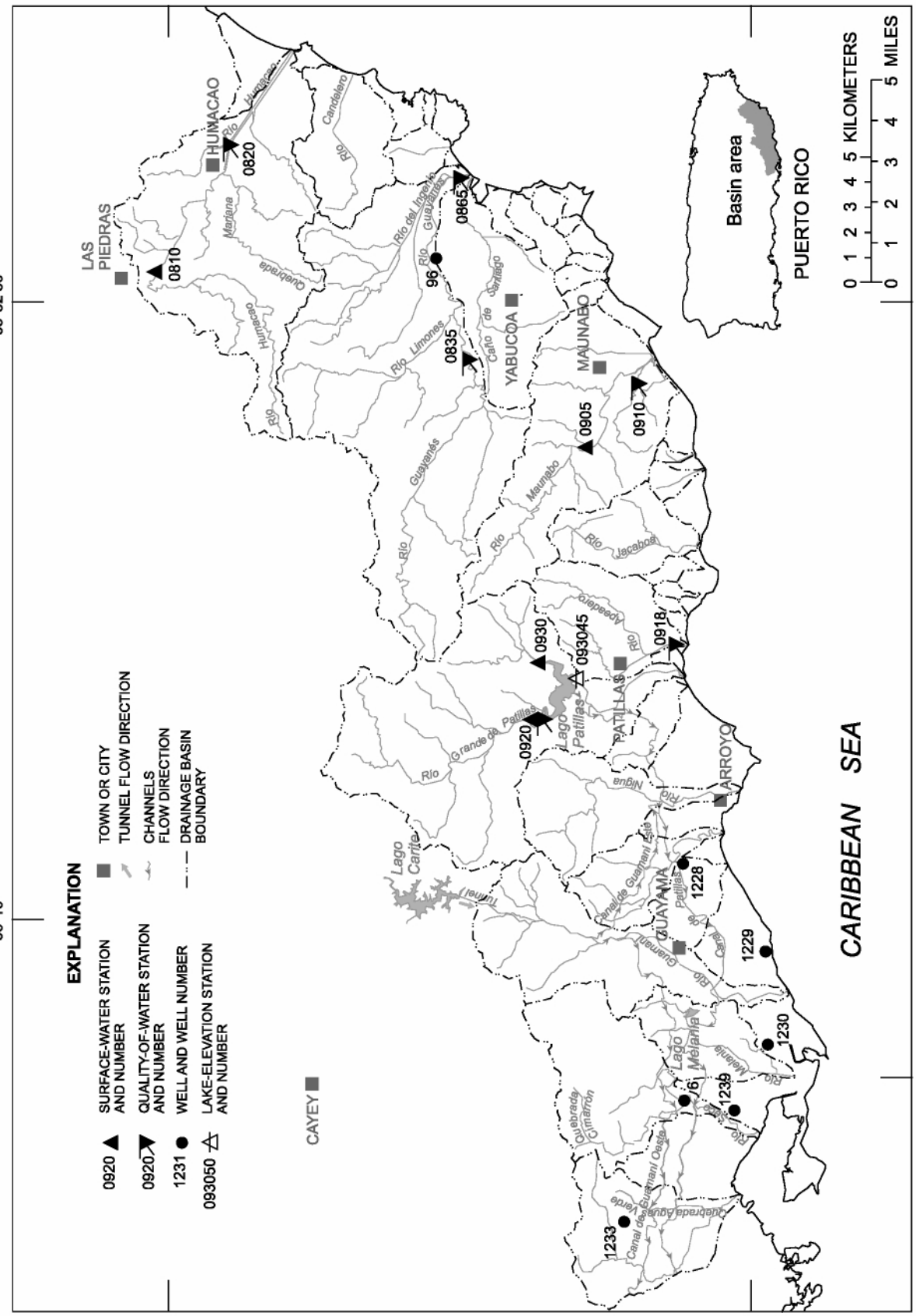


Figure 19. Southeastern river basins -- Río Humacao to Quebrada Aguas Verdes basins.

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic Unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA.--6.65 mi^2 (17.2 km^2).

PERIOD OF RECORD.--September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those for estimated daily discharges and those for above 1,000 ft^3/s (28.3 m^3/s), which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.0	e6.9	e8.7	e8.1	e7.8	e5.1	e13	18	15	15	14	e17
2	e9.0	e6.6	e10	e13	e9.6	e5.1	e11	17	19	23	16	e22
3	e15	e17	e11	e11	e9.0	e5.1	e9.6	17	22	26	13	e18
4	e10	e10	e7.8	e8.7	e6.3	e4.8	e16	16	18	18	12	e16
5	e8.4	e10	e12	e15	e7.2	e4.8	e15	18	18	22	12	15
6	e8.4	e5.7	e11	e16	e6.3	e6.5	e13	17	51	20	30	15
7	e9.0	e5.7	e7.2	e10	e7.5	e4.8	e9.9	21	116	17	24	15
8	e20	e5.4	e6.6	e9.0	e6.3	e4.8	e9.6	25	31	15	18	14
9	e14	e5.4	e7.8	e7.8	e8.4	e4.8	e15	17	21	16	15	15
10	e15	e6.0	e10	e16	e9.6	e6.0	e17	15	19	15	14	14
11	e9.3	e6.0	e8.7	e7.2	e8.1	e7.3	e68	16	19	14	14	13
12	e8.7	e6.6	e9.9	e6.6	e8.4	e4.2	e39	15	18	14	13	13
13	e8.1	e5.7	e9.6	e6.3	e6.0	e3.9	e28	15	16	73	13	21
14	e7.5	e6.0	e10	e6.6	e5.1	e3.9	e30	24	18	19	13	27
15	e8.7	e5.7	e8.4	e6.0	e5.1	e3.9	e17	19	33	16	32	21
16	e8.4	e50	e11	e6.0	e5.7	e4.5	e16	17	24	25	21	93
17	e8.7	e18	e11	e6.0	e17	e5.7	e48	27	19	15	81	20
18	e9.3	e16	e14	e6.6	e9.6	e5.7	e80	39	18	14	61	17
19	e7.5	e13	e8.4	e6.6	e7.5	e7.5	e57	33	58	13	23	15
20	e7.2	e9.0	e7.5	e6.0	e8.7	e7.2	e28	18	24	13	19	16
21	e7.5	e8.1	e9.0	e5.7	e16	e5.7	e25	204	23	16	31	51
22	e6.9	e8.1	e9.6	e5.4	e10	e5.4	59	43	19	23	87	25
23	e6.9	e7.2	e8.7	e7.5	e7.5	e5.4	41	24	17	15	25	17
24	e8.4	e6.6	e7.5	e7.8	e6.6	e5.7	30	21	17	13	18	15
25	e14	e6.6	e7.2	e8.7	e7.2	e5.1	26	19	16	12	19	14
26	e31	e7.8	e7.8	e12	e6.3	e5.1	30	17	16	14	31	15
27	e16	e9.0	e7.5	e7.5	e5.7	e5.1	23	17	16	20	20	14
28	e8.4	e6.9	e6.6	e6.3	e5.4	e5.4	22	16	19	55	21	13
29	e7.8	e7.2	e6.3	e5.7	---	e6.3	20	16	15	17	33	13
30	e7.2	e7.8	e6.0	e6.3	---	e8.7	19	15	15	14	24	13
31	e7.2	---	e6.0	e8.4	---	e6.6	---	15	---	14	18	---
TOTAL	322.5	290.0	272.8	259.8	223.9	170.1	835.1	811	750	616	785	607
MEAN	10.4	9.67	8.80	8.38	8.00	5.49	27.8	26.2	25.0	19.9	25.3	20.2
MAX	31	50	14	16	17	8.7	80	204	116	73	87	93
MIN	6.9	5.4	6.0	5.4	5.1	3.9	9.6	15	15	12	12	13
AC-FT	640	575	541	515	444	337	1,660	1,610	1,490	1,220	1,560	1,200
CFSM	1.56	1.45	1.32	1.26	1.20	0.83	4.19	3.93	3.76	2.99	3.81	3.04
IN.	1.80	1.62	1.53	1.45	1.25	0.95	4.67	4.54	4.20	3.45	4.39	3.40

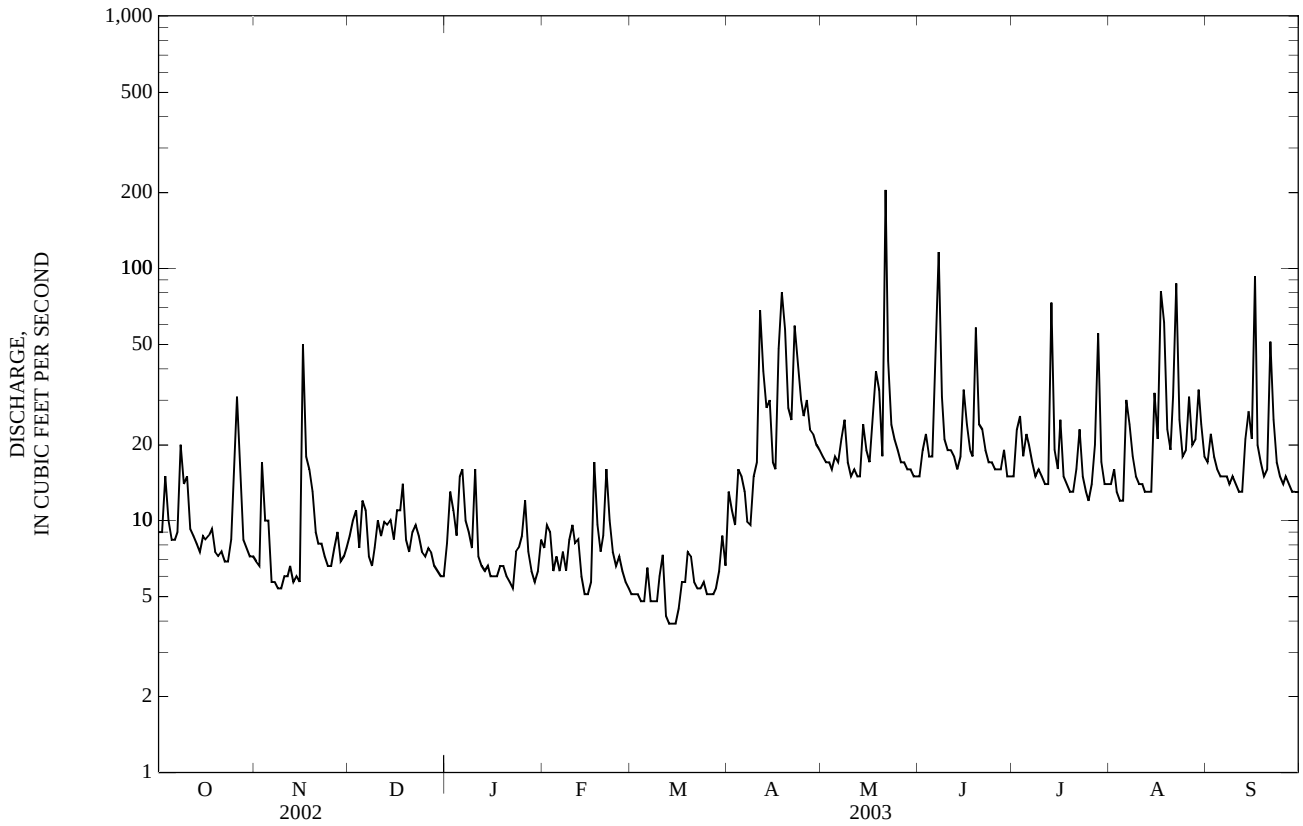
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY)

MEAN	30.6	37.7	29.3	19.9	15.7	11.3	11.2	15.6	17.6	18.4	20.8	34.9
MAX	77.5	126	112	37.5	22.2	16.4	27.8	42.2	41.1	38.1	34.7	121
(WY)	(1999)	(1988)	(1988)	(1999)	(1997)	(1989)	(2003)	(1992)	(1996)	(1993)	(1996)	(1996)
MIN	10.4	9.67	8.80	8.38	8.00	5.49	5.88	7.26	5.91	7.02	9.45	10.0
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(1977)	(1990)	(1977)	(2001)	(1974)	(1990)

50081000 RIO HUMACAO AT LAS PIEDRAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1974 - 2003	
ANNUAL TOTAL	6,044.1		5,943.2			
ANNUAL MEAN	16.6		16.3		22.0	
HIGHEST ANNUAL MEAN					37.6	1988
LOWEST ANNUAL MEAN					12.1	1990
HIGHEST DAILY MEAN	444	May 30	204	May 21	2,010	Sep 10, 1996
LOWEST DAILY MEAN	5.4	Nov 8	3.9	Mar 13	2.2	Jul 15, 1974
ANNUAL SEVEN-DAY MINIMUM	5.8	Nov 6	4.5	Mar 12	2.8	Jul 19, 1974
MAXIMUM PEAK FLOW			1,090	May 21	20,800	Sep 6, 1960
MAXIMUM PEAK STAGE			4.49	May 21	34.40	Sep 6, 1960
ANNUAL RUNOFF (AC-FT)	11,990		11,790		15,950	
ANNUAL RUNOFF (CFSM)	2.49		2.45		3.31	
ANNUAL RUNOFF (INCHES)	33.81		33.25		44.99	
10 PERCENT EXCEEDS	20		27		33	
50 PERCENT EXCEEDS	11		13		14	
90 PERCENT EXCEEDS	7.6		5.7		7.2	

e Estimated



50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

LOCATION.--Lat 18°08'49", long 65°49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacao Plaza.

DRAINAGE AREA.--17.3 mi^2 (44.8 km^2).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
06...	1410	11	14	6.5	85	6.8	314	28.6	99	26.3	8.02	1.69	1
FEB													
19...	1400	12	15	6.6	--	7.5	302	27.0	90	24.5	7.10	2.25	1
APR													
23...	1100	55	98	7.1	--	7.2	235	25.9	69	18.5	5.48	3.51	.8
JUL													
14...	1445	26	22	7.5	--	7.4	267	31.9	--	--	--	--	--
SEP													
02...	1622	30	--	6.8	--	7.2	272	30.6	89	24.6	6.66	2.57	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
06...	26.5	98	29.8	<.17	38.3	7.8	--	197	5.84	10	.70	.47	.58
FEB													
19...	22.0	96	29.2	.09	32.8	7.5	<.0	183	5.96	12	1.7	.96	.50
APR													
23...	16.1	71	19.8	.11	25.7	8.1	.2	140	20.8	66	.90	.27	.55
JUL													
14...	--	79	--	--	--	--	--	--	--	11	.30	.05	.50
SEP													
02...	19.2	83	24.4	<.2	30.6	6.9	--	165	13.5	63	.60	.18	.48

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
06...	.590	.01	.23	.09	1.3	5.7	<10	E18,000	880	--	--	--	--
FEB													
19...	.520	.02	.74	.17	2.2	9.8	30	34,000	--	E80,000	<2	67.5	32
APR													
23...	.570	.02	.63	.12	1.5	6.5	20	E78,000	--	E80,000	<2	96.6	E15
JUL													
14...	.510	.01	.25	.08	.81	3.6	10	E76,000	--	220,000	--	--	--
SEP													
02...	.500	.02	.42	.10	1.1	4.9	20	36,000	--	300,000	--	--	--

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV 06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 19...	<.2	E.7	<10	<.01	650	2	158	E.01	<3	<.3	<25	E.09	<16
APR 23...	<.2	<.8	10	<.01	2,330	2	319	E.01	<3	<.3	<25	<.10	<16
JUL 14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 02...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50083500 RIO GUAYANES AT YABUCOA, PR

LOCATION.--Lat 18°03'33", long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa Plaza.

DRAINAGE AREA.--17.2 mi^2 (44.6 km^2).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
30...	1010	17	9.5	7.4	90	6.6	188	25.1	53	13.3	4.80	1.51	.9
FEB													
19...	0830	33	17	7.6	--	7.5	163	23.4	46	11.3	4.26	1.82	.9
APR													
22...	1430	59	21	7.2	--	7.0	172	24.9	48	12.1	4.29	1.99	.9
JUL													
18...	1500	35	33	6.8	--	7.2	179	28.0	--	--	--	--	--
SEP													
02...	1415	50	--	6.8	--	7.1	163	27.5	43	11.0	3.90	1.99	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
30...	15.0	63	13.0	<.2	39.0	3.5	--	128	5.82	<10	.20	.02	--
FEB													
19...	13.3	57	12.4	.10	34.5	4.0	<.0	116	10.5	12	.50	.01	--
APR													
22...	14.2	55	13.5	.11	33.3	4.8	.2	117	18.7	21	.20	.03	--
JUL													
18...	--	60	--	--	--	--	--	--	--	<10	.30	.02	--
SEP													
02...	12.3	52	12.4	<.2	31.8	4.2	--	109	14.8	29	.30	.03	.46

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
30...	.340	<.01	.18	.04	.54	2.4	<10	E130	420	--	--	--	--
FEB													
19...	.380	<.01	.49	.04	.88	3.9	<10	220	--	3,300	<2	46.2	E18
APR													
22...	.470	<.01	.17	.05	.67	3.0	<10	E1,100	--	5,200	8	60.3	E11
JUL													
18...	.310	<.01	.28	.07	.61	2.7	<10	E770	--	--	--	--	--
SEP													
02...	.470	.01	.27	.08	.77	3.4	20	E1,900	--	23,000	--	--	--

50083500 RIO GUAYANES AT YABUCOA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
19...	<.2	<.8	<10	<.01	1,500	<1	77.9	<.02	<3	E.2	<25	<.10	<16
APR													
22...	<.2	<.8	M	<.01	1,570	M	99.1	<.02	<3	<.3	<25	<.10	<16
JUL													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
22...	1430	<.01	<.02	<.01	<.01	<.02	<.1	<.01	<.02	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
22...	<.01	<.01	<.009	<.01	<.014	<.30	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
22...	<.1	<.02	<.02	<1	<.02

< -- Less than

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanés, and 3.5 mi (5.6 km) northeast of Yabucoa Plaza.

DRAINAGE AREA.--34.0 mi^2 (88.1 km^2).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
06...	1130	--	6.8	8.1	100	7.0	215	26.0	60	15.0	5.39	1.78	1
FEB													
19...	1130	45	19	6.9	--	7.5	188	24.8	52	13.1	4.69	2.62	1
APR													
22...	1125	130	36	8.7	--	7.0	279	25.0	55	14.0	4.95	3.99	1
JUL													
18...	1220	49	17	6.5	--	7.3	204	27.4	--	--	--	--	--
SEP													
02...	1135	91	--	4.2	--	6.8	203	26.7	49	12.5	4.34	3.14	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
06...	20.0	64	17.2	<.17	38.4	5.1	--	141	--	<10	.30	.08	--
FEB													
19...	16.5	57	15.9	.10	34.6	4.9	<.0	127	15.5	<10	.50	.04	.39
APR													
22...	17.5	59	18.4	.12	29.9	7.0	<.1	131	46.0	28	.60	.07	.34
JUL													
18...	--	59	--	--	--	--	--	--	--	12	.40	.11	--
SEP													
02...	15.0	66	16.6	<.2	29.9	3.8	--	125	30.9	43	.70	.13	.26

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
06...	.330	<.01	.22	.05	.63	2.8	<10	420	390	--	--	--	--
FEB													
19...	.400	.01	.46	.06	.90	4.0	20	380	--	3,600	<2	50.9	30
APR													
22...	.350	.01	.53	.37	.95	4.2	10	370	--	6,200	10	96.2	28
JUL													
18...	.330	<.01	.29	.06	.73	3.2	<10	330	--	E8,400	--	--	--
SEP													
02...	.270	.01	.57	.23	.97	4.3	20	510	--	22,000	--	--	--

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
19...	E.1	<.8	<10	<.01	1,180	<1	63.8	<.02	<3	E.1	<25	<.10	<16
APR													
22...	<.2	<.8	M	<.01	3,120	1	661	<.02	<3	<.3	<25	<.10	<16
JUL													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lizas, about 1.0 mi (1.6 km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi^2 (13.9 km^2).

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	e10	17	13	9.2	8.1	e5.9	e7.8	e21	e50	69	41
2	7.9	e9.7	21	18	9.1	8.3	6.3	e7.6	e19	e80	105	24
3	8.1	e9.5	19	14	9.2	8.1	5.5	e7.4	e45	e60	52	23
4	8.8	e9.3	15	12	10	7.8	8.7	e7.0	e30	e30	55	22
5	8.1	e9.0	20	24	11	7.4	9.3	e7.5	e20	e25	53	21
6	e9.2	e8.7	16	18	11	7.4	5.8	e7.5	e30	e62	71	20
7	e7.8	e8.5	13	13	15	7.5	5.6	e13	e56	e45	72	20
8	e20	e8.2	12	12	10	7.4	7.0	e15	e40	e80	47	20
9	e13	e8.8	14	11	32	7.9	9.7	e11	e28	e100	65	20
10	e10	e9.5	17	14	15	9.9	5.7	e16	e20	e60	45	19
11	9.0	e8.4	15	11	10	7.6	125	e25	e15	e30	48	18
12	11	e9.8	14	11	10	7.0	21	e12	e20	e35	43	18
13	9.8	e8.0	18	11	8.6	6.9	11	e15	e16	e120	39	18
14	9.1	10	16	11	8.2	6.6	78	e40	e14	e17	42	18
15	11	8.1	14	10	8.1	6.7	14	e15	e80	e20	42	20
16	11	63	44	10	9.6	6.5	17	e12	e30	e18	40	54
17	10	23	65	10	30	8.5	306	e11	e20	e17	71	27
18	10	31	32	11	19	7.2	216	e18	e15	e16	100	22
19	10	e39	19	11	13	7.7	34	e28	e140	e15	39	20
20	8.1	21	17	10	13	7.0	e30	e13	e50	e17	34	28
21	7.8	24	19	9.6	25	6.1	e28	e45	e80	e20	34	25
22	8.3	21	28	9.2	14	6.0	e30	e25	e50	e35	54	21
23	7.3	18	17	11	11	6.0	e16	e17	e30	e22	35	19
24	7.0	14	16	10	10	5.7	e12	e50	e35	e18	33	18
25	e28	14	15	23	11	5.9	e9.5	e20	e38	e16	35	17
26	e27	e21	14	16	9.6	5.0	e8.0	e15	e45	e22	93	17
27	e16	e25	13	11	8.9	4.5	e10	e13	e50	e35	27	16
28	e12	18	13	9.6	8.6	4.3	e11	e12	e48	e50	25	16
29	e11	15	12	9.4	---	e4.7	e9.0	e10	e40	e35	31	16
30	e10	14	12	9.6	---	e5.5	e8.0	e18	e30	e30	25	16
31	e11	---	12	11	---	e5.4	---	e28	---	e45	24	---
TOTAL	344.9	496.5	589	384.4	359.1	210.6	1,063.0	541.8	1,155	1,225	1,548	654
MEAN	11.1	16.6	19.0	12.4	12.8	6.79	35.4	17.5	38.5	39.5	49.9	21.8
MAX	28	63	65	24	32	9.9	306	50	140	120	105	54
MIN	7.0	8.0	12	9.2	8.1	4.3	5.5	7.0	14	15	24	16
AC-FT	684	985	1,170	762	712	418	2,110	1,070	2,290	2,430	3,070	1,300
CFSM	2.07	3.08	3.53	2.30	2.38	1.26	6.59	3.25	7.16	7.35	9.28	4.05
IN.	2.38	3.43	4.07	2.66	2.48	1.46	7.35	3.75	7.99	8.47	10.70	4.52

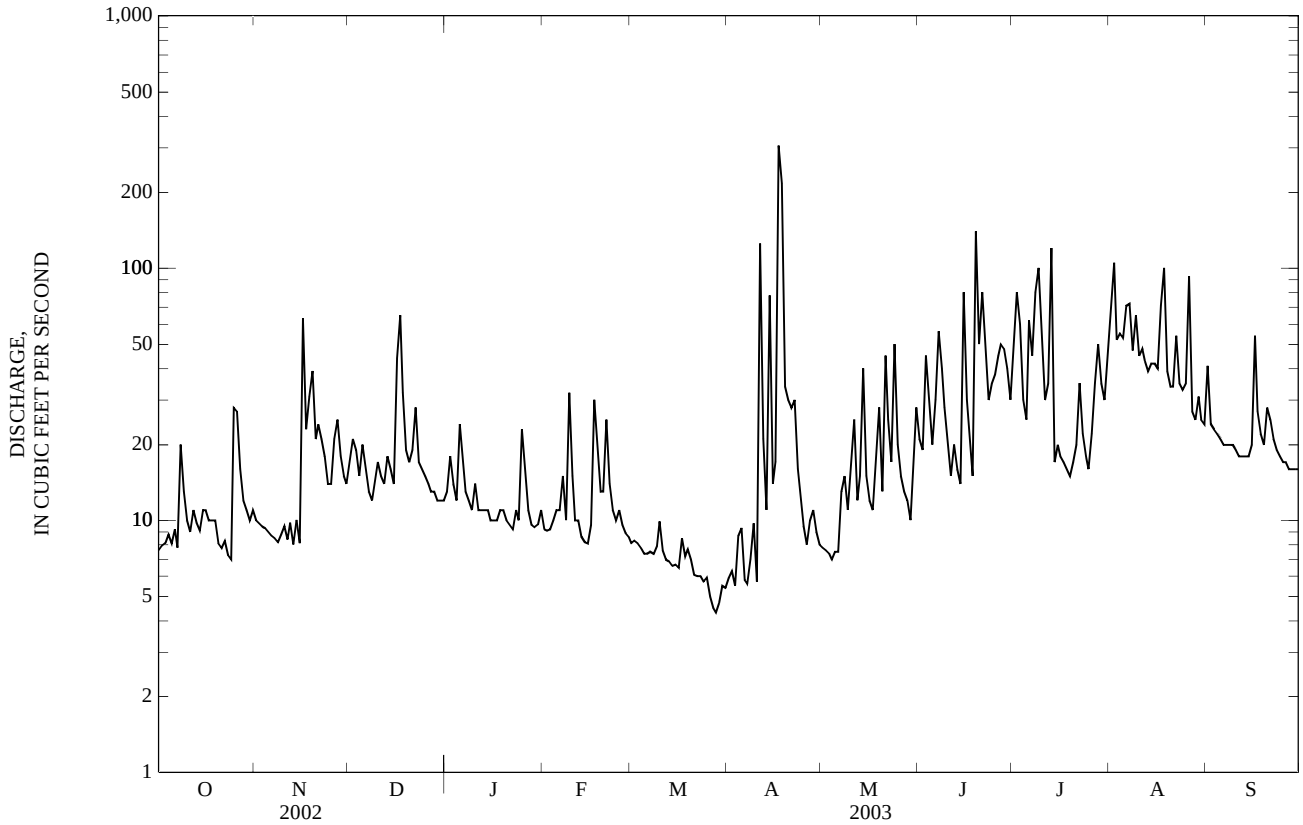
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2003, BY WATER YEAR (WY)

MEAN	27.3	31.8	20.1	15.1	12.4	9.59	9.02	13.4	18.1	17.5	24.3	28.2
MAX	52.6	88.9	48.1	40.2	24.5	18.9	35.4	25.1	47.1	40.2	131	94.6
(WY)	(1979)	(1978)	(1999)	(1998)	(1982)	(1976)	(2003)	(1979)	(1979)	(1993)	(1979)	(1996)
MIN	10.4	7.46	8.74	7.79	6.10	4.32	3.92	4.46	4.40	3.70	6.18	7.99
(WY)	(1994)	(1982)	(1994)	(1981)	(1979)	(1979)	(1979)	(1999)	(1974)	(1974)	(1974)	(1980)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1971 - 2003	
ANNUAL TOTAL	6,977.3		8,571.3			
ANNUAL MEAN	19.1		23.5		19.0	
HIGHEST ANNUAL MEAN					36.7	1979
LOWEST ANNUAL MEAN					10.8	1994
HIGHEST DAILY MEAN	371	May 30	306	Apr 17	2,480	Aug 31, 1979
LOWEST DAILY MEAN	5.6	Apr 2	4.3	Mar 28	2.2	Jul 16, 1974
ANNUAL SEVEN-DAY MINIMUM	5.9	Mar 20	5.0	Mar 25	2.8	Jul 11, 1974
MAXIMUM PEAK FLOW			2,030	Apr 17	9,950	Sep 20, 1994
MAXIMUM PEAK STAGE			9.65	Apr 17	17.46	Sep 20, 1994
ANNUAL RUNOFF (AC-FT)	13,840		17,000		13,770	
ANNUAL RUNOFF (CFSM)	3.55		4.36		3.53	
ANNUAL RUNOFF (INCHES)	48.24		59.27		48.02	
10 PERCENT EXCEEDS	32		49		35	
50 PERCENT EXCEEDS	12		15		11	
90 PERCENT EXCEEDS	7.2		7.6		5.3	

e Estimated

50090500 RIO MAUNABO AT LIZAS, PR—Continued



50091000 RIO MAUNABO AT MAUNABO, PR

LOCATION.--Lat 18°00'24", long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo Plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA.--12.4 mi^2 (32.1 km^2).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
OCT													
30...	1230	9.7	7.8	6.9	92	7.1	377	29.8	93	22.2	9.07	2.36	1
FEB													
12...	0900	13	3.3	7.4	--	7.6	276	24.4	78	18.5	7.61	1.38	1
APR													
08...	1705	7.9	2.9	6.8	--	7.5	276	28.3	82	19.3	8.15	1.46	1
JUL													
15...	1445	20	3.2	7.1	--	7.3	240	29.3	--	--	--	--	--
SEP													
10...	1120	18	6.3	7.3	--	7.7	268	28.8	78	19.3	7.29	1.40	1

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
OCT													
30...	29.5	102	32.8	<.2	39.2	12.8	--	209	5.48	11	3.7	2.60	.25
FEB													
12...	22.0	90	25.2	.12	38.7	9.7	<.0	177	6.25	<10	.60	.34	.60
APR													
08...	23.8	89	26.3	.16	37.7	10.1	<.1	180	3.82	<10	1.1	.86	.61
JUL													
15...	--	68	--	--	--	--	--	--	--	<10	1.2	.90	.41
SEP													
10...	20.0	85	23.6	<.2	39.5	8.5	--	171	8.19	<10	1.6	1.40	.29

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
OCT													
30...	.280	.03	1.1	.52	4.0	17.6	20	<100	E300	--	--	--	--
FEB													
12...	.710	.11	.26	.03	1.3	5.8	<10	340	--	5,300	<2	33.8	22
APR													
08...	.760	.15	.24	.17	1.9	8.2	10	470	--	E120,000	E1	31.8	42
JUL													
15...	.430	.02	.30	.17	1.6	7.2	10	E1,200	--	1,000	--	--	--
SEP													
10...	.340	.05	.20	.17	1.9	8.6	10	E650	--	2,200	--	--	--

50091000 RIO MAUNABO AT MAUNABO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
OCT													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.2	<1.6	<10	<.01	240	<1	22.4	<.02	<3	<.3	<25	<.10	<16
APR													
08...	<.2	<.8	<10	<.01	210	<1	11.7	<.02	<3	<.3	<25	E.07	E10
JUL													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50091800 RIO CHICO AT PROVIDENCIA, PR

LOCATION.--Lat 17°59'16", long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas Plaza.

DRAINAGE AREA.--4.9 mi^2 (12.8 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
12...	1445	1.0	7.0	2.0	28	7.0	534	31.8	76	18.4	7.29	7.24	3
FEB													
12...	1200	1.4	7.0	2.9	--	7.5	584	27.7	87	20.7	8.59	7.65	2
APR													
08...	1430	1.3	80	.6	--	7.1	650	30.5	76	18.0	7.47	8.96	3
JUL													
15...	1630	1.9	2.6	5.8	--	7.5	450	29.7	--	--	--	--	--
SEP													
10...	1000	1.7	7.2	3.3	--	7.1	466	28.6	87	20.0	9.11	5.96	2

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
12...	50.8	149	49.6	<.17	28.3	20.8	--	272	.75	<10	20	18.0	.18
FEB													
12...	48.4	180	50.5	.12	30.3	17.8	<.1	292	1.10	10	21	21.0	.20
APR													
08...	50.5	184	67.2	.12	27.2	15.4	.6	306	1.06	128	35	9.90	--
JUL													
15...	--	122	--	--	--	--	--	--	--	<10	12	11.0	.30
SEP													
10...	43.3	139	42.0	<.2	30.2	20.5	--	254	1.14	<10	11	9.70	.96

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
12...	.960	.78	2.0	2.50	21	92.8	40	540	570	--	--	--	--
FEB													
12...	.820	.62	.00	2.20	22	96.6	40	3,400	--	7,700	<2	13.0	121
APR													
08...	<.020	.02	25	4.70	--	--	210	E10,000	--	320,000	M	46.3	153
JUL													
15...	.610	.31	1.0	1.20	13	55.8	30	E180	--	3,200	--	--	--
SEP													
10...	1.40	.44	1.3	2.00	12	54.9	40	E900	--	5,800	--	--	--

50091800 RIO CHICO AT PROVIDENCIA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
12...	<.2	<.8	M	<.01	130	<1	33.3	E.01	<3	.4	<25	.48	<16
APR													
08...	.4	1.4	60	<.01	1,310	3	61.6	.20	<3	5.9	107	1.33	36
JUL													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, at old foot bridge abutment, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA.--18.3 mi^2 (47.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to October 1965 (annual low flow and occasional measurements only), January 1966 to current yea r.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 235 ft (72 m), from topographic map.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	23	29	27	26	17	e43	28	54	78	131	61
2	30	22	35	44	32	17	36	27	66	131	220	53
3	29	58	37	38	30	17	32	25	101	101	108	107
4	32	34	26	29	21	16	53	24	72	67	100	77
5	28	21	39	49	24	15	50	26	54	61	148	54
6	28	19	31	54	21	15	42	26	70	104	205	45
7	30	19	24	35	25	15	33	30	122	90	225	41
8	67	18	22	30	21	15	32	42	74	144	175	38
9	46	18	26	26	28	15	51	33	63	149	210	36
10	35	20	34	27	32	20	58	38	55	100	154	33
11	31	20	29	24	27	15	226	48	49	78	120	31
12	29	22	33	e22	28	14	130	39	57	81	103	30
13	27	19	32	21	20	13	95	42	49	195	88	34
14	25	20	34	22	17	13	99	96	45	83	89	31
15	29	19	28	20	17	13	56	52	146	47	94	42
16	28	167	37	20	19	15	54	51	74	61	76	140
17	29	60	37	20	57	19	161	36	49	44	133	63
18	31	54	46	22	32	19	267	56	44	38	193	46
19	25	42	28	22	25	25	190	72	205	37	125	39
20	24	30	25	20	29	24	94	44	59	38	85	41
21	25	27	30	19	52	19	83	103	130	41	89	116
22	23	27	32	18	34	18	101	94	75	76	154	107
23	23	24	29	25	25	18	74	54	68	60	103	58
24	28	22	25	26	22	19	47	107	87	42	79	46
25	47	22	24	29	24	17	35	51	73	35	88	41
26	103	26	26	41	21	17	28	43	76	41	212	38
27	52	30	25	25	19	17	34	38	88	78	108	37
28	28	23	22	21	18	18	35	35	85	112	86	35
29	26	24	21	19	---	21	32	33	72	78	190	34
30	24	26	20	21	---	29	29	47	66	72	107	32
31	24	---	20	28	---	e22	---	67	---	87	76	---
TOTAL	1,036	956	906	844	746	547	2,300	1,507	2,328	2,449	4,074	1,586
MEAN	33.4	31.9	29.2	27.2	26.6	17.6	76.7	48.6	77.6	79.0	131	52.9
MAX	103	167	46	54	57	29	267	107	205	195	225	140
MIN	23	18	20	18	17	13	28	24	44	35	76	30
AC-FT	2,050	1,900	1,800	1,670	1,480	1,080	4,560	2,990	4,620	4,860	8,080	3,150
CFSM	1.83	1.74	1.60	1.49	1.46	0.96	4.19	2.66	4.24	4.32	7.18	2.89
IN.	2.11	1.94	1.84	1.72	1.52	1.11	4.68	3.06	4.73	4.98	8.28	3.22

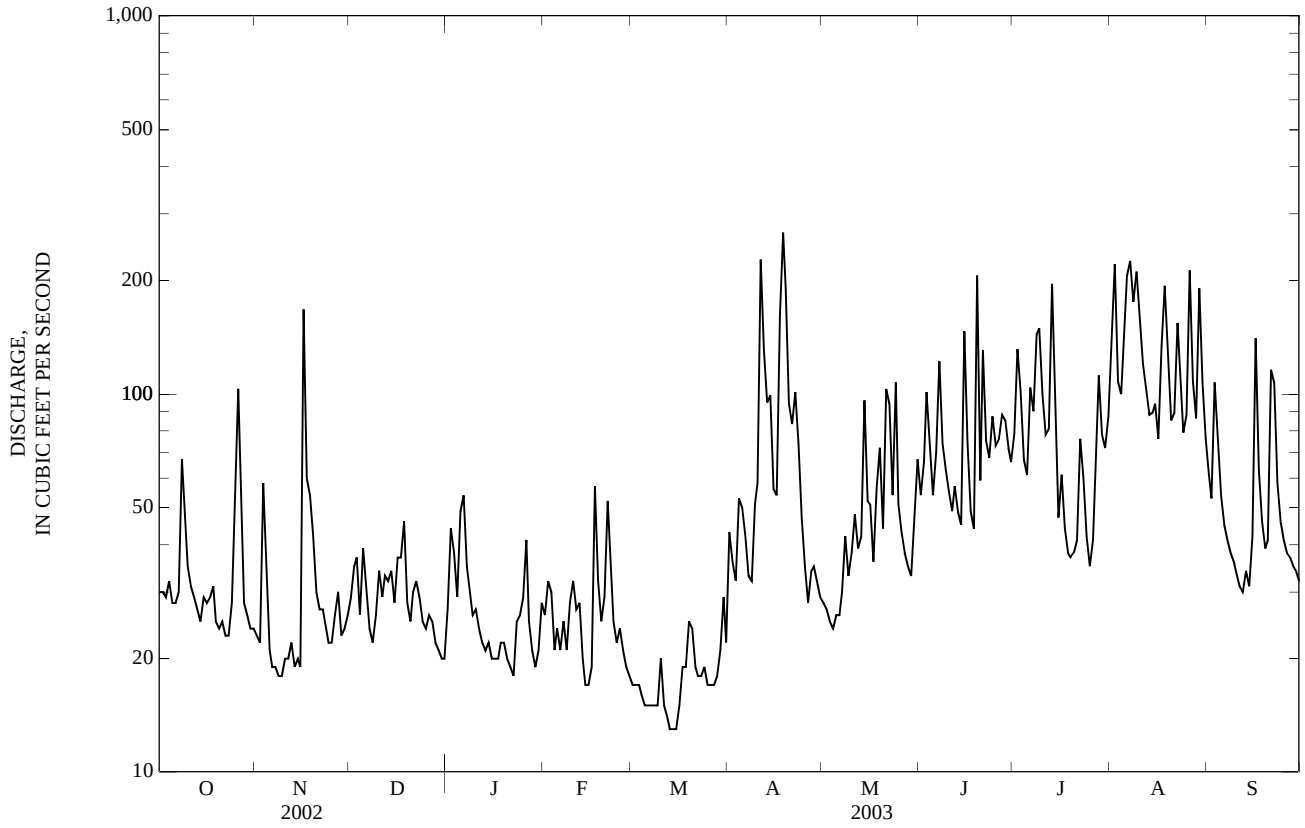
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY)

MEAN	95.6	90.0	53.8	36.0	28.7	24.5	24.1	48.9	63.1	60.8	69.9	95.8
MAX	593	393	195	125	94.6	51.2	76.7	172	200	164	231	432
(WY)	(1971)	(1978)	(1999)	(1992)	(1982)	(1998)	(2003)	(1969)	(1979)	(1979)	(1979)	(1998)
MIN	14.4	16.1	8.63	14.0	7.09	6.74	9.98	10.3	13.1	14.1	17.2	12.1
(WY)	(1968)	(1968)	(1968)	(1973)	(1973)	(1968)	(1968)	(1974)	(1974)	(1974)	(1994)	(1967)

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	17,232		19,279			
ANNUAL MEAN	47.2		52.8		57.2	
HIGHEST ANNUAL MEAN					117	1979
LOWEST ANNUAL MEAN					19.8	1994
HIGHEST DAILY MEAN	988	May 30	267	Apr 18	4,780	Sep 16, 1975
LOWEST DAILY MEAN	11	Mar 26	13	Mar 13	4.8	May 9, 1968
ANNUAL SEVEN-DAY MINIMUM	12	Mar 20	15	Mar 11	5.0	Apr 10, 1968
MAXIMUM PEAK FLOW			667	Nov 16	30,900	Jan 5, 1992
MAXIMUM PEAK STAGE			6.87	Nov 16	0.00	Jan 5, 1992
INSTANTANEOUS LOW FLOW			12	Mar 15	4.6	May 13, 1968
ANNUAL RUNOFF (AC-FT)	34,180		38,240		41,430	
ANNUAL RUNOFF (CFSM)	2.58		2.89		3.13	
ANNUAL RUNOFF (INCHES)	35.03		39.19		42.46	
10 PERCENT EXCEEDS	63		107		96	
50 PERCENT EXCEEDS	27		35		28	
90 PERCENT EXCEEDS	17		19		13	

e Estimated



50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
12...	1205	21	2.6	6.2	77	7.7	163	26.7	48	11.1	4.99	.50	.8
FEB													
12...	1445	27	5.5	8.5	--	8.5	143	26.6	41	9.22	4.28	.47	.8
APR													
08...	1215	30	1.9	8.7	--	8.0	168	26.1	51	11.7	5.32	.44	.8
JUL													
15...	1215	47	2.2	8.3	--	7.8	150	25.7	--	--	--	--	--
SEP													
10...	0830	34	1.2	8.3	--	7.0	164	25.0	55	13.1	5.36	.49	.7

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
12...	12.6	50	10.2	<.17	23.8	9.2	--	102	5.80	<10	<.20	<.01	.080
FEB													
12...	11.5	--	10.6	.06	21.9	8.2	<.0	--	--	<10	<.20	.02	.060
APR													
08...	13.1	54	10.4	.11	22.1	10.4	.4	106	8.73	<10	<.20	.01	.030
JUL													
15...	--	42	--	--	--	--	--	--	--	<10	<.20	.01	.170
SEP													
10...	12.5	56	12.2	<.2	24.4	9.2	--	111	10.2	<10	<.20	.01	.130

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)	Copper, water, unfltrd recoverable, ug/L (01042)	Cyanide water unfltrd mg/L (00720)
NOV													
12...	<.01	<.02	<10	E170	E50	--	--	--	--	--	--	--	--
FEB													
12...	<.01	<.02	<10	100	--	320	<2	8.9	E16	<.2	<.8	<10	<.01
APR													
08...	<.01	<.02	<10	E12	--	80	<2	11.8	24	<.2	<.8	<10	<.01
JUL													
15...	<.01	<.02	<10	300	--	5,700	--	--	--	--	--	--	--
SEP													
10...	<.01	<.02	<10	E140	--	600	--	--	--	--	--	--	--

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
NOV									
12...	--	--	--	--	--	--	--	--	--
FEB									
12...	90	<1	10.2	<.02	<3	<.3	<25	<.10	<16
APR									
08...	50	<1	8.1	<.02	<3	<.3	<25	<.10	<16
JUL									
15...	--	--	--	--	--	--	--	--	--
SEP									
10...	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50093000 RIO MARIN NEAR PATILLAS, PR

LOCATION.--Lat 18°02'16", long 66°00'31", Hydrologic Unit 21010004, on left bank, 3.52 mi (5.66 km) southeast from Escuela Francisco Zenón Gedy, 1.45 mi (2.33 km) northeast from Lago Patillas Dam and 2.10 mi (3.38 km) north from Patillas town.

DRAINAGE AREA.--4.45 mi^2 (11.5 km^2).

PERIOD OF RECORD.--February 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 295.3 ft (90 m), from topographic map.

REMARKS.--Records fair. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

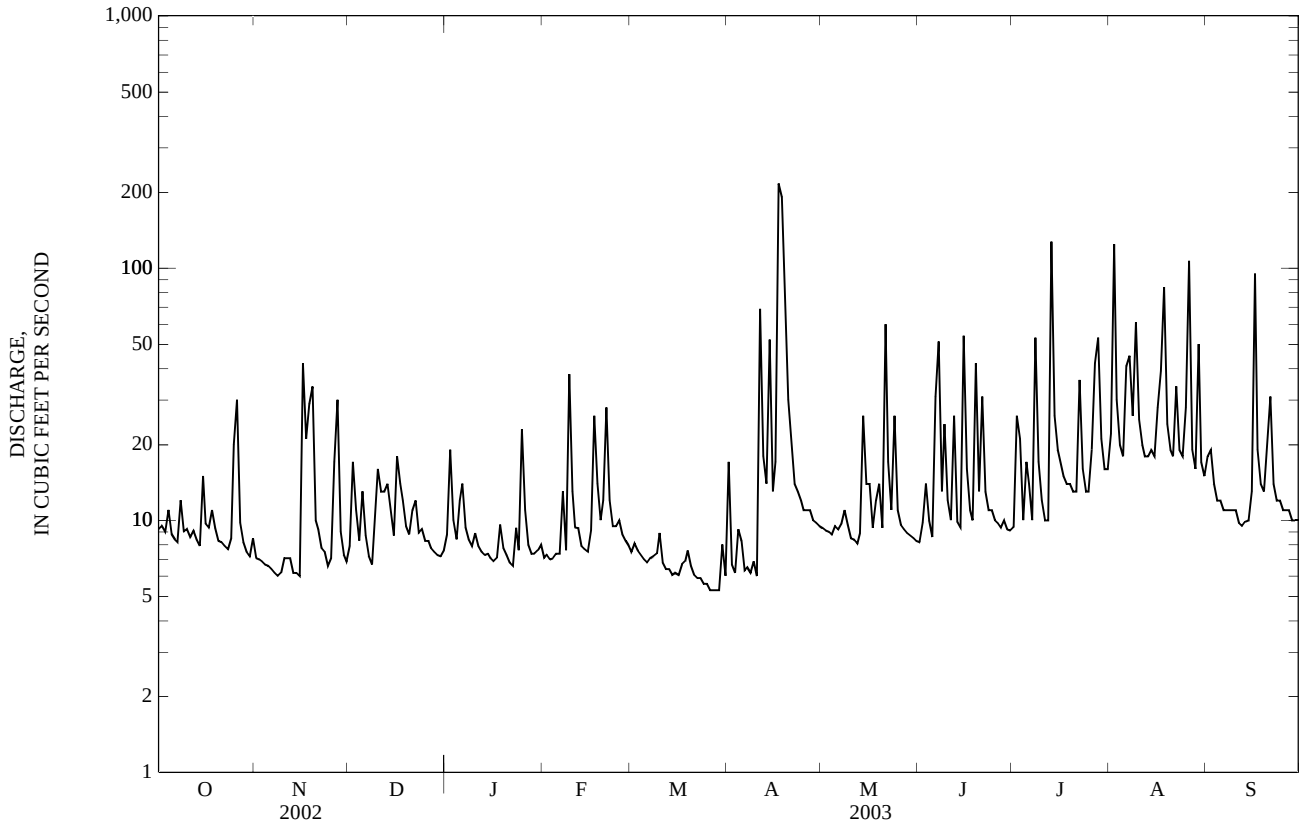
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	7.1	7.9	8.8	7.1	7.5	17	9.3	8.2	9.4	22	18
2	9.5	7.0	17	19	7.3	8.1	6.7	9.1	9.8	26	124	19
3	9.0	6.9	11	10	7.0	7.6	6.2	9.0	14	21	30	14
4	11	6.7	8.3	8.4	7.1	7.3	9.2	8.8	10	10	20	12
5	8.8	6.6	13	12	7.4	7.0	8.3	9.5	8.6	17	18	12
6	8.4	6.4	8.7	14	7.4	6.8	6.3	9.2	31	14	41	11
7	8.2	6.2	7.2	9.4	13	7.1	6.5	9.7	51	10	45	11
8	12	6.0	6.7	8.4	7.6	7.2	6.2	11	13	53	26	11
9	9.0	6.2	9.8	7.9	38	7.4	6.9	9.6	24	17	61	11
10	9.2	7.1	16	8.9	13	8.9	6.0	8.5	12	12	25	11
11	8.6	7.1	13	7.9	9.4	6.8	69	8.4	10	10	20	9.8
12	9.1	7.1	13	7.5	9.3	6.4	18	8.1	26	10	18	9.5
13	8.4	6.2	14	7.3	7.9	6.4	14	8.9	9.9	127	18	9.9
14	7.9	6.2	11	7.4	7.7	6.1	52	26	9.4	26	19	10
15	15	6.0	8.7	7.1	7.5	6.2	13	14	54	19	18	13
16	9.7	42	18	6.9	9.1	6.1	17	14	16	17	28	95
17	9.4	21	14	7.1	26	6.7	216	9.3	11	15	39	19
18	11	29	12	9.6	14	6.9	191	12	10	14	84	14
19	9.3	34	9.5	7.8	10	7.6	68	14	42	14	24	13
20	8.3	10	8.8	7.3	12	6.6	30	9.3	13	13	19	21
21	8.2	9.2	11	6.8	28	6.1	21	60	31	13	18	31
22	7.9	7.8	12	6.6	12	5.9	14	17	13	36	34	14
23	7.7	7.5	8.9	9.3	9.5	5.9	13	11	11	16	19	12
24	8.5	6.6	9.2	7.6	9.5	5.6	12	26	11	13	18	12
25	20	7.1	8.3	23	10	5.6	11	11	10	13	28	11
26	30	17	8.3	11	8.8	5.3	11	9.6	9.7	19	107	11
27	9.8	30	7.8	8.0	8.3	5.3	11	9.2	9.4	42	19	11
28	8.2	9.0	7.5	7.4	7.9	5.3	10	8.9	10	53	16	10
29	7.5	7.3	7.3	7.4	---	5.3	9.8	8.7	9.2	21	50	10
30	7.2	6.9	7.2	7.6	---	8.0	9.5	8.5	9.1	16	17	10
31	8.5	---	7.6	8.0	---	6.0	---	8.3	---	16	15	---
TOTAL	314.5	343.2	322.7	285.4	321.8	205.0	889.6	395.9	506.3	712.4	1,040	476.2
MEAN	10.1	11.4	10.4	9.21	11.5	6.61	29.7	12.8	16.9	23.0	33.5	15.9
MAX	30	42	18	23	38	8.9	216	60	54	127	124	95
MIN	7.2	6.0	6.7	6.6	7.0	5.3	6.0	8.1	8.2	9.4	15	9.5
AC-FT	624	681	640	566	638	407	1,760	785	1,000	1,410	2,060	945
CFSM	2.28	2.57	2.34	2.07	2.58	1.49	6.66	2.87	3.79	5.16	7.54	3.57
IN.	2.63	2.87	2.70	2.39	2.69	1.71	7.44	3.31	4.23	5.96	8.69	3.98

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	16.1	13.1	17.0	8.93	9.14	5.95	14.7	13.6	15.3	12.4	22.9	18.8
MAX	20.5	14.4	26.4	11.4	11.5	6.61	29.7	16.6	30.4	23.0	33.5	27.4
(WY)	(2002)	(2002)	(2002)	(2002)	(2003)	(2003)	(2003)	(2000)	(2002)	(2003)	(2003)	(2000)
MIN	10.1	11.4	10.4	6.19	7.10	4.80	5.87	10.6	4.77	7.16	15.3	14.7
(WY)	(2003)	(2003)	(2003)	(2001)	(2001)	(2000)	(2000)	(2001)	(2001)	(2000)	(2000)	(2002)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	4,957.0		5,813.0			
ANNUAL MEAN	13.6		15.9		14.5	
HIGHEST ANNUAL MEAN					16.1	2002
LOWEST ANNUAL MEAN					11.5	2001
HIGHEST DAILY MEAN	200	May 30	216	Apr 17	269	Aug 22, 2001
LOWEST DAILY MEAN	5.0	Mar 25	5.3	Mar 26	4.0	Jun 21, 2001
ANNUAL SEVEN-DAY MINIMUM	5.1	Mar 22	5.5	Mar 23	4.2	Jun 17, 2001
MAXIMUM PEAK FLOW			2,700	Apr 17	4,970	Sep 1, 2001
MAXIMUM PEAK STAGE			10.80	Apr 17	13.28	Sep 1, 2001
INSTANTANEOUS LOW FLOW			5.1	Mar 26	3.7	Jun 22, 2001
ANNUAL RUNOFF (AC-FT)	9,830		11,530		10,510	
ANNUAL RUNOFF (CFSM)	3.05		3.58		3.26	
ANNUAL RUNOFF (INCHES)	41.44		48.59		44.30	
10 PERCENT EXCEEDS	19		28		24	
50 PERCENT EXCEEDS	8.9		9.9		9.0	
90 PERCENT EXCEEDS	6.1		6.8		5.4	

50093000 RIO MARIN NEAR PATILLAS, PR—Continued



50093045 LAGO PATILLAS AT DAMSITE NEAR PATILLAS, PR

LOCATION.--Lat 18°01'15", long 66°01'19", Hydrologic Unit 21010004, on right edge, in a concrete tower at damsite, 1.05 mi (1.69 km) northeast from Patillas Plaza, 0.45 mi (0.72 km) northeast from Escuela Segunda Unidad de Real and 2.30 mi (3.70 km) from Escuela Segunda Unidad de Jesús María Rodríguez.

DRAINAGE AREA.--25.6 mi^2 (66.3 km^2).

PERIOD OF RECORD.--March 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Patillas was completed in 1914. The dam is a semihydraulic earthfill structure about 147 ft (45 m) height, a top width of 15 ft (4.6 m), maximum pool elevation of 230 ft (70.1 m), a base width of 625 ft (190 m), a crest length of 1,067 ft (325 m) and has maximum pool storage of 17,073 acre-ft (21.05 hm^3). The Patillas Dam is owned by the Puerto Rico Electric Power Authority (PREPA) and its primary purpose is for irrigation of lands served by the Patillas irrigation canal. Gage-height and precipitation satellite telemetry at station. New capacity table based on U.S. Geological Survey Water- Resources Investigations Report 99-4030, April 1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 225.92 ft (68.86 m) September 10, 1996; minimum elevation, 211.19 ft (64.37 m), May 29, 1995, July 19, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximun elevation, 222.33 ft (67.77 m), August 26; minimum elevation, 218.61 ft (66.63 m), April 18.

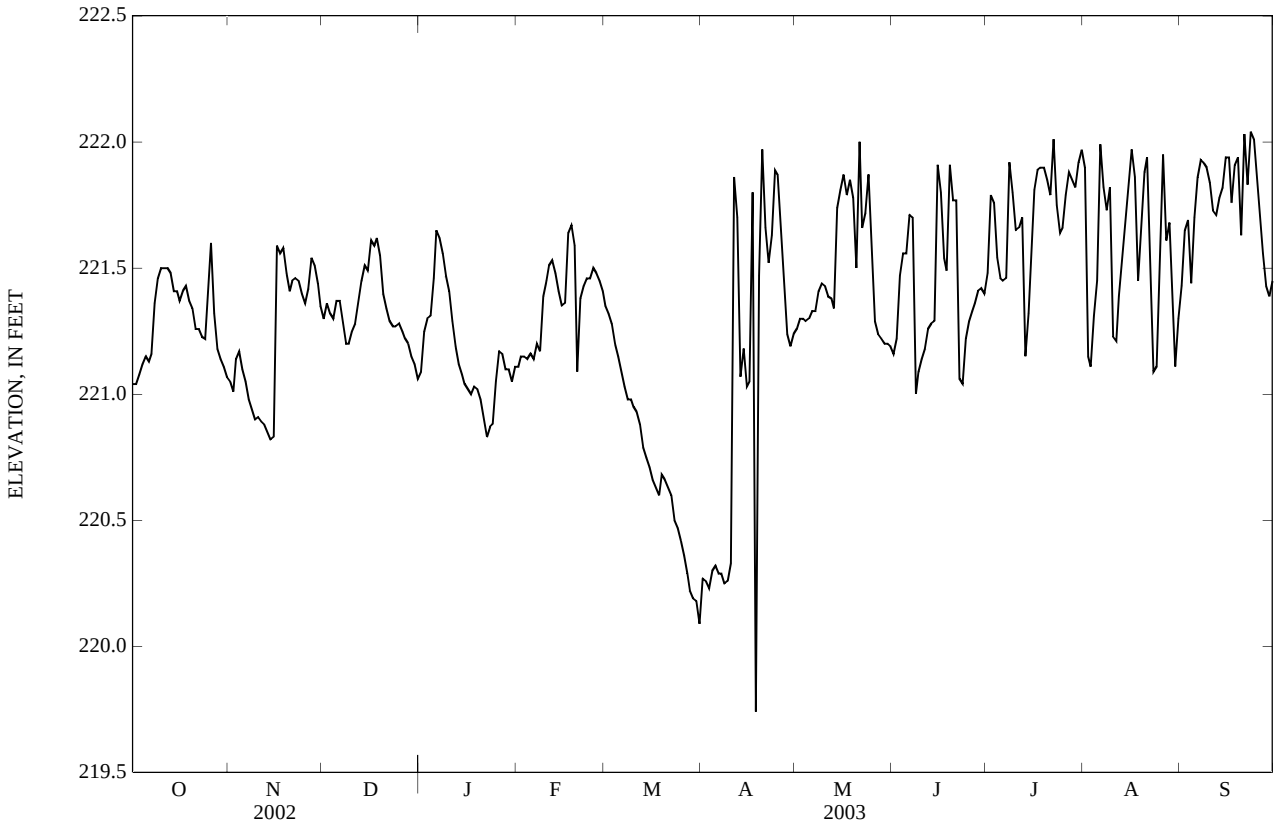
Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4030, 1997)
(Elevation in ft, capacity in acre-ft)

Elevation	Contents	Elevation	Contents
147	0	192	4,281
163	819	209	7,629
179	2,294	222	11,220

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221.04	221.05	221.30	221.09	221.11	221.35	220.27	221.26	221.16	221.48	221.90	221.43
2	221.04	221.01	221.36	221.25	221.15	221.32	220.26	221.30	221.22	221.79	221.15	221.65
3	221.08	221.14	221.32	221.30	221.15	221.28	220.23	221.30	221.47	221.76	221.11	221.69
4	221.12	221.17	221.30	221.31	221.14	221.20	220.30	221.29	221.56	221.54	221.31	221.44
5	221.15	221.10	221.37	221.46	221.16	221.15	220.32	221.30	221.56	221.46	221.45	221.70
6	221.13	221.05	221.37	221.65	221.14	221.09	220.29	221.33	221.71	221.45	221.99	221.86
7	221.16	220.98	221.29	221.62	221.20	221.03	220.29	221.33	221.70	221.46	221.82	221.93
8	221.36	220.94	221.20	221.56	221.17	220.98	220.25	221.41	221.00	221.92	221.73	221.92
9	221.46	220.90	221.20	221.47	221.39	220.98	220.26	221.44	221.09	221.80	221.82	221.90
10	221.50	220.91	221.25	221.41	221.45	220.95	220.33	221.43	221.14	221.65	221.23	221.84
11	221.50	220.89	221.28	221.29	221.51	220.93	221.86	221.39	221.18	221.66	221.21	221.73
12	221.50	220.88	221.36	221.19	221.53	220.88	221.70	221.38	221.26	221.70	221.39	221.71
13	221.48	220.85	221.45	221.12	221.48	220.79	221.07	221.34	221.28	221.15	221.55	221.78
14	221.41	220.82	221.51	221.08	221.41	220.75	221.18	221.74	221.29	221.32	221.70	221.82
15	221.41	220.83	221.49	221.04	221.35	220.71	221.03	221.81	221.91	221.59	221.84	221.94
16	221.37	221.59	221.61	221.02	221.36	220.66	221.05	221.87	221.80	221.81	221.97	221.94
17	221.41	221.56	221.59	221.00	221.64	220.63	221.80	221.79	221.54	221.89	221.86	221.76
18	221.43	221.58	221.62	221.03	221.67	220.60	219.74	221.85	221.49	221.90	221.45	221.91
19	221.37	221.48	221.55	221.02	221.59	220.68	221.47	221.78	221.91	221.90	221.66	221.94
20	221.34	221.41	221.40	220.98	221.09	220.66	221.97	221.50	221.77	221.85	221.88	221.63
21	221.26	221.45	221.34	220.91	221.38	220.63	221.66	222.00	221.77	221.79	221.94	222.03
22	221.26	221.46	221.29	220.83	221.43	220.60	221.52	221.66	221.06	222.01	221.58	221.83
23	221.23	221.45	221.27	220.87	221.46	220.50	221.63	221.72	221.04	221.75	221.09	222.04
24	221.22	221.40	221.27	220.88	221.46	220.47	221.89	221.87	221.22	221.64	221.11	222.01
25	221.37	221.36	221.28	221.05	221.50	220.42	221.87	221.53	221.29	221.66	221.55	221.85
26	221.60	221.42	221.25	221.17	221.48	220.36	221.66	221.29	221.33	221.79	221.95	221.72
27	221.32	221.54	221.22	221.16	221.45	220.29	221.44	221.24	221.36	221.88	221.61	221.56
28	221.18	221.51	221.20	221.10	221.41	220.22	221.24	221.22	221.41	221.85	221.68	221.43
29	221.14	221.44	221.15	221.10	---	220.19	221.19	221.20	221.42	221.82	221.37	221.39
30	221.11	221.35	221.12	221.05	---	220.18	221.24	221.20	221.40	221.92	221.11	221.45
31	221.07	---	221.06	221.11	---	220.09	---	221.19	---	221.97	221.30	---
MAX	221.60	221.59	221.62	221.65	221.67	221.35	221.97	222.00	221.91	222.01	221.99	222.04
MIN	221.04	220.82	221.06	220.83	221.09	220.09	219.74	221.19	221.00	221.15	221.09	221.39

50093045 LAGO PATILLAS AT DAMSITE NEAR PATILLAS, PR—Continued



50093075 CANAL DE RIEGO DE PATILLAS ABOVE GUAYAMA FILTRATION PLANT, PR

LOCATION.--Lat 17°58'57", long 66°06'05", Hydrologic Unit 21010004, 0.85 mi (1.37 km) southeast from Guayama Plaza church, 1.8 mi (2.90 km) north northeast from Central Machete and 2.85 mi (4.58 km) northwest from Arroyo town church.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February to September 2003.

GAGE.--Water-stage recorder. Altitude of gage is about 98 ft (30 m) from topographic map.

REMARKS.--Records fair. Controlled by Lago Patillas dam.

EXTREMES OBSERVED FOR CURRENT PERIOD.--Maximum discharge undetermined April 17, gage height, 3.22 ft (0.98 m); minimum daily discharge 12 ft^3/s (0.34 m^3/s) May 8 and 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

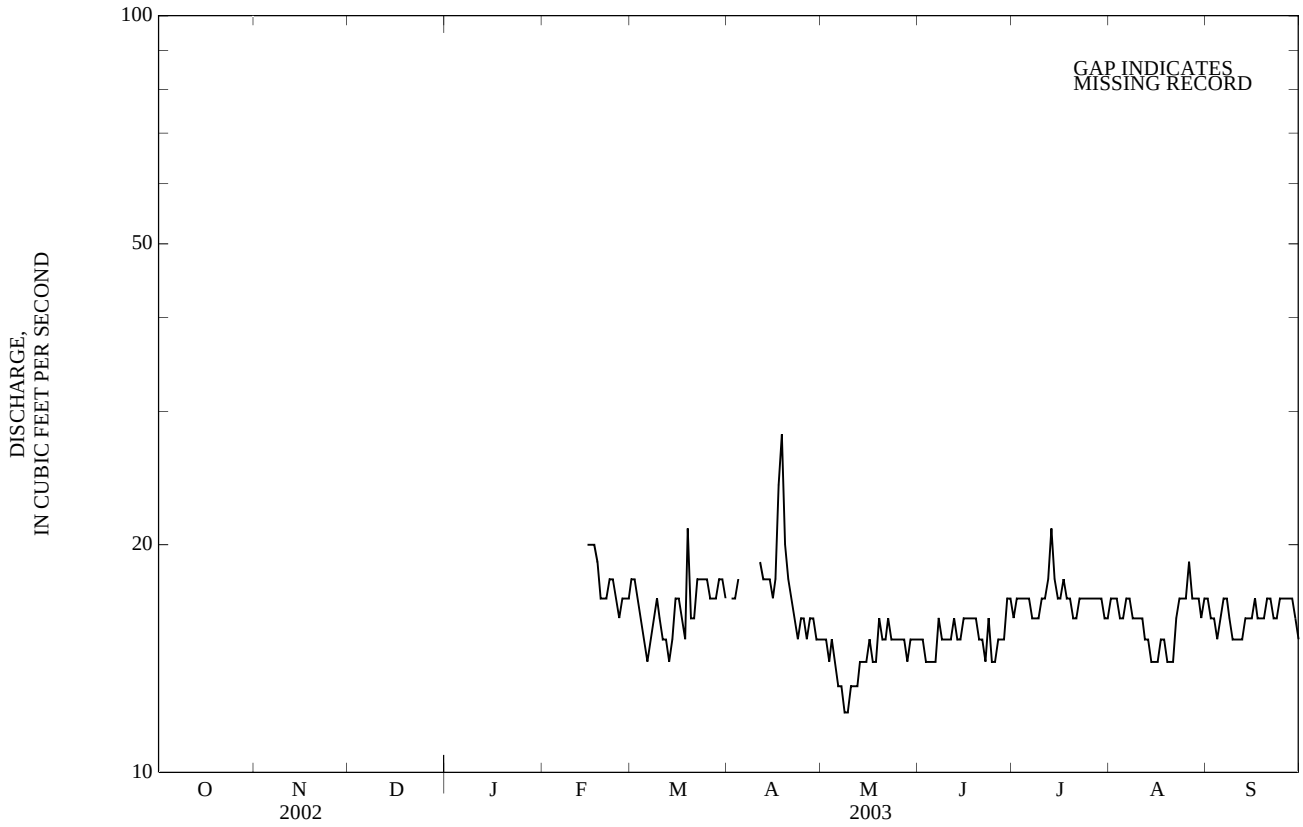
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	18	A	15	15	16	17	17
2	---	---	---	---	---	18	17	15	15	17	17	16
3	---	---	---	---	---	17	17	14	14	17	17	16
4	---	---	---	---	---	16	18	15	14	17	16	15
5	---	---	---	---	---	15	A	14	14	17	16	16
6	---	---	---	---	---	14	A	13	14	17	17	17
7	---	---	---	---	---	15	A	13	16	16	17	17
8	---	---	---	---	---	16	A	12	15	16	16	16
9	---	---	---	---	---	17	A	12	15	16	16	15
10	---	---	---	---	---	16	A	13	15	17	16	15
11	---	---	---	---	---	15	19	13	15	17	16	15
12	---	---	---	---	---	15	18	13	16	18	15	15
13	---	---	---	---	---	14	18	14	15	21	15	16
14	---	---	---	---	---	15	18	14	15	18	14	16
15	---	---	---	---	20	17	17	14	16	17	14	16
16	---	---	---	---	20	17	18	15	16	17	14	17
17	---	---	---	---	20	16	24	14	16	18	15	16
18	---	---	---	---	19	15	28	14	16	17	15	16
19	---	---	---	---	17	21	20	16	16	17	14	16
20	---	---	---	---	17	16	18	15	15	16	14	17
21	---	---	---	---	17	16	17	15	15	16	14	17
22	---	---	---	---	18	18	16	16	14	17	16	16
23	---	---	---	---	18	18	15	15	16	17	17	16
24	---	---	---	---	17	18	16	15	14	17	17	17
25	---	---	---	---	16	18	16	15	14	17	17	17
26	---	---	---	---	17	17	15	15	15	17	19	17
27	---	---	---	---	17	17	16	15	15	17	17	17
28	---	---	---	---	17	17	16	14	15	17	17	17
29	---	---	---	---	---	18	15	15	17	17	17	16
30	---	---	---	---	---	18	15	15	17	16	16	15
31	---	---	---	---	---	17	---	15	---	16	17	---
TOTAL	---	---	---	---	---	515	---	443	455	526	495	485
MEAN	---	---	---	---	---	16.6	---	14.3	15.2	17.0	16.0	16.2
MAX	---	---	---	---	---	21	---	16	19	17	19	17
MIN	---	---	---	---	---	14	---	12	14	15	14	15
MED	---	---	---	---	---	17	---	15	16	16	16	16
AC-FT	---	---	---	---	---	1,020	---	879	902	1,040	982	962

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2003, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	16.6	---	14.3	15.2	17.0	16.0	16.2
MAX	---	---	---	---	---	16.6	---	14.3	15.2	17.0	16.0	16.2
(WY)	---	---	---	---	---	(2003)	---	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	---	---	---	---	---	16.6	---	14.3	15.2	17.0	16.0	16.2
(WY)	---	---	---	---	---	(2003)	---	(2003)	(2003)	(2003)	(2003)	(2003)

A No gage-height record

50093075 CANAL DE RIEGO DE PATILLAS ABOVE GUAYAMA FILTRATION PLANT, PR—Continued



50093078 CANAL DE RIEGO DE PATILLAS BELOW GUAYAMA FILTRATION PLANT, PR

LOCATION.--Lat 18°58'57", long 66°06'05", Hydrologic Unit 21010004, on downstream side of Guayama Filtration Plant intake 0.95 mi (1.53 km) southeast from Guayama town church, 1.8 mi (2.90 km) north northeast from Central Machete and 2.8 mi (4.50 km) northwest from Arroyo town church.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February to September 2003.

GAGE.--Water-stage recorder. Altitude of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair. Controlled by Lago Patillas dam.

EXTREMES OBSERVED FOR CURRENT PERIOD.--Maximum discharge, undetermined April 17, gage height, 2.68 ft (0.816 m); minimum daily discharge 4.7 ft^3/s (0.133 m^3/s) May 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	11	A	7.2	7.2	7.8	7.3	9.2
2	---	---	---	---	---	11	7.1	7.0	8.0	8.5	8.0	8.7
3	---	---	---	---	---	11	7.8	6.6	8.5	6.9	7.3	8.2
4	---	---	---	---	---	8.0	7.8	7.8	8.2	7.1	7.3	7.8
5	---	---	---	---	---	6.7	A	6.4	7.1	7.7	7.2	8.4
6	---	---	---	---	---	5.5	A	5.2	4.9	7.5	7.7	9.8
7	---	---	---	---	---	6.1	A	5.1	6.9	7.0	8.5	10
8	---	---	---	---	---	7.2	A	4.7	6.3	6.0	7.1	8.9
9	---	---	---	---	---	7.8	A	5.5	5.7	5.8	7.2	7.4
10	---	---	---	---	---	6.8	A	5.8	5.3	6.3	7.5	7.7
11	---	---	---	---	---	5.8	9.5	6.0	6.4	6.8	6.8	8.0
12	---	---	---	---	---	5.6	8.7	6.2	7.2	6.1	6.5	7.8
13	---	---	---	---	---	5.2	8.4	6.1	6.9	10	6.4	8.0
14	---	---	---	---	---	6.0	8.4	6.5	6.6	6.0	6.2	8.1
15	---	---	---	---	---	8.0	7.3	7.5	8.9	5.9	6.0	8.3
16	---	---	---	---	---	8.1	8.2	8.4	8.1	6.5	5.6	9.7
17	---	---	---	---	---	7.8	>15	8.7	7.0	6.8	6.1	8.7
18	---	---	---	---	---	6.6	>15	9.6	7.1	6.2	6.5	9.1
19	---	---	---	---	---	>15	12	11	8.5	5.7	6.1	9.4
20	---	---	---	---	---	8.3	11	8.8	6.8	5.6	7.2	10
21	---	---	---	---	9.4	8.2	10	7.5	6.9	5.7	8.4	10
22	---	---	---	---	10	8.7	8.1	7.7	5.9	6.5	8.5	9.8
23	---	---	---	---	9.8	9.0	7.4	7.4	8.5	6.8	8.7	9.7
24	---	---	---	---	8.6	9.5	8.2	7.3	5.7	6.2	8.6	10
25	---	---	---	---	7.5	8.6	8.3	7.2	5.3	6.1	8.5	10
26	---	---	---	---	7.9	7.0	8.5	7.2	5.9	6.3	13	10
27	---	---	---	---	9.1	6.4	8.8	6.9	6.2	6.7	9.2	10
28	---	---	---	---	10	6.7	8.3	6.1	6.6	6.8	9.2	10
29	---	---	---	---	---	7.6	7.5	6.9	8.1	6.5	9.3	9.3
30	---	---	---	---	---	7.2	7.4	7.3	8.5	6.3	8.7	8.6
31	---	---	---	---	---	6.7	---	7.2	---	6.4	9.1	---
TOTAL	---	---	---	---	---	243.1	---	218.8	209.2	206.5	239.7	270.6
MEAN	---	---	---	---	---	7.84	---	7.06	6.97	6.66	7.73	9.02
MAX	---	---	---	---	---	15	---	11	8.9	10	13	10
MIN	---	---	---	---	---	5.2	---	4.7	4.9	5.6	5.6	7.4
MED	---	---	---	---	---	7.6	---	7.2	6.9	6.5	7.3	9.2
AC-FT	---	---	---	---	---	482	---	434	415	410	475	537

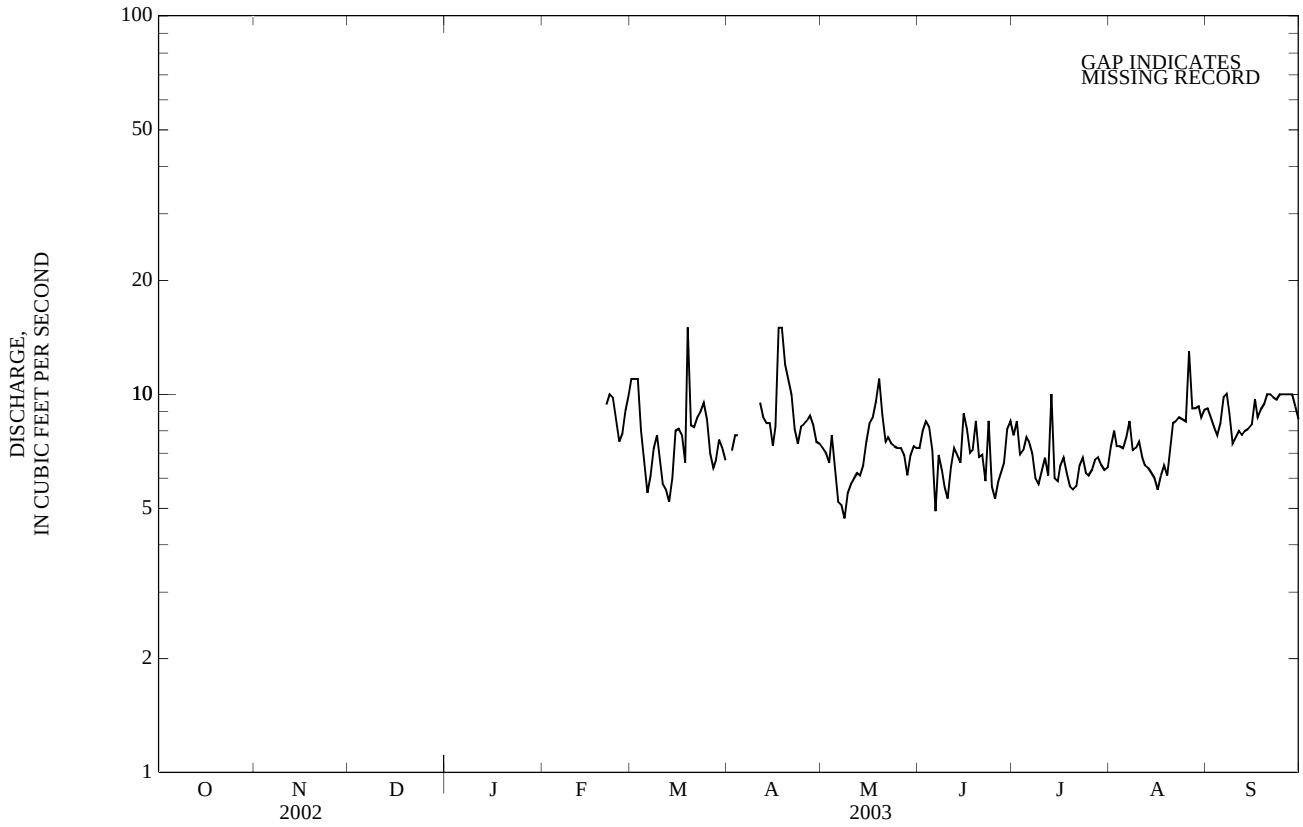
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2003, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	7.84	---	7.06	6.97	6.66	7.73	9.02
MAX	---	---	---	---	---	7.84	---	7.06	6.97	6.66	7.73	9.02
(WY)	---	---	---	---	---	(2003)	---	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	---	---	---	---	---	7.84	---	7.06	6.97	6.66	7.73	9.02
(WY)	---	---	---	---	---	(2003)	---	(2003)	(2003)	(2003)	(2003)	(2003)

> Actual value is known to be greater than the value shown

A No gage-height record

50093078 CANAL DE RIEGO DE PATILLAS BELOW GUAYAMA FILTRATION PLANT, PR—Continued



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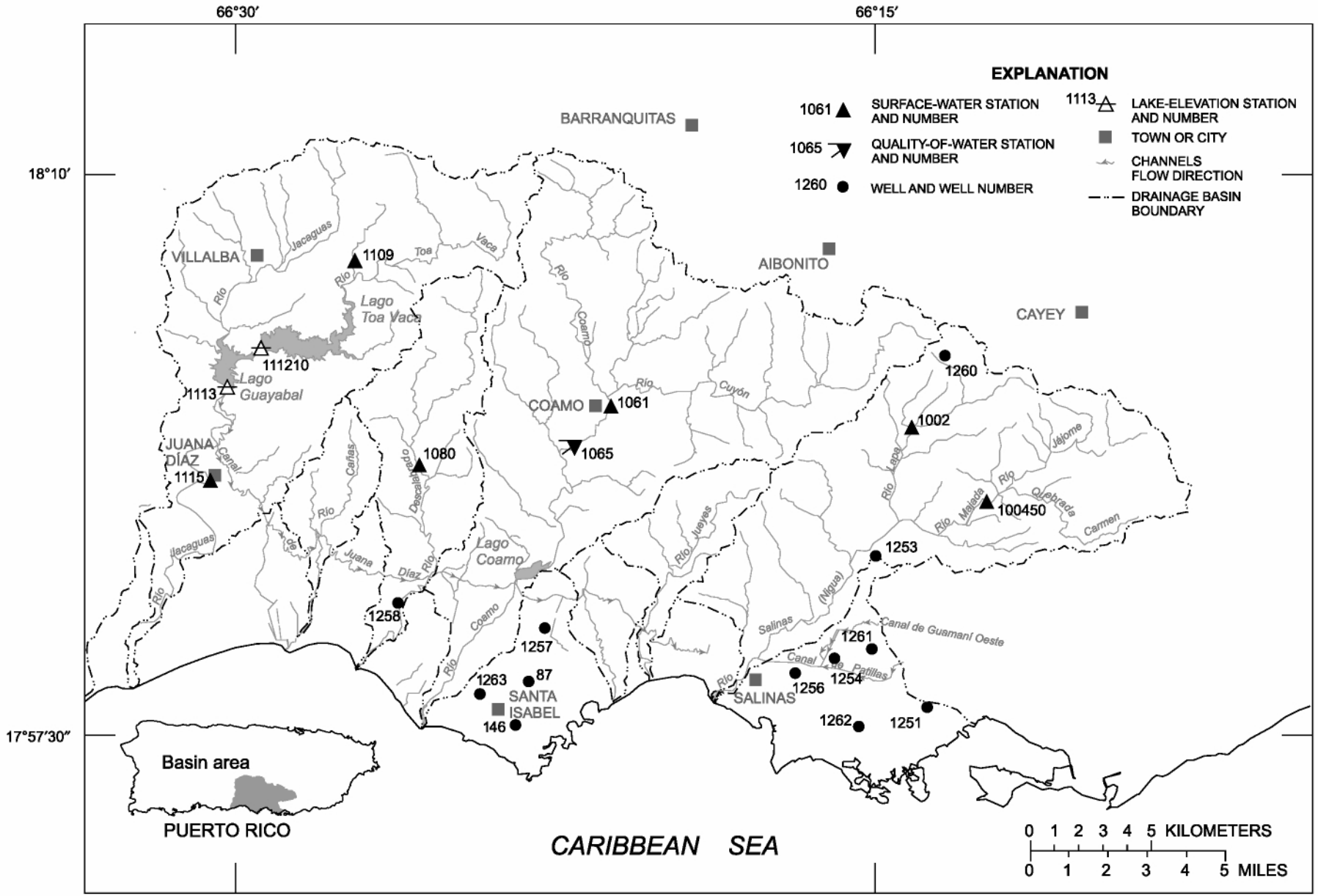


Figure 20. South coast river basins -- Río Salinas to Río Jacaguas basins.

50100200 RIO LAPA NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA.--9.92 mi^2 (25.7 km^2).

PERIOD OF RECORD.--1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.63	0.17	0.14	0.21	0.26	0.17	e0.32	1.7	0.52	0.16	0.36	0.47
2	0.55	0.19	0.17	0.24	0.27	0.16	0.36	1.4	0.54	0.18	2.2	0.83
3	0.60	0.20	0.38	0.26	0.28	0.15	0.31	1.3	0.59	0.17	1.1	0.59
4	0.48	0.24	0.17	0.24	0.26	0.14	0.33	1.3	0.52	0.17	0.47	1.5
5	0.44	0.24	0.20	0.25	0.27	0.13	0.33	1.2	0.46	0.20	0.29	0.62
6	0.40	0.22	0.23	0.31	0.27	0.13	0.31	1.1	0.54	0.22	0.28	e0.45
7	0.39	0.21	0.21	0.29	0.30	0.12	0.30	1.1	0.75	0.11	0.36	e0.36
8	0.39	0.19	0.21	0.26	0.27	0.15	0.29	1.1	0.60	0.24	0.29	0.35
9	0.48	0.18	0.21	0.24	0.25	0.23	0.32	1.1	0.50	0.18	0.24	0.36
10	6.4	0.17	0.22	0.24	0.24	0.35	0.29	0.96	0.45	0.19	0.24	0.27
11	1.6	0.17	0.20	0.23	0.25	0.13	9.0	0.91	0.43	0.16	0.21	19
12	0.94	0.17	0.25	0.20	0.22	0.12	1.4	0.88	e0.40	0.16	0.21	23
13	0.70	0.17	0.27	0.19	0.21	0.11	0.88	0.85	0.37	23	0.16	12
14	0.64	0.17	0.26	0.18	0.20	0.11	0.62	e1.0	0.36	3.1	0.15	3.8
15	0.61	0.18	0.26	0.16	0.18	0.12	0.54	0.96	0.36	0.85	0.14	7.0
16	0.58	0.19	0.32	0.15	0.17	0.11	0.60	0.91	0.37	0.67	0.13	42
17	0.52	0.19	0.92	0.19	0.17	0.11	167	0.81	0.37	0.56	0.21	16
18	0.51	0.19	1.2	0.33	0.17	0.13	217	0.89	0.35	0.47	0.54	5.3
19	0.61	0.19	0.50	0.16	0.17	2.2	65	1.1	0.37	0.38	0.38	2.8
20	0.65	0.18	0.35	0.14	0.19	0.36	22	0.96	0.33	0.33	0.21	2.3
21	e7.0	0.17	0.30	0.14	0.31	0.26	17	2.7	0.31	0.30	0.23	2.1
22	e1.5	0.18	0.29	0.13	0.32	0.24	10	1.9	0.28	0.34	0.52	4.2
23	e0.50	0.17	0.29	0.21	0.25	0.24	6.5	1.1	0.25	0.17	0.37	2.6
24	e0.30	0.16	0.29	1.0	0.23	0.25	52	0.98	0.21	0.15	0.24	1.8
25	e0.27	0.16	0.29	1.0	0.22	0.25	27	0.86	0.20	0.15	0.32	1.4
26	0.26	0.16	0.28	1.0	0.20	0.30	7.8	0.76	0.22	0.13	99	1.2
27	0.22	0.16	0.29	0.51	0.20	0.34	4.5	0.69	0.18	0.54	4.6	1.1
28	0.19	0.15	0.26	0.39	0.19	0.28	3.1	0.64	0.17	0.69	2.2	0.93
29	0.19	0.15	0.24	0.32	---	0.30	2.4	0.58	0.17	0.35	1.5	0.83
30	0.18	0.15	0.22	0.30	---	e0.27	2.0	0.56	0.17	0.22	0.84	0.75
31	0.19	---	0.20	0.27	---	e0.27	---	0.53	---	0.34	0.60	---
TOTAL	28.92	5.42	9.62	9.74	6.52	8.23	619.50	32.83	11.34	34.88	118.59	155.91
MEAN	0.93	0.18	0.31	0.31	0.23	0.27	20.6	1.06	0.38	1.13	3.83	5.20
MAX	7.0	0.24	1.2	1.0	0.32	2.2	217	2.7	0.75	23	99	42
MIN	0.18	0.15	0.14	0.13	0.17	0.11	0.29	0.53	0.17	0.11	0.13	0.27
AC-FT	57	11	19	19	13	16	1,230	65	22	69	235	309
CFSM	0.09	0.02	0.03	0.03	0.02	0.03	2.08	0.11	0.04	0.11	0.39	0.52
IN.	0.11	0.02	0.04	0.04	0.02	0.03	2.32	0.12	0.04	0.13	0.44	0.58

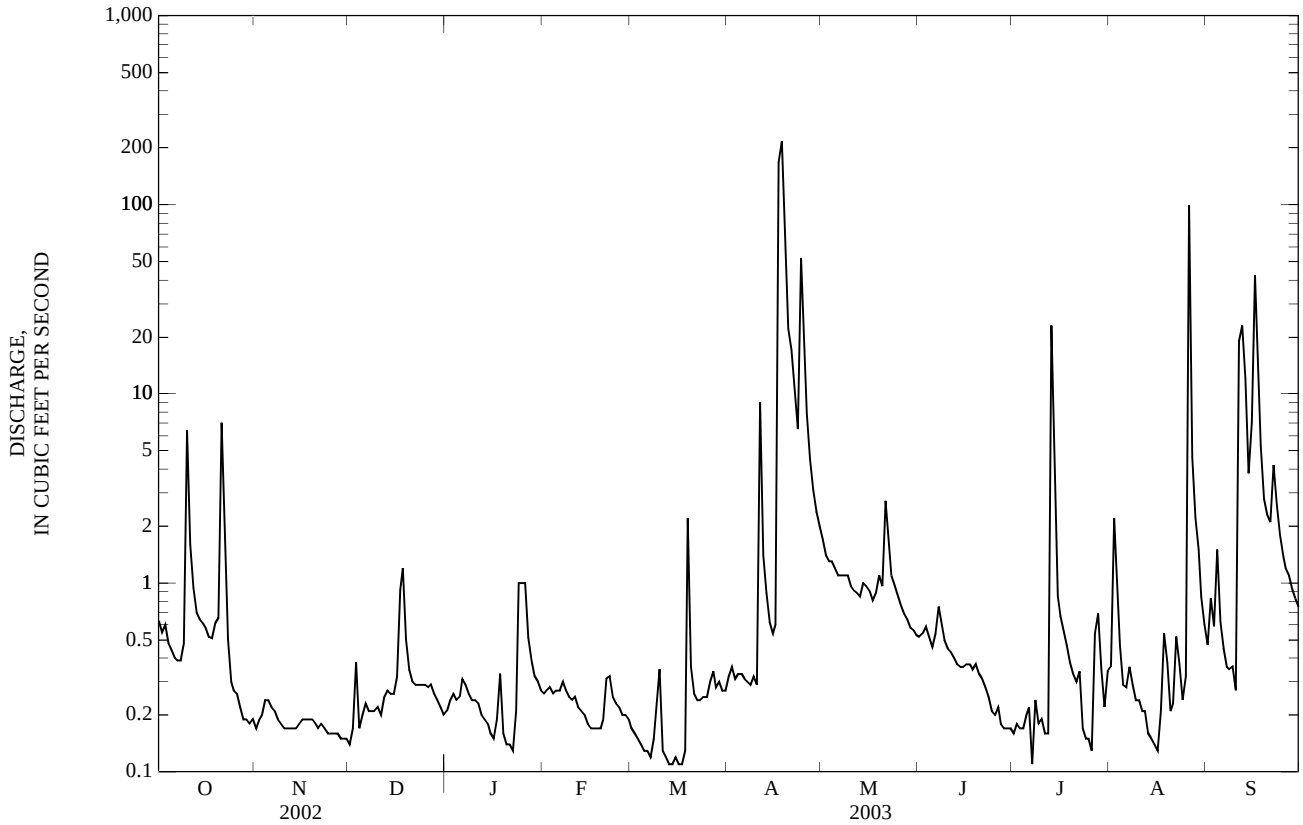
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2003, BY WATER YEAR (WY)

MEAN	15.1	8.87	3.62	6.63	3.04	1.29	3.39	4.11	2.36	1.47	4.44	17.0
MAX	76.1	36.4	14.4	68.8	12.4	2.67	20.7	36.6	10.4	7.80	17.9	81.2
(WY)	(1991)	(2000)	(1999)	(1992)	(1991)	(2002)	(2003)	(1992)	(1993)	(1993)	(2000)	(1996)
MIN	0.93	0.18	0.31	0.31	0.23	0.27	0.28	0.09	0.04	0.01	0.00	0.05
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(1990)	(1994)	(1994)	(1994)	(1994)	(1997)

50100200 RIO LAPA NEAR RABO DEL BUEY, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1988 - 2003	
ANNUAL TOTAL	999.21		1,041.50			
ANNUAL MEAN	2.74		2.85		5.94	
HIGHEST ANNUAL MEAN					14.1	1998
LOWEST ANNUAL MEAN					0.57	1994
HIGHEST DAILY MEAN	130	Jun 5	217	Apr 18	1,900	Sep 10, 1996
LOWEST DAILY MEAN	0.14	Dec 1	0.11	Mar 13	0.00	Jun 24, 1994
ANNUAL SEVEN-DAY MINIMUM	0.15	Nov 25	0.12	Mar 11	0.00	Jul 21, 1994
MAXIMUM PEAK FLOW			817	Apr 17	18,100	Sep 10, 1996
MAXIMUM PEAK STAGE			8.84	Apr 17	18.65	Sep 10, 1996
INSTANTANEOUS LOW FLOW			0.06	Jul 7	0.00	Jun 24, 1994
ANNUAL RUNOFF (AC-FT)	1,980		2,070		4,310	
ANNUAL RUNOFF (CFSM)	0.276		0.288		0.599	
ANNUAL RUNOFF (INCHES)	3.75		3.91		8.14	
10 PERCENT EXCEEDS	2.8		2.1		8.1	
50 PERCENT EXCEEDS	0.72		0.30		1.1	
90 PERCENT EXCEEDS	0.21		0.16		0.18	

e Estimated



50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Highway 712, about 0.3 mi (0.5 km) southwest of La Plena.

DRAINAGE AREA.--16.7 mi^2 (43.3 km^2).

PERIOD OF RECORD.--January 1973 to April 1979 (monthly measurements only), September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.-Records poor. Some regulation at low flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.83	0.33	0.50	0.34	e0.29	0.48	e0.39	1.6	e0.34	e0.02	1.0	2.0
2	0.75	0.32	0.43	0.64	e0.30	0.38	0.48	1.4	0.39	e0.70	4.1	2.2
3	0.77	0.33	0.99	0.92	e0.35	0.42	0.46	1.2	0.55	0.67	3.9	2.9
4	0.91	0.33	0.93	0.50	e0.21	0.53	0.44	1.1	0.72	0.45	1.4	2.7
5	0.74	0.37	0.77	0.35	0.21	0.52	0.69	1.1	0.48	0.51	0.83	2.2
6	0.64	0.31	0.93	0.96	0.24	0.41	0.82	0.93	1.2	0.91	0.73	2.0
7	0.67	0.27	0.74	0.75	0.27	0.51	0.60	0.93	1.8	0.76	1.4	1.5
8	0.64	e0.27	0.58	e0.47	0.47	0.38	0.45	1.1	1.1	0.97	2.2	1.4
9	1.8	e0.25	0.50	e0.40	0.36	0.46	0.48	1.3	0.77	2.7	1.3	1.6
10	1.8	0.21	0.65	e0.37	0.44	0.58	0.84	0.97	0.64	1.3	0.97	1.7
11	1.3	0.19	0.94	e0.35	0.35	0.76	3.1	0.85	0.57	0.55	0.76	3.7
12	0.98	0.21	0.89	e0.33	0.30	0.65	5.4	0.71	0.39	0.30	5.8	16
13	0.87	0.22	0.94	e0.32	0.27	0.47	1.5	0.68	0.35	42	1.3	17
14	0.82	0.21	0.92	e0.30	0.24	0.35	1.1	0.99	0.33	11	0.90	7.0
15	0.78	0.22	0.84	e0.29	0.23	0.31	1.1	1.4	0.59	2.5	0.75	e9.1
16	1.3	0.29	1.0	e0.30	0.21	0.33	0.91	1.0	0.93	1.3	0.65	e60
17	1.4	0.65	1.6	e0.45	0.28	0.41	58	0.86	0.58	1.2	1.0	e22
18	1.1	0.71	2.5	e0.80	0.45	0.58	131	0.91	0.39	0.80	5.2	e10
19	0.98	0.57	0.94	e0.35	0.32	3.7	59	2.8	0.39	0.75	4.3	e7.3
20	0.89	0.49	0.62	e0.30	0.29	5.7	20	1.5	0.55	0.44	1.4	6.1
21	0.78	0.47	0.56	e0.28	0.78	1.2	15	1.9	0.49	0.37	1.8	5.1
22	0.63	0.48	0.65	e0.25	0.98	0.77	10	3.5	0.32	0.97	4.7	8.4
23	0.56	0.49	0.78	e0.50	0.43	0.58	6.8	1.6	0.23	1.9	2.7	6.1
24	0.58	0.46	0.77	e1.2	0.30	0.49	16	1.1	0.15	0.98	1.4	4.8
25	0.65	0.43	0.64	e1.8	0.31	0.41	19	0.93	0.12	0.70	1.2	4.1
26	1.2	0.32	0.81	e1.8	0.32	0.47	8.8	0.75	0.09	0.54	137	3.9
27	1.1	0.35	2.2	e1.1	0.33	0.43	5.2	0.59	0.06	1.2	12	4.0
28	0.60	0.54	0.84	e0.55	0.61	0.38	3.6	0.49	0.05	4.2	6.4	3.3
29	0.44	0.62	0.56	e0.38	---	e0.37	2.7	0.47	0.04	4.2	4.1	2.9
30	0.37	0.54	0.43	e0.35	---	e0.34	2.0	0.42	0.01	e1.6	2.6	2.5
31	0.34	---	0.38	e0.33	---	e0.33	---	0.39	---	0.95	2.6	---
TOTAL	27.22	11.45	26.83	18.03	10.14	23.70	375.86	35.47	14.62	87.44	216.39	223.5
MEAN	0.88	0.38	0.87	0.58	0.36	0.76	12.5	1.14	0.49	2.82	6.98	7.45
MAX	1.8	0.71	2.5	1.8	0.98	5.7	131	3.5	1.8	42	137	60
MIN	0.34	0.19	0.38	0.25	0.21	0.31	0.39	0.39	0.01	0.02	0.65	1.4
AC-FT	54	23	53	36	20	47	746	70	29	173	429	443
CFSM	0.05	0.02	0.05	0.03	0.02	0.05	0.75	0.07	0.03	0.17	0.42	0.45
IN.	0.06	0.03	0.06	0.04	0.02	0.05	0.84	0.08	0.03	0.19	0.48	0.50

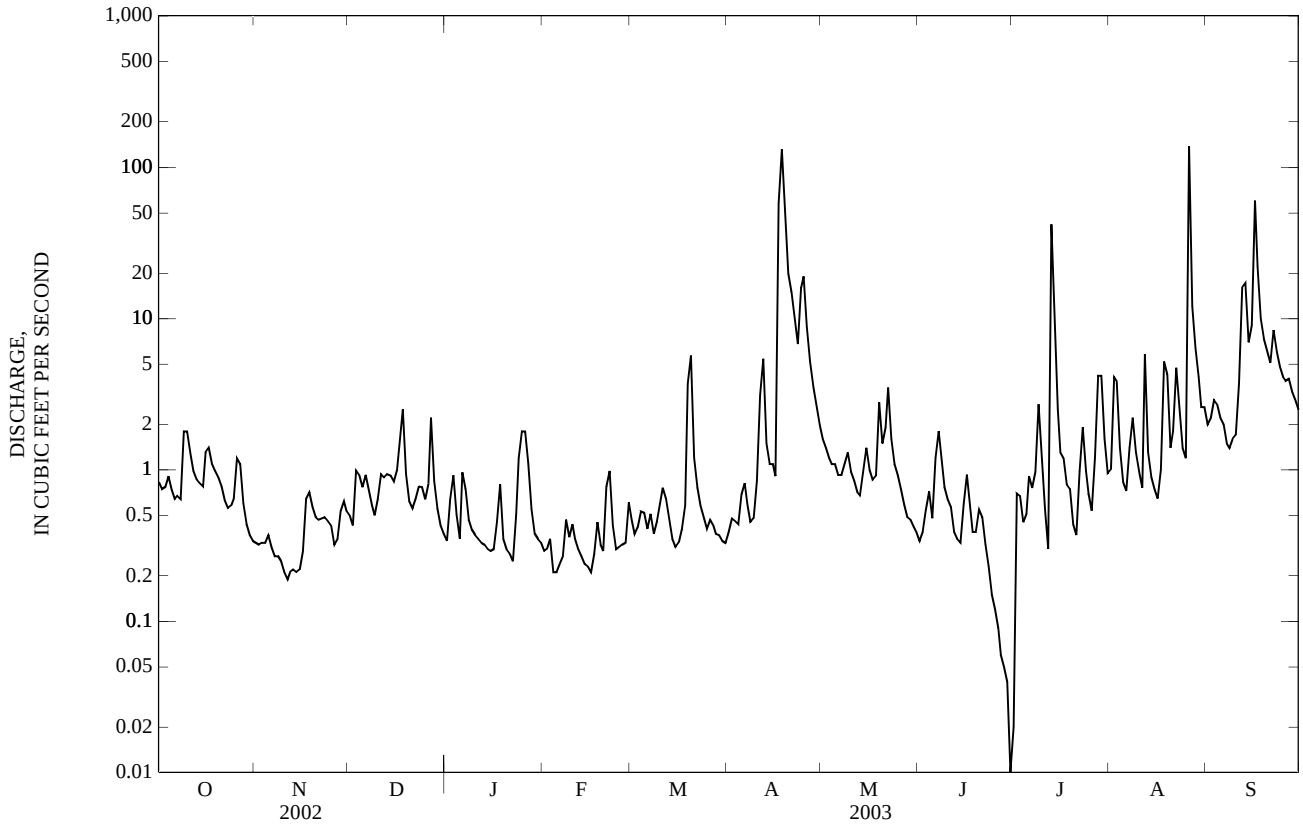
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY)

MEAN	14.9	14.9	5.86	8.21	3.40	2.19	3.12	4.49	3.36	2.79	4.79	21.9
MAX	76.4	82.8	21.4	68.8	12.1	4.42	12.5	25.5	12.1	12.9	23.4	109
(WY)	(1991)	(2000)	(1999)	(1992)	(1991)	(1999)	(2003)	(1992)	(1992)	(1993)	(1998)	(1996)
MIN	0.88	0.38	0.62	0.37	0.36	0.59	0.30	0.21	0.04	0.01	0.01	0.01
(WY)	(2003)	(2003)	(1995)	(1995)	(2003)	(1990)	(1995)	(1994)	(1994)	(1997)	(1994)	(1997)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	859.01		1,070.65			
ANNUAL MEAN	2.35		2.93		7.49	
HIGHEST ANNUAL MEAN					18.7	1998
LOWEST ANNUAL MEAN					0.81	1994
HIGHEST DAILY MEAN	129	Jun 5	137	Aug 26	2,270	Sep 10, 1996
LOWEST DAILY MEAN	0.19	Nov 11	0.01	Jun 30	0.00	Oct 3, 1994
ANNUAL SEVEN-DAY MINIMUM	0.22	Nov 9	0.06	Jun 25	0.00	Oct 8, 1994
MAXIMUM PEAK FLOW			1,430	Aug 26	17,700	Sep 10, 1996
MAXIMUM PEAK STAGE			8.01	Aug 26	19.69	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	1,700		2,120		5,430	
ANNUAL RUNOFF (CFSM)	0.141		0.176		0.449	
ANNUAL RUNOFF (INCHES)	1.91		2.38		6.10	
10 PERCENT EXCEEDS	3.4		4.2		12	
50 PERCENT EXCEEDS	0.91		0.74		2.0	
90 PERCENT EXCEEDS	0.41		0.30		0.30	

e Estimated

50100450 RIO MAJADA AT LA PLENA, PR—Continued



50106100 RIO COAMO AT HWY 14 AT COAMO, PR

LOCATION.--Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, on Highway 14 bridge, 0.8 mi (1.3 km) northeast from Parque Atlético, 1.2 mi (1.9 km) southeast from (WCPR) Antena de Radio.

DRAINAGE AREA.--43.5 mi^2 (113 km^2).

PERIOD OF RECORD.--January 1987 to current year. Prior to September 2000, published as Río Coamo at Coamo, PR.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 335 ft (110 m), from topographic map.

REMARKS.--Records poor. Low flow is affected by domestic discharges about 200 ft (65.6 m), upstream from gaging station. Gage-he ight and precipitation satellite telemetry at station. The gage height recovered for the instantaneous peak stage produced by Hurricane Georges was affected by backwater caused by the Highway 14 old bridge which is about 100 ft (30.40 m) downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.6	3.2	2.4	3.1	2.3	4.3	22	e3.9	2.4	e1.4	8.6
2	4.5	117	3.2	2.9	3.5	2.1	4.1	14	e4.7	e3.0	e1.3	6.0
3	4.3	13	3.3	2.4	2.9	2.3	3.9	12	e5.2	e2.6	e1.2	28
4	4.2	6.8	3.2	2.3	5.1	2.2	4.0	10	e3.8	e2.6	e1.1	e8.2
5	4.1	5.5	3.8	2.4	5.8	3.9	6.9	9.9	e3.2	e2.2	e1.6	e4.3
6	4.0	5.0	3.5	3.0	4.7	1.8	9.8	9.4	e3.3	e2.1	e1.5	e3.1
7	3.9	4.9	3.1	2.9	4.3	1.8	5.4	8.7	e5.3	e1.8	e1.4	e2.6
8	4.0	4.5	3.1	2.1	3.7	2.0	4.6	9.1	e4.1	e2.0	1.3	e2.3
9	5.1	4.5	3.5	1.9	3.3	1.8	3.9	8.1	e4.1	e2.0	1.3	e1.8
10	17	4.6	3.2	2.1	3.3	1.9	3.4	4.1	3.2	e1.8	1.4	e1.6
11	7.8	4.1	3.1	2.0	3.2	1.8	9.3	3.9	2.9	e1.6	60	e31
12	5.2	3.9	3.2	1.9	3.4	1.9	11	2.6	2.6	e1.7	10	e18
13	4.7	3.8	3.3	2.4	2.7	1.8	7.1	2.0	2.7	e2.0	5.6	e25
14	4.8	20	3.0	2.0	2.8	1.9	5.2	2.2	2.3	e1.9	4.9	e13
15	5.8	11	3.2	1.9	2.5	1.8	4.6	2.4	2.4	e2.3	4.8	e18
16	5.5	7.1	3.4	1.8	2.3	1.9	4.3	e2.0	2.6	e10	4.3	e20
17	4.7	5.1	4.1	1.9	2.5	1.9	434	e2.3	2.5	e4.0	4.2	e8.2
18	4.3	4.4	4.4	1.9	2.6	1.8	365	e2.3	2.3	e2.0	3.9	e4.9
19	3.9	4.0	3.2	2.8	2.5	50	423	e2.2	2.9	e2.5	3.3	e3.7
20	3.7	3.7	2.9	2.0	2.6	12	139	e2.2	2.5	e2.0	3.2	e3.1
21	3.9	3.8	3.0	2.0	2.8	4.0	144	e140	2.4	e1.9	3.2	e7.8
22	3.6	3.8	3.5	1.9	2.4	3.3	144	e9.8	e5.2	e1.9	3.3	e11
23	182	3.6	3.5	2.4	2.0	3.0	e152	e4.5	3.3	e1.9	3.8	e5.1
24	25	3.4	3.0	8.2	2.4	2.9	e99	e2.8	3.0	e2.1	3.2	e4.4
25	3.9	3.5	3.2	3.9	2.1	2.6	e49	e4.1	2.9	e1.9	3.2	e3.7
26	3.5	3.3	3.4	4.0	2.0	28	e27	e5.2	e4.8	e1.9	25	e3.1
27	3.9	3.3	3.2	3.2	2.5	32	e23	e4.9	e3.6	e1.5	11	e3.3
28	3.9	3.2	2.6	2.7	2.6	15	e23	e3.5	2.5	1.3	7.5	e3.4
29	3.8	3.2	2.6	2.7	---	26	24	e5.2	2.4	1.2	5.6	e2.9
30	4.4	3.2	2.5	2.6	---	13	23	e5.4	2.3	e1.5	4.0	e2.9
31	5.1	---	2.3	2.5	---	5.6	---	e4.3	---	e1.5	6.0	---
TOTAL	349.1	271.8	99.7	81.1	85.6	234.3	2,160.8	321.1	98.9	71.1	193.5	259.0
MEAN	11.3	9.06	3.22	2.62	3.06	7.56	72.0	10.4	3.30	2.29	6.24	8.63
MAX	182	117	4.4	8.2	5.8	50	434	140	5.3	10	60	31
MIN	3.5	3.2	2.3	1.8	2.0	1.8	3.4	2.0	2.3	1.2	1.1	1.6
AC-FT	692	539	198	161	170	465	4,290	637	196	141	384	514
CFSM	0.26	0.21	0.07	0.06	0.07	0.17	1.66	0.24	0.08	0.05	0.14	0.20
IN.	0.30	0.23	0.09	0.07	0.07	0.20	1.85	0.27	0.08	0.06	0.17	0.22

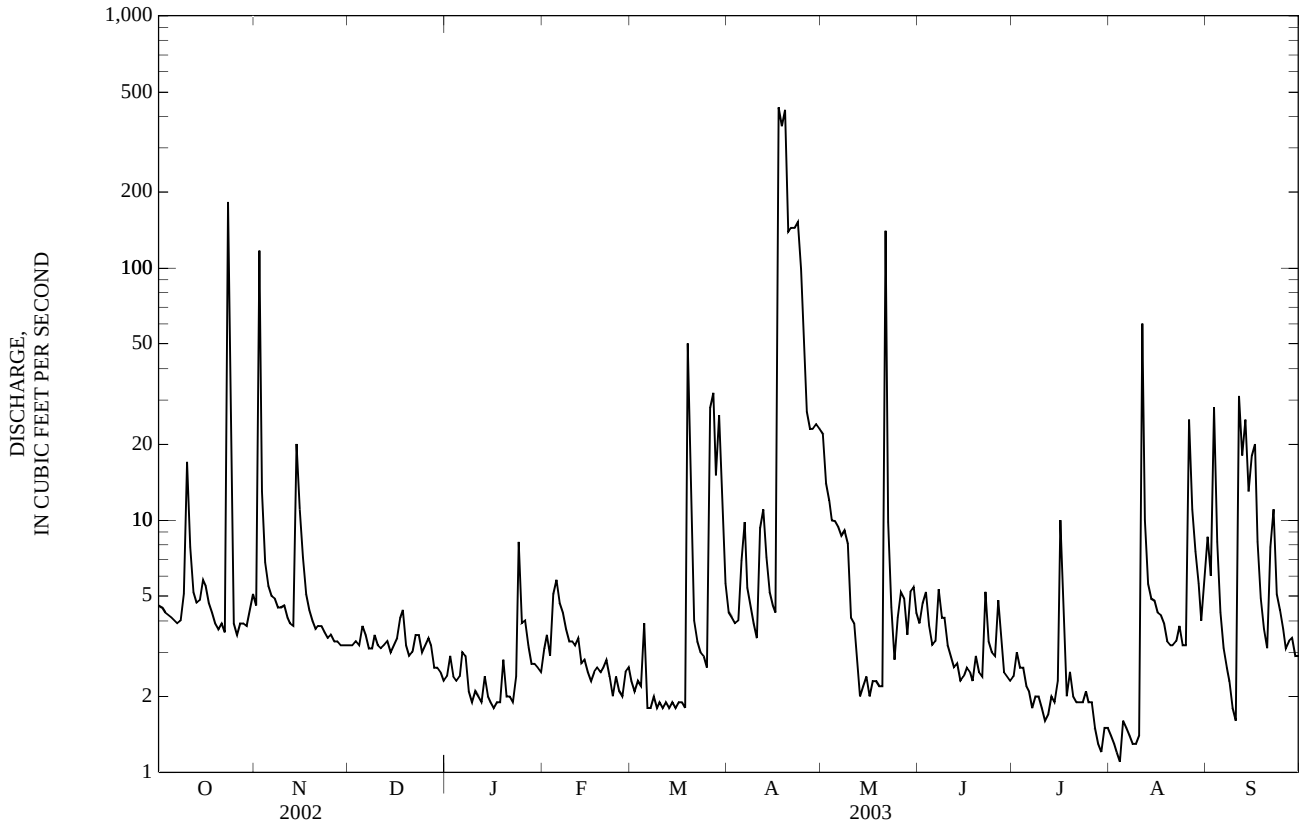
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

MEAN	54.1	38.2	20.9	17.3	10.4	6.98	12.9	18.3	15.1	6.78	10.6	48.0
MAX	274	142	83.8	79.0	25.5	16.1	37.7	69.6	76.1	15.5	29.7	291
(WY)	(1991)	(2000)	(1988)	(1992)	(1998)	(2000)	(2002)	(1992)	(1987)	(1988)	(1998)	(1998)
MIN	10.3	4.91	3.72	2.71	3.16	3.09	2.49	1.66	1.99	0.78	1.28	1.61
(WY)	(1989)	(1995)	(1989)	(1995)	(2002)	(1987)	(1995)	(1989)	(1989)	(1989)	(1994)	(1994)

50106100 RIO COAMO AT HWY 14 AT COAMO, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL MEAN					21.4	
HIGHEST ANNUAL MEAN					40.9	1998
LOWEST ANNUAL MEAN					4.52	1994
HIGHEST DAILY MEAN	228	Apr 26			4,530	Sep 22, 1998
LOWEST DAILY MEAN	1.4	Aug 21			0.67	Aug 2, 1989
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 20			0.70	Jul 27, 1989
MAXIMUM PEAK FLOW			4,460	Apr 17	52,700	Sep 21, 1998
MAXIMUM PEAK STAGE			10.66	Apr 17	25.94	Sep 21, 1998
ANNUAL RUNOFF (AC-FT)					15,530	
ANNUAL RUNOFF (CFSM)					0.493	
ANNUAL RUNOFF (INCHES)					6.70	
10 PERCENT EXCEEDS					43	
50 PERCENT EXCEEDS					7.6	
90 PERCENT EXCEEDS					2.4	

e Estimated



50106500 RIO COAMO NEAR COAMO, PR

LOCATION.--Lat 18°03'52", long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Río de la Mina, and 1.8 mi (2.9 km) south of Coamo Plaza.

DRAINAGE AREA.--46.0 mi^2 (119.1 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
13...	1545	4.0	1.3	6.0	80	7.5	616	30.5	250	66.9	21.3	2.33	.9
FEB													
13...	1230	4.2	2.0	10.1	--	8.3	587	27.1	240	62.3	19.7	1.93	.9
APR													
09...	0935	6.1	1.2	8.0	--	8.0	579	26.2	230	60.3	18.4	1.88	.9
JUL													
21...	1205	3.3	<1.0	9.5	--	8.2	595	30.7	--	--	--	--	--
SEP													
03...	1115	7.9	1.1	7.9	--	8.0	554	31.0	220	57.1	18.3	2.31	.9

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
13...	34.4	221	38.7	.17	31.2	33.0	--	361	3.87	<10	<.20	<.01	--
FEB													
13...	32.8	225	35.9	.17	31.9	31.5	<.0	351	3.98	<10	.30	.03	--
APR													
09...	30.0	214	32.3	.18	31.6	28.3	.6	331	5.49	<10	<.20	.03	1.39
JUL													
21...	--	207	--	--	--	--	--	--	--	<10	<.20	.02	1.49
SEP													
03...	30.4	198	33.7	.2	32.7	28.7	--	322	6.88	<10	.20	.02	1.39

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
13...	2.50	<.01	--	.14	--	--	<10	E170	210	--	--	--	--
FEB													
13...	1.70	<.01	.27	.09	2.0	8.9	<10	E30	--	3,000	<2	28.8	72
APR													
09...	1.40	.01	--	.11	--	--	<10	E160	--	5,900	E1	38.2	E12
JUL													
21...	1.50	.01	--	.10	--	--	<10	E120	--	4,800	--	--	--
SEP													
03...	1.40	.01	.18	.14	1.6	7.1	10	E960	--	E1,800	--	--	--

50106500 RIO COAMO NEAR COAMO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
13...	<.2	<.8	<10	<.01	E10	<1	E2.4	<.02	<3	<.3	<25	<.10	<16
APR													
09...	<.2	<.8	<10	<.01	120	<1	10.7	<.02	<3	<.3	E14	<.10	E8
JUL													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Díaz.

DRAINAGE AREA.--12.9 mi^2 (33.4 km^2).

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records poor. Some regulation at low flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	e5.7	0.20	0.60	e0.21	0.79	0.08	e1.7	e0.33	0.10	e1.0	0.49
2	0.82	e5.7	0.20	0.35	e0.21	0.51	0.08	e1.5	e0.24	e0.11	e0.64	0.38
3	0.56	e6.2	0.29	0.17	e0.22	0.41	0.09	e1.5	1.5	e0.11	e0.70	0.16
4	0.58	e4.6	0.20	0.25	e0.23	0.34	0.08	e1.4	e1.1	e0.10	e0.37	0.19
5	0.51	e4.6	0.39	0.34	e0.24	0.31	0.08	e1.3	e0.69	e0.10	e0.34	0.15
6	0.44	e5.7	0.12	0.68	0.23	0.33	0.08	e1.4	0.44	0.12	e0.67	0.12
7	0.49	e1.8	0.11	0.34	0.22	0.28	5.3	e1.4	e0.36	e0.09	e1.5	0.13
8	0.53	1.2	0.11	0.25	0.25	0.24	0.21	e1.5	e0.27	e0.08	e0.52	0.95
9	0.58	e0.70	0.11	0.18	0.21	0.17	0.09	e1.3	e0.21	0.11	e0.43	0.14
10	5.7	0.69	0.09	0.18	0.19	0.24	0.09	1.1	e0.16	0.08	e0.37	0.09
11	0.93	0.63	0.09	0.18	0.17	0.18	1.0	1.1	0.12	e0.06	128	0.12
12	0.69	0.75	0.09	0.24	0.16	0.17	9.7	1.0	0.11	e0.07	7.6	7.4
13	0.82	0.56	0.10	0.28	0.15	0.16	0.31	1.0	0.10	0.11	1.9	5.8
14	0.88	0.50	0.09	0.28	e0.14	0.16	0.12	1.6	e0.10	0.10	1.0	0.32
15	1.1	0.78	0.09	0.37	0.14	0.16	0.10	1.3	e0.10	0.17	1.3	19
16	1.4	3.3	0.11	0.37	0.14	0.18	0.09	0.98	e0.10	0.56	1.8	26
17	0.93	0.25	0.81	0.74	0.13	0.16	374	0.87	e0.11	e0.39	2.6	1.6
18	1.1	0.12	0.25	0.52	0.14	0.37	298	0.76	e0.12	e0.42	5.2	0.53
19	0.72	0.17	0.12	0.77	0.14	4.8	26	0.77	e0.16	e0.33	0.65	0.41
20	1.1	1.2	0.09	0.45	0.43	0.31	11	0.73	e0.13	e0.33	1.3	3.8
21	6.6	0.34	0.09	0.45	0.88	0.32	6.0	51	e0.11	e0.26	0.97	148
22	1.6	0.32	0.11	1.0	0.77	0.07	98	5.9	e0.15	e0.20	1.8	5.9
23	103	0.57	0.11	0.62	0.86	0.11	28	e1.4	e0.12	e0.51	2.1	1.0
24	3.7	0.34	0.12	0.57	0.79	0.09	5.4	e0.85	e0.11	e0.30	0.79	0.60
25	1.4	0.21	0.12	0.44	0.78	0.13	5.2	0.80	e0.10	e0.34	0.19	7.2
26	0.81	0.16	0.16	0.36	0.66	0.09	5.1	e0.68	e0.10	e0.34	4.7	2.9
27	0.21	0.20	0.14	0.40	0.82	0.06	e2.9	e0.53	e0.08	e1.5	0.71	0.76
28	0.37	0.17	0.16	e0.37	0.85	0.06	e2.5	e0.46	0.08	e2.1	0.55	0.19
29	0.32	0.14	0.13	e0.31	---	1.7	e2.2	e0.38	0.08	e3.6	0.47	0.07
30	32	0.28	0.14	e0.26	---	1.3	e1.9	e0.33	0.08	e1.6	0.28	0.09
31	e5.3	---	0.30	e0.20	---	0.09	---	0.87	---	e0.49	0.16	---
TOTAL	176.59	47.88	5.24	12.52	10.36	14.29	883.70	87.41	7.46	14.78	170.61	234.49
MEAN	5.70	1.60	0.17	0.40	0.37	0.46	29.5	2.82	0.25	0.48	5.50	7.82
MAX	103	6.2	0.81	1.0	0.88	4.8	374	51	1.5	3.6	128	148
MIN	0.21	0.12	0.09	0.17	0.13	0.06	0.08	0.33	0.08	0.06	0.16	0.07
AC-FT	350	95	10	25	21	28	1,750	173	15	29	338	465
CFSM	0.44	0.12	0.01	0.03	0.03	0.04	2.28	0.22	0.02	0.04	0.43	0.61
IN.	0.51	0.14	0.02	0.04	0.03	0.04	2.55	0.25	0.02	0.04	0.49	0.68

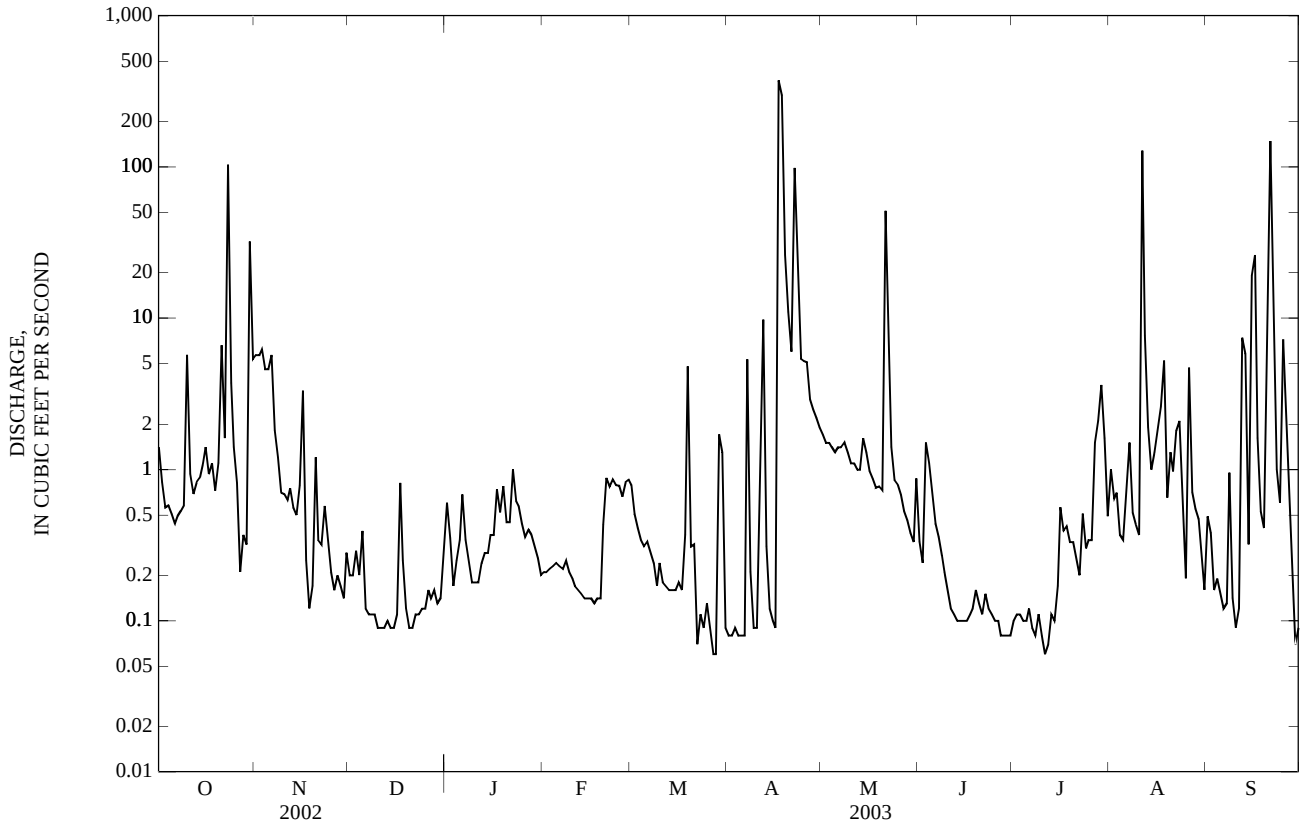
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY)

MEAN	25.3	14.9	5.54	4.45	3.25	1.97	6.03	12.5	4.66	2.30	3.94	33.0
MAX	117	41.0	24.5	36.4	23.9	8.93	29.5	62.2	25.2	10.5	13.1	395
(WY)	(1986)	(1985)	(1988)	(1992)	(1995)	(1996)	(2003)	(1985)	(1987)	(1991)	(1996)	(1996)
MIN	2.02	1.04	0.17	0.06	0.02	0.01	0.00	0.03	0.00	0.00	0.19	0.06
(WY)	(1968)	(1995)	(2003)	(1968)	(1968)	(1968)	(1968)	(1968)	(1967)	(1967)	(1990)	(1967)

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	1,405.45		1,665.33			
ANNUAL MEAN	3.85		4.56		10.2	
HIGHEST ANNUAL MEAN					41.7	1996
LOWEST ANNUAL MEAN					1.69	1994
HIGHEST DAILY MEAN	211	Jun 5	374	Apr 17	10,000	Sep 10, 1996
LOWEST DAILY MEAN	0.09	Dec 10	0.06	Mar 27	0.00	Jun 22, 1966
ANNUAL SEVEN-DAY MINIMUM	0.09	Dec 9	0.08	Mar 31	0.00	Jun 22, 1966
MAXIMUM PEAK FLOW			2,940	Apr 17	30,000	Oct 7, 1985
MAXIMUM PEAK STAGE			9.78	Apr 17	24.37	Oct 7, 1985
INSTANTANEOUS LOW FLOW					0.00	Jun 22, 1966
ANNUAL RUNOFF (AC-FT)	2,790		3,300		7,390	
ANNUAL RUNOFF (CFSM)	0.298		0.354		0.791	
ANNUAL RUNOFF (INCHES)	4.05		4.80		10.75	
10 PERCENT EXCEEDS	5.7		4.6		16	
50 PERCENT EXCEEDS	0.90		0.37		1.7	
90 PERCENT EXCEEDS	0.27		0.10		0.13	

e Estimated



50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic Unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from Road 553, 2.4 mi (3.9 km) southeast from Villalba Plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

DRAINAGE AREA.--14.2 mi^2 (36.8 km^2).

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 525 ft (160 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	e3.7	e4.3	e2.6	e6.6	e1.7	e2.8	15	e4.3	2.6	2.7	18
2	9.3	e13	e4.2	e2.3	e6.5	e1.4	2.3	13	e3.7	2.8	2.5	6.3
3	10	e5.8	e4.5	e2.4	e2.6	e1.4	2.0	12	e13	2.9	2.6	7.3
4	12	e5.1	e4.7	e2.2	e2.6	e1.3	2.0	12	e11	2.8	2.3	8.6
5	8.4	e8.5	e4.1	e2.1	e2.4	e1.4	2.2	11	e8.8	2.8	2.3	4.6
6	7.0	e5.1	e3.9	e2.2	e2.4	e1.1	5.0	10	e6.3	3.2	2.5	3.6
7	e6.2	e5.9	e4.2	e2.3	e2.6	e1.3	3.0	10	e4.5	2.9	3.0	3.4
8	12	e4.7	e3.6	e2.3	2.4	e1.2	2.8	9.8	e4.0	2.7	2.5	2.9
9	18	e4.2	e3.3	e2.6	2.2	e1.3	2.7	9.3	e3.5	2.9	2.2	2.7
10	14	e4.3	e3.0	e2.3	2.3	e1.2	2.1	9.1	e3.2	2.5	2.2	2.5
11	9.2	e8.5	e2.8	e2.3	2.2	e1.3	4.8	8.7	3.0	2.4	26	2.8
12	7.0	e8.5	e2.8	e2.3	2.1	e1.3	6.0	8.0	3.0	2.3	7.9	3.1
13	28	e4.8	e2.8	e2.3	2.0	e1.1	3.8	7.8	3.0	3.2	3.3	4.0
14	13	e5.3	e2.7	e2.0	2.0	e1.2	2.9	9.0	2.9	3.8	2.8	3.5
15	15	e8.5	e2.4	e2.1	1.9	e1.2	2.5	8.3	3.0	3.2	2.6	11
16	22	e8.3	e2.4	e2.0	1.9	e1.3	2.3	7.5	3.0	3.3	2.6	26
17	20	e9.0	e2.2	e2.3	1.9	e1.2	205	7.3	3.1	3.1	2.5	13
18	12	e5.9	e2.2	e2.3	1.9	e1.2	237	7.5	3.3	2.7	2.7	6.8
19	8.8	e5.3	e5.1	e2.0	1.8	e1.9	65	7.7	4.0	2.6	e3.6	4.9
20	7.6	e4.8	e5.1	e2.0	1.7	4.1	34	7.5	3.4	2.5	e2.7	4.2
21	7.5	e4.5	e4.5	e1.9	1.7	2.0	40	41	3.2	2.4	e2.1	6.4
22	5.9	e4.5	e8.1	e2.0	1.6	1.9	39	25	3.8	2.4	e2.7	6.4
23	25	e3.9	e8.4	e1.9	1.6	1.9	75	12	3.4	2.5	e2.2	4.7
24	e11	e3.9	e16	e1.8	e1.7	1.5	120	8.0	3.1	2.4	2.7	4.4
25	e6.2	e3.6	e9.6	e1.8	e1.7	1.5	84	e7.8	3.0	2.3	2.2	7.3
26	e5.3	e3.5	e3.9	e2.3	e1.4	6.6	51	e6.8	2.9	2.3	11	5.1
27	e5.3	e3.4	e2.8	e2.0	e1.5	14	32	e5.8	2.7	3.0	5.6	4.8
28	e4.5	e10	e2.4	e1.9	e1.5	9.8	24	e5.3	2.7	3.4	3.1	4.4
29	e4.1	e6.1	e7.7	e1.9	---	4.3	19	e4.8	2.5	4.4	3.1	4.0
30	e3.7	e4.6	e3.5	e1.8	---	5.1	17	e4.5	2.6	2.8	3.7	4.0
31	e4.5	---	e2.8	e3.5	---	e3.0	---	e6.0	---	2.5	33	---
TOTAL	337.5	177.2	140.0	67.7	64.7	80.7	1,091.2	317.5	123.9	87.6	152.9	190.7
MEAN	10.9	5.91	4.52	2.18	2.31	2.60	36.4	10.2	4.13	2.83	4.93	6.36
MAX	28	13	16	3.5	6.6	14	237	41	13	4.4	33	26
MIN	3.7	3.4	2.2	1.8	1.4	1.1	2.0	4.5	2.5	2.3	2.1	2.5
AC-FT	669	351	278	134	128	160	2,160	630	246	174	303	378
CFSM	0.77	0.42	0.32	0.15	0.16	0.18	2.56	0.72	0.29	0.20	0.35	0.45
IN.	0.88	0.46	0.37	0.18	0.17	0.21	2.86	0.83	0.32	0.23	0.40	0.50

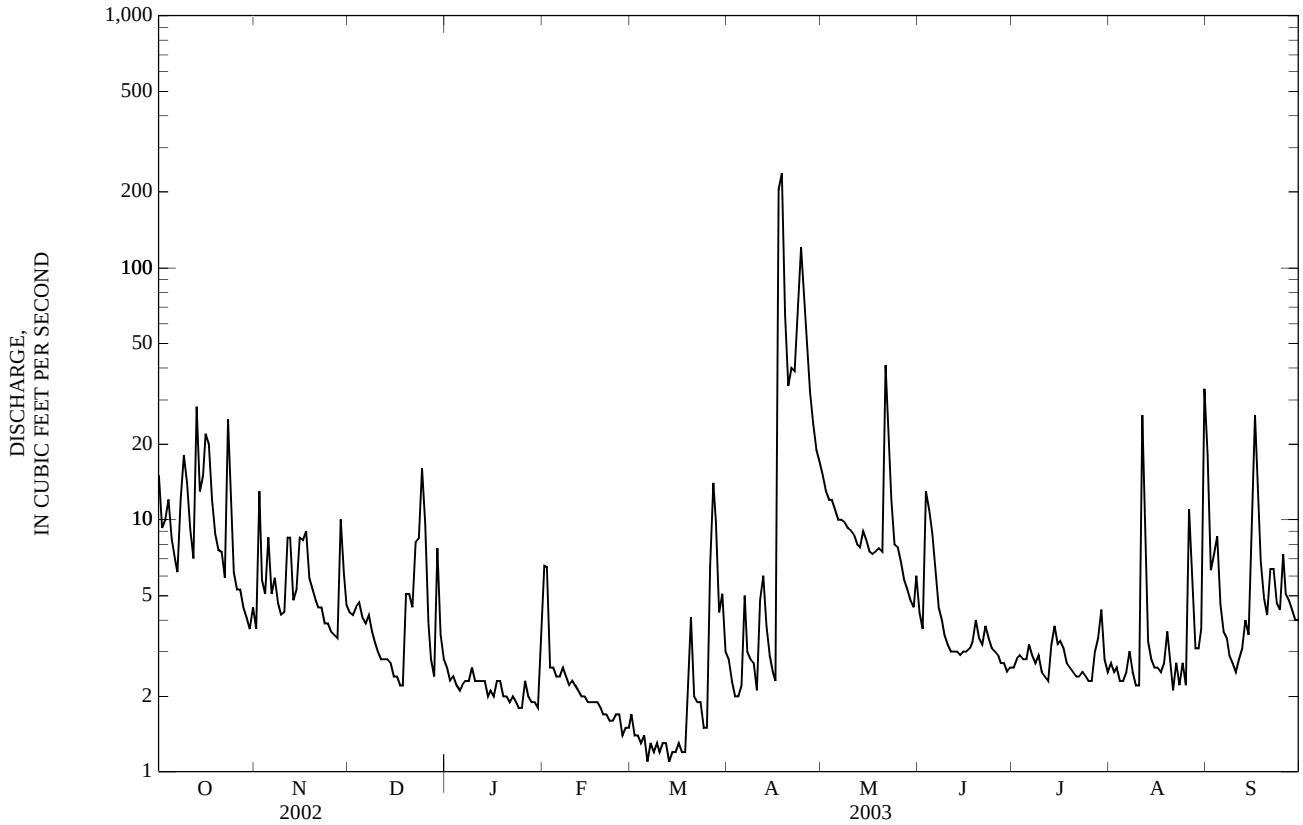
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	37.4	20.4	8.75	7.93	5.15	4.08	12.9	19.1	12.2	5.91	8.89	38.0
MAX	109	55.7	20.4	43.1	12.6	8.93	37.0	76.1	35.4	14.4	36.4	152
(WY)	(1991)	(2000)	(2002)	(1992)	(1996)	(2002)	(2002)	(1995)	(1992)	(1992)	(1998)	(1998)
MIN	4.61	2.19	1.42	1.79	2.31	1.67	1.46	1.42	1.23	0.71	2.74	3.21
(WY)	(1992)	(1992)	(1992)	(1995)	(2003)	(1990)	(1990)	(1997)	(1990)	(1990)	(1990)	(1994)

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	4,023.7		2,831.6			
ANNUAL MEAN	11.0		7.76		15.2	
HIGHEST ANNUAL MEAN					29.3	1998
LOWEST ANNUAL MEAN					4.02	1994
HIGHEST DAILY MEAN	319	Apr 26	237	Apr 18	2,050	Sep 10, 1996
LOWEST DAILY MEAN	2.2	Dec 17	1.1	Mar 6	0.45	Aug 7, 1990
ANNUAL SEVEN-DAY MINIMUM	2.5	Dec 12	1.2	Mar 12	0.61	Jul 9, 1990
MAXIMUM PEAK FLOW			1,680	Apr 17	3,000	Sep 21, 1998
MAXIMUM PEAK STAGE			7.51	Apr 17	20.60	Sep 21, 1998
INSTANTANEOUS LOW FLOW					0.42	Jul 14, 1997
ANNUAL RUNOFF (AC-FT)	7,980		5,620		10,990	
ANNUAL RUNOFF (CFSM)	0.776		0.546		1.07	
ANNUAL RUNOFF (INCHES)	10.54		7.42		14.51	
10 PERCENT EXCEEDS	20		12		32	
50 PERCENT EXCEEDS	5.8		3.4		5.1	
90 PERCENT EXCEEDS	3.6		1.9		1.7	

e Estimated



50111210 LAGO TOA VACA AT DAMSITE NEAR VILLALBA, PR

LOCATION.--Lat 18°06'07", long 66°29'23", Hydrologic Unit 21010004, in a concrete gate tower at Damsite on Río Toa Vaca, 0.45 mi (0.7 km) northwest from Escuela Higüero, 2.0 mi (3.2 km) south from Villalba Plaza.

DRAINAGE AREA.--22.0 mi^2 (57.9 km^2).

PERIOD OF RECORD.--August 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Toa Vaca was completed in 1972. The dam is located in the Toa Vaca river just upstream from Guayabal reservoir. The Toa Vaca dam is a zoned earth and rockfill embankment structure. At crest elevation 555.00 ft (169.2 m) (top of dam), the dam is approximately 1,740 ft (530.3 m) long, about 215 ft (65.53 m) height, and has a maximum storage capacity of about 67,759 acre-ft (83.55 hm^3) at top of dam elevation. The Toa Vaca dam is owned by the Puerto Rico Aqueduct and Sewer Authority and its primary purpose is to provide water for municipal and industrial use, and for irrigation of some of the lands served by the South Coast irrigation district through the Juana Díaz canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 535.24 ft (163.14 m) November 13, 1998; minimum elevation, 463.63 ft (141.31 m), August 19, 2001.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 488.63 ft (148.93 m), October 1; minimum elevation, 466.11 ft (142.07 m), March 26.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

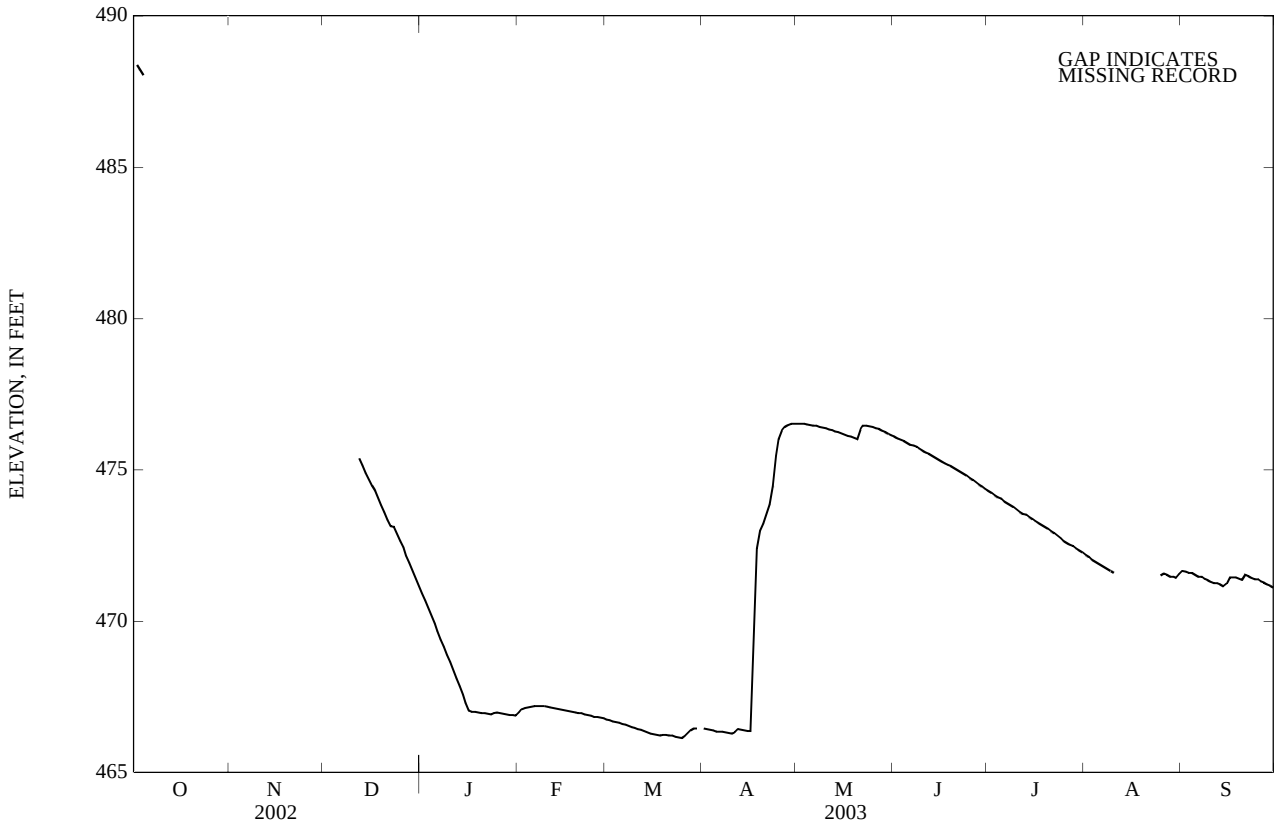
Elevation	Contents	Elevation	Contents
345.00	0	489.80	23,756
488.70	23,259	531.20	48,362
		570.00	81,991

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	A	A	A	470.93	466.98	466.76	466.45	476.54	476.10	474.31	472.19	471.67
2	488.37	A	A	470.69	467.10	466.73	466.43	476.53	476.05	474.24	472.13	471.65
3	488.20	A	A	470.43	467.13	466.70	466.41	476.52	476.00	474.17	472.05	471.61
4	488.03	A	A	470.18	467.16	466.67	466.39	476.51	475.95	474.10	471.98	471.59
5	A	A	A	469.92	467.18	466.64	466.36	476.49	475.89	474.05	471.91	471.54
6	A	A	A	469.67	467.20	466.61	466.36	476.47	475.83	473.98	471.86	471.48
7	A	A	A	469.41	467.21	466.58	466.35	476.46	475.81	473.91	471.80	471.47
8	A	A	A	469.16	467.20	466.54	466.33	476.43	475.76	473.84	471.73	471.41
9	A	A	A	468.90	467.19	466.50	466.32	476.41	475.70	473.77	471.66	471.36
10	A	A	A	468.65	467.17	466.48	466.30	476.38	475.64	473.70	471.59	471.30
11	A	A	A	468.38	467.15	466.44	466.34	476.34	475.58	473.62	A	471.27
12	A	A	475.39	468.12	467.13	466.41	466.43	476.31	475.53	473.54	A	471.26
13	A	A	475.16	467.85	467.11	466.37	466.42	476.27	475.47	473.52	A	471.22
14	A	A	474.91	467.58	467.09	466.33	466.40	476.25	475.40	473.45	A	471.16
15	A	A	474.68	467.31	467.07	466.30	466.37	476.21	475.35	473.38	A	471.24
16	A	A	474.48	467.05	467.06	466.27	466.37	476.17	475.28	473.32	A	471.45
17	A	A	474.30	467.01	467.03	466.24	469.62	476.13	475.22	473.25	A	471.46
18	A	A	474.09	467.00	467.01	466.23	472.40	476.10	475.18	473.19	A	471.46
19	A	A	473.84	466.98	466.99	466.24	472.99	476.06	475.13	473.13	A	471.42
20	A	A	473.60	466.97	466.96	466.25	473.22	476.03	475.07	473.05	A	471.37
21	A	A	473.35	466.96	466.96	466.23	473.55	476.33	475.00	472.98	A	471.53
22	A	A	473.14	466.94	466.93	466.22	473.87	476.46	474.94	472.91	A	471.50
23	A	A	473.13	466.92	466.90	466.19	474.47	476.47	474.88	472.82	A	471.44
24	A	A	472.89	466.97	466.88	466.17	475.47	476.45	474.82	472.74	A	471.39
25	A	A	472.66	466.98	466.85	466.14	476.03	476.42	474.74	472.66	471.51	471.38
26	A-	A	472.44	466.97	466.83	466.20	476.30	476.39	474.67	472.59	471.57	471.33
27	A	A	472.18	466.95	466.82	466.31	476.42	476.35	474.61	472.54	471.54	471.29
28	A	A	471.94	466.93	466.79	466.40	476.48	476.29	474.53	472.48	471.48	471.23
29	A	A	471.69	466.91	---	466.46	476.52	476.25	474.45	472.41	471.48	471.17
30	A	A	471.43	466.91	---	466.47	476.54	476.20	474.37	472.35	471.43	471.12
31	A	---	471.18	466.89	---	A	---	476.15	---	472.27	471.55	---
MAX	---	---	---	470.93	467.21	---	476.54	476.54	476.10	474.31	---	471.67
MIN	---	---	---	466.89	466.79	---	466.30	476.03	474.37	472.27	---	471.12

A No gage-height record

50111210 LAGO TOA VACA AT DAMSITE NEAR VILLALBA, PR—Continued



50111300 LAGO GUAYABAL AT DAMSITE NEAR JUANA DIAZ, PR

LOCATION.--Lat 18°05'17", long 66°30'09", Hydrologic Unit 21010004, at Damsite, 2.30 mi (3.70 km) northeast from Juana Díaz Plaza, 0.70 mi (1.13 km) northeast from Escuela Salvador Bousquets and 2.45 mi (3.94 km) southeast from Escuela Zoilo Gracia.

DRAINAGE AREA.--43.3 mi^2 (42.1 km^2).

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayabal was completed in 1913. The dam is a reinforced concrete, flatslab and buttress-type structure about 130 ft (40 m) height, a net crest length at the right side of the dam of 693 ft (211 m) and a crest elevation of 331 ft (101 m). It has a maximum storage capacity of 7,600 acre-feet (9.37 hm^3). The Guayabal dam is owned by the Puerto Rico Electric Power Authority (PREPA) and its primary purpose is for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 342.89 ft (104.51 m), April 26, 2002; minimum elevation, 325.99 ft (99.36 m), September 29, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 341.33 ft (104.04 m), April 24; minimum elevation, 335.55 ft (102.28 m), March 26.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

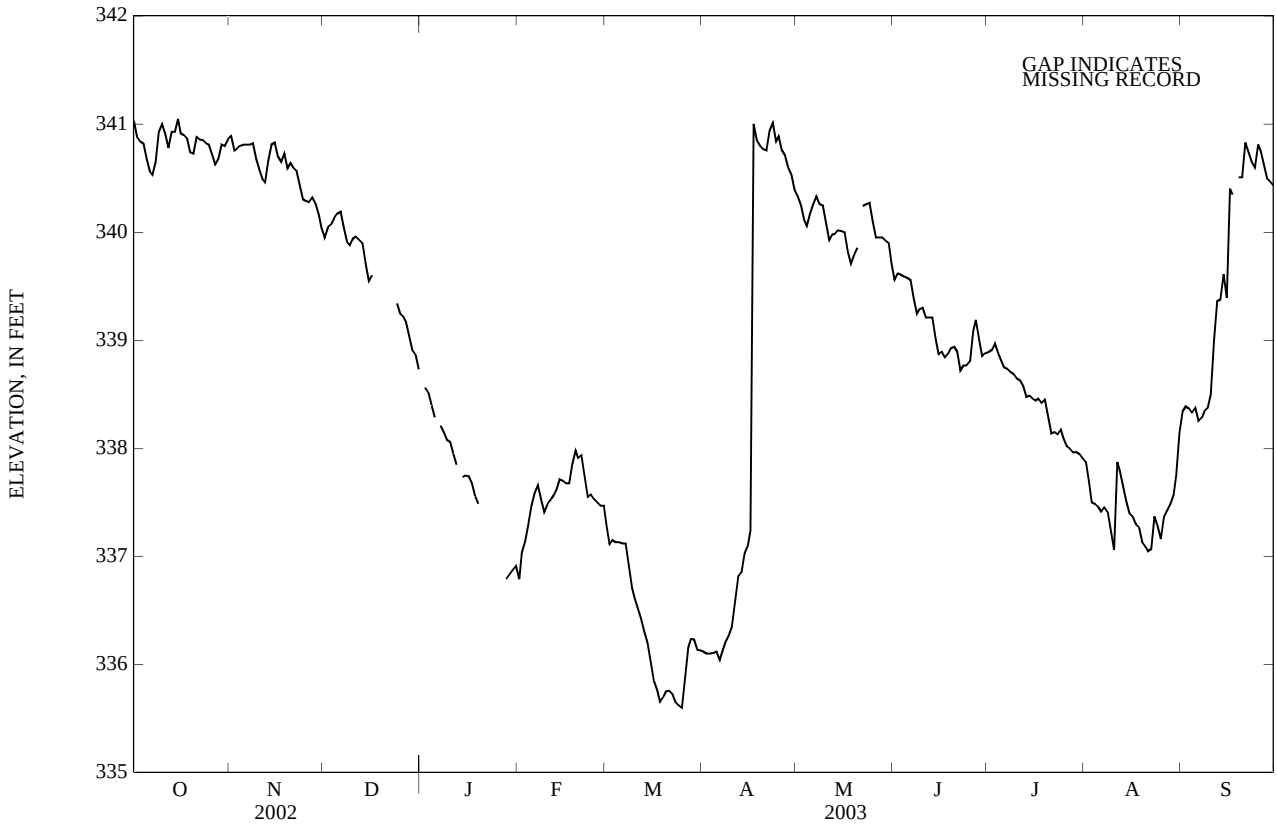
Elevation	Contents	Elevation	Contents
305	366	330	3,885
321	2,010	341	7,360

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	341.03	340.89	339.95	A	336.79	337.29	336.12	340.33	339.56	338.89	337.87	338.34
2	340.88	340.76	340.04	338.56	337.04	337.11	336.10	340.25	339.62	338.91	337.68	338.39
3	340.84	340.77	340.07	338.52	337.14	337.15	336.10	340.11	339.61	338.97	337.50	338.37
4	340.82	340.80	340.13	338.40	337.29	337.13	336.11	340.06	339.59	338.88	337.49	338.33
5	340.68	340.81	340.17	338.29	337.47	337.13	336.12	340.17	339.58	338.81	337.46	338.37
6	340.56	340.81	340.19	A	337.59	337.12	336.04	340.26	339.56	338.75	337.41	338.25
7	340.53	340.81	340.04	338.21	337.66	337.12	336.12	340.33	339.39	338.74	337.45	338.28
8	340.65	340.82	339.91	338.15	337.53	336.92	336.21	340.26	339.25	338.71	337.41	338.34
9	340.93	340.68	339.88	338.08	337.41	336.71	336.27	340.25	339.29	338.69	337.23	338.37
10	341.00	340.58	339.94	338.06	337.48	336.62	336.35	340.09	339.30	338.65	337.06	338.50
11	340.91	340.49	339.96	337.95	337.51	336.52	336.59	339.93	339.21	338.63	337.87	338.99
12	340.78	340.46	339.93	337.85	337.56	336.43	336.81	339.98	339.21	338.58	337.79	339.36
13	340.93	340.66	339.90	A	337.62	336.31	336.85	339.98	339.21	338.48	337.65	339.38
14	340.93	340.81	339.71	337.73	337.71	336.21	337.03	340.02	339.02	338.49	337.51	339.61
15	341.05	340.83	339.55	337.75	337.70	336.03	337.10	340.01	338.87	338.46	337.40	339.39
16	340.92	340.70	339.60	337.74	337.68	335.85	337.24	340.00	338.89	338.44	337.37	340.40
17	340.90	340.65	A	337.68	337.68	335.77	341.00	339.82	338.84	338.46	337.30	340.35
18	340.87	340.73	339.45	337.56	337.86	335.65	340.85	339.71	338.87	338.42	337.27	A
19	340.74	340.59	A	337.49	337.98	335.69	340.80	339.79	338.93	338.45	337.13	340.51
20	340.73	340.64	A	A	337.91	335.75	340.77	339.86	338.94	338.30	337.09	340.51
21	340.88	340.60	A	337.29	337.93	335.76	340.76	A	338.89	338.14	337.05	340.83
22	340.86	340.57	A	A	337.74	335.73	340.94	340.24	338.72	338.15	337.07	340.74
23	340.85	340.44	A	A	337.55	335.65	341.01	340.26	338.77	338.13	337.37	340.65
24	340.82	340.31	339.34	A	337.57	335.62	340.84	340.27	338.77	338.17	337.28	340.60
25	340.81	340.29	339.25	A	337.53	335.60	340.89	340.10	338.80	338.09	337.16	340.81
26	340.72	340.28	339.22	A	337.50	335.89	340.76	339.95	339.09	338.02	337.37	340.75
27	340.63	340.32	339.17	A	337.47	336.16	340.71	339.95	339.19	338.00	337.43	340.63
28	340.68	340.26	339.04	336.79	337.47	336.24	340.60	339.95	339.01	337.96	337.49	340.50
29	340.81	340.16	338.91	336.83	---	336.23	340.53	339.92	338.85	337.97	337.57	340.47
30	340.80	340.04	338.87	336.87	---	336.14	340.39	339.90	338.88	337.95	337.75	340.43
31	340.86	---	338.73	336.91	---	336.13	---	339.72	---	337.91	338.14	---
MAX	341.05	340.89	---	---	337.98	337.29	341.01	---	339.62	338.97	338.14	---
MIN	340.53	340.04	---	---	336.79	335.60	336.04	---	338.72	337.91	337.05	---

A No gage-height record

50111300 LAGO GUAYABAL AT DAMSITE NEAR JUANA DIAZ, PR—Continued



50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Díaz Plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi^2 (129 km^2).

PERIOD OF RECORD.--March 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

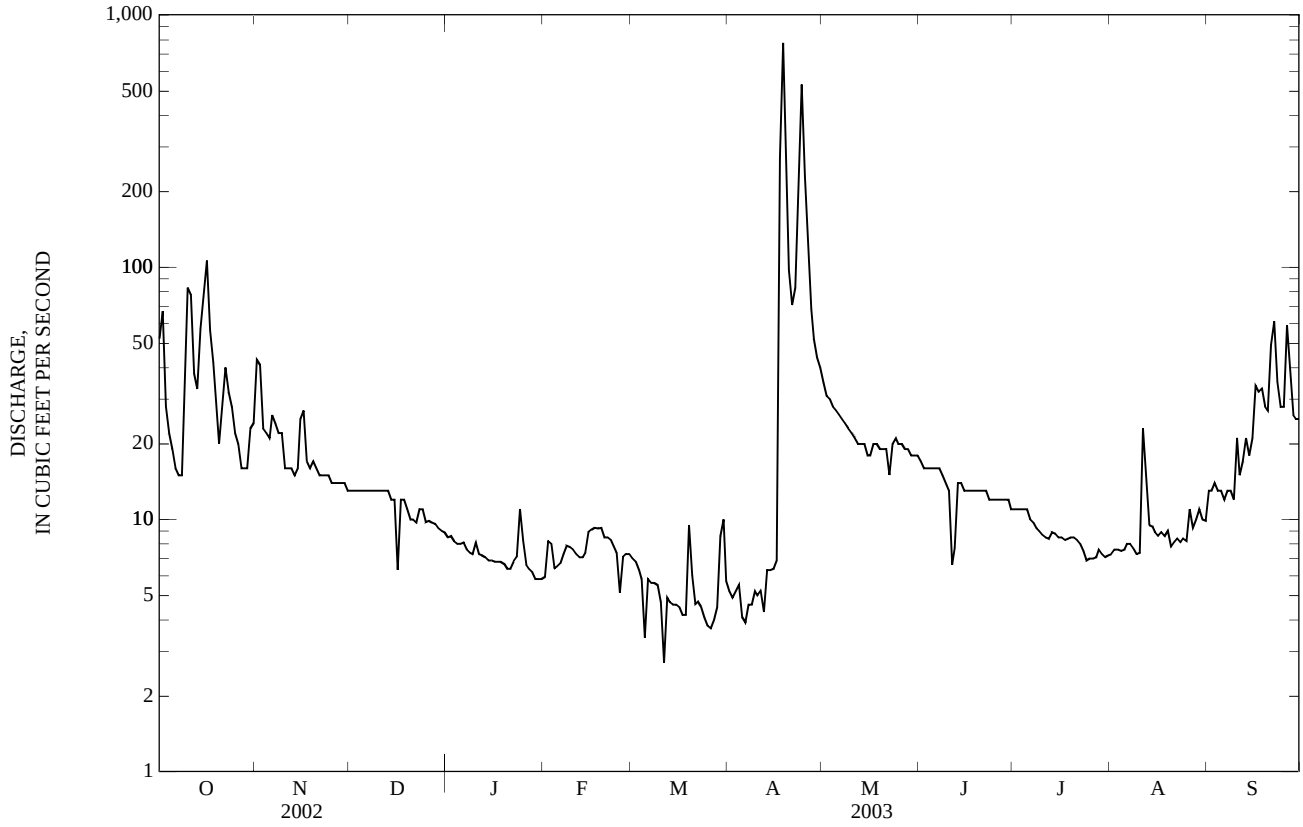
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	43	13	8.5	5.9	7.0	5.2	35	17	11	7.3	13
2	67	41	13	8.6	8.2	6.8	4.9	31	16	11	7.6	13
3	28	23	13	8.2	8.0	6.3	5.2	30	16	11	7.6	14
4	22	22	13	8.0	6.4	5.8	5.5	28	16	11	7.5	13
5	19	21	13	8.0	6.5	3.4	4.1	27	16	11	7.6	13
6	16	26	13	8.1	6.7	5.8	3.9	26	16	10	8.0	12
7	15	24	13	7.6	7.3	5.6	4.6	25	16	9.7	8.0	13
8	15	22	13	7.4	7.9	5.6	4.6	24	15	9.2	7.7	13
9	33	22	13	7.3	7.8	5.5	5.2	23	14	9.0	7.3	12
10	83	16	13	8.1	7.6	4.7	5.0	22	13	8.7	7.4	21
11	78	16	13	7.3	7.3	2.7	5.2	21	6.6	8.5	23	15
12	38	16	13	7.2	7.1	4.9	4.3	20	7.7	8.4	14	17
13	33	15	13	7.1	7.1	4.7	6.3	20	14	8.9	9.5	21
14	57	16	12	6.9	7.4	4.6	6.3	20	14	8.8	9.4	18
15	78	25	12	6.9	8.9	4.6	6.4	18	13	8.5	8.9	21
16	106	27	6.3	6.8	9.1	4.5	6.9	18	13	8.5	8.6	34
17	56	17	12	6.8	9.3	4.2	272	20	13	8.3	8.9	32
18	42	16	12	6.8	9.2	4.2	774	20	13	8.4	8.6	33
19	31	17	11	6.7	9.3	9.5	239	19	13	8.5	9.0	28
20	20	16	10	6.4	8.5	6.0	97	19	13	8.5	7.8	27
21	28	15	10	6.4	8.5	4.6	71	19	13	8.3	8.1	49
22	40	15	9.7	6.8	8.3	4.7	83	15	13	8.0	8.4	61
23	32	15	11	7.1	7.9	4.5	172	20	12	7.5	8.1	35
24	28	15	11	11	7.4	4.1	530	21	12	6.9	8.4	28
25	22	14	9.8	8.2	5.1	3.8	230	20	12	7.0	8.2	28
26	20	14	9.9	6.6	7.1	3.7	135	20	12	7.0	11	59
27	16	14	9.7	6.4	7.3	4.0	68	19	12	7.1	9.3	38
28	16	14	9.6	6.2	7.3	4.5	52	19	12	7.6	10	26
29	16	14	9.2	5.8	---	8.6	44	18	12	7.3	11	25
30	23	13	9.0	5.8	---	10	40	18	11	7.1	10	25
31	24	---	8.9	5.8	---	5.7	---	18	---	7.2	9.9	---
TOTAL	1,154	584	352.1	224.8	214.4	164.6	2,890.6	673	396.3	267.9	286.1	757
MEAN	37.2	19.5	11.4	7.25	7.66	5.31	96.4	21.7	13.2	8.64	9.23	25.2
MAX	106	43	13	11	9.3	10	774	35	17	11	23	61
MIN	15	13	6.3	5.8	5.1	2.7	3.9	15	6.6	6.9	7.3	12
AC-FT	2,290	1,160	698	446	425	326	5,730	1,330	786	531	567	1,500
CFSM	0.75	0.39	0.23	0.15	0.15	0.11	1.93	0.44	0.27	0.17	0.19	0.51
IN.	0.86	0.44	0.26	0.17	0.16	0.12	2.16	0.50	0.30	0.20	0.21	0.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2003, BY WATER YEAR (WY)

MEAN	119	93.1	34.3	21.8	9.19	5.64	21.0	62.2	41.3	20.3	26.9	82.3
MAX	445	287	151	144	21.2	12.0	96.4	215	198	82.4	136	667
(WY)	(1986)	(1988)	(1988)	(1992)	(2000)	(2000)	(2003)	(1985)	(1987)	(1987)	(1998)	(1998)
MIN	4.31	7.57	6.20	1.71	1.97	1.95	1.84	1.46	0.93	1.04	1.59	0.76
(WY)	(1995)	(1995)	(1998)	(1998)	(1994)	(1994)	(1994)	(1994)	(1994)	(1994)	(1994)	(1997)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1984 - 2003	
ANNUAL TOTAL	12,435.2		7,964.8			
ANNUAL MEAN	34.1		21.8		45.7	
HIGHEST ANNUAL MEAN					93.1	1998
LOWEST ANNUAL MEAN					6.23	1994
HIGHEST DAILY MEAN	1,140	Jun 5	774	Apr 18	8,530	Sep 22, 1998
LOWEST DAILY MEAN	2.3	Mar 10	2.7	Mar 11	0.24	Jan 3, 1992
ANNUAL SEVEN-DAY MINIMUM	2.5	Mar 4	4.2	Mar 22	0.51	Aug 31, 1997
MAXIMUM PEAK FLOW			4,360	Apr 24	40,000	Oct 7, 1985
MAXIMUM PEAK STAGE			13.03	Apr 24	29.42	Oct 7, 1985
ANNUAL RUNOFF (AC-FT)	24,670		15,800		33,140	
ANNUAL RUNOFF (CFSM)	0.684		0.438		0.918	
ANNUAL RUNOFF (INCHES)	9.29		5.95		12.48	
10 PERCENT EXCEEDS	70		33		102	
50 PERCENT EXCEEDS	14		11		11	
90 PERCENT EXCEEDS	6.0		5.8		2.9	

50111500 RIO JACAGUAS AT JUANA DIAZ, PR—Continued



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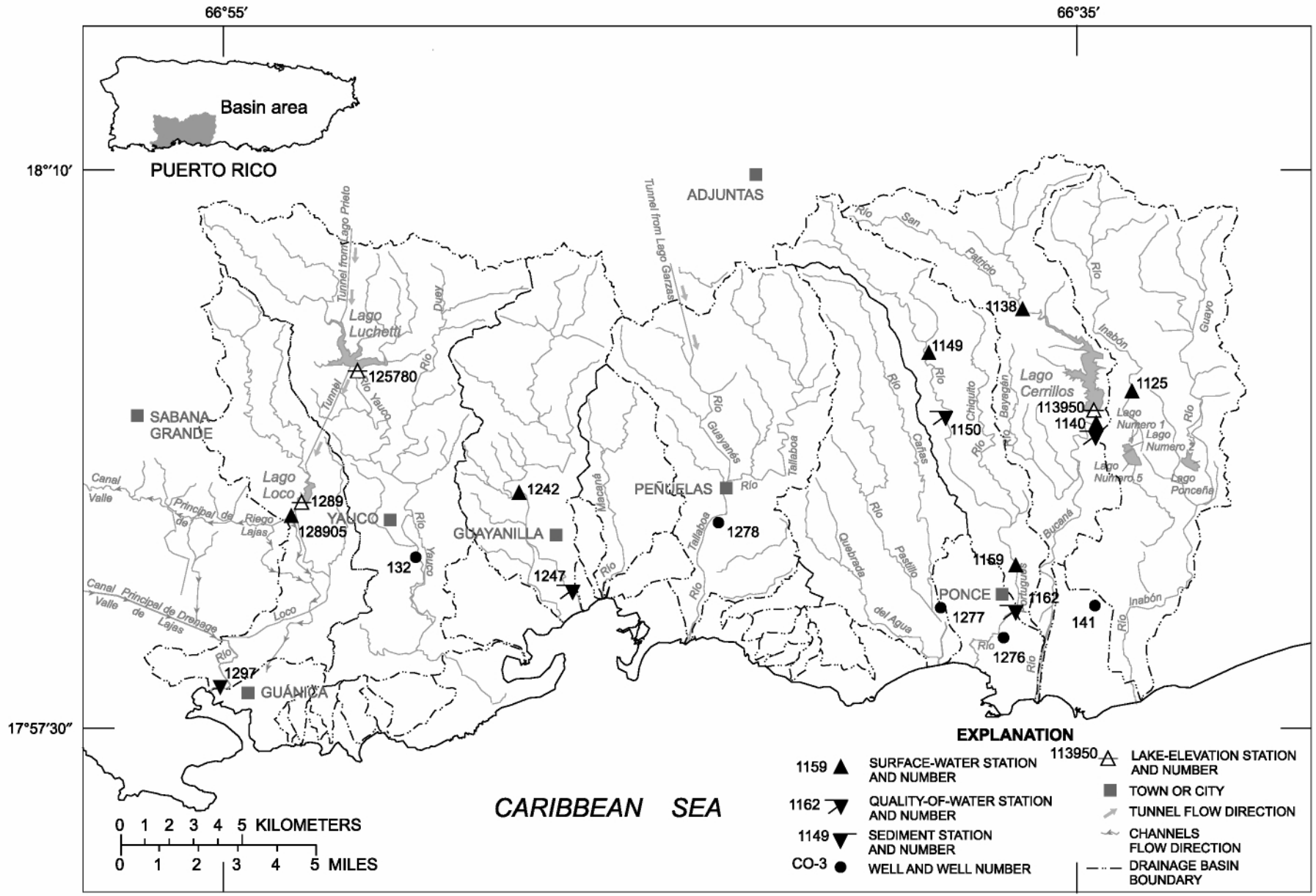


Figure 21. South coast river basins -- Río Inabón to Río Loco basins.

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 mi^2 (25.1 km^2).

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 non-recording gage and crest-stage gage at different datum.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

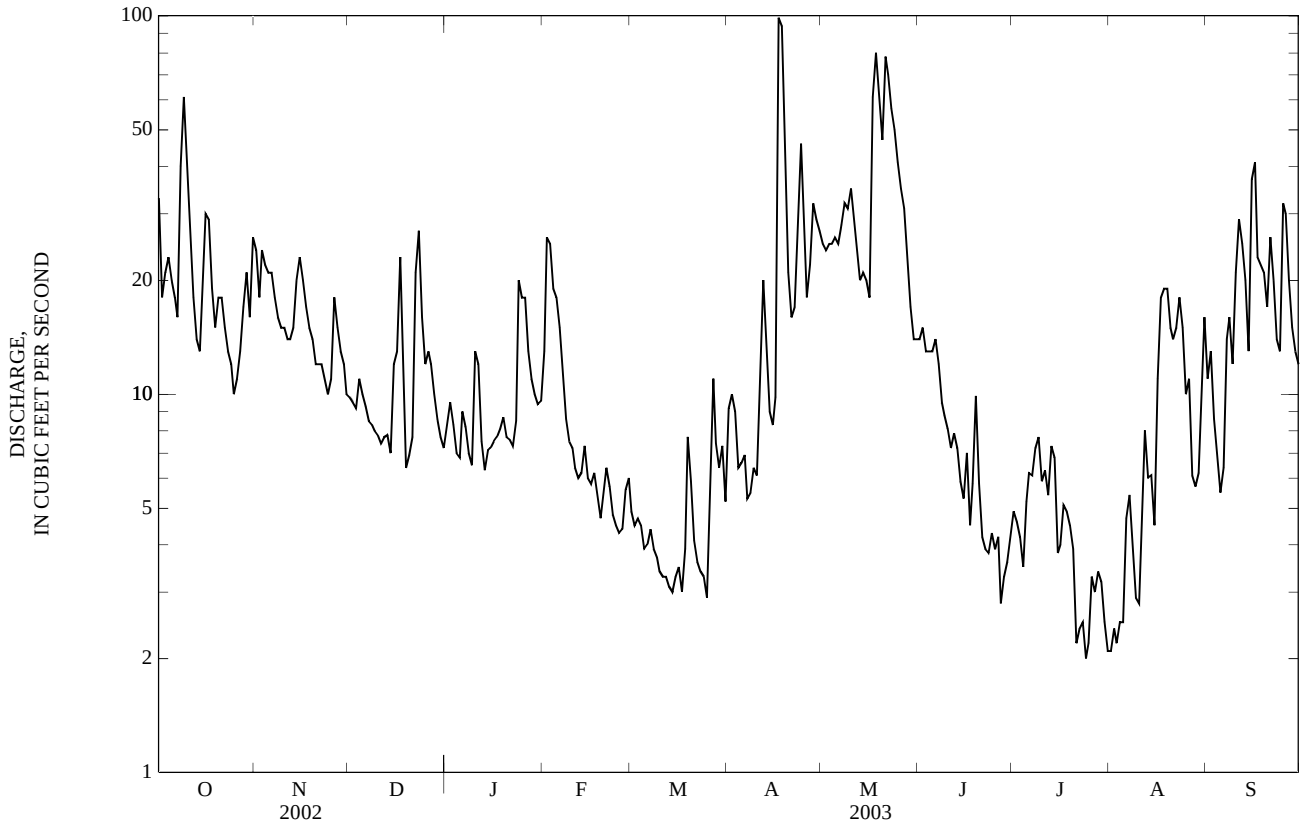
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	24	9.8	8.3	13	4.9	9.2	25	14	4.9	2.1	11
2	18	18	9.5	9.5	26	4.5	10	24	15	4.6	2.4	13
3	21	24	9.2	8.3	25	4.7	9.0	25	13	4.2	2.2	8.6
4	23	22	11	7.0	19	4.5	6.4	25	13	3.5	2.5	6.9
5	20	21	10	6.8	18	3.9	6.6	26	13	5.2	2.5	5.5
6	18	21	9.3	9.0	15	4.0	6.9	25	14	6.2	4.7	6.4
7	16	18	8.5	8.2	11	4.4	5.3	28	12	6.1	5.4	14
8	40	16	8.3	7.0	8.6	3.9	5.5	32	9.5	7.2	4.0	16
9	61	15	8.0	6.5	7.5	3.7	6.4	31	8.8	7.7	2.9	12
10	41	15	7.8	13	7.2	3.4	6.1	35	8.1	5.9	2.8	21
11	28	14	7.4	12	6.4	3.3	10	28	7.2	6.3	5.0	29
12	18	14	7.7	7.5	6.0	3.3	20	23	7.9	5.4	8.0	25
13	14	15	7.8	6.3	6.2	3.1	13	20	7.2	7.3	6.0	20
14	13	20	7.0	7.1	7.3	3.0	9.0	21	5.9	6.8	6.1	13
15	22	23	12	7.2	6.0	3.3	8.3	20	5.3	3.8	4.5	37
16	30	20	13	7.5	5.8	3.5	9.8	18	7.0	4.0	11	41
17	29	17	23	7.7	6.2	3.0	99	61	4.5	5.1	18	23
18	19	15	14	8.1	5.4	3.9	94	80	5.8	4.9	19	22
19	15	14	6.4	8.7	4.7	7.7	41	62	9.9	4.5	19	21
20	18	12	6.9	7.7	5.4	5.9	21	47	5.8	3.9	15	17
21	18	12	7.7	7.6	6.4	4.1	16	78	4.2	2.2	14	26
22	15	12	21	7.3	5.7	3.6	17	70	3.9	2.4	15	20
23	13	11	27	8.5	4.8	3.4	31	57	3.8	2.5	18	14
24	12	10	16	20	4.5	3.3	46	50	4.3	2.0	15	13
25	10	11	12	18	4.3	2.9	32	41	3.9	2.2	10	32
26	11	18	13	18	4.4	5.6	18	35	4.2	3.3	11	30
27	13	15	12	13	5.6	11	22	31	2.8	3.0	6.1	20
28	17	13	10	11	6.0	7.4	32	23	3.3	3.4	5.7	15
29	21	12	8.6	10	---	6.4	29	17	3.6	3.2	6.2	13
30	16	10	7.7	9.4	---	7.3	27	14	4.2	2.5	10	12
31	26	---	7.2	9.6	---	5.2	---	14	---	2.1	16	---
TOTAL	669	482	338.8	295.8	251.4	142.1	666.5	1,086	225.1	136.3	270.1	557.4
MEAN	21.6	16.1	10.9	9.54	8.98	4.58	22.2	35.0	7.50	4.40	8.71	18.6
MAX	61	24	27	20	26	11	99	80	15	7.7	19	41
MIN	10	10	6.4	6.3	4.3	2.9	5.3	14	2.8	2.0	2.1	5.5
AC-FT	1,330	956	672	587	499	282	1,320	2,150	446	270	536	1,110
CFSM	2.22	1.66	1.13	0.98	0.93	0.47	2.29	3.61	0.77	0.45	0.90	1.92
IN.	2.57	1.85	1.30	1.13	0.96	0.54	2.56	4.16	0.86	0.52	1.04	2.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	44.7	32.3	12.4	8.47	5.90	5.98	9.82	19.5	16.0	11.7	17.7	35.2
MAX	148	77.9	26.5	45.5	13.1	16.4	35.9	76.7	49.8	32.7	46.1	119
(WY)	(1986)	(1978)	(1966)	(1992)	(1996)	(1972)	(1998)	(1969)	(1969)	(1979)	(1979)	(1975)
MIN	14.5	8.32	4.43	4.11	3.05	1.85	2.76	1.94	2.75	1.77	4.47	6.16
(WY)	(1994)	(1977)	(1977)	(1989)	(1977)	(1977)	(1975)	(1967)	(1967)	(1990)	(1974)	(1997)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	4,540.8		5,120.5			
ANNUAL MEAN	12.4		14.0		18.2	
HIGHEST ANNUAL MEAN					30.9	1969
LOWEST ANNUAL MEAN					7.44	1994
HIGHEST DAILY MEAN	143	Jun 5	99	Apr 17	2,500	Sep 16, 1975
LOWEST DAILY MEAN	2.1	Mar 6	2.0	Jul 24	0.80	Jul 23, 1977
ANNUAL SEVEN-DAY MINIMUM	2.3	Mar 4	2.3	Jul 30	1.1	Mar 31, 1977
MAXIMUM PEAK FLOW			647	Oct 9	19,000	Oct 7, 1985
MAXIMUM PEAK STAGE			7.87	Oct 9	25.30	Oct 7, 1985
ANNUAL RUNOFF (AC-FT)	9,010		10,160		13,190	
ANNUAL RUNOFF (CFSM)	1.28		1.45		1.88	
ANNUAL RUNOFF (INCHES)	17.41		19.64		25.51	
10 PERCENT EXCEEDS	24		27		40	
50 PERCENT EXCEEDS	8.3		10		9.2	
90 PERCENT EXCEEDS	3.8		3.8		3.3	

50112500 RIO INABON AT REAL ABAJO, PR—Continued



50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Río San Patricio, 0.1 mi (0.2 km) southwest of Highway 139 and 2.4 mi (3.7 km) northwest of Maragüez.

DRAINAGE AREA.-- 11.9 mi^2 (30.8 km^2).

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e19	e30	e20	e11	12	9.2	e9.9	19	18	e11	9.0	15
2	e28	e27	e21	e12	68	9.1	11	19	20	e10	9.1	16
3	48	39	e19	e11	30	9.1	50	18	18	e10	8.9	12
4	57	e27	e18	e11	18	8.9	18	18	17	e10	8.8	9.3
5	34	e30	e19	e11	51	8.7	33	18	28	e11	8.9	8.2
6	22	e26	e17	e11	30	8.6	21	19	25	e11	9.9	9.0
7	20	e24	e16	e10	18	8.5	14	22	19	e10	9.9	26
8	77	e24	e15	e10	14	8.4	12	26	17	e10	9.2	16
9	73	39	e14	e10	13	8.3	13	21	16	e11	8.8	11
10	105	39	e14	e11	12	8.3	13	22	16	e10	8.8	13
11	55	e26	e14	e11	11	8.3	17	19	15	e10	10	64
12	33	e28	e14	e10	11	8.5	34	17	15	e9.8	11	45
13	27	39	e13	e9.9	11	8.5	25	17	14	e9.6	15	32
14	26	39	e13	e9.8	11	8.6	16	18	14	e9.5	12	16
15	56	41	e12	e9.8	9.9	8.5	14	17	14	9.4	11	94
16	43	e30	e12	e9.6	9.7	8.7	15	18	14	10	20	50
17	e35	e28	e58	e9.4	10	8.7	175	54	14	9.8	13	22
18	48	e26	25	e9.4	9.9	9.2	252	53	e16	9.1	11	20
19	e34	e25	14	e11	9.7	9.7	75	32	e16	9.0	9.9	52
20	e38	e25	12	e10	9.6	9.2	38	25	e15	9.1	9.0	30
21	60	e23	11	e9.8	9.9	8.2	32	144	e14	9.0	8.3	18
22	e45	e23	29	e9.6	9.3	7.7	27	64	e14	8.9	9.0	15
23	e30	e22	14	e9.4	9.2	7.5	31	36	e13	8.9	8.5	13
24	e28	22	12	e15	9.4	7.2	107	29	e13	8.6	8.1	12
25	e28	21	11	e26	9.4	6.9	56	25	e12	11	7.8	58
26	e25	41	12	e26	9.2	16	32	23	e12	11	e8.5	25
27	e24	26	12	e12	9.6	18	26	22	e12	9.6	e9.7	17
28	e22	21	11	e12	9.5	11	23	21	e11	10	9.0	14
29	e25	19	11	e11	---	11	21	20	e11	9.7	8.8	12
30	e22	e19	11	e11	---	9.5	20	19	e11	9.0	9.5	12
31	54	---	11	e12	---	e8.2	---	19	---	9.1	12	---
TOTAL	1,241	849	505	361.7	444.3	286.2	1,230.9	894	464	304.1	312.4	756.5
MEAN	40.0	28.3	16.3	11.7	15.9	9.23	41.0	28.8	15.5	9.81	10.1	25.2
MAX	105	41	58	26	68	18	252	144	28	11	20	94
MIN	19	19	11	9.4	9.2	6.9	9.9	17	11	8.6	7.8	8.2
AC-FT	2,460	1,680	1,000	717	881	568	2,440	1,770	920	603	620	1,500
CFSM	3.36	2.38	1.37	0.98	1.33	0.78	3.45	2.42	1.30	0.82	0.85	2.12
IN.	3.88	2.65	1.58	1.13	1.39	0.89	3.85	2.79	1.45	0.95	0.98	2.36

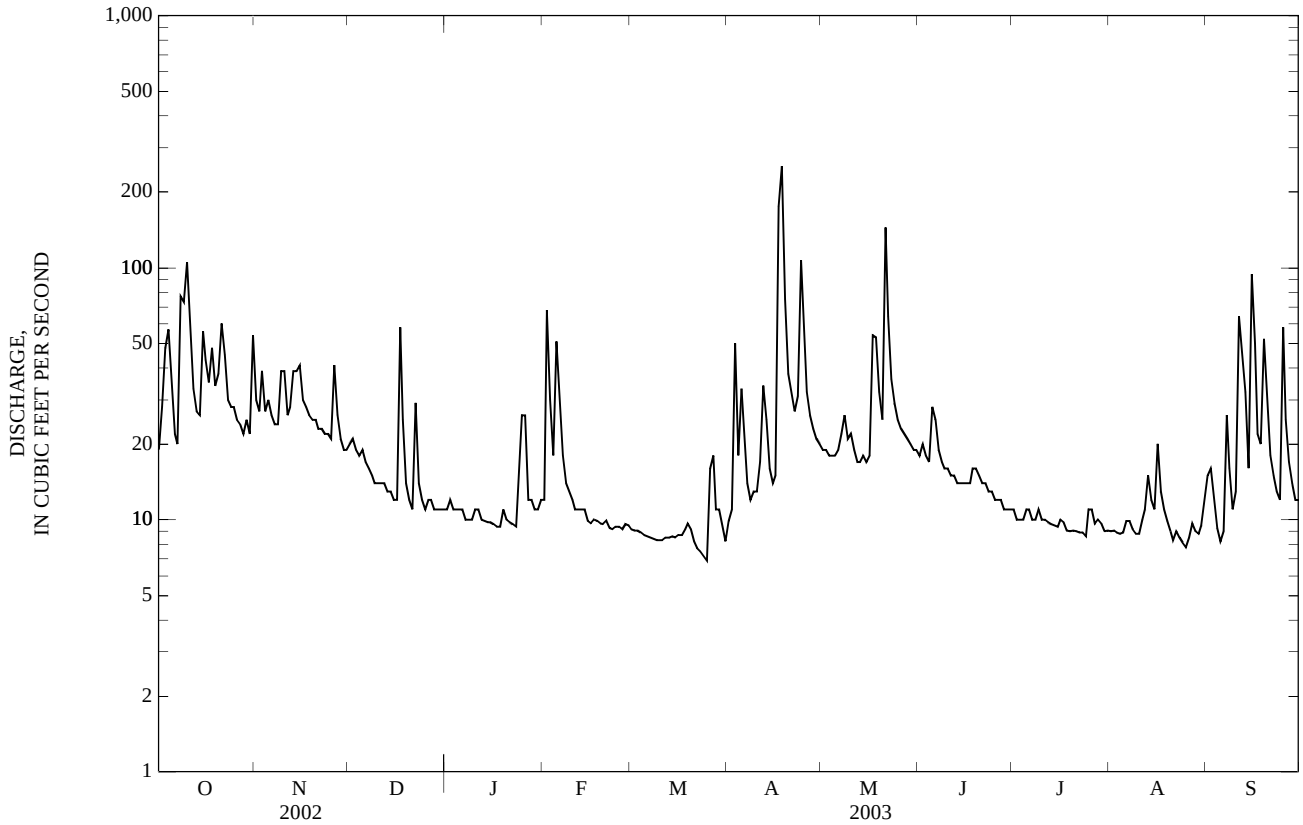
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	65.0	36.9	17.6	14.8	11.9	10.4	18.4	25.0	22.6	15.9	33.1	68.6
MAX	154	75.0	29.6	59.0	26.1	27.5	41.0	68.2	46.4	26.7	83.3	196
(WY)	(1991)	(2000)	(2002)	(1992)	(1996)	(1989)	(2003)	(1993)	(1996)	(1991)	(1998)	(1998)
MIN	24.6	9.77	8.10	6.59	6.34	4.77	5.01	4.58	4.14	3.37	10.1	13.1
(WY)	(1992)	(1994)	(1995)	(1995)	(1990)	(1990)	(1997)	(1990)	(1997)	(1994)	(2003)	(1997)

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	6,956.1		7,649.1			
ANNUAL MEAN	19.1		21.0		28.3	
HIGHEST ANNUAL MEAN					43.9	1998
LOWEST ANNUAL MEAN					9.94	1994
HIGHEST DAILY MEAN	105	Oct 10	252	Apr 18	2,510	Sep 22, 1998
LOWEST DAILY MEAN	6.0	Mar 25	6.9	Mar 25	3.0	Jul 6, 1994
ANNUAL SEVEN-DAY MINIMUM	6.5	Mar 21	8.1	Mar 19	3.2	Jul 27, 1994
MAXIMUM PEAK FLOW			1,460	Apr 18	16,200	Sep 21, 1998
MAXIMUM PEAK STAGE			6.00	Apr 18	12.42	Sep 21, 1998
INSTANTANEOUS LOW FLOW			6.8	Mar 24	3.0	Jul 6, 1997
ANNUAL RUNOFF (AC-FT)	13,800		15,170		20,470	
ANNUAL RUNOFF (CFSM)	1.60		1.76		2.37	
ANNUAL RUNOFF (INCHES)	21.75		23.91		32.26	
10 PERCENT EXCEEDS	39		39		64	
50 PERCENT EXCEEDS	13		14		14	
90 PERCENT EXCEEDS	8.7		9.0		5.5	

e Estimated



50113950 LAGO CERRILLOS AT DAMSITE NEAR PONCE, PR

LOCATION.--Lat 18°04'41", long 66°34'38", Hydrologic Unit 21010004, on left bank west from intake house of dam, 0.7 mi (1.1 km) southwest from Iglesia San Mateo at Real Abajo, 3.2 mi (5.1 km) northeast from Hospital de Distrito de Ponce, and 2.2 mi (3.5 km) northwest from Escuela Yuca.

DRAINAGE AREA.--17.4 mi^2 (45.1 km^2).

PERIOD OF RECORD.--October 1992 to current year.

REVISED RECORDS.--WDR PR-94-1, 1993, 1994.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Cerrillos Dam, a rockfilled ungated structure completed in 1992. Elevation of crest is 611 ft (186 m) above mean sea level, with a structural height of 323 ft (98 m) and a length of 1,555 ft (474 m). The dam has a capacity of approximately 47,900 acre-ft (59.1 hm^3). The dam is operated by the U.S. Army Corps of Engineers and its purpose is for flood control, water supply, power generation, and recreation. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 602.84 ft (183.74 m), September 22, 1998; minimum elevation, 416.63 ft (126.99 m), October 1, 1992 (Revised).

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 532.74 ft (162.38 m), January 16; minimum elevation, 503.42 ft (153.44 m), September 10.

Capacity Table
(based on data from U.S. Army Corps of Engineers)
(Elevation in ft, capacity in acre-ft)

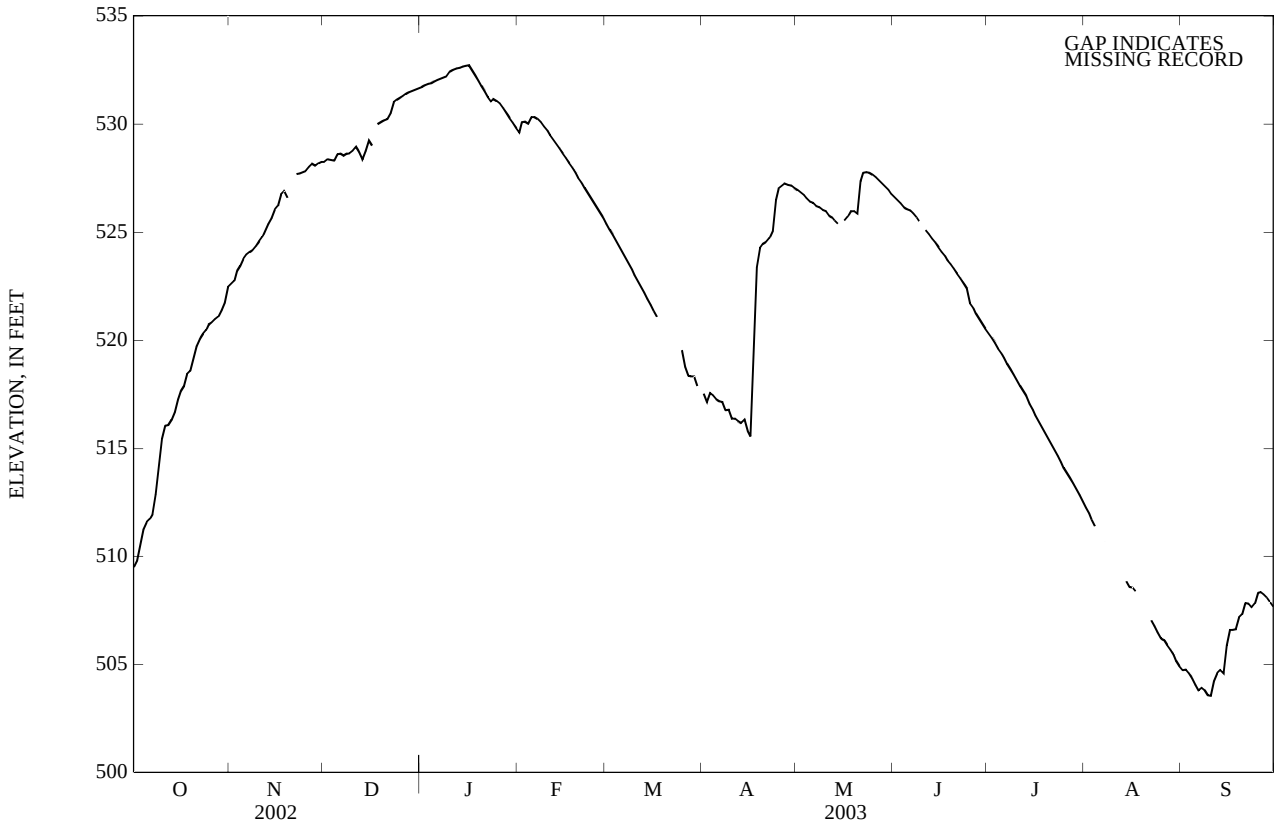
Elevation	Contents	Elevation	Contents
328	0	525	16,990
426	3,206	558	25,786
492	10,621	590	37,509

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	509.51	522.61	528.26	531.71	529.62	525.37	517.53	526.95	526.62	520.33	512.27	504.74
2	509.80	522.74	528.36	531.80	530.09	525.12	517.15	526.82	526.47	520.10	511.99	504.78
3	510.55	523.19	528.34	531.86	530.12	524.87	517.57	526.72	526.32	519.86	511.70	504.60
4	511.26	523.44	528.32	531.91	530.02	524.60	517.45	526.57	526.14	519.62	511.41	504.34
5	511.58	523.76	528.62	531.98	530.32	524.35	517.28	526.42	526.07	519.41	A	504.05
6	511.73	523.97	528.63	532.06	530.34	524.09	517.17	526.35	525.99	519.18	A	503.80
7	511.95	524.09	528.54	532.12	530.25	523.82	517.14	526.20	525.85	518.90	510.65	503.92
8	512.86	524.16	528.64	532.17	530.08	523.55	516.75	526.14	525.67	518.67	A	503.82
9	514.19	524.36	528.64	532.22	529.89	523.29	516.79	526.04	525.49	518.42	A	503.59
10	515.47	524.58	528.77	532.42	529.70	523.02	516.39	525.96	A	518.16	A	503.55
11	516.04	524.78	528.94	532.52	529.50	522.75	516.39	525.78	525.10	517.90	A	504.24
12	516.09	525.05	528.71	532.57	529.28	522.48	516.27	525.67	524.91	517.64	A	504.58
13	516.32	525.39	528.37	532.62	529.08	522.20	516.17	525.53	524.71	517.42	A	504.74
14	516.68	525.64	528.77	532.66	528.87	521.92	516.32	525.37	524.51	517.07	508.86	504.59
15	517.28	526.02	529.24	532.70	528.65	521.64	515.78	A	524.30	516.80	508.59	505.89
16	517.62	526.22	529.01	532.73	528.42	521.36	515.56	525.52	524.09	516.53	508.57	506.59
17	517.86	526.75	---	532.50	528.21	521.08	519.08	525.72	523.90	516.26	508.37	506.60
18	518.41	526.90	529.99	532.25	527.99	A	523.37	525.97	523.69	516.00	A	506.62
19	518.58	526.61	530.09	532.01	527.75	A	524.26	525.96	523.53	515.73	A	507.17
20	519.17	A	530.17	531.76	527.52	A	524.45	525.87	523.30	515.47	A	507.32
21	519.73	A	530.23	531.51	527.30	A	524.54	527.37	523.08	515.20	A	507.86
22	520.05	527.68	530.52	531.25	527.05	A	524.72	527.76	522.86	514.93	507.04	507.81
23	520.30	527.71	531.02	531.04	526.81	A	525.06	527.79	522.63	514.65	506.78	507.65
24	520.48	527.77	531.13	531.17	526.58	A	526.51	527.74	522.40	514.37	506.50	507.82
25	520.73	527.85	531.21	531.08	526.33	519.55	527.01	527.65	521.72	514.11	506.21	508.32
26	520.81	528.02	531.32	530.94	526.09	518.77	527.14	527.53	521.49	513.87	506.13	508.34
27	520.97	528.16	531.40	530.73	525.86	518.35	527.24	527.41	521.24	513.62	505.89	508.22
28	521.09	528.08	531.47	530.51	525.61	518.33	527.20	527.25	521.01	513.38	505.68	508.08
29	521.38	528.19	531.53	530.28	---	518.32	527.16	527.10	520.76	513.11	505.44	507.87
30	521.75	528.26	531.59	530.06	---	517.89	527.04	526.95	520.52	512.84	505.16	507.66
31	522.45	---	531.65	529.83	---	---	---	526.78	---	512.57	504.92	---
MAX	522.45	---	---	532.73	530.34	---	527.24	---	---	520.33	---	508.34
MIN	509.51	---	---	529.83	525.61	---	515.56	---	---	512.57	---	503.55

A No gage-height record

50113950 LAGO CERRILLOS AT DAMSITE NEAR PONCE, PR—Continued



50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'24", long 66°34'53", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo, and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi^2 (46.1 km^2), excludes 17.4 mi^2 (45.1 km^2) upstream from Lago Cerrillos Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977, at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985, some low-flow regulation by construction upstream. Maximum discharge prior to regulation, 22,400 ft^3/s (634 m^3/s), September 16, 1975, gage height, 11.2 ft (3.41 m), site and datum then in use from floodmarks, from rating curve extended above 150 ft^3/s (4.25 m^3/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft^3/s (0.062 m^3/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.2	3.1	2.6	1.9	1.1	e1.5	2.4	5.1	2.8	2.5	3.0
2	2.2	2.2	3.2	2.6	2.0	1.1	1.6	2.2	5.2	2.7	2.5	3.7
3	2.2	4.0	3.8	2.3	1.8	1.1	e2.3	2.5	6.6	2.6	2.5	2.6
4	2.2	2.4	3.9	2.4	2.0	1.0	1.7	2.6	5.1	2.7	2.5	2.6
5	2.4	2.4	3.4	2.3	2.0	1.0	1.7	2.9	4.9	2.9	2.5	2.6
6	2.4	2.4	2.9	2.5	1.9	1.0	1.9	3.3	5.1	2.7	2.7	2.6
7	2.4	2.4	3.0	2.4	1.9	0.94	2.4	3.8	5.5	2.7	2.6	3.0
8	2.3	2.4	3.2	2.5	1.8	0.87	2.8	3.8	5.4	2.7	2.6	2.6
9	2.4	2.5	2.9	2.6	1.8	0.85	2.5	3.8	5.5	2.7	2.7	3.1
10	2.4	2.5	2.9	2.7	1.7	0.84	2.4	3.8	4.7	2.7	2.8	4.3
11	2.4	2.6	3.0	2.7	1.7	0.78	2.7	3.8	4.7	2.7	2.6	3.2
12	2.6	2.7	3.0	2.7	1.6	0.77	2.6	3.8	4.8	2.6	2.6	4.9
13	3.2	3.0	3.1	2.5	1.6	0.77	2.5	3.8	4.8	2.7	2.7	5.0
14	5.0	2.8	3.1	2.4	1.5	0.95	2.9	3.9	4.9	2.7	2.7	3.1
15	3.8	3.9	3.3	2.3	1.5	1.1	2.6	3.8	5.0	2.7	2.7	3.1
16	3.8	2.8	3.2	2.3	1.5	1.0	2.2	3.8	5.1	2.7	2.6	3.9
17	3.2	2.9	4.5	2.3	1.4	1.0	11	3.9	5.1	2.7	2.6	2.9
18	2.4	2.9	3.4	2.4	1.4	0.94	6.9	3.9	4.9	2.6	2.6	3.1
19	2.5	3.1	3.3	2.4	1.4	0.80	3.5	3.9	5.5	2.6	2.5	4.6
20	2.6	2.9	3.4	2.3	1.4	e0.75	2.9	3.8	5.5	2.6	4.8	3.7
21	2.9	3.0	3.4	2.1	1.3	e0.75	2.1	4.3	5.6	2.5	10	10
22	2.6	3.2	4.2	2.5	1.2	0.79	2.9	4.1	5.8	2.6	4.9	3.8
23	2.3	3.0	14	2.2	1.2	e0.83	2.8	4.4	5.6	2.5	2.4	3.5
24	2.4	2.9	2.6	2.1	1.2	0.82	2.1	5.0	8.0	2.6	2.4	3.4
25	2.6	2.9	2.4	2.1	1.2	0.87	1.8	6.1	61	2.6	2.5	4.1
26	2.8	2.9	2.7	2.0	1.2	0.95	1.9	6.0	3.4	2.6	3.1	3.6
27	2.5	3.1	2.7	2.0	1.1	1.1	2.1	5.7	3.0	2.6	2.9	3.4
28	2.2	3.0	2.9	1.9	1.1	1.1	2.6	5.7	2.9	2.6	3.4	3.2
29	2.5	3.0	3.1	1.9	---	1.5	2.4	4.9	2.9	2.5	3.9	2.8
30	2.4	3.1	3.4	2.0	---	1.4	2.6	5.1	2.8	2.5	3.1	2.9
31	2.2	---	2.7	1.8	---	e1.4	---	5.3	---	2.5	2.6	---
TOTAL	82.2	85.1	109.7	71.8	43.3	30.17	83.9	126.1	204.4	81.9	95.5	108.3
MEAN	2.65	2.84	3.54	2.32	1.55	0.97	2.80	4.07	6.81	2.64	3.08	3.61
MAX	5.0	4.0	14	2.7	2.0	1.5	11	6.1	61	2.9	10	10
MIN	2.2	2.2	2.4	1.8	1.1	0.75	1.5	2.2	2.8	2.5	2.4	2.6
AC-FT	163	169	218	142	86	60	166	250	405	162	189	215
CFSM	0.15	0.16	0.20	0.13	0.09	0.05	0.16	0.23	0.38	0.15	0.17	0.20
IN.	0.17	0.18	0.23	0.15	0.09	0.06	0.18	0.26	0.43	0.17	0.20	0.23

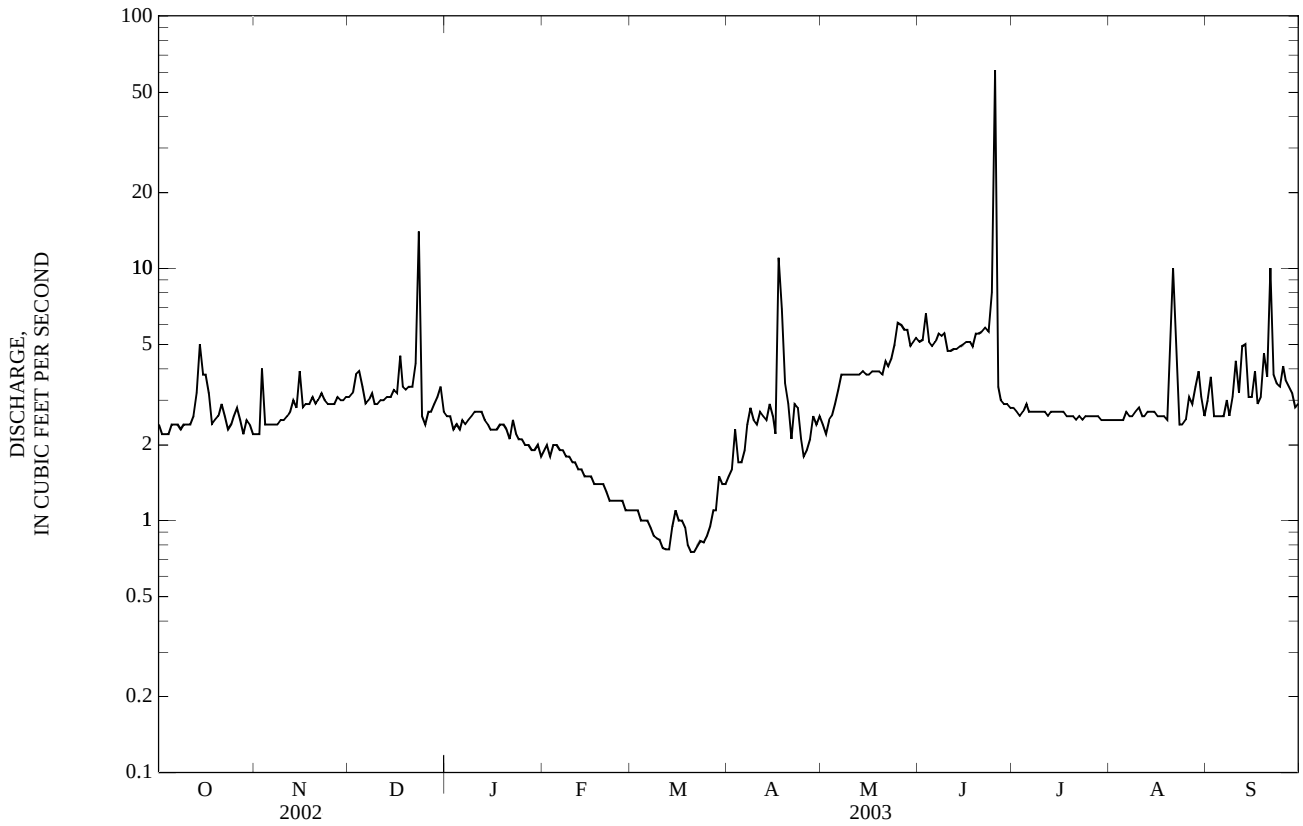
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2003, BY WATER YEAR (WY)

MEAN	57.3	35.8	9.07	12.6	6.28	7.24	9.35	33.8	23.8	18.6	40.6	81.1
MAX	221	137	20.5	74.2	14.7	17.9	31.0	127	107	94.3	195	316
(WY)	(2001)	(2000)	(1999)	(1992)	(1992)	(1997)	(1999)	(2001)	(1999)	(2001)	(2001)	(2001)
MIN	2.65	2.84	3.54	2.32	1.55	0.97	2.80	3.16	3.69	2.41	2.41	2.11
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2002)	(1995)	(2002)	(2002)	(2002)

50114000 RIO CERRILLOS NEAR PONCE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1991 - 2003	
ANNUAL TOTAL	1,106.7		1,122.37			
ANNUAL MEAN	3.03		3.07		28.8	
HIGHEST ANNUAL MEAN					92.8	2001
LOWEST ANNUAL MEAN					3.07	2003
HIGHEST DAILY MEAN	14	Dec 23	61	Jun 25	900	Jan 6, 1992
LOWEST DAILY MEAN	1.8	Sep 17	0.75	Mar 20	0.64	Aug 19, 1992
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 17	0.80	Mar 19	0.80	Mar 19, 2003
MAXIMUM PEAK FLOW			1,270	Jun 25	1,320	Sep 10, 1996
MAXIMUM PEAK STAGE			5.84	Jun 25	7.74	Sep 10, 1996
ANNUAL RUNOFF (AC-FT)	2,200		2,230		20,830	
ANNUAL RUNOFF (CFSM)	0.170		0.173		1.62	
ANNUAL RUNOFF (INCHES)	2.31		2.35		21.95	
10 PERCENT EXCEEDS	4.0		4.9		80	
50 PERCENT EXCEEDS	2.9		2.6		5.5	
90 PERCENT EXCEEDS	2.2		1.4		2.9	

e Estimated



50114000 RIO CERRILLOS NEAR PONCE, PR—Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic unit 21010004, on right bank off Highway 139, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi^2 (46.1 km^2)

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
14...	0910	2.7	27	6.5	78	7.3	369	25.0	160	53.4	5.66	.83	.5
FEB													
04...	1130	1.8	7.8	8.1	--	8.1	351	26.3	140	48.9	5.31	.65	.5
APR													
09...	1250	5.2	1.5	7.6	--	7.8	334	26.7	140	47.4	4.95	.73	.4
JUL													
16...	1430	1.9	50	7.7	--	7.7	341	26.5	--	--	--	--	--
SEP													
02...	1025	2.7	4.6	7.6	--	7.8	350	26.5	150	50.5	5.17	.74	.5

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
14...	14.3	136	7.40	.22	22.7	39.9	--	226	1.66	38	.30	<.01	.200
FEB													
04...	13.8	133	6.48	.23	23.6	36.7	.0	215	1.06	16	<.20	.01	.140
APR													
09...	12.0	125	6.48	.22	21.6	30.6	.3	199	2.80	<10	<.20	.03	.110
JUL													
16...	--	139	--	--	--	--	--	--	--	60	<.20	.02	.140
SEP													
02...	13.8	138	7.87	.2	23.2	30.8	--	215	1.59	<10	<.20	.07	.080

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
NOV													
14...	<.01	.04	.50	2.2	<10	E640	460	--	--	--	--	--	--
FEB													
04...	<.01	<.02	--	--	<10	E20	--	2,400	<2	38.3	29	<.2	<.8
APR													
09...	<.01	<.02	--	--	<10	E28	--	3,000	<2	37.6	22	E.1	<.8
JUL													
16...	<.01	.04	--	--	<10	220	--	5,400	--	--	--	--	--
SEP													
02...	<.01	<.02	--	--	<10	E140	--	550	--	--	--	--	--

50114000 RIO CERRILLOS NEAR PONCE, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
NOV											
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
04...	<10	<.01	360	<1	71.5	<.02	E1	<.3	<25	<.10	<16
APR											
09...	<10	<.01	120	<1	9.8	<.02	<3	<.3	E22	<.10	<16
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--
SEP											
02...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50114900 RIO PORTUGUES NEAR TIBES, PR

LOCATION.--Lat 18°06'00", long 66°38'34", Hydrologic Unit 21010004, 1.6 mi (2.6 km), north from Escuela Segunda Unidad of Corral Viejo, 0.3 mi (0.50 km) south from Hacienda Burenes and 6.0 mi (9.6 km) northeast from Peñuelas Plaza church.

DRAINAGE AREA.--7.27 mi^2 (18.8 km^2).

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 918 ft (280 m), from topographic map.

REMARKS.--Records poor. Some low-flow regulation due to PRASA intakes (2) 0.85 mi (1.36 km) upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	13	e9.2	e8.9	8.6	10	8.8	12	6.9	5.2	3.6	21
2	19	11	e9.4	e9.7	31	10	8.6	11	7.6	4.7	3.6	22
3	29	13	e9.0	e9.1	18	10	46	11	6.8	4.6	3.6	16
4	69	10	e8.8	e9.0	16	9.9	28	10	6.6	4.5	3.5	11
5	64	9.9	e9.4	e8.9	31	9.8	32	12	9.3	5.9	3.5	9.1
6	53	9.7	8.9	e8.9	28	9.8	24	11	10	4.9	4.7	11
7	44	9.2	8.6	e8.3	20	9.8	12	19	8.6	4.3	4.3	21
8	101	8.5	9.1	e8.3	17	9.8	9.6	18	7.6	4.5	3.8	15
9	91	16	8.7	e8.5	16	9.8	e9.5	14	7.3	4.4	3.6	10
10	49	12	8.1	e19	15	9.9	e9.9	12	6.9	4.2	3.4	9.4
11	37	9.8	8.0	e13	14	9.8	e10	11	6.7	4.2	5.5	18
12	31	13	8.3	e8.1	14	9.6	e14	10	7.2	4.2	4.4	30
13	28	15	8.1	e7.9	13	9.5	e13	10	6.8	4.6	7.4	32
14	26	13	8.2	e7.9	13	9.3	e11	14	6.5	4.4	6.1	18
15	26	11	7.9	e7.8	13	9.4	e11	11	6.4	4.5	5.1	73
16	23	13	8.3	e7.7	12	9.3	e11	10	6.4	4.6	16	45
17	23	11	44	e7.6	13	9.2	e37	13	6.3	4.5	8.2	29
18	30	10	e21	e7.5	12	9.4	e88	14	6.2	4.2	7.0	31
19	22	e11	e12	e8.9	12	10	e21	11	6.1	4.1	6.3	56
20	23	e10	e11	e7.3	12	9.9	e17	11	5.8	3.8	5.7	43
21	20	e10	e9.9	7.4	12	9.4	e15	60	5.6	3.8	6.3	31
22	17	e9.9	e26	e8.8	12	9.2	e25	24	5.5	3.8	6.7	25
23	15	e9.8	e14	e10	12	9.1	22	13	5.4	3.7	6.6	21
24	14	e9.8	e10	16	12	8.9	46	11	5.4	3.6	6.3	23
25	13	e9.6	e9.6	16	12	8.7	37	9.6	5.2	3.6	6.8	24
26	13	e13	e9.6	14	11	16	23	9.0	5.1	3.7	15	20
27	12	e10	e10	10	11	16	18	8.3	4.9	4.1	7.9	17
28	11	e9.5	e9.0	9.1	11	10	16	7.8	4.8	4.7	8.0	16
29	12	e9.4	e8.6	8.8	---	9.9	14	7.5	4.7	4.2	8.1	16
30	10	e9.3	e8.7	8.6	---	9.1	13	7.2	4.7	3.7	6.9	16
31	14	---	e8.9	8.5	---	8.8	---	7.0	---	3.6	6.4	---
TOTAL	955	329.4	350.3	299.5	421.6	309.3	650.4	409.4	193.3	132.8	194.3	729.5
MEAN	30.8	11.0	11.3	9.66	15.1	9.98	21.7	13.2	6.44	4.28	6.27	24.3
MAX	101	16	44	19	31	16	88	60	10	5.9	16	73
MIN	10	8.5	7.9	7.3	8.6	8.7	8.6	7.0	4.7	3.6	3.4	9.1
AC-FT	1,890	653	695	594	836	613	1,290	812	383	263	385	1,450
CFSM	4.24	1.51	1.55	1.33	2.07	1.37	2.98	1.82	0.89	0.59	0.86	3.34
IN.	4.89	1.69	1.79	1.53	2.16	1.58	3.33	2.09	0.99	0.68	0.99	3.73

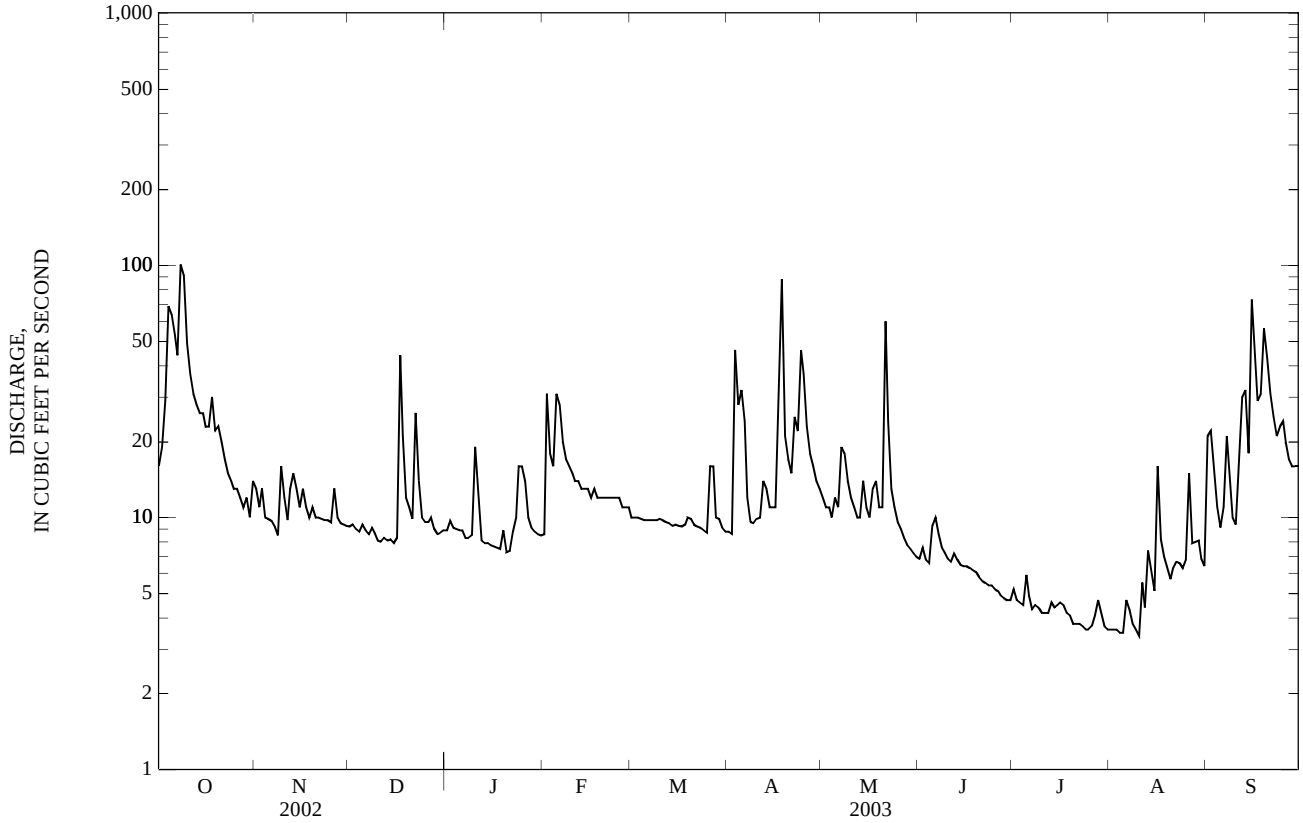
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2003, BY WATER YEAR (WY)

MEAN	31.0	20.9	10.9	6.65	6.84	5.51	13.4	12.7	10.4	8.96	19.3	53.4
MAX	46.4	45.0	14.8	9.66	15.1	9.98	21.7	17.6	17.6	16.1	34.5	147
(WY)	(2001)	(2000)	(2000)	(2003)	(2003)	(2003)	(2003)	(2000)	(1999)	(1998)	(1999)	(1998)
MIN	13.3	6.91	3.98	3.07	4.34	3.52	5.78	5.96	6.44	4.28	6.27	9.79
(WY)	(1998)	(1998)	(1998)	(1998)	(2002)	(1998)	(2001)	(1999)	(2003)	(2003)	(2003)	(2002)

50114900 RIO PORTUGUES NEAR TIBES, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1998 - 2003	
ANNUAL TOTAL	4,116.5		4,974.8			
ANNUAL MEAN	11.3		13.6		16.6	
HIGHEST ANNUAL MEAN					22.2	1998
LOWEST ANNUAL MEAN					10.0	2002
HIGHEST DAILY MEAN	101	Oct 8	101	Oct 8	3,000	Sep 22, 1998
LOWEST DAILY MEAN	2.4	Jul 19	3.4	Aug 10	1.1	Oct 6, 1997
ANNUAL SEVEN-DAY MINIMUM	2.6	Jul 18	3.6	Jul 30	1.7	Oct 1, 1997
MAXIMUM PEAK FLOW			701	Feb 2	10,000	Sep 21, 1998
MAXIMUM PEAK STAGE			10.09	Feb 2	22.46	Sep 21, 1998
ANNUAL RUNOFF (AC-FT)	8,170		9,870		12,060	
ANNUAL RUNOFF (CFSM)	1.55		1.87		2.29	
ANNUAL RUNOFF (INCHES)	21.06		25.46		31.11	
10 PERCENT EXCEEDS	23		25		35	
50 PERCENT EXCEEDS	7.4		9.9		8.6	
90 PERCENT EXCEEDS	4.0		4.7		4.0	

e Estimated



50115000 RIO PORTUGUES NEAR PONCE, PR

LOCATION.--Lat 18°04'45", long 66°38'01", Hydrologic Unit 21010004, on right bank 30 ft (9 m) upstream from bridge on Highway 504, 0.2 mi (0.3 km) upstream from small unnamed tributary, 4.4 mi (7.1 km) upstream from Río Chiquito, and 4.7 mi (7.6 km) north of Plaza Degetau in Ponce.

DRAINAGE AREA.--8.82 mi^2 (22.84 km^2).

PERIOD OF RECORD.--Water year 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
13...	1200	13	8.8	6.5	77	7.6	296	24.1	140	42.9	7.24	1.01	.3
FEB													
04...	1445	14	5.0	8.0	--	8.5	295	24.8	130	41.5	6.92	1.31	.3
APR													
09...	1505	9.4	1.1	7.8	--	8.3	379	26.0	170	53.0	8.98	1.34	.4
JUL													
17...	0845	5.3	1.4	8.7	--	8.3	366	24.5	--	--	--	--	--
SEP													
02...	1210	12	2.1	7.7	--	8.3	324	27.0	150	48.1	7.68	1.23	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrite + nitrate water unfltrd mg/L as N (00630)
NOV													
13...	9.25	133	6.30	<.17	20.0	9.2	--	176	6.15	<10	<.20	<.01	.980
FEB													
04...	8.98	135	5.72	.11	19.9	9.2	.0	175	6.84	<10	<.20	<.01	1.20
APR													
09...	10.6	160	6.75	.11	20.5	20.2	<.1	217	5.53	<10	<.20	.17	1.10
JUL													
17...	--	158	--	--	--	--	--	--	--	<10	<.20	.01	.610
SEP													
02...	10.2	149	7.49	<.2	19.5	14.1	--	198	6.51	<40	.20	<.01	1.10

Date	Nitrite water, unfltrd mg/L as N (00615)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
NOV													
13...	<.01	.05	--	--	<10	460	740	--	--	--	--	--	--
FEB													
04...	<.01	.04	--	--	<10	390	--	5,300	<2	33.8	E13	<.2	<.8
APR													
09...	<.01	.04	--	--	<10	140	--	4,600	<2	43.4	E10	E.1	<.8
JUL													
17...	<.01	.02	--	--	<10	40	--	480	--	--	--	--	--
SEP													
02...	<.01	.05	1.3	5.8	<10	E630	--	2,000	--	--	--	--	--

50115000 RIO PORTUGUES NEAR PONCE, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan- ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen- olic com- pounds, water, unfltrd ug/L (32730)
NOV											
13...	--	--	--	--	--	--	--	--	--	--	--
FEB											
04...	<10	<.01	160	<1	6.8	<.02	<3	<.3	<25	<.10	<16
APR											
09...	<10	<.01	80	<1	5.2	<.02	<3	<.3	E20	<.10	E15
JUL											
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
02...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR

LOCATION.--Lat 18°01'09", long 66°36'26", Hydrologic Unit 21010004, on right bank upstream from bridge on Highway 14, 1.70 mi (2.74 km) downstream from Río Chiquito, and 0.6 mi (0.96 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--18.6 mi^2 (48.17 km^2).

PERIOD OF RECORD.--Occasional measurements 1963, annual maximum discharge and peaks above base at different datum, from 1965 to 1972. June 1997 to current year.

REVISED RECORDS.--WRD PR-02-1, 2001.

GAGE.--Water-stage recorder. Elevation of gage is 67.2 ft (20.48 m), from topographic map. Prior to June 18, 1997 non-recording gage crested-stage gage at same site and different datum.

REMARKS.--Records poor. Some low-flow regulation due to Río Portugués dam construction activity upstream. Gage-height and precip itation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	83	16	11	7.1	4.2	11	e24	26	21	7.1	38
2	34	30	13	17	37	5.6	14	e22	32	10	7.5	103
3	37	51	20	13	131	4.9	93	e20	32	8.2	6.2	119
4	83	40	21	9.2	34	6.1	132	e19	23	10	6.6	49
5	153	18	19	9.2	43	5.5	32	e18	21	15	6.1	20
6	33	18	16	13	99	5.3	54	e20	49	20	7.4	12
7	33	21	16	11	30	e5.0	15	e25	39	9.1	17	66
8	69	16	22	10	20	e4.7	53	51	28	11	8.6	148
9	398	23	23	13	12	e5.0	92	56	25	11	6.6	53
10	266	53	25	20	16	e4.5	17	37	28	8.8	6.6	37
11	130	19	12	46	11	e4.0	23	70	25	7.8	12	27
12	57	22	14	18	12	e3.8	24	46	24	8.0	37	92
13	45	47	11	19	12	e3.6	68	32	22	12	7.5	226
14	35	52	12	16	13	e3.5	24	19	21	11	43	85
15	30	16	15	9.6	12	e3.4	12	22	18	11	12	265
16	30	16	18	11	8.1	e3.2	48	13	18	13	32	329
17	25	24	46	9.5	8.5	e3.1	768	12	20	11	88	141
18	31	25	203	9.8	6.7	e4.0	859	26	19	8.4	17	98
19	63	19	42	11	4.8	e3.5	286	16	26	8.0	16	187
20	42	20	26	11	4.3	e6.0	120	12	21	7.6	7.9	278
21	58	20	16	9.8	5.8	3.6	95	99	16	6.9	23	228
22	46	23	29	12	9.5	5.7	222	227	15	8.2	12	206
23	32	22	49	13	9.6	4.2	185	79	14	6.9	8.0	89
24	41	18	31	49	9.1	3.3	e130	60	13	6.3	11	75
25	28	16	20	101	5.1	2.7	e90	50	10	5.8	16	212
26	26	33	18	38	14	9.8	e60	45	9.3	5.8	114	101
27	26	65	18	16	10	44	e40	38	8.6	6.6	75	79
28	34	20	13	13	5.3	49	e35	36	7.4	8.9	40	64
29	26	20	11	9.4	---	18	e30	37	7.1	11	70	54
30	31	20	11	8.3	---	33	e26	33	7.0	6.5	41	57
31	31	---	10	6.6	---	12	---	28	---	6.5	19	---
TOTAL	1,983	870	816	563.4	589.9	274.2	3,658	1,292	624.4	301.3	781.1	3,538
MEAN	64.0	29.0	26.3	18.2	21.1	8.85	122	41.7	20.8	9.72	25.2	118
MAX	398	83	203	101	131	49	859	227	49	21	114	329
MIN	10	16	10	6.6	4.3	2.7	11	12	7.0	5.8	6.1	12
AC-FT	3,930	1,730	1,620	1,120	1,170	544	7,260	2,560	1,240	598	1,550	7,020
CFSM	3.44	1.56	1.42	0.98	1.13	0.48	6.56	2.24	1.12	0.52	1.35	6.34
IN.	3.97	1.74	1.63	1.13	1.18	0.55	7.32	2.58	1.25	0.60	1.56	7.08

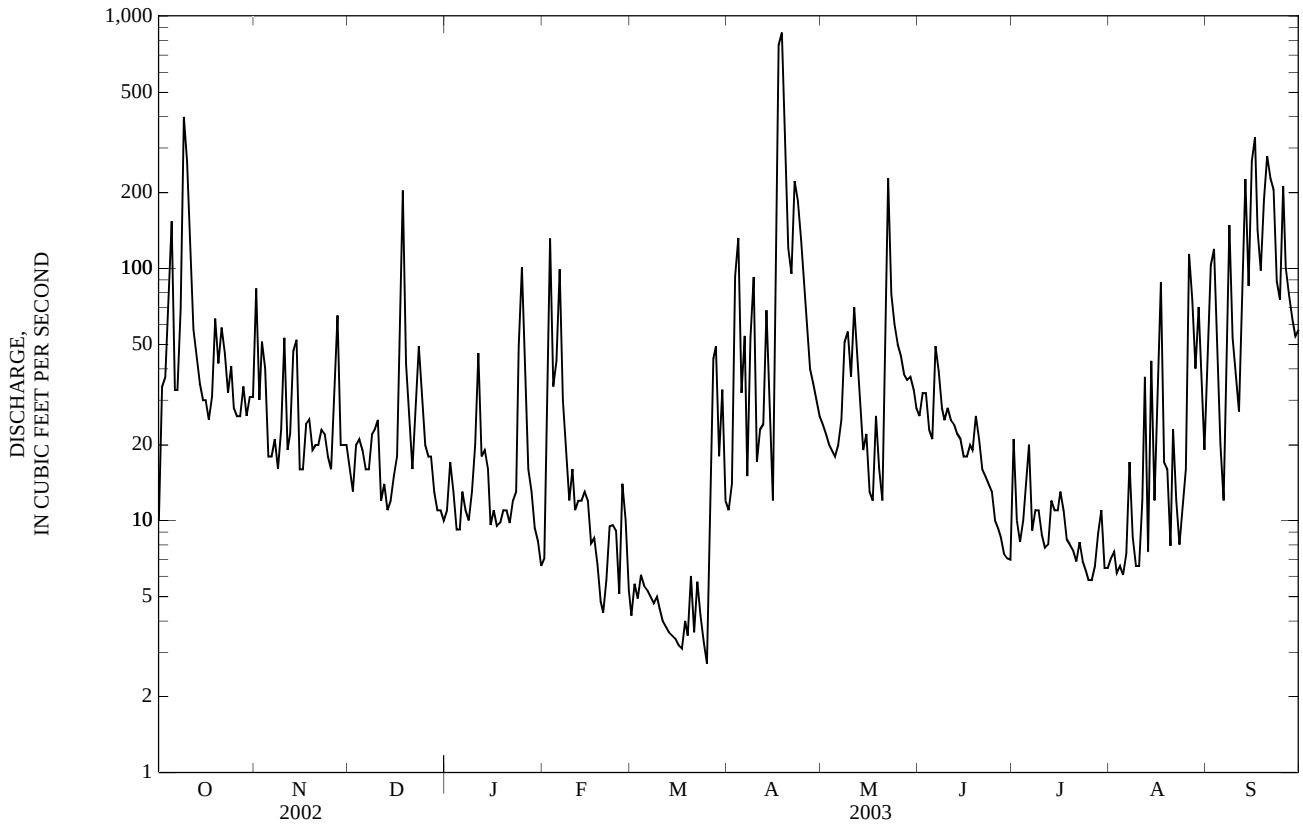
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

MEAN	80.8	51.6	22.7	14.1	13.3	9.71	45.8	30.2	29.1	16.8	48.1	113
MAX	128	129	31.1	21.7	21.1	17.4	122	46.1	60.4	36.8	112	314
(WY)	(2001)	(2000)	(2000)	(1999)	(2003)	(1999)	(2003)	(2000)	(1999)	(1999)	(1998)	(1998)
MIN	31.8	15.1	6.00	6.09	7.60	5.33	12.1	15.9	17.7	3.90	6.79	12.5
(WY)	(2002)	(1998)	(1998)	(1998)	(2002)	(1998)	(2001)	(1999)	(2000)	(2000)	(1997)	(1997)

50115900 RIO PORTUGUES AT HIGHWAY 14 AT PONCE, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	10,224.9		15,291.3			
ANNUAL MEAN	28.0		41.9		41.8	
HIGHEST ANNUAL MEAN					57.8	1998
LOWEST ANNUAL MEAN					24.9	2002
HIGHEST DAILY MEAN	398	Oct 9	859	Apr 18	5,580	Sep 22, 1998
LOWEST DAILY MEAN	3.0	Jul 24	2.7	Mar 25	0.97	Jun 18, 1997
ANNUAL SEVEN-DAY MINIMUM	4.8	Jul 21	3.5	Mar 13	1.6	Jul 27, 1997
MAXIMUM PEAK FLOW			5,050	Apr 17	16,300	Sep 22, 1998
MAXIMUM PEAK STAGE			14.32	Apr 17	19.73	Sep 22, 1998
ANNUAL RUNOFF (AC-FT)	20,280		30,330		30,260	
ANNUAL RUNOFF (CFSM)	1.51		2.25		2.25	
ANNUAL RUNOFF (INCHES)	20.45		30.58		30.51	
10 PERCENT EXCEEDS	59		92		88	
50 PERCENT EXCEEDS	15		20		17	
90 PERCENT EXCEEDS	6.9		6.5		6.2	

e Estimated



50116200 RIO PORTUGUES AT PONCE, PR

LOCATION.--Lat 18°00'20", long 66°36'28", 1,300 ft (400 m) south of Las Americas Avenue bridge, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA.--18.9 mi^2 (49.0 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
13...	0830	29	58	4.3	51	7.1	341	23.9	140	43.1	8.23	1.31	.6
FEB													
13...	0845	11	7.9	6.0	--	7.8	465	23.0	180	54.7	10.8	1.18	.9
APR													
10...	1330	15	11	9.7	--	8.6	459	29.5	170	48.7	10.8	1.59	1
JUL													
17...	1120	7.5	5.4	--	--	8.0	491	28.5	--	--	--	--	--
SEP													
02...	1345	19	16	7.9	--	8.2	365	30.7	150	43.8	9.15	1.65	.7

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
13...	15.7	132	11.1	<.17	18.4	19.9	--	197	15.6	16	.30	.01	--
FEB													
13...	28.0	176	21.3	.13	13.8	42.5	<.0	278	8.25	10	.30	.04	.35
APR													
10...	28.6	140	23.3	.12	17.6	51.4	5.0	266	11.0	12	.30	.05	.23
JUL													
17...	--	137	--	--	--	--	--	--	--	11	.90	.37	.27
SEP													
02...	19.0	134	15.5	<.2	18.4	29.8	--	218	11.3	12	.50	.09	.32

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
13...	.730	<.01	.29	.10	1.0	4.6	<10	E9,800	E14,100	--	--	--	--
FEB													
13...	.360	.01	.26	.03	.66	2.9	<10	E100	--	4,800	<2	43.1	68
APR													
10...	.240	.01	.25	.09	.54	2.4	10	E1,100	--	41,000	E2	44.0	75
JUL													
17...	.380	.11	.53	.17	1.3	5.7	20	33,000	--	E100,000	--	--	--
SEP													
02...	.340	.02	.41	.11	.84	3.7	20	E15,000	--	42,000	--	--	--

50116200 RIO PORTUGUES AT PONCE, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
13...	<.2	<.8	<10	<.01	240	<1	23.6	<.02	<3	<.3	<25	<.10	<16
APR													
10...	<.2	1.2	<10	<.01	1,850	2	106	<.02	<3	<.3	<25	<.10	E13
JUL													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
10...	1330	<.01	<.02	<.01	<.01	<.04	<.1	<.03	E.01	<.02	<.017	<.20	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
10...	<.03	<.02	<.009	<.01	<.014	<.30	<.03	<.012	<.016	<.014	<.009	<.015	<.02

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
10...	<.1	<.04	<.02	<1	<.04

< -- Less than
E -- Estimated value

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA.--18.9 mi^2 (49.0 km^2).

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	19	13	7.1	7.4	5.4	20	16	8.3	17	6.5	13
2	22	17	13	7.7	44	5.2	12	15	10	7.5	6.2	7.2
3	23	50	13	7.8	32	4.8	76	14	8.0	6.5	5.8	6.4
4	28	39	14	6.9	30	4.8	37	13	7.8	6.8	5.5	5.5
5	35	24	13	6.8	13	4.9	14	13	7.8	10	5.4	3.7
6	61	19	12	7.0	10	4.9	10	14	9.8	8.7	5.6	3.2
7	47	17	12	7.0	8.7	4.9	8.8	15	8.7	5.9	6.6	59
8	48	16	14	6.8	7.9	4.8	8.8	37	8.1	5.4	5.7	25
9	72	20	13	7.1	7.0	5.1	9.8	38	8.1	6.0	4.5	6.5
10	178	20	12	9.9	6.6	5.3	8.7	18	8.5	5.5	4.6	23
11	72	16	12	10	6.3	5.4	9.7	15	8.1	5.3	4.4	57
12	36	21	12	7.3	6.1	5.5	10	14	7.9	5.4	4.0	59
13	26	57	11	6.8	6.0	5.7	9.1	13	8.6	5.6	4.3	80
14	25	63	11	6.7	6.1	5.1	8.4	14	8.9	5.8	5.1	40
15	21	38	11	6.6	5.7	5.2	8.0	13	8.2	5.5	3.9	86
16	22	22	11	6.7	5.6	5.6	12	13	8.6	5.9	3.6	34
17	20	18	37	6.5	5.8	5.5	74	16	8.4	5.5	4.0	16
18	33	38	26	6.5	5.7	5.7	188	20	8.5	4.9	4.2	e60
19	35	32	11	7.6	5.6	8.6	82	18	9.0	5.1	3.9	e83
20	31	20	9.0	6.5	5.6	7.0	40	19	7.9	5.2	4.2	40
21	33	17	8.3	8.6	5.6	6.1	29	57	7.2	6.2	11	20
22	32	20	10	7.8	5.4	5.9	57	46	7.3	5.1	3.8	14
23	23	14	19	6.8	5.3	6.3	53	23	6.6	5.2	3.2	10
24	27	14	9.4	9.3	5.4	6.8	60	18	6.2	4.9	3.2	8.8
25	24	14	8.2	12	5.3	6.9	61	17	6.4	5.3	9.7	8.2
26	20	20	7.8	8.1	5.1	11	46	15	6.4	8.8	6.5	7.6
27	17	15	7.6	6.8	5.7	14	31	14	6.5	12	4.3	6.9
28	16	13	7.4	6.6	5.8	11	24	12	6.5	7.6	40	6.1
29	16	13	7.4	6.4	---	28	20	11	6.8	6.1	27	16
30	17	14	8.5	6.3	---	12	18	10	8.3	5.8	e18	14
31	22	---	7.2	6.5	---	7.8	---	9.8	---	6.5	4.6	---
TOTAL	1,104	720	380.8	230.5	268.7	225.2	1,045.3	580.8	237.4	207.0	229.3	819.1
MEAN	35.6	24.0	12.3	7.44	9.60	7.26	34.8	18.7	7.91	6.68	7.40	27.3
MAX	178	63	37	12	44	28	188	57	10	17	40	86
MIN	16	13	7.2	6.3	5.1	4.8	8.0	9.8	6.2	4.9	3.2	3.2
AC-FT	2,190	1,430	755	457	533	447	2,070	1,150	471	411	455	1,620
CFSM	1.88	1.27	0.65	0.39	0.51	0.38	1.84	0.99	0.42	0.35	0.39	1.44
IN.	2.17	1.42	0.75	0.45	0.53	0.44	2.06	1.14	0.47	0.41	0.45	1.61

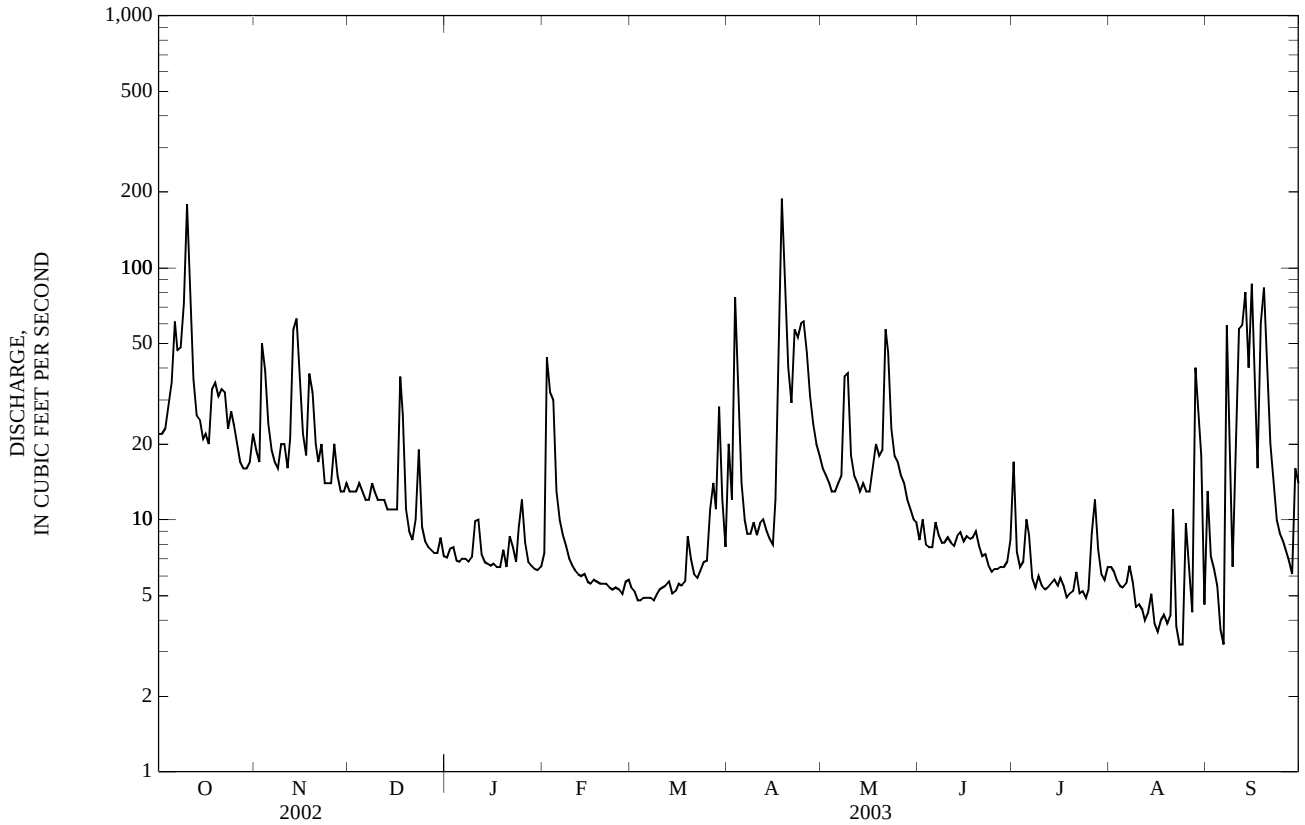
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2003, BY WATER YEAR (WY)

MEAN	58.3	45.1	17.9	10.2	7.55	6.29	12.7	26.3	14.0	11.4	20.0	45.7
MAX	167	110	41.9	27.5	11.6	13.2	34.8	80.4	41.0	25.9	50.5	124
(WY)	(1986)	(1988)	(1988)	(1992)	(1996)	(1989)	(2003)	(1985)	(1987)	(1986)	(2000)	(1998)
MIN	12.7	15.2	4.78	4.06	3.10	2.85	2.76	2.33	2.35	2.45	5.14	3.62
(WY)	(2002)	(1998)	(1998)	(1998)	(1990)	(1981)	(1995)	(1994)	(1997)	(1994)	(1997)	(1997)

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 2003	
ANNUAL TOTAL	6,448.7		6,048.1			
ANNUAL MEAN	17.7		16.6		22.7	
HIGHEST ANNUAL MEAN					34.7	1999
LOWEST ANNUAL MEAN					8.94	1994
HIGHEST DAILY MEAN	178	Oct 10	188	Apr 18	1,500	Oct 7, 1985
LOWEST DAILY MEAN	2.6	Mar 7	3.2	Aug 23	0.77	Jul 30, 1994
ANNUAL SEVEN-DAY MINIMUM	2.6	Mar 21	4.1	Aug 14	1.1	Sep 4, 1994
MAXIMUM PEAK FLOW			1,810	Oct 10	18,700	May 6, 2001
MAXIMUM PEAK STAGE			11.22	Oct 10	21.89	May 6, 2001
INSTANTANEOUS LOW FLOW					0.70	Apr 19, 1995
ANNUAL RUNOFF (AC-FT)	12,790		12,000		16,480	
ANNUAL RUNOFF (CFSM)	0.935		0.877		1.20	
ANNUAL RUNOFF (INCHES)	12.69		11.90		16.35	
10 PERCENT EXCEEDS	36		37		50	
50 PERCENT EXCEEDS	11		9.0		10	
90 PERCENT EXCEEDS	3.8		5.3		3.6	

e Estimated



50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA.--22.8 mi^2 (59.1 km^2).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
14...	1315	40	32	8.1	103	7.7	310	27.6	130	36.5	9.55	1.59	.4
FEB													
06...	1330	10	7.1	8.3	--	8.3	433	27.6	180	48.6	13.3	2.19	.5
APR													
10...	1055	4.3	3.6	8.1	--	7.8	496	27.2	--	--	--	--	--
JUL													
16...	1145	1.7	3.5	6.1	--	7.6	630	29.0	--	--	--	--	--
SEP													
03...	0900	3.8	3.4	5.0	--	7.6	545	27.1	220	60.1	17.3	2.92	.8

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
14...	9.46	110	9.30	<.17	16.1	26.4	--	175	19.0	28	.50	.05	--
FEB													
06...	16.0	146	16.7	.10	17.2	39.3	.0	241	6.62	<10	<.20	.03	2.18
APR													
10...	--	156	--	--	--	--	<.1	--	--	--	.30	.06	2.29
JUL													
16...	--	163	--	--	--	--	--	--	--	10	1.8	.06	5.87
SEP													
03...	27.4	184	29.4	<.2	20.2	51.2	--	319	3.30	<10	.50	.33	.79

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
14...	1.60	<.01	.45	.12	2.1	9.3	<10	E1,000	680	--	--	--	--
FEB													
06...	2.20	.02	--	.25	--	--	<10	530	--	6,100	<2	52.0	36
APR													
10...	2.30	.01	.24	.47	2.6	11.5	--	E1,200	--	80,000	--	--	--
JUL													
16...	5.90	.03	1.7	.54	7.7	34.1	10	400	--	24,000	--	--	--
SEP													
03...	.970	.18	.17	.08	1.5	6.5	10	510	--	E2,000	--	--	--

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	<.2	E.7	<10	<.01	290	<1	31.8	<.02	<3	<.3	<25	<.10	<16
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
10...	1055	<.01	.04	<.01	<.01	<.02	<.1	<.01	E.01	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
10...	<.01	<.01	<.009	<.01	<.014	<.30	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
10...	<.1	<.02	<.02	<1	<.02

< -- Less than
E -- Estimated value

50125780 LAGO LUCCHETTI AT DAMSITE NEAR YAUCO, PR

LOCATION.--Lat 18°05'37", long 66°51'54", Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA.--17.4 mi^2 (45.1 km^2).

PERIOD OF RECORD.--December 1989 to current year. Prior to October 1994, published as Lago Lucchetti at Damsite.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm^3) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow tupe spillway with a clear length of 171 ft (52 m), and a maximum capacity of 62,800 ft^3/s (1,778 m^3/s) at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 577.56 ft (176.04 m), September 22, 1998; minimum elevation, 512.09 ft (156.08 m), September 9, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 561.67 ft (171.20 m), December 26, minimum elevation, 526.91 ft (160.60 m), August 18.

Capacity Table
(based on data from Puerto Rico Water Resources Authority)
(Elevation in ft, capacity in acre-ft)

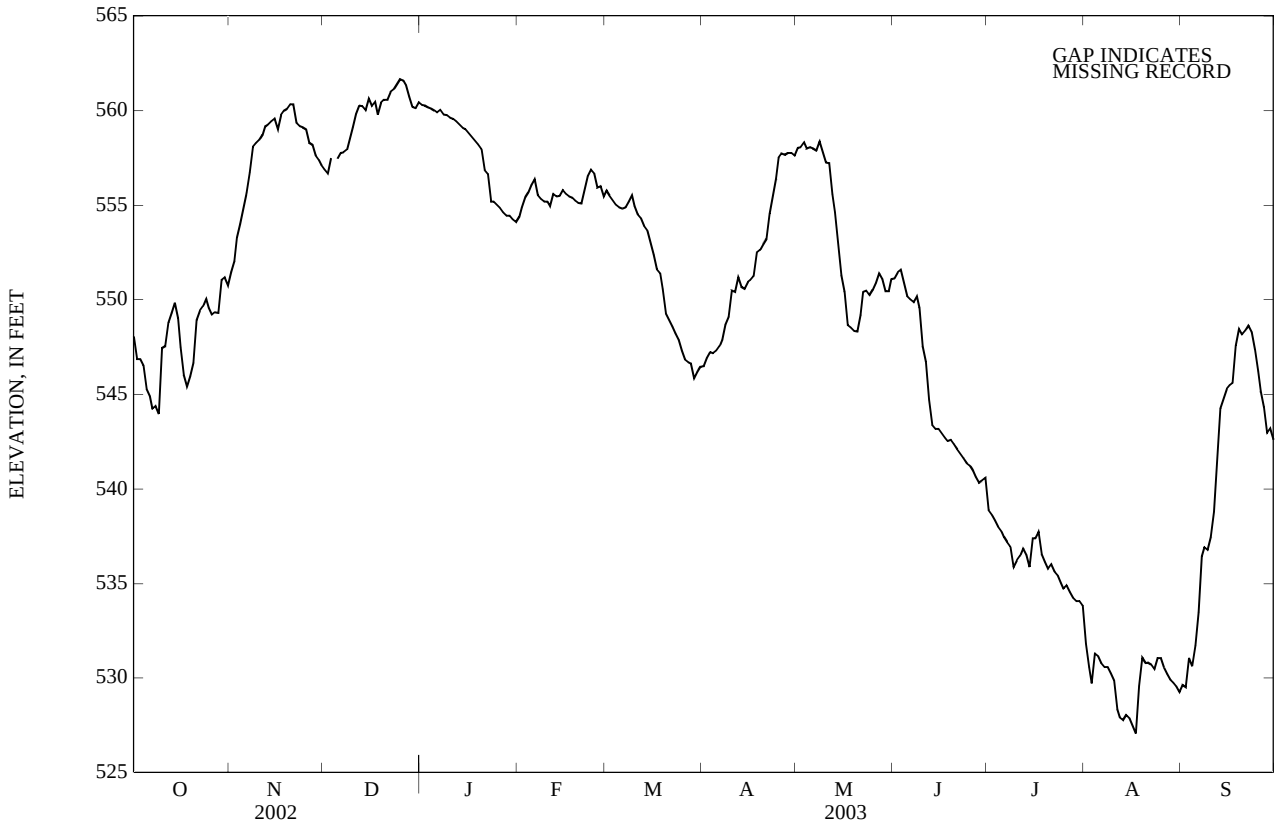
Elevation	Contents	Elevation	Contents
512	1,505	540	5,165
520	2,385	550	7,020
525	2,965	561	9,600
527	3,255	563	10,125
530	3,695	571	12,125
532	3,975	573	12,645
		578	14,061

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	548.05	551.48	556.87	560.31	554.37	555.77	546.50	558.02	551.13	538.89	531.80	529.65
2	546.88	552.03	556.67	560.27	554.88	555.50	546.92	558.07	551.43	538.63	530.56	529.53
3	546.86	553.31	557.50	560.16	555.39	555.26	547.23	558.30	551.58	538.33	529.71	531.06
4	546.52	554.00	A	560.11	555.67	555.02	547.16	558.00	550.89	538.01	531.30	530.63
5	545.27	554.83	557.45	560.00	556.09	554.90	547.32	558.08	550.20	537.77	531.15	531.70
6	544.89	555.64	557.77	559.89	556.39	554.83	547.55	558.00	550.01	537.47	530.79	533.47
7	544.24	556.70	557.79	560.03	555.54	554.90	547.87	557.90	549.89	537.19	530.57	536.43
8	544.36	558.07	557.94	559.81	555.34	555.20	548.70	558.39	550.20	536.94	530.58	536.93
9	543.94	558.29	558.47	559.77	555.19	555.52	549.10	557.82	549.58	535.88	530.24	536.79
10	547.45	558.43	559.12	559.64	555.19	554.96	550.50	557.26	547.54	536.19	529.88	537.45
11	547.54	558.70	559.82	559.55	554.95	554.50	550.43	557.23	546.73	536.43	528.34	538.79
12	548.81	559.17	560.26	559.41	555.61	554.32	551.21	555.58	544.71	536.83	527.92	541.73
13	549.31	559.25	560.24	559.27	555.46	553.90	550.70	554.62	543.38	536.51	527.79	544.26
14	549.86	559.41	560.02	559.10	555.50	553.68	550.58	552.86	543.17	535.86	528.03	544.78
15	549.03	559.57	560.65	559.02	555.79	553.01	550.92	551.30	543.17	537.40	527.86	545.27
16	547.48	559.02	560.24	558.82	555.60	552.37	551.02	550.41	542.94	537.40	527.46	545.47
17	546.02	559.77	560.43	558.61	555.48	551.60	551.23	548.67	542.69	537.72	527.06	545.57
18	545.42	560.01	559.80	558.40	555.38	551.39	552.47	548.54	542.53	536.54	529.57	547.59
19	545.94	560.11	560.41	558.20	555.24	550.56	552.62	548.36	542.60	536.15	531.07	548.46
20	546.67	560.34	560.59	557.97	555.12	549.28	552.93	548.31	542.38	535.78	530.78	548.14
21	548.93	560.35	560.59	556.84	555.08	548.94	553.21	549.19	542.11	536.01	530.83	548.37
22	549.40	559.37	560.98	556.66	555.84	548.58	554.54	550.42	541.86	535.63	530.71	548.62
23	549.65	559.19	561.11	555.21	556.56	548.22	555.45	550.50	541.62	535.41	530.50	548.29
24	550.05	559.12	561.38	555.19	556.89	547.87	556.42	550.26	541.34	535.01	531.07	547.39
25	549.57	559.02	561.67	555.04	556.69	547.29	557.48	550.52	541.23	534.72	531.06	546.21
26	549.20	558.31	561.60	554.84	555.95	546.82	557.73	550.89	540.95	534.87	530.54	545.18
27	549.34	558.20	561.35	554.62	556.01	546.69	557.66	551.41	540.63	534.56	530.21	544.32
28	549.31	557.62	560.75	554.44	555.48	546.62	557.78	551.09	540.32	534.23	529.91	542.94
29	551.03	557.38	560.21	554.46	---	545.84	557.78	550.46	540.45	534.07	529.75	543.17
30	551.16	557.13	560.15	554.24	---	546.18	557.62	550.45	540.57	534.06	529.58	542.59
31	550.77	---	560.45	554.11	---	546.47	---	551.11	---	533.82	529.26	---
MAX	551.16	560.35	---	560.31	556.89	555.77	557.78	558.39	551.58	538.89	531.80	548.62
MIN	543.94	551.48	---	554.11	554.37	545.84	546.50	548.31	540.32	533.82	527.06	529.53

A No gage-height record

50125780 LAGO LUCCHETTI AT DAMSITE NEAR YAUCO, PR—Continued



50126150 RIO YAUCO ABOVE DIVERSION MONSERRATE NEAR YAUCO, PR

LOCATION.--Lat 18°02'58", long 66°50'30", Hydrologic Unit 21010004, on right bank off Highway 375, about 300 ft (91 m) upstream from diversion Monserrate, 0.1 mi (0.2 km) downstream from Quebrada de la Quebradas, 0.9 mi (1.4 km) downstream from Río Duey, and 1.0 mi (1.6 km) northeast of Yauco Plaza.

DRAINAGE AREA.--27.2 mi^2 (70.4 km^2).

PERIOD OF RECORD.--November 1976 to January 1985, October 2002 to September 2003.

GAGE.--Water-stage recorder. Elevation of gage is 115 ft (35 m), from topographic map.

REMARKS.--Records poor. Flow affected by numerous diversions into and out of the basin.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	10	2.8	1.6	0.94	0.64	1.1	2.6	0.95	0.00	0.09	7.2
2	3.2	9.7	2.6	1.7	19	0.86	2.9	2.3	1.0	0.82	0.01	11
3	3.5	53	2.8	2.3	18	0.95	3.5	2.0	1.2	0.75	0.00	14
4	3.8	34	e2.4	1.5	4.4	0.57	7.8	1.6	0.97	0.58	0.00	13
5	5.4	12	e3.1	1.2	2.6	0.82	2.0	1.5	0.72	0.62	0.00	2.1
6	16	9.1	e2.4	1.6	1.9	0.86	1.4	1.9	0.80	1.4	0.00	0.90
7	11	7.8	1.7	1.5	1.6	0.67	1.3	1.7	0.89	0.88	0.00	25
8	13	6.9	2.0	1.2	1.3	0.44	2.0	7.8	0.77	0.72	0.00	20
9	13	6.9	2.8	1.1	1.1	0.40	e2.3	11	0.77	0.72	0.00	3.0
10	87	7.2	2.1	1.3	0.97	0.60	e7.3	2.8	0.73	0.69	0.00	1.2
11	24	5.8	e1.4	2.8	0.79	0.43	e5.6	1.8	0.71	0.52	0.00	29
12	8.8	6.4	e1.3	1.5	0.95	0.39	e3.9	1.8	0.73	0.41	0.00	77
13	6.6	21	1.6	1.2	0.79	0.34	e2.1	1.6	0.70	0.34	0.00	75
14	4.9	18	1.9	1.1	0.72	0.29	e1.3	1.5	0.64	0.31	0.00	32
15	4.5	8.1	1.4	0.91	0.89	0.28	1.1	1.7	0.61	0.31	0.12	69
16	5.8	6.8	1.5	0.83	0.68	0.26	0.77	1.4	0.61	0.41	0.19	22
17	6.9	5.8	9.0	0.91	0.59	0.25	61	1.8	0.69	0.39	0.10	8.4
18	21	9.8	14	0.81	0.54	0.23	123	2.1	0.65	0.30	0.08	129
19	21	8.1	3.9	0.97	0.49	0.32	42	1.6	0.48	0.23	0.10	68
20	33	6.3	2.7	0.80	0.48	0.35	12	1.4	0.29	0.13	3.1	39
21	26	5.2	2.1	0.82	0.86	0.52	6.3	50	0.05	0.04	5.2	16
22	14	5.6	2.1	0.97	0.82	0.51	51	28	0.06	0.00	1.6	10
23	8.4	4.6	13	0.79	0.79	0.43	32	6.6	0.02	0.00	0.82	6.0
24	13	4.2	2.9	1.3	0.74	0.38	35	3.4	0.00	0.00	0.54	4.2
25	12	3.7	2.4	4.8	0.50	0.40	29	2.5	0.00	0.00	2.6	3.5
26	7.1	3.7	2.0	2.5	0.48	1.1	11	1.9	0.00	0.00	5.3	2.8
27	5.6	4.3	2.0	1.3	0.66	5.0	6.2	1.6	0.00	0.00	2.0	2.8
28	4.7	3.2	1.7	1.1	0.50	5.6	4.4	1.5	0.00	0.55	7.0	2.0
29	10	2.9	1.4	0.89	---	2.6	3.4	1.3	0.00	0.45	12	6.7
30	11	3.6	1.8	0.87	---	2.8	3.0	1.1	0.00	0.27	11	12
31	11	---	1.6	0.80	---	1.6	---	1.1	---	0.19	1.5	---
TOTAL	418.5	293.7	96.4	42.97	64.08	30.89	465.67	150.9	15.04	12.03	53.35	711.80
MEAN	13.5	9.79	3.11	1.39	2.29	1.00	15.5	4.87	0.50	0.39	1.72	23.7
MAX	87	53	14	4.8	19	5.6	123	50	1.2	1.4	12	129
MIN	3.2	2.9	1.3	0.79	0.48	0.23	0.77	1.1	0.00	0.00	0.00	0.90
AC-FT	830	583	191	85	127	61	924	299	30	24	106	1,410
CFSM	0.50	0.36	0.11	0.05	0.08	0.04	0.57	0.18	0.02	0.01	0.06	0.87
IN.	0.57	0.40	0.13	0.06	0.09	0.04	0.64	0.21	0.02	0.02	0.07	0.97

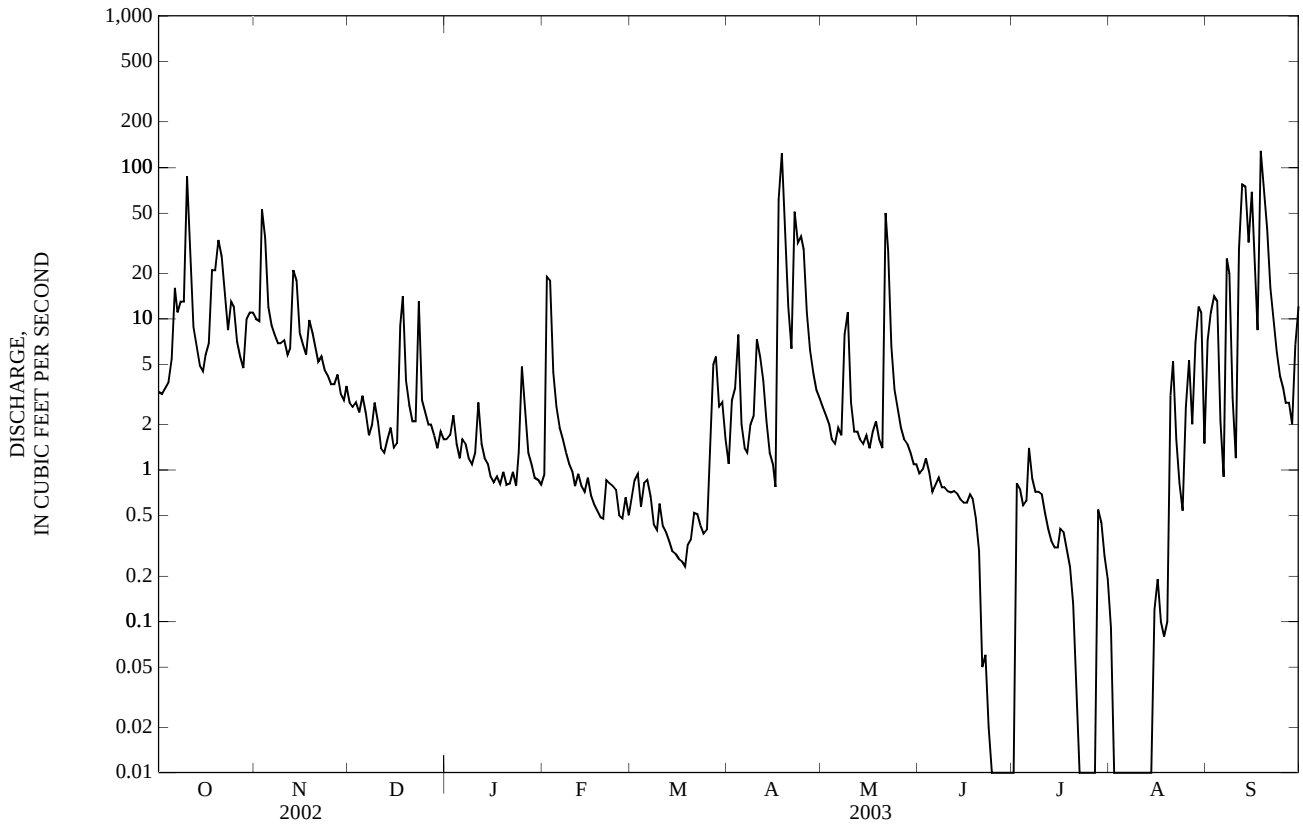
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2003, BY WATER YEAR (WY)

MEAN	32.5	38.7	12.1	7.47	6.54	4.72	11.7	23.6	15.3	12.5	23.2	45.0
MAX	62.9	94.3	19.7	13.9	11.4	8.64	46.0	66.1	95.1	54.1	131	133
(WY)	(1979)	(1985)	(1979)	(1979)	(1984)	(1979)	(1983)	(1980)	(1979)	(1979)	(1979)	(1979)
MIN	13.5	5.64	3.11	1.39	1.59	1.00	3.06	4.10	0.50	0.39	1.72	5.97
(WY)	(2003)	(1981)	(2003)	(2003)	(1983)	(2003)	(1977)	(1977)	(2003)	(2003)	(2003)	(1978)

50126150 RIO YAUCO ABOVE DIVERSION MONSERRATE NEAR YAUCO, PR—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	2,355.33			
ANNUAL MEAN	6.45		19.9	
HIGHEST ANNUAL MEAN			50.9	1979
LOWEST ANNUAL MEAN			6.45	2003
HIGHEST DAILY MEAN	129	Sep 18	2,690	Aug 31, 1979
LOWEST DAILY MEAN	0.00	Jun 24	0.00	Sep 30, 1977
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 24	0.00	Jun 24, 2003
MAXIMUM PEAK FLOW	1,540	Sep 18	10,500	Aug 31, 1979
MAXIMUM PEAK STAGE	7.71	Sep 18	9.83	Aug 31, 1979
ANNUAL RUNOFF (AC-FT)	4,670		14,410	
ANNUAL RUNOFF (CFSM)	0.237		0.731	
ANNUAL RUNOFF (INCHES)	3.22		9.94	
10 PERCENT EXCEEDS	14		37	
50 PERCENT EXCEEDS	1.6		6.9	
90 PERCENT EXCEEDS	0.13		1.8	

e Estimated



50128900 LAGO LOCO AT DAMSITE NEAR YAUCO, PR

LOCATION.--Lat 18°02'41", long 66°53'16", Hydrologic Unit 21010004, at Damsite, 2.60 mi (4.18 km) northwest from Yauco Plaza, 0.45 mi (0.72 km) northeast from Escuela Río Cañas and 0.95 mi (1.53 km) northwest from Escuela Susúa Alta.

DRAINAGE AREA.--8.35 mi^2 (21.6 km^2).

PERIOD OF RECORD.--May 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Loco was completed in 1951. The dam is a concrete gravity structure with a total length of 600 ft (183 m), maximum structural height of 72 ft (21.9 m), the ungated overflow spillway is 150 ft (47.7 m) long with crest at elevation of 230 ft (70.1 m). It has a normal storage capacity of 1,950 acre-feet (2.40 hm^3) as for May 4, 1979. The Loco Dam is owned by the Puerto Rico Electric Power Authority (PREPA) and its part of the Southwestern Puerto Rico Project which was developed for electric power generation and irrigation of the lands in the Lajas Valley, some of the project waters are used for water supply in the Lajas area. The maximum drawdown of the dam is from 230 ft (70.1 m) to 220 ft (67.1 m) and the Capacity Table provided by PREPA includes only that portion of the storage for the dam. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 235.71 ft (71.84 m), May 6, 2001; minimum elevation, 217.77 ft (66.4 m), June 10, 1997.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 231.41 ft (70.53 m), October 29; minimum elevation, 222.02 ft (67.67 m), March 3.

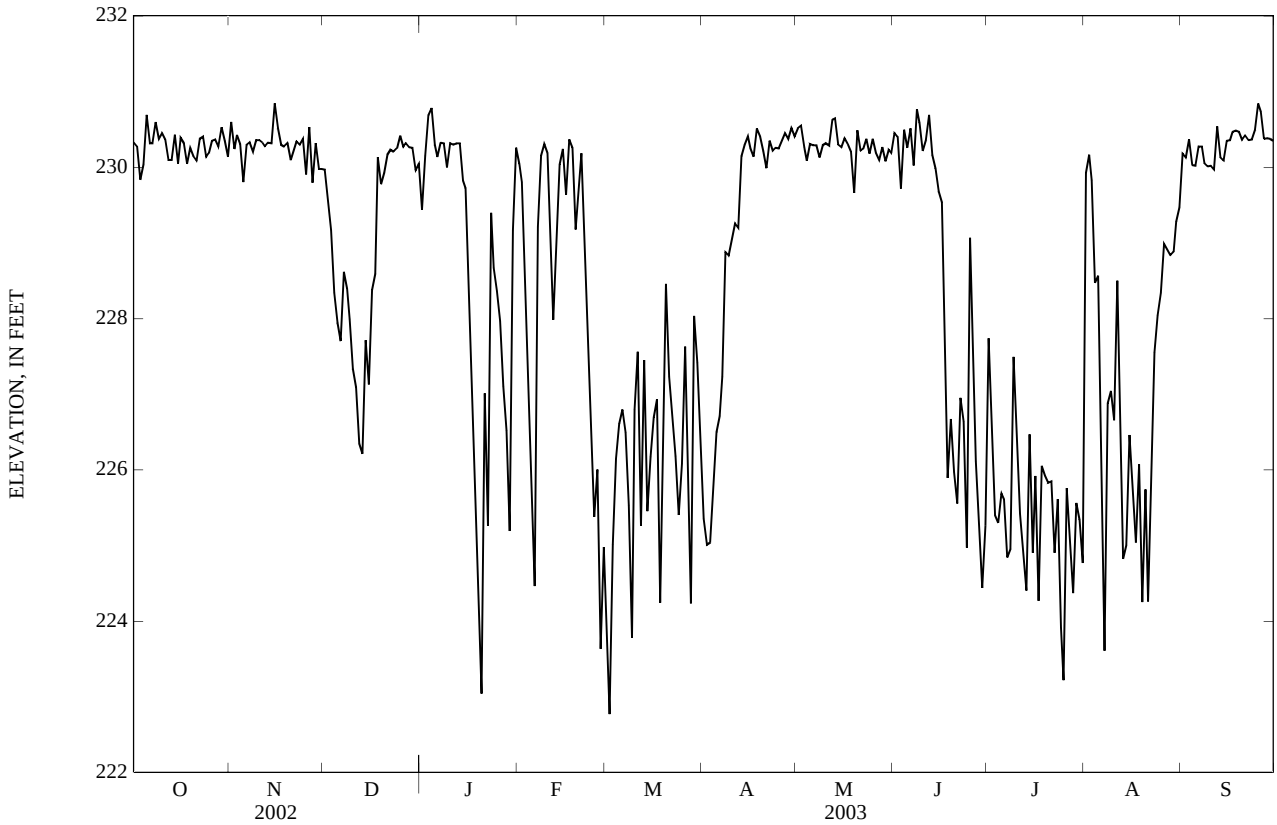
Capacity Table
(based on data from Puerto Rico Electric Power Authority)
(Elevation in ft, capacity in acre-ft)

Elevation	Contents	Elevation	Contents
220	0	230	639
225	299	232	787

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230.33	230.60	229.97	229.44	230.05	224.03	225.35	230.51	230.45	227.74	229.93	230.18
2	230.28	230.24	229.58	230.15	229.80	222.77	225.01	230.55	230.40	226.47	230.17	230.13
3	229.84	230.43	229.17	230.69	228.91	225.01	225.04	230.27	229.72	225.40	229.83	230.37
4	230.04	230.31	228.34	230.78	227.55	226.15	225.83	230.09	230.50	225.30	228.47	230.03
5	230.69	229.80	227.95	230.30	225.94	226.61	226.50	230.31	230.26	225.69	228.57	230.02
6	230.32	230.29	227.70	230.14	224.46	226.80	226.71	230.29	230.51	225.61	226.59	230.28
7	230.32	230.33	228.62	230.33	229.21	226.49	227.23	230.29	230.02	224.84	223.61	230.28
8	230.60	230.21	228.40	230.32	230.16	225.53	228.88	230.13	230.77	224.95	226.88	230.06
9	230.38	230.36	227.99	230.00	230.31	223.78	228.84	230.29	230.59	227.49	227.04	230.01
10	230.45	230.36	227.34	230.32	230.19	226.80	229.06	230.32	230.22	226.35	226.65	230.02
11	230.37	230.33	227.09	230.30	229.15	227.56	229.26	230.29	230.36	225.42	228.50	229.97
12	230.10	230.28	226.35	230.32	227.98	225.26	229.20	230.63	230.69	224.93	226.79	230.54
13	230.10	230.33	226.21	230.32	228.92	227.45	230.15	230.65	230.17	224.40	224.83	230.13
14	230.43	230.32	227.71	229.83	230.04	225.45	230.30	230.30	229.99	226.47	225.00	230.09
15	230.05	230.84	227.13	229.73	230.24	226.17	230.41	230.27	229.68	224.90	226.46	230.35
16	230.39	230.52	228.38	228.25	229.63	226.70	230.25	230.39	229.54	225.92	225.76	230.36
17	230.32	230.30	228.59	226.79	230.37	226.93	230.14	230.31	227.95	224.27	225.04	230.47
18	230.05	230.28	230.13	225.72	230.26	224.24	230.51	230.21	225.89	226.05	226.07	230.49
19	230.26	230.32	229.78	224.49	229.18	225.49	230.41	229.66	226.67	225.93	224.25	230.47
20	230.15	230.10	229.93	223.04	229.59	228.46	230.22	230.49	225.97	225.83	225.74	230.36
21	230.09	230.21	230.17	227.01	230.18	227.23	229.99	230.22	225.55	225.85	224.26	230.42
22	230.38	230.34	230.23	225.26	229.34	226.72	230.35	230.24	226.95	224.90	226.32	230.36
23	230.40	230.30	230.21	229.40	228.54	226.18	230.22	230.38	226.64	225.61	227.55	230.37
24	230.13	230.38	230.25	228.67	227.40	225.40	230.26	230.18	224.97	223.91	228.04	230.50
25	230.18	229.90	230.42	228.36	225.38	226.08	230.25	230.38	229.07	223.22	228.34	230.84
26	230.35	230.53	230.27	227.97	226.00	227.63	230.35	230.19	227.51	225.76	228.99	230.74
27	230.37	229.79	230.32	227.10	223.63	225.61	230.45	230.10	226.11	225.10	228.91	230.38
28	230.28	230.32	230.27	226.52	224.98	224.23	230.38	230.27	225.31	224.37	228.84	230.39
29	230.53	229.98	230.26	225.19	---	228.03	230.52	230.08	224.44	225.56	228.88	230.38
30	230.35	229.98	229.96	229.17	---	227.42	230.41	230.23	225.26	225.34	229.29	230.35
31	230.14	---	230.05	230.26	---	226.41	---	230.19	---	224.77	229.47	---
MAX	230.69	230.84	230.42	230.78	230.37	228.46	230.52	230.65	230.77	227.74	230.17	230.84
MIN	229.84	229.79	226.21	223.04	223.63	222.77	225.01	229.66	224.44	223.22	223.61	229.97

50128900 LAGO LOCO AT DAMSITE NEAR YAUCO, PR—Continued



50128905 CANAL DE RIEGO DE LAJAS BELOW LAGO LOCO DAM, YAUCO, PR

LOCATION.--Lat 18°02'35", long 66°53'18", Hydrologic Unit 21010004, on right side of irrigation conduit outlet upstream from Cipolletti Weir, located downstream from Lago Loco Dam 0.05 mi (0.08 km), 5.4 mi (8.67 km) south east from Sabana Grande Plaza and 0.35 mi (0.56 km) north east from Escuela Río Cañas.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--March 2000 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 197 ft (60 m), from topographic map.

REMARKS.--Records fair. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge, 105 ft^3/s (2.974 m^3/s) March 27, 2000, gage height, 2.15 ft (0.655 m) from rating curve extended above 70 ft^3/s (1.98 m^3/s) on basis of step-backwater analysis; no flow many days during the year 2000.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge, 94 ft^3/s (2.662 m^3/s), March 20, gage-height 2 ft (0.610 m); minimum daily discharge, 6.3 ft^3/s (0.178 m^3/s), September 16.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	32	33	39	30	52	50	28	40	79	57	19
2	33	29	42	40	29	52	35	28	54	76	39	21
3	38	29	50	35	48	64	28	26	67	51	39	23
4	35	38	49	29	59	70	26	26	65	29	61	21
5	28	45	47	29	59	70	25	34	64	28	74	20
6	28	46	41	29	51	72	25	39	56	28	75	20
7	34	42	37	33	38	66	27	39	43	44	77	19
8	35	34	37	42	29	59	27	41	42	52	58	21
9	29	28	41	43	29	59	28	36	56	53	41	22
10	24	28	46	33	41	71	30	28	69	54	32	22
11	21	28	46	26	50	80	28	28	76	48	38	24
12	A	39	49	26	54	85	26	33	78	37	68	24
13	A	41	46	26	54	85	26	39	58	37	67	20
14	A	35	39	42	45	71	26	40	40	48	64	19
15	A	33	38	57	35	58	28	39	40	62	50	22
16	A	29	44	64	36	58	25	31	60	65	39	6.3
17	33	29	49	59	36	77	23	26	70	60	39	9.0
18	29	34	58	48	46	89	23	26	70	46	50	31
19	25	36	57	48	54	88	23	37	70	32	59	21
20	23	38	40	48	59	91	23	46	51	31	58	17
21	36	35	34	55	54	70	22	47	36	31	54	17
22	33	32	34	61	44	49	23	48	36	48	34	22
23	21	29	38	59	44	50	24	39	55	65	18	24
24	29	29	40	45	60	56	24	32	64	60	26	25
25	32	35	40	34	72	76	25	32	68	39	39	23
26	22	42	36	34	77	88	25	32	71	39	28	19
27	23	40	26	45	73	80	26	46	61	39	27	17
28	37	36	22	49	62	56	26	65	45	39	29	18
29	41	34	21	50	---	42	26	68	45	61	24	20
30	38	33	33	56	---	41	25	60	65	74	19	22
31	35	---	39	41	---	51	---	40	---	75	19	---
TOTAL	---	1,038	1,252	1,325	1,368	2,076	798	1,179	1,715	1,530	1,402	608.3
MEAN	---	34.6	40.4	42.7	48.9	67.0	26.6	38.0	57.2	49.4	45.2	20.3
MAX	46	58	64	77	91	50	68	78	79	77	31	
MIN	28	21	26	29	41	22	26	36	28	18	6.3	
AC-FT	---	2,060	2,480	2,630	2,710	4,120	1,580	2,340	3,400	3,030	2,780	1,210

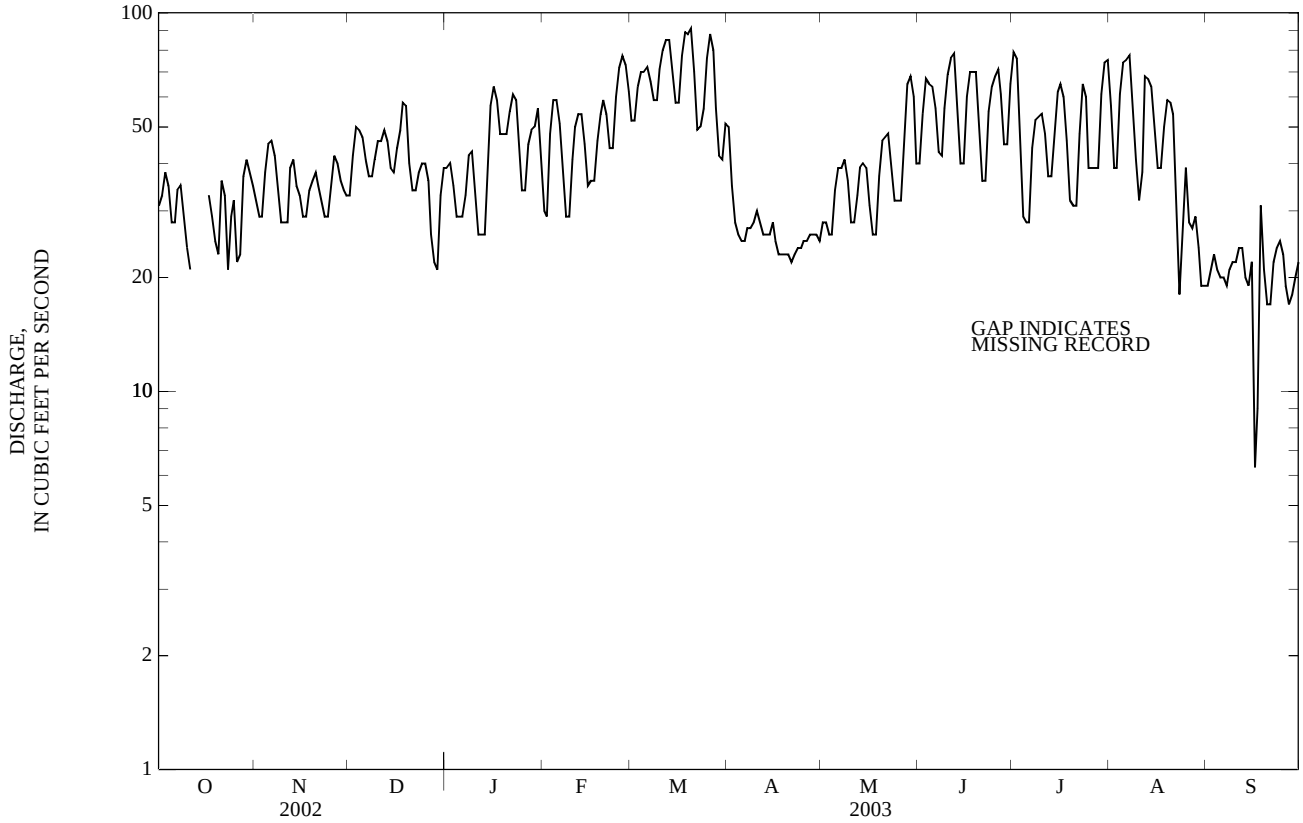
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	28.4	32.2	33.1	45.6	55.5	59.7	33.2	28.7	42.2	47.2	43.2	28.5
MAX	34.0	34.8	40.4	50.1	63.6	67.0	38.1	38.0	57.2	53.2	45.2	36.1
(WY)	(2002)	(2002)	(2003)	(2002)	(2002)	(2003)	(2002)	(2003)	(2003)	(2002)	(2003)	(2001)
MIN	22.7	27.2	25.7	42.7	48.9	52.4	26.6	18.6	31.7	38.7	40.6	20.3
(WY)	(2001)	(2001)	(2002)	(2003)	(2003)	(2002)	(2003)	(2001)	(2001)	(2001)	(2000)	(2003)

A No gage-height record

50128905 CANAL DE RIEGO DE LAJAS BELOW LAGO LOCO DAM, YAUCO, PR—Continued

SUMMARY STATISTICS	WATER YEARS 2000 - 2003	
ANNUAL MEAN	41.0	
HIGHEST ANNUAL MEAN	41.0	2002
LOWEST ANNUAL MEAN	41.0	2002
HIGHEST DAILY MEAN	98	Mar 28, 2000
LOWEST DAILY MEAN	4.9	Apr 2, 2000
ANNUAL SEVEN-DAY MINIMUM	15	May 13, 2001
MAXIMUM PEAK FLOW	105	Mar 27, 2000
MAXIMUM PEAK STAGE	2.15	Mar 27, 2000
ANNUAL RUNOFF (AC-FT)	29,720	
10 PERCENT EXCEEDS	62	
50 PERCENT EXCEEDS	39	
90 PERCENT EXCEEDS	24	



50128920 CANAL DE RIEGO DE LAJAS ABOVE MAJINAS FILTRATION PLANT, PR

LOCATION.--Lat 18°02'41", long 66°56'59", Hydrologic Unit 21010003, 0.1 mi (0.2 km) south of intersection of Highways 2 and 117, 2.1 mi, (3.4 km) northeast of Escuela Thomas A. Edison, 0.5 mi (0.8 km) southeast of Escuela Dr. Santiago Veve, and 2.6 mi (4.2 km) southeast of Plaza de Sabana Grande.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February 2000 to current year.

GAGE.--Water-stage recorder. Altitude of gage is about 164 ft (50 m) from topographic map.

REMARKS.--Records fair.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge 199 ft3/s (5.64 m3/s) May 6, 2001, gage height 5.43 ft (1.66 m) from rating curve extended above 60 ft^3/s (1.70 m^3/s) on basis of step-backwater analysis; minimum daily discharge 1.6 ft^3/s (0.045 m^3/s) October 23, 2002.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge 186 ft^3/s (5.27 m^3/s) March 26, gage height 5.29 ft (1.61 m); minimum daily discharge 1.6 ft^3/s (.045 m^3/s) October 23, 2002.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	27	19	38	44	57	47	27	39	63	51	24
2	25	21	30	39	45	57	37	29	45	61	41	25
3	33	21	44	37	50	59	31	29	52	48	41	27
4	37	38	41	32	54	60	28	27	48	30	50	26
5	22	58	40	33	55	59	26	29	50	29	56	26
6	21	56	38	33	52	62	25	A	48	29	58	25
7	28	43	34	33	47	62	28	A	41	37	59	24
8	30	25	35	34	45	59	29	A	42	44	51	25
9	18	13	36	38	45	59	28	34	46	45	43	27
10	12	13	40	37	47	63	28	29	54	46	37	28
11	5.8	13	44	31	50	65	27	29	58	44	32	28
12	6.6	25	43	31	54	67	27	31	60	36	52	31
13	8.1	31	45	31	55	67	27	34	51	36	57	27
14	14	18	39	40	52	65	27	34	39	40	55	26
15	28	20	39	53	48	59	29	34	39	46	48	25
16	35	17	43	61	49	58	28	32	47	48	42	14
17	29	16	48	60	49	62	29	28	54	48	42	5.5
18	25	20	54	55	52	65	30	28	54	43	46	36
19	12	18	55	56	56	66	26	31	55	34	51	26
20	8.6	25	44	56	56	70	25	36	48	32	51	21
21	34	28	36	56	55	62	24	37	37	33	48	21
22	36	23	36	56	53	49	25	39	36	41	35	24
23	1.6	14	38	56	53	48	26	37	45	53	23	26
24	12	15	36	53	57	49	27	33	51	54	27	26
25	30	23	36	48	61	64	27	33	57	40	40	26
26	7.8	36	36	47	62	64	26	33	61	40	33	23
27	7.7	33	29	53	61	68	27	37	56	40	31	21
28	28	21	23	55	59	52	27	48	44	40	34	22
29	36	21	23	52	---	42	27	51	43	50	29	23
30	32	20	31	54	---	42	26	51	53	59	24	26
31	30	---	37	49	---	46	---	40	---	59	23	---
TOTAL	666.2	752	1,172	1,407	1,466	1,827	844	---	1,453	1,348	1,310	734.5
MEAN	21.5	25.1	37.8	45.4	52.4	58.9	28.1	---	48.4	43.5	42.3	24.5
MAX	37	58	55	61	62	70	47	61	63	59	36	
MIN	1.6	13	19	31	44	42	24	36	29	23	5.5	
AC-FT	1,320	1,490	2,320	2,790	2,910	3,620	1,670	---	2,880	2,670	2,600	1,460

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

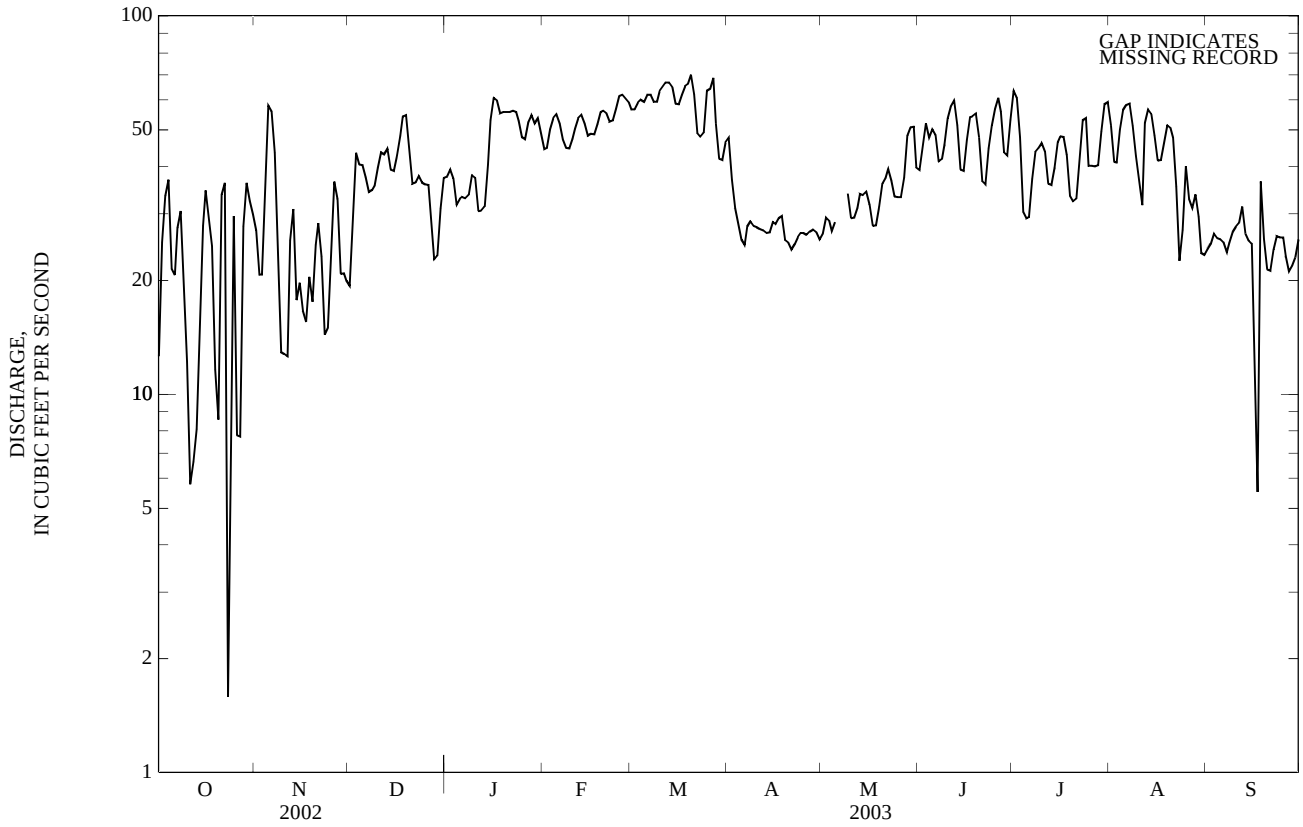
MEAN	24.6	29.5	33.9	45.3	51.4	49.2	32.6	24.7	39.8	46.7	40.4	25.6
MAX	31.4	36.6	37.8	46.5	58.6	58.9	36.7	26.8	48.4	49.3	42.3	29.2
(WY)	(2002)	(2002)	(2003)	(2001)	(2002)	(2003)	(2002)	(2002)	(2003)	(2000)	(2003)	(2001)
MIN	20.9	25.1	29.8	44.0	43.4	43.3	28.1	22.6	34.6	43.5	38.5	23.0
(WY)	(2001)	(2003)	(2002)	(2002)	(2001)	(2001)	(2003)	(2001)	(2001)	(2003)	(2000)	(2000)

SUMMARY STATISTICS — WATER YEARS 2000 - 2003

HIGHEST DAILY MEAN	77	Jul 25, 2000
LOWEST DAILY MEAN	1.6	Oct 23, 2002
ANNUAL SEVEN-DAY MINIMUM	13	Oct 9, 2002
MAXIMUM PEAK FLOW	199	May 6, 2001
MAXIMUM PEAK STAGE	5.43	May 6, 2001

A No gage-height record

50128920 CANAL DE RIEGO DE LAJAS ABOVE MAJINAS FILTRATION PLANT, PR—Continued



50128925 CANAL DE RIEGO DE LAJAS BELOW MAJINAS FILTRATION PLANT, PR

LOCATION.--Lat 18°02'41", long 66°57'01", Hydrologic Unit 21010004, on upstream side from iron platform used as cross way and reference point, downstream of Majinas Filtration Plant intake, 0.08 mi (0.12 km) east of new Highway 2, 0.10 mi (0.16 km) south of Highway 121, and 2.6 mi (4.2 km) southeast of Plaza de Sabana Grande.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February 2000 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair, except those above 50 ft^3/s (1.46 m^3/s), which are poor.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge, 197 ft^3/s (5.58 m^3/s) May 6, 2001, gage height, 5.39 ft (1.64 m) from rating curve extended above 50 ft^3/s (1.416 m^3/s) on basis of logarithmic extension using gage height and flow comparison with upstream station 50128920 Canal de Riego de Lajas above Majinas Filtration Plant, Sabana Grande, PR; minimum daily discharge .01 ft3/s (0.00 m3/s) September 17, 2003.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge, 165 ft^3/s (4.67 m^3/s) March 12, gage height, 4.97 ft (1.51 m); minimum daily discharge .01 ft^3/s (0.00 m^3/s) September 17.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

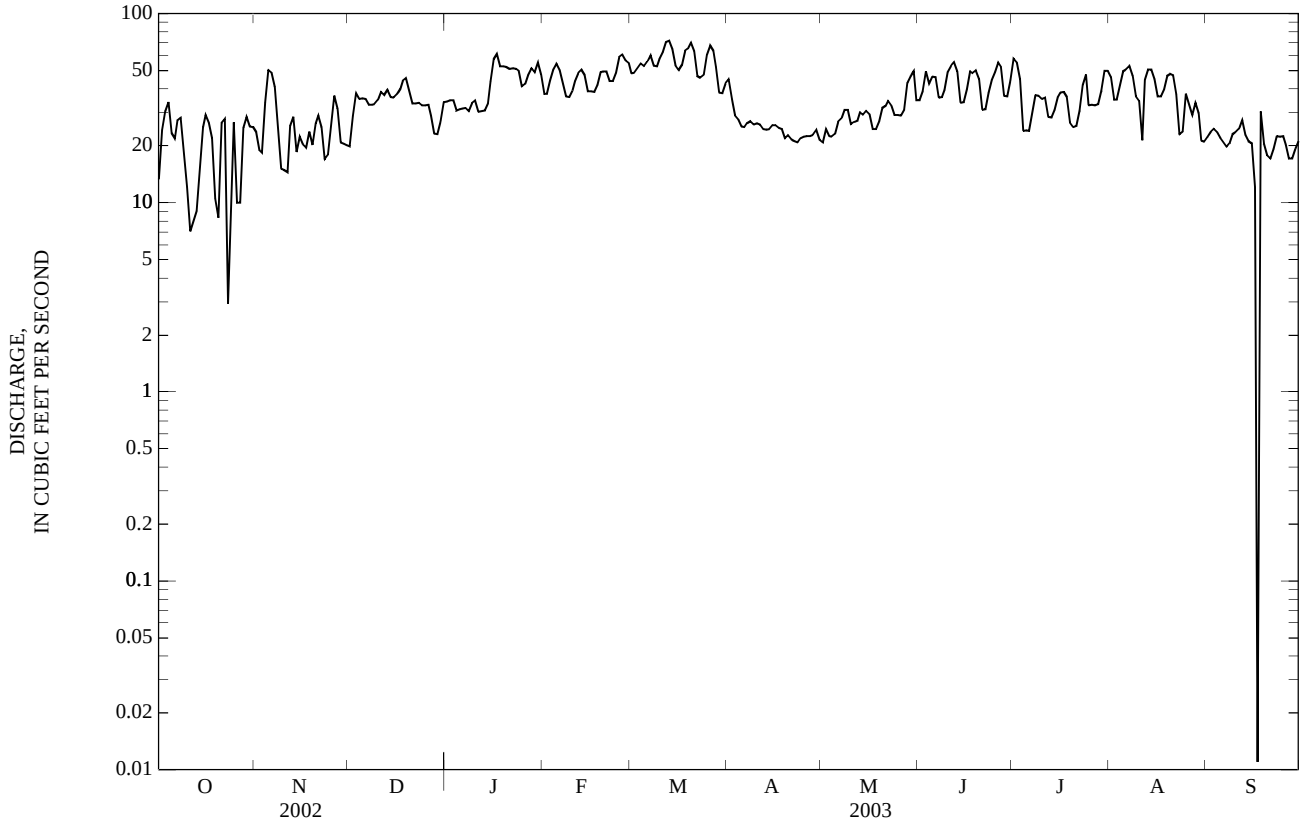
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.2	23.5	19.9	34.3	37.6	48.3	44.6	20.9	34.8	57.9	46.1	22.2
2	24.1	18.9	28.6	34.9	37.6	48.5	35.3	24.6	38.9	55.0	35.1	23.5
3	30.5	18.3	37.9	34.8	44.2	51.5	28.8	22.5	49.3	45.2	35.1	24.5
4	33.9	33.7	35.3	30.8	50.8	54.4	27.6	22.3	42.5	23.9	41.6	23.6
5	23.2	50.1	35.7	31.2	54.2	52.5	25.3	22.9	46.4	24.1	49.6	22.0
6	21.8	48.7	35.3	31.4	50.0	55.4	25.1	26.6	46.1	23.9	50.5	20.9
7	27.0	40.9	33.1	31.7	42.6	60.1	26.3	27.8	35.8	29.9	52.7	19.8
8	28.1	25.7	32.9	30.4	36.6	52.9	27.0	31.1	36.2	37.1	47.0	20.6
9	17.7	15.2	33.3	33.6	36.2	52.5	25.8	31.1	39.6	36.7	36.5	23.1
10	12.1	14.9	34.8	34.5	39.1	57.8	26.2	25.9	49.0	35.4	34.7	23.5
11	7.07	14.5	38.5	30.3	43.8	62.4	25.8	26.8	52.7	35.9	21.3	24.5
12	8.01	25.4	37.1	30.5	48.5	70.8	24.5	27.2	55.3	28.4	44.8	27.4
13	9.01	28.4	39.4	30.7	50.1	71.7	24.3	30.0	49.3	28.1	50.6	22.9
14	15.4	18.6	36.2	33.6	47.2	64.8	24.5	29.2	33.7	30.9	50.6	21.1
15	25.0	22.3	36.1	43.6	38.8	53.1	25.8	30.4	34.0	36.1	45.0	20.7
16	29.2	20.3	37.2	57.4	39.0	50.1	25.7	29.3	39.9	38.4	36.5	12.1
17	26.5	19.5	39.8	61.2	38.5	53.4	24.9	24.4	49.5	38.5	36.6	0.011
18	22.0	23.7	44.0	52.4	41.9	63.6	24.6	24.5	48.5	36.3	39.7	30.2
19	10.5	20.1	45.6	52.5	48.9	64.9	21.7	26.9	49.9	26.4	46.7	20.5
20	8.28	26.3	39.2	52.3	49.3	70.0	22.6	31.6	44.9	25.0	47.8	17.9
21	26.2	28.9	33.4	50.9	49.6	63.4	21.6	32.4	31.1	25.5	47.2	17.2
22	27.6	25.1	33.5	51.3	43.9	46.8	21.1	34.4	31.1	30.7	37.4	19.2
23	2.92	16.9	33.9	51.0	43.9	45.9	20.8	32.8	38.1	42.0	22.9	22.5
24	11.7	17.8	32.6	49.8	48.8	47.3	21.9	29.0	44.8	47.5	23.6	22.3
25	26.5	26.1	32.7	41.0	58.7	60.4	22.3	29.1	49.1	32.7	37.8	22.5
26	10.0	36.8	33.1	42.4	60.5	67.6	22.5	28.9	55.2	33.0	33.2	20.3
27	10.0	31.4	28.8	47.6	56.4	63.6	22.5	30.9	52.8	32.8	29.2	17.2
28	24.8	20.9	23.1	51.3	54.6	52.2	22.9	43.1	36.7	33.3	33.8	17.1
29	28.5	20.5	23.0	49.0	---	38.3	24.1	46.3	36.5	39.0	29.8	19.2
30	25.3	20.2	26.9	55.1	---	37.9	21.5	49.3	44.3	49.7	21.3	21.2
31	25.1	---	34.0	47.6	---	42.6	---	34.9	---	49.7	21.0	---
TOTAL	611.19	753.6	1,054.9	1,309.1	1,291.3	1,724.7	757.6	927.1	1,296.0	1,109.0	1,185.7	619.711
MEAN	19.7	25.1	34.0	42.2	46.1	55.6	25.3	29.9	43.2	35.8	38.2	20.7
MAX	33.9	50.1	45.6	61.2	60.5	71.7	44.6	49.3	55.3	57.9	52.7	30.2
MIN	2.92	14.5	19.9	30.3	36.2	37.9	20.8	20.9	31.1	23.9	21.0	0.011
AC-FT	1,210	1,490	2,090	2,600	2,560	3,420	1,500	1,840	2,570	2,200	2,350	1,230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	21.8	23.5	29.2	41.6	44.1	45.5	29.3	24.8	31.5	38.7	34.5	25.0
MAX	30.1	33.1	34.0	42.2	46.1	55.6	33.7	29.9	43.2	41.2	38.2	31.1
(WY)	(2002)	(2002)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2001)	(2003)	(2002)
MIN	15.6	12.4	25.4	41.0	42.2	39.8	25.3	18.2	24.2	35.8	27.9	19.1
(WY)	(2001)	(2001)	(2002)	(2001)	(2001)	(2000)	(2003)	(2001)	(2000)	(2003)	(2001)	(2000)

50128925 CANAL DE RIEGO DE LAJAS BELOW MAJINAS FILTRATION PLANT, PR—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	12,639.900			
ANNUAL MEAN	34.6		32.1	
HIGHEST ANNUAL MEAN			34.6	2003
LOWEST ANNUAL MEAN			29.6	2001
HIGHEST DAILY MEAN	71.7	Mar 13	86.5	Aug 2, 2002
LOWEST DAILY MEAN	0.010	Sep 17	0.010	Sep 17, 2003
ANNUAL SEVEN-DAY MINIMUM	13	Oct 9	10	Nov 7, 2000
MAXIMUM PEAK FLOW	165	Mar 12	197	May 6, 2001
MAXIMUM PEAK STAGE	4.97	Mar 12	5.39	May 6, 2001
ANNUAL RUNOFF (AC-FT)	25,070		23,260	
10 PERCENT EXCEEDS	52		49	
50 PERCENT EXCEEDS	33		32	
90 PERCENT EXCEEDS	20		15	



50128935 CANAL DE RIEGO DE LAJAS ABOVE LAJAS FILTRATION PLANT AT LAJAS, PR

LOCATION.--Lat 18°02'45", long 66°03'16", Hydrologic Unit 21010003, on upstream side of Lajas Filtration Plant intake 2.8 mi (4.4 km) south of San Germán Plaza, 2.6 mi (4.2 km) east of Cerro Quemado and 1.5 mi (2.4 km) northeast of Universidad de Puerto Rico, Estación Experimental Agrícola and 0.6 mi (0.96 km) northwest from Lajas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--January 2001 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 131.2 ft (40 m), from topographic map.

REMARKS.--Records fair.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge, 64 ft^3/s (1.812 m^3/s) August 1, 2003, gage height, 3.34 ft (1.018 m) from rating curve extended above 23 ft^3/s (0.651 m^3/s) on basis of step-backwater analysis, but could be higher during period of no gage-height record; no flow many days each year.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge 64 ft^3/s (1.812 m^3/s) August 1, gage height 3.34 ft (1.018 m); no flow many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	15	17	24	14	23	26	11	A	34	45	A
2	13	12	18	23	15	23	20	14	24	31	28	A
3	14	13	20	23	19	23	16	13	31	27	28	A
4	19	14	15	17	21	25	15	13	20	8.8	36	A
5	17	20	17	17	22	24	13	A	23	7.9	48	A
6	15	20	19	18	21	28	14	A	25	8.3	50	A
7	13	18	20	18	16	32	13	A	19	12	54	A
8	14	18	21	17	13	31	12	A	21	19	47	A
9	12	12	19	20	14	34	12	A	21	20	34	A
10	11	13	17	23	13	34	14	A	25	22	33	A
11	8.3	13	24	17	16	30	15	A	27	24	33	A
12	9.7	14	24	17	22	36	14	A	31	18	41	A
13	12	18	25	18	25	38	15	A	29	19	51	A
14	13	13	19	16	24	41	13	A	17	18	52	A
15	13	15	21	21	23	38	13	A	18	24	50	A
16	16	15	21	27	24	41	15	A	20	33	40	A
17	16	17	24	30	24	39	19	A	29	32	42	A
18	16	18	27	29	20	38	21	A	25	33	40	A
19	9.0	16	31	30	22	32	16	A	26	20	46	A
20	7.9	16	28	32	22	31	16	A	24	21	A	A
21	11	16	24	27	22	31	14	A	16	22	A	A
22	18	16	25	22	21	24	11	A	16	22	A	A
23	0.00	10	24	24	25	27	9.9	A	21	35	A	A
24	0.00	11	20	25	24	28	11	A	22	43	A	A
25	0.11	13	19	19	30	31	11	A	21	24	A	A
26	8.2	16	19	20	28	31	13	A	29	24	A	A
27	9.7	18	18	21	24	29	12	A	32	24	A	A
28	11	16	14	20	27	25	11	A	22	25	A	A
29	14	16	14	19	---	20	12	A	23	31	A	A
30	13	16	15	27	---	20	12	A	25	44	A	A
31	15	---	22	21	---	22	---	A	---	43	A	
TOTAL	358.51	458	641	682	591	929	428.9	---	---	769.0	---	---
MEAN	11.6	15.3	20.7	22.0	21.1	30.0	14.3	---	---	24.8	---	---
MAX	19	20	31	32	30	41	26	44	---			
MIN	0.00	10	14	16	13	20	9.9	7.9	---			
AC-FT	711	908	1,270	1,350	1,170	1,840	851	---	---	1,530	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

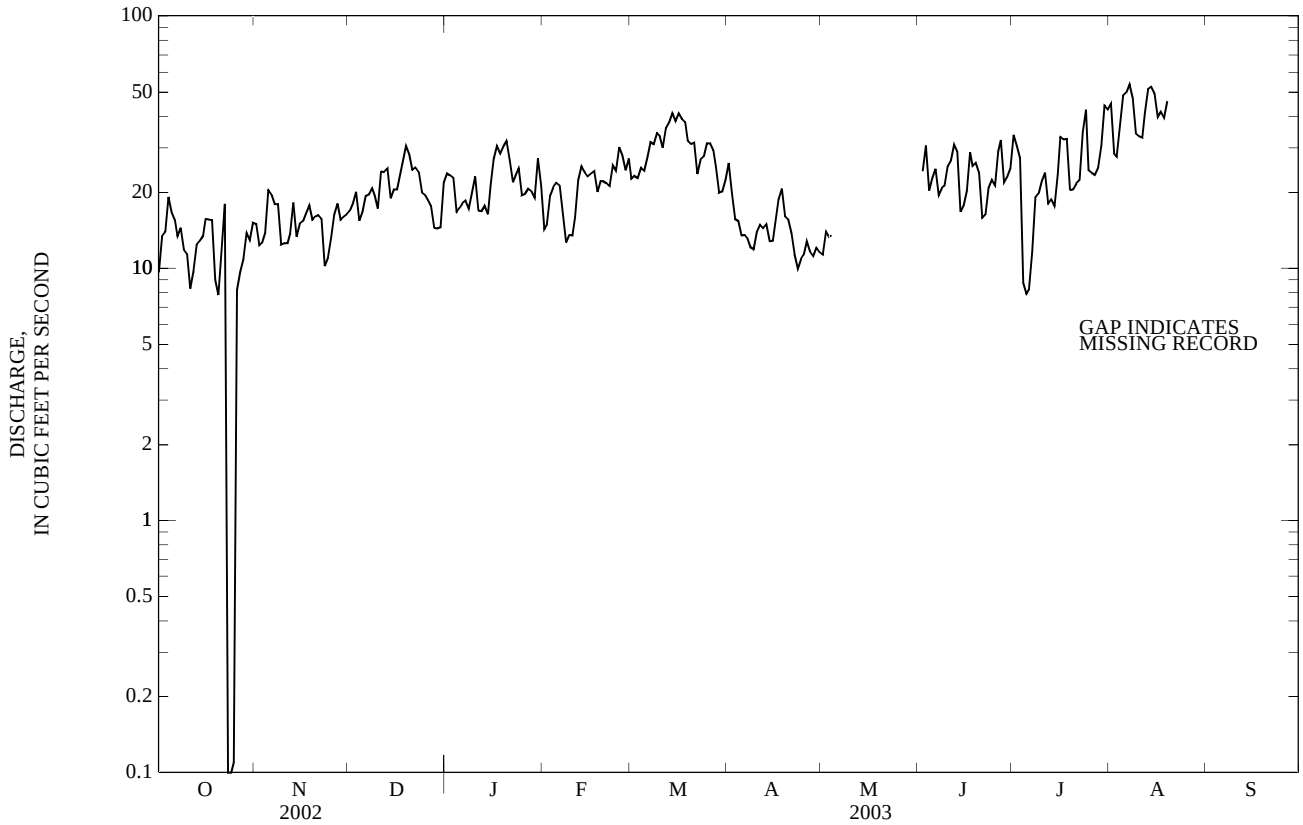
MEAN	15.3	18.8	20.7	22.0	21.3	30.0	14.3	---	---	24.3	7.09	---
MAX	19.0	22.4	20.7	22.0	21.5	30.0	14.3	---	---	24.8	7.09	---
(WY)	(2002)	(2002)	(2003)	(2003)	(2002)	(2003)	(2003)	---	---	(2003)	(2002)	---
MIN	11.6	15.3	20.7	22.0	21.1	30.0	14.3	---	---	23.7	7.09	---
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	---	---	(2002)	(2002)	---

SUMMARY STATISTICS — WATER YEARS 2001 - 2003

HIGHEST DAILY MEAN	54	Aug 7, 2003
LOWEST DAILY MEAN	0.00	Oct 23, 2002
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 15, 2002
MAXIMUM PEAK FLOW	64	Aug 1, 2003
MAXIMUM PEAK STAGE	3.34	Aug 1, 2003

A No gage-height record

50128935 CANAL DE RIEGO DE LAJAS ABOVE LAJAS FILTRATION PLANT AT LAJAS, PR—Continued



50128940 CANAL DE RIEGO DE LAJAS BELOW LAJAS FILTRATION PLANT AT LAJAS, PR

LOCATION.--Lat 18°02'44", long 66°03'17", Hydrologic Unit 21010003, on downstream side of Lajas Filtration Plant intake 2.8 mi (4.4 km) south of San Germán town plaza, 2.6 mi (4.2 km) east of Cerro Quemado and 1.5 mi (2.4 km) northeast of Universidad de Puerto Rico, Estación Experimental Agrícola and 0.6 mi (0.96 km) northwest from Lajas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--January 30 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 131.2 ft (40 m), from topographic map.

REMARKS.--Records fair.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge, 190 ft^3/s (5.381 m^3/s) May 6, 2001, gage height, 3.64 ft (1.109 m) from rating curve extended above 23 ft^3/s (0.651 m^3/s) on basis of step-backwater analysis; no flow many days each year.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge, 67.7 ft^3/s (1.917 m^3/s) September 2, gage height, 2.57 ft (0.783 m); no flow many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

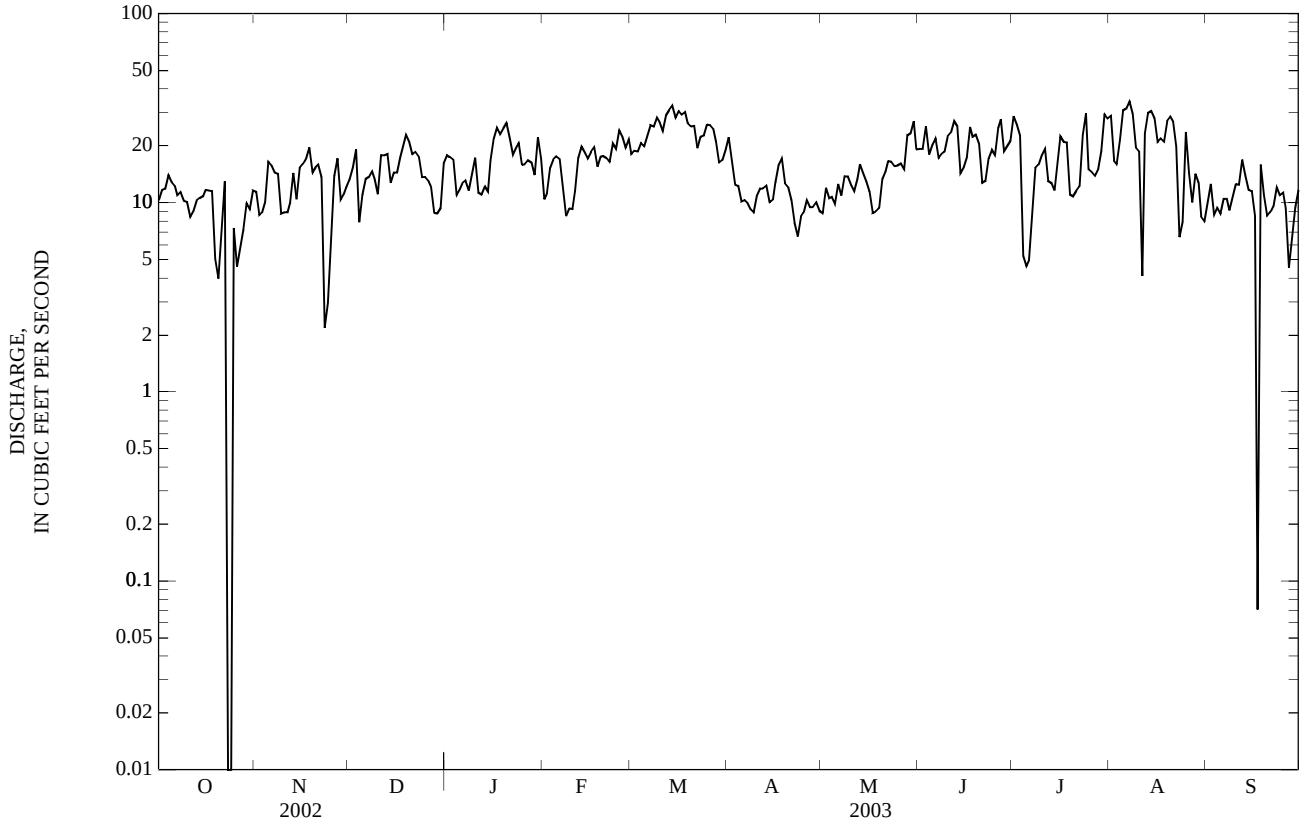
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.3	11.4	13.3	17.8	10.4	17.9	22.2	8.84	19.2	28.8	28.6	10.0
2	11.7	8.57	15.3	17.5	11.1	18.8	16.4	12.0	19.3	26.0	16.6	12.5
3	11.8	8.86	19.1	16.9	15.2	18.7	12.4	10.6	25.4	22.6	15.9	8.65
4	14.0	10.1	7.87	11.0	16.9	20.7	12.2	10.7	18.0	5.26	21.2	9.37
5	12.8	16.5	11.1	11.8	17.5	19.9	10.2	9.81	20.2	4.62	30.8	8.77
6	12.2	15.7	13.4	12.7	16.9	22.4	10.3	12.6	21.8	4.96	31.5	10.5
7	10.9	14.4	13.6	13.0	12.3	25.7	10.0	10.9	17.1	8.25	34.3	10.5
8	11.4	14.2	14.7	11.6	8.52	25.3	9.23	13.8	18.1	15.3	29.5	9.08
9	10.3	8.75	13.3	14.2	9.36	28.3	8.92	13.8	18.4	15.8	19.5	10.7
10	10.1	8.87	11.0	17.3	9.24	26.8	10.9	12.4	22.3	17.8	18.6	12.5
11	8.40	8.87	17.8	11.3	11.5	23.9	11.9	11.6	23.3	19.2	4.08	12.4
12	9.07	10.0	17.8	11.1	17.2	28.9	11.8	13.4	26.9	13.0	23.2	16.9
13	10.2	14.4	18.0	12.1	19.8	30.6	12.3	15.9	25.3	12.7	29.8	13.9
14	10.5	10.4	12.8	11.4	18.6	32.5	10.0	14.3	14.3	11.6	30.4	11.7
15	10.8	15.3	14.4	16.7	17.2	28.3	10.3	12.9	15.3	16.6	28.0	11.6
16	11.7	16.0	14.4	21.9	18.5	30.6	12.8	11.4	17.4	22.4	20.8	8.52
17	11.6	17.1	17.4	24.9	19.6	29.0	15.8	8.80	25.2	20.9	21.8	0.070
18	11.5	19.5	19.6	23.0	15.5	30.1	17.2	8.98	22.3	20.8	21.0	15.9
19	5.04	14.5	22.8	24.8	17.6	26.3	12.6	9.36	22.8	11.1	26.9	10.9
20	3.96	15.4	21.0	26.4	17.7	25.4	12.1	13.3	20.5	10.8	28.4	8.50
21	7.03	15.9	18.0	22.0	17.2	25.5	10.3	14.7	12.7	11.5	26.9	8.91
22	12.9	13.7	18.6	18.0	16.5	19.4	7.81	16.5	13.1	12.2	19.7	9.63
23	0.000	2.17	17.5	19.5	20.5	22.3	6.63	16.5	17.1	22.7	6.57	12.1
24	0.000	2.95	13.7	20.6	19.2	22.7	8.41	15.6	19.0	29.5	7.92	10.9
25	7.33	7.27	13.6	15.8	24.2	25.9	8.83	15.8	17.8	15.0	23.5	11.3
26	4.58	13.9	13.0	15.9	22.4	25.7	10.3	16.1	24.9	14.6	14.2	9.33
27	5.76	17.1	12.1	16.8	19.6	24.5	9.46	15.0	27.5	13.9	10.0	4.51
28	7.20	10.4	8.85	16.3	21.7	21.1	9.49	22.7	18.7	14.9	14.2	6.65
29	9.93	11.2	8.77	14.0	---	16.2	10.0	23.2	19.8	18.8	12.8	9.44
30	9.23	12.2	9.33	22.2	---	16.7	9.06	27.0	21.1	29.2	8.45	11.7
31	11.6	---	16.2	17.0	---	19.0	---	19.1	---	27.7	8.00	---
TOTAL	283.830	365.61	458.32	525.5	461.92	749.1	339.84	437.59	604.8	518.49	633.12	307.430
MEAN	9.16	12.2	14.8	17.0	16.5	24.2	11.3	14.1	20.2	16.7	20.4	10.2
MAX	14.0	19.5	22.8	26.4	24.2	32.5	22.2	27.0	27.5	29.5	34.3	16.9
MIN	0.000	2.17	7.87	11.0	8.52	16.2	6.63	8.80	12.7	4.62	4.08	0.070
AC-FT	563	725	909	1,040	916	1,490	674	868	1,200	1,030	1,260	610

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	12.3	15.0	13.9	16.4	17.4	19.3	12.8	10.6	14.2	17.4	15.5	12.1
MAX	15.5	17.9	14.8	17.0	20.2	24.2	14.8	14.1	20.2	22.3	20.4	14.0
(WY)	(2002)	(2002)	(2003)	(2003)	(2002)	(2003)	(2002)	(2003)	(2003)	(2002)	(2003)	(2001)
MIN	9.16	12.2	12.9	15.9	15.4	15.9	11.3	8.26	8.28	13.1	11.5	10.2
(WY)	(2003)	(2003)	(2002)	(2002)	(2001)	(2001)	(2003)	(2002)	(2001)	(2001)	(2002)	(2003)

50128940 CANAL DE RIEGO DE LAJAS BELOW LAJAS FILTRATION PLANT AT LAJAS, PR—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	5,685.550			
ANNUAL MEAN	15.6		15.6	
HIGHEST ANNUAL MEAN			15.6	2003
LOWEST ANNUAL MEAN			15.6	2003
HIGHEST DAILY MEAN	34.3	Aug 7	45.0	May 6, 2001
LOWEST DAILY MEAN	0.000	Oct 23	0.000	Oct 23, 2002
ANNUAL SEVEN-DAY MINIMUM	5.0	Oct 23	2.5	Aug 15, 2002
MAXIMUM PEAK FLOW	68	Sep 2	98	Sep 15, 2002
MAXIMUM PEAK STAGE	2.57	Sep 2	2.94	Sep 15, 2002
ANNUAL RUNOFF (AC-FT)	11,280		11,280	
10 PERCENT EXCEEDS	25		25	
50 PERCENT EXCEEDS	14		14	
90 PERCENT EXCEEDS	8.8		8.8	



50128945 CANAL DE RIEGO DE LAJAS AT BO. PALMAREJO NR LAJAS, PR

LOCATION.--Lat 18°02'14", long 67°04'44", Hydrologic Unit 21010004, 0.2 mi (0.32 km) south from Palmarejo school, 1.6 mi (2.57 km) southwest from Lajas Plaza Church and 0.5 mi (.80 km) northwest from Universidad de Puerto Rico Estación Agrícola.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--January to current year.

GAGE.--Water stage recorder. Altitude of gage is about 98 ft (30 m) from topographic map.

REMARKS.--Records fair. Controlled by Lago Loco dam.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum discharge 97 ft^3/s (2.75 m^3/s) May 6, 2001, gage height, 3.32 ft (1.01 m); no flow many days each year.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum discharge, 60 ft^3/s (1.70 m^3/s) September 2, gage height, 2.65 ft (0.81 m); no flow many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	10	11	17	7.0	12	A	6.4	18	29	24	4.9
2	10	7.7	9.7	15	7.6	13	9.7	9.5	17	23	10	8.3
3	11	8.0	11	15	12	11	7.6	8.4	26	23	9.5	4.6
4	18	7.7	6.3	8.7	12	13	7.1	8.6	16	4.0	12	4.8
5	15	13	8.5	9.1	10	12	5.4	7.3	18	3.1	21	4.3
6	14	13	10	9.7	9.7	14	6.0	8.7	20	3.5	21	4.7
7	9.8	12	10	9.4	5.4	18	6.7	8.1	14	5.8	27	5.2
8	12	13	12	7.0	2.9	17	6.6	12	15	13	22	4.4
9	8.4	7.8	11	9.9	2.4	23	5.4	12	16	14	10	6.4
10	8.5	7.9	8.7	13	2.6	21	6.2	10	22	14	11	8.6
11	5.4	7.8	15	8.6	3.1	16	6.9	9.2	21	16	2.5	8.6
12	6.5	8.8	14	8.3	7.4	21	6.9	11	25	10	16	12
13	8.8	13	16	9.2	11	20	7.5	14	24	9.6	24	11
14	8.0	8.8	8.5	8.4	11	22	6.0	9.2	10	8.2	25	7.9
15	7.7	11	10	11	12	16	6.1	9.0	11	13	21	7.9
16	9.9	11	11	15	13	18	8.5	5.5	14	16	7.6	6.7
17	9.4	11	15	21	15	14	12	6.0	28	18	8.3	0.00
18	9.7	14	16	21	11	20	15	6.3	23	19	9.6	14
19	4.5	11	20	24	13	16	8.0	5.1	24	8.5	A	8.2
20	3.6	11	16	27	13	17	7.8	7.7	19	8.1	20	6.0
21	5.8	11	17	22	12	18	6.5	9.1	9.2	8.5	21	6.4
22	13	11	18	13	11	11	4.8	12	9.3	9.1	13	6.9
23	0.06	5.4	17	17	16	15	4.2	12	15	19	3.8	8.9
24	0.00	5.9	12	19	14	14	5.4	11	16	25	5.6	8.6
25	6.0	7.4	11	12	20	17	5.5	11	13	11	27	8.8
26	3.8	11	11	12	18	17	7.0	11	22	10	13	7.2
27	5.5	13	9.9	13	12	17	6.2	8.7	25	9.9	8.4	3.0
28	6.1	9.7	6.8	13	17	13	6.3	19	15	11	12	4.8
29	8.4	10	6.7	11	---	8.6	7.0	22	17	11	11	7.1
30	7.7	11	7.0	21	---	9.1	6.7	28	18	22	5.9	8.4
31	10	---	14	15	---	13	---	19	---	21	5.0	---
TOTAL	252.86	302.9	370.1	435.3	301.1	486.7	---	336.8	540.5	416.3	---	208.60
MEAN	8.16	10.1	11.9	14.0	10.8	15.7	---	10.9	18.0	13.4	---	6.95
MAX	18	14	20	27	20	23	--	28	28	29	--	14
MIN	0.00	5.4	6.3	7.0	2.4	8.6	--	5.1	9.2	3.1	--	0.00
AC-FT	502	601	734	863	597	965	---	668	1,070	826	---	414

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

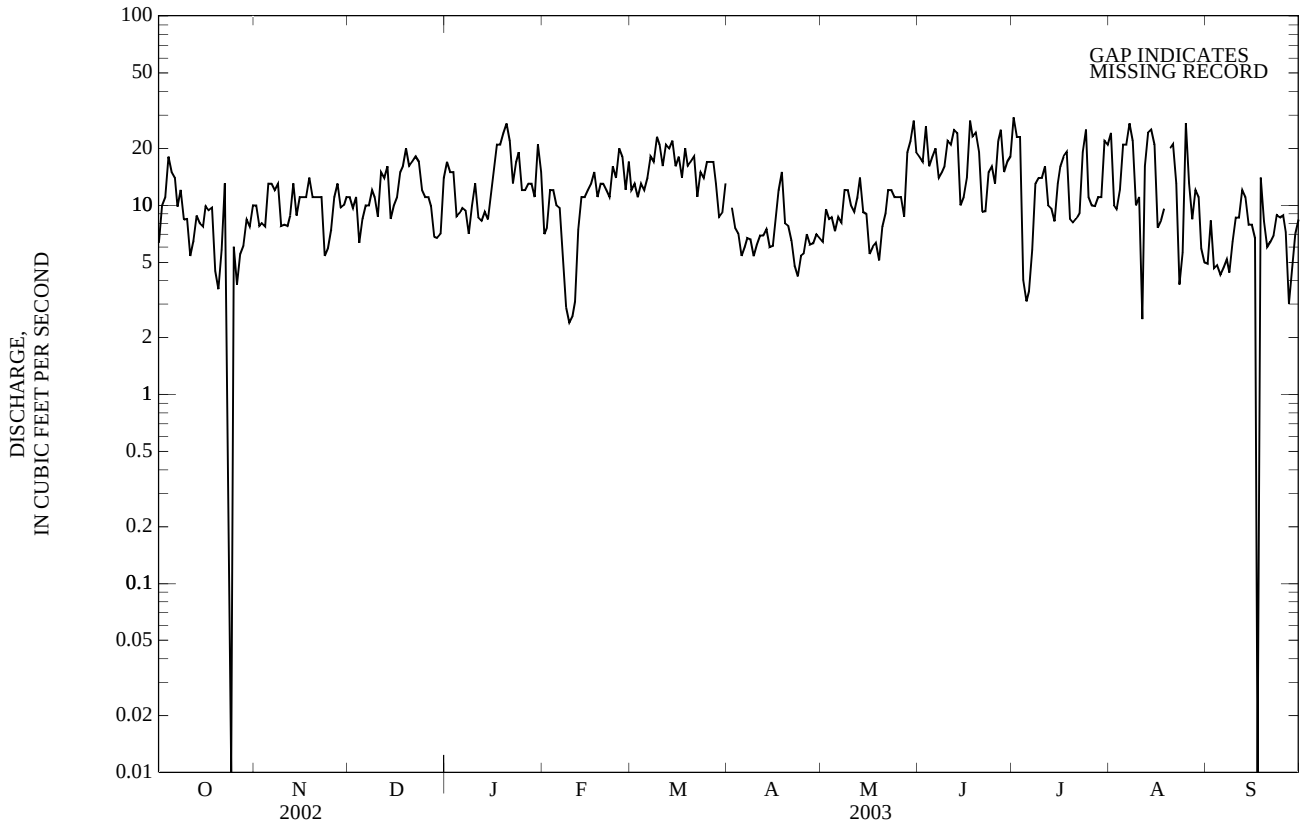
MEAN	10.6	12.7	10.7	13.3	11.9	13.7	---	8.32	12.1	16.3	11.9	9.53
MAX	13.1	15.3	11.9	14.0	14.1	15.7	---	10.9	18.0	20.0	13.6	11.3
(WY)	(2002)	(2002)	(2003)	(2003)	(2002)	(2003)	---	(2003)	(2003)	(2002)	(2001)	(2001)
MIN	8.16	10.1	9.51	12.6	10.8	11.7	---	5.78	7.35	13.4	10.3	6.95
(WY)	(2003)	(2003)	(2002)	(2002)	(2003)	(2001)	---	(2001)	(2001)	(2003)	(2002)	(2003)

SUMMARY STATISTICS — WATER YEARS 2001 - 2003

HIGHEST DAILY MEAN	36	May 6, 2001
LOWEST DAILY MEAN	0.00	Apr 13, 2001
ANNUAL SEVEN-DAY MINIMUM	2.8	May 14, 2001
MAXIMUM PEAK FLOW	97	May 6, 2001
MAXIMUM PEAK STAGE	3.32	May 6, 2001

A No gage-height record

50128945 CANAL DE RIEGO DE LAJAS AT BO. PALMAREJO NR LAJAS, PR—Continued



50129700 RIO LOCO AT GUANICA, PR

LOCATION.--Lat 17°58'33", long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica Plaza and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
NOV													
14...	1525	13	7.5	98	7.0	422	29.0	150	35.2	14.1	2.97	1	27.4
FEB													
06...	1045	4.2	3.4	--	7.4	7,960	26.1	900	82.7	168	49.9	19	1,330
APR													
10...	0850	2.8	1.6	--	7.1	10,700	27.0	--	--	--	--	--	--
JUL													
16...	0950	1.8	3.2	--	7.3	10,700	27.4	--	--	--	--	--	--
SEP													
03...	0730	66	.8	--	7.2	931	26.9	180	38.9	20.2	8.97	4	118

Date	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)
NOV													
14...	151	29.2	<.17	21.7	17.1	--	238	<10	.40	.02	--	.300	<.01
FEB													
06...	195	2,360	.38	22.8	329	.0	4,460	<20	.50	.06	--	<.020	<.01
APR													
10...	144	--	.37	--	--	.3	--	--	.60	.07	--	<.020	<.01
JUL													
16...	203	--	--	--	--	--	--	<10	.30	.03	--	<.020	<.01
SEP													
03...	157	173	.2	18.4	41.3	--	514	27	1.0	.03	.11	.140	.03

Date	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)	Cadmium water, unfltrd ug/L (01027)	Chromium, water, unfltrd recoverable, ug/L (01034)
NOV													
14...	.38	.11	.70	3.1	<10	340	270	--	--	--	--	--	--
FEB													
06...	.44	.10	--	--	30	E1,000	--	37,000	<2	72.5	644	.8	E1.2
APR													
10...	.53	.25	--	--	--	E160	--	6,500	--	--	--	--	--
JUL													
16...	.27	.04	--	--	40	E55	--	3,000	--	--	--	--	--
SEP													
03...	.97	.20	1.1	5.0	30	3,000	--	21,000	--	--	--	--	--

50129700 RIO LOCO AT GUANICA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Manganese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selenium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phenolic compounds, water, unfltrd ug/L (32730)
NOV											
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
06...	<10	<.01	60	20	128	<.02	<3	E.2	<25	<.10	<16
APR											
10...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	--	--	--	--	--	--	--	--	--	--	--
SEP											
03...	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endosulfan, water, unfltrd ug/L (39388)	Carbophenothion, water, unfltrd ug/L (39786)	Chlordane, technical, water, unfltrd ug/L (39350)	Chlorpyrifos water unfltrd ug/L (38932)	Diazinon, water, unfltrd ug/L (39570)	Dichlorprop, water, unfltrd ug/L (82183)	Dieldrin, water, unfltrd ug/L (39380)	Disulfoton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
10...	0850	<.01	<.02	<.01	<.01	<.02	<.1	<.01	E.01	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Heptachlor epoxide water unfltrd ug/L (39420)	Heptachlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Malathion, water, unfltrd ug/L (39530)	Methyl parathion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Methoxychlor, water, unfltrd ug/L (39480)	Parathion, water, unfltrd ug/L (39540)
APR													
10...	<.01	<.01	<.009	<.01	<.014	<.30	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxaphene, water, unfltrd ug/L (39400)	Tribuphos, water, unfltrd ug/L (39040)
APR					
10...	<.1	<.02	<.02	<1	<.02

< -- Less than
E -- Estimated value

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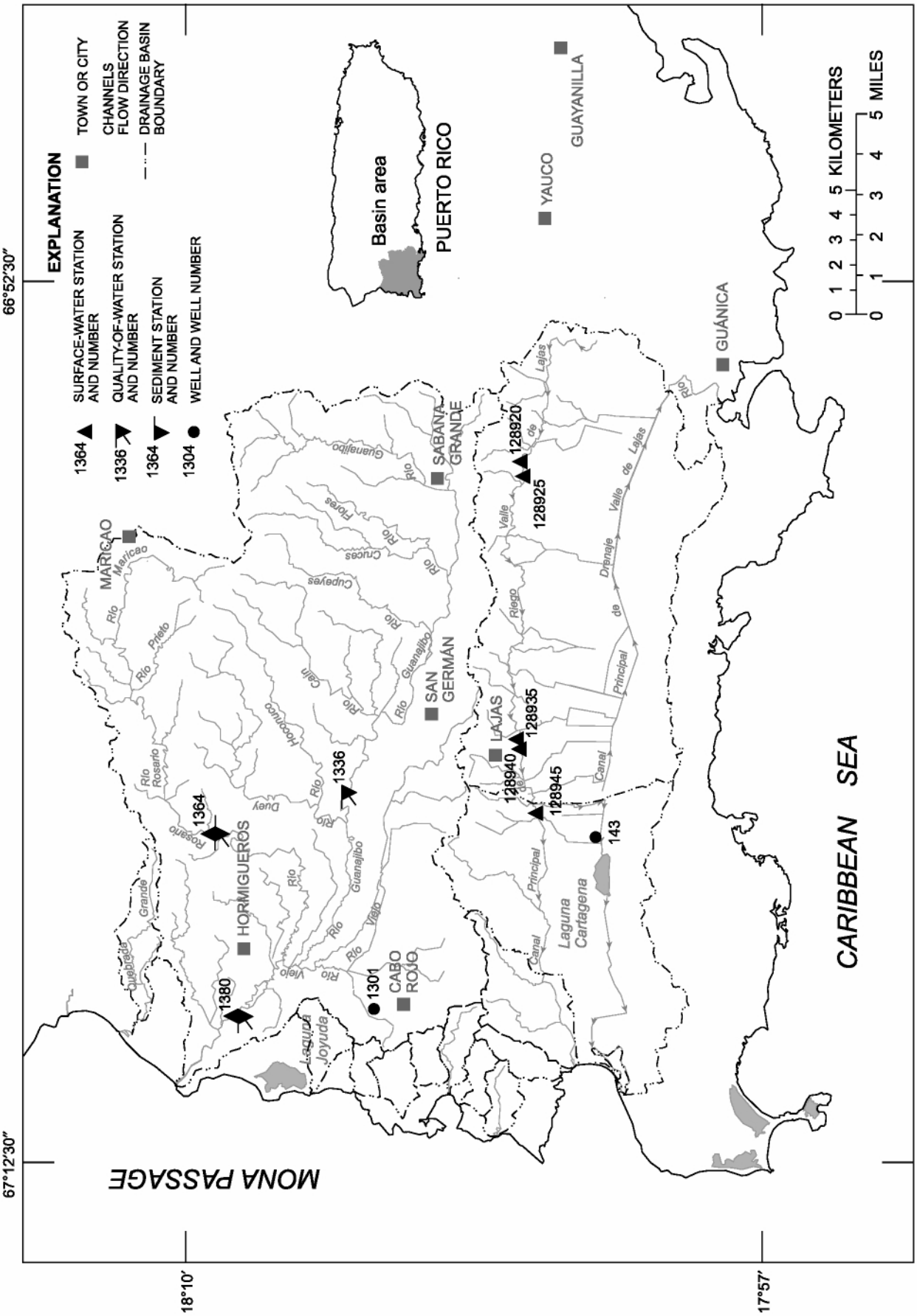


Figure 22. Río Guanajibo basin.

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

LOCATION.--Lat 18°07'18", long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán.

DRAINAGE AREA.--45.5 mi^2 (117.8 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
03...	1700	25	5.8	7.3	96	7.6	539	28.8	240	25.1	43.7	1.94	.5
FEB													
06...	0815	8.3	2.7	3.2	--	7.8	588	24.4	240	25.6	42.6	3.32	.7
APR													
15...	1515	9.6	3.1	6.2	--	7.8	647	29.4	260	26.5	46.5	3.56	.8
JUL													
21...	1735	5.6	6.4	7.7	--	8.0	627	30.7	--	--	--	--	--
SEP													
04...	1230	77	39	5.9	--	7.7	398	28.0	190	22.0	31.8	2.43	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
03...	18.4	230	22.6	<.17	33.1	17.0	--	300	20.3	<10	.40	.11	1.32
FEB													
06...	26.0	238	33.3	.10	30.8	22.0	<.0	326	7.34	<10	1.5	1.00	1.72
APR													
15...	29.7	245	41.9	.13	34.4	24.4	<.1	354	9.14	<10	2.5	1.10	1.51
JUL													
21...	--	134	--	--	--	--	--	--	--	<10	.60	.24	1.50
SEP													
04...	11.5	172	16.2	<.2	31.4	16.3	--	235	49.1	40	1.1	.37	1.14

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
03...	1.40	.08	.29	.39	1.8	8.0	<10	E40	3,100	--	--	--	--
FEB													
06...	2.00	.28	.50	.53	3.5	15.5	10	540	--	7,200	<2	54.1	72
APR													
15...	1.80	.29	1.4	.66	4.3	19.0	20	E1,700	--	52,000	M	65.3	111
JUL													
21...	1.60	.10	.36	.76	2.2	9.7	10	84	--	620	--	--	--
SEP													
04...	1.20	.06	.73	.25	2.3	10.2	20	3,900	--	22,000	--	--	--

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
06...	<.2	1.7	<10	<.01	60	<1	43.1	<.02	<3	.4	<25	<.10	<16
APR													
15...	<.2	1.8	<10	<.01	200	M	73.7	<.02	<3	<.3	<25	E.08	E13
JUL													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003, at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario Plaza.

DRAINAGE AREA.--18.3 mi^2 (47.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	144	43	e24	17	13	17	16	32	28	26	75
2	27	111	44	e23	17	12	23	16	32	25	24	80
3	41	171	40	e22	38	12	58	15	30	20	26	49
4	35	161	39	e18	27	12	45	22	31	32	30	38
5	28	118	37	e18	24	11	16	88	34	35	34	21
6	25	100	36	e18	25	11	12	99	43	24	31	19
7	61	91	35	e18	19	12	15	123	35	20	48	28
8	50	83	36	e18	18	12	11	156	31	20	39	40
9	45	100	36	e18	18	11	12	105	74	29	28	22
10	119	97	33	e20	17	e11	9.9	76	44	41	25	36
11	65	81	32	e23	16	e11	9.4	81	39	46	24	44
12	46	117	31	e23	16	e11	9.3	72	53	55	24	144
13	39	195	31	e22	16	e11	23	69	53	57	37	121
14	48	119	30	e22	16	e10	36	51	60	47	72	43
15	51	96	29	20	16	e10	30	43	39	49	56	31
16	36	83	e30	20	15	e10	15	53	47	88	36	28
17	30	80	e47	19	15	e10	18	67	55	70	91	23
18	77	75	e120	19	15	e10	93	58	56	45	69	23
19	82	75	e29	18	15	e10	58	72	58	38	36	36
20	92	69	e26	18	15	10	26	76	75	41	27	77
21	155	65	e25	18	14	11	43	85	66	18	22	77
22	81	62	e23	18	14	10	49	61	39	16	21	68
23	175	60	e73	20	14	9.9	47	59	25	17	21	46
24	128	57	e65	23	14	9.6	30	50	33	16	20	52
25	183	55	e40	27	14	9.6	39	49	39	20	20	212
26	97	53	e38	22	14	14	44	43	34	31	27	107
27	70	51	e40	20	13	18	27	45	44	31	20	82
28	221	48	e29	19	13	19	21	35	33	27	18	86
29	286	46	e23	18	---	24	18	34	30	24	95	113
30	179	44	e23	18	---	18	17	32	27	63	64	97
31	176	---	e21	17	---	13	---	36	---	42	49	---
TOTAL	2,775	2,707	1,184	621	485	376.1	871.6	1,887	1,291	1,115	1,160	1,918
MEAN	89.5	90.2	38.2	20.0	17.3	12.1	29.1	60.9	43.0	36.0	37.4	63.9
MAX	286	195	120	27	38	24	93	156	75	88	95	212
MIN	25	44	21	17	13	9.6	9.3	15	25	16	18	19
AC-FT	5,500	5,370	2,350	1,230	962	746	1,730	3,740	2,560	2,210	2,300	3,800
CFSM	4.89	4.93	2.09	1.09	0.95	0.66	1.59	3.33	2.35	1.97	2.04	3.49
IN.	5.64	5.50	2.41	1.26	0.99	0.76	1.77	3.84	2.62	2.27	2.36	3.90

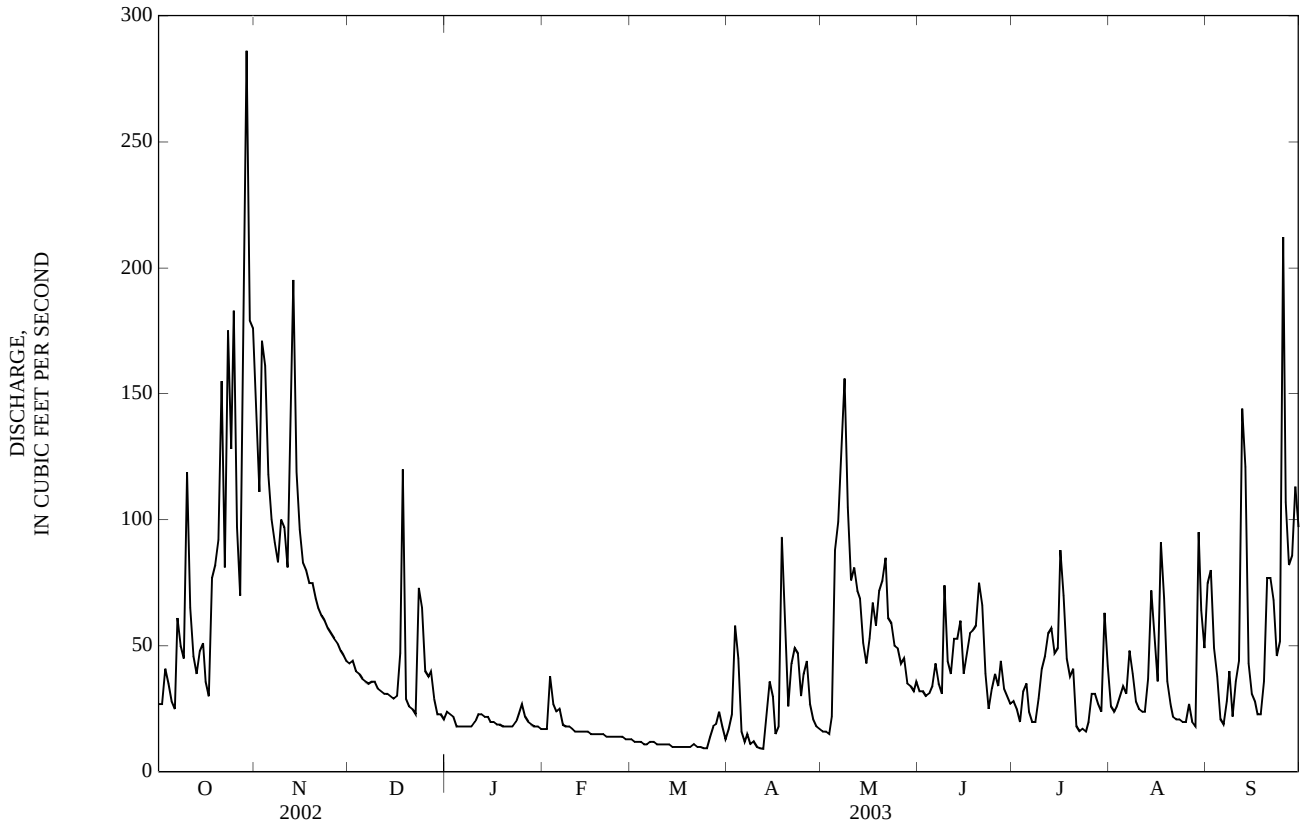
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2003, BY WATER YEAR (WY)

MEAN	107	75.7	36.8	24.2	19.6	20.2	26.5	45.8	44.3	42.3	62.1	100
MAX	206	150	80.9	39.7	37.8	77.0	60.1	122	127	75.2	102	308
(WY)	(1986)	(2000)	(2002)	(1997)	(1995)	(1989)	(2002)	(1993)	(1999)	(1989)	(1989)	(1998)
MIN	33.2	16.1	9.92	15.1	8.55	10.1	11.0	14.8	12.0	20.6	25.1	32.7
(WY)	(1992)	(1992)	(1992)	(1994)	(1992)	(1992)	(1998)	(1997)	(1992)	(2002)	(1991)	(1986)

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 2003	
ANNUAL TOTAL	17,283		16,390.7			
ANNUAL MEAN	47.4		44.9		50.6	
HIGHEST ANNUAL MEAN					75.9	1999
LOWEST ANNUAL MEAN					30.8	1992
HIGHEST DAILY MEAN	286	Oct 29	286	Oct 29	4,420	Sep 22, 1998
LOWEST DAILY MEAN	12	Jul 4	9.3	Apr 12	3.9	May 9, 1992
ANNUAL SEVEN-DAY MINIMUM	14	Jun 29	10	Mar 14	4.2	May 6, 1992
MAXIMUM PEAK FLOW			2,710	Sep 25	13,700	Sep 22, 1998
MAXIMUM PEAK STAGE			9.32	Sep 25	18.66	Sep 22, 1998
INSTANTANEOUS LOW FLOW			8.8	Mar 25	3.7	May 9, 1992
ANNUAL RUNOFF (AC-FT)	34,280		32,510		36,620	
ANNUAL RUNOFF (CFSM)	2.59		2.45		2.76	
ANNUAL RUNOFF (INCHES)	35.13		33.32		37.53	
10 PERCENT EXCEEDS	100		91		114	
50 PERCENT EXCEEDS	32		32		30	
90 PERCENT EXCEEDS	16		14		12	

e Estimated



50136400 RIO ROSARIO NEAR HORMIGUEROS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS 1979 TO CURRENT YEAR.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
15...	0900	93	16	8.4	97	7.2	232	22.2	100	19.6	12.8	1.43	.2
FEB													
05...	1435	18	5.2	8.8	--	8.5	264	23.8	120	24.3	13.2	1.31	.3
APR													
16...	0950	15	4.3	8.7	--	8.1	279	25.0	130	24.7	15.7	1.16	.3
JUL													
22...	1120	17	6.3	8.5	--	8.1	298	27.0	--	--	--	--	--
SEP													
04...	0800	26	42	7.7	--	7.8	239	24.0	120	23.2	13.9	1.46	.2

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
15...	5.78	102	5.46	<.17	27.9	5.5	--	139	35.1	<10	.30	<.01	--
FEB													
05...	7.33	120	6.83	.06	27.0	6.3	.0	158	7.76	<10	<.20	<.01	--
APR													
16...	7.85	122	8.53	.05	28.0	<.2	.6	--	--	<10	<.20	.02	--
JUL													
22...	--	238	--	--	--	--	--	--	--	<10	<.20	.01	--
SEP													
04...	6.04	116	6.77	<.2	24.7	5.6	--	152	10.6	12	.30	.02	.76

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
15...	1.00	<.01	--	.04	1.3	5.8	<10	E850	720	--	--	--	--
FEB													
05...	.930	<.01	--	.03	--	--	<10	250	--	3,600	<2	34.8	E16
APR													
16...	.680	<.01	--	.03	--	--	<10	E150	--	2,300	<2	40.8	<18
JUL													
22...	.630	<.01	--	.04	--	--	<10	100	--	2,000	--	--	--
SEP													
04...	.770	.01	.28	.05	1.1	4.7	10	6,000	--	E14,000	--	--	--

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
05...	<.2	2.5	<10	<.01	120	<1	9.3	<.02	<3	<.3	<25	<.10	<16
APR													
16...	<.2	2.6	<10	<.01	180	M	14.4	<.02	<3	<.3	<25	<.10	E11
JUL													
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1985 to current year.

INSTRUMENTATION.--USDH-48 sediment sampler since October 1985. Automatic sediment sampler since 1986.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L September 22, 1998; Minimum daily mean, 1 mg/L several days during several years.
SEDIMENT LOADS: Maximum daily mean, 356,000 tons (323,000 tonnes) September 22, 1998; Minimum daily mean, 0.05 ton (0.04 tonne) several days during several years.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 681 mg/L September 25, 2003; Minimum daily mean, 2.0 mg/L February 17, 18, 2003.
SEDIMENT LOADS: Maximum daily mean, 2,470 tons (2,241 tonnes) September 25, 2003; Minimum daily mean, e0.08 ton (e0.07 tonne) se veral days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	27	12	0.88	144	101	46	43	6	0.75
2	27	17	1.2	111	46	14	44	6	0.67
3	41	27	4.0	171	236	284	40	5	0.55
4	35	14	1.4	161	155	116	39	6	0.58
5	28	10	0.79	118	47	15	37	6	0.59
6	25	8	0.57	100	18	5.0	36	6	0.59
7	61	73	36	91	13	3.2	35	6	0.57
8	50	23	4.5	83	11	2.5	36	6	0.58
9	45	23	3.0	100	52	27	36	6	0.56
10	119	110	96	97	56	16	33	6	0.51
11	65	42	7.9	81	27	6.0	32	6	0.47
12	46	25	3.0	117	101	80	31	5	0.45
13	39	24	2.5	195	425	570	31	5	0.43
14	48	47	7.0	119	70	25	30	5	0.42
15	51	61	8.4	96	43	12	29	7	0.54
16	36	55	5.3	83	28	6.3	e30	e9	e0.69
17	30	50	4.1	80	26	5.8	e47	e7	e0.87
18	77	107	52	75	15	3.0	e120	e46	e14
19	82	65	15	75	26	5.5	e29	e7	e0.54
20	92	84	28	69	69	13	e26	e7	e0.52
21	155	231	314	65	50	8.9	e25	e7	e0.52
22	81	39	8.5	62	29	4.8	e23	e4	e0.21
23	175	291	360	60	18	3.0	e73	e26	e5.5
24	128	138	65	57	11	1.7	e65	e29	e4.8
25	183	244	239	55	5	0.73	e40	e5	e0.55
26	97	62	16	53	5	0.72	e38	e5	e0.55
27	70	42	8.0	51	6	0.82	e40	e5	e0.55
28	221	518	1,180	48	7	0.90	e29	e5	e0.42
29	286	592	1,270	46	8	0.96	e23	e4	e0.22
30	179	194	109	44	7	0.87	e23	e4	e0.22
31	176	207	149	---	---	---	e21	e4	e0.22
TOTAL	2,775	---	4,000.04	2,707	---	1,278.70	1,184	---	38.64

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	e24	e4	e0.22	17	7	0.32	13	3	0.11
2	e23	e4	e0.22	17	7	0.33	12	3	0.09
3	e22	e4	e0.22	38	22	4.3	12	6	0.19
4	e18	e4	e0.21	27	17	1.3	12	10	0.30
5	e18	e4	e0.21	24	16	1.2	11	13	0.41
6	e18	e4	e0.21	25	17	1.2	11	16	0.49
7	e18	e4	e0.21	19	13	0.65	12	12	0.38
8	e18	e4	e0.21	18	12	0.56	12	8	0.24
9	e18	e4	e0.21	18	10	0.50	11	3	0.11
10	e20	e4	e0.21	17	9	0.41	e11	e3	e0.08
11	e23	e4	e0.22	16	8	0.35	e11	e3	e0.08
12	e23	e4	e0.22	16	7	0.29	e11	e3	e0.08
13	e22	e4	e0.22	16	5	0.23	e11	e3	e0.08
14	e22	e4	e0.23	16	4	0.18	e10	e3	e0.08
15	20	4	0.22	16	3	0.14	e10	e3	e0.08
16	20	4	0.22	15	3	0.11	e10	e3	e0.08
17	19	4	0.21	15	2	0.09	e10	e3	e0.08
18	19	5	0.25	15	2	0.10	e10	e3	e0.08
19	18	6	0.32	15	3	0.12	e10	e5	e0.15
20	18	10	0.48	15	3	0.14	10	7	0.19
21	18	14	0.64	14	4	0.15	11	8	0.24
22	18	17	0.82	14	4	0.17	10	6	0.16
23	20	15	0.81	14	5	0.17	9.9	3	0.09
24	23	11	0.64	14	5	0.19	9.6	3	0.08
25	27	7	0.52	14	5	0.21	9.6	3	0.09
26	22	4	0.21	14	6	0.21	14	3	0.13
27	20	4	0.21	13	6	0.20	18	4	0.18
28	19	5	0.23	13	5	0.16	19	4	0.19
29	18	5	0.26	---	---	---	24	4	0.25
30	18	6	0.29	---	---	---	18	4	0.19
31	17	7	0.33	---	---	---	13	4	0.12
TOTAL	621	---	9.68	485	---	13.98	376.1	---	5.10
		APRIL			MAY			JUNE	
1	17	3	0.14	16	7	0.31	32	4	0.38
2	23	3	0.16	16	7	0.28	32	4	0.32
3	58	66	37	15	6	0.26	30	3	0.26
4	45	30	4.7	22	10	0.81	31	3	0.25
5	16	19	0.80	88	96	47	34	3	0.27
6	12	17	0.56	99	60	19	43	3	0.34
7	15	15	0.61	123	240	129	35	3	0.29
8	11	12	0.38	156	173	91	31	3	0.25
9	12	9	0.28	105	73	26	74	71	28
10	9.9	6	0.15	76	48	14	44	15	2.0
11	9.4	5	0.13	81	37	8.7	39	10	1.1
12	9.3	5	0.13	72	17	3.7	53	9	1.3
13	23	12	1.2	69	32	6.0	53	9	1.2
14	36	21	3.2	51	22	3.1	60	8	1.3
15	30	19	2.0	43	15	1.8	39	7	0.78
16	15	12	0.48	53	32	9.5	47	7	0.85
17	18	11	0.52	67	30	6.3	55	6	0.90
18	93	82	30	58	10	1.7	56	25	6.6
19	58	35	7.1	72	35	9.3	58	7	1.2
20	26	6	0.39	76	56	18	75	52	29
21	43	19	3.4	85	56	16	66	37	8.9
22	49	24	3.3	61	16	2.6	39	15	1.6
23	47	16	2.0	59	13	2.0	25	12	0.83
24	30	13	1.0	50	11	1.4	33	12	1.1
25	39	30	7.3	49	9	1.2	39	12	1.3
26	44	26	3.5	43	7	0.84	34	12	1.1
27	27	9	0.63	45	7	0.81	44	12	1.4
28	21	8	0.45	35	6	0.59	33	10	0.89
29	18	8	0.37	34	6	0.53	30	8	0.64
30	17	7	0.34	32	5	0.46	27	5	0.39
31	---	---	---	36	5	0.47	---	---	---
TOTAL	871.6	---	112.22	1,887	---	422.66	1,291	---	94.74

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR.—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	28	5	0.38	26	43	3.0	75	215	89
2	25	5	0.34	24	37	2.3	80	50	13
3	20	5	0.27	26	31	2.2	49	18	2.4
4	32	5	0.43	30	34	3.7	38	17	1.7
5	35	19	2.7	34	18	2.1	21	16	0.91
6	24	15	0.93	31	9	0.76	19	15	0.74
7	20	26	1.4	48	37	9.6	28	21	2.8
8	20	5	0.29	39	32	4.0	40	22	2.9
9	29	12	1.6	28	21	1.5	22	12	0.73
10	41	22	2.5	25	18	1.2	36	30	7.8
11	46	18	2.2	24	15	1.0	44	33	7.5
12	55	28	7.2	24	10	0.68	144	334	657
13	57	31	5.4	37	18	3.9	121	140	80
14	47	22	2.8	72	99	32	43	27	3.1
15	49	20	2.7	56	29	4.8	31	17	1.4
16	88	86	41	36	17	1.7	28	8	0.61
17	70	28	5.7	91	437	414	23	7	0.43
18	45	21	2.5	69	70	18	23	6	0.41
19	38	18	1.9	36	20	2.0	36	6	0.61
20	41	16	1.7	27	13	0.98	77	76	29
21	18	13	0.64	22	11	0.63	77	79	25
22	16	10	0.44	21	11	0.63	68	24	4.5
23	17	8	0.36	21	12	0.67	46	23	4.0
24	16	5	0.23	20	13	0.69	52	34	16
25	20	5	0.25	20	11	0.63	212	681	2,470
26	31	27	5.1	27	10	0.73	107	151	45
27	31	12	1.1	20	8	0.44	82	33	7.5
28	27	10	0.71	18	8	0.38	86	16	3.7
29	24	9	0.60	95	600	532	113	12	3.7
30	63	91	50	64	47	8.5	97	9	2.4
31	42	70	8.9	49	10	1.4	---	---	---
TOTAL	1,115	---	152.27	1,160	---	1,056.12	1,918	---	3,483.84
YEAR	16,390.7	10,667.99							

e Estimated

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km) west of Hormigueros, and 2.0 mi (3.2 km) downstream from Río Rosario.

DRAINAGE AREA.--120 mi^2 (311 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to November 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair, except those for estimated daily discharges which are poor. Gage-height and precipitation satellite telemetry at station. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e110	e360	e100	e49	31	e9.8	62	57	45	38	33	97
2	e113	e305	e83	e53	33	e10	101	52	44	51	29	245
3	e112	e335	e70	e62	41	e9.6	121	49	41	29	29	e298
4	e110	e270	e90	e48	56	e11	255	47	39	27	26	e221
5	e120	e190	e75	e45	41	e9.3	81	267	40	67	38	e90
6	e200	e135	e63	e43	41	8.2	56	258	38	43	26	e130
7	e145	e120	e61	e42	27	7.5	55	245	47	29	36	231
8	e240	e112	e64	e43	25	8.5	49	302	36	26	52	188
9	e415	e135	e62	e45	24	8.2	44	391	60	31	29	104
10	e590	e115	e60	e46	22	7.3	40	130	63	35	23	89
11	e350	e110	e58	e51	22	7.3	40	123	44	32	24	152
12	e190	e240	e57	e44	21	7.6	40	105	37	35	25	259
13	e135	e295	e57	e42	22	6.9	39	102	35	47	33	759
14	e114	e270	56	e41	25	7.5	53	80	36	33	66	314
15	e112	e235	54	e40	16	7.7	64	71	32	31	79	163
16	e108	e190	54	e41	15	7.5	38	70	30	47	41	135
17	e106	e130	55	e38	15	7.9	88	99	31	71	51	117
18	e120	e175	82	e36	14	8.5	361	95	39	42	93	120
19	e265	e140	65	e39	13	10	366	89	47	35	43	258
20	e240	e95	59	e35	13	15	180	83	34	41	41	306
21	e335	e87	60	e34	13	10	414	106	66	71	65	221
22	e470	e85	63	e33	13	11	328	139	35	40	83	212
23	e375	e80	90	33	12	12	250	149	29	31	45	150
24	e270	e76	87	43	11	13	302	85	27	27	37	141
25	e290	e78	e67	57	e13	12	281	71	26	29	41	224
26	e185	e80	e58	43	e10	17	189	63	24	28	64	179
27	e155	e74	e80	38	e9.8	46	114	60	30	45	49	117
28	e135	e72	e63	34	e11	50	87	55	37	34	44	97
29	e335	e85	e52	33	---	78	74	51	26	30	108	95
30	e345	e70	e60	32	---	68	65	47	24	31	102	107
31	e390	---	e55	31	---	e40	---	45	---	70	81	---
TOTAL	7,180	4,744	2,060	1,294	609.8	532.3	4,237	3,586	1,142	1,226	1,536	5,819
MEAN	232	158	66.5	41.7	21.8	17.2	141	116	38.1	39.5	49.5	194
MAX	590	360	100	62	56	78	414	391	66	71	108	759
MIN	106	70	52	31	9.8	6.9	38	45	24	26	23	89
AC-FT	14,240	9,410	4,090	2,570	1,210	1,060	8,400	7,110	2,270	2,430	3,050	11,540
CFSM	1.93	1.32	0.55	0.35	0.18	0.14	1.18	0.96	0.32	0.33	0.41	1.62
IN.	2.23	1.47	0.64	0.40	0.19	0.17	1.31	1.11	0.35	0.38	0.48	1.80

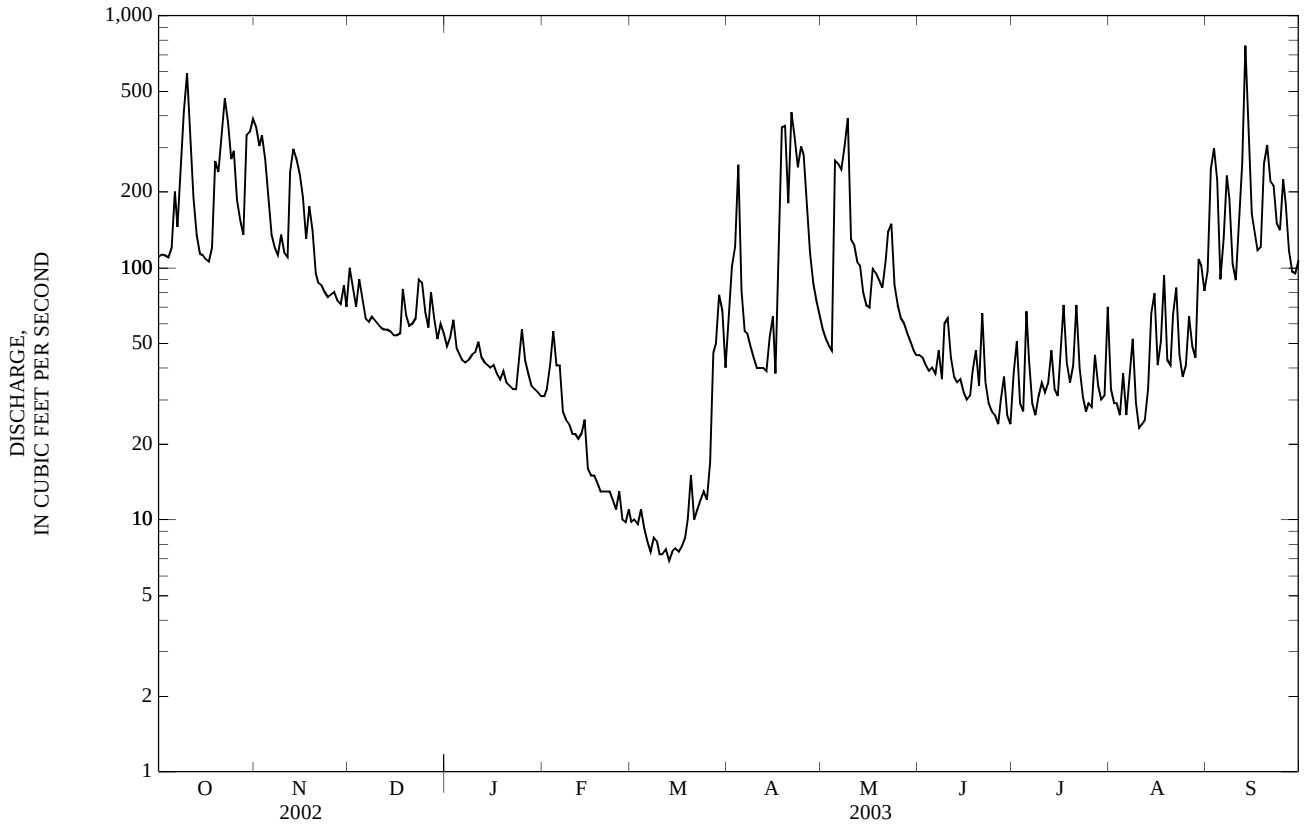
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2003, BY WATER YEAR (WY)

MEAN	446	374	128	60.3	49.7	44.6	77.7	177	107	97.8	210	457
MAX	1,254	1,518	422	112	119	244	316	698	504	240	757	2,075
(WY)	(1986)	(1978)	(1976)	(1997)	(1996)	(1989)	(1989)	(2001)	(1979)	(1984)	(1988)	(1975)
MIN	97.5	42.7	15.4	13.8	13.9	10.6	16.1	12.7	9.23	26.4	42.3	78.5
(WY)	(1992)	(1992)	(1992)	(1973)	(1977)	(1977)	(1977)	(1977)	(1977)	(1976)	(1976)	(1997)

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1973 - 2003	
ANNUAL TOTAL	38,216		33,966.1			
ANNUAL MEAN	105		93.1		187	
HIGHEST ANNUAL MEAN					402	1979
LOWEST ANNUAL MEAN					69.6	1994
HIGHEST DAILY MEAN	1,120	Apr 24	759	Sep 13	35,000	Sep 16, 1975
LOWEST DAILY MEAN	25	Mar 6	6.9	Mar 13	5.0	Jun 18, 1977
ANNUAL SEVEN-DAY MINIMUM	27	Mar 3	7.4	Mar 10	5.5	Jun 17, 1977
MAXIMUM PEAK FLOW			1,350	Sep 13	128,000	Sep 16, 1975
MAXIMUM PEAK STAGE			18.00	Sep 13	28.50	Sep 16, 1975
INSTANTANEOUS LOW FLOW					4.6	Jun 22, 1977
ANNUAL RUNOFF (AC-FT)	75,800		67,370		135,800	
ANNUAL RUNOFF (CFSM)	0.873		0.775		1.56	
ANNUAL RUNOFF (INCHES)	11.85		10.53		21.22	
10 PERCENT EXCEEDS	264		247		409	
50 PERCENT EXCEEDS	61		56		78	
90 PERCENT EXCEEDS	34		15		23	

e Estimated



50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
NOV													
15...	1145	237	35	7.2	87	7.3	338	24.8	160	23.4	24.5	1.49	.3
FEB													
05...	0830	41	24	7.3	--	8.0	385	23.0	170	26.2	24.3	1.89	.5
APR													
15...	1245	56	36	7.7	--	7.8	333	25.9	150	24.8	20.8	1.83	.4
JUL													
21...	1545	64	81	5.6	--	7.5	308	27.6	--	--	--	--	--
SEP													
05...	0830	89	28	6.2	--	7.6	396	27.4	180	28.0	27.9	2.87	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
NOV													
15...	8.71	149	8.84	<.17	29.6	10.5	--	196	126	36	.30	.03	.84
FEB													
05...	13.5	166	15.2	.09	26.4	12.9	<.0	220	24.4	21	<.20	.04	.98
APR													
15...	10.9	134	13.1	.07	25.7	11.4	.5	189	28.4	22	.50	.03	1.18
JUL													
21...	--	108	--	--	--	--	--	--	--	53	.70	.10	.78
SEP													
05...	13.2	174	14.8	<.2	30.1	16.9	--	238	57.3	29	.60	.11	1.05

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
NOV													
15...	.850	.01	.27	.15	1.1	5.1	<10	E890	830	--	--	--	--
FEB													
05...	1.00	.02	--	.19	--	--	<10	2,800	--	33,000	<2	51.8	28
APR													
15...	1.20	.02	.47	.16	1.7	7.5	10	E1,100	--	20,000	<2	50.9	31
JUL													
21...	.830	.05	.60	.29	1.5	6.8	20	E11,000	--	51,000	--	--	--
SEP													
05...	1.10	.05	.49	.22	1.7	7.5	20	2,800	--	E19,000	--	--	--

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
NOV													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
05...	<.2	3.5	<10	<.01	620	<1	52.4	<.02	<3	E.2	<25	<.10	<16
APR													
15...	<.2	5.8	<10	<.01	1,040	M	69.1	<.02	<3	<.3	<25	<.10	E9
JUL													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
APR													
15...	1245	<.01	.04	<.01	<.01	<.03	<.1	<.02	<.03	<.02	<.017	<.30	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
APR													
15...	<.02	<.02	<.009	<.01	<.014	<.30	<.02	<.012	<.016	<.014	<.009	<.015	<.02

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
APR					
15...	<.1	<.03	<.02	<1	<.03

< -- Less than

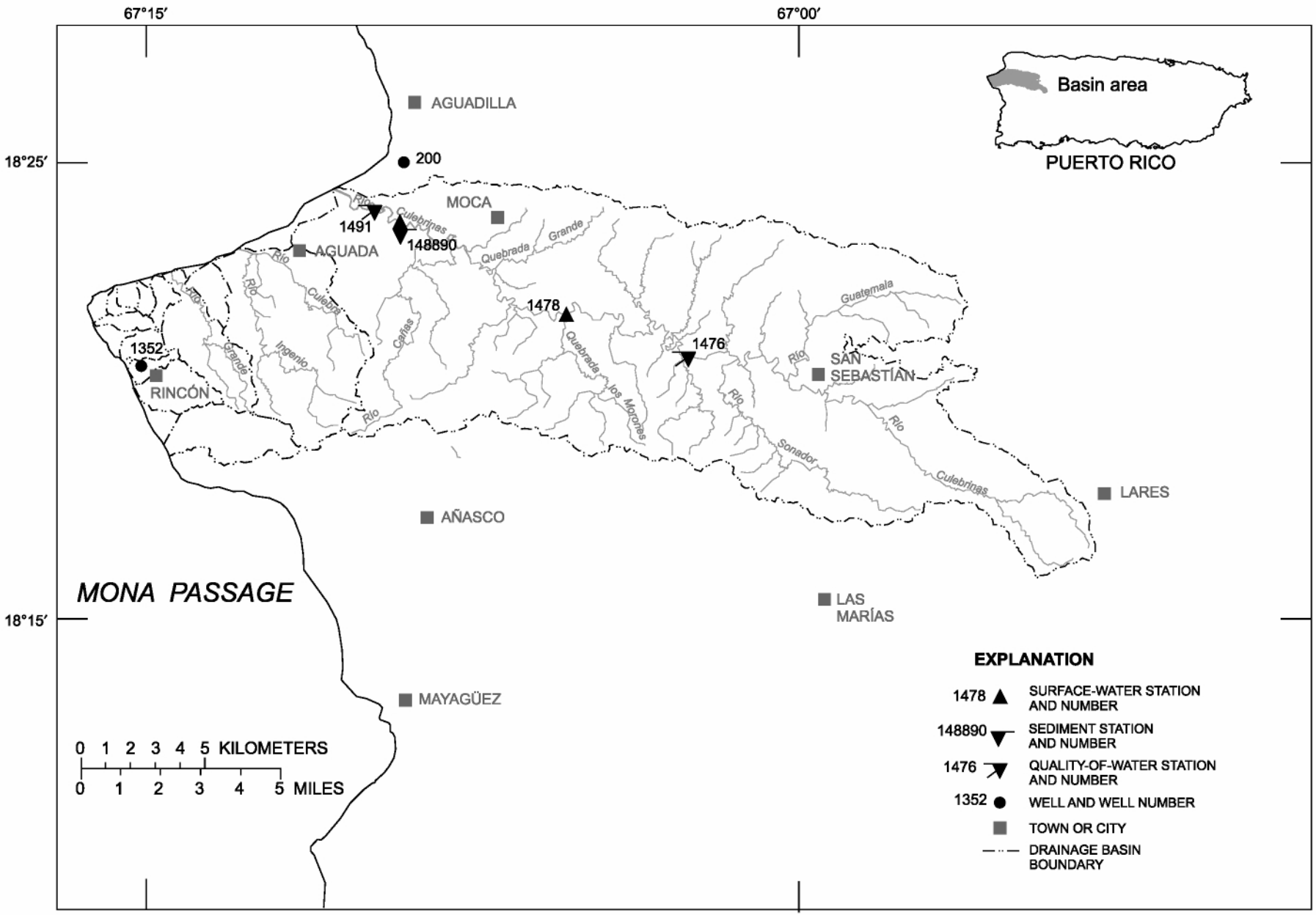


Figure 23. Río Yagüez to Río Grande de Añasco basins.

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagüez Plaza.

DRAINAGE AREA.--6.7 mi^2 (17.3 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
03...	1400	15	4.8	8.7	104	7.5	307	24.6	130	36.4	10.2	1.77	.4
FEB													
05...	1130	7.4	14	8.6	--	8.2	273	23.1	110	31.1	8.94	1.86	.4
APR													
16...	1205	6.1	20	8.3	--	7.7	263	26.2	110	28.8	8.81	2.04	.4
JUL													
22...	0830	9.1	9.2	8.4	--	7.9	302	24.5	--	--	--	--	--
SEP													
04...	1020	11	9.5	7.9	--	7.9	286	25.4	130	37.7	9.70	2.52	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
03...	10.4	139	8.91	<.17	33.4	6.0	--	191	7.87	<10	.20	<.01	--
FEB													
05...	9.15	120	7.86	.08	29.3	7.0	<.0	167	3.34	10	<.20	.06	.99
APR													
16...	10.2	105	10.1	.08	27.9	7.7	.3	159	2.62	12	<.20	.02	--
JUL													
22...	--	131	--	--	--	--	--	--	--	<10	<.20	<.01	--
SEP													
04...	11.2	126	9.70	<.2	29.8	6.0	--	182	5.33	<40	.30	.02	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
03...	1.00	<.01	--	.05	1.2	5.3	<10	24,000	E1,110	--	--	--	--
FEB													
05...	1.00	.01	--	.05	--	--	<10	2,200	--	40,000	<2	52.5	20
APR													
16...	.830	<.01	--	.04	--	--	<10	E120	--	4,800	E1	136	29
JUL													
22...	.780	<.01	--	.04	--	--	<10	280	--	4,400	--	--	--
SEP													
04...	.820	<.01	.28	.04	1.1	5.0	<10	E1,400	--	2,900	--	--	--

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
05...	<.2	E.6	<10	<.01	200	<1	18.0	<.02	<3	E.1	<25	<.10	<16
APR													
16...	<.2	E.5	<10	<.01	400	M	26.4	<.02	<3	<.3	<25	<.10	E10
JUL													
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50141500 LAGO GUAYO AT DAMSITE NEAR CASTAÑER, PR

LOCATION.--Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km) southwest of Lago Yahuecas, 2.6 mi (4.2 km) southwest of Lago Prieto, 2.1 mi (3.4 km) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA.--9.60 mi^2 (24.9 km^2).

PERIOD OF RECORD.--April 1980 to January 1985, June 1989 to current year. Prior to October 1994, published as Lago Guayo near Ca stañer.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the Southwestern Puerto Rico Project. The maximum storage is 17,400 acre-ft (21.5 hm^3) for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60 ft (18.29 m) and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft^3/s (855 m^3/s), at a reservoir elevation of 70 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station. New capacity table based U.S. Geological Survey Water-Resources Investigations Report 99-4053, October 1997.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation,1,465.35 ft (446.64 m), September 22, 1998; minimum elevation recorded, 1,415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,457.83 ft (444.35 m), November 15; minimum elevation 1,436.93 ft (437. 98 m), May 12.

Capacity Table
(based on data from U.S. Geological Survey Water-Resources Investigations Report 99-4053, 1997)
(Elevation in ft, capacity in acre-ft)

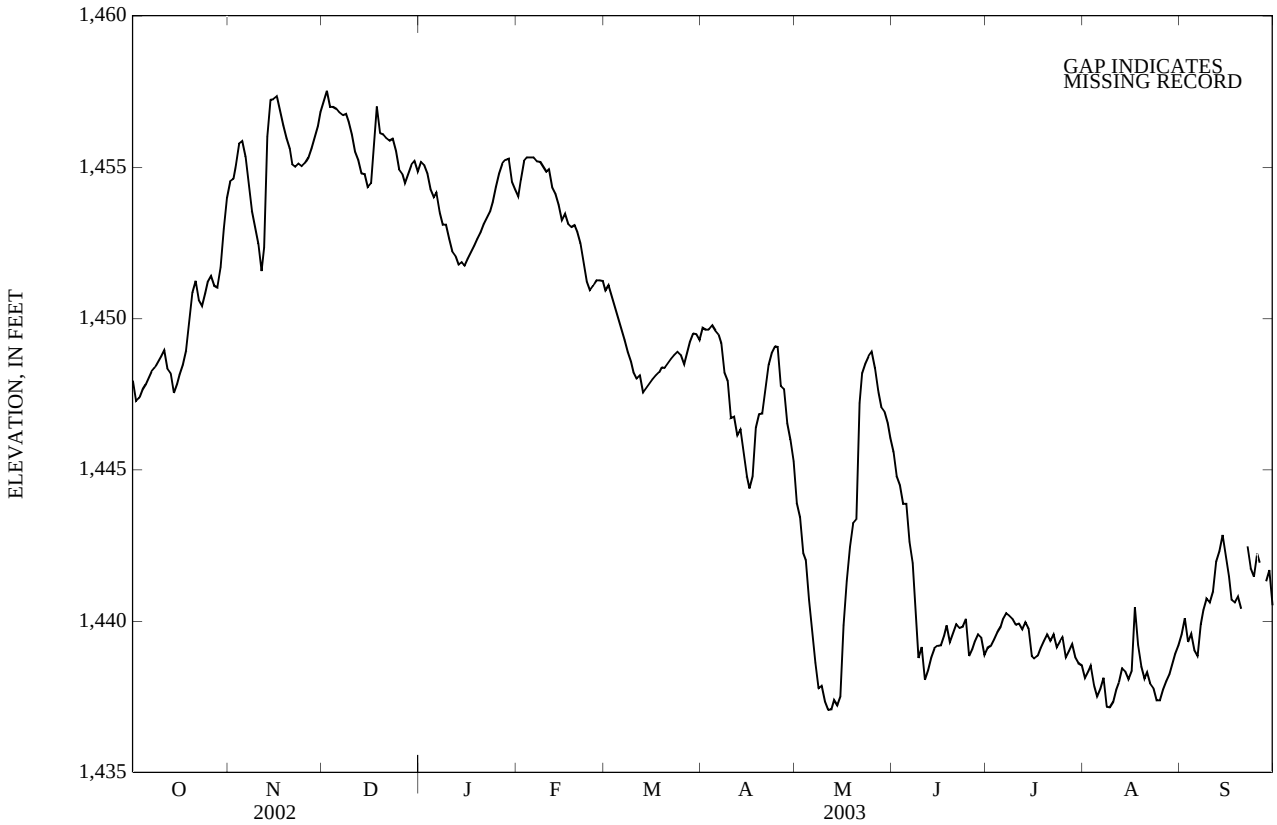
Elevation	Contents	Elevation	Contents
1,333	0	1,400	2,745
1,353	241	1,440	8,622
1,373	820	1,460	13,436

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,447.95	1,454.52	1,457.19	1,455.18	1,454.05	1,450.92	1,449.71	1,443.90	1,445.59	1,439.13	1,438.14	1,439.56
2	1,447.28	1,454.61	1,457.54	1,455.08	1,454.60	1,451.09	1,449.65	1,443.44	1,444.80	1,439.18	1,438.35	1,440.09
3	1,447.38	1,455.07	1,457.00	1,454.80	1,455.21	1,450.71	1,449.63	1,442.26	1,444.49	1,439.40	1,438.54	1,439.31
4	1,447.66	1,455.78	1,457.00	1,454.27	1,455.32	1,450.36	1,449.77	1,442.02	1,443.89	1,439.64	1,437.90	1,439.58
5	1,447.83	1,455.85	1,456.93	1,454.02	1,455.33	1,450.02	1,449.60	1,440.71	1,443.88	1,439.81	1,437.51	1,439.03
6	1,448.05	1,455.36	1,456.81	1,454.16	1,455.33	1,449.66	1,449.46	1,439.71	1,442.62	1,440.08	1,437.78	1,438.86
7	1,448.24	1,454.50	1,456.73	1,453.53	1,455.21	1,449.31	1,449.20	1,438.61	1,441.91	1,440.26	1,438.13	1,439.91
8	1,448.38	1,453.56	1,456.77	1,453.10	1,455.19	1,448.90	1,448.23	1,437.78	1,440.05	1,440.18	1,437.17	1,440.38
9	1,448.56	1,453.03	1,456.51	1,453.11	1,455.02	1,448.59	1,447.94	1,437.85	1,438.78	1,440.07	1,437.15	1,440.76
10	1,448.76	1,452.47	1,456.10	1,452.64	1,454.85	1,448.22	1,446.72	1,437.35	1,439.15	1,439.89	1,437.33	1,440.62
11	1,448.97	1,451.56	1,455.53	1,452.21	1,454.92	1,448.02	1,446.76	1,437.08	1,438.07	1,439.92	1,437.75	1,440.99
12	1,448.34	1,452.35	1,455.25	1,452.08	1,454.34	1,448.11	1,446.15	1,437.10	1,438.39	1,439.73	1,437.99	1,441.98
13	1,448.20	1,456.01	1,454.81	1,451.77	1,454.12	1,447.55	1,446.34	1,437.38	1,438.81	1,439.98	1,438.45	1,442.31
14	1,447.55	1,457.24	1,454.79	1,451.86	1,453.76	1,447.70	1,445.55	1,437.23	1,439.11	1,439.77	1,438.35	1,442.84
15	1,447.85	1,457.26	1,454.34	1,451.75	1,453.25	1,447.84	1,444.79	1,437.51	1,439.19	1,438.86	1,438.08	1,442.17
16	1,448.16	1,457.34	1,454.46	1,451.98	1,453.47	1,447.99	1,444.40	1,439.87	1,439.20	1,438.77	1,438.36	1,441.47
17	1,448.47	1,456.85	1,455.88	1,452.20	1,453.14	1,448.12	1,444.80	1,441.32	1,439.52	1,438.84	1,440.46	1,440.71
18	1,448.95	1,456.39	1,457.00	1,452.42	1,453.03	1,448.22	1,446.41	1,442.44	1,439.87	1,439.12	1,439.21	1,440.62
19	1,449.95	1,455.96	1,456.14	1,452.64	1,453.08	1,448.39	1,446.85	1,443.22	1,439.31	1,439.35	1,438.52	1,440.82
20	1,450.86	1,455.63	1,456.09	1,452.86	1,452.87	1,448.38	1,446.86	1,443.36	1,439.62	1,439.57	1,438.12	1,440.42
21	1,451.25	1,455.09	1,455.97	1,453.13	1,452.50	1,448.52	1,447.64	1,447.20	1,439.91	1,439.36	1,438.33	A
22	1,450.61	1,455.01	1,455.87	1,453.35	1,451.85	1,448.66	1,448.47	1,448.20	1,439.78	1,439.57	1,437.93	1,442.46
23	1,450.42	1,455.12	1,455.94	1,453.56	1,451.23	1,448.80	1,448.88	1,448.51	1,439.82	1,439.15	1,437.80	1,441.75
24	1,450.84	1,455.03	1,455.55	1,453.85	1,450.94	1,448.90	1,449.08	1,448.75	1,440.08	1,439.34	1,437.38	1,441.47
25	1,451.22	1,455.15	1,454.93	1,454.36	1,451.08	1,448.79	1,449.07	1,448.89	1,438.84	1,439.46	1,437.40	1,442.23
26	1,451.41	1,455.31	1,454.79	1,454.81	1,451.27	1,448.50	1,447.77	1,448.36	1,439.08	1,438.81	1,437.74	1,441.94
27	1,451.09	1,455.63	1,454.48	1,455.12	1,451.26	1,448.89	1,447.67	1,447.64	1,439.34	1,439.02	1,438.02	A
28	1,451.04	1,456.01	1,454.79	1,455.24	1,451.25	1,449.24	1,446.55	1,447.08	1,439.57	1,439.26	1,438.26	1,441.32
29	1,451.70	1,456.37	1,455.08	1,455.28	---	1,449.52	1,446.00	1,446.94	1,439.46	1,438.80	1,438.63	1,441.68
30	1,452.96	1,456.83	1,455.21	1,454.53	---	1,449.50	1,445.29	1,446.55	1,438.89	1,438.61	1,438.93	1,440.52
31	1,454.00	---	1,454.87	1,454.27	---	1,449.31	---	1,446.06	---	1,438.55	1,439.20	---
MAX	1,454.00	1,457.34	1,457.54	1,455.28	1,455.33	1,451.09	1,449.77	1,448.89	1,445.59	1,440.26	1,440.46	---
MIN	1,447.28	1,451.56	1,454.34	1,451.75	1,450.94	1,447.55	1,444.40	1,437.08	1,438.07	1,438.55	1,437.15	---

A No gage-height record.

50141500 LAGO GUAYO AT DAMSITE NEAR CASTAÑER, PR—Continued



50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

LOCATION.--Lat 18°15'26", long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares Plaza.

DRAINAGE AREA.--26.3 mi^2 (68.1 km^2) this does not include 36.2 mi^2 (93.8 km^2) which contributes only during high floods, and 3.5 mi^2 (9.1 km^2) which contributes only part of its storm runoff.

PERIOD OF RECORD.--Water years 1959-68, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
05...	1130	41	7.1	9.4	111	7.5	281	23.1	120	33.5	9.60	1.74	.5
MAR													
25...	0945	12	5.2	11.4	--	8.4	317	24.7	--	--	--	--	--
MAY													
13...	1335	73	32	8.9	--	8.1	245	26.5	99	27.0	7.57	1.70	.4
JUN													
24...	1415	33	--	8.6	--	8.5	292	30.1	--	--	--	--	--
AUG													
21...	1200	30	19	8.6	--	8.2	277	28.5	--	--	--	--	--
SEP													
16...	1320	30	14	9.4	--	8.3	264	30.0	110	29.7	8.57	1.75	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
05...	11.6	107	8.42	<.17	32.8	20.5	--	183	20.0	<10	<.20	<.01	--
MAR													
25...	--	116	--	--	--	--	<.1	--	--	--	<.20	.02	--
MAY													
13...	9.73	87	7.83	<.17	29.3	18.4	<.1	154	30.4	17	<.20	.02	--
JUN													
24...	--	--	--	--	--	--	--	--	--	7	<.20	.02	--
AUG													
21...	--	102	--	--	--	--	--	--	--	18	.30	.03	--
SEP													
16...	10.1	102	8.50	<.2	31.9	18.3	--	170	13.7	14	<.20	.03	.61

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
05...	1.20	<.01	--	.05	--	--	<10	330	570	--	--	--	--
MAR													
25...	.240	<.01	--	.02	--	--	--	E11	--	E540	--	--	--
MAY													
13...	.950	<.01	--	.04	--	--	<10	280	--	E14,000	<2	22.0	<18
JUN													
24...	.690	<.01	--	.03	--	--	--	E35	--	60	<1	--	--
AUG													
21...	.650	<.01	.27	.03	.95	4.2	<10	500	--	7,000	--	--	--
SEP													
16...	.620	.01	--	.05	--	--	20	98	--	3,000	--	--	--

50143000 RIO GRANDE DE ANASCO NEAR LARES, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25...	--	--	--	--	--	--	--	--	--	--	--	<.10	<16
MAY													
13...	<.2	<.8	10	<.01	520	<1	39.3	<.02	<3	<.3	E22	<.10	<16
JUN													
24...	--	--	2	--	--	<2	--	<.1	--	--	--	--	--
AUG													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'05", long 67°03'05", Hydrologic Unit 21010003, on left bank, at downstream side of bridge on Highway 108, 0.4 mi (0.6 km) downstream from Quebrada La Zumbadora, 4.4 mi (7.1 km) northwest of Las Marías, 5.4 mi (8.7 km) southwest of San Sebastián.

DRAINAGE AREA.--94.3 mi^2 (244.2 km^2), does not include 36.2 mi^2 (93.8 km^2) which contributes only during high floods, and 3.5 mi^2 (9.1 km^2) which contributes only part of its storm runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1963 to current year.

REVISED RECORDS.--WDR PR-2,000-1: 1999. Revised maximum discharge and revised daily discharges, in cubic feet per second, for water year 1999, are given below. These figures supersede those published in the report for 1999.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft (31.614 m) above mean sea level (Puerto Rico Department of Public Works bench mark). Previous to October 30, 1975, at site 600 ft (180 m) upstream at same datum.

REMARKS.--Records fair. Transbasin diversion (except during floods) to Río Yauco basin for hydroelectric power and irrigation above Lago Guayo, Yahuecas, and Prieto, combined useable storage 17,300 acre-ft (21.3 hm^3). Limited storm runoff is contributed to basin by 3.5 mi^2 (9.1 km^2) above Río Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

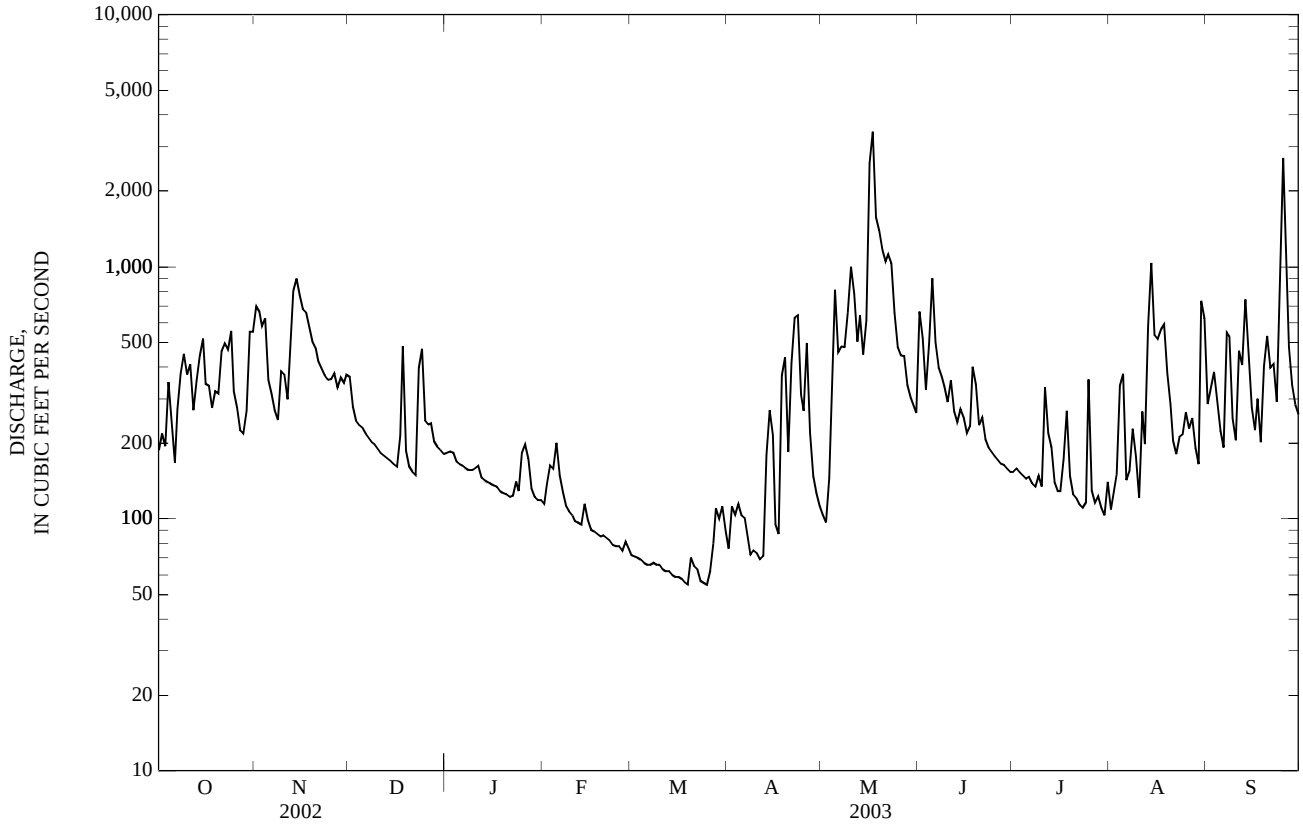
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	695	367	183	115	72	76	104	664	154	109	285
2	218	662	279	185	137	71	112	97	521	158	130	328
3	194	584	245	183	163	70	104	145	324	153	150	383
4	349	625	235	169	158	69	115	391	498	148	339	293
5	237	356	230	165	200	67	103	806	898	144	375	225
6	167	314	218	163	149	66	101	459	500	147	142	192
7	272	270	209	159	128	66	87	484	398	138	155	549
8	375	246	201	156	113	67	72	481	364	134	227	532
9	451	385	198	156	107	66	75	660	334	148	177	249
10	373	374	190	158	103	66	73	1,000	290	134	121	205
11	410	298	182	162	98	63	69	782	354	332	266	463
12	269	447	178	146	97	62	71	502	268	219	197	407
13	354	802	174	142	95	62	179	638	243	193	578	742
14	445	898	170	140	115	60	269	449	272	140	1,030	479
15	517	771	165	138	99	59	214	612	253	129	538	275
16	344	679	161	136	91	59	95	2,570	220	129	517	225
17	338	658	213	134	89	58	87	3,430	234	172	562	300
18	276	575	484	129	87	56	372	1,570	400	268	591	201
19	320	502	186	127	85	55	437	1,390	342	148	379	404
20	316	474	161	125	86	70	184	1,170	235	125	283	530
21	465	422	154	122	84	65	413	1,050	253	121	204	396
22	498	397	149	124	82	63	625	1,120	207	114	181	411
23	470	371	399	141	79	57	638	1,030	192	111	211	291
24	556	356	472	129	78	56	309	655	184	116	215	790
25	321	358	245	183	78	55	268	479	177	356	265	2,690
26	277	378	237	198	75	62	498	446	171	130	229	1,030
27	224	332	239	174	81	80	219	442	166	116	251	480
28	218	363	202	132	76	110	148	341	164	123	192	338
29	267	346	193	122	---	100	127	305	158	111	165	283
30	553	374	187	119	---	112	113	281	154	103	732	260
31	553	---	181	119	---	90	---	263	---	140	623	---
TOTAL	10,814	14,312	7,104	4,619	2,948	2,134	6,253	24,152	9,438	4,854	10,134	14,236
MEAN	349	477	229	149	105	68.8	208	779	315	157	327	475
MAX	556	898	484	198	200	112	638	3,430	898	356	1,030	2,690
MIN	167	246	149	119	75	55	69	97	154	103	109	192
AC-FT	21,450	28,390	14,090	9,160	5,850	4,230	12,400	47,910	18,720	9,630	20,100	28,240
CFSM	3.70	5.06	2.43	1.58	1.12	0.73	2.21	8.26	3.34	1.66	3.47	5.03
IN.	4.27	5.65	2.80	1.82	1.16	0.84	2.47	9.53	3.72	1.91	4.00	5.62

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2003, BY WATER YEAR (WY)

MEAN	679	462	230	143	116	106	172	405	301	265	373	682
MAX	1,514	1,297	482	286	345	271	1,045	1,084	939	657	936	3,505
(WY)	(1999)	(2000)	(1966)	(1997)	(1996)	(1972)	(2002)	(1986)	(1999)	(1979)	(1979)	(1998)
MIN	344	182	103	82.4	62.3	54.4	49.3	63.7	71.2	111	152	206
(WY)	(1983)	(1998)	(1992)	(1998)	(1992)	(1965)	(1968)	(1967)	(1977)	(1990)	(1967)	(1983)

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1963 - 2003	
ANNUAL TOTAL	130,290		110,998			
ANNUAL MEAN	357		304		328	
HIGHEST ANNUAL MEAN					556	1999
LOWEST ANNUAL MEAN					189	1967
HIGHEST DAILY MEAN	4,670	Apr 27	3,430	May 17	69,900	Sep 22, 1998
LOWEST DAILY MEAN	83	Mar 23	55	Mar 19	32	Apr 18, 1965
ANNUAL SEVEN-DAY MINIMUM	99	Mar 21	58	Mar 13	35	Apr 14, 1965
MAXIMUM PEAK FLOW			13,100	May 16	163,000	Sep 22, 1998
MAXIMUM PEAK STAGE			10.67	May 16	34.50	Sep 22, 1998
INSTANTANEOUS LOW FLOW					31	Apr 19, 1965
ANNUAL RUNOFF (AC-FT)	258,400		220,200		237,600	
ANNUAL RUNOFF (CFSM)	3.79		3.22		3.48	
ANNUAL RUNOFF (INCHES)	51.40		43.79		47.26	
10 PERCENT EXCEEDS	630		580		683	
50 PERCENT EXCEEDS	226		207		189	
90 PERCENT EXCEEDS	129		79		75	



50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
04...	0945	232	8.5	8.8	103	7.2	241	23.2	98	24.8	8.64	1.55	.4
MAR													
25...	1245	60	10	10.7	--	8.6	246	27.1	97	23.9	9.01	1.36	.5
MAY													
13...	1015	516	94	8.4	--	7.7	195	24.4	79	20.3	6.96	1.69	.3
AUG													
25...	1415	177	87	7.9	--	7.9	212	28.2	--	--	--	--	--
SEP													
17...	1000	190	13	9.1	--	7.9	234	26.2	100	25.3	10.0	1.55	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
04...	8.92	97	6.63	<.17	32.0	8.3	--	149	93.4	<10	<.20	<.01	--
MAR													
25...	10.2	102	6.58	.10	31.2	9.9	<.1	153	25.0	<10	<.20	.02	--
MAY													
13...	7.15	75	5.85	<.17	25.2	8.5	<.1	120	168	68	.30	.02	.88
AUG													
25...	--	84	--	--	--	--	--	--	--	43	<.20	.03	.63
SEP													
17...	8.43	98	6.64	<.2	32.2	8.1	--	151	77.7	17	<.20	<.01	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
04...	.860	<.01	--	.04	--	--	<10	210	350	--	--	--	--
MAR													
25...	.170	<.01	--	.03	--	--	<10	E10	--	E590	<2	28.6	E11
MAY													
13...	.890	.01	.28	.07	1.2	5.3	10	E1,300	--	55,000	<2	42.5	E13
AUG													
25...	.640	.01	--	.05	--	--	20	E1,100	--	35,000	--	--	--
SEP													
17...	.700	<.01	--	.04	--	--	<10	E170	--	3,700	--	--	--

50144000 RIO GRANDE DE ANASCO NEAR SAN SEBASTIAN, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25...	<.2	<.8	<10	<.01	90	<1	23.8	<.02	<3	<.3	<25	<.10	<16
MAY													
13...	<.2	.9	10	<.01	1,490	M	96.5	<.02	<3	<.3	26	<.10	<16
AUG													
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50146000 RIO GRANDE DE AÑASCO NEAR ANASCO, PR

LOCATION.--Lat 18°16'00", long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco Plaza.

DRAINAGE AREA.--139 mi^2 (360 km^2) this does not include 39.7 mi^2 (102.8 km^2), flow is diverted to south coast.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC 04...	1300	292	17	8.6	104	6.9	240	24.9	96	24.1	8.77	1.56	.4
MAR 26...	0930	72	7.2	7.5	--	7.9	249	26.6	98	23.5	9.51	1.23	.5
MAY 14...	1320	409	220	7.8	--	7.5	177	25.9	69	17.5	6.17	1.81	.4
JUN 26...	0930	260	--	8.0	--	7.6	249	27.3	--	--	--	--	--
AUG 25...	1715	266	60	7.1	--	7.5	224	29.1	--	--	--	--	--
SEP 17...	1315	284	22	7.3	--	7.6	234	29.3	97	24.8	8.53	1.71	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC 04...	9.02	95	7.25	<.17	32.5	7.7	--	148	117	17	<.20	<.01	--
MAR 26...	10.2	104	6.68	.11	31.2	8.9	<.1	154	29.9	<10	<.20	.02	--
MAY 14...	6.77	66	5.70	<.17	23.7	8.5	<.1	110	121	139	.50	.04	.75
JUN 26...	--	98	--	--	--	--	--	--	--	27	<.20	.02	--
AUG 25...	--	91	--	--	--	--	--	--	--	52	.20	.03	--
SEP 17...	8.04	98	6.68	<.2	31.5	7.3	--	147	113	23	.20	.01	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC 04...	.790	<.01	--	.05	--	--	<10	430	200	--	--	--	--
MAR 26...	.070	<.01	--	<.02	--	--	<10	E40	--	400	<2	33.3	<18
MAY 14...	.780	.03	.46	.13	1.3	5.7	<10	5,300	--	47,000	E1	55.3	E14
JUN 26...	.450	<.01	--	.02	--	--	--	E140	--	400	<1	--	--
AUG 25...	.590	<.01	.17	.06	.79	3.5	<10	1,100	--	7,500	--	--	--
SEP 17...	.620	<.01	.19	.05	.82	3.6	10	E120	--	3,500	--	--	--

50146000 RIO GRANDE DE ANASCO NEAR ANASCO, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC 04...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR 26...	<.2	<.8	<10	<.01	130	<1	58.9	<.02	<3	<.3	<25	<.10	<16
MAY 14...	<.2	1.6	20	<.01	2,870	1	190	E.01	<3	<.3	<25	<.10	<16
JUN 26...	--	--	3	--	--	<2	--	<.1	--	--	--	--	--
AUG 25...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 17...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAY 14...	1320	<.01	1.94	<.01	<.01	<.02	<.1	<.01	<.02	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p'-DDD, water, unfltrd ug/L (39360)	p,p'-DDE, water, unfltrd ug/L (39365)	p,p'-DDT, water, unfltrd ug/L (39370)	p,p'-Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
MAY 14...	<.01	<.01	<.009	<.01	<.014	M	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
MAY 14...	<.1	<.02	<.02	<1	<.02

< -- Less than
M -- Presence verified, not quantified

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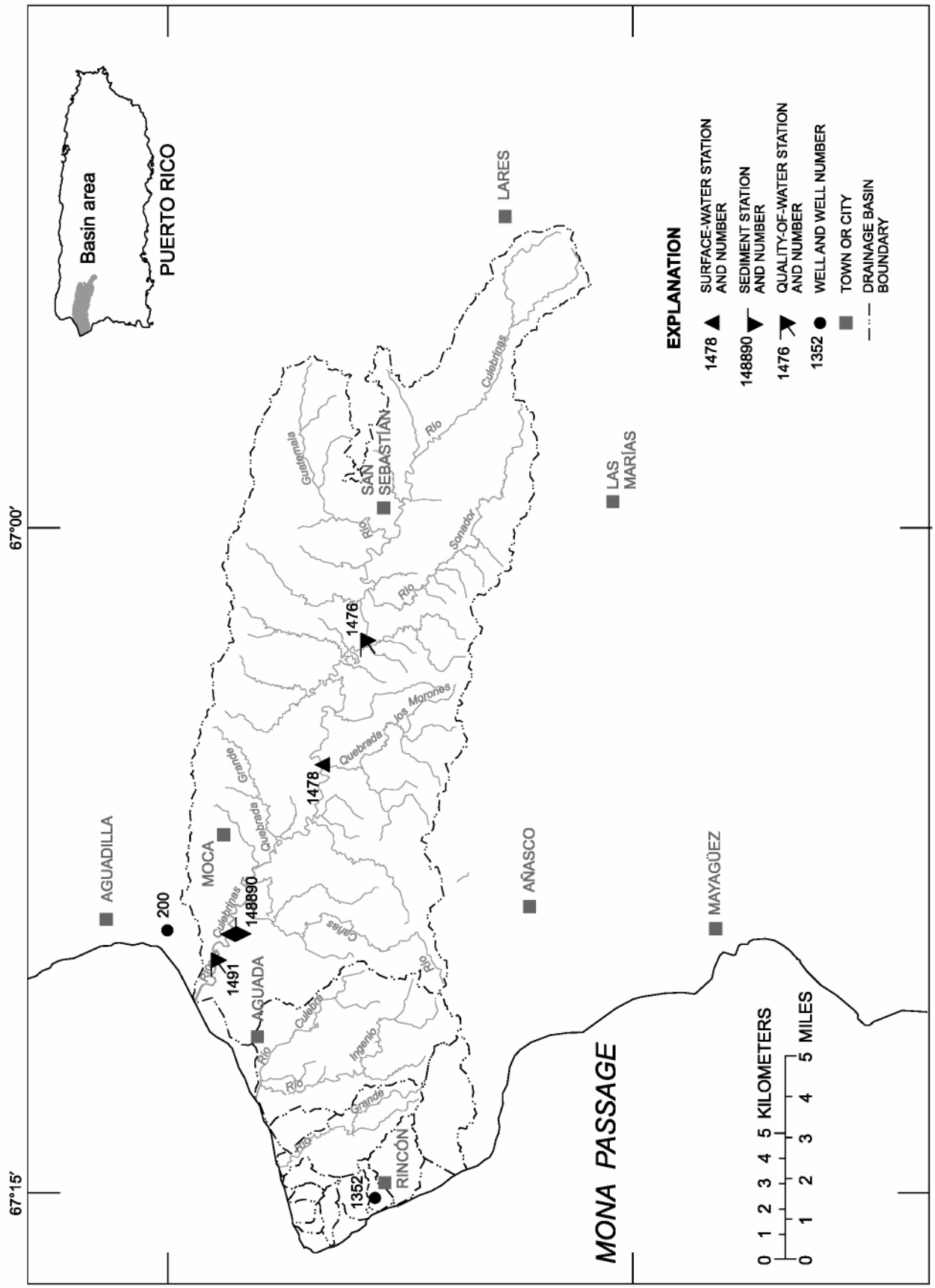


Figure 24. Río Culebrinas basin.

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA.--58.2 mi^2 (150.7 km^2).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC 05...	0830	125	60	8.3	96	6.9	274	22.7	120	38.7	4.75	2.53	.4
MAR 25...	1540	18	10	10.3	--	8.4	280	26.6	99	31.4	4.97	2.36	.7
MAY 13...	1650	167	140	7.1	--	7.7	249	25.4	97	31.7	4.37	2.61	.4
AUG 21...	0925	104	60	7.2	--	7.8	253	26.3	--	--	--	--	--
SEP 16...	1550	109	7.4	8.2	--	8.0	396	28.5	130	42.2	5.25	2.39	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC 05...	9.01	110	8.07	<.17	25.2	9.0	--	163	55.0	34	.40	.02	1.09
MAR 25...	15.4	106	14.3	.10	36.0	8.4	<.1	176	8.56	<10	.30	.04	.84
MAY 13...	9.37	91	8.82	<.17	25.6	10.7	<.1	148	66.6	152	.70	.06	.98
AUG 21...	--	118	--	--	--	--	--	--	--	33	.30	.05	1.08
SEP 16...	9.86	123	10.2	<.2	28.6	11.2	--	184	54.1	<10	<.20	.04	--

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC 05...	1.10	.01	.38	.08	1.5	6.6	<10	E9,900	E23,000	--	--	--	--
MAR 25...	.860	.02	.26	.16	1.2	5.1	<10	E910	--	E910	<2	28.9	33
MAY 13...	1.00	.02	.64	.14	1.7	7.5	10	5,300	--	50,000	E1	47.8	26
AUG 21...	1.10	.02	.25	.05	1.4	6.2	10	5,100	--	56,000	--	--	--
SEP 16...	.340	<.01	--	.05	--	--	<10	E600	--	6,000	--	--	--

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover-able, ug/L (01034)	Copper, water, unfltrd recover-able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, unfltrd recover-able, ug/L (01051)	Mangan-ese, water, unfltrd recover-able, ug/L (01055)	Mercury water, unfltrd recover-able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover-able, ug/L (01077)	Zinc, water, unfltrd recover-able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
25...	<.2	<.8	<10	<.01	130	<1	20.0	<.02	<3	<.3	<25	<.10	<16
MAY													
13...	<.2	1.5	10	<.01	2,730	M	160	E.02	<3	<.3	<25	<.10	<16
AUG													
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value
M -- Presence verified, not quantified

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, 1.0 mi (1.6 km) below Quebrada Los Morones confluence, 1.1 mi (1.8 km) above Quebrada Las Marías confluence, 2.8 mi (4.5 km) southeast of Moca Plaza, at bridge 404 road over Culebrina river.

DRAINAGE AREA.--71.2 mi^2 (184 km^2).

PERIOD OF RECORD.--July 1967 to current year.

REVISED RECORDS.--WDR PR-99-1: (M).

GAGE.--Water-stage recorder. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	549	610	692	93	79	49	64	86	1,540	110	65	349
2	356	1,220	221	94	81	47	71	78	631	225	95	256
3	392	473	184	95	84	46	43	72	314	864	69	269
4	410	284	198	91	196	45	73	527	237	208	140	226
5	259	244	198	89	343	44	379	300	4,120	144	126	352
6	164	221	165	89	150	44	327	202	666	127	78	246
7	209	203	156	87	85	43	136	134	474	117	87	180
8	728	181	149	84	75	42	70	126	479	109	89	264
9	3,660	267	148	85	70	43	283	261	322	106	76	675
10	530	832	142	84	68	42	144	275	266	100	63	265
11	703	275	138	83	65	42	96	236	381	101	183	534
12	527	451	134	82	63	40	70	196	260	114	212	494
13	717	5,710	131	80	60	40	425	307	203	92	195	305
14	494	1,520	130	79	69	39	431	269	563	90	135	267
15	5,060	1,420	131	79	60	39	293	951	305	85	354	179
16	701	554	126	79	58	38	124	4,160	201	83	188	160
17	1,380	707	133	78	57	37	94	e4,310	185	79	98	307
18	516	368	146	77	56	36	643	3,980	294	142	83	226
19	354	275	120	77	55	35	753	1,040	957	111	1,290	154
20	307	241	115	74	55	35	448	1,310	259	78	433	142
21	335	222	111	74	54	38	899	601	487	207	200	202
22	306	215	110	75	54	35	386	357	221	93	170	156
23	1,980	192	133	84	52	33	167	290	194	75	439	263
24	412	180	158	74	52	32	1,270	367	177	70	304	446
25	301	170	107	107	52	32	470	230	158	150	262	226
26	280	369	104	127	51	32	532	196	145	90	295	510
27	255	231	104	94	50	49	274	177	137	104	1,450	244
28	229	168	101	80	49	62	138	160	131	91	356	152
29	215	157	98	76	---	92	113	149	123	74	227	133
30	228	1,400	97	74	---	82	98	139	116	69	1,570	123
31	3,270	---	94	79	---	43	---	130	---	66	905	---
TOTAL	25,827	19,360	4,774	2,623	2,243	1,356	9,314	21,616	14,546	4,174	10,237	8,305
MEAN	833	645	154	84.6	80.1	43.7	310	697	485	135	330	277
MAX	5,060	5,710	692	127	343	92	1,270	4,310	4,120	864	1,570	675
MIN	164	157	94	74	49	32	43	72	116	66	63	123
AC-FT	51,230	38,400	9,470	5,200	4,450	2,690	18,470	42,880	28,850	8,280	20,310	16,470
CFSM	11.7	9.06	2.16	1.19	1.13	0.61	4.36	9.79	6.81	1.89	4.64	3.89
IN.	13.49	10.12	2.49	1.37	1.17	0.71	4.87	11.29	7.60	2.18	5.35	4.34

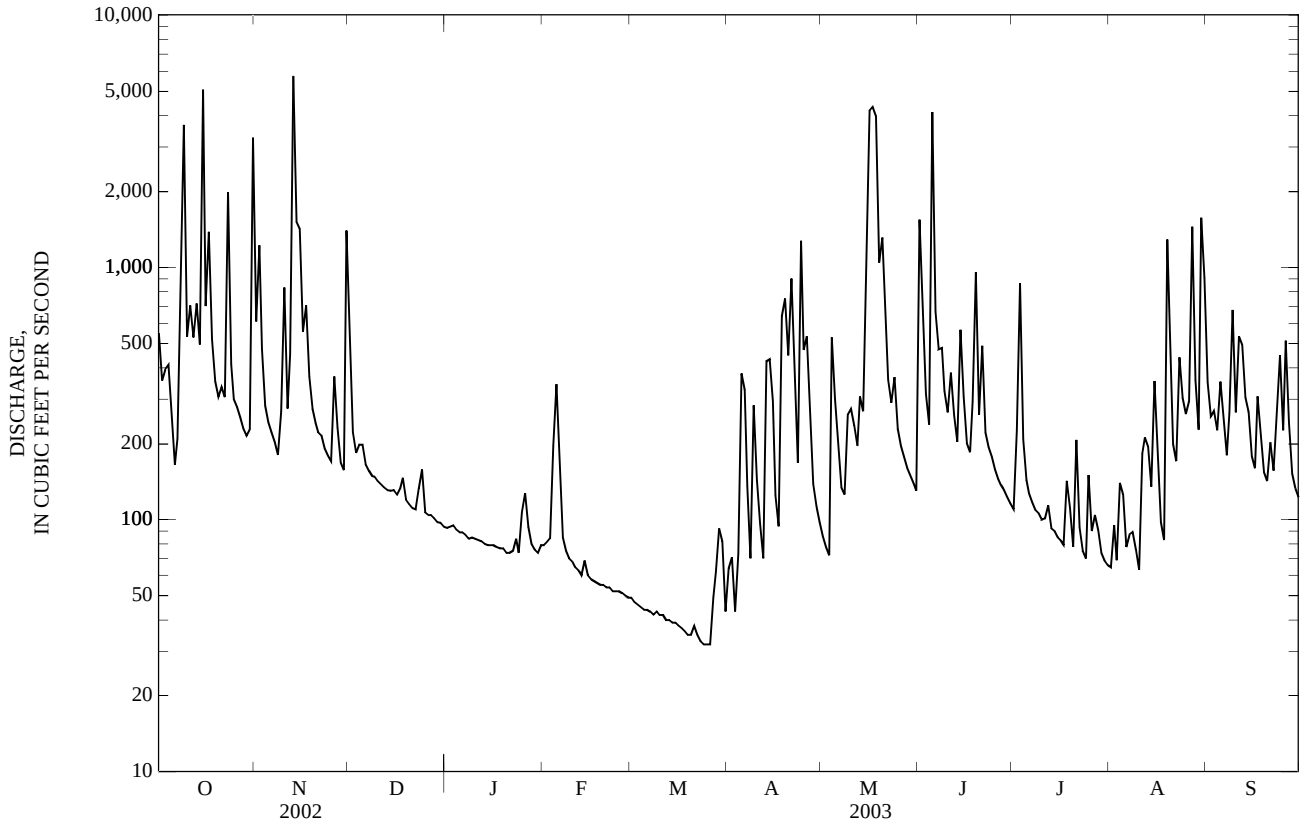
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	625	352	156	93.9	77.0	73.8	141	457	389	290	351	558
MAX	1,086	799	630	530	371	319	621	2,054	773	847	831	1,651
(WY)	(1973)	(1982)	(2002)	(1997)	(1996)	(1981)	(1986)	(1986)	(1998)	(1979)	(1979)	(1998)
MIN	231	108	72.1	51.2	37.0	30.4	26.4	96.7	73.1	66.7	119	145
(WY)	(1968)	(1979)	(1992)	(1979)	(1992)	(1979)	(1970)	(1973)	(1997)	(1994)	(1970)	(1986)

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	124,195		124,375			
ANNUAL MEAN	340		341		299	
HIGHEST ANNUAL MEAN					457	1986
LOWEST ANNUAL MEAN					179	1977
HIGHEST DAILY MEAN	5,710	Nov 13	5,710	Nov 13	17,000	Sep 22, 1998
LOWEST DAILY MEAN	41	Mar 4	32	Mar 24	19	Apr 16, 1979
ANNUAL SEVEN-DAY MINIMUM	42	Feb 27	34	Mar 20	20	Apr 13, 1979
MAXIMUM PEAK FLOW			Not determined	May 17	41,200	Sep 16, 1975
MAXIMUM PEAK STAGE			29.92	May 17	36.60	Sep 16, 1975
INSTANTANEOUS LOW FLOW			31	Mar 23	16	Apr 17, 1979
ANNUAL RUNOFF (AC-FT)	246,300		246,700		216,500	
ANNUAL RUNOFF (CFSM)	4.78		4.79		4.20	
ANNUAL RUNOFF (INCHES)	64.89		64.98		57.04	
10 PERCENT EXCEEDS	704		652		605	
50 PERCENT EXCEEDS	157		154		136	
90 PERCENT EXCEEDS	54		54		43	

e Estimated



50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR

LOCATION.--Lat 18°23'40", long 67°09'04", Hydrologic Unit 21010003, on right bank 40 ft upstream of Margarita Dam spillway 0.2 mi (0.32 km) upstream of Highway 2 at Aguadilla Filtration Plant water intake at Río Culebrinas, 1.05 mi (1.69 km) northeast of Central Coloso and 2.5 5 mi (4.10 km) southeast from Aguadilla Plaza.

DRAINAGE AREA.--94.6 mi^2 (245 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1998 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 48.6 ft. (14.8 m), from topographic map. For mean sea level elevations add 3.0 ft to gage-height readings.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. There are water extraction activities at t he reservoir by PRASA.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	616	1,340	1,270	107	100	56	e68	156	472	169	99	e585
2	584	690	319	107	84	49	152	139	1,200	362	129	281
3	522	967	230	108	105	47	69	112	501	1,020	135	291
4	672	314	221	103	304	46	84	310	349	458	132	256
5	567	320	268	100	474	46	412	513	1,130	251	258	320
6	283	244	195	102	392	41	582	286	1,570	186	158	475
7	257	260	187	97	134	41	326	140	732	155	176	e227
8	708	203	179	97	101	41	125	127	638	143	203	529
9	1,630	247	179	99	87	40	263	398	525	141	186	696
10	992	787	169	103	82	43	327	315	364	137	119	465
11	908	531	157	93	76	43	223	309	542	154	326	608
12	816	376	153	88	67	38	114	333	499	173	331	698
13	655	1,300	149	82	66	36	205	196	312	128	330	514
14	796	1,950	145	84	88	41	654	491	381	123	308	331
15	1,280	1,330	145	82	70	38	549	509	671	114	777	211
16	1,520	1,060	134	87	67	39	258	1,660	284	110	487	190
17	1,080	760	151	80	70	36	210	2,240	260	105	216	295
18	1,040	687	190	75	68	38	930	2,620	498	139	e161	377
19	395	383	145	77	62	34	854	1,660	e1,040	224	617	192
20	316	335	139	71	61	31	801	1,340	e424	115	905	172
21	292	307	137	70	68	43	839	1,180	929	408	228	208
22	362	295	132	70	64	39	938	534	402	210	179	235
23	1,050	254	178	89	60	32	325	406	280	122	469	188
24	868	224	251	70	56	31	775	621	278	105	475	449
25	356	213	140	128	55	27	1,140	360	242	236	353	464
26	308	414	142	178	54	26	736	288	217	176	406	552
27	295	424	143	134	57	51	660	254	205	169	996	453
28	238	223	135	88	54	115	269	235	196	180	654	248
29	221	214	131	76	---	135	208	211	187	122	241	192
30	216	396	128	82	---	140	176	199	180	104	612	190
31	1,190	---	119	102	---	e60	---	176	---	100	1,430	---
TOTAL	21,033	17,048	6,361	2,929	3,026	1,523	13,272	18,318	15,508	6,339	12,096	10,892
MEAN	678	568	205	94.5	108	49.1	442	591	517	204	390	363
MAX	1,630	1,950	1,270	178	474	140	1,140	2,620	1,570	1,020	1,430	698
MIN	216	203	119	70	54	26	68	112	180	100	99	172
AC-FT	41,720	33,810	12,620	5,810	6,000	3,020	26,330	36,330	30,760	12,570	23,990	21,600
CFSM	7.17	6.01	2.17	1.00	1.14	0.52	4.68	6.25	5.46	2.16	4.12	3.84
IN.	8.27	6.70	2.50	1.15	1.19	0.60	5.22	7.20	6.10	2.49	4.76	4.28

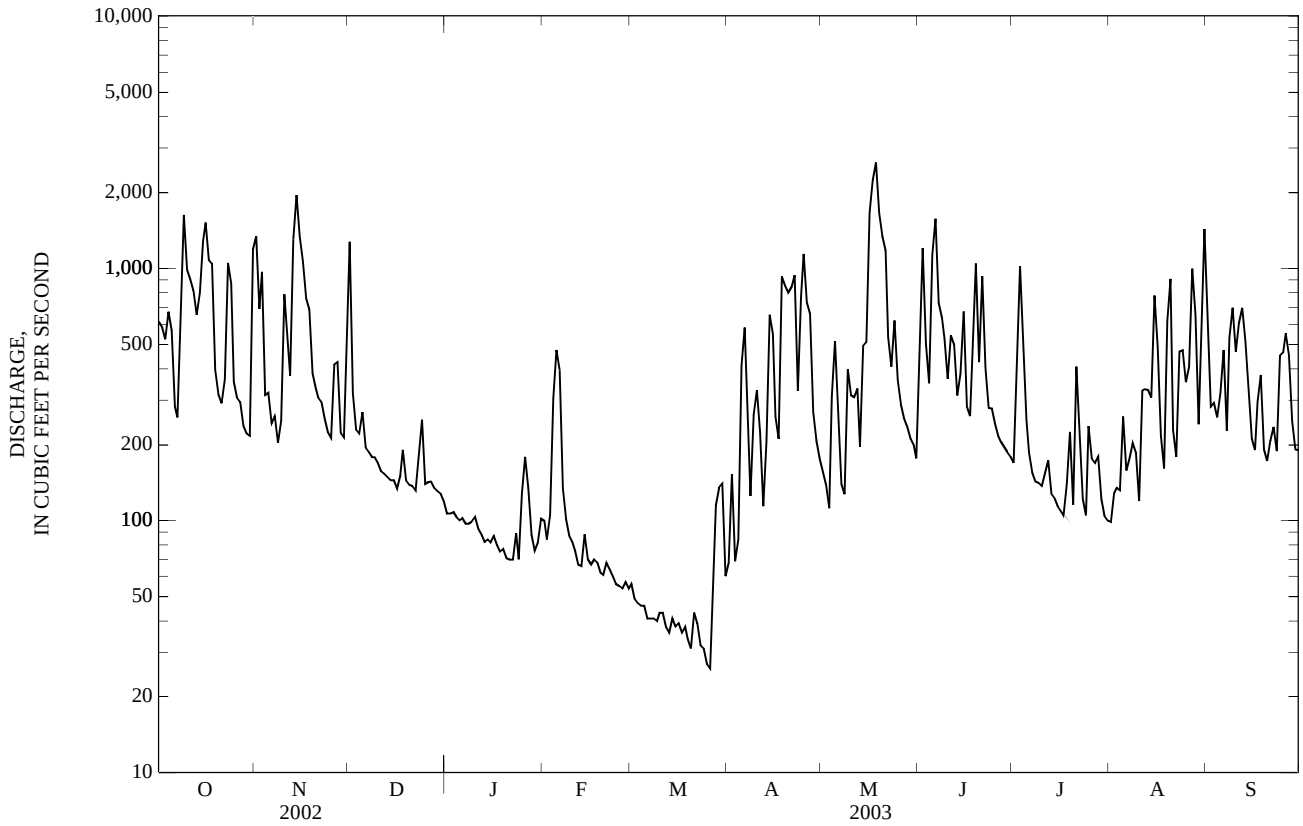
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2003, BY WATER YEAR (WY)

MEAN	656	577	223	119	75.8	101	243	379	380	296	523	645
MAX	778	792	392	207	108	318	442	591	632	408	949	970
(WY)	(2000)	(2000)	(2002)	(1999)	(2003)	(1999)	(2003)	(2003)	(1999)	(2001)	(1998)	(1998)
MIN	588	252	92.7	71.6	52.1	35.5	89.8	257	156	204	213	363
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2000)	(2000)	(2002)	(2003)	(2000)	(2003)

50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1998 - 2003	
ANNUAL TOTAL	122,513		128,345			
ANNUAL MEAN	336		352		340	
HIGHEST ANNUAL MEAN					362	1999
LOWEST ANNUAL MEAN					308	2001
HIGHEST DAILY MEAN	2,110	Aug 10	2,620	May 18	3,860	Sep 22, 1998
LOWEST DAILY MEAN	32	Mar 23	26	Mar 26	17	Apr 18, 2000
ANNUAL SEVEN-DAY MINIMUM	40	Mar 19	33	Mar 20	26	Apr 13, 2000
MAXIMUM PEAK FLOW			3,750	May 18	5,480	Sep 22, 1998
MAXIMUM PEAK STAGE			15.00	May 18	18.28	Sep 22, 1998
ANNUAL RUNOFF (AC-FT)	243,000		254,600		246,200	
ANNUAL RUNOFF (CFSM)	3.55		3.72		3.59	
ANNUAL RUNOFF (INCHES)	48.18		50.47		48.81	
10 PERCENT EXCEEDS	897		845		843	
50 PERCENT EXCEEDS	179		216		200	
90 PERCENT EXCEEDS	56		63		53	

e Estimated



50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR—Continued

WATER-QUALITY RECORD

PERIOD OF RECORD.--July 1998 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 2001 to current year.

INSTRUMENTATION.--USDH-48 and automatic sediment sampler since 2001.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis. During high flow events sediment samples were collected with automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,680 mg/L May 18, 2003; Minimum daily mean, 5 mg/L February 3-6, 2002.
SEDIMENT LOADS: Maximum daily mean, 29,200 tons (26,490 tonnes) May, 2003; Minimum daily mean, 0.79 ton (0.61 tonne) March 6, 20 02.

EXTREMES FOR CURRENT YEAR 2003.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,680 mg/L May 18, 2003; Minimum daily mean, 6 mg/L January 20, 21, 2003.
SEDIMENT LOADS: Maximum daily mean, 29,200 tons (26,490 tonnes) May 18, 2003; Minimum daily mean, 0.79 ton (0.72 tonne) March 26, 2003.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		OCTOBER			NOVEMBER			DECEMBER	
1	616	367	1,340	1,340	1,190	6,860	1,270	1,760	9,980
2	584	549	1,130	690	540	1,650	319	552	486
3	522	496	861	967	857	3,900	230	342	215
4	672	648	1,400	314	209	178	221	159	95
5	567	417	857	320	196	177	268	159	132
6	283	113	87	244	159	105	195	78	41
7	257	111	88	260	139	98	187	70	35
8	708	494	1,640	203	121	66	179	64	31
9	1,630	574	3,260	247	155	164	179	53	26
10	992	346	1,300	787	590	2,220	169	42	19
11	908	666	2,490	531	443	983	157	33	14
12	816	879	2,020	376	343	585	153	39	16
13	655	733	1,600	1,300	936	6,190	149	49	19
14	796	815	2,120	1,950	1,910	12,800	145	58	23
15	1,280	900	5,570	1,330	1,300	6,450	145	48	19
16	1,520	1,260	7,350	1,060	1,150	3,780	134	22	7.9
17	1,080	337	1,490	760	769	1,930	151	29	12
18	1,040	414	1,430	687	518	1,390	190	41	21
19	395	185	200	383	174	181	145	36	14
20	316	116	100	335	152	137	139	24	9.1
21	292	90	74	307	159	131	137	37	14
22	362	154	193	295	134	107	132	58	21
23	1,050	655	4,750	254	97	67	178	125	86
24	868	720	2,790	224	62	38	251	230	182
25	356	196	191	213	52	30	140	74	28
26	308	150	124	414	332	706	142	55	21
27	295	125	100	424	262	515	143	36	14
28	238	101	65	223	57	34	135	25	8.9
29	221	91	54	214	54	31	131	17	6.1
30	216	87	51	396	375	1,340	128	32	11
31	1,190	871	6,390	---	---	---	119	54	17
TOTAL	21,033	---	51,115	17,048	---	52,843	6,361	---	11,624.0

50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JANUARY			FEBRUARY			MARCH	
1	107	76	22	100	51	15	56	38	5.7
2	107	97	28	84	24	5.4	49	81	11
3	108	114	33	105	40	12	47	135	17
4	103	76	21	304	312	351	46	178	22
5	100	27	7.2	474	675	1,870	46	108	13
6	102	23	6.2	392	1,040	1,460	41	23	2.5
7	97	32	8.4	134	432	157	41	13	1.4
8	97	40	10	101	280	77	41	15	1.7
9	99	39	10	87	129	31	40	26	2.9
10	103	36	10	82	40	8.8	43	38	4.4
11	93	37	9.2	76	38	7.8	43	28	3.1
12	88	38	9.1	67	36	6.5	38	12	1.2
13	82	38	8.4	66	35	6.2	36	15	1.5
14	84	30	6.8	88	33	8.0	41	22	2.4
15	82	24	5.4	70	35	6.7	38	19	1.9
16	87	33	7.8	67	38	6.8	39	15	1.5
17	80	41	8.8	70	40	7.6	36	11	1.1
18	75	27	5.5	68	43	7.9	38	10	1.1
19	77	10	2.1	62	47	7.9	34	11	1.0
20	71	6	1.2	61	52	8.6	31	12	0.99
21	70	6	1.2	68	56	10	43	13	1.5
22	70	7	1.3	64	48	8.3	39	13	1.3
23	89	7	1.7	60	37	6.0	32	12	1.0
24	70	7	1.3	56	34	5.1	31	13	1.1
25	128	56	25	55	32	4.8	27	13	1.0
26	178	130	64	54	25	3.6	26	11	0.79
27	134	92	35	57	17	2.6	51	32	8.7
28	88	52	12	54	24	3.5	115	68	28
29	76	28	5.9	---	---	---	135	80	36
30	82	26	6.4	---	---	---	140	112	48
31	102	41	16	---	---	---	e60	e29	e4.7
TOTAL	2,929	---	389.9	3,026	---	4,105.1	1,523	---	229.48
		APRIL			MAY			JUNE	
1	e68	e34	e6.6	156	82	35	472	387	2,420
2	152	104	53	139	64	24	1,200	2,500	10,300
3	69	51	9.6	112	44	14	501	495	820
4	84	47	12	310	471	1,590	349	134	125
5	412	526	1,210	513	1,080	2,870	1,130	1,430	11,200
6	582	807	1,630	286	379	386	1,570	2,620	13,700
7	326	368	452	140	155	59	732	990	2,170
8	125	74	25	127	151	52	638	872	1,750
9	263	271	653	398	586	1,300	525	525	888
10	327	368	517	315	351	532	364	269	266
11	223	146	101	309	236	515	542	941	2,370
12	114	72	22	333	236	356	499	1,410	2,310
13	205	223	523	196	126	189	312	166	140
14	654	932	2,530	491	563	1,280	381	422	988
15	549	724	1,590	509	633	2,600	671	818	2,890
16	258	319	253	1,660	2,250	14,000	284	182	140
17	210	251	142	2,240	2,790	20,000	260	174	123
18	930	1,150	3,610	2,620	3,680	29,200	498	593	1,370
19	854	1,220	3,820	1,660	2,170	12,200	e1,040	e1,460	e6,850
20	801	1,100	3,200	1,340	1,660	8,540	e424	e555	e800
21	839	1,020	3,690	1,180	1,540	7,090	929	1,310	5,920
22	938	1,390	4,980	534	325	475	402	332	445
23	325	343	303	406	190	210	280	92	69
24	775	852	4,450	621	591	1,590	278	82	62
25	1,140	1,470	6,410	360	97	101	242	72	47
26	736	830	2,240	288	76	59	217	63	37
27	660	811	2,060	254	71	49	205	53	29
28	269	163	120	235	65	41	196	43	23
29	208	114	64	211	59	33	187	34	17
30	176	95	45	199	53	28	180	25	12
31	---	---	---	176	50	24	---	---	---
TOTAL	13,272	---	44,721.2	18,318	---	105,442	15,508	---	68,281

50148890 RIO CULEBRINAS AT MARGARITA DAM NEAR AGUADA, PR—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
		JULY			AUGUST			SEPTEMBER	
1	169	24	11	99	201	54	e585	e723	e1,430
2	362	336	872	129	222	90	281	437	333
3	1,020	1,450	7,380	135	276	105	291	407	347
4	458	592	1,070	132	263	105	256	332	230
5	251	255	174	258	371	294	320	496	780
6	186	137	71	158	280	123	475	808	1,500
7	155	108	45	176	178	85	e227	e286	e179
8	143	99	38	203	174	134	529	439	937
9	141	91	35	186	113	66	696	510	1,540
10	137	83	31	119	68	22	465	676	957
11	154	115	58	326	532	1,240	608	713	1,340
12	173	159	75	331	819	951	698	724	1,600
13	128	147	51	330	730	777	514	519	853
14	123	138	46	308	486	438	331	293	304
15	114	129	40	777	1,010	3,170	211	185	106
16	110	120	36	487	1,360	1,870	190	182	94
17	105	111	31	216	260	157	295	243	316
18	139	145	82	e161	e166	e72	377	444	535
19	224	233	185	617	683	3,750	192	346	179
20	115	129	40	905	1,500	6,350	172	353	164
21	408	545	1,570	228	122	75	208	369	216
22	210	236	170	179	111	54	235	410	273
23	122	117	39	469	840	2,100	188	381	220
24	105	97	28	475	899	1,450	449	515	782
25	236	377	459	353	658	644	464	506	885
26	176	277	137	406	641	831	552	872	2,550
27	169	216	96	996	1,290	8,000	453	864	1,400
28	180	204	99	654	1,290	3,640	248	137	98
29	122	203	67	241	378	247	192	94	49
30	104	203	57	612	929	3,780	190	86	44
31	100	202	54	1,430	2,140	10,700	---	---	---
TOTAL	6,339	---	13,147	12,096	---	51,374	10,892	---	20,241
YEAR	128,345	423,512.68							

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
JUL					
25...	1935	715	96	1,160	2,240
SEP					
11...	1740	1,190	97	873	2,800
12...	0310	1,090	95	1,040	3,050

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

PARTICLE SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

Date	Time	Instantaneous discharge, cfs (00061)	Suspnd. sediment, falldia nat wat percent <.002mm (70326)	Suspnd. sediment, falldia nat wat percent <.004mm (70327)	Suspnd. sediment, falldia nat wat percent <.008mm (70328)	Suspnd. sediment, falldia nat wat percent <.016mm (70329)	Suspnd. sediment, falldia nat wat percent <.031mm (70330)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
AUG										
11...	1912	1,120	60	68	74	87	91	96	3,250	9,830

50149100 RIO CULEBRINAS NEAR AGUADA, PR

LOCATION.--Lat 18°24'03", long 67°09'40", at bridge on Highway 2, 2.3 mi (3.7 km) northeast of Aguada Plaza.

DRAINAGE AREA.--97.0 mi^2 (251.1 km^2).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
DEC													
04...	1615	--	42	7.4	89	7.1	326	24.5	140	46.6	5.70	2.67	.4
MAR													
26...	1150	4.2	12	7.4	--	7.9	325	27.1	130	40.7	5.91	2.22	.5
MAY													
14...	1535	--	490	7.1	--	7.6	257	25.6	110	36.7	4.29	2.68	.3
AUG													
26...	0855	--	380	7.2	--	7.6	303	25.9	--	--	--	--	--
SEP													
17...	1530	--	38	6.6	--	7.7	340	28.2	140	46.8	5.79	2.38	.4

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, field, mg/L as CaCO3 (00410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water unfltrd mg/L (00745)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/d (70302)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)
DEC													
04...	10.5	136	9.99	<.17	29.8	7.4	--	194	--	44	.30	.02	--
MAR													
26...	13.9	134	12.9	.11	36.2	6.1	<.1	198	2.25	<10	.40	.05	--
MAY													
14...	7.79	112	8.46	<.17	15.9	9.9	<.1	153	--	440	1.2	.05	.68
AUG													
26...	--	134	--	--	--	--	--	--	--	420	1.2	.04	.69
SEP													
17...	10.3	148	11.9	<.2	30.4	8.9	--	205	--	53	.20	.03	.71

Date	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, unfltrd mg/L as N (00615)	Organic nitrogen, water, unfltrd mg/L (00605)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Total nitrogen, water, unfltrd mg/L as NO3 (71887)	COD, high level, water, unfltrd mg/L (00340)	Fecal coliform, M-FC 0.7u MF col/ 100 mL (31625)	Fecal streptococci KF MF, col/ 100 mL (31673)	Total coliform, M-Endo, immed, col/ 100 mL (31501)	Arsenic water unfltrd ug/L (01002)	Barium, water, unfltrd recoverable, ug/L (01007)	Boron, water, unfltrd recoverable, ug/L (01022)
DEC													
04...	.930	<.01	.28	.07	1.2	5.4	<10	E620	9,200	--	--	--	--
MAR													
26...	.320	<.01	.35	.07	.72	3.2	<10	E110	--	E1,000	<2	32.4	E17
MAY													
14...	.720	.04	1.1	.22	1.9	8.5	20	E6,400	--	200,000	2	80.6	19
AUG													
26...	.710	.02	1.2	.21	1.9	8.5	30	24,000	--	E150,000	--	--	--
SEP													
17...	.720	.01	.17	.05	.92	4.1	10	E880	--	7,000	--	--	--

50149100 RIO CULEBRINAS NEAR AGUADA, PR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003—CONTINUED

Date	Cadmium water, unfltrd ug/L (01027)	Chrom-ium, water, unfltrd recover -able, ug/L (01034)	Copper, water, unfltrd recover -able, ug/L (01042)	Cyanide water unfltrd mg/L (00720)	Iron, water, unfltrd recover -able, ug/L (01045)	Lead, water, unfltrd recover -able, ug/L (01051)	Mangan-ese, water, unfltrd recover -able, ug/L (01055)	Mercury water, unfltrd recover -able, ug/L (71900)	Selen-ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd recover -able, ug/L (01077)	Zinc, water, unfltrd recover -able, ug/L (01092)	MBAS, water, unfltrd mg/L (38260)	Phen-olic com-pounds, water, unfltrd ug/L (32730)
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
26...	<.2	<.8	<10	<.01	250	<1	62.1	<.02	<3	<.3	E17	<.10	<16
MAY													
14...	<.2	4.1	20	<.01	6,530	3	362	.04	<3	<.3	<25	<.10	<16
AUG													
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--

< -- Less than
E -- Estimated value

PESTICIDE ANALYSES

Date	Time	2,4,5-T water unfltrd ug/L (39740)	2,4-D water unfltrd ug/L (39730)	Aldrin, water, unfltrd ug/L (39330)	alpha-Endo-sulfan, water, unfltrd ug/L (39388)	Carbo-pheno-thion, water, unfltrd ug/L (39786)	Chlor-dane, tech-nical, water, unfltrd ug/L (39350)	Chlor-pyrifos water unfltrd ug/L (38932)	Diazi-non, water, unfltrd ug/L (39570)	Di-chlor-prop, water, unfltrd ug/L (82183)	Diel-drin, water, unfltrd ug/L (39380)	Disul-foton, water, unfltrd ug/L (39011)	Endrin, water, unfltrd ug/L (39390)
MAY													
14...	1535	<.01	.44	<.01	<.01	<.02	<.1	<.01	M	<.02	<.017	<.10	<.02

Date	Ethion, water, unfltrd ug/L (39398)	Fonofos water unfltrd ug/L (82614)	Hepta-chlor epoxide water unfltrd ug/L (39420)	Hepta-chlor, water, unfltrd ug/L (39410)	Lindane water, unfltrd ug/L (39340)	Mala-thion, water, unfltrd ug/L (39530)	Methyl para-thion, water, unfltrd ug/L (39600)	Mirex, water, unfltrd ug/L (39755)	p,p-' DDD, water, unfltrd ug/L (39360)	p,p-' DDE, water, unfltrd ug/L (39365)	p,p-' DDT, water, unfltrd ug/L (39370)	p,p-' Meth-oxy-chlor, water, unfltrd ug/L (39480)	Para-thion, water, unfltrd ug/L (39540)
MAY													
14...	<.01	<.01	<.009	<.01	<.014	<.10	<.01	<.012	<.016	<.014	<.009	<.015	<.01

Date	PCBs, water, unfltrd ug/L (39516)	Phorate water unfltrd ug/L (39023)	Silvex, water, unfltrd ug/L (39760)	Toxa-phene, water, unfltrd ug/L (39400)	Tribu-phos, water, unfltrd ug/L (39040)
MAY					
14...	<.1	<.02	<.02	<1	<.02

< -- Less than
M -- Presence verified, not quantified

Ground-Water Records for Puerto Rico

RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.6 mi northeast of Moca plaza, 4.7 mi southeast of Aguadilla US Naval Reservation radio antenna, and 1.63 mi northwest of La Virgen del Rosario Church, Name: Saltos 1 Well, Isabela.

AQUIFER.--Cibao Formation. Aguada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.4 m), cased 16 in (0.4 m) 0-40 ft (0-12.2 m), case d 12 in (0.30 m) 40-200 ft (12.2-61 m). Depth 158 ft (48.2 m), sounded depth measured on October 4,2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 689 ft (210 m), above mean sea level. Measuring point: Hole on pump base, 0.5 f t (0.15 m), above land-surface datum. Prior to October 6, 1988, hole on top of pipe on top of pump base, 0.8 ft (0.24 m), above land-surface datum. Pri or to November 1985, hole on top of pump base, 1 ft (0.3 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recoder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. Formerly published as 182421067015000. Well is affected by nearby pumping.

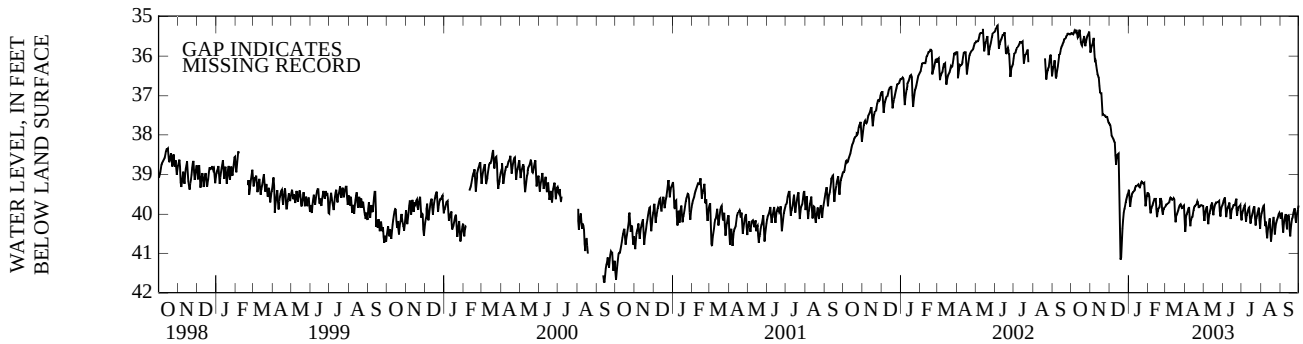
PERIOD OF RECORD.--January 1982 to March 1985, November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 35.17 ft (10.7 m), below land-surface datum, June 6, 2002; lowest water level measured, 70.6 ft (21.5 m), below land-surface datum, June 18, 1982.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.44	35.99	37.72	39.45	39.45	39.83	40.56	39.78	39.75	40.29	40.05	40.10
2	35.39	35.84	37.73	39.32	39.49	39.78	40.35	40.30	39.70	40.03	40.00	40.13
3	35.44	35.77	37.75	39.90	39.49	39.76	40.20	40.08	39.62	39.95	39.99	40.01
4	35.44	35.71	37.75	39.75	39.64	39.76	40.04	39.93	39.61	39.89	39.89	39.94
5	35.45	35.69	37.98	39.60	40.10	39.75	40.00	39.87	39.57	39.85	39.83	40.60
6	35.39	35.59	38.03	39.52	39.89	39.73	39.96	39.83	40.16	39.78	39.80	40.36
7	35.33	35.51	38.06	39.46	39.82	39.72	39.89	39.80	40.01	39.77	39.80	40.18
8	35.37	36.25	38.09	39.46	39.80	39.68	39.83	40.38	39.89	40.31	40.39	40.11
9	35.39	36.00	38.13	39.45	39.75	39.59	39.82	40.15	39.82	40.09	40.24	40.03
10	35.28	36.22	38.18	39.43	39.69	39.57	40.43	40.02	39.81	39.99	40.15	39.98
11	35.55	36.27	38.20	39.41	39.64	39.62	40.19	39.95	39.75	39.94	40.77	40.52
12	35.52	36.44	38.87	39.36	39.60	39.66	40.10	39.88	39.68	39.88	40.48	40.28
13	35.47	36.48	38.64	39.30	39.62	39.65	40.11	39.81	40.22	39.85	40.37	40.13
14	35.35	36.53	38.54	39.29	39.61	39.61	40.05	39.77	40.05	39.83	40.26	40.04
15	35.32	36.58	38.50	39.29	40.18	39.59	39.95	39.74	39.88	40.35	40.16	40.02
16	35.67	36.94	38.48	39.29	39.99	39.69	39.85	39.67	39.87	40.16	40.09	40.09
17	35.62	36.92	38.49	39.26	39.89	40.35	39.79	40.16	39.80	40.08	40.83	40.69
18	35.80	36.95	39.85	39.27	39.87	40.07	39.80	39.91	39.78	40.02	40.58	40.44
19	35.67	36.93	41.00	39.34	39.84	40.02	39.79	39.83	39.77	39.96	40.43	40.28
20	35.62	37.52	41.32	39.30	39.78	39.98	39.76	39.77	39.77	39.87	40.27	40.15
21	35.54	37.47	40.86	39.24	39.65	39.94	39.69	39.71	39.71	39.81	40.13	40.10
22	35.53	37.48	40.50	39.18	39.58	39.86	39.67	39.73	39.63	39.80	40.03	40.04
23	35.47	37.51	40.27	39.18	39.65	39.81	39.78	39.74	39.60	40.42	40.64	39.92
24	35.82	37.51	40.04	39.20	39.72	39.79	39.86	39.69	40.14	40.16	40.42	39.89
25	35.69	37.51	39.92	39.25	40.14	39.77	39.80	39.69	39.96	40.07	40.27	39.82
26	35.60	37.56	39.84	39.23	39.91	39.76	39.79	39.69	39.87	40.03	40.19	40.34
27	35.52	37.51	39.77	39.21	39.87	39.86	39.79	39.68	39.83	39.93	40.14	40.13
28	35.48	37.57	39.67	39.87	39.84	39.86	39.76	40.20	39.81	39.87	40.11	40.01
29	35.45	37.63	39.59	39.74	---	39.84	39.78	39.95	39.80	39.83	40.02	39.95
30	35.41	37.70	39.53	39.61	---	39.79	39.80	39.82	39.77	40.51	39.99	39.84
31	35.37	---	39.49	39.49	---	39.80	---	39.79	---	40.23	39.95	---
MEAN	35.50	36.72	39.06	39.41	39.77	39.79	39.94	39.88	39.82	40.02	40.20	40.14

WTR YR 2003MEAN39.18 HIGHEST 35.27 OCT 10, 2002 LOWEST 41.44 DEC 20, 2002



RIO GUAJATACA BASIN—Continued

182647066552400. Local number, 202.

LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of José de Diego School , and 1.99 mi northwest of El Calvario Church, Name: Carmelo Barreto García Well, Quebradillas.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-168 m), perforated 270-529 ft (82.3-161 m). Depth 550 ft (168 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 475 ft (145 m), above mean sea level, from topographic map. Measuring point: Ho le in horizontal steel plate, 1.11 ft (0.34 m), above land-surface datum. Priot to February 18, 1998, hole on side of casing, 1.5 ft (0.46 m), above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.3 ft (1 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998.

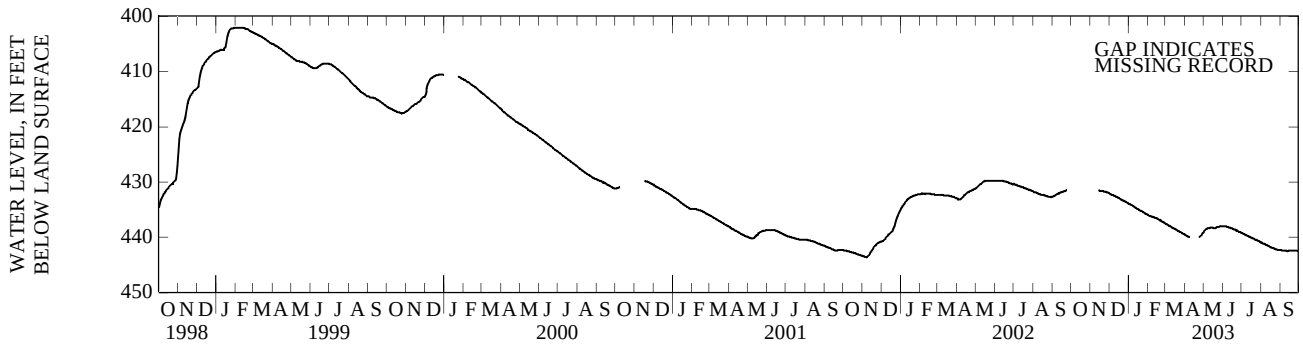
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 401.9 ft (122 m), below land-surface datum, February 6, 1999; lowest water level recorded, 453.9 ft (138 m), below land-surface datum, May 14, 15, 16, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	432.02	433.88	435.89	437.44	439.51	439.17	437.96	439.15	440.87	442.33
2	---	---	432.06	433.93	435.97	437.53	439.58	439.00	437.96	439.21	440.93	442.33
3	---	---	432.11	433.98	436.05	437.60	439.64	438.87	437.96	439.27	441.02	442.33
4	---	---	432.19	434.04	436.11	437.65	439.67	438.73	437.99	439.34	441.04	442.34
5	---	---	432.24	434.12	436.15	437.73	439.74	438.63	438.00	439.40	441.08	442.36
6	---	---	432.28	434.16	436.19	437.79	439.80	438.54	438.02	439.45	441.14	442.36
7	---	---	432.33	434.23	436.24	437.86	439.85	438.45	438.06	439.51	441.20	442.36
8	---	---	432.39	434.32	436.29	437.92	439.88	438.40	438.08	439.56	441.25	442.39
9	---	---	432.46	434.40	436.30	437.97	439.92	438.35	438.10	439.62	441.32	442.41
10	---	---	432.50	434.47	436.32	438.04	439.96	438.31	438.19	439.66	441.38	442.43
11	---	---	432.56	434.52	436.35	438.13	---	438.29	438.20	439.72	441.40	442.46
12	---	---	432.61	434.60	436.40	438.20	---	438.27	438.24	439.77	441.47	442.49
13	---	---	432.66	434.64	436.45	438.26	---	438.23	438.29	439.83	441.52	442.49
14	---	431.48	432.69	434.71	436.52	438.33	---	438.27	438.33	439.88	441.57	442.48
15	---	431.53	432.76	434.80	436.55	438.38	---	438.27	438.33	439.92	441.67	442.45
16	---	431.57	432.82	434.85	436.62	438.45	---	438.26	438.41	439.99	441.73	442.42
17	---	431.61	432.89	434.91	436.67	438.51	---	438.26	438.44	440.05	441.79	442.39
18	---	431.64	432.96	434.98	436.75	438.56	---	438.30	438.49	440.11	441.85	442.37
19	---	431.62	433.05	435.08	436.82	438.65	---	438.32	438.54	440.16	441.88	442.35
20	---	431.63	433.10	435.13	436.86	438.74	---	438.31	438.61	440.21	441.89	442.36
21	---	431.65	433.16	435.18	436.90	438.79	---	438.30	438.63	440.27	441.94	442.38
22	---	431.69	433.23	435.23	436.95	438.84	---	438.27	438.67	440.34	441.99	442.40
23	---	431.73	433.30	435.30	437.05	438.91	---	438.24	438.72	440.39	442.06	442.40
24	---	431.74	433.34	435.38	437.13	438.97	440.12	438.17	438.78	440.43	442.09	442.39
25	---	431.77	433.42	435.46	437.16	439.04	440.03	438.13	438.82	440.50	442.14	442.38
26	---	431.80	433.47	435.53	437.23	439.10	439.91	438.12	438.87	440.57	442.19	442.38
27	---	431.81	433.54	435.57	437.32	439.19	439.80	438.07	438.93	440.61	442.23	442.39
28	---	431.87	433.60	435.66	437.37	439.28	439.63	438.03	439.02	440.67	442.24	442.38
29	---	431.90	433.66	435.71	---	439.32	439.47	437.98	439.06	440.71	442.26	442.39
30	---	431.96	433.74	435.77	---	439.37	439.31	437.96	439.11	440.79	442.28	442.37
31	---	---	433.80	435.82	---	439.44	---	437.95	---	440.82	442.31	---
MEAN	---	---	432.87	434.85	436.59	438.45	---	438.34	438.43	440.00	441.67	442.39

WTR YR 2003 MEAN 437.91 HIGHEST 431.45 NOV 14, 2002 LOWEST 442.52 SEPT 12, 2003



RIO CAMUY BASIN

182723066511200. Local number, 1026.

LOCATION.--Lat 18°27'23", long 66°51'12", Hydrologic Unit 21010002, 1.6 mi south of the intersection of Hwy 119 with Hwy 2, 1.35 mi east of Hwy 119 of, and 0.01 mi east of Hwy 486, Name: Zanja 4 Well, Camuy.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.3 m). Depth 585 ft (178 m).

DATUM.--Elevation of land-surface datum is about 360 ft (110 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.1 m) casing, 3 ft (0.91 m), above land-surface datum.

REMARKS.--Observation well.

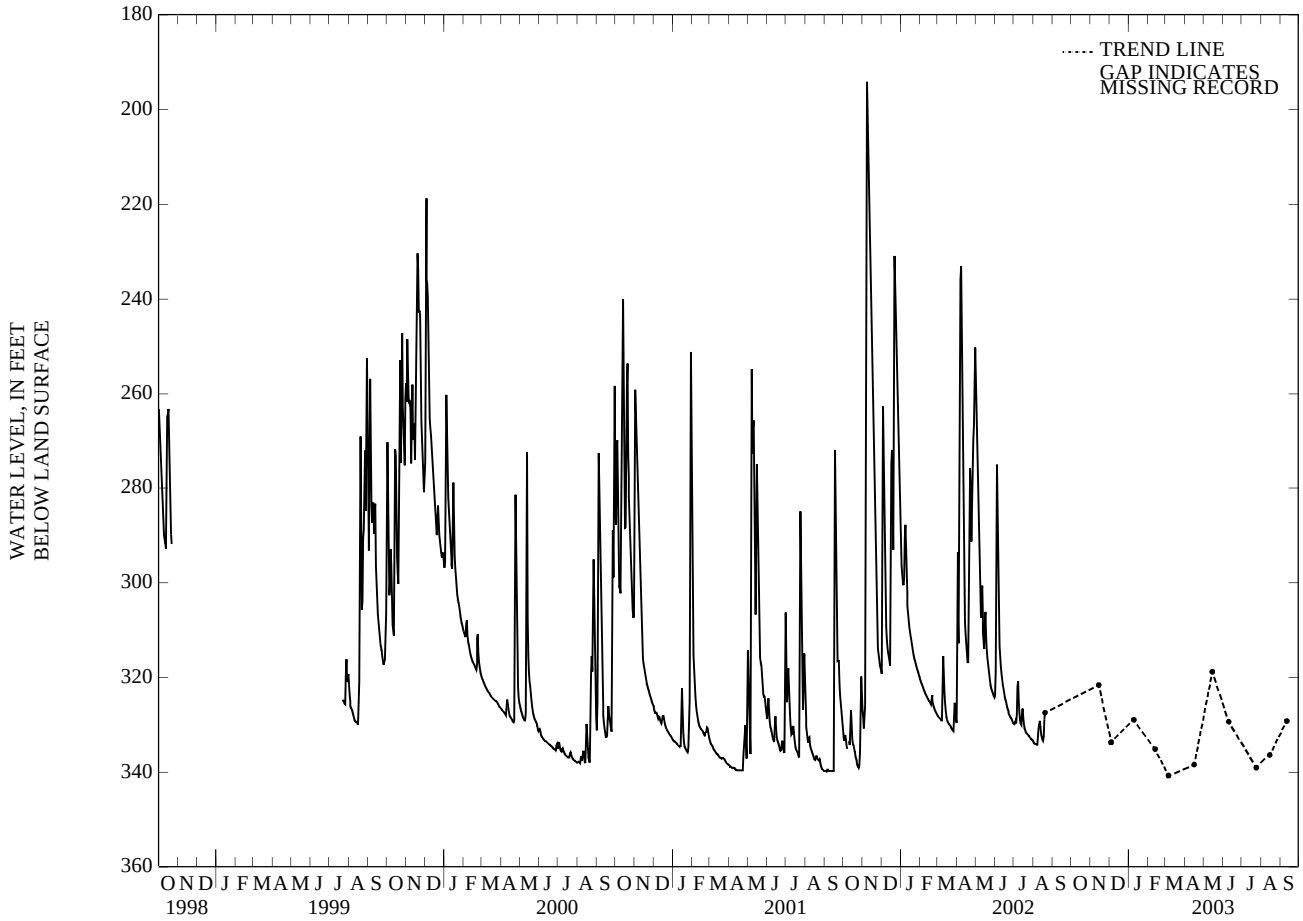
PERIOD OF RECORD.--February 25, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 161.8 ft (49.3 m), below land-surface datum, September 22, 1998; lowest water level recorded,

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	321.50	JAN 09	328.91	MAR 06	340.68	MAY 15	318.74	JULY 24	338.94	SEPT 11	329.13
DEC 04	333.65	FEB 12	335.03	APR 16	338.34	JUNE 10	329.31	AUG 15	336.27		

WATER YEAR 2003 HIGHEST 318.74 MAY 15, 2003 LOWEST 338.94 JULY 24, 2003



RIO GRANDE DE ARECIBO BASIN

182756066454700. Local number, 1051

LOCATION.--Lat 18°27'56", long 66°45'47", Hydrologic Unit 21010002, 0.04 mi north of Hwy 653, 1.86 mi west of Hwy 129, and 1.55 mi west of the University of Puerto Rico, Arecibo Campus, Name: Barreto 1 Well, Arecibo.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m). Depth 300 ft (91.4 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 164 ft (50 m), above mean sea level, from topographic map. Measuring point: Top of white PVC cap 3.37 ft (1.03 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on October 24, 1997. Well is affected by marine tides.

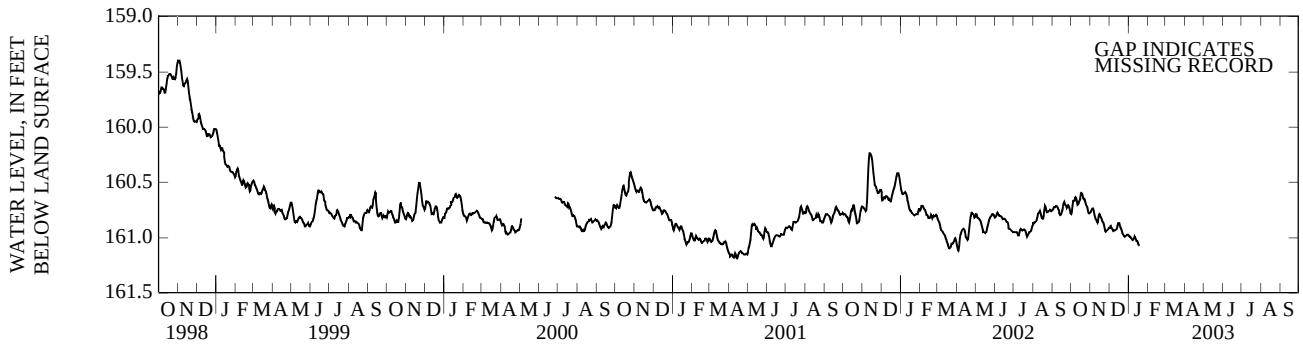
PERIOD OF RECORD.--October 24, 1997 to January 21, 2003, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 159.4 ft (48.6 m), below land-surface datum, November 1, 2, 3, 1998; lowest water level recorded, 161.4 ft (49.2 m), below land-surface datum, January 6, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160.79	160.78	160.91	160.98	---	---	---	---	---	---	---	---
2	160.79	160.77	160.91	160.99	---	---	---	---	---	---	---	---
3	160.74	160.75	160.92	160.99	---	---	---	---	---	---	---	---
4	160.68	160.74	160.89	160.99	---	---	---	---	---	---	---	---
5	160.66	160.73	160.91	161.01	---	---	---	---	---	---	---	---
6	160.67	160.74	160.92	161.01	---	---	---	---	---	---	---	---
7	160.66	160.77	160.92	161.02	---	---	---	---	---	---	---	---
8	160.63	160.80	160.95	161.03	---	---	---	---	---	---	---	---
9	160.64	160.82	160.94	161.01	---	---	---	---	---	---	---	---
10	160.66	160.84	160.94	161.00	---	---	---	---	---	---	---	---
11	160.70	160.84	160.93	160.98	---	---	---	---	---	---	---	---
12	160.71	160.86	160.93	161.00	---	---	---	---	---	---	---	---
13	160.69	160.86	160.94	161.00	---	---	---	---	---	---	---	---
14	160.67	160.82	160.91	161.03	---	---	---	---	---	---	---	---
15	160.67	160.78	160.88	161.03	---	---	---	---	---	---	---	---
16	160.62	160.79	160.87	161.03	---	---	---	---	---	---	---	---
17	160.59	160.81	160.87	161.06	---	---	---	---	---	---	---	---
18	160.60	160.82	160.87	161.07	---	---	---	---	---	---	---	---
19	160.61	160.83	160.91	161.07	---	---	---	---	---	---	---	---
20	160.64	160.85	160.91	161.08	---	---	---	---	---	---	---	---
21	160.66	160.86	160.93	---	---	---	---	---	---	---	---	---
22	160.65	160.87	160.95	---	---	---	---	---	---	---	---	---
23	160.64	160.89	160.97	---	---	---	---	---	---	---	---	---
24	160.67	160.93	160.97	---	---	---	---	---	---	---	---	---
25	160.69	160.95	160.99	---	---	---	---	---	---	---	---	---
26	160.71	160.95	160.99	---	---	---	---	---	---	---	---	---
27	160.71	160.94	160.99	---	---	---	---	---	---	---	---	---
28	160.74	160.94	160.99	---	---	---	---	---	---	---	---	---
29	160.77	160.93	160.98	---	---	---	---	---	---	---	---	---
30	160.78	160.91	160.97	---	---	---	---	---	---	---	---	---
31	160.78	---	160.97	---	---	---	---	---	---	---	---	---
MEAN	160.68	160.84	160.93	---	---	---	---	---	---	---	---	---

WTR YR 2003 MEAN 160.85 HIGHEST 160.58 OCT 17, 2002 LOWEST 161.14 JAN 18, 2003



RIO GRANDE DE ARECIBO BASIN—Continued

182737066370900. Local number, 204.

LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro, Name: Gilberto Rivera Well, Arecibo.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 57 ft (17.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is 48 ft (14.63 m), above mean sea level. Measuring point: Top of shelter floor, 3.06 ft (0.93 m), avobe land-surface datum. Prior to August 8, 2003, air hole on pump base, 0.5 ft (0.15 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 7, 1997. Well is affected by marine tides.

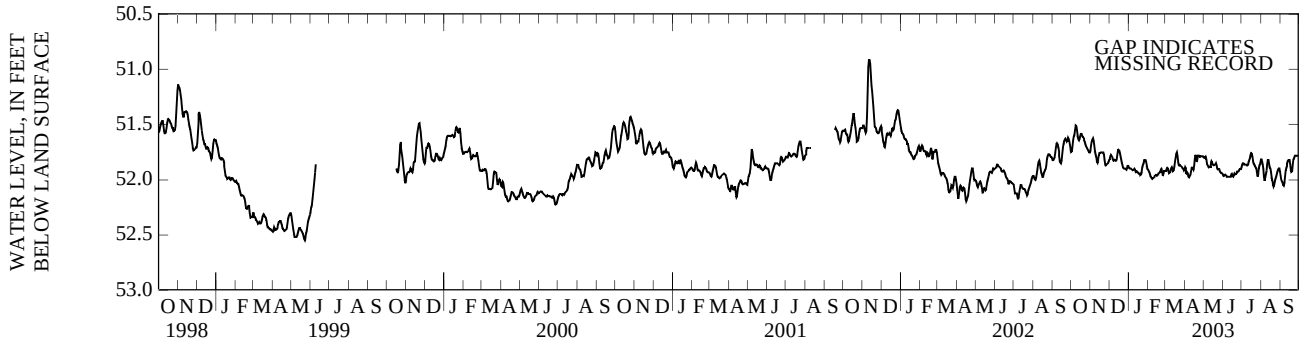
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50 ft (15.2 m), below land-surface datum, May 14, 1986; lowest water level recorded, 53.1 ft (16.2 m), below land-surface datum, January 29, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.74	51.75	51.83	51.88	51.91	51.92	51.89	51.79	51.95	51.90	51.81	51.94
2	51.76	51.72	51.82	51.90	51.91	51.92	51.88	51.81	51.96	51.87	51.81	51.99
3	51.73	51.66	51.81	51.90	51.93	51.92	51.92	51.80	51.97	51.86	51.82	52.01
4	51.66	51.65	51.77	51.89	51.94	51.89	51.96	51.80	51.96	51.84	51.85	52.02
5	51.62	51.62	51.78	51.90	51.96	51.89	51.93	51.79	51.96	51.86	51.88	52.03
6	51.60	51.63	51.79	51.91	51.98	51.91	51.94	51.84	51.95	51.86	51.93	52.07
7	51.58	51.67	51.80	51.91	51.98	51.94	51.95	51.87	51.97	51.86	52.03	52.04
8	51.52	51.72	51.83	51.92	52.00	51.95	51.99	51.87	51.98	51.86	52.00	52.01
9	51.50	51.76	51.83	51.91	51.99	51.93	51.97	51.89	51.97	51.86	51.96	51.93
10	51.53	51.78	51.83	51.91	51.99	51.91	51.96	51.89	51.98	51.87	51.94	51.90
11	51.58	51.81	51.82	51.90	51.98	51.89	51.95	51.88	51.97	51.88	51.90	51.88
12	51.62	51.86	51.84	51.91	51.97	51.88	51.91	51.88	51.97	51.86	51.83	51.87
13	51.64	51.83	51.82	51.92	51.96	51.92	51.89	51.88	51.98	51.82	51.82	51.84
14	51.64	51.80	51.81	51.94	51.95	51.93	51.89	51.84	51.97	51.82	51.83	51.83
15	51.62	51.76	51.74	51.92	51.96	51.91	51.91	51.83	51.94	51.79	51.88	51.82
16	51.59	51.76	51.73	51.93	51.97	51.86	51.91	51.86	51.96	51.76	51.89	51.82
17	51.58	51.76	51.73	51.94	51.95	51.82	51.84	51.87	51.97	51.76	51.91	51.83
18	51.59	51.76	51.74	51.95	51.95	51.79	51.78	51.87	51.97	51.77	51.96	51.90
19	51.61	51.75	51.78	51.94	51.94	51.74	51.77	51.87	51.94	51.82	52.00	51.93
20	51.62	51.75	51.80	51.95	51.93	51.76	51.82	51.87	51.95	51.85	52.02	51.94
21	51.62	51.75	51.83	51.97	51.93	51.82	51.86	51.85	51.96	51.86	52.06	51.91
22	51.63	51.75	51.86	51.94	51.92	51.86	51.77	51.85	51.94	51.87	52.06	51.82
23	51.65	51.79	51.88	51.91	51.90	51.88	51.79	51.89	51.96	51.89	52.03	51.81
24	51.66	51.85	51.90	51.86	51.91	51.87	51.77	51.91	51.93	51.88	52.00	51.80
25	51.69	51.87	51.90	51.87	51.96	51.87	51.79	51.91	51.92	51.92	51.98	51.78
26	51.70	51.88	51.90	51.83	51.97	51.88	51.80	51.90	51.93	51.96	51.97	51.78
27	51.71	51.86	51.90	51.82	51.92	51.88	51.79	51.91	51.92	51.98	51.93	51.78
28	51.73	51.86	51.91	51.82	51.92	51.89	51.78	51.93	51.91	51.92	51.92	51.78
29	51.73	51.85	51.91	51.83	---	51.90	51.79	51.94	51.90	51.88	51.90	51.78
30	51.75	51.83	51.88	51.85	---	51.91	51.78	51.94	51.91	51.86	51.89	51.79
31	51.75	---	51.87	51.90	---	51.92	---	51.94	---	51.85	51.91	---
MEAN	51.64	51.77	51.83	51.90	51.95	51.88	51.87	51.87	51.95	51.86	51.93	51.89

WTR YR 2003MEAN51.86 HIGHEST 51.47 OCT 9, 2002 LOWEST 52.11 FEB 16, 2003



RIO GRANDE DE ARECIBO BASIN—Continued

182616066364100. Local number, 1052.

LOCATION.--Lat 18°26'16", long 66°36'41", Hydrologic Unit 21010002, 3 mi west of the intersection of Hwy 140 with Hwy 2 at Cruce Dávila, 0.32 mi southwest of Hwy 22, 0.15 mi north of Hwy 2, and 0.22 mi northeast of the intersection of Hwy 2 with Hwy 639, Name: Encantada Well, Arecibo.

AQUIFER.--Aguada Limestone.AQUIFER.--Tertiary Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m).

DATUM.--Elevation of land-surface datum is about 312 ft (95 m), above mean sea level, from topographic map. Measuring point: On shelter floor 3.4 ft (1.04 m), above land-surface datum.

REMARKS.--Observation well. Well is affected by marine tides.

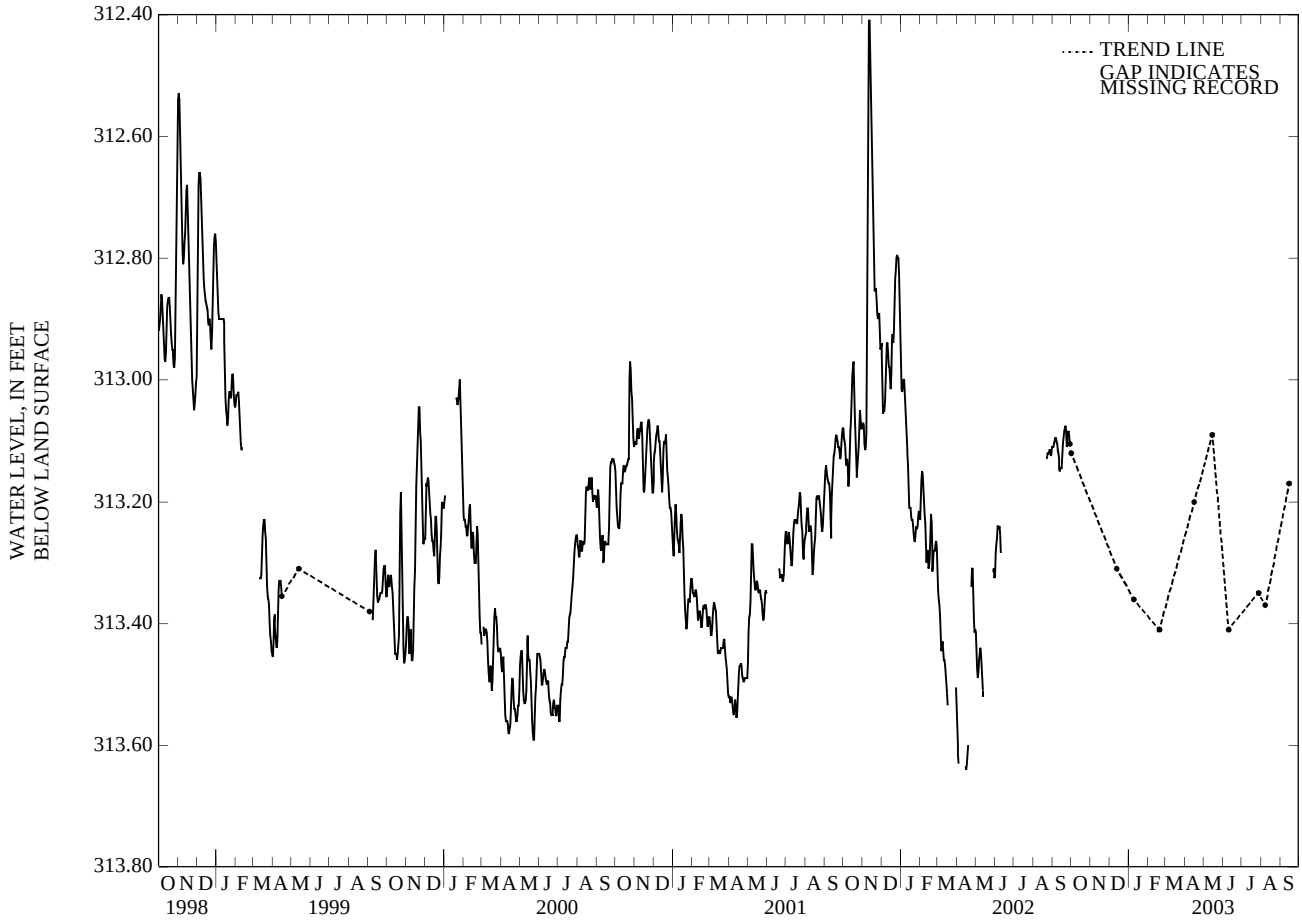
PERIOD OF RECORD.--August 23, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 312.23 ft (95.2 m), below land-surface datum, September 13, 14, 1996; lowest water level recorded, 313.84 ft (95.7 m), below land-surface datum, April 3, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	313.12	JAN 09	313.36	APR 16	313.20	JUNE 10	313.41	AUG 08	313.37	SEPT 15	313.17
DEC 13	313.31	FEB 19	313.41	MAY 15	313.09	JULY 28	313.35				

WATER YEAR 2003 HIGHEST 313.09 MAY 15, 2003 LOWEST 313.41 FEB 19, JUNE 10, 2003



RIO GRANDE DE ARECIBO BASIN—Continued

182626066345100. Local number, 1053.

LOCATION.--Lat 18°26'26", long 66°34'51", Hydrologic Unit 21010002, 1.45 mi south of Hwy 682, 1.15 mi northwest of the intersection of Hwy 140 with Hwy 2 (Cruce Dávila), 0.48 mi north of Hwy 2, and approximately 100 ft (30.48 m) south of Hwy 22, Name: Tiburones Well, Barceloneta.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.3 m). Depth 320 ft (97.5 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 295 ft (89.9 m), above mean sea level, from topographic map. Measuring point: Hole on floor of instrument shelter, 3.15 ft (0.96 m), above land-surface datum. Prior October 27, 1997, top of 4 in (0.1 m) PVC cap, above shelter floor, 3.4 ft (1.04 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), re-installed on October 27, 1997. Well is affected by marine tides.

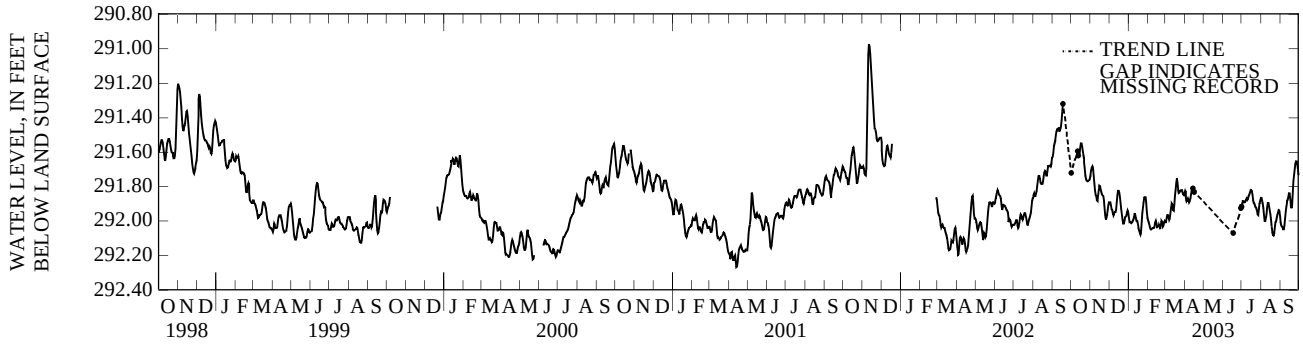
PERIOD OF RECORD.--May 14, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 283.58 ft (86.43 m), below land-surface datum, October 1, 2002; lowest water level measured, 292.34 ft (89.1 m), below land-surface datum, April 13, 14, 2001.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	291.75	291.89	291.96	291.99	292.00	291.83	---	---	291.92	291.86	291.99
2	---	291.72	291.89	292.00	292.00	292.01	291.82	---	---	291.91	291.86	292.02
3	---	291.69	291.89	292.01	292.01	292.00	291.84	---	---	291.89	291.87	292.03
4	---	291.69	291.89	292.00	292.03	291.97	291.89	---	---	291.88	291.89	292.03
5	---	291.68	291.93	292.01	292.04	291.96	291.88	---	---	291.89	291.91	292.04
6	---	291.71	291.93	292.02	292.05	291.97	291.87	---	---	291.89	291.94	292.05
7	---	291.76	291.94	292.00	292.05	291.99	291.87	---	---	291.89	291.99	292.04
8	---	291.80	291.97	292.00	292.04	291.99	291.89	---	---	291.88	292.01	292.01
9	---	291.84	291.96	291.98	292.04	291.97	291.89	---	---	291.87	291.99	291.96
10	---	291.85	291.95	291.97	292.04	291.93	291.88	---	---	291.87	291.98	291.93
11	291.58	291.86	291.94	291.95	292.04	291.91	291.86	---	---	291.88	291.94	291.90
12	291.61	291.90	291.95	291.96	292.02	291.89	291.84	---	---	291.86	291.90	291.89
13	291.63	291.87	291.92	291.97	292.00	291.92	291.81	---	---	291.85	291.89	291.88
14	291.62	291.84	291.88	292.00	292.00	291.95	291.81	---	---	291.84	291.90	291.87
15	291.59	291.80	291.83	292.00	292.03	291.93	291.81	---	---	291.83	291.93	291.85
16	291.56	291.79	291.82	292.00	292.04	291.88	---	---	---	291.82	291.95	291.83
17	291.54	291.81	291.83	292.03	292.03	291.83	---	---	---	291.82	291.97	291.85
18	291.56	291.82	291.84	292.05	292.03	291.81	---	---	---	291.83	292.01	291.89
19	291.58	291.84	291.88	292.06	292.01	291.75	---	---	---	291.86	292.05	291.92
20	291.61	291.85	291.91	292.07	292.05	291.76	---	---	---	291.89	292.07	291.93
21	291.62	291.85	291.95	292.08	292.04	291.80	---	---	---	291.90	292.09	291.88
22	291.65	291.86	291.97	292.04	292.03	291.84	---	---	---	291.90	292.08	291.79
23	291.67	291.90	292.01	291.98	292.01	291.84	---	---	---	291.92	292.06	291.75
24	291.72	291.95	292.02	291.93	291.99	291.83	---	---	---	291.92	292.01	291.72
25	291.75	291.99	292.01	291.91	292.02	291.82	---	---	---	291.93	292.00	291.68
26	291.76	291.99	291.99	291.87	292.04	291.83	---	---	---	291.95	292.00	291.66
27	291.77	291.97	291.97	291.86	292.01	291.81	---	---	---	291.97	291.96	291.65
28	291.77	291.95	291.98	291.86	292.00	291.83	---	---	---	291.96	291.96	291.66
29	291.77	291.92	291.96	291.86	---	291.84	---	---	---	291.91	291.94	291.68
30	291.77	291.89	291.94	291.92	---	291.85	---	---	291.93	291.89	291.93	291.72
31	291.76	---	291.94	291.97	---	291.85	---	---	---	291.88	291.95	---
MEAN	---	291.84	291.93	291.98	292.02	291.89	---	---	---	291.89	291.96	291.87

WTR YR 2003 MEAN 291.90 HIGHEST 283.58 OCT 1, 2002 LOWEST 292.13 JAN 18, 2003



RIO GRANDE DE ARECIBO BASIN—Continued

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	291.72	DEC 13	291.92	APR 16	291.83	JUNE 30	291.93	JUNE 17	292.07	AUG 08	291.94
11	291.56	FEB 19	292.00								

WATER YEAR 2003 HIGHEST 291.56 OCT 11, 2002 LOWEST 292.07 JUNE 17, 2003

RIO GRANDE DE ARECIBO BASIN—Continued

182639066385200. Local number, 1056.

LOCATION.--Lat 18°26'39", long 66°38'52", Hydrologic Unit 21010002, 0.19 mi south of Hwy 2, 1.14 mi west of intersection of Hwy 2 with Hwy 22, 1.18 mi east southeast of Escuela Federico Degetau, Name: Santana 1 Well.

AQUIFER.--Upper Aquifer.

WELL CHARACTERISTICS.--Abandoned production well, diameter 12 in (0.3 m), open screened 175-220 ft (53.34-60.96 m). Depth 220 ft (60.96 m).

DATUM.--Elevation of land-surface datum is about 131 ft (39.92 m), above mean sea level, from topographic map. Measuring point: Lower point 13/8 in slanted access pipe, 0.5 ft (0.15 m), above land-surface datum.

REMARKS.--Observation well.

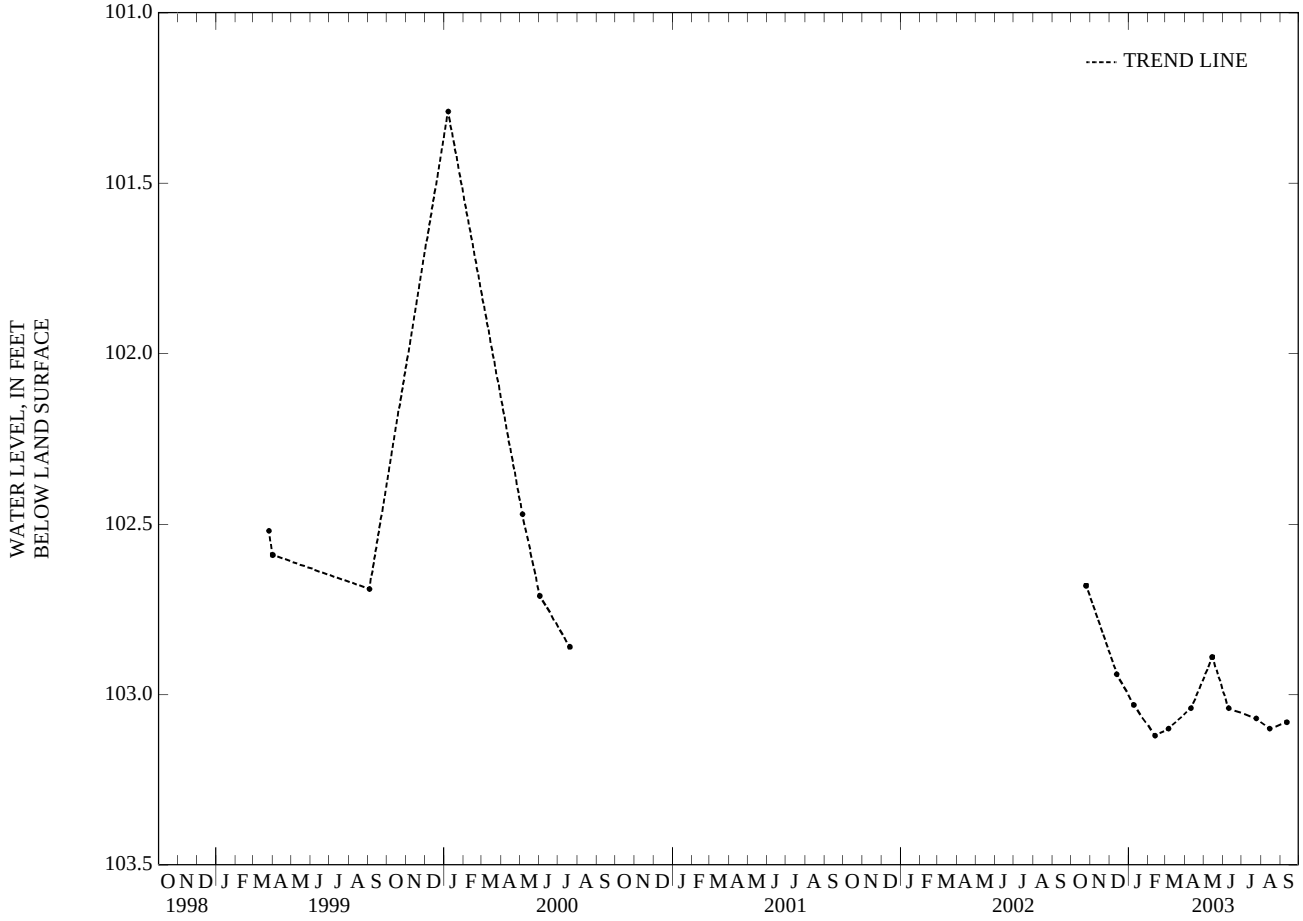
PERIOD OF RECORD.--August 10, 1995 to July 20, 2000, discontinued, October 25, 2002 to September 30, 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 101.29 ft (30.87 m), below land-surface datum, January 7, 2000; lowest water level measured, 107.54 ft (32.78 m), below land-surface datum, June 3, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	102.68	JAN 09	103.03	MAR 06	103.10	MAY 1	5102.89	JULY 24	103.07	SEPT 11	103.08
DEC 13	102.94	FEB 12	103.12	APR 11	103.04	JUNE 1	0103.04	AUG 15	103.10		

WATER YEAR 2003 HIGHEST 102.68 OCT 25, 2002 LOWEST 103.12 FEB 12, 2003



RIO GRANDE DE ARECIBO BASIN—Continued

182209066340600. Local number, 1057.

LOCATION.--Lat 18°22'09", long 66°34'06", Hydrologic Unit 21010002, 0.2 north of the intersection of Hwy 140 with Hwy 642, 1.15 mi south of the intersection of Hwy 140 with Hwy 641, and approximately 100 ft (30.48 m) west of Hwy 140, Name: PRASA Florida 1 Well, Florida.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 12 in (0.3 m), Depth 200 ft (61 m).

INSTRUMENTATION.--Pressure transducer with integrated data logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 607 ft (185 m), above mean sea level from topographic map. Measuring point: Hole in concrete base 1.1 ft (0.33 m), above land-surface datum. Prior to September 20, 1996, shelter floor 4 ft (1.22 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on August 12, 1996.

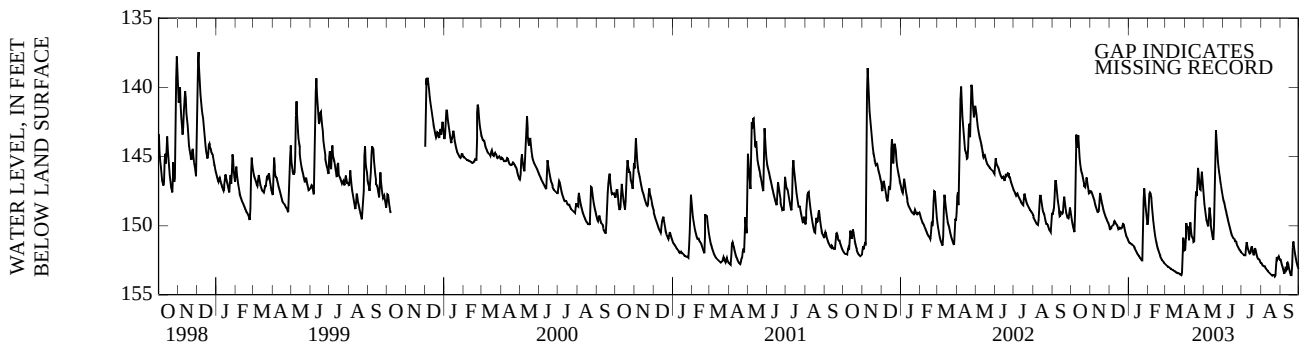
PERIOD OF RECORD.--August 12, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 137.07 ft (41.8 m), below land-surface datum, November 8, 2001; lowest water level recorded, 157.63 ft (48 m), below land-surface datum, August 14, 1996.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149.14	147.44	150.01	151.12	150.15	152.74	151.98	147.72	147.89	151.91	152.73	152.38
2	149.47	147.52	150.13	151.21	149.19	152.79	151.55	148.23	148.14	151.95	152.61	152.55
3	149.76	147.49	150.23	151.24	147.94	152.84	150.32	148.67	148.21	152.01	152.71	152.72
4	149.99	147.64	150.31	151.28	147.37	152.87	149.43	149.02	148.45	152.07	152.82	152.88
5	150.20	147.77	150.16	151.32	147.80	152.92	150.30	149.36	148.67	152.13	152.91	153.08
6	150.38	147.92	150.03	151.35	147.60	152.96	149.83	149.66	148.89	152.14	152.95	153.25
7	150.55	148.05	150.02	151.37	148.30	153.00	150.34	149.81	149.10	152.15	152.90	153.41
8	147.39	148.27	150.01	151.41	148.88	153.04	150.84	149.95	149.28	152.12	152.97	153.54
9	143.08	148.50	149.83	151.47	149.37	153.07	151.24	150.17	149.49	151.02	153.05	152.87
10	143.78	148.64	149.62	151.53	149.84	153.09	149.43	148.48	149.72	151.35	153.12	153.09
11	144.89	148.75	149.69	151.58	150.23	153.12	150.08	148.90	149.91	151.57	153.18	153.28
12	143.14	148.89	149.84	151.67	150.59	153.16	150.54	149.35	150.11	151.74	153.24	152.89
13	143.81	149.06	149.91	151.76	150.88	153.19	150.95	149.79	150.29	151.89	153.30	152.60
14	144.78	148.97	149.93	151.85	151.11	153.23	150.73	150.17	150.47	151.98	153.35	152.72
15	145.40	149.01	150.06	151.94	151.32	153.26	151.10	150.49	150.62	152.08	153.40	152.94
16	145.74	147.51	150.21	152.03	151.52	153.28	151.30	150.73	150.75	151.92	153.45	153.16
17	145.98	147.73	150.36	152.11	151.68	153.32	151.05	150.93	150.84	151.33	153.51	153.35
18	146.19	148.01	150.08	152.18	151.84	153.35	148.94	151.13	150.95	151.61	153.55	153.48
19	146.34	148.26	150.16	152.25	151.97	153.39	147.45	148.65	150.92	151.84	153.58	153.60
20	146.60	148.46	150.21	152.32	152.07	153.39	147.63	147.24	151.03	152.03	153.61	153.48
21	146.83	148.66	150.28	152.39	152.17	153.41	148.13	142.63	151.14	152.18	153.62	152.31
22	147.05	148.88	150.12	152.45	152.25	153.42	145.58	143.57	151.06	151.65	153.52	150.86
23	147.24	149.06	149.89	152.50	152.36	153.45	146.07	144.21	151.20	151.59	153.61	151.40
24	147.11	149.20	149.79	152.52	152.44	153.48	146.48	145.02	151.32	151.88	153.67	151.78
25	147.35	149.33	150.01	149.19	152.51	153.51	147.31	145.58	151.43	152.10	153.48	152.04
26	146.41	149.46	150.29	147.09	152.58	153.54	147.38	145.95	151.52	152.29	152.13	152.29
27	146.64	149.55	150.46	147.57	152.64	153.57	147.46	146.31	151.62	152.37	152.44	152.52
28	147.01	149.66	150.65	148.25	152.69	153.16	145.89	146.67	151.70	152.47	152.38	152.75
29	147.33	149.77	150.79	148.83	---	150.58	146.33	146.98	151.79	152.38	152.26	152.92
30	147.60	149.88	150.88	149.30	---	151.18	147.08	147.29	151.85	152.54	152.18	153.06
31	147.80	---	151.00	149.76	---	151.62	---	147.60	---	152.65	152.53	---
MEAN	146.93	148.58	150.16	151.06	150.69	153.00	149.09	148.07	150.28	151.97	153.06	152.77

WTR YR 2003MEAN150.47 HIGHEST 142.61 MAY 21, 2003 LOWEST 153.70 AUG. 25, 2003



RIO GRANDE DE MANATI BASIN

182544066341500. Local number, 205.

LOCATION.--Lat 18°25'44", long 66°34'15", Hydrologic Unit 21010002, 300 ft (91.4 m) west of Hwy 140, 0.5 mi southwest of Cruce Dávila, and 1.3 mi southwest of intersection of Hwy 140 with Hwy 22, Name: NC-5 Cruce Dávila Well, Barceloneta.

AQUIFER.--Montebello/Cibao Limestone.

WELL CHARACTERISTICS.--Deep test well, diameter 2.5 in (0.06 m) 0-1,070 ft (0-326.1 m), open screened 1,070-2,564 ft (326.1-781. 5 m). Depth 2,564 ft (781.5 m).

DATUM.--Elevation of land-surface datum is about 312 ft (95.1 m), above mean sea level, from topographic map. Measuring point: T op of black PVC pipe, 1.25 ft (0.38 m), above land-surface datum.

REMARKS.--Observation well.

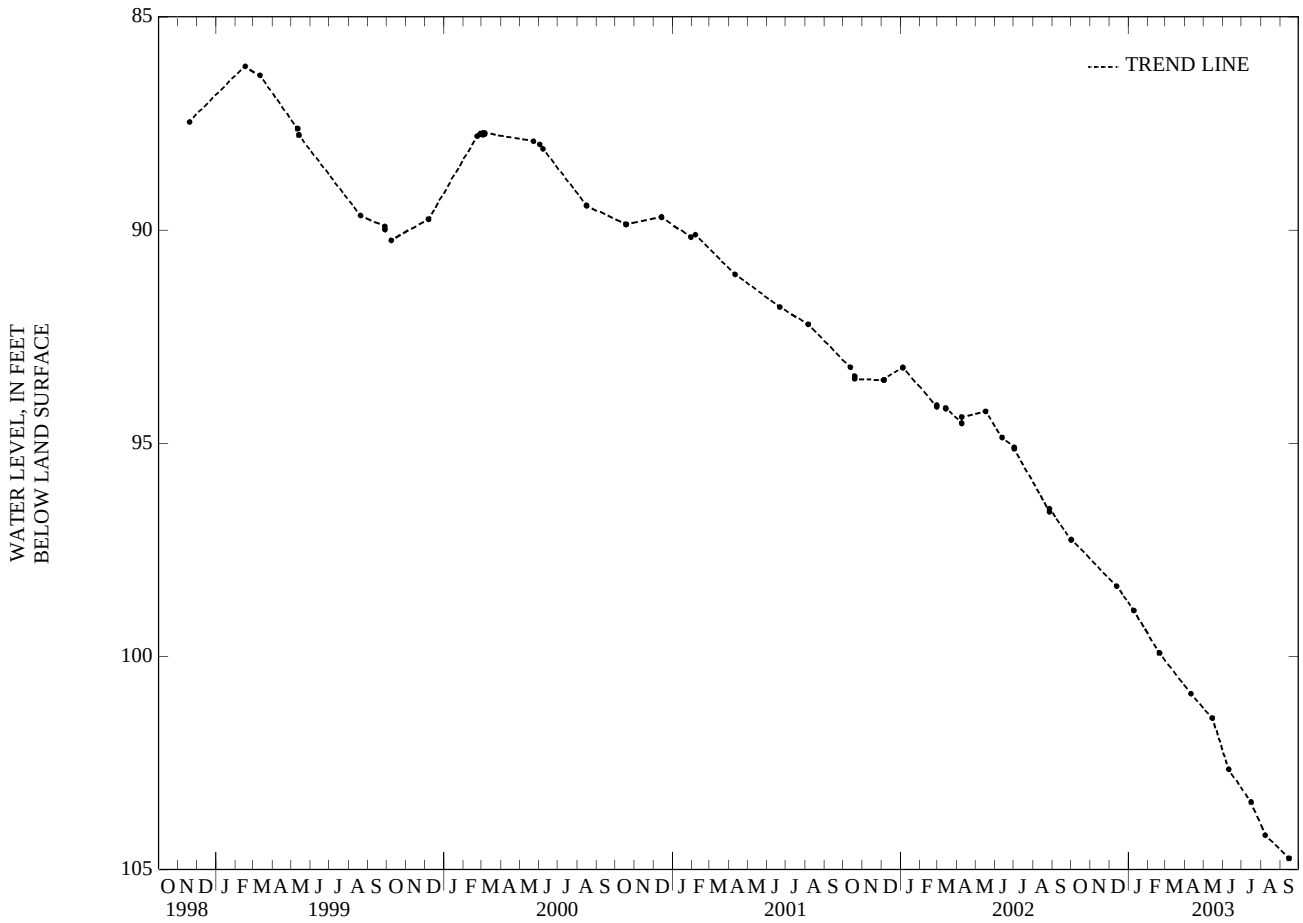
PERIOD OF RECORD.--December 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.16 ft (2.79 m), below land-surface datum, August 18, 1987; lowest water level measured, 104.78 ft (31.93 m), below land-surface datum, September 15, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	97.27	DEC 13	98.35	FEB 19	99.92	MAY 15	101.45	JULY 16	103.42	SEPT 15	104.74
01	97.26	JAN 09	98.92	APR 11	100.88	JUNE 10	102.65	AUG 08	104.19		

WATER YEAR 2003 HIGHEST 97.26 OCT 01, 2002 LOWEST 104.74 SEPT 15, 2003



RIO GRANDE DE MANATI BASIN—Continued

182549066304300. Local number, 166.

LOCATION.--Lat 18°25'49", long 66°30'43", Hydrologic Unit 21010002, 0.95 mi east of the Rio Grande de Manatí Hwy 2 bridge, 0.4 mi southwest of Central Monserrate, 1.07 mi east of the intersection of Hwy 666 with Hwy 2, 1.2 mi west of the intersection of Hwy 685 with Hwy 2, 0.01 mi north of Hwy 2, Name: PRASA 166 USGS Observation Manatí Well, Manatí.

AQUIFER.--Alluvial deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 0-100 ft (0-39.49 m), diameter 14 in (0.36 m), cased 0-140 ft (0-42.7 m), slotted 80-90 ft (24.7-27.4 m), and 130-140 ft (39.6-42.7 m). Depth 101 ft (30.8 m).

DATUM.--Elevation of land-surface datum is about 29.5 ft (9 m), above mean-sea level, from topographic map. Measuring point: A hole in the side of the 20 in (0.51 m) diameter well casing, 1.65 ft (0.5 m) above land-surface datum. Prior May 31, 1996, top of 14 in (0.36 m) casing, 0. 8 ft (0.24 m), above land-surface datum.

REMARKS.--Observation well. Formerly published as 182542066305200. Station was flooded by Río Grande de Manatí on September 1998 and November 2001.

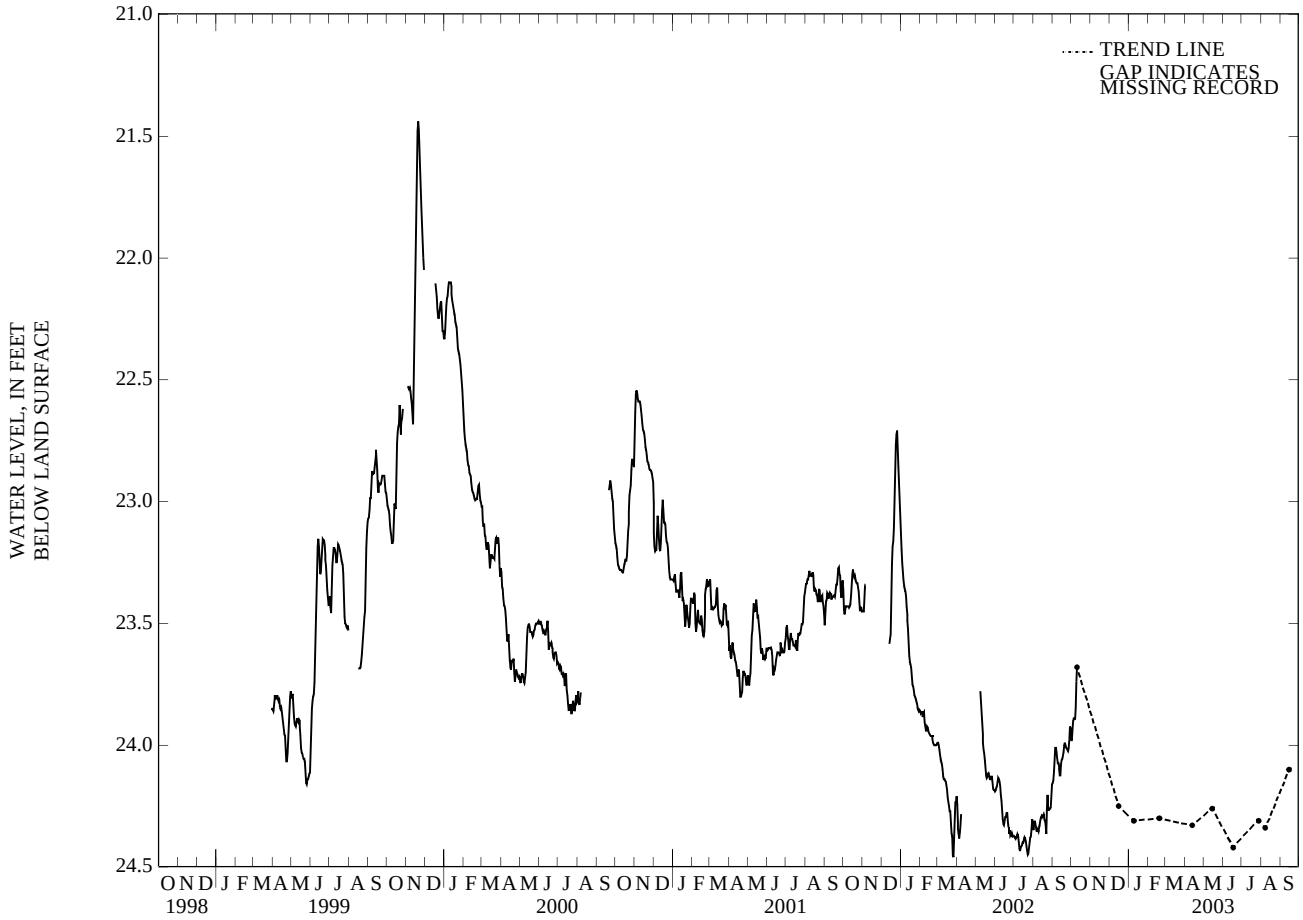
PERIOD OF RECORD.--January 1982 to December 1984, discontinued, May 31, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.38 ft (6.52 m), below land-surface datum, November 21, 1999; lowest water level measured, 26.36 ft (8.04 m), below land-surface datum, February 3, 1983.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	23.68	JAN 09	24.31	APR 16	24.33	JUNE 17	24.42	AUG 08	24.34	SEPT 15	24.10
DEC 16	24.25	FEB 19	24.30	MAY 15	24.26	JULY 28	24.31				

WATER YEAR 2003 HIGHEST 23.68 OCT 10, 2002 LOWEST 24.42 JUNE 17, 2003



RIO GRANDE DE MANATI BASIN—Continued

182506066280200. Local number, 1076.

LOCATION.--Lat 18°25'06", long 66°28'02", Hydrologic Unit 21010002, 0.72 mi southwest of the intersection of Hwy 686 with Hwy 670, 0.73 mi southeast of intersection of Hwy 149 with Hwy 670, and 0.78 mi northeast of Escuela Sabana Seca, Name: Piezometer Hill 2, Manatí.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), screened 360-410 ft (110-125 m). Depth 410 ft (12 5 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic data logger--60 minutes interval.

DATUM.--Elevation of land-surface datum is about 312 ft (95 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.76 ft (1.15 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 28, 1996.

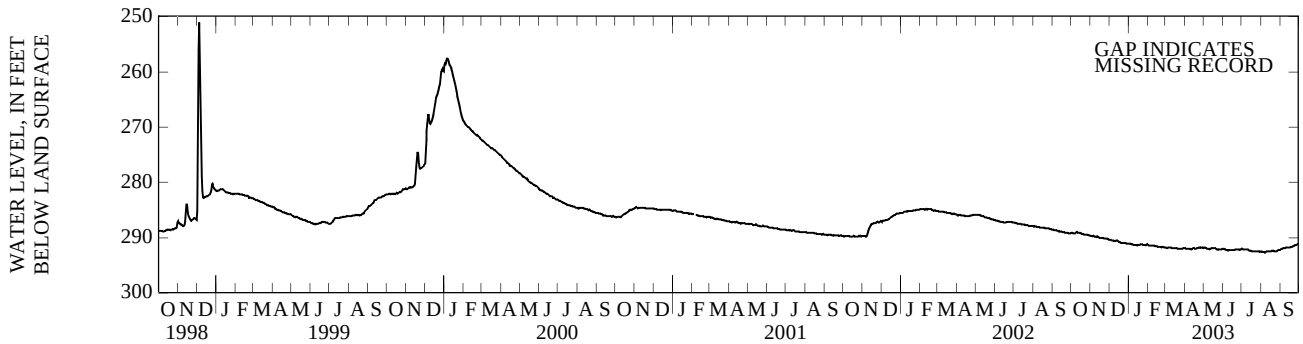
PERIOD OF RECORD.--May 28, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 249.79 ft (76.1 m), below land-surface datum, December 5, 1998; lowest water level recorded, 293.09 ft (89.3 m), below land-surface datum, September 5, 6, 1996.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289.23	289.65	290.37	291.13	291.26	291.84	291.88	291.86	292.09	292.12	292.49	292.25
2	289.17	289.67	290.36	291.09	291.37	291.80	291.97	291.81	292.03	292.04	292.55	292.15
3	289.13	289.72	290.39	291.08	291.42	291.82	291.99	291.79	292.01	292.07	292.60	292.08
4	289.16	289.71	290.42	291.11	291.44	291.88	291.95	291.82	292.04	292.11	292.57	292.01
5	289.24	289.77	290.45	291.13	291.41	291.89	292.01	291.88	292.10	292.12	292.56	292.03
6	289.23	289.74	290.48	291.18	291.44	291.82	292.03	291.94	292.17	292.08	292.59	291.99
7	289.23	289.75	290.49	291.19	291.42	291.77	292.02	291.98	292.21	292.10	292.66	291.90
8	289.32	289.83	290.53	291.23	291.42	291.80	291.94	292.00	292.23	292.08	292.63	291.91
9	289.14	289.87	290.54	291.31	291.40	291.75	292.03	292.02	292.28	292.07	292.71	291.85
10	289.03	289.83	290.58	291.32	291.41	291.76	292.03	292.04	292.35	292.07	292.67	291.86
11	289.03	289.86	290.60	291.36	291.44	291.84	292.06	292.12	292.28	292.10	292.51	291.78
12	289.08	289.87	290.60	291.36	291.49	291.92	292.09	292.03	292.25	292.19	292.48	291.78
13	289.11	289.85	290.56	291.34	291.51	291.92	292.10	291.96	292.25	292.29	292.53	291.75
14	289.07	289.92	290.52	291.34	291.55	291.89	292.03	291.97	292.26	292.33	292.51	291.73
15	289.11	289.97	290.55	291.38	291.57	291.89	291.95	291.94	292.18	292.29	292.45	291.72
16	289.14	290.03	290.68	291.40	291.60	291.92	291.91	291.90	292.21	292.37	292.43	291.74
17	289.23	290.08	290.73	291.39	291.62	291.86	291.95	291.87	292.19	292.43	292.48	291.76
18	289.27	290.09	290.78	291.33	291.67	291.85	292.05	291.85	292.19	292.50	292.49	291.77
19	289.32	290.03	290.85	291.39	291.72	291.86	292.06	291.89	292.24	292.51	292.42	291.75
20	289.35	290.01	290.89	291.33	291.69	291.99	292.05	291.85	292.22	292.48	292.35	291.66
21	289.40	290.04	290.92	291.23	291.62	291.97	291.97	291.91	292.16	292.43	292.36	291.73
22	289.46	290.09	290.93	291.19	291.60	291.96	291.90	292.03	292.13	292.49	292.37	291.56
23	289.45	290.15	290.94	291.17	291.69	291.96	291.88	292.15	292.11	292.53	292.45	291.50
24	289.49	290.16	290.90	291.25	291.77	291.95	291.83	292.13	292.12	292.50	292.47	291.47
25	289.50	290.16	290.96	291.35	291.72	291.95	291.82	292.18	292.12	292.51	292.43	291.45
26	289.45	290.19	290.99	291.35	291.64	291.98	291.84	292.20	292.12	292.52	292.41	291.36
27	289.44	290.15	291.01	291.29	291.74	292.00	291.84	292.15	292.13	292.46	292.44	291.34
28	289.50	290.19	291.02	291.35	291.79	292.07	291.81	292.09	292.16	292.48	292.38	291.28
29	289.51	290.23	291.04	291.37	---	292.02	291.79	292.08	292.20	292.51	292.25	291.27
30	289.52	290.29	291.09	291.37	---	291.93	291.85	292.11	292.16	292.57	292.26	291.21
31	289.55	---	291.11	291.23	---	291.91	---	292.11	---	292.55	292.28	---
MEAN	289.29	289.96	290.72	291.28	291.55	291.90	291.95	291.99	292.17	292.32	292.48	291.72

WTR YR 2003MEAN291.44 HIGHEST 288.98 OCT 11, 2002 LOWEST 292.76 AUG 9, 2003



RIO GRANDE DE MANATI BASIN—Continued

182308066260400. Local number, 210.

LOCATION.--Lat 18°23'01", long 66°25'52", Hydrologic Unit 21010002, 4.88 mi southeast of Manatí plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho, Name: Gelo Martínez Well, Vega Baja.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.2 m), cased 8 in (0.2 m). Depth 83 ft (25.3 m).

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.3 ft (1.01 m), above land-surface datum. Prior to January 14, 1993, hole on side of casing, 2 ft (0.61 m), above land-surface datum.

REMARKS.--Observation well.

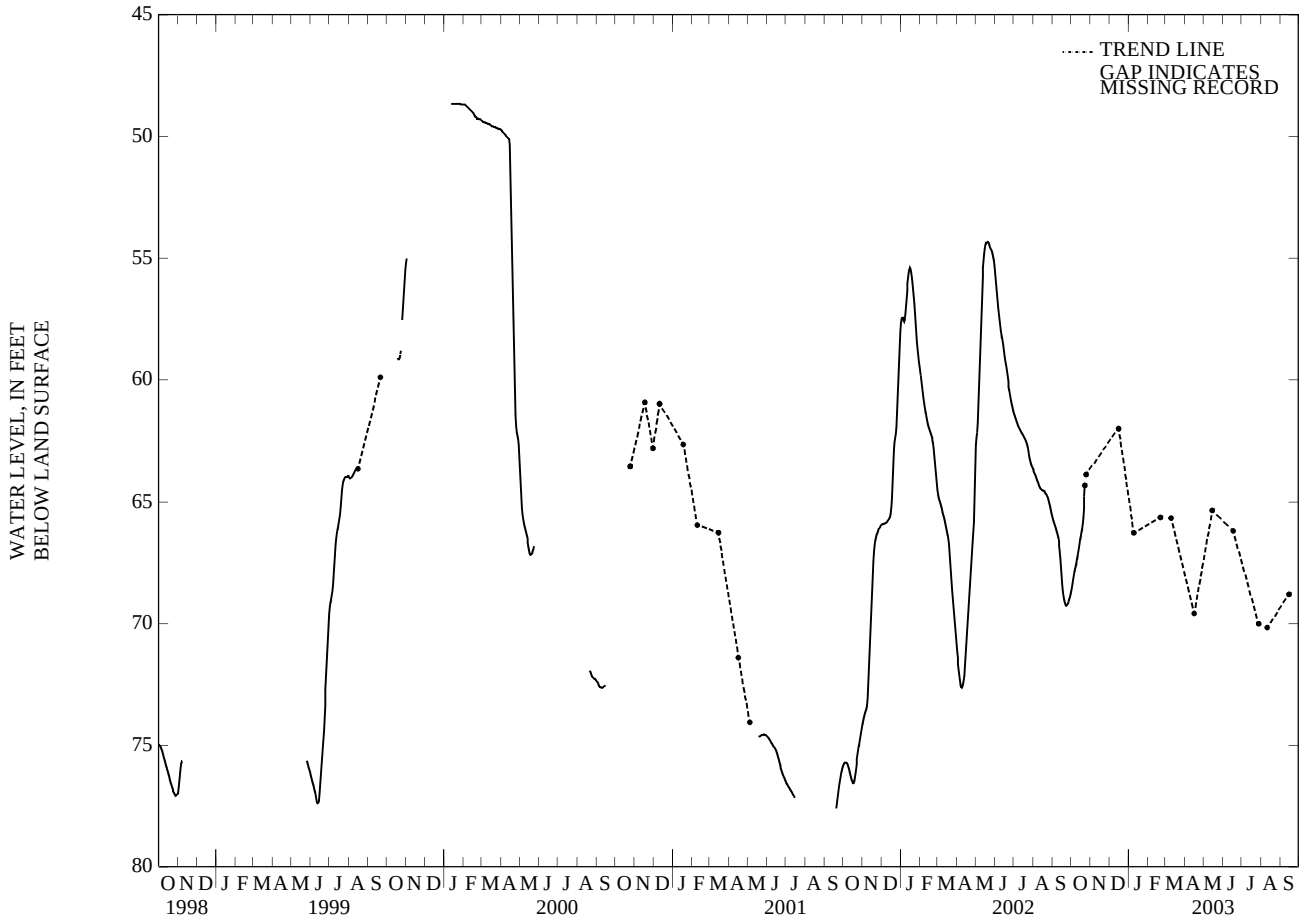
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.4 m), below land-surface datum, May 22, 1986; lowest water level recorded, 85.5 ft (26.1 m), below land-surface datum, October 14, 15, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	63.87	JAN 09	66.27	MAR 10	65.66	MAY 15	63.35	JULY 28	70.00	SEPT 15	68.80
DEC 16	62.00	FEB 21	65.65	APR 16	69.58	JUNE 17	66.19	AUG 11	70.17		

WATER YEAR 2003 HIGHEST 62.00 DEC 16, 2002 LOWEST 70.17 AUG 11, 2003



RIO CIBUCO BASIN

182712066251700. Local number, 1102.

LOCATION.--Lat 18°27'12", long 66°25'17", Hydrologic Unit 21010002, 0.6 mi north of the intersection of Hwy 687 with Hwy 2, 0.55 mi southeast of the eastern shoreline of Laguna Tortuguero, 0.32 mi east of Laguna Rica, and 0.12 mi west of Hwy 687, Name: Piezometer Tortuguero 3, Vega Baja.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), screened 68-218 ft (20.7-66.4 m). Depth 218 ft (66.4 m).

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 30 ft (9 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.42 ft (1.04 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 10, 1999.

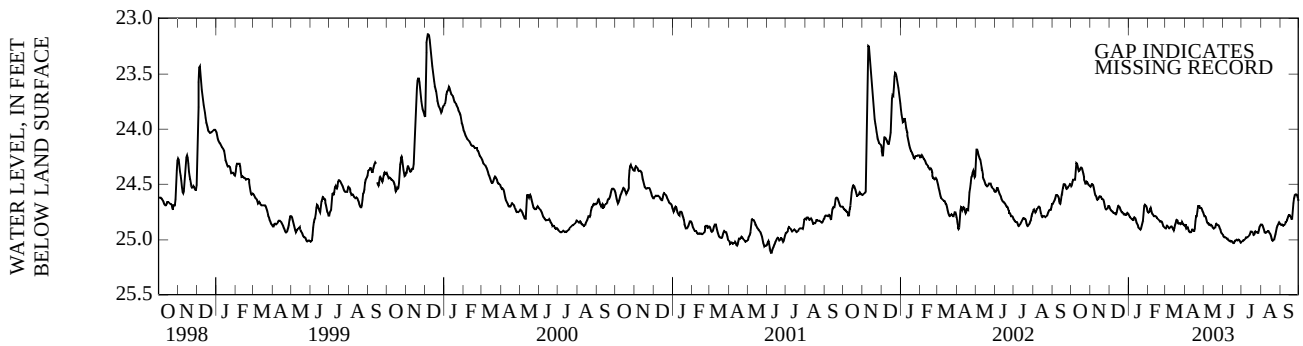
PERIOD OF RECORD.--May 31, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.13 ft (7.05 m), below land-surface datum, December 7, 8, 1999; lowest water level recorded, 25.26 ft (7.7 m), below land-surface datum, June 21, 22, 23, 1996.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.51	24.52	24.70	24.77	24.75	24.89	24.87	24.76	24.95	25.03	24.86	24.86
2	24.52	24.52	24.71	24.78	24.75	24.90	24.86	24.78	24.96	25.02	24.86	24.87
3	24.49	24.50	24.72	24.80	24.77	24.89	24.87	24.79	24.98	25.02	24.86	24.87
4	24.46	24.50	24.73	24.80	24.74	24.87	24.90	24.79	24.98	25.00	24.87	24.86
5	24.46	24.50	24.74	24.81	24.71	24.88	24.91	24.80	24.98	25.01	24.88	24.87
6	24.46	24.51	24.74	24.81	24.72	24.88	24.88	24.83	24.98	25.00	24.90	24.88
7	24.46	24.54	24.74	24.81	24.75	24.89	24.90	24.85	24.99	25.00	24.92	24.87
8	24.46	24.57	24.76	24.83	24.77	24.90	24.92	24.85	24.99	24.98	24.94	24.87
9	24.31	24.60	24.76	24.81	24.77	24.90	24.93	24.85	24.99	24.98	24.94	24.84
10	24.30	24.60	24.76	24.80	24.78	24.88	24.93	24.87	25.01	24.98	24.94	24.84
11	24.32	24.62	24.76	24.80	24.79	24.88	24.93	24.86	25.01	24.98	24.94	24.84
12	24.35	24.64	24.78	24.80	24.79	24.88	24.93	24.87	25.00	24.98	24.92	24.83
13	24.38	24.64	24.76	24.81	24.78	24.90	24.91	24.88	25.02	24.96	24.92	24.82
14	24.38	24.63	24.74	24.84	24.79	24.91	24.91	24.87	25.02	24.96	24.92	24.79
15	24.37	24.61	24.71	24.85	24.80	24.92	24.92	24.87	25.01	24.94	24.94	24.78
16	24.35	24.61	24.69	24.86	24.81	24.88	24.92	24.88	25.02	24.93	24.95	24.77
17	24.35	24.61	24.70	24.88	24.81	24.86	24.92	24.90	25.03	24.92	24.95	24.78
18	24.35	24.61	24.70	24.90	24.82	24.84	24.88	24.90	25.03	24.93	24.98	24.79
19	24.37	24.63	24.73	24.90	24.82	24.82	24.79	24.91	25.03	24.94	25.00	24.80
20	24.39	24.63	24.73	24.91	24.84	24.82	24.79	24.89	25.01	24.95	25.01	24.82
21	24.42	24.63	24.75	24.91	24.84	24.84	24.79	24.88	25.01	24.97	25.02	24.80
22	24.45	24.64	24.75	24.89	24.84	24.86	24.70	24.85	25.00	24.94	25.00	24.69
23	24.46	24.67	24.76	24.86	24.83	24.85	24.70	24.86	25.01	24.92	24.99	24.65
24	24.48	24.70	24.76	24.84	24.84	24.85	24.69	24.87	25.00	24.93	24.96	24.60
25	24.51	24.72	24.78	24.82	24.85	24.85	24.70	24.87	25.00	24.93	24.94	24.60
26	24.48	24.73	24.77	24.71	24.88	24.87	24.72	24.87	25.01	24.94	24.90	24.59
27	24.47	24.73	24.77	24.68	24.88	24.84	24.71	24.89	25.00	24.94	24.88	24.59
28	24.49	24.72	24.78	24.69	24.89	24.84	24.72	24.90	25.00	24.94	24.87	24.59
29	24.50	24.70	24.77	24.69	---	24.86	24.73	24.92	25.01	24.89	24.86	24.61
30	24.51	24.69	24.76	24.70	---	24.86	24.75	24.94	25.03	24.88	24.84	24.64
31	24.51	---	24.76	24.73	---	24.88	---	24.95	---	24.87	24.85	---
MEAN	24.43	24.62	24.74	24.81	24.80	24.87	24.84	24.86	25.00	24.96	24.92	24.77

WTR YR 2003 MEAN 24.80 HIGHEST 24.28 OCT 10, 2002 LOWEST 25.07 JUNE 17, 2003



RIO CIBUCO BASIN—Continued

182615066235300. Local number, 211.

LOCATION.--Lat 18°26'07", long 66°23'32", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3, Name: Rosario 2 Well, Vega Baja.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61 m), diameter 12 in (0.3 m), 200-2 50 ft (61-76.2 m), cased 12 in (0.3 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61 m). Depth 270 ft (82.3 m).

DATUM.--Elevation of land-surface datum is about 230 ft (70.1 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.1 ft (0.94 m), above land-surface datum. Prior to April 11, 1994, hole on side of casing, 1.15 ft (0.35 m), above land-surface datum.

REMARKS.--Observation well.

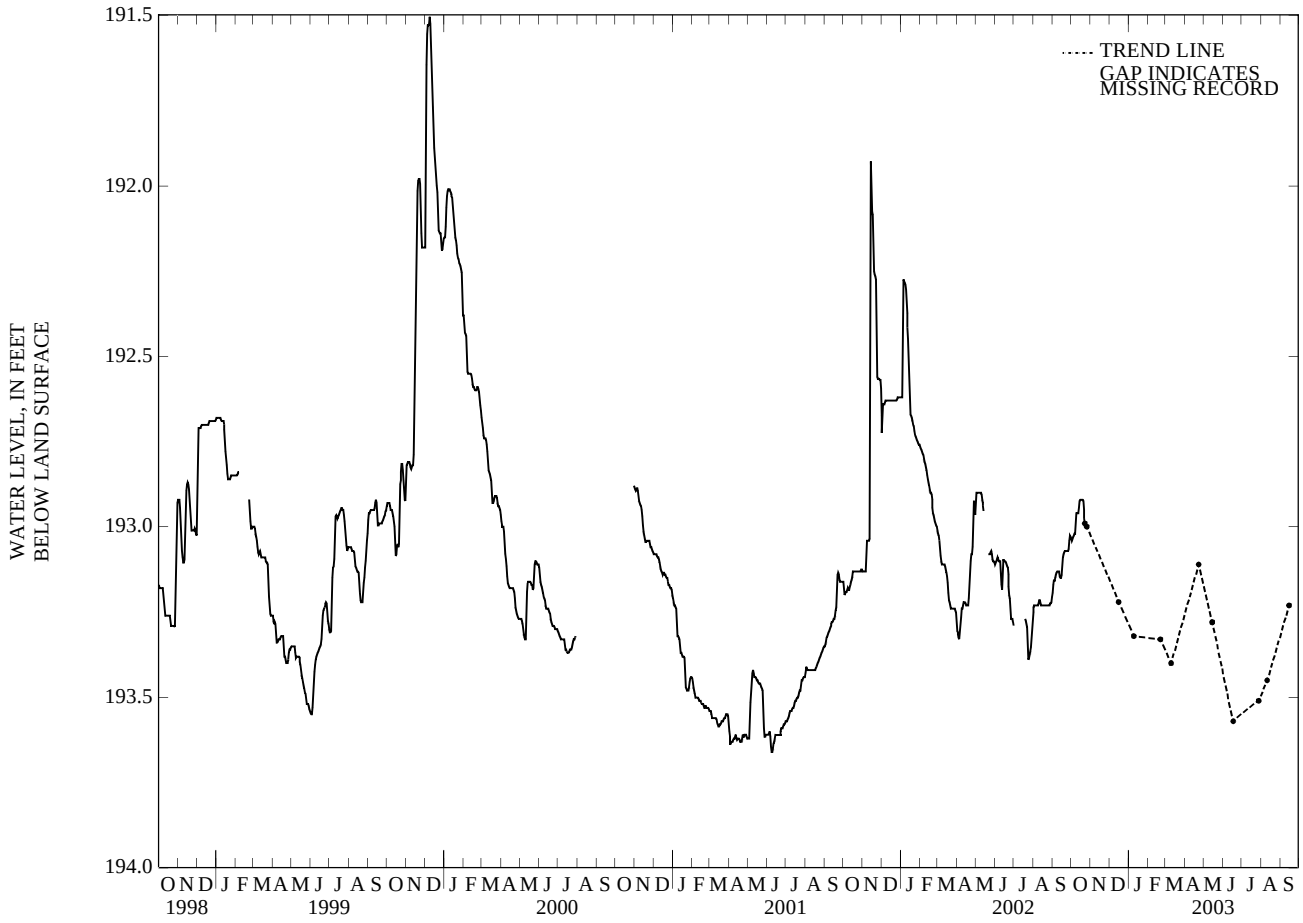
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.3 m), below land-surface datum, May 16, 1986; lowest water level recorded, 194.1 ft (59.2 m), below land-surface datum, Mar. 31, April 1 to 7, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	193.00	JAN 09	193.32	MAR 10	193.40	MAY 15	193.28	JULY 28	193.51	SEPT 15	193.23
DEC 16	193.22	FEB 21	193.33	APR 23	193.11	JUNE 17	193.57	AUG 11	193.45		

WATER YEAR 2003 HIGHEST 193.00 OCT 25, 2002 LOWEST 193.57 JUNE 17, 2003



RIO CIBUCO BASIN—Continued

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres Penitenciary, Name: Sabana Hoyos Well, Vega Alta.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused water table well, diameter 8 in (0.2 m), cased 0-90 ft (0-27.4 m), perforated. Depth 88 ft (26.8 m), sounded depth measured on October 1, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m), above mean sea level, from topographic map. Measuring point: Top of casing wooden cover, 1.2 ft (0.36 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 1998. Only monthly tapedown measurements published on water years 2000 and 2001, and from October 1 to December 23, 2001.

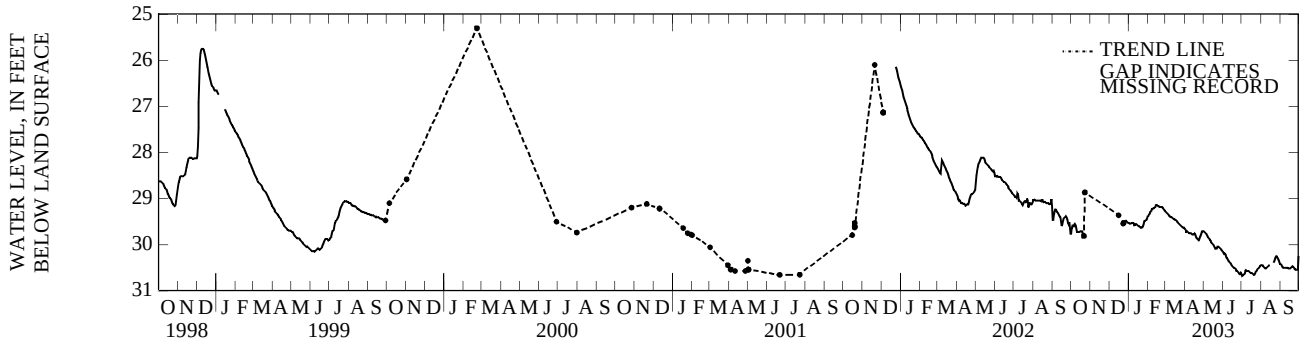
PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.5 m), below land-surface datum, October 26, 1976; lowest water level recorded, 31.12 ft (9.48 m), below land-surface datum, May 12, 13, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.80	---	---	29.52	29.40	29.27	29.66	29.71	30.15	30.59	30.46	30.43
2	29.67	---	---	29.53	29.37	29.28	29.67	29.71	30.17	30.69	30.44	30.42
3	29.61	---	---	29.55	29.37	29.30	29.69	29.73	30.19	30.68	30.46	30.45
4	29.57	---	---	29.55	29.33	29.31	29.73	29.74	30.22	30.67	30.45	30.48
5	29.60	---	---	29.54	29.30	29.33	29.70	29.76	30.17	30.66	30.46	30.50
6	29.59	---	---	29.54	29.29	29.34	29.73	29.78	30.25	30.66	30.48	30.51
7	29.55	---	---	29.53	29.24	29.36	29.73	29.80	30.28	30.62	30.49	30.50
8	29.57	---	---	29.53	29.22	29.39	29.76	29.84	30.30	30.53	30.52	30.50
9	29.61	---	---	29.52	29.23	29.38	29.75	29.86	30.32	30.59	30.52	30.51
10	29.71	---	---	29.59	29.21	29.40	29.76	29.87	30.34	30.57	30.52	30.51
11	29.73	---	---	29.60	29.21	29.41	29.75	29.90	30.38	30.57	30.51	30.50
12	29.71	---	---	29.57	29.22	29.41	29.77	29.91	30.39	30.58	30.50	30.50
13	29.73	---	---	29.56	29.17	29.43	29.77	29.92	30.40	30.57	30.48	30.50
14	29.73	---	---	29.56	29.15	29.44	29.78	29.95	30.42	30.60	30.46	30.51
15	29.73	---	---	29.57	29.14	29.45	29.78	29.97	30.46	30.61	30.45	30.52
16	29.72	---	---	29.58	29.14	29.45	29.78	29.98	30.47	30.61	30.44	30.52
17	29.71	---	---	29.59	29.17	29.46	29.77	30.00	30.48	30.61	---	30.52
18	29.70	---	---	29.60	29.16	29.46	29.77	30.01	30.50	30.63	30.42	30.52
19	29.73	---	---	29.61	29.18	29.48	29.82	30.04	30.50	30.64	30.41	30.51
20	29.79	---	---	29.62	29.19	29.50	29.85	30.07	30.52	30.64	---	30.51
21	29.82	---	---	29.64	29.18	29.52	29.87	30.09	30.52	30.66	30.41	30.46
22	29.81	---	---	29.64	29.19	29.53	29.88	30.09	30.55	30.64	30.38	30.48
23	---	---	29.55	29.63	29.19	29.56	29.90	30.07	30.56	30.61	30.34	30.50
24	---	---	29.53	29.62	29.18	29.56	29.90	30.05	30.58	30.59	30.30	30.52
25	---	---	29.52	29.59	29.20	29.58	29.85	30.05	30.58	30.58	30.25	30.54
26	---	---	29.51	29.53	29.22	29.58	29.82	30.05	30.59	30.55	30.25	30.54
27	---	---	29.50	29.48	29.23	29.61	29.79	30.07	30.61	30.54	30.27	30.54
28	---	---	29.50	29.49	29.25	29.62	29.74	30.08	30.64	30.52	30.29	30.54
29	---	---	29.49	29.48	---	29.64	29.71	30.10	30.64	30.51	30.32	30.54
30	---	---	29.51	29.47	---	29.63	29.71	30.11	30.65	30.47	30.35	30.54
31	---	---	29.53	29.42	---	29.64	---	30.14	---	30.46	30.40	---
MEAN	---	---	---	29.56	29.23	29.46	29.77	29.95	30.43	30.60	---	30.50

WTR YR 2003 MEAN 29.96 HIGHEST 29.10 FEB 16, 17, 2003 LOWEST 30.70 JULY 2, 2003



RIO CIBUCO BASIN—Continued

182330066185700. Local number, 213.

LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823, Name: Pampano 2 Well, Vega Alta.

AQUIFER.--Río Indio Limestone-Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft (0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.3 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6-101 m). Depth 330 ft (101 m).

DATUM.--Elevation of land-surface datum is about 394 ft (120 m), above mean sea level, from topographic map. Measuring point: To p of plexiglass plate, 9.34 ft (2.84 m), above land-surface datum. Prior April 27, 1993, hole on side of casing, 2.95 ft (0.9 m), above land-surface datum.

REMARKS.--Observation well.

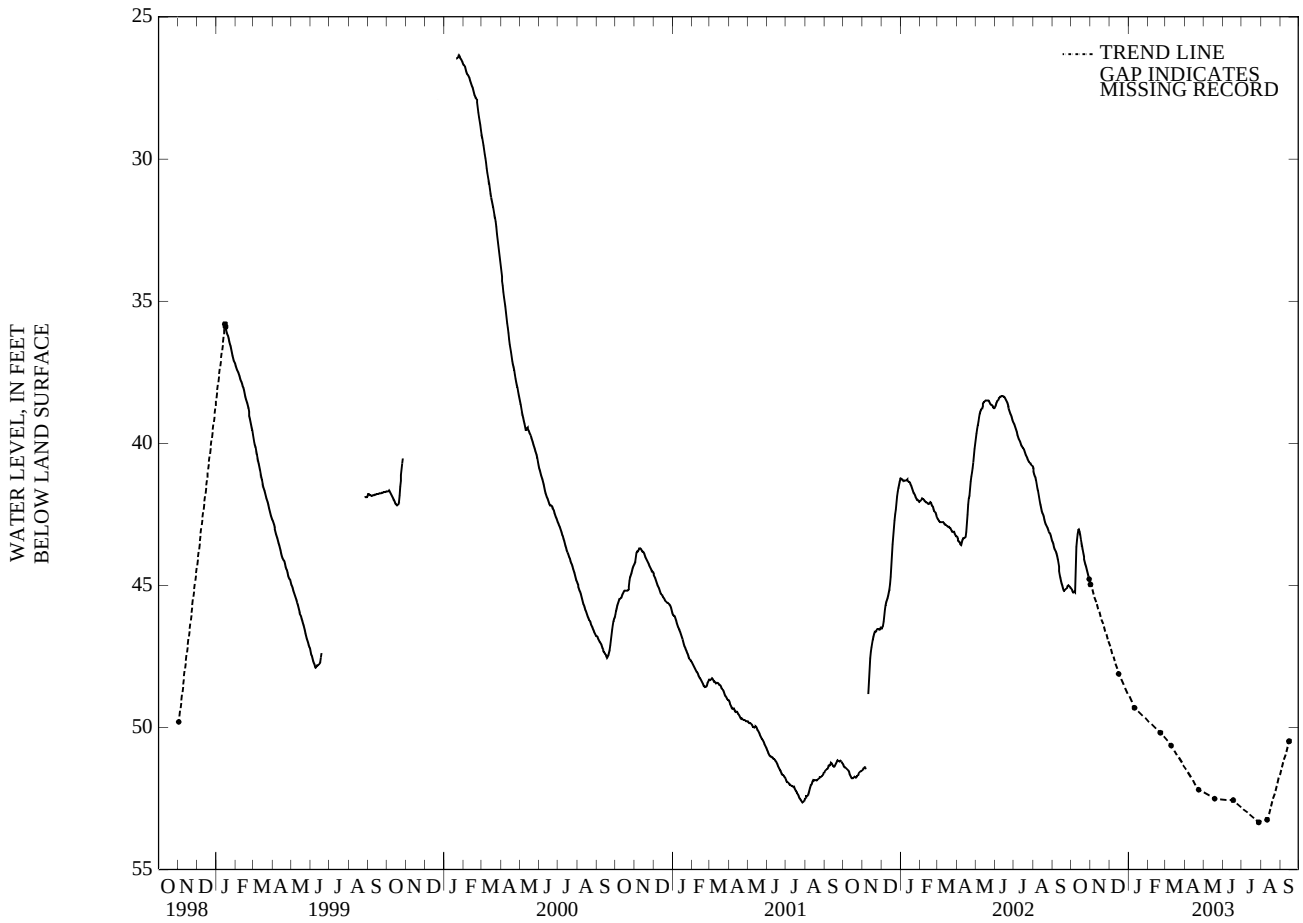
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.27 ft (8.01 m), below land-surface datum, January 25, 2000; lowest water level recorded, 65.68 ft (20 m), below land-surface datum, August 20, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 01	44.97	JAN 10	49.30	MAR 10	50.64	MAY 19	52.50	JULY 28	53.33	SEPT 15	50.49
DEC 16	48.11	FEB 21	50.18	APR 23	52.19	JUNE 17	52.56	AUG 11	53.24		

WATER YEAR 2003 HIGHEST 44.97 NOV 01, 2002 LOWEST 53.33 JULY 28, 2003



RIO DE LA PLATA BASIN

182526066165001. Local number, 1127.

LOCATION.--Lat 18°25'26", long 66°16'50", Hydrologic Unit 21010005, 1.03 mi north of Hwy 2, 0.93 mi west of the intersection of Hwy 659 with Hwy 693, and 0.03 mi north of Hwy 659, Name: Piezometer Santa Rosa USGS 2, Dorado.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m) 0-140 ft (0-42.7 m), screened 120-130 ft (36.6-39.6 m). Depth 140 ft (42.7 m).

DATUM.--Elevation of land-surface datum is about 91.8 ft (28 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.31 ft (1.01 m), above land-surface datum.

REMARKS.--Observation well.

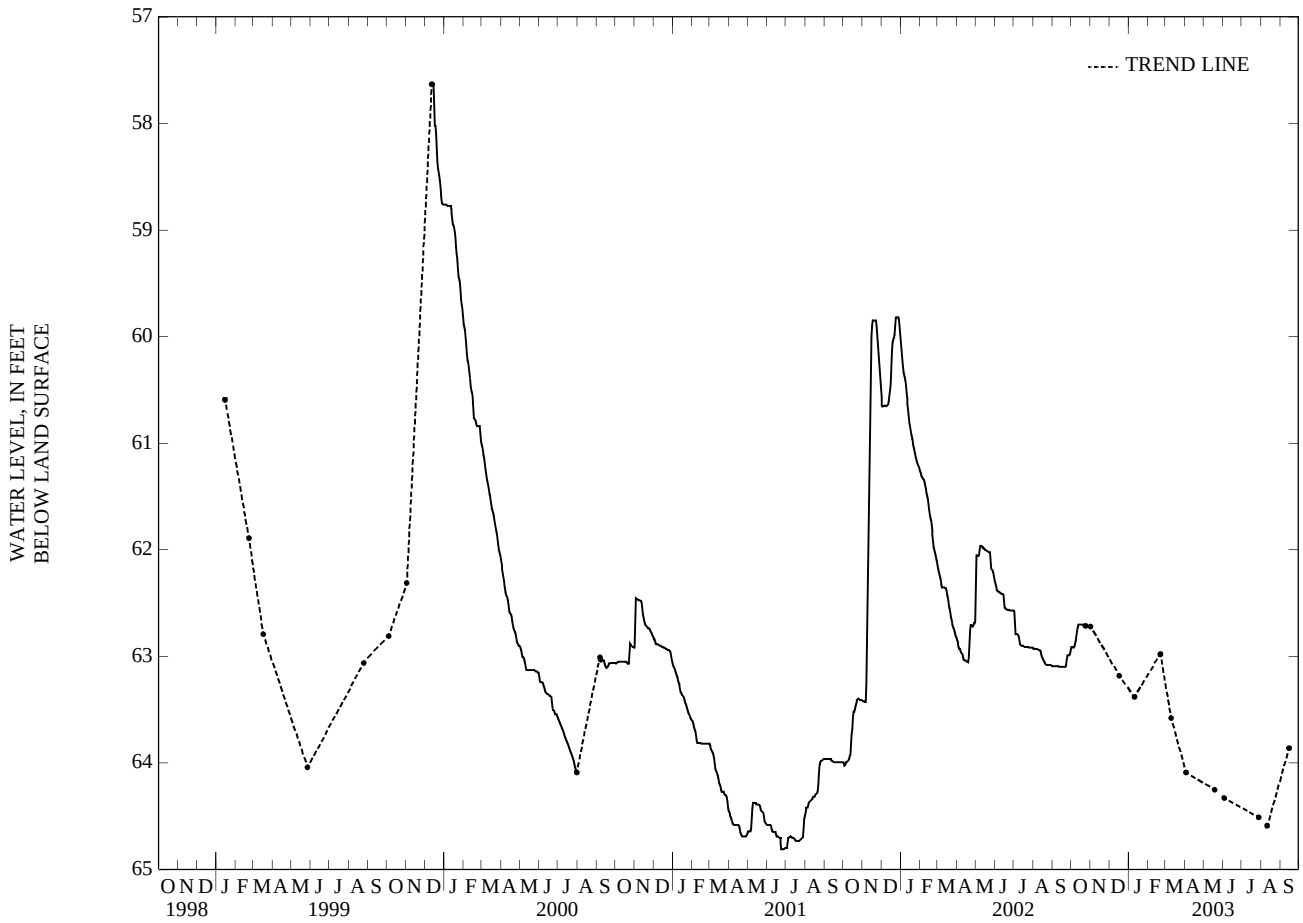
PERIOD OF RECORD.--February 2, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 57.63 ft (17.56 m), below land-surface datum, December 11-14, 1999; lowest water level recorded, 64.9 ft (19.8 m), below land-surface datum, May 2-5, 10-15, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 01	62.72	JAN 10	63.38	MAR 10	63.58	MAY 19	64.25	JULY 28	64.51	SEPT 15	63.86
DEC 17	63.18	FEB 21	62.98	APR 03	64.09	JUNE 03	64.33	AUG 11	64.59		

WATER YEAR 2003 HIGHEST 62.72 NOV 01, 2002 LOWEST 64.59 AUG 11, 2003



RIO DE LA PLATA BASIN—Continued

182548066164401. Local number, 1128.

LOCATION.--Lat 18°25'48", long 66°16'44", Hydrologic Unit 2101005, 1.47 mi north of Hwy 2, 0.6 mi south of Hwy 695, 0.04 mi south of the intersection of Hwy 694 with 659, and 0.02 mi east of Hwy 659, Name: Piezometer Maguayo USGS 2, Dorado.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m) 0-110 ft (0-33.5 m), screened 95-105 ft (29-32 m). Depth 115 ft (35.1 m), sounded depth measured on August 3, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 39.4 ft (12 m), above mean sea level, from topographic map. Measuring point: On shelter floor, 3.66 ft (1.12 m), above land-surface datum. Prior to April 12, 2002, metal bar on pulley, 3.8 ft (1.16 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997.

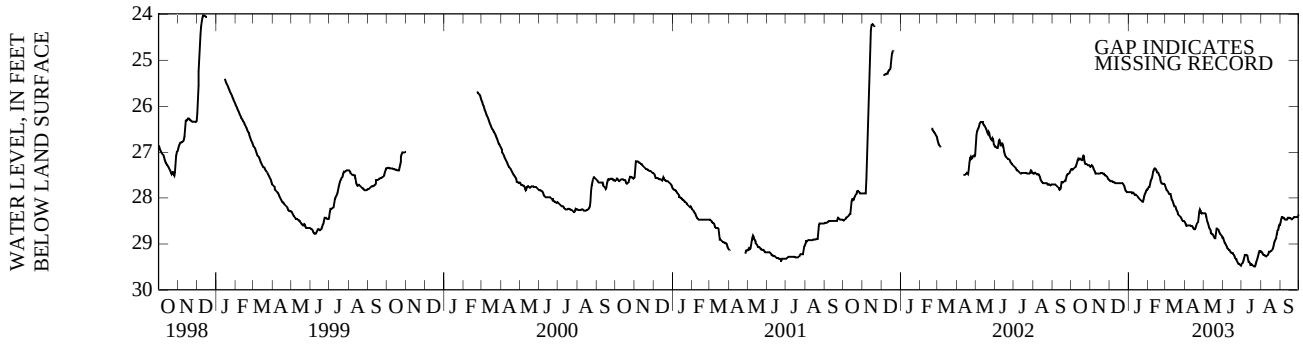
PERIOD OF RECORD.--June 22, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.02 ft (7.32 m), below land-surface datum, December 11, 12, 1998; lowest water level recorded, 29.49 ft (8.99 m), below land-surface datum, July 21, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.38	27.32	27.62	27.87	27.81	27.70	28.52	28.33	28.86	29.46	29.15	28.58
2	27.36	27.33	27.62	27.87	27.76	27.78	28.55	28.33	28.86	29.43	29.16	28.47
3	27.38	27.29	27.62	27.87	27.76	27.80	28.57	28.33	28.92	29.41	29.18	28.43
4	27.38	27.29	27.63	27.87	27.75	27.84	28.59	28.33	28.97	29.38	29.18	28.39
5	27.38	27.30	27.63	27.87	27.66	27.84	28.63	28.34	28.99	29.33	29.22	28.42
6	27.36	27.35	27.63	27.88	27.61	27.87	28.59	28.49	29.01	29.27	29.23	28.42
7	27.36	27.39	27.63	27.91	27.58	27.90	28.58	28.50	29.04	29.23	29.24	28.44
8	27.33	27.41	27.65	27.89	27.55	27.91	28.59	28.54	29.07	29.23	29.24	28.46
9	27.29	27.45	27.65	27.88	27.46	27.91	28.59	28.58	29.10	29.23	29.26	28.46
10	27.24	27.47	27.66	27.91	27.40	27.92	28.59	28.65	29.12	29.23	29.27	28.46
11	27.22	27.47	27.66	27.93	27.36	28.02	28.60	28.66	29.12	29.26	29.27	28.46
12	27.12	27.46	27.68	27.93	27.36	28.04	28.60	28.70	29.13	29.38	29.25	28.47
13	27.16	27.46	27.68	27.93	27.36	28.07	28.61	28.74	29.17	29.39	29.24	28.47
14	27.18	27.46	27.68	27.93	27.37	28.11	28.61	28.77	29.18	29.39	29.16	28.42
15	27.14	27.46	27.68	27.94	27.43	28.16	28.65	28.77	29.19	29.44	29.16	28.43
16	27.14	27.46	27.68	27.96	27.44	28.19	28.67	28.77	29.18	29.46	29.16	28.43
17	27.17	27.46	27.68	27.98	27.44	28.15	28.68	28.81	29.20	29.44	29.16	28.43
18	27.19	27.46	27.68	28.00	27.47	28.23	28.68	28.83	29.22	29.45	29.16	28.44
19	27.15	27.45	27.68	28.02	27.51	28.26	28.62	28.86	29.24	29.46	29.14	28.44
20	27.08	27.46	27.68	28.03	27.54	28.28	28.58	28.87	29.27	29.47	29.10	28.47
21	27.07	27.46	27.68	28.04	27.55	28.33	28.56	28.88	29.32	29.48	29.08	28.47
22	27.12	27.47	27.68	28.06	27.63	28.37	28.54	28.66	29.32	29.48	28.98	28.43
23	27.18	27.47	27.68	28.06	27.67	28.38	28.53	28.66	29.32	29.47	28.94	28.42
24	27.25	27.51	27.69	28.08	27.69	28.39	28.33	28.66	29.36	29.42	28.91	28.42
25	27.26	27.51	27.73	28.08	27.68	28.40	28.24	28.68	29.37	29.36	28.89	28.40
26	27.26	27.51	27.77	27.97	27.69	28.43	28.25	28.71	29.42	29.33	28.84	28.41
27	27.26	27.53	27.82	27.92	27.69	28.45	28.30	28.74	29.43	29.27	28.72	28.41
28	27.28	27.55	27.85	27.90	27.69	28.49	28.34	28.78	29.43	29.23	28.72	28.41
29	27.28	27.57	27.86	27.86	---	28.49	28.33	28.79	29.44	29.15	28.69	28.41
30	27.28	27.60	27.87	27.81	---	28.50	28.33	28.80	29.46	29.15	28.58	28.35
31	27.28	---	27.87	27.81	---	28.50	---	28.84	---	29.15	28.58	---
MEAN	27.24	27.45	27.70	27.94	27.57	28.15	28.53	28.66	29.19	29.35	29.06	28.44

WTR YR 2003MEAN28.28 HIGHEST 27.06 OCT 12, 2002 LOWEST 29.49 JULY 21, 2003



RIO DE LA PLATA BASIN—Continued

182620066163403. Local number, 1130.

LOCATION.--Lat 18°26'20", long 66°16'34", Hydrologic Unit 2101005, 1.85 mi south of Dorado plaza, 0.7 mi southwest of Laboratorio Dorado, 0.65 mi northwest of the intersection of Hwy 695 with Hwy 693, and 0.09 mi north of Hwy 695, Name: Piezometer Higuillar USGS 4, Dorado.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m) 0-100 ft (0-30.5 m), screened 80-90 ft (24.4-27.4 m). Depth 90 ft (30.5 m), sounded depth measured on October 19, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 49.2 ft (15 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.6 ft (1.1 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997. From October 1 2001 to February 19, 2002, tapedowns measurements only.

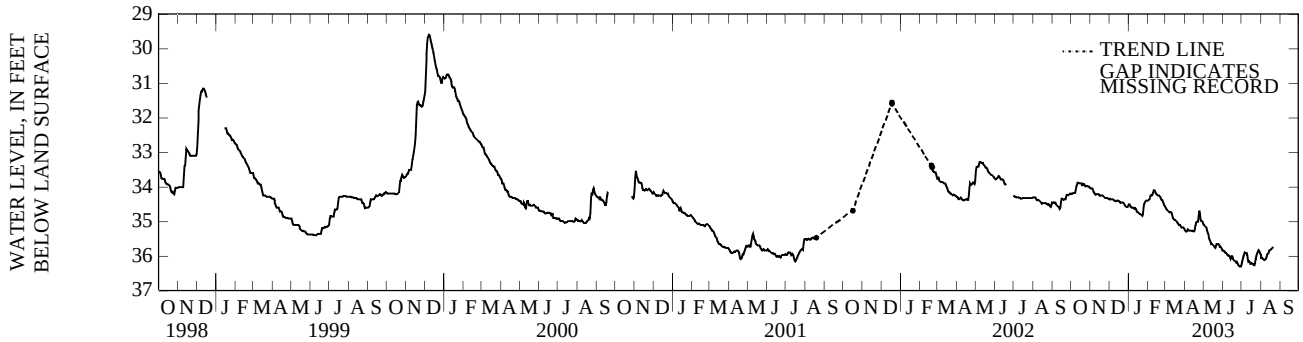
PERIOD OF RECORD.--January 23, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 29.58 ft (9.02 m), below land-surface datum, December 8, 9, 1999; lowest water level recorded, 36.33 ft (11.07 m), below land-surface datum, June 29, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.18	34.04	34.34	34.52	34.40	34.54	35.25	35.10	35.85	36.31	35.98	---
2	34.19	34.05	34.35	34.49	34.39	34.60	35.26	35.11	35.82	36.19	36.01	---
3	34.21	34.04	34.35	34.50	34.39	34.63	35.27	35.13	35.85	36.13	36.06	---
4	34.20	34.03	34.35	34.57	34.35	34.67	35.28	35.15	35.88	36.04	36.04	---
5	34.18	34.05	34.36	34.58	34.25	34.67	35.32	35.15	35.91	35.98	36.10	---
6	34.17	34.12	34.36	34.60	34.24	34.69	35.24	35.20	35.90	35.90	36.09	---
7	34.17	34.17	34.36	34.61	34.24	34.71	35.23	35.29	35.92	35.89	36.11	---
8	34.17	34.18	34.36	34.60	34.23	34.76	35.26	35.34	35.95	35.92	36.11	---
9	34.03	34.22	34.39	34.59	34.20	34.74	35.27	35.39	35.98	35.90	36.11	---
10	33.95	34.23	34.39	34.64	34.10	34.71	35.27	35.53	35.99	35.93	36.08	---
11	33.89	34.22	34.40	34.67	34.09	34.76	35.26	35.53	35.99	36.06	35.98	---
12	33.84	34.21	34.42	34.61	34.11	34.78	35.26	35.59	35.99	36.16	35.96	---
13	33.89	34.20	34.42	34.61	34.14	34.89	35.27	35.65	36.07	36.17	35.94	---
14	33.91	34.21	34.41	34.65	34.21	34.92	35.27	35.65	36.08	36.14	35.88	---
15	33.89	34.21	34.38	34.71	34.22	34.95	35.28	35.65	36.01	36.21	35.84	---
16	33.88	34.26	34.40	34.73	34.24	34.96	35.29	35.65	35.99	36.24	35.83	---
17	33.89	34.26	34.41	34.74	34.24	34.94	35.29	35.68	36.07	36.20	35.83	---
18	33.91	34.24	34.41	34.75	34.24	34.98	35.18	35.70	36.11	36.22	35.82	---
19	33.97	34.23	34.46	34.78	34.26	35.00	35.05	35.73	36.13	36.23	35.78	---
20	33.91	34.24	34.46	34.78	34.27	35.02	35.02	35.77	36.14	36.24	35.74	---
21	33.91	34.26	34.45	34.78	34.28	35.05	35.01	35.76	36.18	36.27	35.73	---
22	33.91	34.27	34.45	34.82	34.30	35.08	34.99	35.65	36.14	36.26	---	---
23	33.91	34.28	34.44	34.83	34.37	35.10	35.00	35.65	36.18	36.15	---	---
24	33.99	34.31	34.44	34.85	34.36	35.09	34.73	35.65	36.20	36.06	---	---
25	33.99	34.31	34.49	34.71	34.39	35.10	34.65	35.65	36.19	35.96	---	---
26	33.98	34.31	34.52	34.50	34.42	35.17	34.93	35.65	36.22	35.91	---	---
27	33.97	34.31	34.55	34.46	34.50	35.17	34.98	35.69	36.29	35.86	---	---
28	33.98	34.32	34.57	34.44	34.53	35.17	34.99	35.75	36.29	35.84	---	---
29	33.98	34.34	34.58	34.42	---	35.17	34.98	35.71	36.32	35.84	---	---
30	33.98	34.34	34.58	34.39	---	35.17	35.01	35.77	36.28	35.90	---	---
31	33.99	---	34.57	34.39	---	35.20	---	35.81	---	35.94	---	---
MEAN	34.00	34.22	34.43	34.62	34.28	34.92	35.14	35.54	36.06	36.07	---	---

WTR YR 2003 MEAN 35.00 HIGHEST 33.79 OCT 11, 12, 2002 LOWEST 36.33 JUNE 29, 2003



RIO DE LA PLATA BASIN—Continued

182657066162701. Local number, 1132.

LOCATION.--Lat 18°26'57", long 66°16'27", Hydrologic Unit 21010005, 20 ft (6.1 m) north of San Antonio 1, Name: Piezometer San Antonio USGS 3, Dorado.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-80 ft (0-24.4 m), screened 65-75 ft (19.8-22.9 m). Depth 80 ft (24.4 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 19.6 ft (6 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m), casing, 3.32 ft (1.01 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 6, 1997, removed on January 10, 2003.

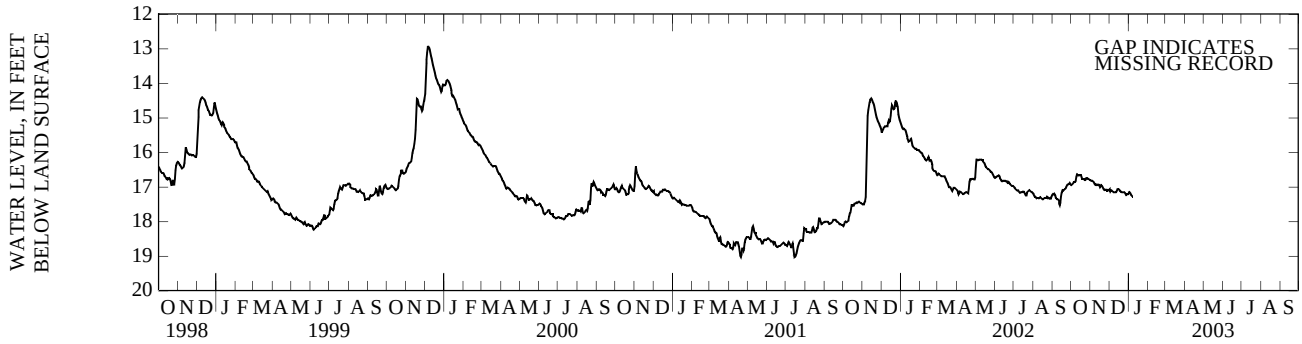
PERIOD OF RECORD.--October 19, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.93 ft (3.94 m), below land-surface datum, December 8, 1999; lowest water level recorded, 19.05 ft (5.8 m), below land-surface datum, April 21, 2001.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.95	16.80	17.09	17.20	---	---	---	---	---	---	---	---
2	16.94	16.81	17.08	17.15	---	---	---	---	---	---	---	---
3	16.94	16.83	17.13	17.16	---	---	---	---	---	---	---	---
4	16.93	16.82	17.13	17.18	---	---	---	---	---	---	---	---
5	16.87	16.82	17.08	17.22	---	---	---	---	---	---	---	---
6	16.85	16.84	17.11	17.25	---	---	---	---	---	---	---	---
7	16.85	16.88	17.13	17.27	---	---	---	---	---	---	---	---
8	16.85	16.92	17.14	17.29	---	---	---	---	---	---	---	---
9	16.79	16.94	17.15	17.29	---	---	---	---	---	---	---	---
10	16.61	16.94	17.15	---	---	---	---	---	---	---	---	---
11	16.66	16.93	17.15	---	---	---	---	---	---	---	---	---
12	16.64	16.97	17.17	---	---	---	---	---	---	---	---	---
13	16.66	16.93	17.14	---	---	---	---	---	---	---	---	---
14	16.68	16.91	17.10	---	---	---	---	---	---	---	---	---
15	16.66	16.93	17.07	---	---	---	---	---	---	---	---	---
16	16.64	17.00	17.05	---	---	---	---	---	---	---	---	---
17	16.67	17.00	17.07	---	---	---	---	---	---	---	---	---
18	16.75	16.95	17.10	---	---	---	---	---	---	---	---	---
19	16.76	16.95	17.14	---	---	---	---	---	---	---	---	---
20	16.78	16.99	17.13	---	---	---	---	---	---	---	---	---
21	16.76	17.03	17.15	---	---	---	---	---	---	---	---	---
22	16.76	17.06	17.16	---	---	---	---	---	---	---	---	---
23	16.79	17.10	17.16	---	---	---	---	---	---	---	---	---
24	16.82	17.09	17.16	---	---	---	---	---	---	---	---	---
25	16.78	17.08	17.16	---	---	---	---	---	---	---	---	---
26	16.75	17.06	17.16	---	---	---	---	---	---	---	---	---
27	16.74	17.09	17.17	---	---	---	---	---	---	---	---	---
28	16.74	17.13	17.23	---	---	---	---	---	---	---	---	---
29	16.77	17.09	17.24	---	---	---	---	---	---	---	---	---
30	16.77	17.11	17.21	---	---	---	---	---	---	---	---	---
31	16.80	---	17.20	---	---	---	---	---	---	---	---	---
MEAN	16.77	16.97	17.14	---	---	---	---	---	---	---	---	---

WTR YR 2003 MEAN 16.98 HIGHEST 16.55 OCT 11, 2002 LOWEST 17.32 JAN 10, 2003



RIO DE LA PLATA BASIN—Continued

182654066150600. Local number, 1133.

LOCATION.--Lat 18°26'54", long 66°15'06", Hydrologic Unit 21010005, 0.92 mi southeast of the Dorado bridge, 0.66 mi east of Hwy 693, 0.09 mi north of the intersection of Hwy 165 with Hwy 867, and 0.01 mi east of Hwy 165, Name: Piezometer USGS 1, Toa Baja.

AQUIFER.--Tertiary Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-165 ft (0-50.3 m), screened 25-165 ft (7.62-50.3 m). Depth 161 ft (49.1 m), sounded depth measured on October 4, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 7 ft (2.1 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor on top of 4 in (0.1 m) casing, 3.6 ft (1.1 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 25, 1997. Water levels affected by marine tides.

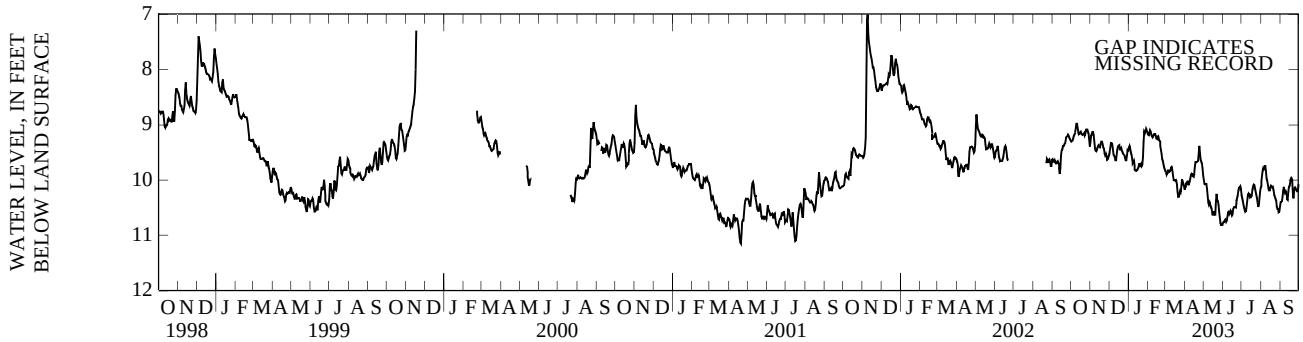
PERIOD OF RECORD.-- November 16, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.04 ft (0.93 m), below land-surface datum, September 10, 1996; lowest water level recorded, 11.19 ft (3.41 m), below land-surface datum April 19, 20, 2001.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.30	9.40	9.50	9.48	9.14	9.84	10.21	9.94	10.81	10.23	10.11	10.44
2	9.30	9.23	9.47	9.37	9.21	9.84	10.07	10.06	10.75	10.31	10.10	10.37
3	9.30	9.18	9.50	9.41	9.17	9.89	10.15	10.07	10.75	10.33	9.95	10.43
4	9.28	9.14	9.33	9.46	9.11	9.91	9.99	10.09	10.76	10.44	9.89	10.36
5	9.21	9.12	9.32	9.53	9.08	9.82	10.11	10.04	10.71	10.46	9.77	10.27
6	9.18	9.15	9.33	9.55	9.16	9.83	9.98	10.09	10.72	10.53	9.79	10.13
7	9.17	9.22	9.38	9.66	9.19	9.83	10.10	10.23	10.79	10.55	9.82	10.13
8	9.11	9.40	9.51	9.73	9.22	9.88	10.08	10.32	10.67	10.61	9.73	10.26
9	9.03	9.45	9.56	9.62	9.22	9.82	10.03	10.48	10.64	10.52	9.74	10.21
10	8.93	9.48	9.56	9.69	9.19	9.82	10.01	10.40	10.55	10.43	9.94	10.20
11	9.03	9.48	9.60	9.81	9.16	9.74	9.93	10.41	10.61	10.30	9.99	10.28
12	9.10	9.42	9.68	9.82	9.16	9.80	9.89	10.50	10.61	10.24	10.03	10.27
13	9.17	9.39	9.60	9.83	9.17	9.87	9.88	10.46	10.56	10.24	10.13	10.42
14	9.18	9.39	9.49	9.83	9.24	9.98	9.92	10.51	10.56	10.30	10.18	10.30
15	9.16	9.36	9.40	9.85	9.25	10.02	9.93	10.51	10.59	10.29	10.19	10.15
16	9.12	9.44	9.39	9.80	9.26	9.99	9.95	10.64	10.68	10.26	10.17	10.10
17	9.14	9.37	9.37	9.78	9.19	10.02	9.85	10.63	10.55	10.33	10.09	10.11
18	9.18	9.31	9.38	9.76	9.24	10.02	9.68	10.57	10.49	10.23	10.12	9.98
19	9.18	9.30	9.50	9.66	9.29	10.01	9.67	10.56	10.50	10.11	10.13	9.97
20	9.19	9.31	9.39	9.76	9.29	10.15	9.67	10.68	10.47	10.11	10.14	9.95
21	9.16	9.40	9.44	9.70	9.32	10.28	9.68	10.58	10.50	10.05	10.12	10.02
22	9.14	9.42	9.49	9.73	9.46	10.31	9.66	10.18	10.49	10.13	10.25	10.42
23	9.17	9.44	9.49	9.77	9.46	10.30	9.67	10.33	10.37	10.17	10.28	10.26
24	9.20	9.58	9.55	9.68	9.58	10.19	9.38	10.38	10.36	10.24	10.31	10.17
25	9.10	9.52	9.52	9.50	9.65	10.20	9.38	10.38	10.28	10.30	10.36	10.14
26	9.09	9.52	9.57	9.11	9.65	10.24	9.62	10.52	10.27	10.34	10.39	10.14
27	9.07	9.59	9.62	9.14	9.77	10.00	9.63	10.64	10.13	10.49	10.56	10.19
28	9.11	9.68	9.65	9.14	9.76	9.97	9.70	10.73	10.15	10.48	10.49	10.18
29	9.14	9.57	9.64	9.07	---	10.07	9.70	10.82	10.13	10.42	10.56	10.23
30	9.16	9.59	9.47	9.07	---	10.07	9.89	10.81	10.10	10.24	10.62	10.16
31	9.40	---	9.45	9.14	---	10.13	---	10.81	---	10.17	10.53	---
MEAN	9.16	9.39	9.49	9.56	9.31	9.99	9.85	10.43	10.52	10.32	10.14	10.21

WTR YR 2003 MEAN 9.87 HIGHEST 8.88 OCT 10, 2002 LOWEST 10.92 JUNE 4, 2003



RIO DE LA PLATA BASIN—Continued

182530066135400. Local number, 216.

LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca US Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7, Name: Campanilla Navy Well, Toa Baja.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.1 m), cased 12 in (0.3 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.1-32.3 m), diameter 10 in (10.25 m), 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 104 ft (31.7 m), sounded depth measured on October 4, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.27 ft (0.99 m), above land-surface datum. Prior to August 6, 2001, hole on side of casing, 1.8 ft (0.55 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on November 6, 1998. Water levels affected by nearby pumping well. From October 2000 to August 6, 2001, tapedowns measurements only.

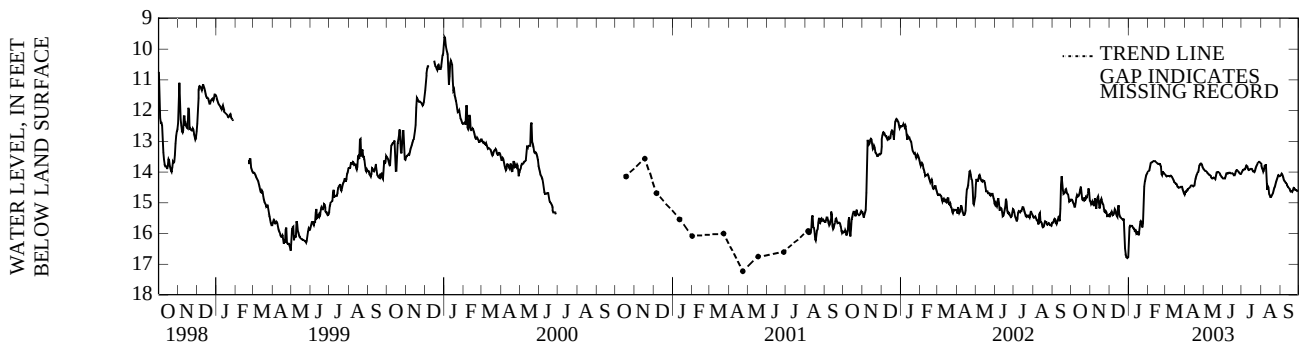
PERIOD OF RECORD.--October 1985 to June 29, 2000. Shelter found destroyed on June 29, 2000, replaced on August 6, 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m), below land-surface datum, June 23, 1987; lowest water level recorded, 18.4 ft (5.61 m), below land-surface datum, September 24, 1994.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.91	14.90	15.44	16.71	14.01	14.08	14.74	13.89	14.20	14.03	13.71	14.14
2	14.87	15.03	15.30	15.83	13.99	14.10	14.59	13.92	14.19	14.00	13.74	14.09
3	14.91	15.06	15.40	15.74	13.98	14.13	14.68	13.94	14.20	13.94	13.84	14.06
4	14.96	14.95	15.39	15.77	13.89	14.15	14.64	13.95	14.20	13.93	13.89	14.07
5	15.03	14.96	15.27	15.75	13.75	14.14	14.65	13.97	14.21	13.92	13.92	14.13
6	15.04	15.10	15.29	15.75	13.72	14.12	14.58	13.97	14.08	13.92	14.01	14.21
7	15.21	15.06	15.42	15.75	13.69	14.11	14.55	14.01	14.04	13.90	13.83	14.29
8	15.04	15.12	15.40	15.83	13.68	14.14	14.55	14.05	14.04	13.85	13.78	14.28
9	14.94	14.60	15.38	15.83	13.67	14.14	14.53	14.07	14.05	13.77	13.78	14.32
10	14.74	15.24	15.26	15.83	13.66	14.13	14.50	14.08	14.05	13.79	13.73	14.38
11	14.76	15.18	15.16	15.91	13.64	14.13	14.45	14.09	14.02	13.84	14.53	14.38
12	14.81	14.84	15.33	15.91	13.65	14.15	14.44	14.11	14.00	13.94	14.64	14.42
13	14.78	14.83	15.38	15.94	13.65	14.20	14.44	14.14	14.02	13.94	14.27	14.45
14	14.72	14.74	15.45	15.87	13.66	14.24	14.44	14.16	14.04	13.92	14.71	14.47
15	14.65	15.16	15.48	16.17	13.70	14.31	14.48	14.19	14.05	13.92	14.71	14.51
16	14.47	15.21	14.84	15.83	13.72	14.34	14.48	14.21	14.02	13.92	14.79	14.53
17	14.50	15.04	15.34	16.02	13.72	14.36	14.41	14.20	14.05	13.86	14.81	14.56
18	14.85	14.84	15.39	16.10	13.72	14.37	14.28	14.19	14.06	13.91	14.81	14.66
19	14.91	14.91	15.48	15.83	13.75	14.38	14.17	14.18	14.13	13.96	14.74	14.62
20	14.90	14.99	15.46	15.76	13.75	14.45	14.10	14.25	14.09	13.97	14.71	14.61
21	14.91	15.03	15.54	15.50	13.75	14.49	14.07	14.20	14.03	13.98	14.66	14.67
22	14.80	15.10	15.51	15.69	13.77	14.51	14.02	14.03	13.94	14.01	14.53	14.55
23	14.84	15.27	15.55	15.61	13.83	14.51	14.03	14.02	13.93	13.89	14.50	14.52
24	15.03	15.30	15.58	15.99	14.29	14.49	13.83	14.00	13.92	13.85	14.45	14.51
25	14.80	15.31	15.47	15.37	13.93	14.49	13.74	13.98	13.94	13.78	14.35	14.57
26	14.83	15.24	16.41	14.58	14.04	14.52	13.75	14.01	13.96	13.75	14.27	14.57
27	14.82	15.38	16.57	14.36	14.03	14.43	13.74	14.01	14.01	13.72	14.22	14.59
28	14.71	15.47	16.74	14.25	14.05	14.51	13.73	14.08	14.04	13.68	14.15	14.63
29	14.70	15.38	16.79	14.15	---	14.60	13.78	14.11	14.05	13.65	14.11	14.61
30	14.38	15.43	16.79	14.07	---	14.66	13.86	14.14	14.07	13.67	14.10	14.60
31	14.96	---	16.85	14.04	---	14.70	---	14.18	---	13.69	14.13	---
MEAN	14.83	15.09	15.63	15.54	13.81	14.33	14.28	14.08	14.05	13.87	14.27	14.43

WTR YR 2003 MEAN 14.52 HIGHEST 13.62 JULY 29, 2003 LOWEST 16.89 DEC 31, 2002



RIO DE LA PLATA BASIN—Continued

180649066095500. Local number, 1134.

LOCATION.--Lat 18°06'49", long 66°09'55", Hydrologic Unit 21010005, 0.1 mi southeast of Cayey plaza, 0.5 mi northwest of the intersection of Hwy 1 with Hwy 15, and 1.3 mi west of Cayey exit from Hwy 52, Name: Minima.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Abandoned production well, diameter 13 in (0.34 m), screened 40-90 ft (12.2-27.4 m). Depth 125 ft (38.1 m).

DATUM.--Elevation of land-surface datum is about 1,296 ft (395 m), above mean sea level, from topographic map. Measuring point: On highest part of motor support, 1.86 ft (0.57 m), above land-surface datum.

REMARKS.--Observation well.

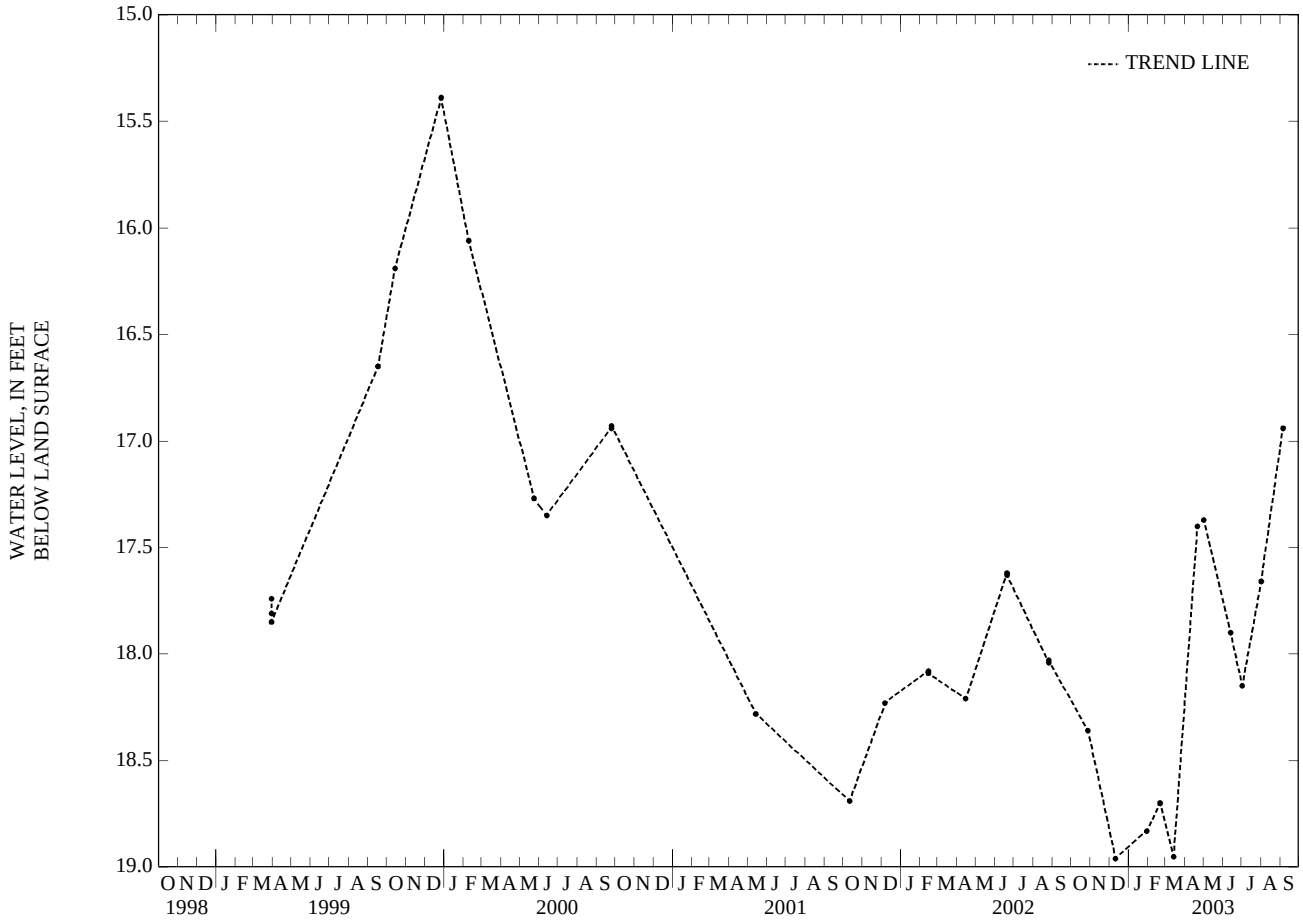
PERIOD OF RECORD.--February 28, 1998 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.39 ft (4.69 m), below land-surface datum, December 27, 1999; lowest water level measured, 19.03 ft (5.8 m), below land-surface datum, June 11, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	18.36	JAN 30	18.83	MAR 14	18.95	MAY 01	17.37	JULY 02	18.15	SEPT 05	16.94
DEC 11	18.96	FEB 20	18.70	APR 21	17.40	JUNE 13	17.90	AUG 01	17.66		

WATER YEAR 2003 HIGHEST 16.94 SEPT 05, 2003 LOWEST 18.96 DEC 11, 2002



RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219.

LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of PR National Cementery, Name: Buchanan Park Well, Bayamón.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-68.5 ft (14-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m). Depth 270 ft (82.3 m).

DATUM.--Elevation of land-surface datum is about 66 ft (20.1 m), above mean sea level, from topographic map. Measuring point: Hole on side of casing, 0.75 ft (0.23 m), above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m), above land-surface datum.

REMARKS.--Observation well.

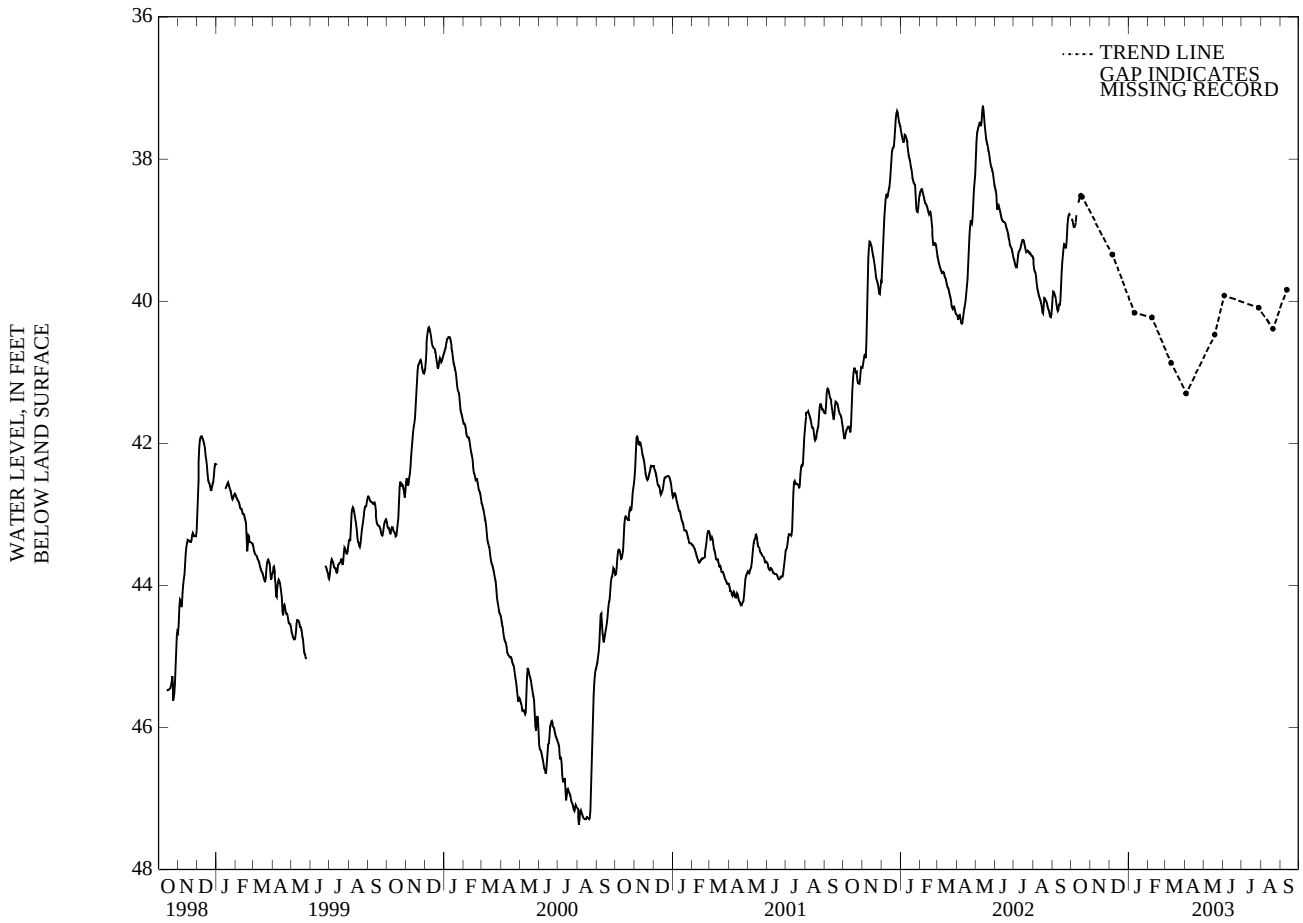
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.9 ft (10.7 m), below land-surface datum, November 12, 13, 14, 1989; lowest water level recorded, 55.67 ft (17 m), below land-surface datum, May 13, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	38.53	JAN 10	40.16	MAR 10	40.87	MAY 19	40.47	JULY 28	40.09	SEPT 11	39.84
DEC 06	39.34	FEB 07	40.23	APR 03	41.30	JUNE 03	39.92	AUG 20	40.39		

WATER YEAR 2003 HIGHEST 38.53 OCT 18, 2002 LOWEST 40.47 MAY 19, 2003



RIO HONDO TO RIO PUERTO NUEVO BASINS—Continued

182531066075900. Local number, 652.

LOCATION.--Lat 18°25'31", long 66°06'59", Hydrologic Unit 21010005, 0.07 mi north of Hwy 22, 0.32 mi southwest of the intersection of Hwy 165 with Hwy 28, and 1.4 mi south of the Cataño ferry building, Name: Piezometer USGS Building 652, Guaynabo.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.1 m), cased 0-192 ft (0-58.5 m). Depth 130 ft (39.62 m), sounded depth measured on October 20, 2004.

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.1 m) casing, 3.27 ft (1 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on May 14, 1997. Water level affected by marine tides.

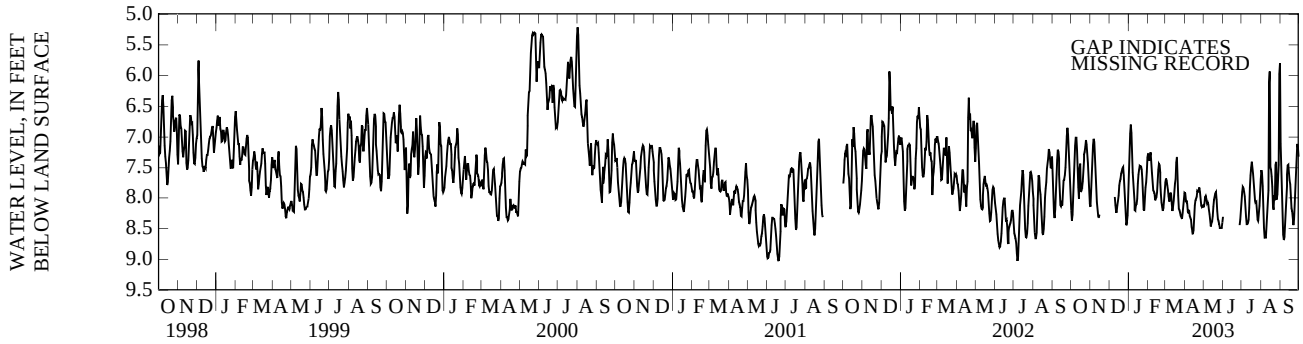
PERIOD OF RECORD.--May 14, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.1 ft (0.94 m), below land-surface datum, September 24, 2001; lowest water level recorded, 9.16 ft (2.79 m), below land-surface datum, October 1, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.07	8.19	---	7.69	7.24	7.78	7.88	8.15	8.34	8.10	7.57	6.99
2	8.33	8.09	---	7.46	7.32	7.71	7.97	8.16	8.28	7.95	7.53	7.24
3	8.41	7.82	---	7.11	7.36	7.66	8.09	8.02	---	7.86	7.57	7.60
4	8.15	7.61	---	6.80	7.42	7.76	8.05	7.95	---	7.77	7.64	7.98
5	7.95	7.21	---	6.82	7.20	7.84	8.02	7.97	---	7.90	7.97	8.56
6	7.68	7.08	---	7.07	7.31	7.90	8.15	8.07	---	7.91	8.29	8.63
7	7.26	7.00	---	7.49	7.49	8.04	8.28	8.10	---	8.04	8.67	8.73
8	7.05	7.17	---	7.69	7.68	8.08	8.20	8.04	---	8.22	8.62	8.54
9	6.98	7.39	---	7.84	7.76	7.94	8.19	8.15	---	8.40	8.67	8.25
10	7.06	7.62	7.93	8.03	7.97	7.89	8.39	8.24	---	8.44	8.61	8.06
11	7.37	8.00	8.03	8.13	7.82	8.00	8.24	8.29	---	8.40	8.31	7.89
12	7.68	8.14	8.20	8.25	8.03	8.20	8.46	8.45	---	8.40	8.17	7.72
13	7.98	8.22	8.24	8.16	8.05	8.22	8.49	8.47	---	8.29	7.93	7.51
14	8.06	8.35	8.21	8.08	7.96	8.07	8.59	8.43	---	8.03	7.84	7.44
15	6.97	8.29	8.03	8.13	8.00	8.03	8.59	8.38	---	7.62	4.39	7.49
16	7.91	8.24	8.06	7.90	7.83	7.79	8.46	8.39	---	7.65	7.50	7.69
17	7.90	---	7.86	7.64	7.59	7.74	8.18	8.20	---	7.37	7.48	7.74
18	7.85	---	7.74	7.59	7.49	7.64	8.05	8.08	---	7.45	7.59	7.82
19	7.80	---	7.71	7.49	7.40	7.21	8.03	7.98	---	7.57	7.72	8.11
20	7.67	---	7.66	7.45	7.53	7.46	7.99	7.97	---	7.65	7.91	8.22
21	7.43	---	7.53	7.51	7.65	7.78	7.95	7.88	---	7.87	8.34	8.20
22	7.32	---	7.59	7.46	7.85	8.14	7.82	7.92	---	7.93	8.04	8.47
23	7.25	---	7.45	7.62	8.04	8.20	7.97	8.13	---	8.15	7.88	8.41
24	7.24	---	7.54	7.77	8.11	8.18	7.78	8.29	---	8.00	8.19	8.28
25	7.08	---	7.71	8.09	8.19	8.29	7.88	8.38	---	8.13	6.74	8.03
26	7.03	---	7.95	8.27	8.21	8.29	7.93	8.37	---	8.27	8.09	7.71
27	7.24	---	8.10	8.13	8.09	8.33	8.09	8.48	---	8.43	7.97	7.44
28	7.35	---	8.43	7.90	7.99	8.35	8.15	8.50	8.46	8.31	7.91	7.19
29	7.52	---	8.45	7.76	---	8.15	8.14	8.48	8.43	8.20	7.59	7.05
30	7.82	---	8.34	7.72	---	8.10	8.09	8.50	8.27	8.07	7.33	7.29
31	7.99	---	8.23	7.43	---	7.94	---	8.46	---	7.82	4.63	---
MEAN	7.59	---	---	7.69	7.74	7.96	8.14	8.22	---	8.01	7.70	7.88

WTR YR 2003 MEAN 7.89 HIGHEST 3.59 AUG 15, 2003 LOWEST 8.95 DEC 21, 2002



RIO HONDO TO RIO PUERTO NUEVO BASINS—Continued

182435066052700. Local number, 1153.

LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cataño plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV radio anthena, Name: Piezometer Salud Mental 1, San Juan.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-83 ft (0-25.3 m), perforated 73-83 ft (22.2-25.3 m). Depth 83 ft (25.3 m).

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m), above mean sea level, from topographic map. Measuring point: Hole on well shaft, 2.85 ft (0.87 m), above land-surface datum.

REMARKS.--Observation well.

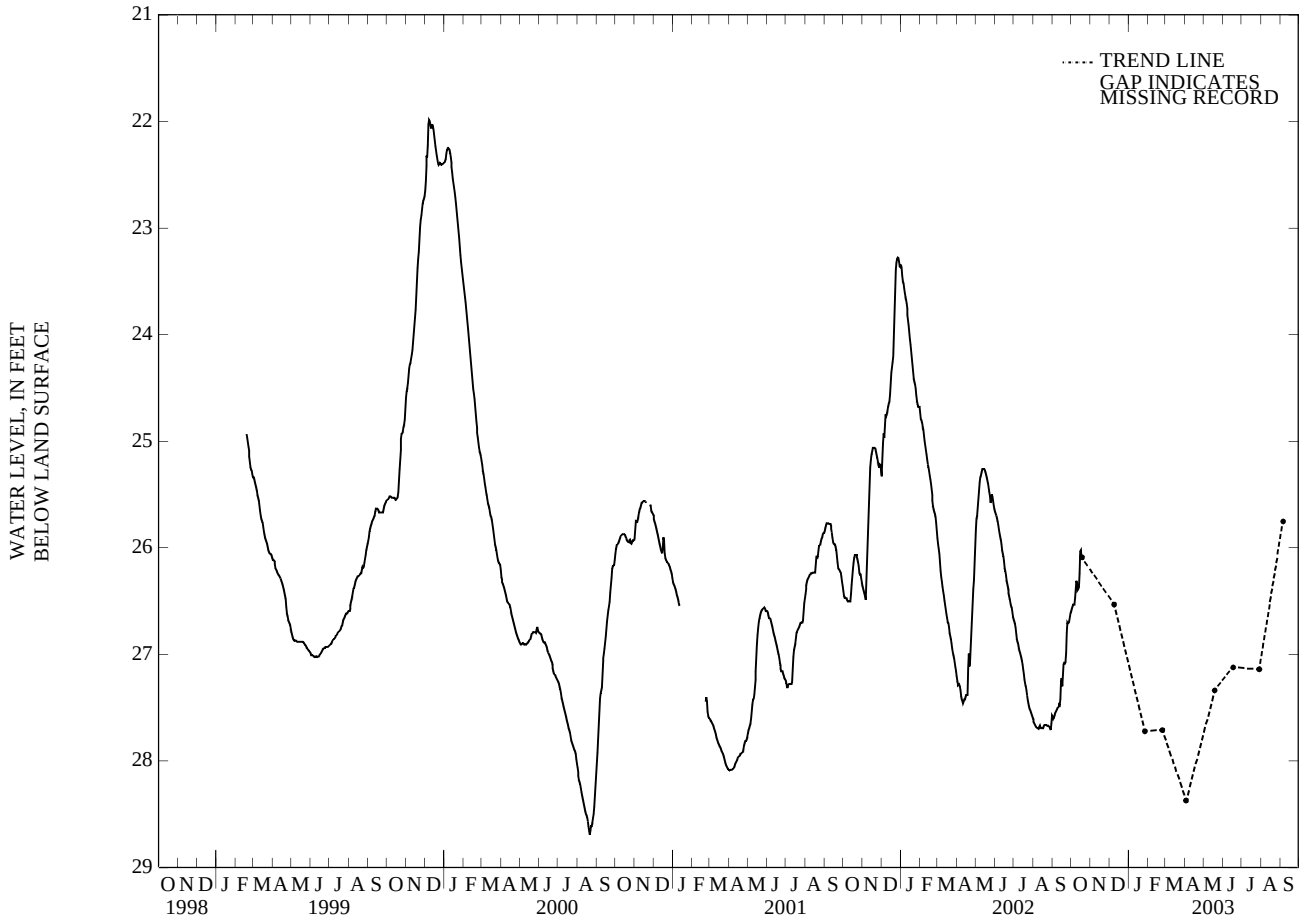
PERIOD OF RECORD.--April 1989 to July 1, 1998, discontinued, February 17, 1999 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.97 ft (6.69 m), below land-surface datum, December 8, 9, 1999; lowest water level recorded, 32.82 ft (10 m), below land-surface datum, September 25-28, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	26.09	JAN 27	27.72	APR 03	28.37	JUNE 17	27.12	JULY 29	27.14	SEPT 05	25.75
DEC 06	26.53	FEB 24	27.71	MAY 19	27.34						

WATER YEAR 2003 HIGHEST 25.75 SEP 05, 2003 LOWEST 28.37 APR 03, 2003



RIO HONDO TO RIO PUERTO NUEVO BASINS—Continued

182445066043401. Local number, 1154.

LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Dr. Pedreira School, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate, Name: Piezometer Alsacia 2, San Juan.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-27 ft (0-8.23 m), perforated 21-27 ft (6.4-8.23 m). Depth 27 ft (8.23 m).

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m), above mean sea level, from topographic map. Measuring point: Hole on well shaft, 3.58 ft (1.09 m), above land-surface datum.

REMARKS.--Observation well.

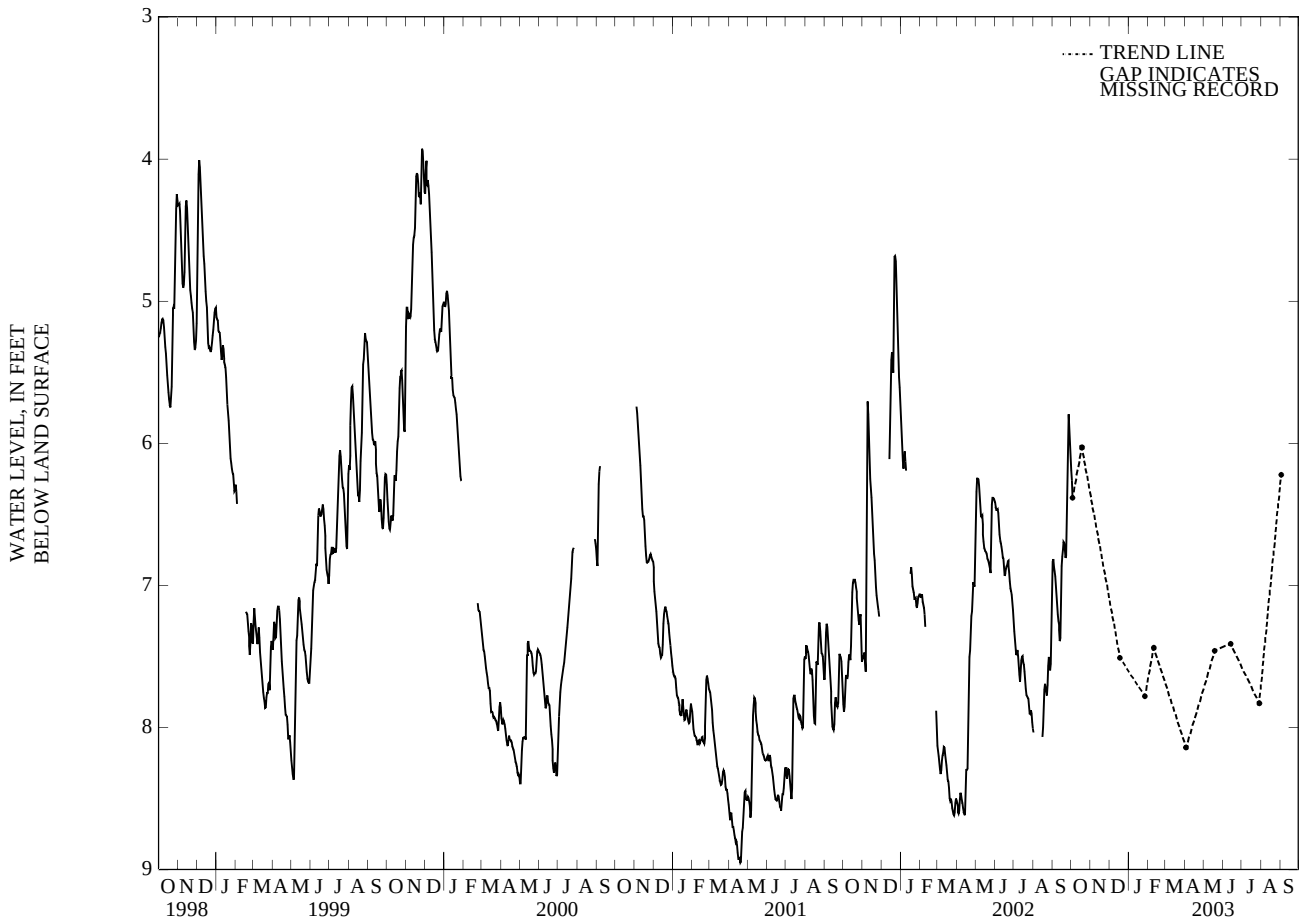
PERIOD OF RECORD.--July 1989 to November 27, 1991, Temporary discontinued, September 9, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.6 ft (0.79 m), below land-surface datum, November 25, 1999; lowe st water level recorded, 13.65 ft (4.16 m), below land-surface datum, October 6, 7, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	6.03	JAN 27	7.78	APR 03	8.14	JUNE 1	37.41	JULY 29	7.83	SEPT 02	6.22
DEC 18	7.51	FEB 10	7.44	MAY 19	7.46						

WATER YEAR 2003 HIGHEST 6.03 OCT 18, 2002 LOWEST 8.14 APR 03, 2003



RIO HONDO TO RIO PUERTO NUEVO BASINS—Continued

182406066034700. Local number, 1158.

LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J.J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate, Name: Piezometer Jardín Botánico 3, San Juan.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.1 m) cased 4 in (0.1 m), 0-48 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48 ft.(14.6 m).

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m), above mean sea level, from topographic map. Measuring point: Hole on well shaft, 2.91 ft (0.88 m), above land-surface datum.

REMARKS.--Observation well.

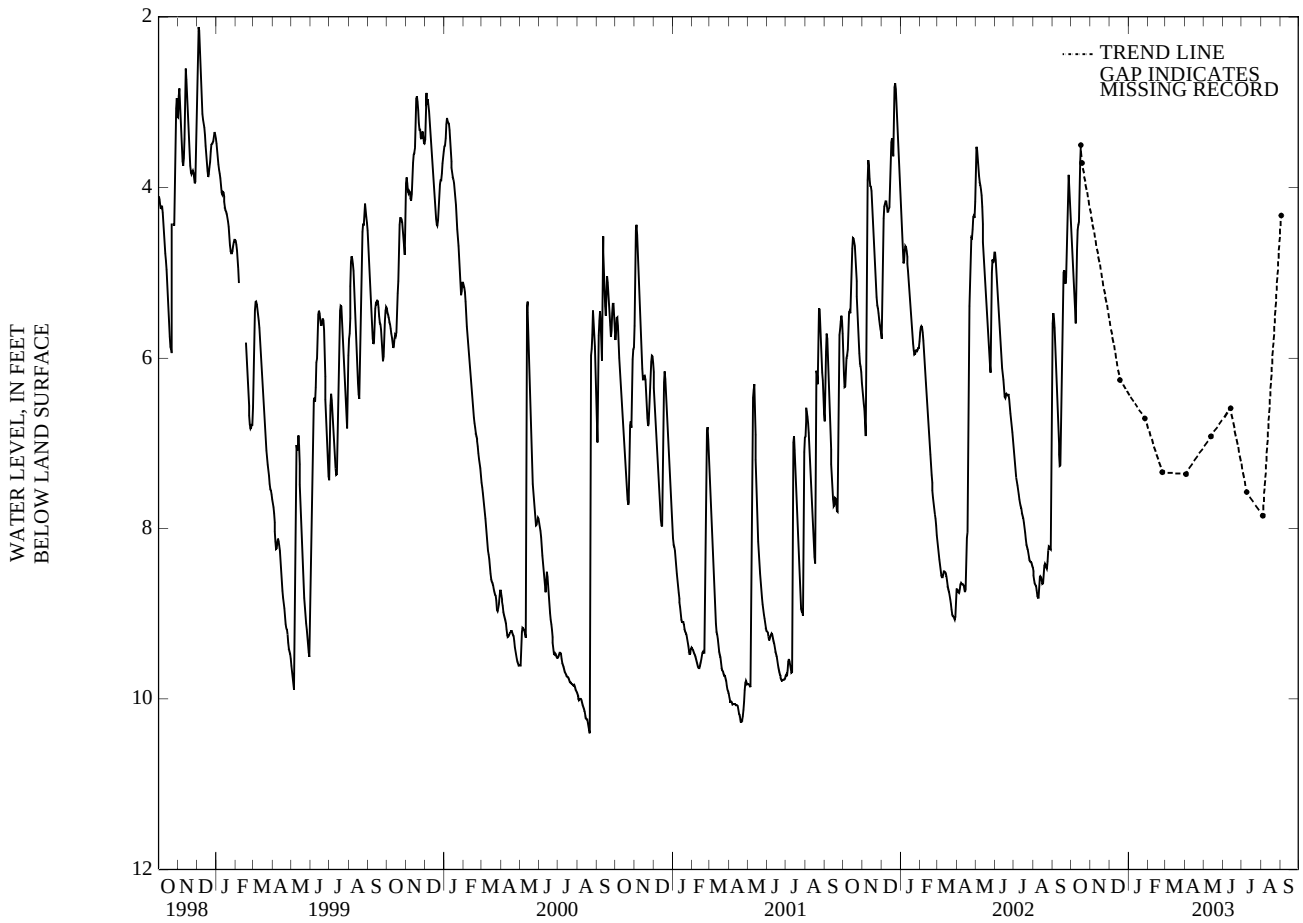
PERIOD OF RECORD.--June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.05 ft (0.62 m), below land-surface datum, December 4, 1998; lowest water level recorded, 13.43 ft (4.09 m), below land-surface datum, November 8, 9, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	3.71	JAN 24	6.71	APR 03	7.36	JUNE 13	6.59	AUG 04	7.85	SEPT 02	4.33
DEC 18	6.26	FEB 20	7.34	MAY 13	6.92	JULY 09	7.57				

WATER YEAR 2003 HIGHEST 3.71 OCT 18, 2002 LOWEST 7.85 AUG 04, 2003



RIO HONDO TO RIO PUERTO NUEVO BASINS—Continued

182451066080200. Local number, 1159.

LOCATION.--Lat 18°24'50", long 66°08'05", Hydrologic Unit 21010005, 1.7 mi west of Fort Buchanan main gate, 0.2 mi southeast of oil refinery, and 0.9 mi east of Goya Products plant, Name: Piezometer Ft. Buchanan 1, Bayamón.

AQUIFER.--Mucarabones Sand.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.1 m), screened 209-249 ft (63.7-75.89 m). Depth 249 ft (75.89 m).

DATUM.--Elevation of land-surface datum is about 46 ft (14 m), about mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.33 ft (1.01 m), above land-surface datum.

REMARKS.--Observation well. Well is affected by nearby pumping.

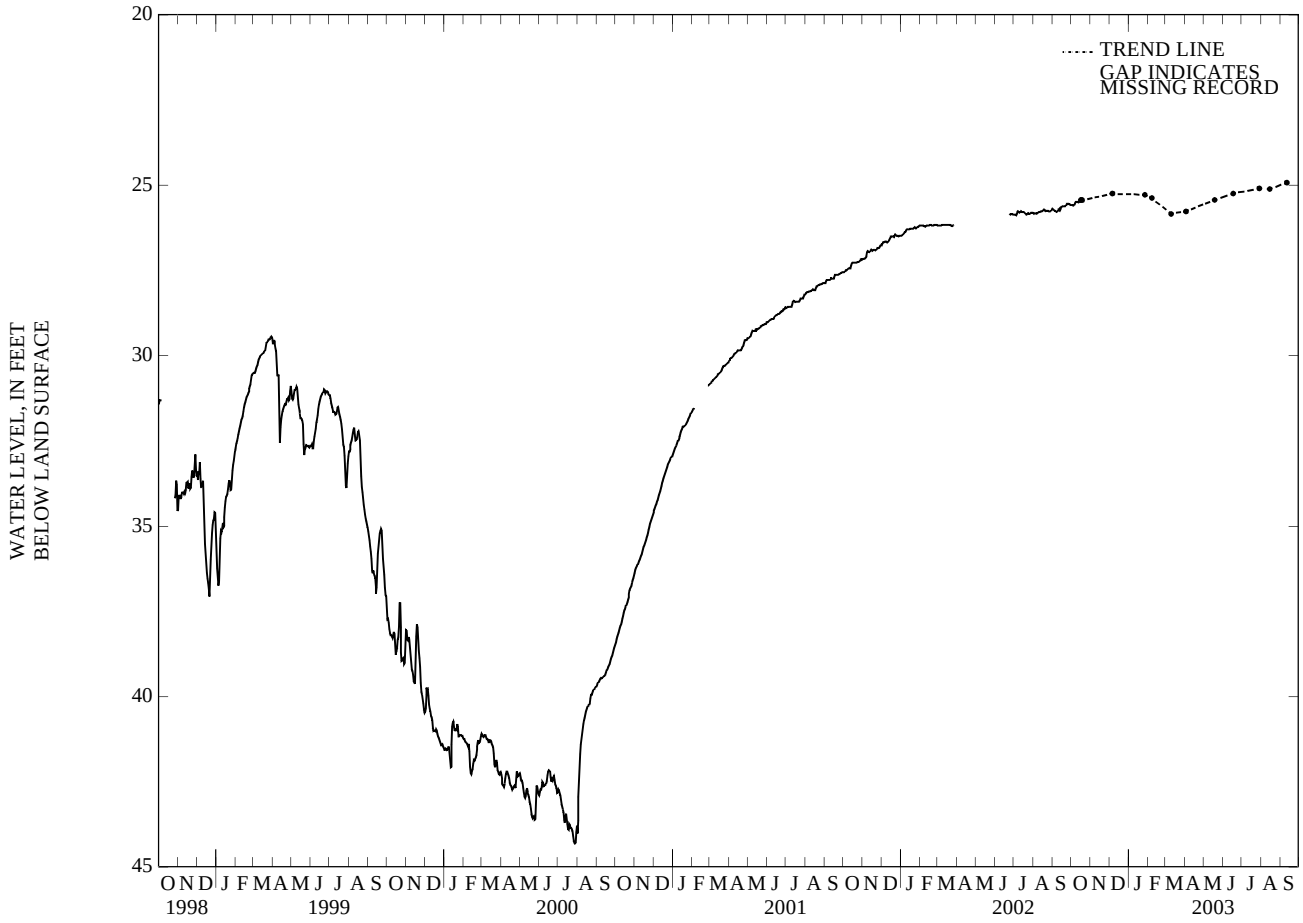
PERIOD OF RECORD.--September 12, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.91 ft (7.59 m), below land-surface datum, September 11, 2003; lowest water level recorded, 44.38 ft (13.53 m), below land-surface datum, July 28, 29, 2000.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	25.44	JAN 27	25.28	MAR 10	25.84	MAY 19	25.43	JULY 29	25.09	SEPT 11	24.93
DEC 06	25.25	FEB 07	25.38	APR 03	25.77	JUNE 17	25.25	AUG 15	25.11		

WATER YEAR 2003 HIGHEST 24.93 SEP 11, 2003 LOWEST 25.84 MAR 10, 2003



RIO GRANDE DE LOIZA BASIN

181352066025300. Local number, 1176.

LOCATION.--Lat 18°13'52", long 66°02'53", Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.3 mi southeast of Hwy 156 km 59.1, Name: Piezometer CJ 19A, Caguas.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-67 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67 ft (20.4 m).

DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m), above mean sea level, from topographic map. Measuring point: Top of casing 3.48 ft (1.06 m), above land-surface datum.

REMARKS.--Observation well.

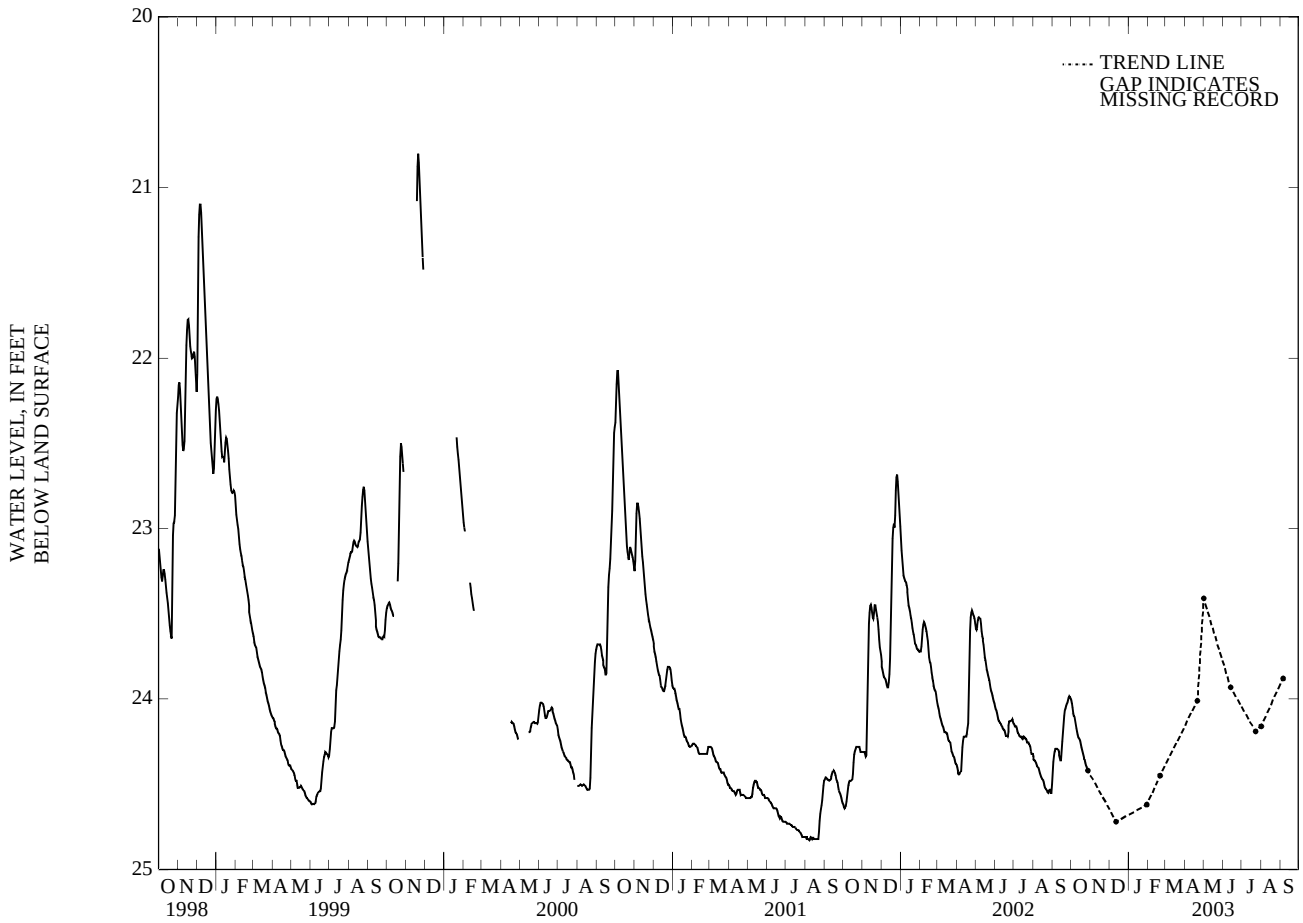
PERIOD OF RECORD.-- June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 20.75 ft (6.32 m), below land-surface datum, November 20, 21, 1999; lowest water level recorded, 25.7 ft (7.83 m), below land-surface datum, May 31, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	24.42	JAN 30	24.62	APR 21	24.01	JUNE 13	23.93	AUG 01	24.16	SEPT 05	23.88
DEC 12	24.72	FEB 20	24.45	MAY 01	23.41	JULY 23	24.19				

WATER YEAR 2003 HIGHEST 23.41 MAY 01, 2003 LOWEST 24.72 DEC 12, 2002



RIO GRANDE DE LOIZA BASIN—Continued

181311066022500. Local number, 1177.

LOCATION.--Lat 18°13'11", long 66°02'25", Hydrologic Unit 21010005, 1.13 mi south of the intersection of Hwy 156 with Hwy 52, 0.15 mi southeast of the inserction of Hwy 172 with Hwy 1, and 0.2 mi northeast of Escuela Antonio S. Pereira, Name: Piezometer Caguas-Juncos 11, Caguas.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), 0-110 ft (0-33.5 m), screened 66-96 ft (20.1-29.3 m). Depth 110 ft (33.5 m).

DATUM.--Elevation of land-surface datum is about 282 ft (85.9 m), above mean sea level. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.04 ft (0.24 m), above land-surface datum.

REMARKS.--Observation well.

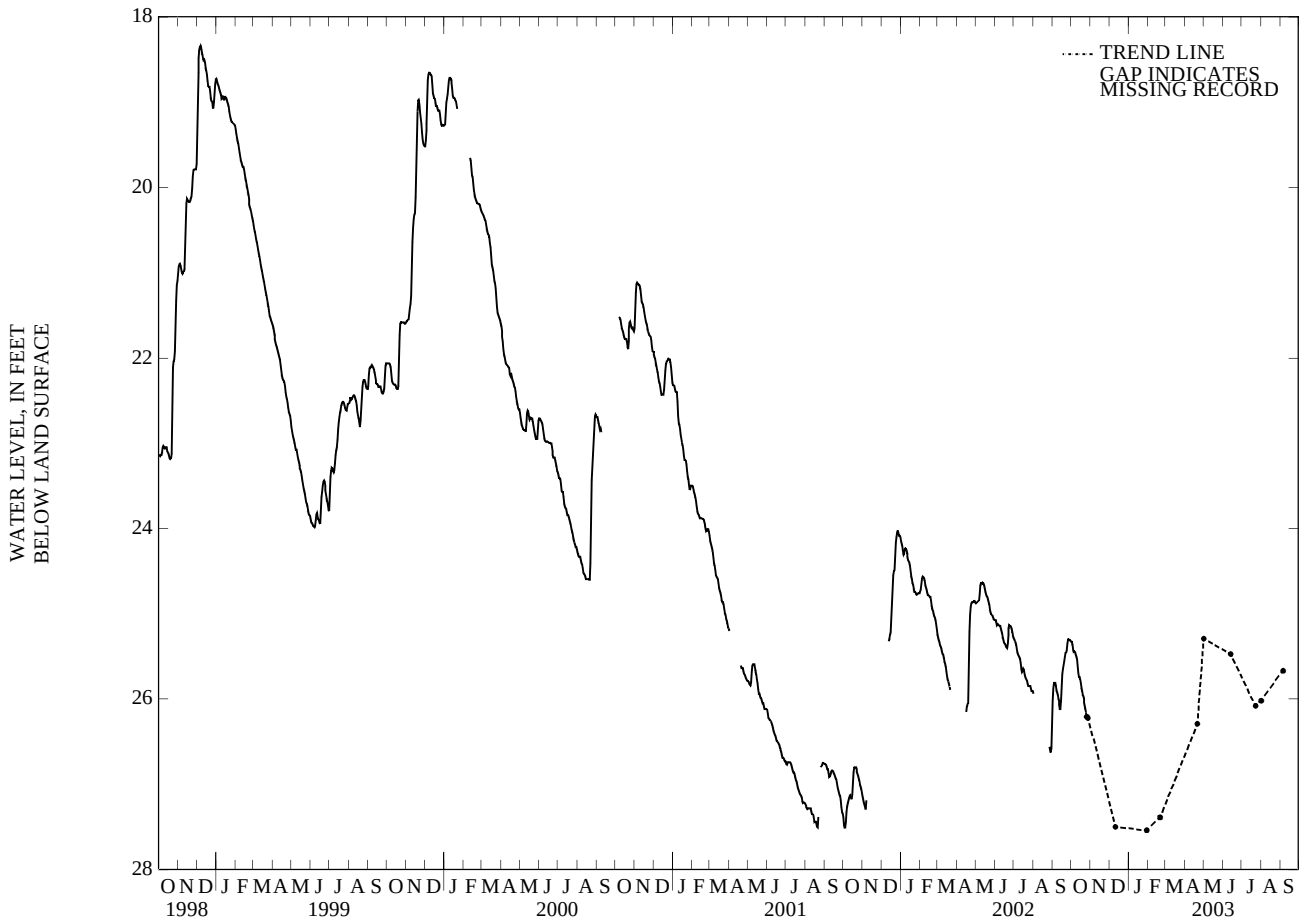
PERIOD OF RECORD.--May 2, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.34 ft (5.59 m), below land-surface datum, December 6, 7, 8, 1998; lowest water level recorded, 28.73 ft (8.76 m), below land-surface datum, August 22, 1997.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	26.22	JAN 30	27.54	APR 21	26.29	JUNE 13	25.47	AUG 01	26.02	SEPT 05	25.67
DEC 11	27.50	FEB 20	27.39	MAY 01	25.29	JULY 23	26.08				

WATER YEAR 2003 HIGHEST 25.29 MAY 01, 2003 LOWEST 27.54 JAN 30, 2003



RIO GRANDE DE LOIZA BASIN—Continued

181539066014500. Local number, 1179.

LOCATION.--Lat 18°15'39", long 66°01'45", Hydrologic Unit 21010005, 0.55 mi southeast of the intersection of Hwy 1 with Hwy 30, 0.75 mi southeast of the inserction of Hwy 1 with Hwy 52, and 0.06 mi north of Hwy 796, Name: Piezometer Caguas-Juncos 15, Caguas.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), 0-70 ft (0-21.3 m), screened 25-70 ft (7.62-21.3 m). Depth 70 ft (21.3 m).

DATUM.--Elevation of land-surface datum is about 167.3 ft (51 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.75 ft (1.14 m), above land-surface datum.

REMARKS.--Observation well.

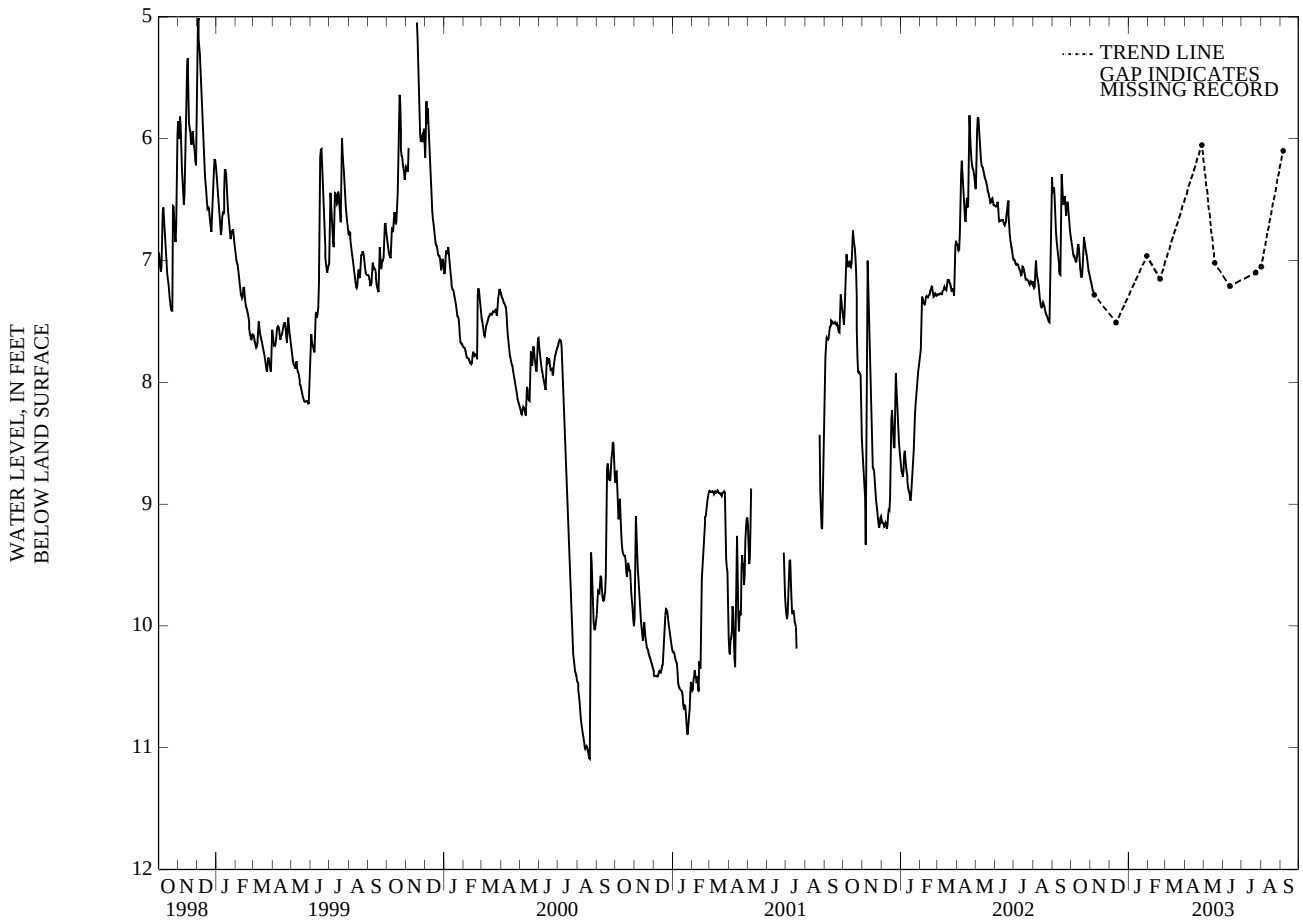
PERIOD OF RECORD.--May 5, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.92 ft (1.5 m), below land-surface datum, December 3, 1998; lowest water level recorded, 11.11 ft (3.39 m), below land-surface datum, August 11, 22, 2000.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 07	7.28	JAN 30	6.96	APR 28	6.05	JUNE 13	7.21	AUG 01	7.05	SEPT 05	6.10
DEC 12	7.51	FEB 20	7.15	MAY 19	7.02	JULY 23	7.10				

WATER YEAR 2003 HIGHEST 6.05 APR 28, 2003 LOWEST 7.51 DEC 12, 2002



RIO GRANDE DE LOIZA BASIN—Continued

182515065594100. Local number, 222.

LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Extensión El Comandante School, and 0.74 mi southwest of Vistamar School, Name: Piezometer Campo Rico TW-1, Carolina.

AQUIFER.--Surficial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m). Depth 100 ft (30.5 m).

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m), above mean sea level, from topographic map. Measuring point: Ho le on side of casing, 0.9 ft (0.27 m), above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.1 ft (0.94 m), above land-surface datum.

REMARKS.--Observation well. Well level affected by marine tides.

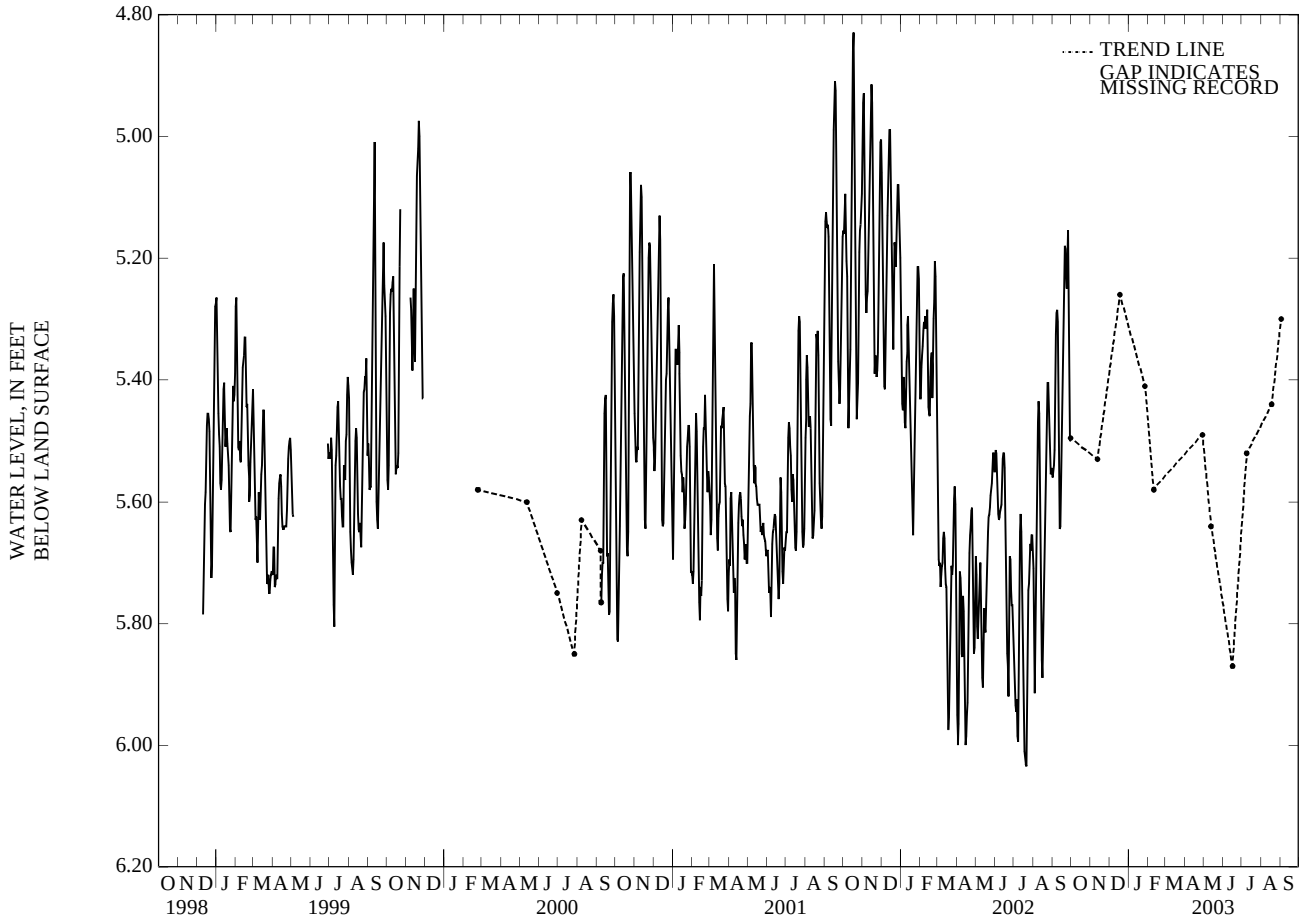
PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.33 ft (1.32 m), below land-surface datum, September 6, 1995; low est water level recorded, 7.42 ft (2.26 m), below land-surface datum, February 9, 1986.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	5.53	JAN 27	5.41	APR 29	5.49	JUNE 16	5.87	AUG 18	5.44	SEPT 02	5.30
DEC 18	5.26	FEB 10	5.58	MAY 13	5.64	JULY 09	5.52				

WATER YEAR 2003 HIGHEST 5.26 DEC 18, 2002 LOWEST 5.87 JUNE 16, 2003



RIO HERRERA TO RIO ANTON RUIZ BASINS

181217065453000. Local number, 1203.

LOCATION.--Lat 18°12'17", long 65°45'30", Hydrologic Unit 21010005, 0.01 mi south of Hwy 927 at Km 8 and 0.62 mi south of Hwy 31, Name: Piezometer Carlos Arroyo 1, Naguabo.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), screened 29-32 ft (8.84-9.75 m). Depth 30 ft (9.1 4 m), sounded depth measured on October 18, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 16 ft (4.87 m), above mean sea level, from topographic map. Measuring point: Sh elter floor, 4.8 ft (1.46 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on October 26, 1997. Well is affected by stage in nearby Ro Blanco. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 27, 1999.

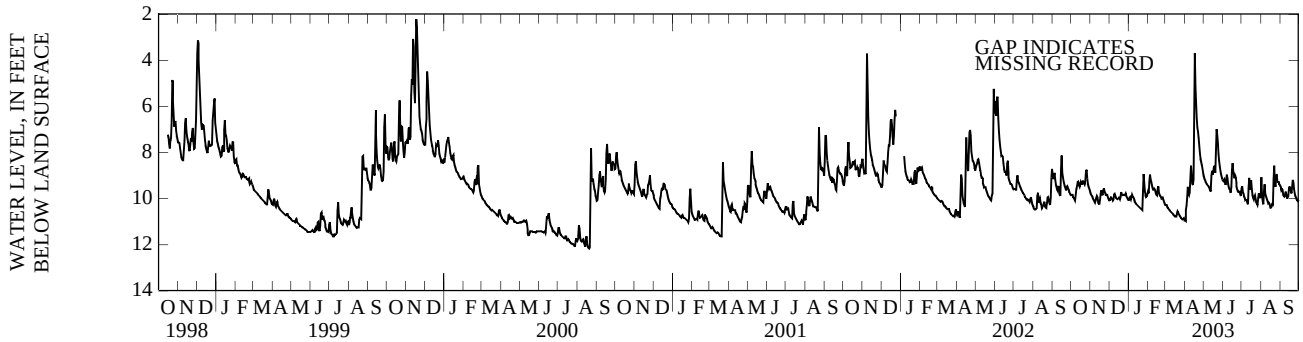
PERIOD OF RECORD.--October 26, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.55 ft (0.47 m), below land-surface datum, April 17, 2003; lowest water level recorded, 12.2 ft (3.72 m), below land-surface datum, August 21, 22, 2000.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.85	9.70	10.07	10.05	9.63	10.25	10.99	8.97	9.22	9.95	9.66	9.39
2	9.90	9.79	10.14	10.05	9.78	10.29	10.93	9.11	9.26	9.15	8.53	9.54
3	9.79	9.86	10.03	9.91	9.76	10.25	11.00	9.17	9.24	9.81	9.82	9.72
4	9.91	9.90	9.98	10.01	8.76	10.34	9.99	9.25	9.12	9.65	10.02	9.44
5	9.97	9.96	9.93	10.07	9.20	10.40	10.70	9.32	9.39	9.94	10.20	9.77
6	10.00	10.03	10.02	9.80	9.15	10.43	9.31	9.37	9.48	9.93	10.29	9.90
7	10.05	10.09	10.07	9.88	9.41	10.47	9.68	9.42	8.93	10.04	9.08	9.87
8	10.11	10.14	10.12	9.95	9.46	10.50	9.83	9.44	9.02	10.13	9.73	10.00
9	9.59	10.19	9.93	9.97	9.60	10.56	9.84	9.47	9.28	10.00	9.83	9.62
10	9.60	10.00	9.75	10.05	9.64	10.58	9.64	9.54	9.43	10.12	9.95	9.78
11	9.38	9.97	9.85	10.12	9.61	10.59	8.50	9.58	9.58	10.24	10.01	9.87
12	9.22	9.80	9.95	10.16	9.55	10.64	8.66	9.69	9.59	10.28	10.09	9.95
13	9.35	10.12	10.03	10.21	9.72	10.67	9.22	9.72	9.66	8.72	10.20	10.08
14	9.45	10.20	9.99	10.24	9.81	10.70	9.45	9.39	9.84	9.53	10.26	9.81
15	9.52	10.26	10.05	10.28	9.85	10.75	9.42	8.64	9.25	9.76	10.14	9.96
16	9.20	10.22	10.02	10.30	9.91	10.77	8.96	8.97	8.24	9.06	10.36	9.24
17	9.34	9.92	10.01	10.34	9.24	10.78	2.36	9.01	8.70	9.42	10.42	9.73
18	9.40	9.63	9.95	10.36	9.69	10.77	5.01	8.59	8.90	9.76	10.37	9.50
19	9.35	9.66	10.12	10.39	9.80	10.81	5.31	8.61	9.08	9.91	10.32	9.85
20	9.14	9.88	9.72	10.40	9.90	10.52	6.16	8.81	9.13	10.00	10.16	9.71
21	9.37	9.86	9.73	10.44	9.91	10.60	6.92	8.95	8.89	10.04	10.34	9.27
22	9.21	9.44	9.92	10.44	9.88	10.65	6.99	6.79	9.26	9.78	7.98	9.13
23	9.45	9.68	9.80	10.49	9.97	10.71	7.23	7.24	9.44	9.96	9.18	9.49
24	9.31	9.70	9.87	10.50	10.04	10.76	7.57	7.22	9.51	10.12	9.48	9.72
25	9.13	9.81	9.80	8.91	9.97	10.79	7.94	7.93	9.66	10.20	9.53	9.86
26	8.52	9.87	9.95	9.01	10.00	10.84	8.16	8.26	9.70	10.27	8.61	9.92
27	9.01	9.80	9.70	9.58	10.10	10.88	8.39	8.51	9.77	10.27	9.28	9.99
28	9.29	9.90	9.84	9.81	10.20	10.92	8.47	8.72	9.61	9.66	9.31	10.06
29	9.43	9.96	9.94	9.93	---	10.94	8.65	8.88	9.79	9.88	9.24	10.12
30	9.52	10.03	9.97	9.95	---	10.84	8.80	9.01	9.83	9.92	9.32	10.10
31	9.58	---	10.05	9.91	---	10.92	---	9.13	---	10.03	9.44	---
MEAN	9.48	9.91	9.95	10.05	9.70	10.64	8.47	8.86	9.33	9.86	9.71	9.75

WTR YR 2003 MEAN 9.64 HIGHEST 1.55 APR 17, 2003 LOWEST 11.02 APR 3, 2003



RIO HERRERA TO RIO ANTON RUIZ BASINS—Continued

182131065421100. Local number, 1205.

LOCATION.--Lat. 18°21'31", long. 65°42'11", Hydrologic Unit 21010005, 1.39 mi southeast of the intersection of Hwy 992 with Hwy 3, 0.4 mi southeast of the intersection of Hwy 983 with Hwy 3, 0.12 mi northwest of the intersection with Hwy 940 with Hwy 983, and 0.03 mi southwest of Hwy 983, Name: Piezometer USGS RP-4, Luquillo.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m) 0-39 ft (0-11.9 m), screened 4 -39 ft (1.2-11.9 m). Depth 39 ft (11.9 m).

DATUM.--Elevation of land-surface datum is about 14 ft (4.27 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 4.42 ft (1.35 m), above land-surface datum.

REMARKS.--Observation well.

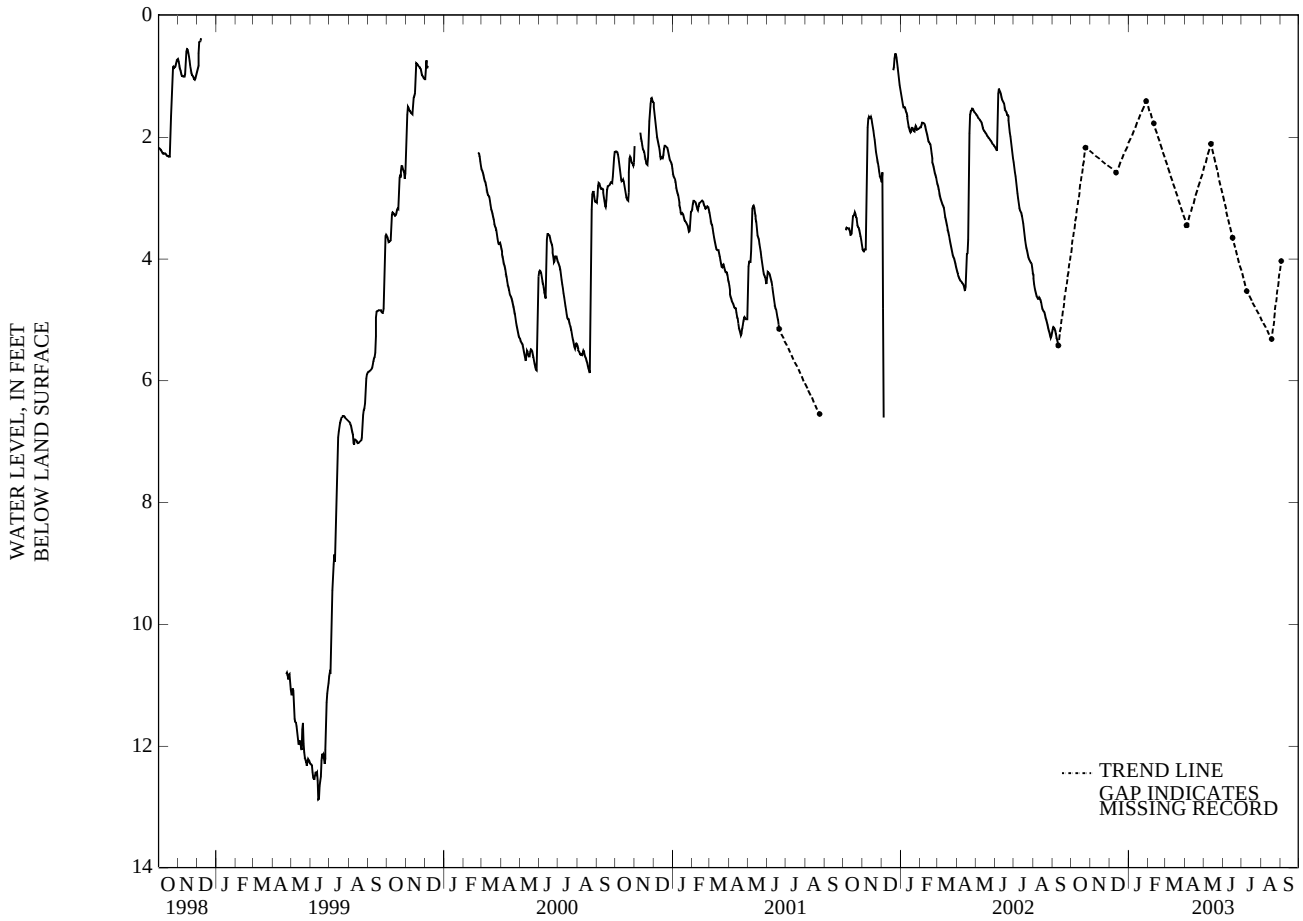
PERIOD OF RECORD.--August 15, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.32 ft (0.09 m), below land-surface datum, December 10, 1998; lowest water level recorded, 14.05 ft (4.28 m), below land-surface datum, August 21, 1997.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	2.17	JAN 29	1.41	APR 04	3.45	JUNE 16	3.65	AUG 18	5.32	SEPT 02	4.03
DEC 12	2.58	FEB 10	1.77	MAY 13	2.11	JULY 09	4.53				

WATER YEAR 2003 HIGHEST 1.41 JAN 29, 2003 LOWEST 5.32 AUG 18, 2003



RIO HERRERA TO RIO ANTON RUIZ BASINS—Continued

181917065382701. Local number, 1207.

LOCATION.--Lat 18°19'17", long 65°38'27", Hydrologic Unit 2101005, 1.2 mi northwest of Punta Barrancas, 0.81 mi east of Hwy 3, 0.82 mi south of Hwy 195, and 0.61 mi east of Hwy 194, Name: Piezometer RF-12, Fajardo.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m) 0-34 ft (0-10.4 m), screened 3 .75-34 ft (1.14-10.4 m). Depth 35 ft (10.7 m), sounded depth measured on October 18, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is 13.7 ft (4.18 m), above mean sea level, from topographic survey. Measuring point: She lter floor on top of 4 in (0.1 m) casing, 4.16 ft (1.27 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed o n May 14, 1999.

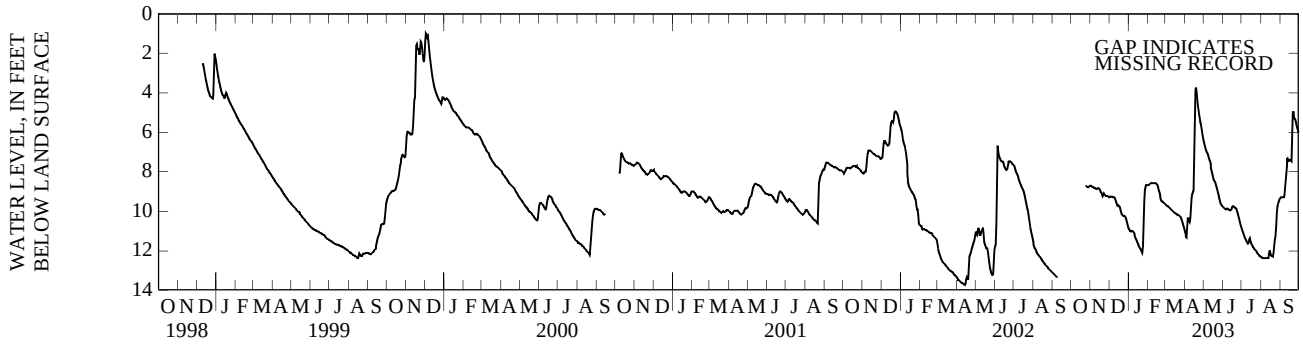
PERIOD OF RECORD.--August 11, 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.58 ft (0.18 m), below land-surface datum, December 3, 1999; lowe st water level recorded, 13.74 ft (4.19 m), below land-surface datum, April 15, 2002.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.71	9.25	10.87	8.68	9.63	11.02	6.39	9.77	10.80	12.33	9.35
2	---	8.70	9.27	10.92	8.68	9.64	11.13	6.52	9.79	10.88	12.34	9.30
3	---	8.72	9.27	10.97	8.66	9.68	11.23	6.64	9.82	11.00	12.34	9.29
4	---	8.75	9.24	11.01	8.65	9.71	11.33	6.78	9.85	11.09	12.35	9.28
5	---	8.76	9.26	11.03	8.60	9.74	11.34	6.91	9.88	11.19	12.36	9.29
6	---	8.79	9.26	11.02	8.59	9.77	10.42	6.99	9.90	11.28	12.37	9.28
7	---	8.79	9.27	11.02	8.58	9.80	10.32	7.07	9.91	11.35	12.37	9.29
8	---	8.83	9.28	11.02	8.57	9.83	10.42	7.12	9.88	11.44	12.38	9.08
9	---	8.84	9.28	11.03	8.57	9.87	10.53	7.24	9.89	11.48	12.37	8.53
10	---	8.85	9.29	11.11	8.57	9.89	10.58	7.38	9.91	11.54	12.37	8.26
11	---	8.88	9.37	11.21	8.57	9.93	10.15	7.43	9.91	11.61	12.36	7.94
12	---	8.87	9.46	11.28	8.57	9.95	9.46	7.54	9.93	11.68	12.36	7.48
13	---	8.85	9.54	11.37	8.57	9.98	9.19	7.70	9.95	11.55	12.39	7.29
14	---	8.82	9.66	11.43	8.58	10.01	9.07	7.86	9.97	11.27	12.36	7.39
15	---	8.85	9.74	11.51	8.60	10.05	9.00	7.97	9.89	11.46	11.90	7.46
16	---	8.89	9.73	11.60	8.66	10.08	8.96	8.11	9.72	11.58	12.06	7.46
17	---	8.96	9.70	11.67	8.75	10.09	6.82	8.26	9.74	11.66	12.20	7.44
18	---	9.06	9.75	11.76	8.89	10.12	4.05	8.40	9.77	11.73	12.28	7.40
19	---	9.06	9.87	11.82	9.02	10.14	3.65	8.46	9.80	11.79	12.25	7.47
20	---	9.17	10.01	11.89	9.11	10.16	3.84	8.49	9.82	11.84	12.28	7.48
21	---	9.29	10.12	11.93	9.24	10.17	4.25	8.62	9.82	11.88	12.31	5.35
22	---	9.05	10.18	11.99	9.35	10.19	4.58	8.69	9.84	11.93	11.89	4.75
23	---	9.14	10.20	12.07	9.45	10.21	4.83	8.84	9.87	11.95	11.59	5.12
24	---	9.17	10.22	12.14	9.51	10.26	5.07	8.96	9.93	11.99	11.33	5.32
25	8.68	9.20	10.23	11.42	9.51	10.27	5.28	9.09	10.05	12.04	11.17	5.31
26	8.74	9.22	10.24	10.09	9.53	10.34	5.44	9.24	10.16	12.09	10.45	5.40
27	8.75	9.22	10.26	9.01	9.56	10.42	5.63	9.38	10.27	12.16	9.89	5.59
28	8.77	9.23	10.37	8.84	9.59	10.52	5.81	9.52	10.41	12.20	9.65	5.73
29	8.78	9.24	10.48	8.68	---	10.65	6.04	9.62	10.54	12.24	9.55	5.84
30	8.79	9.25	10.62	8.67	---	10.76	6.24	9.68	10.67	12.27	9.45	5.95
31	8.72	---	10.75	8.69	---	10.88	---	9.74	---	12.30	9.39	---
MEAN	---	8.97	9.78	10.94	8.90	10.09	7.86	8.09	9.96	11.65	11.70	7.34

WTR YR 2003 MEAN 9.57 HIGHEST 3.04 APR 18-19, 2003 LOWEST 12.41 AUG 14, 2003



RIO HERRERA TO RIO ANTON RUIZ BASINS—Continued

182234065440000. Local number, 1208.

LOCATION.--Lat 18°22'34", long 65°44'00", Hydrologic Unit 2101005, 0.7 mi south of Balneario de Luquillo, 1.1 mi west of Luquillo, and 1 mi northwest of intersectin of Hwy 991 with Hwy 992, Name: Piezometer Quebrada Mata de Platanos 1, Luquillo.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--PVC cased ran levels, diameter 4 in (0.1 m) screened 5-25 ft (1.52-7.62 m). Depth 25 ft (7.62 m).

DATUM.--Elevation of land-surface is about 2.39 ft (0.73 m), about mean sea level, from topographic map. Measuring point: Floor of shelter, 5.6 ft (1.71 m), above land-surface datum.

REMARKS.--Observation well.

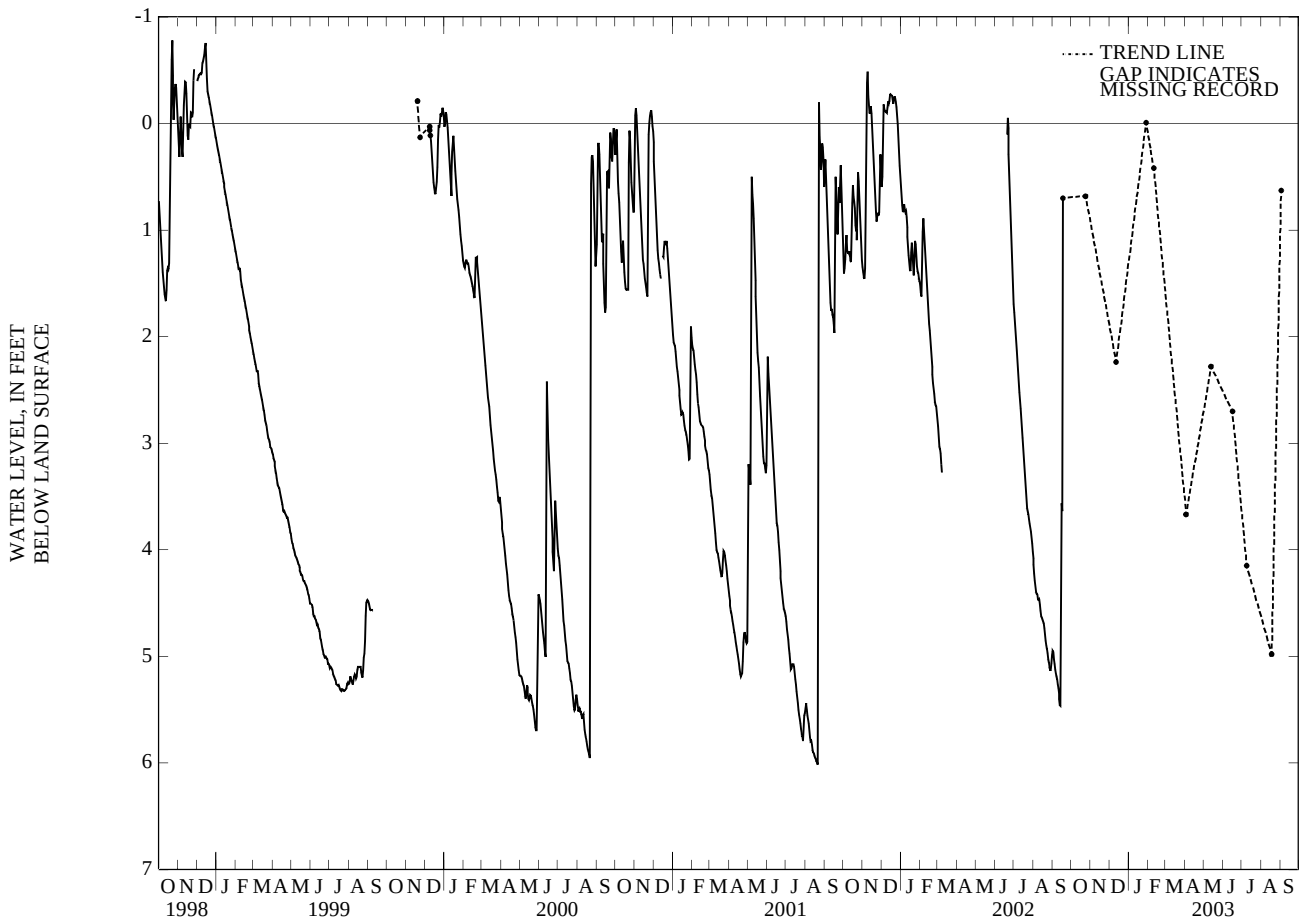
PERIOD OF RECORD.--September 17, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +3.02 ft (+0.92 m), above land-surface datum, September 18, 2002; lowest water level measured, 6.03 ft (1.84 m), below land-surface datum, August 19-22, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM (READINGS ABOVE LAND-SURFACE INDICATED BY "+"), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	0.68	JAN 29	+0.01	APR 04	3.67	JUNE 16	2.70	AUG 18	4.98	SEPT 02	0.63
DEC 12	2.24	FEB 10	0.42	MAY 13	2.28	JULY 09	4.15				

WATER YEAR 2003 HIGHEST +0.01 JAN 29, 2003 LOWEST 4.98 AUG 18, 2003



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS

180415065513900. Local number, 96.

LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López, Name: Yabucoa 7 Well, Yabucoa.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-1 ft (0-3.05 m), diameter 6 in (0. 15 m), cased about 0-183 ft (0-55.8 m), perforated 56-81 ft (17.1-24.7 m), 102-123 ft, (31.1-37.5 m), 144-181 ft (43.9-55.2 m). Depth 181 ft (55.2 m).

DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m), above mean sea level, from topographic map. Measuring point: To p of shelter floor, 4 ft (1.22 m), above land-surface datum.

REMARKS.--Observation well.

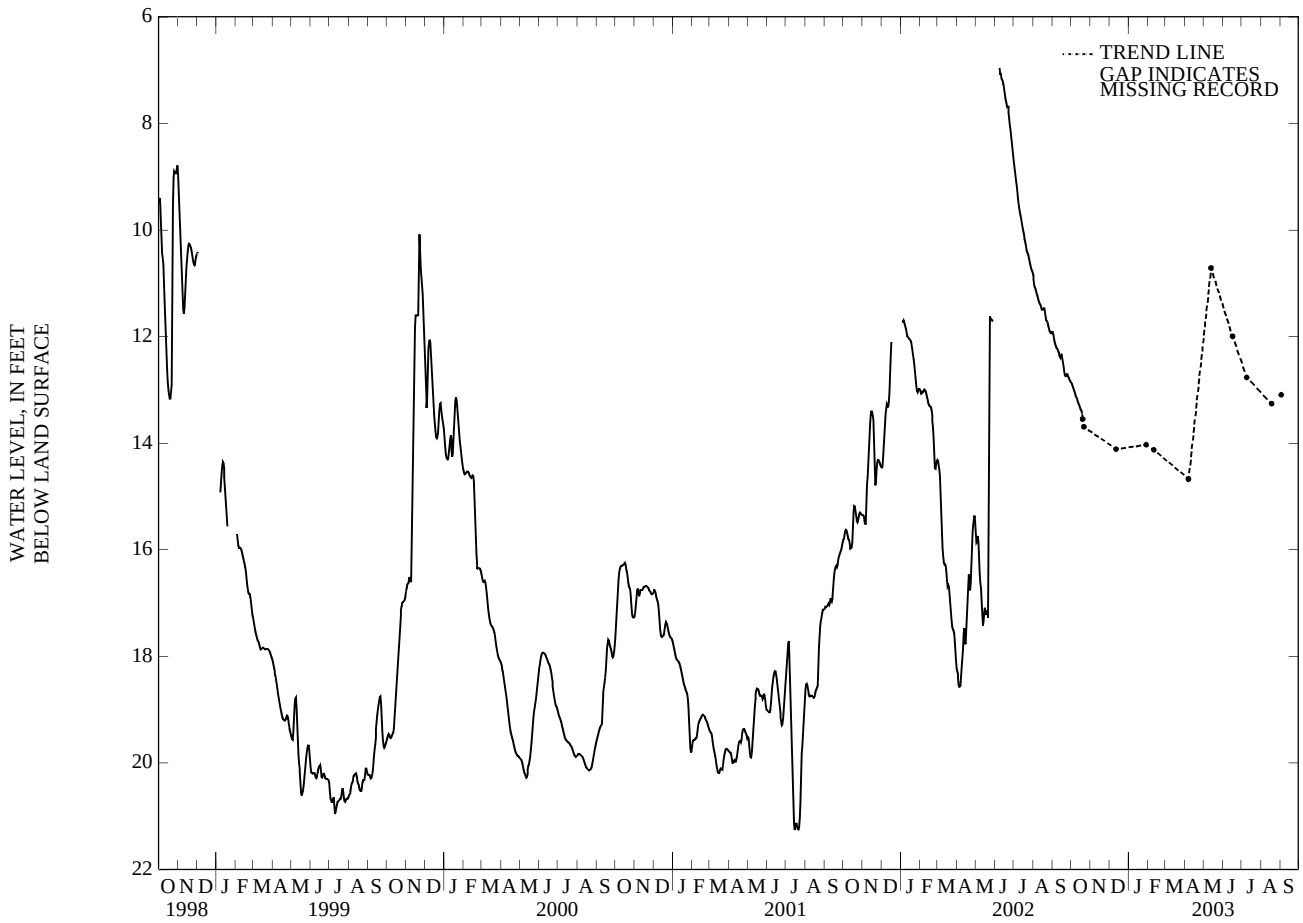
PERIOD OF RECORD.--April 25, 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.74 ft (2.05 m), below land-surface datum, June 7, 2002; lowest w ater level recorded, 28.29 ft (8.62 m) below land-surface datum, September 20, 1980.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	13.69	JAN 29	14.03	APR 04	14.67	JUNE 16	11.99	AUG 18	13.26	SEPT 02	13.09
DEC 12	14.11	FEB 10	14.12	MAY 13	10.71	JULY 09	12.76				

WATER YEAR 2003 HIGHEST 10.71 MAY 13, 2003 LOWEST 14.67 APR 04, 2003



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175855066050500. Local number, 1228.

LOCATION.--Lat 17°58'55", long 66°05'05", Hydrologic Unit 21010004, 1.97 mi east-southeast of the intersection of Hwy 16 with Hwy 3, 1 mi west of the intersection of Hwy 3 with Hwy 178, and 0.04 mi south of Hwy 3, Name: Algarrobos Domestic Well, Guayama.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 9 in (0.23 m). Depth 57 ft (17.4 m).

DATUM.--Elevation of land-surface datum is about 89 ft (27.1 m), above mean sea level. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 2.95 ft (0.9 m), above land-surface datum.

REMARKS.--Observation well.

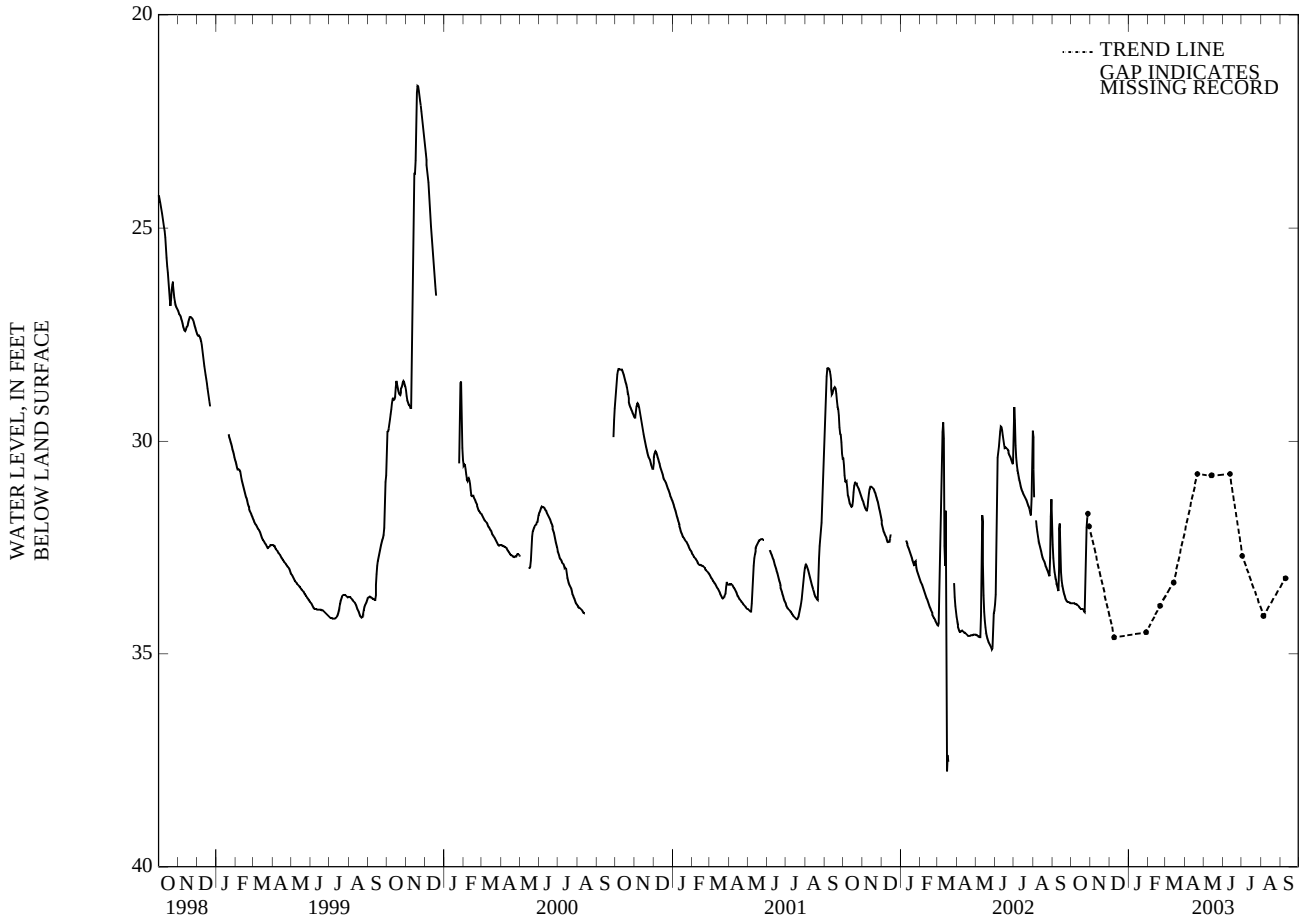
PERIOD OF RECORD.--May 24, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.19 ft (5.54 m), below land-surface datum, June 26, 1997; lowest water level measured, 34.62 ft (10.55 m), below land-surface datum, December 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	32.01	JAN 29	34.49	MAR 14	33.32	MAY 14	30.81	JULY 02	32.70	SEPT 09	33.22
DEC 09	34.61	FEB 20	33.87	APR 21	30.77	JUNE 12	30.77	AUG 05	34.10		

WATER YEAR 2003 HIGHEST 30.77 JUNE 12, APR 21, 2003 LOWEST 34.61 DEC 09, 2002



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175728066072200. Local number, 1229.

LOCATION.--Lat 17°57'28", long 66°07'22", Hydrologic Unit 21010004, 0.65 mi west of Central Machete. 0.75 mi northwest of Playita Machete, 2 mi south of the intersection of Hwy 15 with Hwy 3, and 1.13 mi southeast of intersection of Hwy 710 with Hwy 3, Name: Barranca Dug Well, Guayama.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Hand-dug unused water-table well, diameter 9 in (0.23 m). Depth 38 ft (11.7 m).

DATUM.--Elevation of land-surface datum is about 59.1 ft (18 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 5 ft (1.52 m), above land-surface datum.

REMARKS.--Observation well.

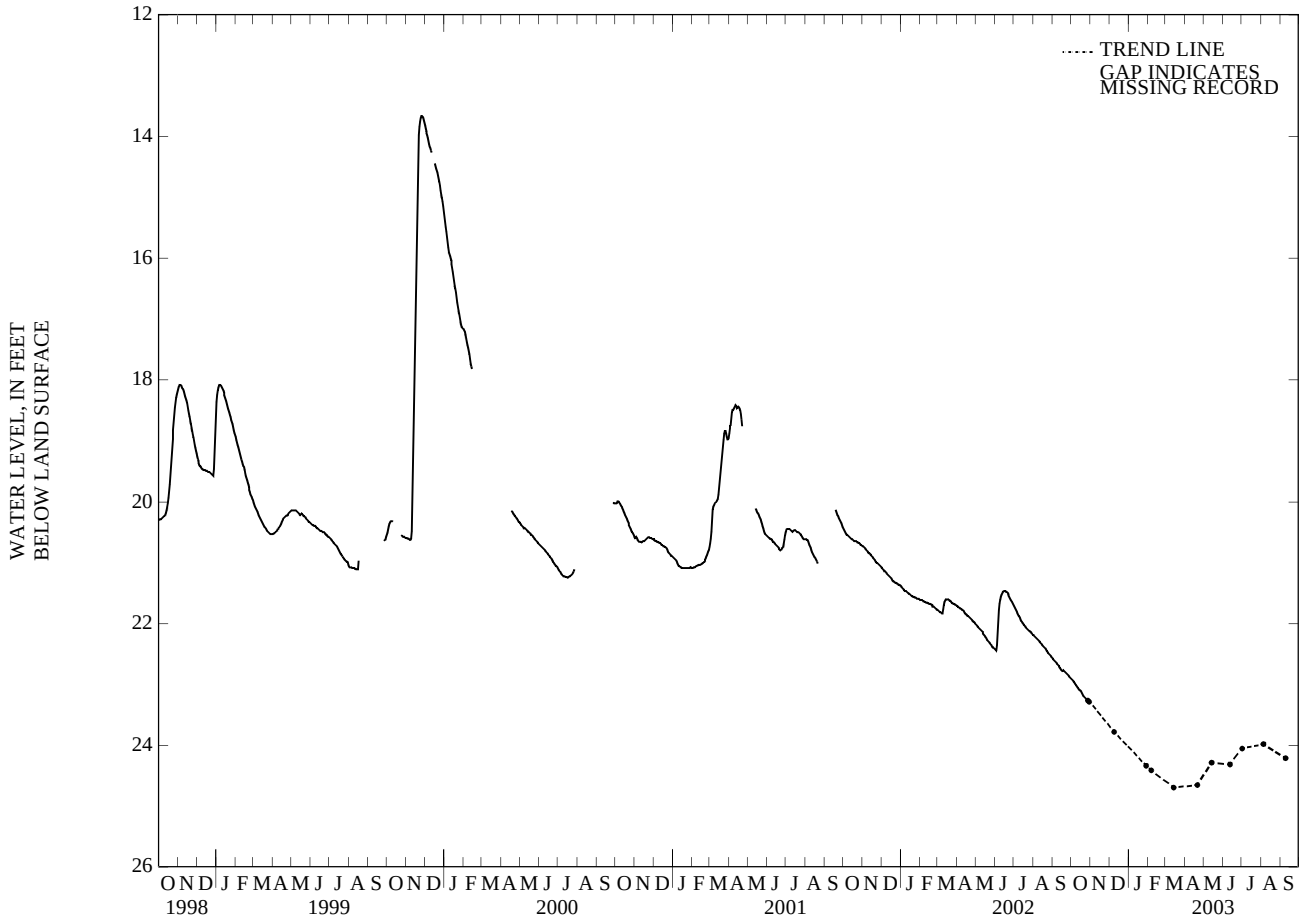
PERIOD OF RECORD.--April 3, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.66 ft (4.16 m), below land-surface datum, November 25, 26, 27, 1999; lowest water level measured, 24.69 ft (7.52 m), below land-surface datum, March 14, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	23.28	JAN 29	24.33	MAR 14	24.69	MAY 14	24.28	JULY 02	24.05	SEPT 09	94.21
DEC 09	23.78	FEB 06	24.41	APR 21	24.65	JUNE 12	24.31	AUG 05	23.98		

WATER YEAR 2003 HIGHEST 23.28 OCT 30, 2002 LOWEST 24.69 MAR 14, 2003



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175719066085500. Local number, 1230.

LOCATION.--Lat 17°57'20", long 66°09'02", Hydrologic Unit 2101004, 1 mi east of the intersection of Hwy 3 with Hwy 707, 0.28 mi south of Hwy 3, and 0.25 mi northwest of the Phillips Petroleum oil refinery, Name: Phillips Petroleum 13 Well, Guayama.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m). Depth 99 ft (30.2 m).

DATUM.--Elevation of land-surface datum is about 33 ft (10.1 m), above mean sea level, from topographic map. Measuring point: To p of 4 in (0.1 m) casing, 2.83 ft (0.86 m), above land-surface datum. Prior September 18, 2002, shelter floor on top of 4 in (0.1 m) casing, 3.21 ft (0.98 m), above land-surface datum.

REMARKS.--Observation well.

PERIOD OF RECORD.--September 25, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.47 ft (4.41 m), below land-surface datum, March 22, 24, 1993; lowest water level recorded, 31.22 ft (9.52 m), below land-surface datum, August 24, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 09	28.15	FEB 06	29.30	APR 21	27.99	JUNE 12	27.56	AUG 05	28.15	SEPT 10	25.64
JAN 08	28.87	MAR 14	30.10	MAY 14	25.87	JULY 02	26.69				

WATER YEAR 2003 HIGHEST 25.64 SEPT 10, 2003 LOWEST 30.10 MAR 14, 2003

RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175858066100200. Local number, 6.

LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2, Name: Juana 5 Well.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m), above mean sea level, from topographic map. Measuring point: Inner steel pipe, 3 ft (0.91 m), above land-surface datum. After August 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m), above land-surface datum.

REMARKS.--Observation well.

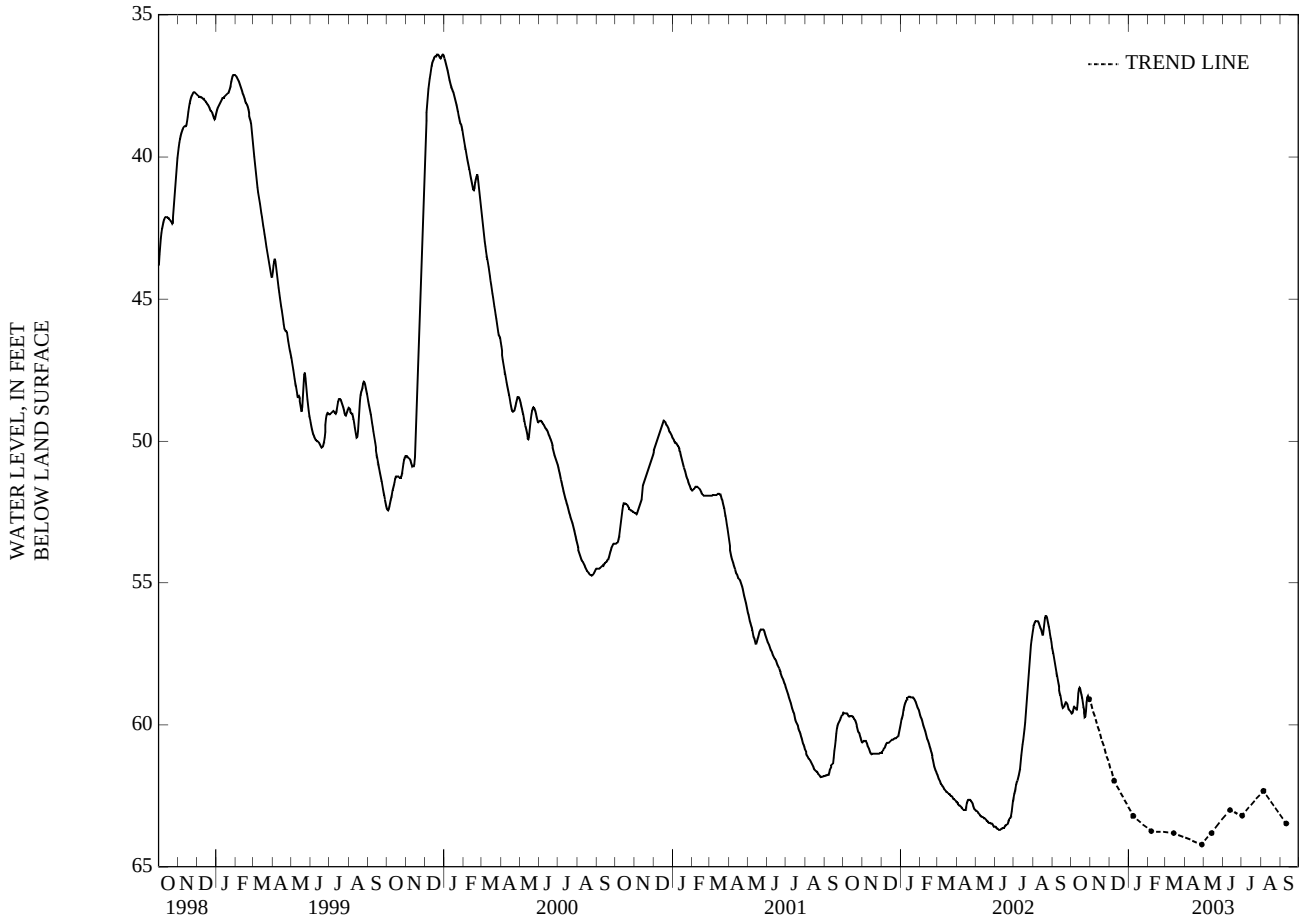
PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.2 ft (7.99 m), below land-surface datum, Decenber 10, 1979; lowest water level recorded, 65.95 ft (20.1 m), below land-surface datum, June 2, 1968.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	59.08	JAN 08	63.20	MAR 14	63.79	MAY 14	63.80	JULY 02	63.18	SEPT 10	63.46
DEC 09	61.96	FEB 06	63.73	APR 28	64.20	JUNE 12	62.99	AUG 05	62.32		

WATER YEAR 2003 HIGHEST 59.08 OCT 30, 2002 LOWEST 64.20 APR 28, 2003



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175947066130601. Local number, 1233.

LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.7 mi northeast of Central Aguirre Church, 6.16 mi northwest of Guayama School, and 2.7 mi northeast of Hwy 3 km 151.3, Name: Piezometer Aguirre HW 5B, Salinas.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52 ft (0-15.8 m), cased 4 in (0.1 m), 0-51 ft (0-15.5 m), screened 41-46 ft (12.5-14 m). Depth 51 ft (15.54 m), sounded depth measured on October 13, 2004.

INSTRUMENTATION.--Data collector platform--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 145 ft (44.2 m), above mean sea level. Measuring point: Hole on side of casing, 3 ft (0.91 m), above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.47 ft (1.06 m), above land-surface datum.

REMARKS.--Recording observation well. Electronic Data Logger (EDL), installed on April 15, 1998, replaced by a Data Collector Platform (DCP), installed on August 3, 2000.

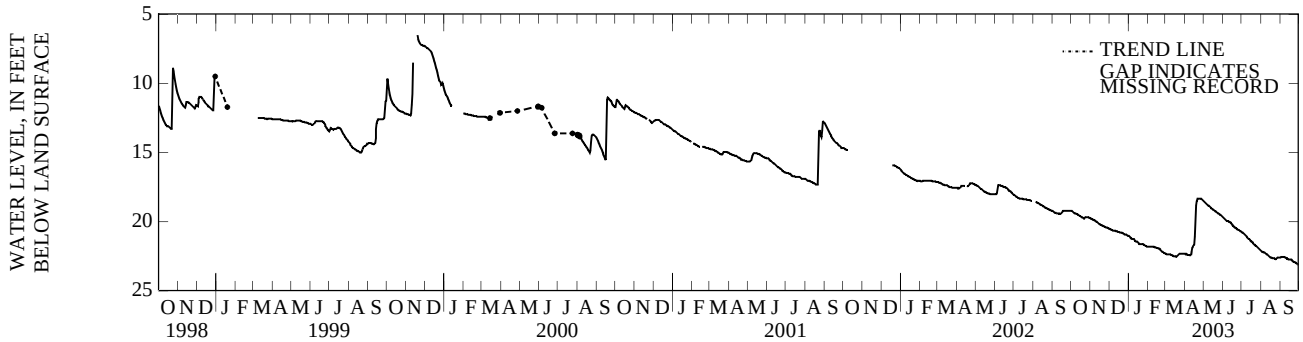
PERIOD OF RECORD.--April 13, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.55 ft (1.69 m), below land-surface datum, November 13, 1999; lowest water level recorded, 28.55 ft (8.7 m), below land-surface datum, August 14, 15, 1996.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.24	19.74	20.51	21.04	21.80	22.31	22.33	18.51	19.66	20.73	22.11	22.59
2	19.24	19.78	20.53	21.05	21.81	22.32	22.33	18.56	19.70	20.77	22.15	22.59
3	19.24	19.80	20.55	21.08	21.81	22.34	22.34	18.60	19.73	20.79	22.16	22.58
4	19.30	19.82	20.57	21.21	21.82	22.36	22.36	18.64	19.80	20.83	22.17	22.58
5	19.33	19.84	20.59	21.23	21.82	22.37	22.38	18.69	19.84	20.86	22.22	22.58
6	19.38	19.86	20.61	21.24	21.81	22.38	22.40	18.73	19.88	20.91	22.24	22.57
7	19.39	19.90	20.63	21.24	21.82	22.39	22.40	18.78	19.96	20.96	22.24	22.57
8	19.41	19.92	20.65	21.26	21.82	22.38	22.40	18.82	19.96	21.02	22.25	22.58
9	19.45	19.95	20.67	21.27	21.83	22.39	22.42	18.85	19.97	21.02	22.29	22.59
10	19.46	19.98	20.67	21.29	21.83	22.40	22.46	18.89	19.98	21.12	22.37	22.61
11	19.48	20.01	20.67	21.40	21.84	22.44	22.46	18.92	20.01	21.21	22.39	22.65
12	19.49	20.05	20.68	21.42	21.85	22.44	22.40	18.96	20.02	21.25	22.40	22.67
13	19.55	20.07	20.70	21.42	21.88	22.45	22.00	19.00	20.06	21.28	22.42	22.70
14	19.56	20.12	20.70	21.45	21.88	22.48	21.86	19.03	20.09	21.28	22.51	22.73
15	19.58	20.16	20.73	21.46	21.90	22.52	21.77	19.06	20.17	21.36	22.56	22.74
16	19.64	20.19	20.76	21.47	21.91	22.52	21.75	19.10	20.24	21.41	22.57	22.75
17	19.66	20.23	20.76	21.49	21.93	22.51	21.66	19.13	20.29	21.44	22.60	22.76
18	19.68	20.25	20.77	21.61	21.94	22.55	20.62	19.17	20.33	21.48	22.62	22.77
19	19.70	20.27	20.79	21.61	21.96	22.56	19.05	19.20	20.39	21.55	22.63	22.76
20	19.72	20.29	20.79	21.62	21.99	22.56	18.63	19.23	20.42	21.61	22.63	22.77
21	19.74	20.31	20.81	21.62	22.02	22.51	18.43	19.27	20.45	21.64	22.63	22.87
22	19.75	20.34	20.83	21.64	22.08	22.45	18.38	19.30	20.47	21.67	22.67	22.89
23	19.77	20.36	20.86	21.64	22.10	22.38	18.35	19.33	20.50	21.73	22.67	22.90
24	19.78	20.38	20.87	21.64	22.17	22.36	18.33	19.37	20.53	21.78	22.70	22.93
25	19.69	20.40	20.91	21.65	22.18	22.33	18.35	19.40	20.56	21.80	22.73	22.96
26	19.68	20.42	20.93	21.66	22.21	22.32	18.36	19.43	20.59	21.81	22.73	22.96
27	19.68	20.44	20.93	21.66	22.25	22.32	18.36	19.47	20.62	21.92	22.69	23.01
28	19.68	20.46	20.93	21.78	22.28	22.32	18.37	19.50	20.65	21.93	22.64	23.07
29	19.69	20.47	20.98	21.78	---	22.33	18.41	19.54	20.68	21.95	22.61	23.08
30	19.70	20.49	21.01	21.79	---	22.32	18.44	19.56	20.71	22.01	22.60	23.15
31	19.72	---	21.02	21.80	---	22.32	---	19.62	---	22.06	22.59	---
MEAN	19.56	20.14	20.76	21.47	21.95	22.41	20.66	19.09	20.21	21.39	22.48	22.77

WTR YR 2003 MEAN 21.07 HIGHEST 18.33 APR 24, 2003 LOWEST 23.15 SEPT 30, 2003



RIO HUMACAO TO QUEBRADA AGUAS VERDES BASINS—Continued

175814066102200. Local number, 1239.

LOCATION.--Lat 17°58'14", long 66°10'22", Hydrologic Unit 21010004, 1 mi northwest of Jobos community, 3.8 mi east of Colegio del Perpetuo Socorro, and 3.5 mi northeast of Central Aguirre, Name: Jobos Well, Guayama.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 11 in (0.24 m). Depth 63 ft (19.2 m).

DATUM.--Elevation of land-surface datum is about 59 ft (18 m), above mean sea level, from topographic map. Measuring point: On shelter floor, 2.86 ft (0.87 m), above land-surface datum.

REMARKS.--Observation well.

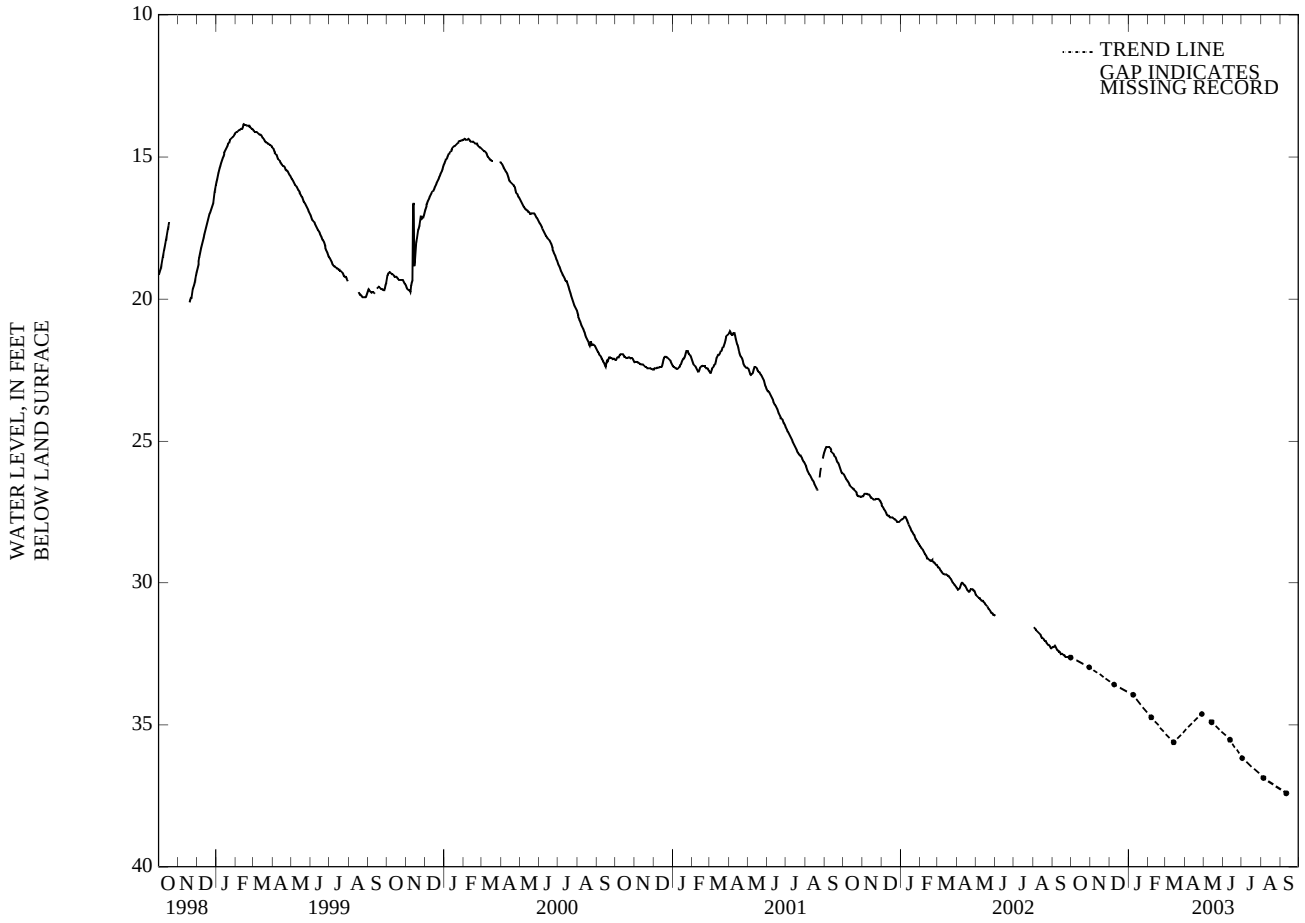
PERIOD OF RECORD.--April 2, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.14 ft (1.87 m), below land-surface datum, October 18, 1998; lowest water level measured, 37.39 ft (11.4 m), below land-surface datum, September 10, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	32.96	JAN 08	33.93	MAR 14	35.61	MAY 14	34.89	JULY 02	36.16	SEPT 10	37.39
DEC 09	33.58	FEB 06	34.73	APR 28	34.60	JUNE 12	35.52	AUG 05	36.86		

WATER YEAR 2003 HIGHEST 32.96 OCT 30, 2002 LOWEST 37.39 SEP 10, 2003



RIO SALINAS TO RIO JACAGUAS BASINS

175809066133100. Local number, 1251.

LOCATION.--Lat 17°58'09", long 66°13'31", Hydrologic Unit 21010004, 0.49 mi southwest of the intersection of Hwy 706 with Hwy 3, 0.3 mi south of Hwy 3, and 0.12 mi east of Hwy 705, Name: Coqui Battery 1 Well, Salinas.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in (0.46 m). Depth 200 ft (60.96 m), sounded depth measured on October 13, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is 16.4 ft (5 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 1.33 ft (0.41 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on March 6, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 27, 1999. Well is affected by nearby pumping. From October 1 2001 to February 12, 2002, tapedowns measurements only.

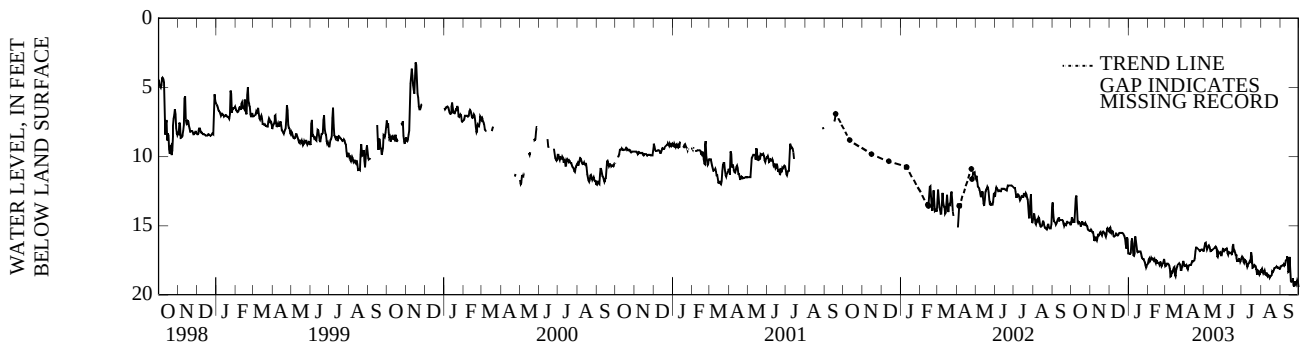
PERIOD OF RECORD.--March 6, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.04 ft (0.32 m), below land-surface datum, November 10, 1999; lowest water level recorded, 19.97 ft (6.09 m), below land-surface datum, September 23, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.17	15.42	15.50	16.92	17.71	17.95	17.83	16.92	16.75	17.38	18.24	18.02
2	14.32	15.30	15.45	17.07	17.67	17.99	17.87	16.72	16.55	17.24	18.29	17.90
3	14.42	15.28	15.01	17.03	17.24	17.82	17.98	16.34	16.88	17.21	18.10	17.95
4	14.64	15.46	15.26	16.99	17.46	17.77	17.90	16.26	16.69	17.40	18.12	17.92
5	14.78	15.44	15.52	16.85	17.64	17.72	17.82	16.23	16.69	17.82	18.45	17.85
6	14.67	15.46	15.47	15.44	17.27	17.78	18.27	16.79	16.74	17.54	18.44	17.87
7	14.78	16.04	15.29	16.38	17.32	17.78	18.03	16.65	16.67	17.40	18.21	17.68
8	13.21	16.20	15.56	16.79	17.49	17.93	17.84	16.49	16.65	17.57	18.27	18.02
9	12.82	15.75	15.89	17.42	17.39	18.29	17.85	16.43	17.24	17.49	18.79	17.50
10	12.85	15.85	15.64	16.88	17.45	19.10	17.84	16.47	16.93	18.10	18.35	17.58
11	14.63	16.07	15.92	17.09	17.52	18.20	17.84	16.58	16.85	17.83	18.44	17.43
12	14.76	16.09	15.56	15.53	17.29	18.42	17.76	16.88	17.03	17.79	18.66	17.36
13	14.87	15.58	15.55	16.02	17.79	18.31	17.58	16.92	16.95	17.72	18.62	17.09
14	14.54	15.69	15.65	16.18	17.56	18.10	17.50	16.77	16.90	17.59	18.55	17.49
15	14.94	15.65	15.69	16.74	17.47	18.02	17.56	16.72	16.96	17.52	18.67	19.26
16	14.77	15.52	15.68	16.96	17.62	18.02	17.58	16.77	17.27	17.65	18.86	17.39
17	15.28	15.46	15.52	16.96	17.78	19.06	17.54	16.73	15.76	16.27	18.46	17.17
18	14.39	15.42	15.51	16.86	17.61	18.22	17.07	16.72	16.94	18.15	18.84	19.04
19	14.96	15.74	15.47	16.82	17.75	18.09	16.62	16.60	16.75	17.95	18.35	18.90
20	14.73	15.61	15.51	16.83	17.85	17.93	16.54	16.56	16.82	18.17	18.25	19.23
21	14.87	15.37	15.53	16.82	17.63	17.85	16.63	16.55	17.08	17.80	18.37	18.86
22	14.74	15.47	15.50	17.11	17.58	17.80	16.61	16.48	17.19	17.88	18.13	18.72
23	15.05	15.44	15.50	17.32	17.90	17.75	16.71	16.71	17.04	17.86	18.04	19.82
24	14.76	15.53	15.58	17.38	17.89	17.68	16.71	17.72	17.59	17.93	18.03	19.01
25	14.90	15.77	15.70	17.45	17.77	17.99	16.81	16.84	17.50	18.32	18.04	19.02
26	14.98	15.78	15.75	17.36	17.77	18.40	16.84	16.96	17.56	18.61	17.94	19.29
27	14.91	15.40	16.12	17.69	17.43	18.01	16.75	17.02	17.51	18.29	18.00	19.24
28	15.21	15.06	16.52	17.56	17.37	17.95	16.73	16.94	17.26	18.16	18.08	18.87
29	15.31	15.28	16.76	18.13	---	17.63	16.69	16.96	17.61	18.43	17.89	19.02
30	15.32	15.29	14.89	17.85	---	17.44	16.72	17.30	17.53	18.60	18.09	19.10
31	15.31	---	17.01	17.89	---	18.02	---	16.93	---	18.24	18.14	---
MEAN	14.67	15.58	15.66	16.98	17.58	18.03	17.33	16.74	17.00	17.80	18.31	18.32

WTR YR 2003 MEAN 17.00 HIGHEST 12.40 OCT 10, 2002 LOWEST 19.90 SEPT 23, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

180104066152300. Local number, 1253.

LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8 mi southeast of Coamo plaza, 1.07 mi northeast of Coco School, and 0.7 mi southwest of Sabana Llana School. Owner: US Geological Survey, WRD, Name: Piezometer RM 10, Salinas.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.1 m), cased 4 in (0.1 m), 0-37 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37 ft (11.3 m).

DATUM.--Elevation of land-surface datum is about 164 ft (50 m), above mean sea level. Measuring point: Top of shelter floor, 3.62 ft (1.1 m), above land-surface datum.

REMARKS.--Observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 3, 1998, removed on September 30, 2002.

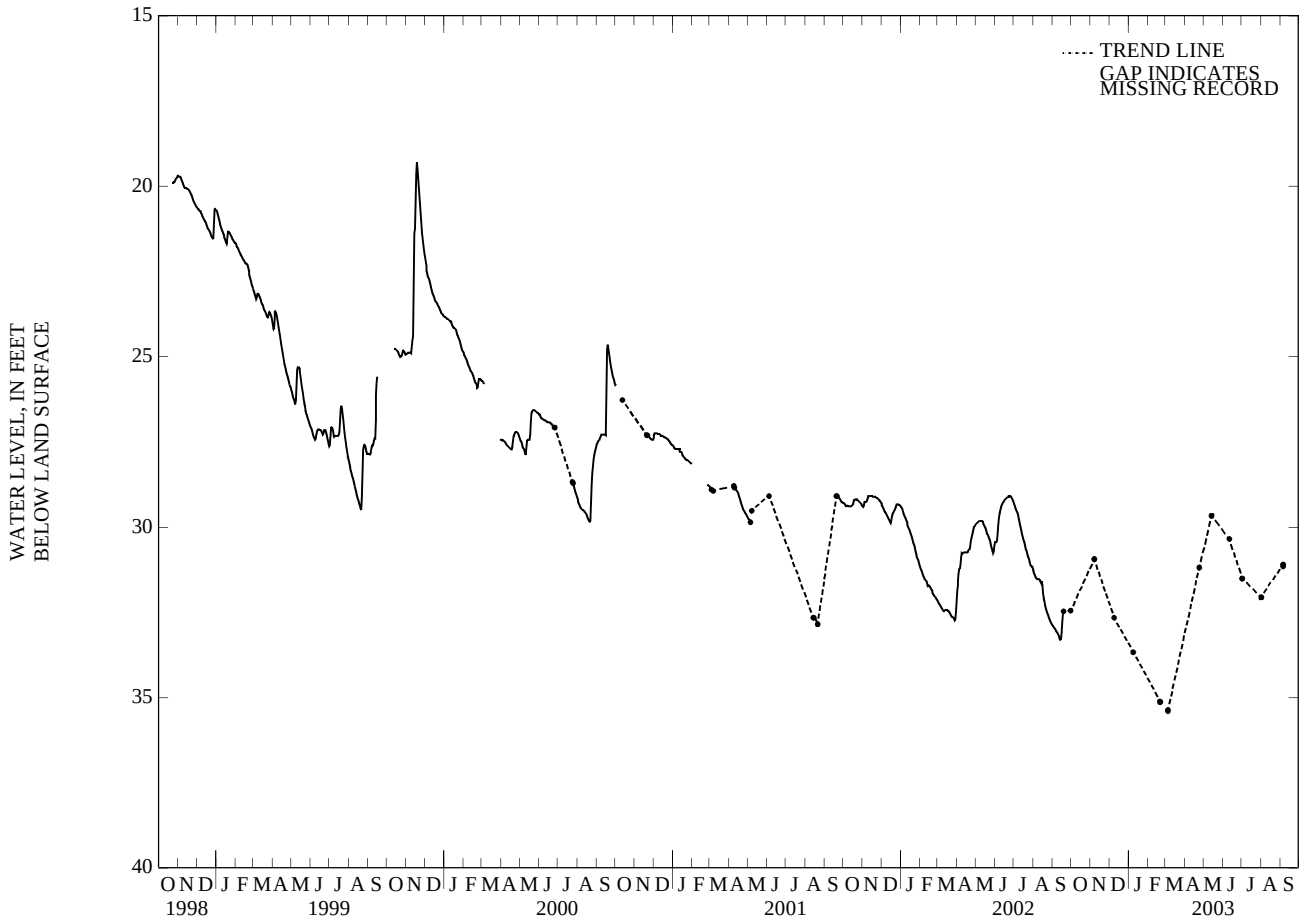
PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18 ft (5.49 m), below land-surface datum, November 9, 1990; lowest water level recorded, well dray from September 14 to October 5, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 07	30.93	JAN 08	33.66	MAR 05	35.39	MAY 14	29.66	JULY 02	31.51	SEPT 05	31.15
NOV 07	30.95	FEB 20	35.11	MAR 05	35.35	JUNE 11	30.35	AUG 01	32.06	SEPT 05	31.09
DEC 09	32.66	FEB 20	35.13	APR 24	31.16	JULY 02	31.50	SEPT 05	31.10		

WATER YEAR 2003 HIGHEST 29.66 MAY 14, 2003 LOWEST 35.35 MAR 05, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175910066155500. Local number, 1254.

LOCATION.--Lat 17°59'10", long 66°15'55", Hydrologic Unit 21010004, 0.55 mi south of Hwy 52, 0.92 mi north of the Salinas Speedway, and 2.27 mi northeast of the intersection of Hwy 1 with Hwy 3, Name: Piezometer USGS, Salinas.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), 0-86 ft (0-26.2 m). Depth 77 ft (23.5 m), sounded depth measured on October 6, 2004.

INSTRUMENTATION.--Pressure transducer with integrated electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 73 ft (22.3 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.4 ft (1.04 m), above land-surface datum.

REMARKS.--recording observation well. Automated Digital Recorder (ADR), installed on February 19, 1997. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on August 17, 1999.

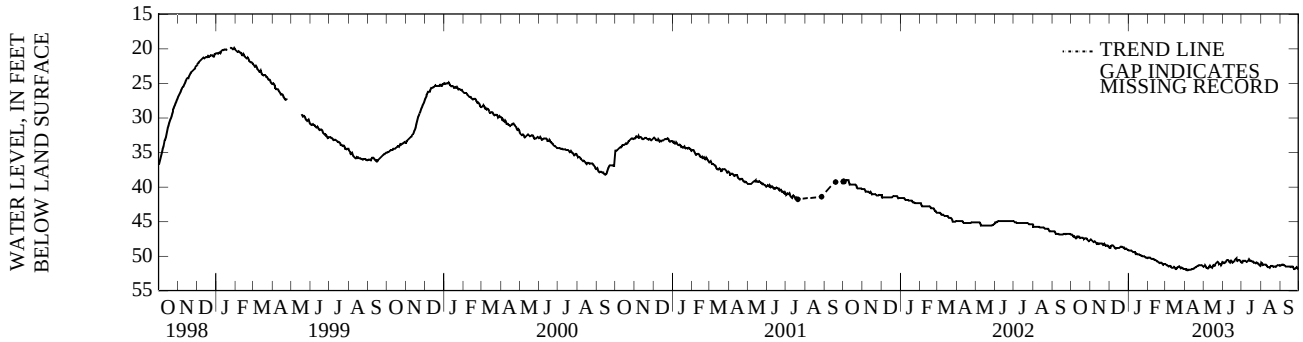
PERIOD OF RECORD.--February 19, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.7 ft (6 m), below land-surface datum, January 24, 25, 1999; lowest water level recorded, 52.19 ft (15.9 m) below land-surface datum, April 7, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.87	47.83	48.60	49.08	50.32	51.12	51.84	51.56	50.83	50.90	51.06	51.53
2	46.85	47.63	48.70	49.22	50.21	51.13	51.88	51.66	51.10	50.92	50.98	51.33
3	46.92	47.60	48.99	49.18	50.21	51.41	51.91	51.37	51.06	50.96	50.93	51.28
4	46.92	47.78	48.61	49.17	50.21	51.29	52.12	51.33	50.91	50.65	51.24	51.28
5	47.33	47.91	48.52	49.19	50.28	51.32	51.98	51.60	51.09	50.72	51.33	51.24
6	47.07	47.95	48.48	49.20	50.34	51.51	51.92	51.76	50.88	50.65	51.20	51.27
7	47.25	48.02	48.46	49.35	50.42	51.54	52.19	51.67	50.70	50.71	51.23	51.28
8	47.32	47.88	48.52	49.40	50.38	51.40	52.00	51.82	50.62	50.65	51.18	51.33
9	47.57	47.93	48.60	49.49	50.40	51.35	51.97	51.66	50.62	50.84	51.28	51.56
10	47.33	47.96	48.76	49.52	50.48	51.44	51.97	51.53	50.58	50.82	51.22	51.53
11	47.20	48.13	48.93	49.41	50.46	51.70	51.97	51.41	50.78	50.86	51.49	51.45
12	47.16	48.37	48.95	49.42	50.53	51.76	51.95	51.41	51.01	50.66	51.58	51.52
13	47.09	48.07	48.92	49.74	50.58	51.62	51.91	51.75	50.85	50.57	51.64	51.48
14	47.18	48.22	48.83	49.66	50.66	51.83	51.87	51.46	50.70	50.49	51.48	51.50
15	47.52	48.26	48.81	49.71	50.70	51.60	51.85	51.66	50.57	50.78	51.73	51.49
16	47.42	48.18	48.79	49.74	50.78	51.68	51.84	51.66	50.87	50.63	51.57	51.48
17	47.32	48.20	48.77	49.80	50.81	51.73	51.81	51.33	50.99	50.70	51.51	51.56
18	47.35	48.23	48.89	49.73	50.82	51.97	51.77	51.28	50.98	50.77	51.49	51.52
19	47.32	48.13	48.74	49.75	51.05	51.73	51.69	51.52	50.78	50.81	51.42	51.73
20	47.30	48.19	48.69	49.85	51.10	51.69	51.60	51.30	50.58	50.75	51.48	51.53
21	47.52	48.38	48.65	49.90	50.88	51.62	51.52	51.18	50.53	51.07	51.62	51.48
22	47.58	48.43	48.63	49.96	50.96	51.57	51.46	51.03	50.39	50.90	51.54	51.55
23	47.66	48.31	48.78	49.98	50.87	51.54	51.43	51.02	50.38	50.94	51.48	51.82
24	47.45	48.28	48.76	50.02	50.94	51.55	51.38	50.91	50.62	51.17	51.49	51.91
25	47.42	48.62	48.78	49.99	51.20	51.61	51.34	50.86	50.75	50.97	51.61	51.88
26	47.44	48.53	48.97	50.02	51.29	51.88	51.32	51.12	50.79	50.99	51.54	51.94
27	47.40	48.54	48.98	50.04	51.34	51.61	51.28	51.26	50.61	51.01	51.48	51.61
28	47.83	48.39	48.92	50.14	51.20	51.79	51.34	50.99	50.52	51.09	51.37	51.61
29	47.62	48.55	48.92	50.20	---	51.75	51.38	51.30	50.56	51.32	51.34	51.71
30	47.97	48.66	49.06	50.19	---	51.84	51.42	51.25	50.86	51.37	51.30	51.96
31	47.74	---	49.17	50.22	---	51.87	---	50.94	---	51.41	51.29	---
MEAN	47.35	48.17	48.78	49.69	50.69	51.60	51.73	51.37	50.75	50.87	51.39	51.55

WTR YR 2003 MEAN 50.32 HIGHEST 46.75 OCT 1-2, 2002 LOWEST 52.19 APR 7, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175903066165000. Local number, 1256.

LOCATION.--Lat 17°59'03", long. 66°16'50", Hydrologic Unit 21010004, 0.42 mi north of Hwy 3, 0.6 mi southeast of the intersection of Hwy 1 with Hwy 52, and 1.56 mi northeast of Punta Salinas, Name: Godreau 7 Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-120 ft (0-36.6 m), perfo rated 30-120 ft (9.1-36.6 m). Depth 166 ft (50.6 m), sounded depth measured on October 6, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 54 ft (16.5 m), above mean sea level, from topographic map. Measuring point: Sh elter floor on top of 20 in (0.5 m) casing, 3.63 ft (1.11 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed o n June 3, 1998.

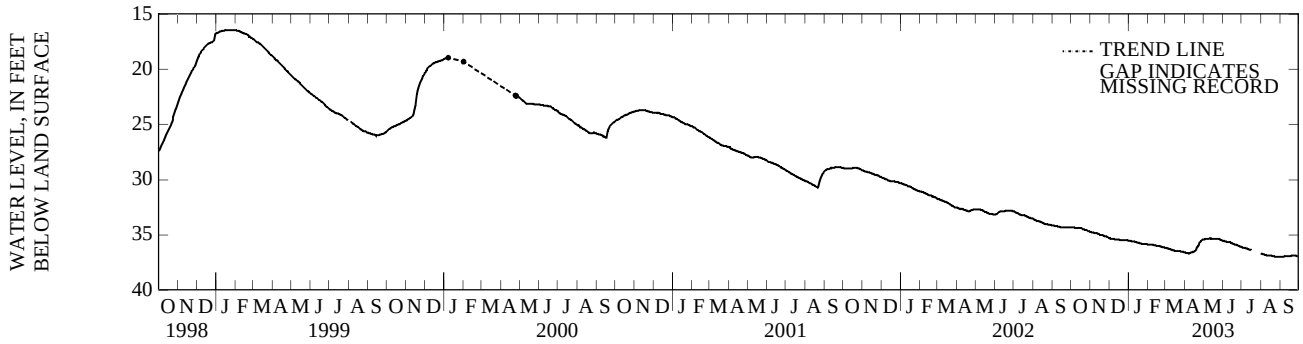
PERIOD OF RECORD.--September 25, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.46 ft (5.02 m), below land-surface datum, January 27, 28 1999; lowest water level recorded, 36.96 ft (11.26 m), below land-surface datum, August 25 to September 6, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.33	34.69	35.25	35.50	35.85	36.14	36.56	35.42	35.51	36.07	36.70	36.95
2	34.33	34.69	35.25	35.52	35.87	36.15	36.59	35.39	35.51	36.09	36.70	36.96
3	34.33	34.74	35.32	35.52	35.89	36.17	36.60	35.39	35.53	36.12	36.70	36.96
4	34.33	34.77	35.33	35.53	35.89	36.19	36.61	35.38	35.55	36.14	36.70	36.96
5	34.33	34.77	35.33	35.55	35.89	36.21	36.63	35.36	35.58	36.15	36.73	36.96
6	34.33	34.77	35.33	35.55	35.89	36.23	36.64	35.34	35.60	36.16	36.75	36.95
7	34.33	34.80	35.34	35.55	35.88	36.25	36.65	35.33	35.61	36.16	36.77	36.94
8	34.34	34.81	35.36	35.55	35.89	36.27	36.66	35.33	35.62	36.19	36.79	36.94
9	34.34	34.82	35.37	35.57	35.89	36.28	36.65	35.32	35.62	36.20	36.80	36.92
10	34.35	34.83	35.37	35.60	35.90	36.29	36.65	35.33	35.64	36.22	36.82	36.92
11	34.36	34.83	35.38	35.60	35.92	36.32	36.64	35.31	35.66	36.26	36.83	36.92
12	34.36	34.85	35.40	35.61	35.93	36.34	36.61	35.31	35.65	36.29	36.84	36.92
13	34.37	34.87	35.41	35.62	35.93	36.35	36.57	35.32	35.67	36.31	36.84	36.93
14	34.37	34.88	35.42	35.63	35.96	36.37	36.55	35.32	35.70	36.30	36.84	36.93
15	34.37	34.88	35.43	35.66	35.98	36.40	36.52	35.33	35.73	36.31	36.86	36.93
16	34.38	34.97	35.43	35.67	36.00	36.42	36.51	35.33	35.75	36.33	36.87	36.92
17	34.38	34.98	35.43	35.69	36.01	36.42	36.51	35.32	35.78	36.36	36.87	36.90
18	34.38	34.98	35.43	35.70	35.99	36.44	36.51	35.33	35.81	36.39	36.88	36.89
19	34.43	35.00	35.44	35.73	35.99	36.46	36.41	35.33	35.84	---	36.88	36.89
20	34.47	35.01	35.44	35.74	36.01	36.47	36.27	35.33	35.84	---	36.90	36.88
21	34.48	35.02	35.44	35.77	36.02	36.47	36.05	35.34	35.84	---	36.92	36.87
22	34.50	35.05	35.44	35.78	36.04	36.47	36.05	35.34	35.86	---	36.93	36.84
23	34.51	35.08	35.44	35.79	36.06	36.47	36.05	35.35	35.87	---	36.94	36.84
24	34.55	35.10	35.44	35.80	36.06	36.46	35.75	35.35	35.89	---	36.95	36.86
25	34.55	35.10	35.44	35.81	36.08	36.46	35.70	35.36	35.91	---	36.95	36.87
26	34.55	35.13	35.44	35.81	36.09	36.49	35.63	35.37	35.95	---	36.96	36.87
27	34.55	35.14	35.44	35.81	36.11	36.50	35.58	35.37	35.98	---	36.96	36.89
28	34.65	35.17	35.46	35.81	36.13	36.51	35.56	35.39	36.01	---	36.96	36.90
29	34.65	35.21	35.48	35.81	---	36.52	35.46	35.43	36.04	---	36.96	36.90
30	34.66	35.24	35.48	35.82	---	36.54	35.44	35.45	36.04	---	36.95	36.91
31	34.68	---	35.49	35.84	---	36.55	---	35.49	---	---	36.95	---
MEAN	34.44	34.94	35.40	35.68	35.97	36.37	36.29	35.36	35.75	---	36.85	36.91

WTR YR 2003MEAN35.83 HIGHEST 34.33 OCT 1 TO 7, 2002 LOWEST 36.96 AUG 25 TO SEPT 6, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175943066224800. Local number 1257.

LOCATION.--Lat 17°59'43", long 66°22'48", Hydrologic Unit 2101004, 0.74 mi east of Hwy 153, 1.45 mi northeast of Estación Santa Isabel, and 1.98 mi north of Hwy 1, Name: Paso Seco 7 Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter is 15 in (0.38 m). Depth 244 ft (74.37 m), sounded depth measured on October 6, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 89 ft (27.1 m) above mean sea level, from topographic map. Measuring point: Hole in horizontal steel pipe, 0.8 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on September 17, 1997. Water levels affected by nearby pumping wells. For water years 2001 and 2002, tapedowns measurements only.

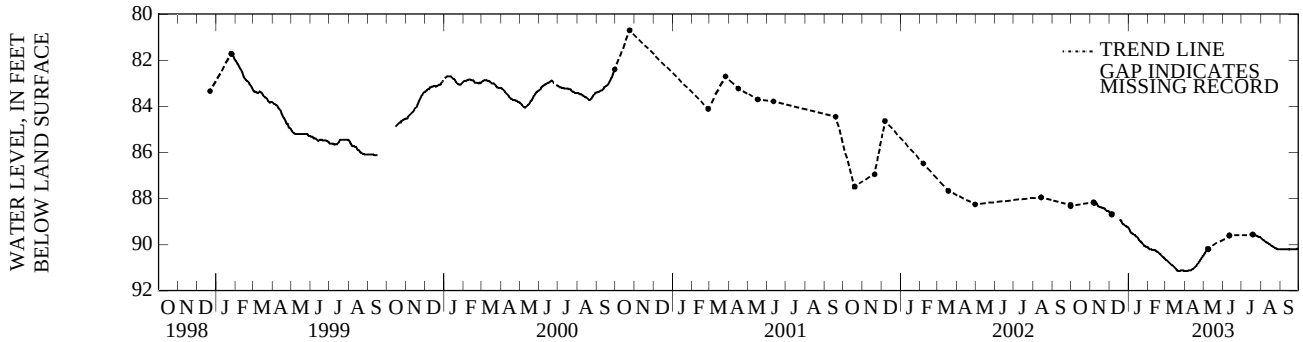
PERIOD OF RECORD.--March 27, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 81.11 ft (24.72 m) below land-surface datum, December 3, 4, 6, 7, 1992; lowest water level recorded, 101.28 ft (30.87 m) below land-surface datum, September 13, 1994.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	88.58	89.29	90.12	90.62	91.15	90.48	---	---	89.71	90.21
2	---	---	88.58	89.34	90.14	90.65	91.15	90.43	---	---	89.72	90.21
3	---	---	88.61	89.36	90.18	90.67	91.14	90.40	---	---	89.74	90.20
4	---	---	88.61	89.46	90.20	90.70	91.14	90.35	---	---	89.78	90.20
5	---	---	88.69	89.49	90.21	90.72	91.15	90.32	---	---	89.80	90.21
6	---	---	---	89.50	90.21	90.74	91.15	90.28	---	---	89.81	90.20
7	---	88.19	---	89.52	90.22	90.77	91.14	90.25	---	---	89.83	90.20
8	---	88.20	---	89.53	90.22	90.80	91.13	90.21	---	---	89.85	90.20
9	---	88.22	---	89.55	90.22	90.82	91.13	---	---	---	89.88	90.20
10	---	88.23	---	89.56	90.22	90.85	91.12	---	---	---	89.89	90.20
11	---	88.24	---	89.58	90.23	90.88	91.12	---	---	---	89.91	90.20
12	---	88.24	---	89.60	90.24	90.90	91.11	---	---	---	89.93	90.20
13	---	88.33	---	89.63	90.25	90.92	91.10	---	---	---	89.94	90.20
14	---	88.33	---	89.64	90.28	90.95	91.08	---	---	---	89.96	90.21
15	---	88.35	---	89.66	90.30	90.98	91.06	---	---	---	89.98	90.21
16	---	88.37	---	89.67	90.31	91.00	91.04	---	---	---	90.00	90.22
17	---	88.38	---	89.75	90.33	91.03	91.02	---	---	---	90.02	90.22
18	---	88.38	88.92	89.78	90.35	91.06	90.99	---	---	89.57	90.04	90.21
19	---	88.39	88.94	89.83	90.38	91.09	90.96	---	---	89.57	90.06	90.20
20	---	88.40	88.94	89.85	90.40	91.12	90.93	---	---	89.57	90.08	90.21
21	---	88.41	88.97	89.86	90.41	91.13	90.88	---	---	89.57	90.09	90.20
22	---	88.42	89.09	89.90	90.44	91.14	90.85	---	---	89.58	90.10	90.20
23	---	88.43	89.10	89.94	90.46	91.14	90.81	---	---	89.60	90.13	90.20
24	---	88.44	89.12	89.97	90.49	91.15	90.77	---	---	89.60	90.15	90.20
25	---	88.51	89.14	90.00	90.51	91.14	90.73	---	---	89.62	90.16	90.19
26	---	88.51	89.16	90.04	90.54	91.13	90.68	---	---	89.64	90.17	90.20
27	---	88.53	89.20	90.06	90.56	91.13	90.65	---	---	89.64	90.19	90.19
28	---	88.53	89.20	90.08	90.59	91.12	90.60	---	---	89.66	90.19	90.19
29	---	88.54	89.21	90.09	---	91.12	90.56	---	---	89.66	90.20	90.19
30	---	88.57	89.22	90.09	---	91.14	90.52	---	---	89.68	90.21	90.18
31	---	---	89.23	90.10	---	91.15	---	---	---	89.69	90.21	---
MEAN	---	---	---	89.73	90.32	90.96	90.96	---	---	---	89.99	90.20

WTR YR 2003 MEAN 90.02 HIGHEST 88.17 NOV 6, 2002 LOWEST 91.17 APR 1, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	88.16	JAN 22	89.91	FEB 13	90.25	MAY 08	90.20	JULY 18	89.57
DEC 05	88.68	JAN 28	90.05	APR 02	91.14	JUNE 11	89.62	AUG 04	89.76

WATER YEAR 2003 HIGHEST 88.16 NOV 06, 2002 LOWEST 90.25 FEB 13, 2003

RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175829066232200. Local number, 87.

LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.1 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Playita Cortada School, and 1.07 mi southeast of Estación Experimental Santa Isabel, Name: Alomar 1 Well.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 105 ft (32 m), sounded depth measured on October 6, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 35.3 ft (10.8 m), above mean sea level. Measuring point: Bottom of clean-out shelter door, 2.5 ft (0.76 m), above land-surface datum. Prior August 1981, top of recorder shelter floor, 4 ft (1.22 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on December 16, 1997.

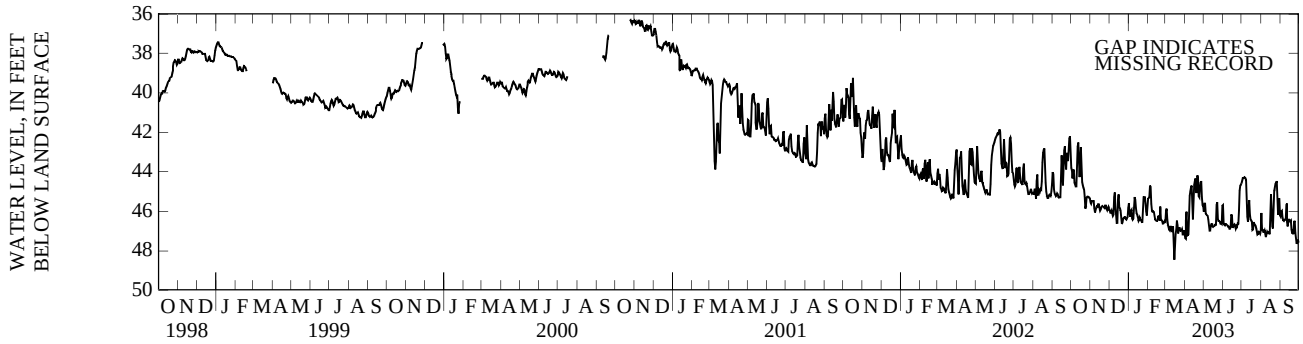
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m), below land-surface datum, December 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.85	45.42	46.07	45.24	45.28	46.48	47.38	45.95	44.83	44.64	46.77	46.19
2	43.73	45.67	45.85	46.00	45.46	46.57	47.37	46.09	46.60	44.48	45.39	46.32
3	44.11	45.54	46.00	46.20	45.27	45.42	47.39	45.12	46.63	44.38	46.94	45.75
4	44.58	45.45	46.11	46.38	45.26	46.33	45.59	46.08	46.74	44.27	46.94	46.27
5	43.32	45.48	46.02	45.64	44.12	46.51	46.50	46.09	46.68	44.37	46.96	46.39
6	44.49	45.48	45.93	46.23	45.44	46.88	47.17	46.22	46.63	44.28	47.13	46.50
7	44.61	45.48	46.28	46.45	45.86	46.75	47.29	46.14	46.69	44.26	46.97	46.47
8	44.69	46.23	46.14	46.39	46.10	47.10	47.08	46.32	46.67	44.35	46.98	46.35
9	44.77	45.92	46.15	46.29	45.98	46.83	45.39	46.54	46.78	44.44	47.34	46.47
10	44.71	45.94	44.45	45.36	46.00	46.68	45.06	46.80	46.79	46.21	47.23	46.40
11	42.84	45.65	45.64	45.33	46.05	47.02	44.90	47.14	46.79	46.37	47.03	44.98
12	42.59	45.80	45.97	45.26	46.41	46.97	44.72	46.81	46.95	46.71	47.06	46.25
13	42.44	45.72	46.42	45.59	46.43	47.02	44.71	46.70	46.77	44.96	47.15	46.83
14	44.09	45.56	46.73	46.08	46.49	46.56	46.25	46.74	46.79	45.91	47.03	46.70
15	44.49	45.73	46.41	46.12	46.51	48.46	46.58	46.56	45.55	46.43	46.98	46.38
16	42.81	45.89	44.51	46.22	46.44	48.47	44.79	46.73	46.87	46.44	47.36	46.39
17	42.70	46.03	45.79	46.39	46.31	47.13	44.57	46.84	46.80	46.48	45.31	46.56
18	44.51	45.78	45.82	46.56	46.20	47.21	44.41	46.77	46.77	46.57	44.98	46.48
19	44.49	45.86	45.86	46.26	46.41	46.69	44.27	46.80	46.65	47.39	46.63	46.51
20	44.83	45.70	46.05	46.40	46.56	46.28	45.77	46.64	46.68	46.51	46.84	47.35
21	44.78	45.81	46.62	46.47	45.25	47.15	44.26	46.75	46.89	46.60	46.88	46.94
22	44.99	45.75	46.67	46.43	46.29	47.15	44.09	46.58	46.86	46.67	45.01	47.14
23	44.79	45.85	46.45	46.58	46.48	46.65	44.61	44.78	46.69	46.66	44.90	47.21
24	45.69	45.80	46.34	46.61	46.42	46.95	45.84	46.33	46.69	46.84	44.68	45.86
25	46.02	45.64	46.34	45.25	46.55	46.97	44.74	46.43	46.80	46.94	44.56	47.10
26	45.41	45.77	46.23	45.30	46.65	47.06	44.86	46.53	46.46	47.14	44.52	47.09
27	45.24	45.96	46.36	45.27	46.57	46.90	44.22	46.45	46.78	47.24	44.45	47.70
28	45.24	45.89	46.39	45.28	46.50	46.91	44.74	46.60	45.14	47.07	46.14	47.58
29	45.29	45.78	46.46	45.93	---	47.40	45.84	46.60	44.77	47.03	46.25	47.45
30	45.30	45.75	46.25	46.12	---	46.95	45.54	46.63	44.64	47.08	44.53	47.39
31	45.30	---	46.42	46.34	---	46.98	---	46.67	---	47.18	46.22	---
MEAN	44.41	45.74	46.09	46.00	46.05	46.92	45.53	46.43	46.45	46.00	46.23	46.63

WTR YR 2003MEAN46.04 HIGHEST 42.13 OCT 1, 2002 LOWEST 48.64 MAR 15, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

180020066261500. Local number, 1258.

LOCATION.--Lat 18°00'20", long 66°26'15", Hydrologic Unit 21010004, 1.04 mi north of the intersection of Hwy 536 with Hwy 1, 0.6 mi northwest of Central Cortada, and 0.1 mi west of Hwy 536, Name: Cabrera 1 Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in (0.46 m). Depth 71 ft (21.6 m).

DATUM.--Elevation of land-surface datum is about 65.6 ft (20 m), above mean sea level, from topographic map. Measuring point: Hole in horizontal plexiglass plate, 3.14 ft (0.95 m), above land-surface datum. Prior October 4, 1999, 3.12 ft (0.95 m), above land-surface datum.

REMARKS.--Observation well. Well level affected by nearby pumping well.

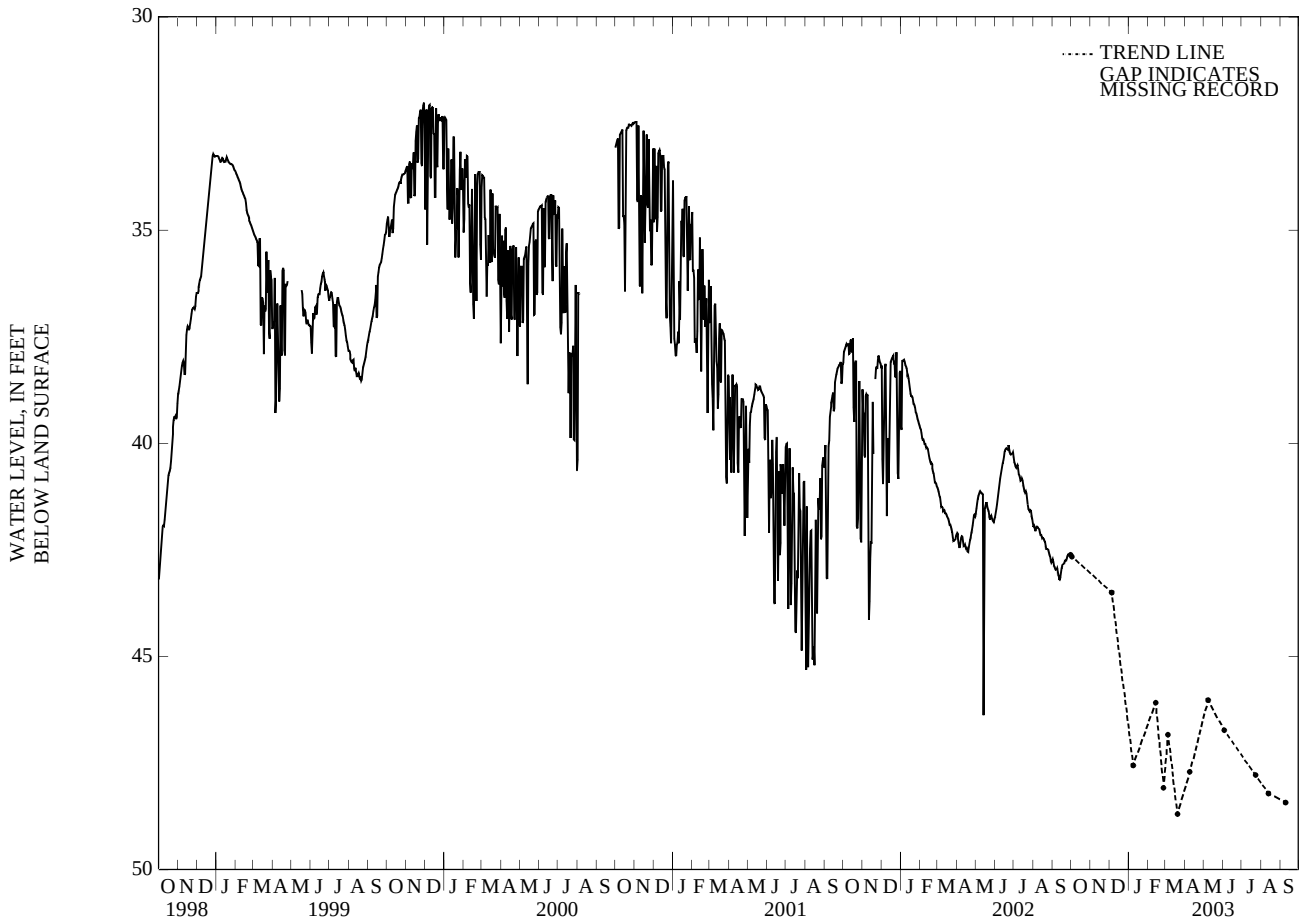
PERIOD OF RECORD.--March 18, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.93 ft (9.73 m), below land-surface datum, December 1, 1999; lowest water level recorded, 55 ft (16.8 m), below land-surface datum, April 14, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	42.66	FEB 13	46.09	MAR 20	48.70	JUNE 03	46.73	AUG 13	48.21
DEC 05	43.50	FEB 26	48.08	APR 09	47.71	JULY 23	47.78	SEPT 09	48.43
JAN 08	47.56	MAR 05	46.84	MAY 08	46.03				

WATER YEAR 2003 HIGHEST 42.66 OCT 02, 2002 LOWEST 48.70 MAR 20, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

180602066133100. Local number, 1260.

LOCATION.--Lat 18°06'02", long 66°13'31", Hydrologic Unit 21010004, 130 ft (39.62 m) north of Hwy 1 km. 68.9, 0.1 mi east of Hwy 162, and 4 mi west southwest of Cayey plaza, Name: Bauzá 1 Well.

AQUIFER.--Fractured rock Limestone.

WELL CHARACTERISTICS.--Unused production well, diameter 10 in (0.25 m), open screen 220-320 ft (67.1-97.5 m). Depth 320 ft (97.5 m).

DATUM.--Elevation of land-surface datum is about 2,178 ft (664 m), above mean sea level, from topographic map. Measuring point: Top of access hole, 0.49 ft (0.15 m), above land-surface datum.

REMARKS.--Observation well.

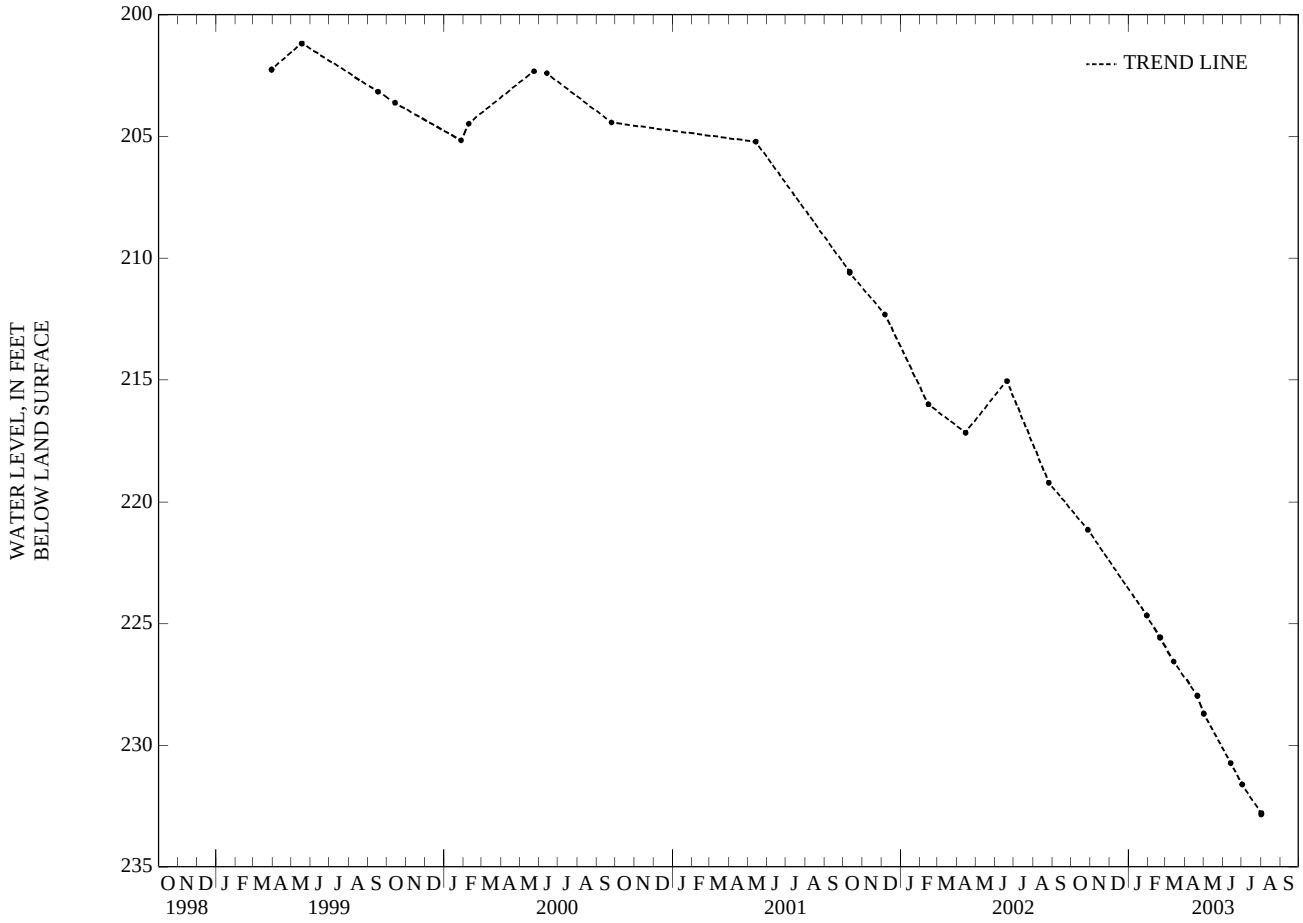
PERIOD OF RECORD.--October 20, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 201.2 ft (61.32 m), below land-surface datum, May 18, 1999; lowest water level measured, 232.84 ft (70.1 m), below land-surface datum, August 1, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	221.15	JAN 30	224.67	FEB 20	225.57	APR 21	227.95	MAY 01	228.69	JULY 02	231.60
JAN 30	224.66	FEB 20	225.56	MAR 14	226.56	APR 21	227.98	JUNE 13	230.72	AUG 01	232.84

WATER YEAR 2003 HIGHEST 221.15 OCT 28, 2002 LOWEST 232.94 AUG 01, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175833066145800. Local number, 1261.

LOCATION.--Lat 17°58'33", long 66°14'58", Hydrologic Unit 21010004, 0.3 mi north of Hwy 3, 1.3 mi west of Colegio del Perpetuo Socorro, and 2.2 mi northwest of Central Aguirre, Name: Piezometer A RASA.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), cased 0-154 ft (0-46.94 m). Depth 75 ft (22.9 m), sounded depth measured on October 15, 2004.

INTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 56 ft (17.07 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor 3.83 ft (1.17 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on June 2, 1998.

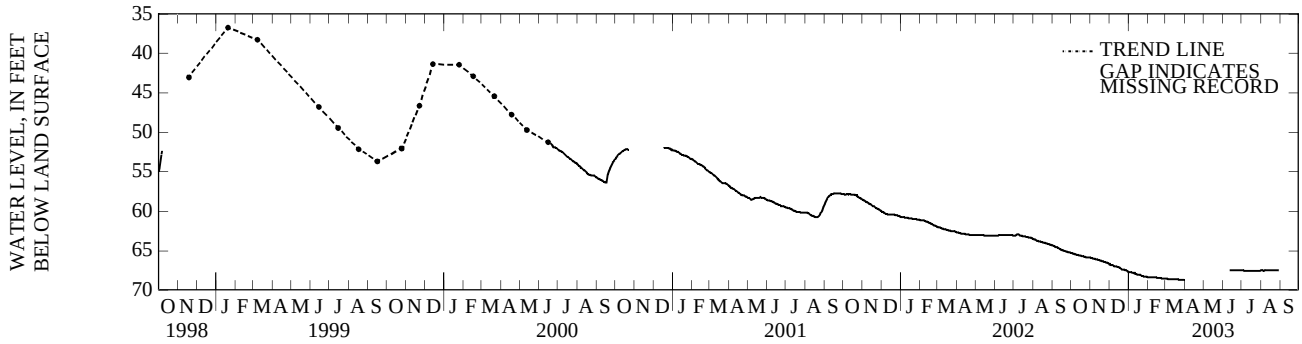
PERIOD OF RECORD.--September 17, 1992 to May 17, 1994, discontinued, January 15, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.75 ft (11.2 m), below land-surface datum, January 20, 1999; lowest water level recorded, 70.28 ft (21.42 m), below land-surface datum, October 1-7, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65.27	65.86	66.64	67.66	68.33	68.54	68.69	---	---	67.47	67.50	---
2	65.29	65.88	66.68	67.67	68.35	68.54	68.70	---	---	67.47	67.49	---
3	65.32	65.90	66.71	67.69	68.35	68.55	---	---	---	67.47	67.49	---
4	65.34	65.94	66.77	67.70	68.36	68.55	---	---	---	67.48	67.49	---
5	65.38	65.96	66.80	67.73	68.36	68.55	---	---	---	67.50	67.50	---
6	65.39	66.00	66.82	67.74	68.36	68.57	---	---	---	67.50	67.50	---
7	65.42	65.98	66.83	67.76	68.36	68.57	---	---	---	67.51	67.50	---
8	65.45	66.00	66.85	67.77	68.36	68.58	---	---	---	67.52	67.50	---
9	65.48	66.03	66.94	67.78	68.37	68.58	---	---	---	67.52	67.49	---
10	65.50	66.06	66.97	67.79	68.37	68.58	---	---	---	67.52	67.49	---
11	65.51	66.08	66.99	67.81	68.38	68.59	---	---	---	67.53	67.49	---
12	65.53	66.10	66.98	67.85	68.38	68.61	---	---	67.46	67.53	67.49	---
13	65.56	66.12	67.00	67.91	68.38	68.61	---	---	67.45	67.54	67.49	---
14	65.57	66.14	67.02	67.96	68.38	68.62	---	---	67.45	67.53	67.49	---
15	65.60	66.16	67.03	67.98	68.39	68.62	---	---	67.44	67.53	67.49	---
16	65.61	66.19	67.07	68.00	68.40	68.62	---	---	67.44	67.53	67.49	---
17	65.63	66.21	67.11	68.01	68.41	68.62	---	---	67.45	67.53	67.48	---
18	65.65	66.24	67.16	68.02	68.43	68.62	---	---	67.45	67.53	67.48	---
19	65.67	66.28	67.18	68.02	68.44	68.62	---	---	67.46	67.53	67.48	---
20	65.68	66.29	67.27	68.04	68.44	68.63	---	---	67.46	67.53	67.48	---
21	65.71	66.31	67.32	68.06	68.45	68.63	---	---	67.46	67.52	67.48	---
22	65.72	66.35	67.36	68.14	68.47	68.63	---	---	67.46	67.52	67.48	---
23	65.72	66.39	67.37	68.16	68.47	68.65	---	---	67.46	67.52	67.48	---
24	65.74	66.41	67.38	68.17	68.48	68.65	---	---	67.47	67.52	67.48	---
25	65.79	66.44	67.40	68.22	68.50	68.65	---	---	67.47	67.52	67.48	---
26	65.80	66.48	67.41	68.24	68.50	68.65	---	---	67.46	67.52	67.48	---
27	65.81	66.50	67.44	68.26	68.50	68.66	---	---	67.45	67.51	67.48	---
28	65.82	66.53	67.47	68.26	68.52	68.66	---	---	67.46	67.51	67.48	---
29	65.82	66.57	67.50	68.27	---	68.66	---	---	67.46	67.51	67.48	---
30	65.83	66.60	67.58	68.28	---	68.67	---	---	67.46	67.51	67.48	---
31	65.84	---	67.63	68.29	---	68.68	---	---	---	67.50	67.48	---
MEAN	65.60	66.20	67.12	67.98	68.41	68.61	---	---	---	67.51	67.49	---

WTR YR 2003 MEAN 67.37 HIGHEST 65.24 OCT 1, 2002 LOWEST 68.78 APR 2, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175735066151800. Local number, 1262.

LOCATION.--Lat 17°57'35", long 66°15'18", Hydrologic Unit 21010004, 1 mi southeast of Salinas Speedway, 1.3 mi northeast of dock at Las Mareas, and 3.1 mi southeast of Salinas plaza, Name: Piezometer C RASA.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.1 m), screen cased 22-82 ft (6.7-24.99 m). Depth 16 ft (4.87 m), sounded depth measured on October 15, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 20 ft (6.1 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 4.15 in (0.1 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on September 24, 1991, replaced by an Electron ic Data Logger (EDL), installed on June 2, 1998. Well is affected by nearby pumping.

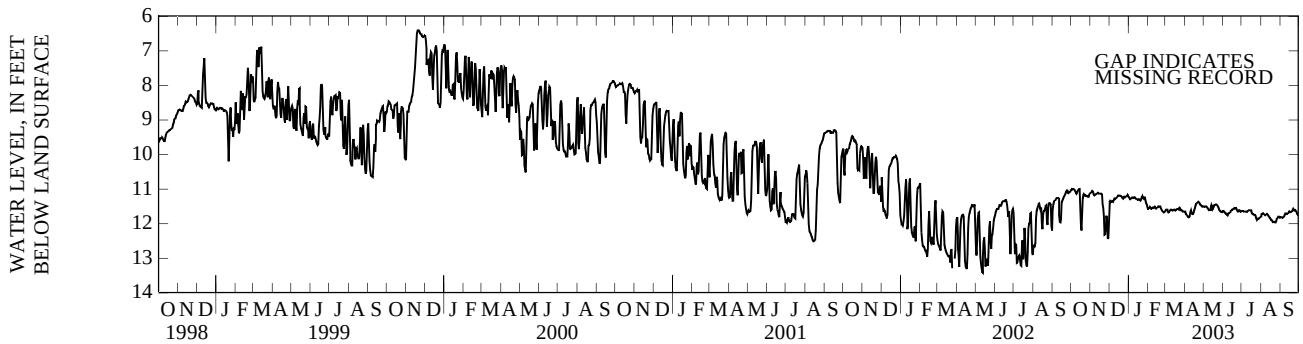
PERIOD OF RECORD.--September 24, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.36 ft (1.94 m), below land-surface datum, November 22, 1999; lowest water level recorded, 14.58 ft (4.44 m), below land-surface datum, June 25, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.06	11.14	11.56	11.25	11.56	11.65	11.64	11.50	11.65	11.68	11.79	11.84
2	11.01	11.13	11.38	11.25	11.59	11.62	11.67	11.52	11.63	11.62	11.76	11.81
3	11.01	11.09	11.35	11.29	11.58	11.62	11.73	11.54	11.65	11.64	11.72	11.81
4	11.03	11.08	11.36	11.30	11.52	11.58	11.74	11.52	11.67	11.64	11.73	11.83
5	10.98	11.04	11.41	11.29	11.53	11.62	11.74	11.49	11.70	11.66	11.72	11.85
6	11.03	11.12	11.35	11.26	11.60	11.69	11.78	11.51	11.70	11.66	11.71	11.83
7	11.02	11.19	11.37	11.22	11.57	11.70	11.81	11.55	11.72	11.65	11.74	11.81
8	11.10	11.19	11.36	11.27	11.57	11.65	11.83	11.57	11.77	11.67	11.76	11.72
9	11.11	11.18	11.33	11.27	11.54	11.61	11.79	11.59	11.75	11.64	11.78	11.72
10	11.14	11.16	11.26	11.24	11.54	11.57	11.76	11.63	11.70	11.68	11.74	11.70
11	11.05	11.13	11.31	11.22	11.56	11.63	11.57	11.59	11.71	11.67	11.74	11.72
12	11.05	11.16	11.29	11.27	11.53	11.59	11.67	11.60	11.70	11.64	11.73	11.73
13	11.03	11.11	11.28	11.26	11.52	11.65	11.72	11.61	11.68	11.62	11.77	11.74
14	11.01	11.12	11.23	11.29	11.60	11.62	11.72	11.47	11.64	11.60	11.78	11.72
15	10.96	11.13	11.21	11.28	11.56	11.62	11.72	11.47	11.61	11.64	11.81	11.69
16	11.93	11.13	11.17	11.33	11.57	11.59	11.65	11.56	11.59	11.58	11.85	11.65
17	12.10	11.12	11.20	11.32	11.50	11.62	11.58	11.58	11.61	11.64	11.88	11.66
18	12.30	11.13	11.18	11.30	11.51	11.64	11.55	11.50	11.59	11.73	11.89	11.67
19	11.33	11.14	11.21	11.31	11.49	11.60	11.43	11.48	11.56	11.73	11.90	11.67
20	11.19	11.16	11.19	11.33	11.50	11.60	11.42	11.47	11.57	11.74	11.97	11.68
21	11.15	11.73	11.21	11.33	11.49	11.55	11.44	11.46	11.58	11.75	11.96	11.61
22	11.15	11.39	11.25	11.27	11.53	11.61	11.40	11.45	11.55	11.74	11.94	11.58
23	11.15	12.21	11.29	11.20	11.58	11.58	11.39	11.45	11.56	11.75	11.97	11.59
24	11.23	12.48	11.27	11.21	11.61	11.51	11.37	11.50	11.59	11.82	11.96	11.63
25	11.19	12.14	11.21	11.30	11.67	11.60	11.43	11.52	11.65	11.91	11.99	11.62
26	11.19	12.05	11.24	11.27	11.65	11.64	11.48	11.57	11.66	11.86	11.88	11.61
27	11.21	11.53	11.24	11.20	11.68	11.60	11.47	11.62	11.65	11.87	11.88	11.64
28	11.20	12.37	11.24	11.27	11.69	11.64	11.48	11.64	11.59	11.86	11.84	11.71
29	11.24	12.51	11.22	11.39	---	11.67	11.53	11.65	11.63	11.88	11.81	11.73
30	11.20	12.30	11.18	11.43	---	11.65	11.52	11.65	11.66	11.84	11.78	11.76
31	11.15	---	11.17	11.47	---	11.65	---	11.68	---	11.83	11.82	---
MEAN	11.21	11.45	11.27	11.29	11.57	11.62	11.60	11.55	11.64	11.72	11.83	11.71

WTR YR 2003 MEAN 11.54 HIGHEST 10.92 OCT 14-15, 2002 LOWEST 12.53 NOV 30, 2002



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175734066233300. Local number, 146.

LOCATION.--Lat 17°58'43", long 66°24'43", Hydrologic Unit 21010004, 1 mi southeast of Santa Isabel plaza, 0.5 mi south of airport, 1.1 mi northeast of dock at Santa Isabel, Name: Pozo PRASA Alomar Oeste Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water table well, diameter 8 in (0.2 m). Constructed depth 70 ft (21.3 m). Depth 61 ft (18.6 m), sounded depth measured on October 6, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land surface is about 19 ft (5.79 m) above mean sea level from topographic map. Measuring point: hole in side of steel casing, 2.19 ft (0.67 m) above land-surface datum.

REMARKS.--Abandoned production well being used as recording observation well. Automated Digital Recorder (ADR), installed on September 27, 1991, replaced by an Electronic Data Logger on January 14, 1998.

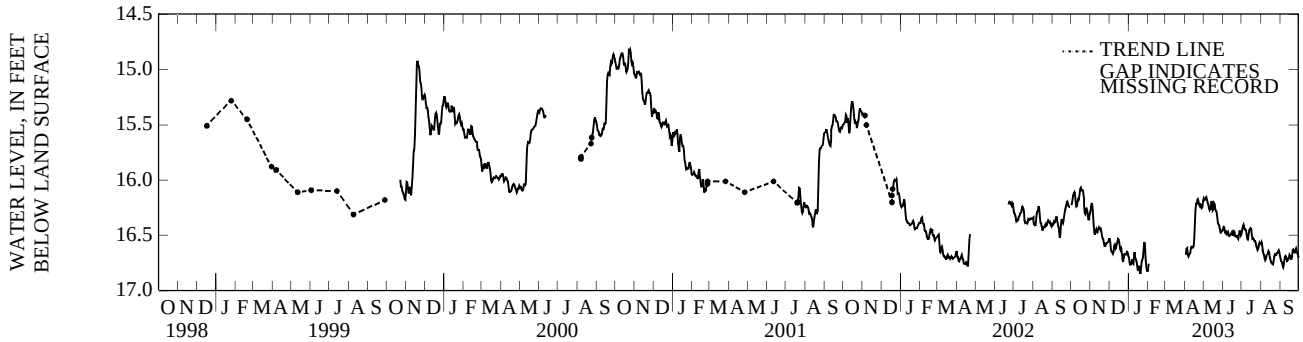
PERIOD OF RECORD.--June 1981 to March 1985, discontinued, September 27, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.43 ft (2.26 m), below land-surface datum, October 18, 1984; lowest water level recorded, 19.75 ft (6.02 m) below land-surface datum, December 17, 1997.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.22	16.29	16.52	16.69	16.83	---	---	16.15	16.46	16.50	16.56	16.70
2	16.23	16.28	16.54	16.71	16.78	---	16.67	16.19	16.43	16.46	16.56	16.73
3	16.20	16.20	16.53	16.77	16.74	---	16.68	16.18	16.42	16.44	16.56	16.74
4	16.16	16.22	16.61	16.76	---	---	16.66	16.18	16.44	16.40	16.61	16.74
5	16.12	16.26	16.65	16.77	---	---	16.59	16.14	16.51	16.41	16.65	16.80
6	16.12	16.37	16.65	16.73	---	---	16.65	16.17	16.45	16.45	16.67	16.78
7	16.10	16.45	16.66	16.71	---	---	16.69	16.19	16.47	16.44	16.69	16.75
8	16.18	16.50	16.67	16.79	---	---	16.69	16.21	16.51	16.45	16.72	16.69
9	16.24	16.48	16.63	16.73	---	---	16.66	16.23	16.47	16.47	16.73	16.70
10	16.25	16.45	16.56	16.66	---	---	16.68	16.27	16.48	16.52	16.69	16.68
11	16.22	16.44	16.61	16.65	---	---	16.63	16.26	16.52	16.55	16.68	16.72
12	16.16	16.50	16.63	16.69	---	---	16.60	16.24	16.50	16.53	16.68	16.73
13	16.18	16.45	16.59	16.72	---	---	16.60	16.30	16.51	16.46	16.65	16.74
14	16.17	16.43	16.57	16.72	---	---	16.61	16.20	16.49	16.45	16.63	16.72
15	16.09	16.43	16.55	16.75	---	---	16.62	16.18	16.47	16.45	16.68	16.71
16	16.07	16.46	16.51	16.81	---	---	16.60	16.24	16.47	16.42	16.71	16.69
17	16.07	16.43	16.57	16.83	---	---	16.49	16.30	16.52	16.46	16.73	16.67
18	16.11	16.45	16.57	16.77	---	---	16.33	16.22	16.48	16.53	16.75	16.71
19	16.08	16.49	16.65	16.78	---	---	16.21	16.20	16.45	16.53	16.74	16.71
20	16.11	16.52	16.61	16.85	---	---	16.22	16.24	16.49	16.52	16.78	16.72
21	16.14	16.53	16.63	16.85	---	---	16.21	16.29	16.52	16.55	16.75	16.65
22	16.21	16.55	16.69	16.76	---	---	16.15	16.27	16.49	16.55	16.72	16.62
23	16.24	16.58	16.73	16.71	---	---	16.20	16.31	16.54	16.55	16.67	16.64
24	16.35	16.61	16.75	16.73	---	---	16.21	16.36	16.50	16.58	16.67	16.66
25	16.26	16.58	16.65	16.67	---	---	16.24	16.41	16.50	16.61	16.69	16.65
26	16.27	16.57	16.69	16.59	---	---	16.23	16.39	16.54	16.62	16.66	16.62
27	16.25	16.58	16.67	16.53	---	---	16.21	16.43	16.52	16.64	16.66	16.62
28	16.31	16.57	16.67	16.63	---	---	16.24	16.45	16.46	16.60	16.66	16.66
29	16.35	16.57	16.67	16.77	---	---	16.26	16.50	16.46	16.58	16.64	16.66
30	16.38	16.54	16.63	16.78	---	---	16.22	16.45	16.50	16.56	16.63	16.69
31	16.31	---	16.68	16.83	---	---	---	16.46	---	16.60	16.68	---
MEAN	16.20	16.46	16.62	16.73	---	---	---	16.28	16.49	16.51	16.67	16.70

WTR YR 2003 MEAN 16.51 HIGHEST 15.97 OCT 16, 2002 LOWEST 16.89 FEB 1, 2003



RIO SALINAS TO RIO JACAGUAS BASINS—Continued

175843066244100. Local number, 1263.

LOCATION.--Lat 17°58'43", long 66°24'43", Hydrologic Unit 21010004, 0.4 mi east of new Hwy 1 bridge over RÌo Coamo, 0.9 mi northwest of Santa Isabel plaza, and 1.6 miles north-northwest of dock at Santa Isabel, Name: Jobitos Battery Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water table well, diameter 6 in (0.15 m). Depth 198 ft (60.35 m), sounded depth measured on October 7, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land surface is about 39 ft (11.9 m) above mean sea level from topographic map. Measuring point: Top of shelter floor, 2.7 ft (0.82 m) above land-surface datum. Prior to February 1997, 1.41 ft (0.43 m) above land-surface datum.

REMARKS.--Abandoned production well being used as recording observation well. Automated Digital Recorder (ADR), installed on September 26, 1991, replaced by an Electronic Data Logger on September 9, 1997.

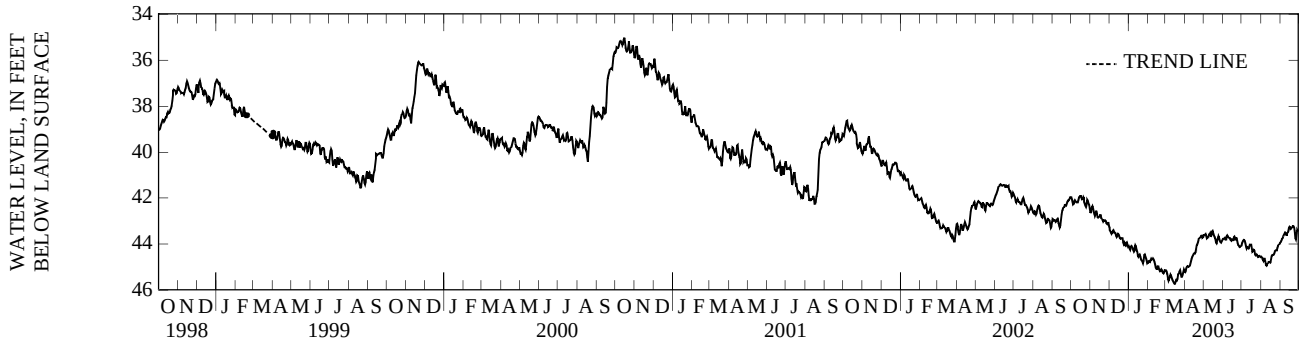
PERIOD OF RECORD.--September 26, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.86 ft (10.62 m), below land-surface datum, October 16, 2000; lowest water level recorded, 45.81 ft (13.96 m) below land-surface datum, March 15, 16, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.95	42.65	43.25	44.10	44.87	45.12	45.26	43.65	43.79	44.09	44.59	43.93
2	41.97	42.64	43.33	44.11	44.78	45.13	45.15	43.57	43.72	43.99	44.52	43.92
3	42.12	42.49	43.45	44.27	44.72	45.13	45.15	43.64	43.82	43.87	44.57	43.78
4	42.21	42.32	43.41	44.20	44.78	45.26	45.03	43.58	43.71	43.87	44.59	43.80
5	42.35	42.38	43.56	44.11	44.77	45.34	44.99	43.58	43.78	43.82	44.72	43.72
6	42.19	42.51	43.52	44.04	44.62	45.64	44.97	43.75	43.82	43.83	44.68	43.61
7	42.04	42.62	43.48	44.14	44.66	45.50	44.97	43.76	43.75	43.87	44.58	43.57
8	42.18	42.76	43.36	44.20	44.69	45.46	45.00	43.71	43.57	44.04	44.66	43.50
9	42.14	42.76	43.46	44.32	44.64	45.33	44.99	43.63	43.69	44.17	44.84	43.48
10	42.21	42.58	43.52	44.31	44.64	45.33	44.93	43.59	43.68	44.17	44.97	43.56
11	42.18	42.50	43.43	44.21	44.73	45.44	44.77	43.53	43.74	44.07	44.87	43.62
12	42.17	42.81	43.59	44.13	44.81	45.48	44.70	43.50	43.72	44.23	44.88	43.56
13	42.02	42.83	43.67	43.98	44.95	45.62	44.58	43.70	43.75	44.14	44.80	43.55
14	41.96	42.84	43.67	44.20	45.07	45.59	44.52	43.66	43.88	44.05	44.80	43.50
15	41.97	42.83	43.56	44.27	45.10	45.71	44.45	43.53	43.81	43.99	44.72	43.34
16	41.83	42.81	43.52	44.40	45.05	45.72	44.42	43.40	43.75	44.03	44.82	43.26
17	42.00	42.68	43.64	44.59	44.86	45.69	44.40	43.49	43.88	44.00	44.78	43.22
18	42.00	42.82	43.69	44.52	45.09	45.58	44.40	43.61	43.77	44.36	44.59	43.32
19	42.13	42.95	43.80	44.46	45.06	45.53	44.31	43.67	43.67	44.34	44.45	43.36
20	41.97	42.88	43.74	44.48	45.19	45.61	44.10	43.68	43.72	44.29	44.45	43.30
21	41.95	43.06	43.78	44.61	45.26	45.35	43.98	43.84	43.86	44.16	44.45	43.23
22	42.07	42.96	43.72	44.72	45.11	45.31	43.98	44.03	43.71	44.35	44.46	43.18
23	42.22	42.98	43.76	44.68	45.13	45.27	43.85	43.87	43.71	44.50	44.34	43.22
24	42.26	42.95	44.04	44.79	45.09	45.10	43.76	43.77	43.76	44.50	44.33	43.31
25	42.40	42.95	43.91	44.83	45.20	45.14	43.76	43.68	43.88	44.48	44.27	43.58
26	42.33	43.04	43.93	44.58	45.28	45.38	43.71	43.62	44.02	44.46	44.27	43.91
27	42.15	43.15	44.15	44.42	45.27	45.42	43.65	43.86	44.08	44.57	44.27	43.69
28	41.99	43.13	44.00	44.49	45.14	45.37	43.58	43.86	44.07	44.55	44.06	43.38
29	42.24	42.99	43.94	44.60	---	45.30	43.69	43.93	44.18	44.52	44.06	43.36
30	42.25	43.17	43.95	44.65	---	45.11	43.78	43.92	44.10	44.54	44.05	43.49
31	42.31	---	44.14	44.85	---	45.10	---	43.84	---	44.53	44.00	---
MEAN	42.12	42.80	43.68	44.40	44.95	45.39	44.43	43.69	43.81	44.21	44.53	43.51

WTR YR 2003MEAN43.95 HIGHEST 41.82 OCT 16-17, 2002 LOWEST 45.81 MAR 15-16, 2003



RIO INABON TO RIO LOCO BASINS

175950066354200. Local number, 141.

LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.6 mi notheast of Muellle de Ponce, Name: Restaurada 8A Well.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2-20 ft (0.6-6.1 m), perforated 20-130 ft (6.1-39.6 m), 10 in (0.25 m) 128-165 ft (39-50.3 m), perforated. Depth 151 ft (46.02 m), sounded depth measured on October 7, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 24 ft (7.3 m), above mean sea level, from topographic map. Measuring point: Bottom edge of hole on side of casing 3.54 ft (1.08 m), above land-surface datum, 26.2 ft (7.67 m), above mean sea level.

REMARKS.--Recording observation well. Discontinued on Novenber 8, 1994 due to apparent collapsed casing, repair on August 7, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 12, 1998.

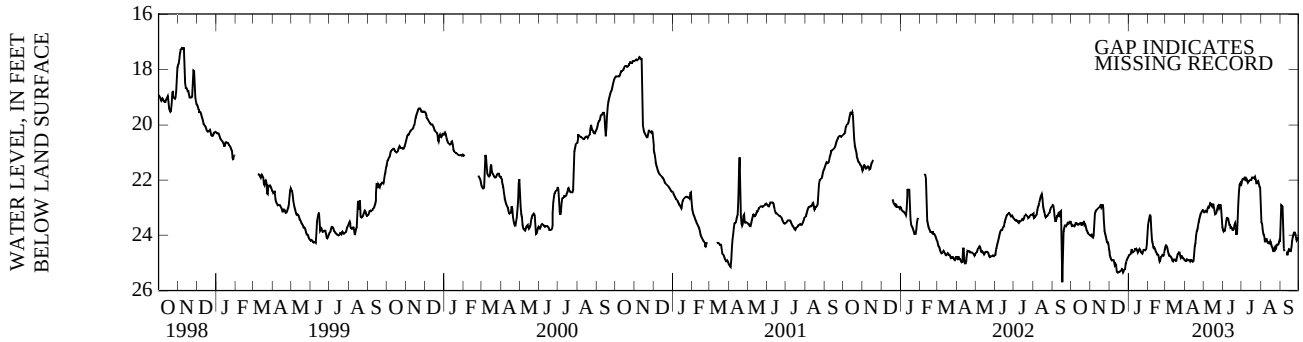
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to November 8, 1994, discontinued, August 7, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m), below land-surface datum, October 9, 1985; lowest water level recorded, 28.6 ft (8.71 m), below land-surface datum, July 9, 1982.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.53	23.99	24.60	24.72	23.70	24.44	24.93	23.07	23.72	22.22	23.42	24.29
2	23.63	24.05	24.65	24.76	23.52	24.36	24.90	23.21	23.89	22.03	23.61	22.98
3	23.69	23.98	24.71	24.67	23.43	24.35	24.95	23.14	23.80	21.98	23.43	22.84
4	23.66	23.99	24.85	24.73	23.31	24.42	24.91	23.17	23.83	21.94	23.74	23.01
5	23.62	24.14	24.85	24.63	23.18	24.48	24.89	23.04	23.84	21.95	23.87	22.91
6	23.67	24.04	24.92	24.44	23.47	24.65	24.87	23.24	23.52	22.01	24.01	24.48
7	23.66	23.96	24.93	24.61	24.14	24.69	24.91	23.06	23.49	21.81	23.99	24.47
8	23.57	23.28	24.88	24.62	24.16	24.76	24.94	22.96	23.25	21.99	24.27	24.67
9	23.54	23.14	24.90	24.61	24.38	24.70	24.86	23.00	23.47	22.01	24.21	---
10	23.55	23.11	25.04	24.57	24.45	24.83	24.95	23.00	23.30	21.96	24.03	---
11	23.63	23.08	25.13	24.51	24.52	24.76	24.93	22.86	23.70	22.14	24.23	24.57
12	23.61	23.08	24.93	24.50	24.41	24.88	24.88	22.82	23.52	22.03	24.17	24.61
13	23.60	23.04	25.25	24.51	24.57	24.97	24.90	22.90	23.70	22.05	24.35	24.76
14	23.62	23.05	25.33	24.52	24.60	24.89	24.95	22.85	23.76	22.02	24.22	24.61
15	23.57	22.98	25.36	24.50	24.65	24.89	25.00	22.97	23.67	22.01	24.32	24.54
16	23.52	23.00	25.34	24.59	24.71	24.87	24.90	22.93	23.80	21.99	24.25	24.45
17	23.58	22.88	25.33	24.65	24.65	24.88	24.36	22.82	23.82	22.00	24.20	24.58
18	23.65	22.99	25.32	24.51	24.75	24.94	24.42	22.96	23.79	21.85	24.38	24.58
19	23.60	23.00	25.32	24.54	24.96	24.91	24.11	23.08	23.71	21.98	24.41	24.56
20	23.57	22.90	25.31	24.48	24.93	24.69	23.91	23.23	23.51	21.83	24.44	24.29
21	23.52	22.88	25.27	24.61	24.88	24.71	23.80	23.26	23.58	21.97	24.62	24.13
22	23.45	23.18	25.19	24.62	24.82	24.66	23.76	23.20	23.70	21.91	24.57	24.00
23	23.68	23.82	25.29	24.68	24.80	24.58	23.59	23.07	23.84	21.86	24.39	23.94
24	23.62	23.86	25.38	24.65	24.78	24.66	23.47	23.01	24.03	22.11	24.46	23.88
25	23.62	24.01	25.22	24.55	24.68	24.76	23.35	22.89	23.86	22.12	24.55	23.91
26	23.81	24.05	25.32	24.52	24.72	24.84	23.29	22.94	23.09	22.12	24.36	23.98
27	23.81	24.26	25.15	24.53	24.73	24.68	23.17	23.08	22.55	22.00	24.32	24.19
28	23.89	24.25	24.92	24.53	24.59	24.82	23.19	22.84	22.28	22.09	24.35	24.18
29	23.96	24.26	24.95	24.55	---	24.85	23.09	22.92	22.04	22.19	24.34	24.06
30	23.95	24.39	24.81	24.49	---	24.82	23.10	23.10	22.19	22.26	24.23	24.04
31	23.98	---	24.86	24.18	---	24.87	---	23.66	---	22.28	24.19	---
MEAN	23.66	23.55	25.07	24.57	24.37	24.73	24.31	23.04	23.48	22.02	24.19	---

WTR YR 2003 MEAN 23.92 HIGHEST 21.64 JULY 23, 2003 LOWEST 25.41 DEC 24, 2002



RIO INABON TO RIO LOCO BASINS—Continued

175934066364800. Local number, 1276.

LOCATION.--Lat 17°59'34", long 66°36'48", Hydrologic Unit 21010004, 0.35 mi southeast of the intersection of Hwy 10 with Hwy 2, 0.32 mi south of Hwy 2, 0.1 mi southwest of Plaza del Caribe Mall, and 1.9 mi north of Punta Carenero, Name: Constancia 3 Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.33 m). Depth 83 ft (25.3 m), sounded depth measured on October 7, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is 16 ft (4.9 m), above mean sea level, from topographic map. Measuring point: Hole in horizontal steel plate, 1.59 ft (0.48 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL,) installed o n March 19 to April 9, 1997. Automated Digital Recorder (ADR), re-installed on April 9, 1997, replaced by an Electronic Data Logger (EDL), installed on June 4, 1998.

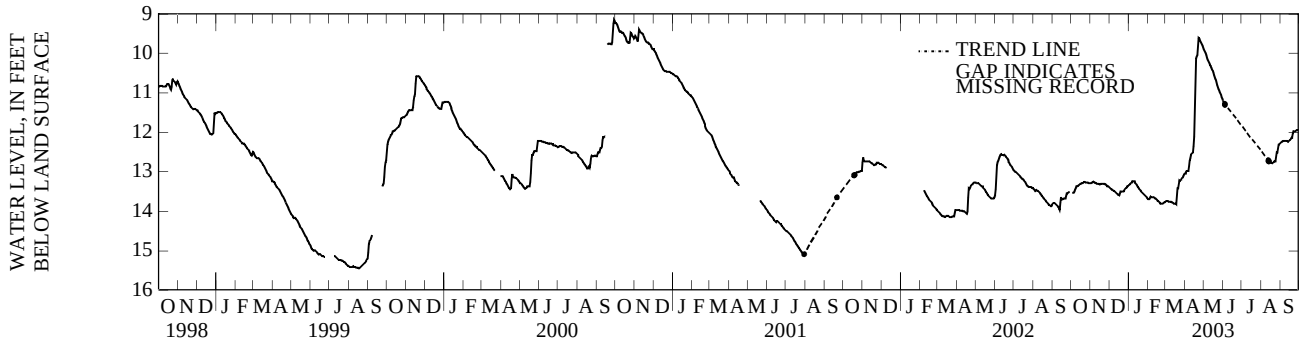
PERIOD OF RECORD.--May 30, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.13 ft (2.78 m), below land-surface datum, September 28, 29, 2000; lowest water level recorded, 17.96 ft (5.47 m), below land-surface datum, July 19, 20, 21, 1997.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.53	13.29	13.39	13.35	13.68	13.78	13.05	9.88	11.17	---	---	12.29
2	---	13.29	13.40	13.34	13.69	13.76	13.04	9.91	11.21	---	---	12.27
3	13.52	13.29	13.41	13.32	13.69	13.75	13.03	9.95	11.25	---	---	12.25
4	13.53	13.28	13.41	13.30	13.70	13.74	12.99	9.98	11.29	---	---	12.24
5	13.53	13.27	13.44	13.29	13.62	13.74	12.98	10.02	---	---	---	12.23
6	13.54	13.26	13.45	13.27	13.63	13.75	12.97	10.08	---	---	---	12.22
7	13.45	13.26	13.46	13.24	13.64	13.76	12.97	10.13	---	---	---	12.22
8	13.45	13.27	13.47	13.23	13.64	13.76	12.97	10.18	---	---	---	12.22
9	13.37	13.28	13.48	13.23	13.64	13.76	12.75	10.20	---	---	---	12.22
10	13.37	13.28	13.49	13.23	13.64	13.76	12.70	10.24	---	---	---	12.21
11	13.37	13.29	13.50	13.25	13.65	13.76	12.60	10.28	---	---	---	12.21
12	13.36	13.30	13.52	13.27	13.67	13.77	12.56	10.31	---	---	---	12.21
13	13.35	13.31	13.53	13.29	13.67	13.79	12.55	10.33	---	---	---	12.22
14	13.34	13.31	13.55	13.31	13.68	13.80	12.53	10.34	---	---	12.74	12.24
15	13.32	13.31	13.57	13.33	13.70	13.81	12.52	10.40	---	---	12.74	12.25
16	13.31	13.32	13.57	13.37	13.73	13.81	12.19	10.42	---	---	12.74	12.22
17	13.30	13.32	13.58	13.39	13.74	13.81	12.04	10.46	---	---	12.75	12.20
18	13.29	13.33	13.60	13.42	13.75	13.81	11.09	10.51	---	---	12.77	12.20
19	13.29	13.29	13.49	13.44	13.77	13.82	10.15	10.58	---	---	12.78	12.13
20	13.29	13.30	13.50	13.46	13.79	13.40	10.09	10.62	---	---	12.78	12.13
21	13.29	13.30	13.50	13.48	13.81	13.43	10.05	10.65	---	---	12.79	12.13
22	13.26	13.30	13.50	13.50	13.81	13.41	10.05	10.71	---	---	12.74	11.96
23	13.26	13.30	13.50	13.53	13.81	13.22	9.60	10.78	---	---	12.73	11.97
24	13.26	13.31	13.50	13.54	13.81	13.23	9.60	10.83	---	---	12.73	11.97
25	13.27	13.32	13.48	13.56	13.80	13.23	9.65	10.88	---	---	12.73	11.97
26	13.27	13.33	13.46	13.57	13.80	13.21	9.69	10.92	---	---	12.52	11.97
27	13.27	13.35	13.43	13.58	13.80	13.18	9.73	10.96	---	---	12.51	11.97
28	13.27	13.37	13.42	13.60	13.78	13.16	9.75	11.00	---	---	12.51	11.95
29	13.28	13.37	13.40	13.62	---	13.14	9.78	11.03	---	---	12.32	11.94
30	13.28	13.37	13.38	13.64	---	13.07	9.82	11.08	---	---	12.32	11.94
31	13.28	---	13.37	13.66	---	13.07	---	11.13	---	---	12.31	---
MEAN	---	13.31	13.48	13.41	13.72	13.56	11.52	10.48	---	---	---	12.14

WTR YR 2003 MEAN 12.74 HIGHEST 9.60 APR 23-24, 2003 LOWEST 13.83 MAR 19, 2003



RIO INABON TO RIO LOCO BASINS—Continued

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	13.51	DEC 05	13.42	FEB 13	13.69	APR 09	12.76	JUNE 04	11.30	AUG 13	12.71

WATER YEAR 2003 HIGHEST 11.30 JUNE 04, 2003 LOWEST 13.69 FEB 13, 2003

RIO INABON TO RIO LOCO BASIN

180045066381600. Local number 1277.

LOCATION.--Lat 18°00'45", long 66°38'16", Hydrologic Unit 21010004, 0.27 mi east of the intersection of Hwy 10 with Hwy 132, 0.6 mi northwest of Parque Paquito Montaner, and 0.04 mi south of Hwy 132, Name: Albergue de Niños Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 10 in (0.25 m). Depth is 126 ft (38.4 m), sounded depth measured on October 7, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 5.42 ft (1.65 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 12, 1998.

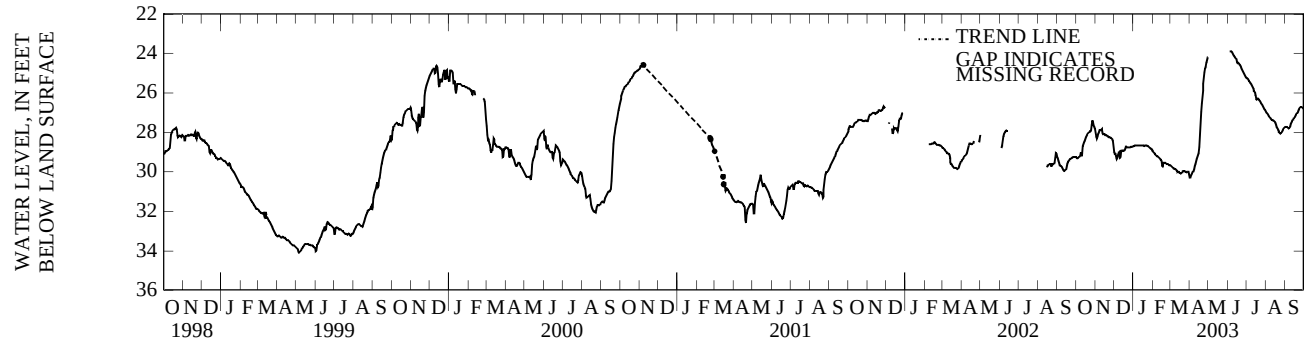
PERIOD OF RECORD.--March 30, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.83 ft (7.26 m), below land-surface datum, June 4, 2003; lowest water level recorded, 51.88 ft (15.81 m), below land-surface datum, August 30, 1994.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.25	27.89	28.89	28.72	28.93	29.66	30.22	24.18	---	25.25	26.91	27.75
2	29.24	28.12	29.07	28.71	28.98	29.68	30.33	---	---	25.24	26.96	27.72
3	29.33	28.27	29.08	28.68	29.01	29.72	30.23	---	---	25.27	27.02	27.71
4	29.31	28.32	29.09	28.67	29.03	29.76	30.14	---	---	25.31	27.06	27.70
5	29.29	28.06	29.33	28.67	29.05	29.78	30.08	---	23.89	25.37	27.09	27.74
6	29.29	28.06	29.36	28.66	29.15	29.80	30.04	---	23.91	25.43	27.16	27.77
7	29.24	27.93	29.19	28.64	29.16	29.82	29.97	---	23.89	25.48	27.21	27.80
8	29.24	27.90	29.07	28.65	29.19	29.83	29.94	---	23.89	25.54	27.23	27.81
9	29.08	27.88	29.02	28.66	29.20	29.85	29.77	---	23.95	25.57	27.31	27.76
10	28.97	27.87	29.00	28.66	29.22	29.88	29.63	---	24.03	25.63	27.35	27.60
11	29.45	27.86	29.59	28.66	29.25	29.92	29.53	---	24.07	25.71	27.35	27.53
12	28.73	27.85	28.97	28.66	29.29	29.96	29.39	---	24.13	25.77	27.37	27.47
13	28.65	27.93	28.92	28.66	29.32	29.99	29.29	---	24.18	25.86	27.38	27.40
14	28.51	28.13	28.91	28.67	29.38	30.03	29.18	---	24.23	25.94	27.41	27.36
15	28.45	28.07	28.95	28.67	29.40	29.93	29.08	---	24.26	25.95	27.43	27.32
16	28.40	28.07	28.92	28.66	29.46	30.04	28.99	---	24.32	25.99	27.49	27.25
17	28.27	28.10	28.92	28.66	29.95	30.05	28.49	---	24.57	26.27	27.56	27.19
18	28.21	28.15	28.90	28.67	29.53	30.07	27.88	---	24.44	26.39	27.70	27.12
19	28.14	28.12	28.79	28.68	29.53	30.10	27.20	---	24.51	26.32	27.77	27.08
20	28.09	28.14	28.73	28.68	29.54	30.06	26.75	---	24.53	26.29	27.82	27.04
21	28.06	28.17	28.74	28.66	29.53	30.02	26.37	---	24.59	26.30	27.88	27.00
22	28.04	28.20	28.75	28.66	29.55	29.98	26.10	---	24.64	26.35	27.93	26.91
23	27.98	28.24	28.77	28.67	29.58	29.95	25.69	---	24.72	26.40	27.99	26.82
24	27.93	28.22	28.74	28.68	29.61	29.96	25.40	---	24.79	26.45	28.02	26.78
25	27.94	28.25	28.74	28.70	29.59	29.96	25.13	---	24.85	26.53	28.07	26.76
26	27.81	28.27	28.74	28.74	29.60	29.98	24.78	---	24.92	26.57	28.06	26.70
27	27.41	28.28	28.74	28.75	29.64	30.01	24.77	---	24.97	26.60	27.99	26.71
28	27.40	28.30	28.74	28.79	29.65	30.01	24.57	---	25.06	26.69	27.94	26.72
29	27.59	28.33	28.74	28.82	---	30.02	24.39	---	25.13	26.75	27.87	26.75
30	27.71	28.53	28.72	28.84	---	29.98	24.27	---	25.18	26.81	27.84	26.77
31	27.75	---	28.74	28.88	---	30.00	---	---	---	26.85	27.79	---
MEAN	28.48	28.12	28.93	28.70	29.37	29.93	27.92	---	---	26.03	27.55	27.27

WTR YR 2003MEAN27.91 HIGHEST 23.83 JUNE 4, 2003 LOWEST 30.33 APR 2, 2003



RIO INABON TO RIO LOCO BASINS

180156066434000. Local number, 1278.

LOCATION.--Lat 18°01'56", long 66°43'40", Hydrologic Unit 21010004, 1.23 mi north of Hwy 2, 0.1 mi west of Hwy 385, and 0.14 mi east of Río Tallaboa, Name: Luciano Ventura Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well. Depth 74 ft (22.5 m).

DATUM.--Elevation of land-surface datum is about 66 ft (20.1 m), above mean sea level, from topographic map.. Measuring point: H ole in horizontal plexiglass plate, 3.02 ft (0.92 m), above land-surface datum.

REMARKS.--Observation well.

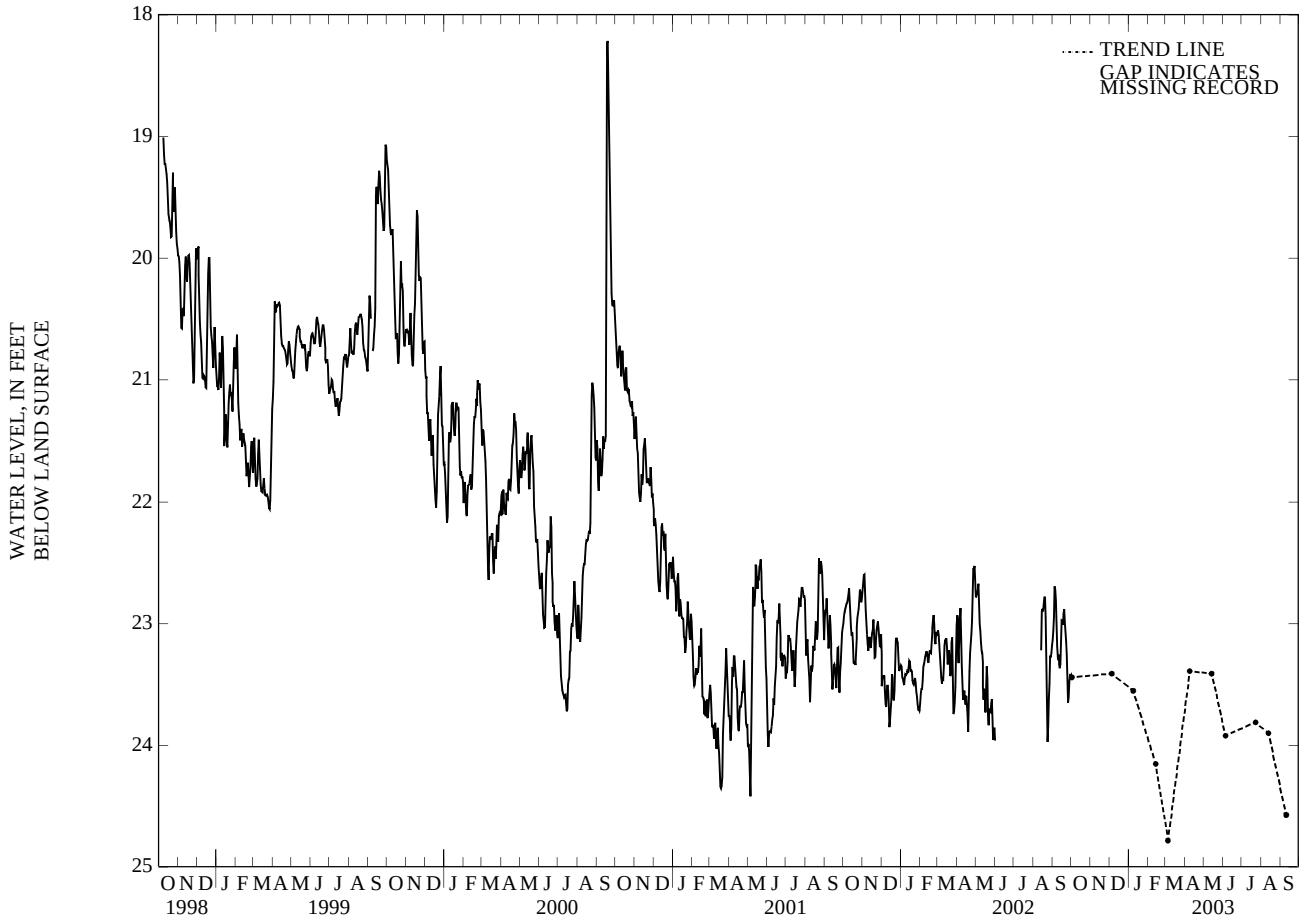
PERIOD OF RECORD.--September 5, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.65 ft (5.07 m), below land-surface datum, September 23, 1998; lowest water level recorded, 28.87 ft (8.8 m), below land-surface datum, September 28, 1997.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	23.44	JAN 08	23.55	MAR 05	24.78	MAY 14	23.41	JULY 23	23.81	SEPT 10	24.57
DEC 05	23.41	FEB 13	24.15	APR 09	23.39	JUNE 05	23.92	AUG 13	23.90		

WATER YEAR 2003 HIGHEST 23.39 APR 09, 2003 LOWEST 24.78 MAR 05, 2003



RIO INABON TO RIO LOCO BASINS—Continued

180133066503300. Local number, 132.

LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.9 mi southeast of Yauco plaza, 3.46 mi west of Guayanilla plaza, and 1.32 mi north of Segunda Unidad Barinas School, Name: Pittsburg Plate Glass 4 Well, Yauco.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20 ft (0-6.1 m), 12 in (0.3 m) perforated pipe 20-84 ft (6.1-25.6 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.6-57.9 m). Depth 190 ft (57.9 m).

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.8 ft (1.16 m), above land-surface datum.

REMARKS.--Observation well. [+, above land-surface datum].

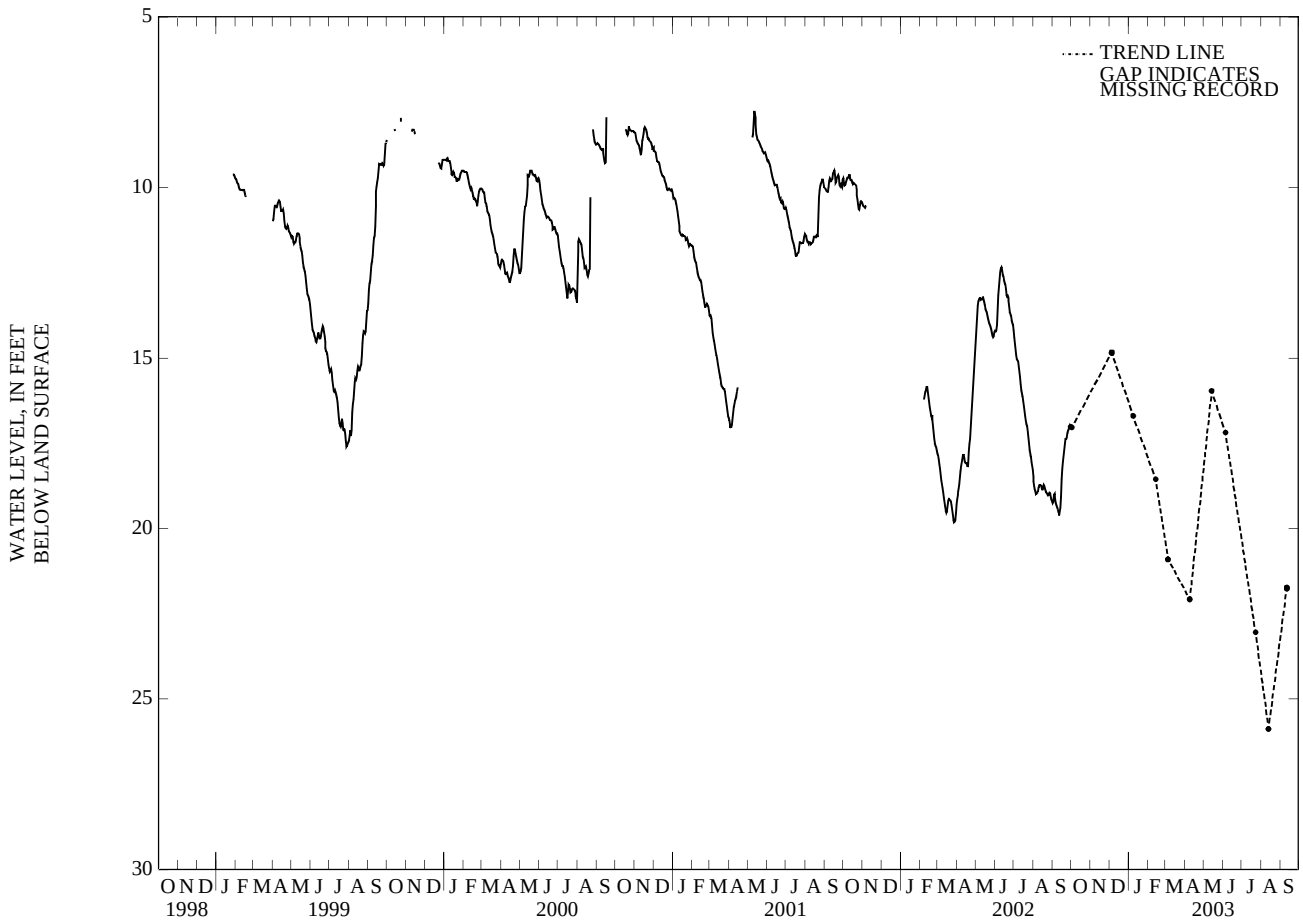
PERIOD OF RECORD.--July 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (+0.04 m), above land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m), below land-surface datum, June 27, 1974.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	17.04	JAN 08	16.69	MAR 05	20.91	MAY 14	15.97	JULY 23	23.04	SEPT 11	21.74
DEC 05	14.83	FEB 13	18.55	APR 09	22.08	JUNE 05	17.19	AUG 13	25.88		

WATER YEAR 2003 HIGHEST 14.83 DEC 05, 2002 LOWEST 25.88 AUG 13, 2003



RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'33", long 67°03'25", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.3 mi northwest of the intersection of Hwy 116 with Hwy 305, Name: Vivoni-Col Amistad Well, Lajas.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.3 m). Depth 200 ft (60.98 m).

DATUM.--Elevation of land-surface datum is about 52.5 ft (16 m), above mean sea level, from topographic map. Measuring point: Ho le side of casing, 0.8 ft (0.24 m), above land-surface datum.

REMARKS.--Observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on January 14, 1998 and removed on December 5, 2002. From July 27, 1998 to March 18, 1999, tapedown measurements only.

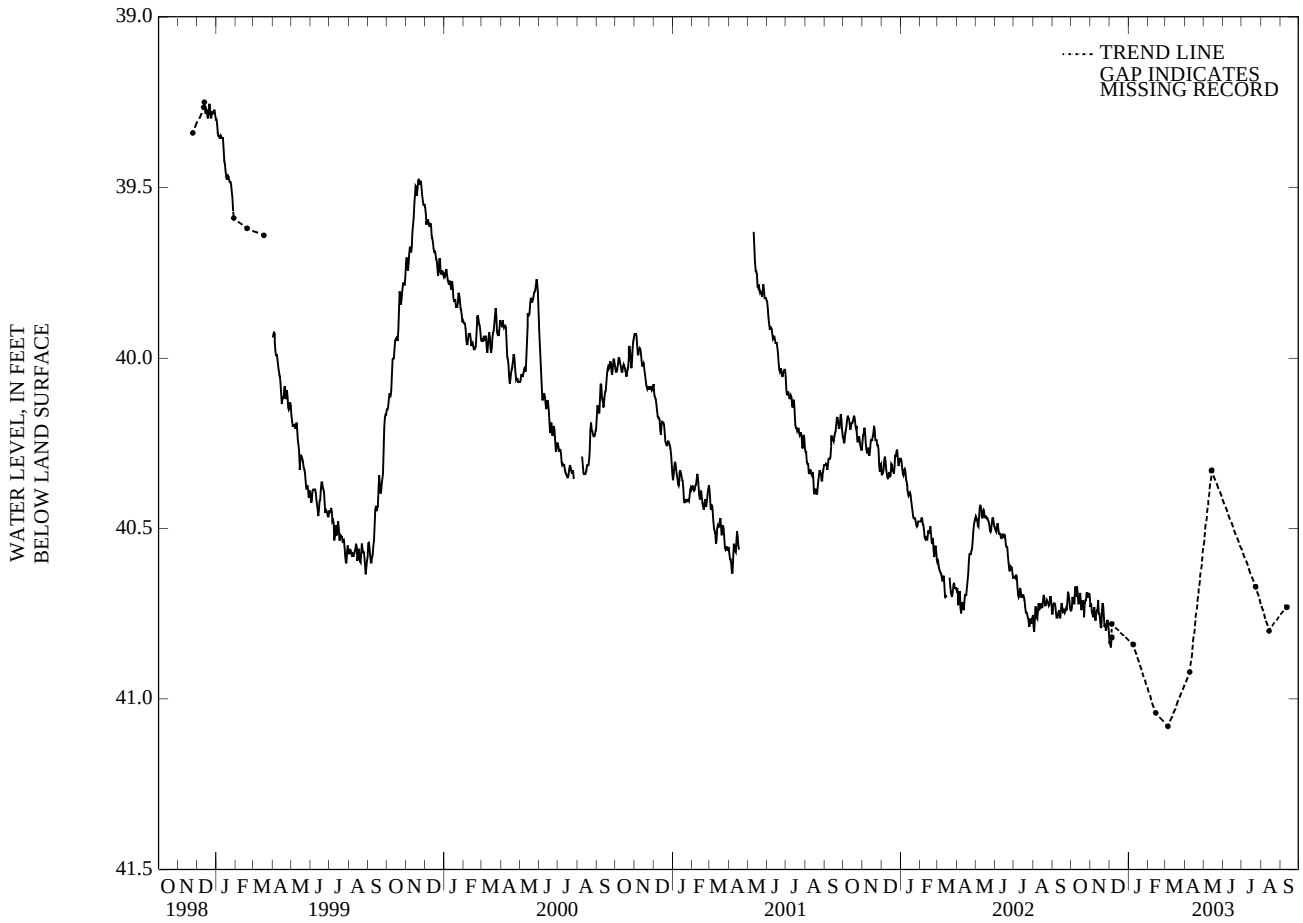
PERIOD OF RECORD.--December 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.4 ft (11.4 m), below land-surface datum, November 20, 1985; lowest water level measured, 41.17 ft (12.55 m) below land-surface datum, July 7, 1987.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	40.69	JAN 08	40.84	MAR 05	41.09	MAY 14	40.33	JULY 23	40.67	SEPT 11	40.73
DEC 05	40.82	FEB 13	41.04	APR 09	40.92	JUNE 05	40.47	AUG 14	40.80		

WATER YEAR 2003 HIGHEST 40.33 MAY 14, 2003 LOWEST 41.09 MAR 05, 2003



RIO GUANAJIBO BASIN—Continued

180542067084000. Local number, 1301.

LOCATION.--Lat 18°05'42", long 67°08'40", Hydrologic Unit 21010003, 0.35 mi east of Hwy 311, 0.3 mi north of Hwy 102 in Central Cabo Rojo, and 0.5 mi norhwest of the intersection of Hwy 102 with hwy 103, Name: PRASA 1, Cabo Rojo Well.

AQUIFER.--Coquí Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.3 m). Depth 116 ft (35.36 m), sounded depth measured on October 8, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 39 ft (11.9 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 1.3 ft (0.4 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), installed on May 25, 1996. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on April 9, 1999. From May 12 to September 30, 2002, tapedowns measurements only.

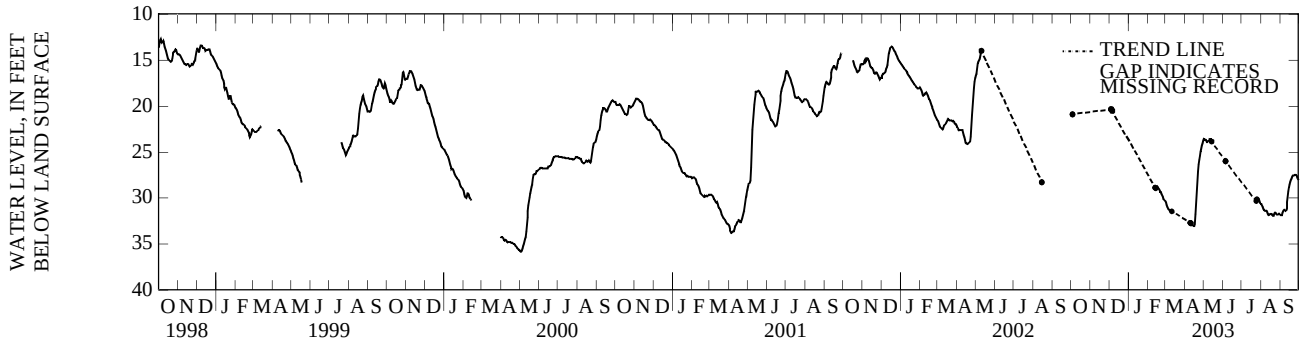
PERIOD OF RECORD.--May 25, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.37 ft (2.86 m), below land-surface datum, September 27, 1998; lowest water level recorded, 35.91 ft (10.94 m) below land-surface datum, May 3, 4, 2000.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	30.31	---	23.58	---	---	30.59	31.78
2	---	---	---	---	---	30.35	---	23.63	---	---	30.63	31.84
3	---	---	---	---	---	30.62	---	23.63	---	---	30.72	31.91
4	---	---	---	---	---	30.86	---	23.64	---	---	30.87	31.75
5	---	---	20.39	---	---	31.00	---	23.69	---	---	31.07	31.43
6	---	---	20.53	---	---	31.17	---	23.84	---	---	31.27	31.39
7	---	---	20.57	---	---	31.23	---	23.94	---	---	31.32	31.29
8	---	---	---	---	---	31.34	---	23.91	---	---	31.36	31.32
9	---	---	---	---	---	31.36	---	23.79	---	---	31.37	31.42
10	---	---	---	---	---	31.38	32.68	23.71	---	---	31.37	31.43
11	---	---	---	---	---	31.42	32.67	23.59	---	---	31.41	31.33
12	---	---	---	---	---	31.43	32.76	23.51	---	---	31.63	30.76
13	---	---	---	---	28.92	---	32.86	23.59	---	---	31.82	30.09
14	---	---	---	---	28.95	---	32.93	23.68	---	---	31.88	29.52
15	---	---	---	---	28.88	---	32.99	24.00	---	---	31.82	28.96
16	---	---	---	---	28.80	---	33.01	---	---	---	31.71	28.70
17	---	---	---	---	28.81	---	33.02	---	---	---	31.78	28.36
18	---	---	---	---	29.00	---	32.66	---	---	---	31.66	28.11
19	---	---	---	---	29.04	---	30.94	---	---	---	31.80	27.93
20	---	---	---	---	29.20	---	29.65	---	---	---	31.94	27.81
21	---	---	---	---	29.32	---	28.62	---	---	---	31.95	27.59
22	---	---	---	---	29.37	---	27.56	---	---	---	31.82	27.54
23	---	---	---	---	29.38	---	26.67	---	---	---	31.60	27.50
24	---	---	---	---	29.66	---	26.05	---	---	30.38	31.52	27.52
25	---	---	---	---	29.74	---	25.69	---	---	30.18	31.58	27.51
26	---	---	---	---	29.96	---	25.15	---	---	30.09	31.76	27.41
27	---	---	---	---	30.20	---	24.78	---	---	30.04	31.74	27.49
28	---	---	---	---	30.22	---	24.41	---	---	30.03	31.77	27.63
29	---	---	---	---	---	---	24.19	---	---	30.17	31.77	27.85
30	---	---	---	---	---	---	23.93	---	---	30.43	31.71	27.98
31	---	---	---	---	---	---	---	---	---	30.63	31.71	---
MEAN	---	---	---	---	---	---	---	---	---	---	31.51	29.44

WTR YR 2003MEAN29.22 HIGHEST 20.28 DEC 5, 2002 LOWEST 33.03 APR 16-17, 2003



RIO GUANAJIBO BASIN—Continued

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	20.89	FEB 12	28.87	APR 10	32.67	JUNE 05	25.98	AUG 14	31.87
DEC 04	20.35								

WATER YEAR 2003 HIGHEST 20.89 OCT 03, 2002 LOWEST 32.67 APR 10, 2003

RIO CULEBRINAS BASIN

182017067143300. Local number, 1352.

LOCATION.--Lat 18°20'17", long 67°14'33", Hydrologic Unit 21010003, 0.63 mi southeast of the intersection of Hwy 412 with Hwy 115, 1.13 mi south of the intersection of Hwy 413 with Hwy 115, and 0.01 mi north of Hwy 411, Name: Rincón 4 Well.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (0.3 m), cased 0-69 ft (0-21 m). Depth 102 ft (31.1 m).

DATUM.--Elevation of land-surface datum is about 39 ft (11.9 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of the 4 in (0.1 m) casing, 3.53 ft (1.08 m), above land-surface datum.

REMARKS.--Observation well.

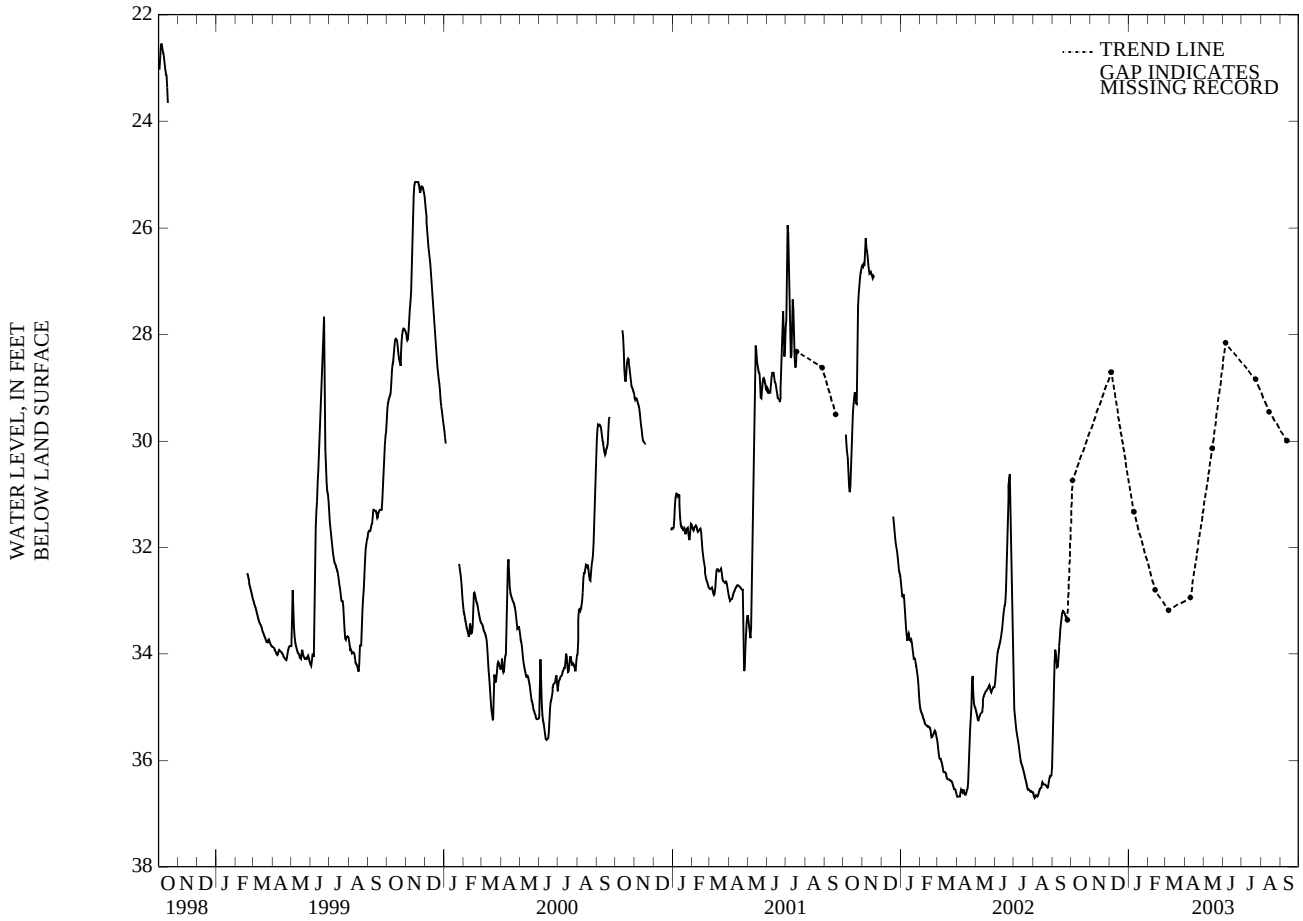
PERIOD OF RECORD.--May 30, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 20.8 ft (6.34 m), below land-surface datum, September 27, 1998; lowest water level recorded, 36.71 ft (11.19 m), below land-surface datum, August 5, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	30.74	JAN 09	31.33	MAR 06	33.18	MAY 15	30.14	JULY 23	28.84	SEPT 11	30.00
DEC 04	28.71	FEB 12	32.79	APR 10	32.94	JUNE 05	28.16	AUG 14	29.45		

WATER YEAR 2003 HIGHEST 28.16 JUNE 05, 2003 LOWEST 33.18 MAR 06, 2003



RIO CULEBRINAS BASIN—Continued

182442067091700. Local number, 200.

LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.4 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.2 mi north of Hwy 2 km 146.4, Name: Aguadilla Cement North Well.

AQUIFER.--Alluvial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.1 m), cased 0-20 ft (0-6.1 m), perforated 11-20 ft (3.35-6.1 m). Depth 10 ft (3.05 m), sounded depth measured on October 8, 2004.

INSTRUMENTATION.--Electronic water level logger--60-minutes interval.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m), above mean sea level, from topographic map. Measuring point: Shelter floor on top of 4 in (0.1 m) casing, 3.25 ft (0.99 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 18, 1998. Water levels affected by nearby pumping well.

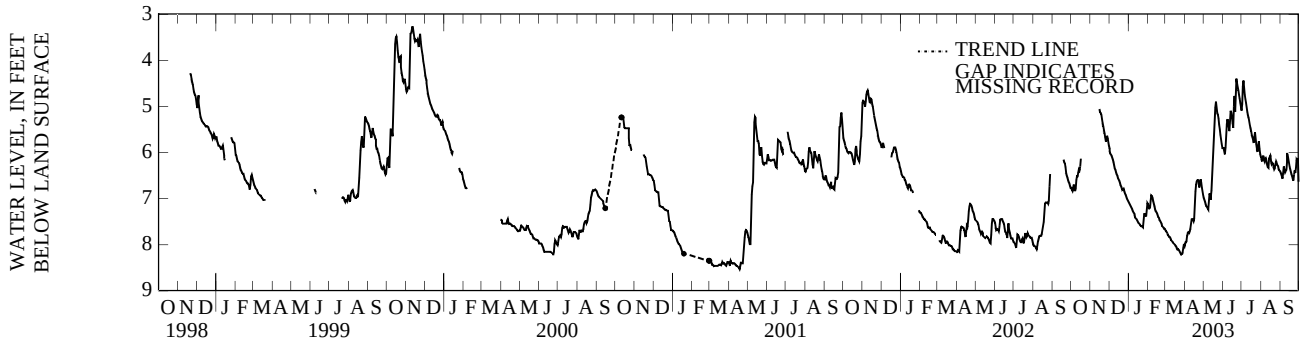
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.61 ft (0.49 m), below land-surface datum, September 22, 1998; lowest water level recorded, 9.6 ft (2.93 m), below land-surface datum, February 20, 1992.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.77	---	5.89	7.07	7.09	7.67	8.04	6.97	5.95	5.06	6.12	6.41
2	6.77	---	5.95	7.10	7.16	7.69	7.92	7.00	5.86	5.14	6.12	6.45
3	6.84	---	6.01	7.14	7.23	7.72	7.94	7.05	5.95	4.77	6.16	6.50
4	6.84	---	6.05	7.15	7.23	7.74	7.97	7.10	6.01	4.37	6.22	6.54
5	6.68	---	6.05	7.18	7.19	7.78	7.88	7.16	6.08	4.53	6.01	6.60
6	6.70	---	6.10	7.21	6.93	7.80	7.75	7.19	5.73	4.67	6.13	6.28
7	6.82	---	6.14	7.24	6.94	7.83	7.75	7.19	5.53	4.82	6.19	6.33
8	6.86	---	6.18	7.28	6.96	7.83	7.74	7.22	5.26	4.88	6.19	6.42
9	6.69	---	6.24	7.31	7.02	7.85	7.77	7.27	5.30	4.98	6.09	6.45
10	6.50	---	6.33	7.33	7.09	7.89	7.66	6.88	5.40	5.08	6.17	6.35
11	6.52	---	6.36	7.35	7.14	7.91	7.66	6.91	5.51	5.17	6.23	6.44
12	6.50	---	6.40	7.38	7.20	7.92	7.47	6.99	5.57	5.21	6.29	6.00
13	6.36	---	6.46	7.45	7.27	7.95	7.46	7.06	5.07	5.30	6.34	6.02
14	6.37	---	6.48	7.43	7.28	7.96	7.43	6.90	5.13	5.38	6.08	6.09
15	6.42	5.03	6.53	7.47	7.31	7.98	7.47	6.76	5.16	5.45	6.17	6.18
16	6.19	5.09	6.58	7.49	7.34	8.00	7.51	6.34	5.31	5.51	6.02	6.27
17	6.08	5.16	6.59	7.52	7.39	8.02	7.37	6.08	5.44	5.59	6.12	6.34
18	---	5.12	6.64	7.53	7.41	8.04	6.93	5.79	5.52	5.65	6.24	6.39
19	---	5.24	6.68	7.55	7.44	8.06	6.76	5.35	4.49	5.70	6.27	6.46
20	---	5.32	6.73	7.56	7.50	8.12	6.63	5.20	5.07	5.75	6.19	6.49
21	---	5.40	6.76	7.61	7.49	8.10	6.63	4.87	5.17	5.83	6.29	6.54
22	---	5.47	6.79	7.59	7.50	8.11	6.57	4.95	4.41	5.51	6.35	6.59
23	---	5.55	6.86	7.61	7.52	8.13	6.64	5.09	4.41	5.64	6.38	6.63
24	---	5.62	6.76	7.63	7.56	8.16	6.73	5.19	4.46	5.74	6.28	6.36
25	---	5.74	6.82	7.63	7.63	8.18	6.81	5.17	4.55	5.92	6.22	6.42
26	---	5.78	6.88	7.32	7.60	8.21	6.55	5.37	4.61	5.95	6.18	6.48
27	---	5.66	6.91	7.35	7.67	8.24	6.61	5.45	4.70	6.02	6.29	6.18
28	---	5.63	6.94	7.31	7.65	8.17	6.71	5.56	4.79	5.67	6.27	6.14
29	---	5.76	6.98	7.38	---	8.18	6.81	5.68	4.88	5.85	6.33	6.22
30	---	5.84	7.02	7.39	---	7.97	6.89	5.77	4.97	5.99	6.39	6.03
31	---	---	7.05	7.10	---	8.01	---	5.86	---	6.06	6.40	---
MEAN	---	---	6.52	7.38	7.31	7.97	7.27	6.24	5.21	5.39	6.22	6.35

WTR YR 2003 MEAN 6.53 HIGHEST 3.64 JULY 3, 2003 LOWEST 8.25 MAR 27, 2003



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Ground-Water Records for U.S. Virgin Islands

ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.9 mi southeast of the Experimental Station, 6.0 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: US Virgin Islands Water and Power Authority, Name: USGS-10, Fairplains 2 Well.

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 20 ft (6.1 m), above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.76 ft (1.15 m), above land-surface datum. Prior November 19, 1999, top of 0.5 in (0.01 m), hole at concrete base wall, 3 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Water level affected by nearby pumping well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on October 27, 1999.

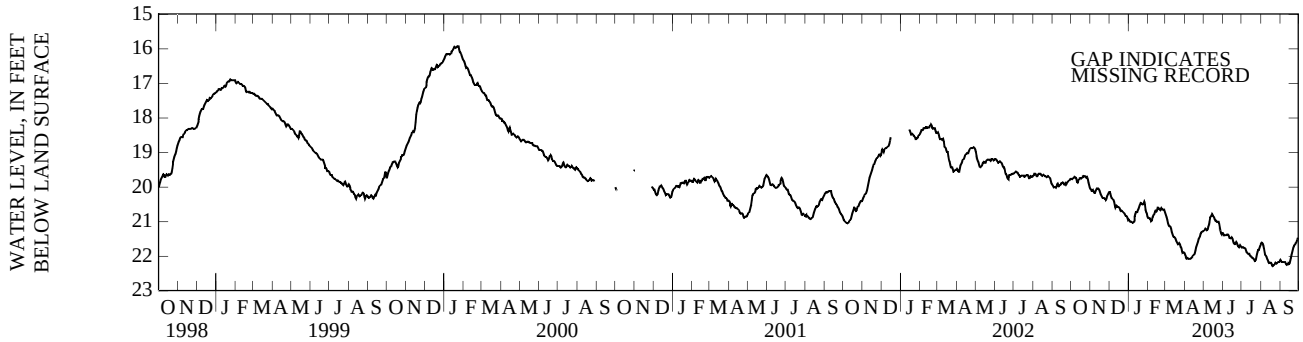
PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.86 ft (4.83 m), below land-surface datum, January 24, 2000; lowest water level recorded, 26.46 ft (8.06 m), below land-surface datum, August 25, 1990.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.78	20.04	20.15	20.95	20.92	20.76	21.93	21.29	21.31	21.75	21.66	22.12
2	19.74	20.07	20.14	20.95	20.86	20.77	22.00	21.26	21.35	21.75	21.65	22.12
3	19.80	20.10	20.14	21.02	20.91	20.87	22.02	21.25	21.41	21.76	21.62	22.18
4	19.77	20.13	20.22	21.00	20.90	20.89	22.06	21.20	21.40	21.74	21.61	22.17
5	19.76	20.10	20.30	21.00	20.92	21.01	22.09	21.23	21.39	21.75	21.66	22.16
6	19.71	20.11	20.34	21.01	20.97	21.07	22.05	21.24	21.39	21.76	21.72	22.18
7	19.70	20.16	20.35	21.04	21.02	21.11	22.06	21.30	21.40	21.76	21.86	22.16
8	19.74	20.19	20.37	21.06	20.94	21.14	22.08	21.19	21.37	21.82	21.92	22.17
9	19.71	20.14	20.39	21.04	20.82	21.13	22.09	21.13	21.39	21.87	22.00	22.16
10	19.80	20.09	20.46	21.02	20.86	21.17	22.08	21.07	21.37	21.93	21.99	22.25
11	19.91	20.06	20.60	20.90	20.77	21.26	22.08	20.92	21.46	21.91	22.04	22.24
12	19.84	20.03	20.59	20.80	20.75	21.34	22.08	20.87	21.46	21.95	22.11	22.27
13	19.81	20.04	20.53	20.75	20.68	21.39	22.03	20.87	21.48	21.92	22.13	22.26
14	19.80	20.05	20.55	20.71	20.71	21.43	22.02	20.84	21.50	21.95	22.21	22.22
15	19.74	20.07	20.58	20.76	20.71	21.45	22.00	20.80	21.47	22.02	22.20	22.21
16	19.74	20.12	20.57	20.71	20.62	21.45	21.96	20.77	21.48	21.99	22.19	22.29
17	19.75	20.18	20.58	20.64	20.59	21.49	21.96	20.86	21.53	22.03	22.18	22.16
18	19.77	20.22	20.60	20.61	20.62	21.53	21.88	20.84	21.61	22.05	22.20	22.10
19	19.73	20.28	20.65	20.56	20.64	21.58	21.79	20.90	21.64	22.07	22.24	22.01
20	19.70	20.29	20.74	20.50	20.67	21.60	21.71	20.95	21.68	22.04	22.31	21.94
21	19.69	20.33	20.69	20.46	20.66	21.67	21.66	20.97	21.63	22.10	22.29	21.86
22	19.71	20.32	20.70	20.48	20.67	21.66	21.62	20.98	21.60	22.15	22.26	21.78
23	19.69	20.33	20.71	20.48	20.59	21.64	21.54	21.01	21.61	22.14	22.25	21.72
24	19.69	20.34	20.73	20.51	20.65	21.62	21.48	21.00	21.59	22.12	22.19	21.71
25	19.70	20.35	20.75	20.50	20.67	21.73	21.46	21.00	21.67	21.97	22.18	21.66
26	19.76	20.39	20.76	20.42	20.65	21.75	21.39	20.99	21.70	21.91	22.25	21.66
27	19.71	20.30	20.85	20.43	20.65	21.79	21.34	21.14	21.75	21.83	22.22	21.61
28	19.73	20.24	20.82	20.56	20.67	21.92	21.31	21.22	21.73	21.82	22.20	21.54
29	19.84	20.20	20.85	20.73	---	21.92	21.32	21.31	21.67	21.81	22.17	21.50
30	19.90	20.19	20.87	20.72	---	21.88	21.29	21.38	21.72	21.73	22.19	21.45
31	19.99	---	20.97	20.80	---	21.89	---	21.38	---	21.68	22.14	---
MEAN	19.76	20.18	20.57	20.75	20.75	21.42	21.81	21.07	21.53	21.91	22.06	22.00

WTR YR 2003MEAN21.15HIGHEST19.69 OCT 7 , 20-25, 27, 28, 2002LOWEST22.31 AUG 20, 2003



ST. CROIX, U.S. VIRGIN ISLANDS—Continued

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted plaza, and 0.57 mi southwest of the Experimental Station. Owner: US Virgin Islands Government, Name: Golden Grove 6 Well.

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.2 m), cased 8 in (0.2 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m), above mean sea level, from topographic map. Measuring point: Upper edge of hole at 8 in (0.2 m) casing, 4.2 ft (1.28 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed o n October 27, 1999. From Febraury 21, 2001 to May 21, 2002, tapedowns measurements only.

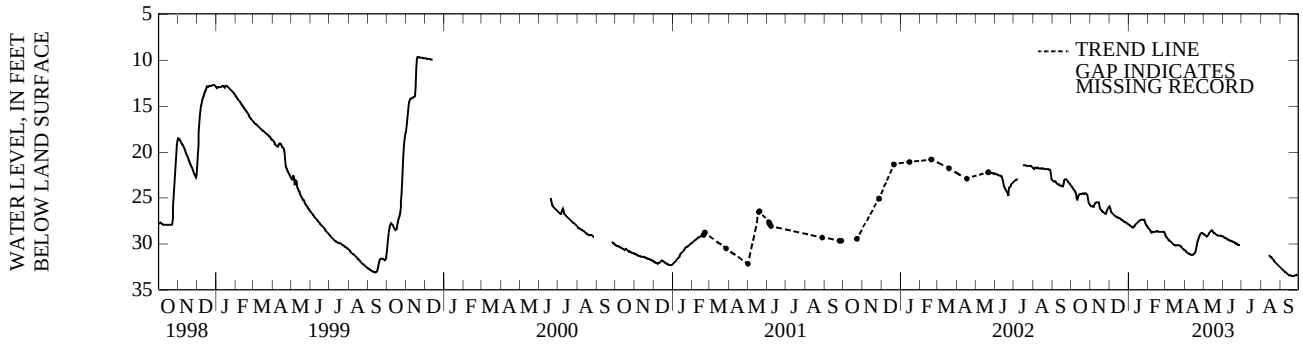
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.68 ft (2.95 m), below land-surface datum, November 19, 20, 1999; lowest water level recorded, 41.05 ft (12.5 m), below land-surface datum, September 15, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.63	25.79	25.98	27.86	28.16	28.96	30.66	28.89	29.14	---	---	32.52
2	23.72	25.85	25.90	27.91	28.27	29.10	30.70	28.93	29.18	---	---	32.58
3	23.81	25.96	25.95	27.96	28.37	29.22	30.77	28.99	29.23	---	---	32.64
4	23.93	25.76	26.38	28.01	28.44	29.32	30.82	29.02	29.27	---	---	32.71
5	24.02	25.96	26.52	28.07	28.51	29.36	30.88	29.09	29.31	---	---	32.77
6	24.10	25.97	26.61	28.11	28.67	29.49	30.93	29.14	29.34	---	---	32.85
7	24.22	25.91	26.67	28.15	28.76	29.59	30.98	29.23	29.38	---	---	32.91
8	24.29	25.62	26.75	28.20	28.75	29.61	31.02	29.02	29.41	---	---	32.97
9	24.56	25.55	26.81	28.23	28.65	29.69	31.06	28.95	29.49	---	---	33.03
10	25.13	25.50	26.89	28.14	28.64	29.74	31.08	28.83	29.52	---	---	33.08
11	25.34	25.48	26.94	28.05	28.64	29.81	31.11	28.77	29.55	---	---	33.13
12	24.80	25.46	26.99	27.97	28.63	29.85	31.13	28.70	29.58	---	---	33.18
13	24.68	25.46	27.02	27.89	28.62	29.93	31.16	28.62	29.61	---	---	33.22
14	24.59	25.47	27.05	27.82	28.62	30.05	31.17	28.58	29.63	---	31.21	33.27
15	24.58	25.48	27.08	27.75	28.62	30.09	31.17	28.53	29.66	---	31.27	33.33
16	24.57	26.06	27.11	27.69	28.61	30.12	31.13	28.52	29.70	---	31.32	33.38
17	24.57	26.20	27.15	27.62	28.62	30.13	31.02	28.65	29.72	---	31.36	33.40
18	24.53	26.26	27.19	27.56	28.63	30.15	30.89	28.72	29.75	---	31.40	33.40
19	24.51	26.35	27.23	27.52	28.64	30.14	30.69	28.79	29.81	---	31.49	33.41
20	24.52	26.45	27.28	27.46	28.63	30.14	30.33	28.81	29.85	---	31.60	33.42
21	24.51	26.50	27.33	27.37	28.62	30.13	29.93	28.87	29.87	---	31.69	33.42
22	24.51	26.56	27.38	27.36	28.63	30.13	29.62	28.97	29.91	---	31.77	33.42
23	24.53	26.63	27.43	27.35	28.64	30.12	29.44	29.02	29.94	---	31.86	33.42
24	24.51	26.67	27.48	27.36	28.66	30.13	29.20	29.04	29.98	---	31.94	33.42
25	24.50	26.73	27.53	27.35	28.64	30.17	29.04	29.05	30.01	---	32.01	33.41
26	24.52	26.69	27.57	27.35	28.64	30.25	28.93	29.06	30.04	---	32.09	33.41
27	24.52	26.34	27.60	27.36	28.65	30.32	28.86	29.08	30.07	---	32.17	33.40
28	24.72	26.20	27.64	27.68	28.67	30.39	28.82	29.09	30.11	---	32.24	33.34
29	25.33	26.11	27.70	27.84	---	30.51	28.81	29.10	30.12	---	32.31	33.33
30	25.52	26.04	27.75	27.95	---	30.57	28.82	29.10	30.16	---	32.38	33.23
31	25.66	---	27.81	28.06	---	30.60	---	29.12	---	---	32.44	---
MEAN	24.55	26.03	27.06	27.77	28.59	29.93	30.34	28.91	29.68	---	---	33.17

WTR YR 2003MEAN28.77 HIGHEST23.57 OCT 1, 2002LOWEST33.42 SEPT 19 TO 24, 2003



ST. CROIX, U.S. VIRGIN ISLANDS—Continued

174316064480800. Local number, 13.

LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: US Virgin Islands Water and Power Authority, Name: WAPA-17 Well.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.1 m), cased 0-95 ft (0-29 m), screened 10-40 ft (3.05-12.2 m). Depth 95 ft (29 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m), above mean sea level, from topographic map. Measuring point: To p of shelter floor, 2.33 ft (0.71 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed o n October 27, 1999. From October 1, 2000 to March 26, 2001, tapedowns measurements only.

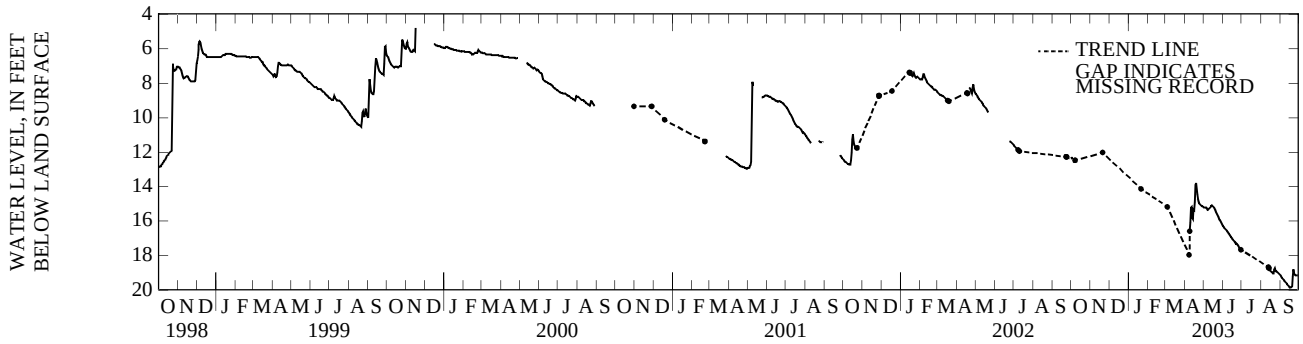
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.27 ft (0.08 m), below land-surface datum, September 10, 1996; lowest water level recorded, 27.88 ft (8.5 m), below land-surface datum, September 6, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.26	---	---	---	---	---	---	15.18	16.24	---	---	19.13
2	12.32	---	---	---	---	---	---	15.21	16.29	---	---	19.17
3	12.38	---	---	---	---	---	---	15.22	16.35	---	---	19.24
4	12.41	---	---	---	---	---	---	15.22	16.40	---	---	19.30
5	12.45	---	---	---	---	---	---	15.22	16.45	---	---	19.35
6	12.47	---	---	---	---	---	---	15.22	16.50	---	---	19.39
7	---	---	---	---	---	---	---	15.32	16.54	---	---	19.43
8	---	---	---	---	---	---	19.37	15.35	16.57	---	---	19.49
9	---	---	---	---	---	---	16.54	15.34	16.64	---	---	19.52
10	---	---	---	---	---	---	16.60	15.29	16.69	---	---	19.56
11	---	---	---	---	---	---	15.57	15.25	16.74	---	---	19.61
12	---	---	---	---	---	---	14.92	15.22	16.80	---	---	19.65
13	---	---	---	---	---	---	15.50	15.16	16.86	---	---	19.68
14	---	---	---	---	---	---	16.12	15.13	16.91	---	18.70	19.73
15	---	---	---	---	---	---	15.60	15.11	16.96	---	18.78	19.76
16	---	---	---	---	---	---	15.04	15.11	17.01	---	18.84	19.79
17	---	---	---	---	---	---	15.69	15.14	17.07	---	18.88	19.85
18	---	---	---	---	---	---	14.13	15.18	17.11	---	18.93	19.85
19	---	---	---	---	---	---	13.67	15.24	17.15	---	18.95	19.85
20	---	---	---	---	---	---	13.93	15.32	17.20	---	18.98	19.82
21	---	---	---	14.13	---	---	14.31	15.42	17.25	---	19.04	19.77
22	---	---	---	14.13	---	---	14.65	15.51	17.27	---	18.99	18.67
23	---	---	---	---	---	---	14.82	15.57	17.28	---	18.61	18.94
24	---	---	---	---	---	---	14.93	15.66	17.32	---	18.85	19.08
25	---	---	---	---	---	---	15.00	15.75	17.35	---	18.93	19.13
26	---	---	---	---	---	---	15.05	15.80	17.41	---	18.90	19.13
27	---	---	---	---	---	---	15.07	15.91	17.48	---	18.90	19.14
28	---	---	---	---	---	---	15.11	15.95	17.53	---	18.99	19.14
29	---	---	---	---	---	---	15.13	15.99	17.59	---	19.01	19.14
30	---	---	---	---	---	---	15.15	16.12	17.64	---	19.03	19.14
31	---	---	---	---	---	---	---	16.18	---	---	19.08	---
MEAN	---	---	---	---	---	---	---	15.43	16.95	---	---	19.41

WTR YR 2003MEAN16.89 HIGHEST12.03 NOV 20, 2002LOWEST19.85 SEPT 17 TO 20, 2003



ST. CROIX, U.S. VIRGIN ISLANDS—Continued

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	12.48	JAN 21	14.13	APR 08	16.37	JUNE 3	017.64	SEPT 3	019.14
NOV 20	12.03	MAR 04	15.17	MAY 31	16.18	AUG 1	318.67		

WATER YEAR 2003 HIGHEST 12.03 NOV 20, 2002 LOWEST 19.14 SEPT 30, 2003

ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.

LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: US Virgin Islands Government, Name: Grade School 3 Well.

AQUIFER.--Volcanic breccia.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70 ft (21.3 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 52 ft (15.8 m), above mean sea level, from topographic map. Prior to June 30, 1999, is about 60 ft (18.3 m), above mean sea level. Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 3.3 ft (1 m), above land-surface datum. Prior to June 30, 1999, top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.3 ft (0.4 m), above land-surface datum. Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.9 ft (0.88 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recording (ADR), replaced by an Electronic Data Logger (EDL), installed on October 28, 1999. A datum correction was required after land-surface elevation in the area, changed from 60 ft (18.3 m) to 52 ft (15.8 m) on June 29, 1999.

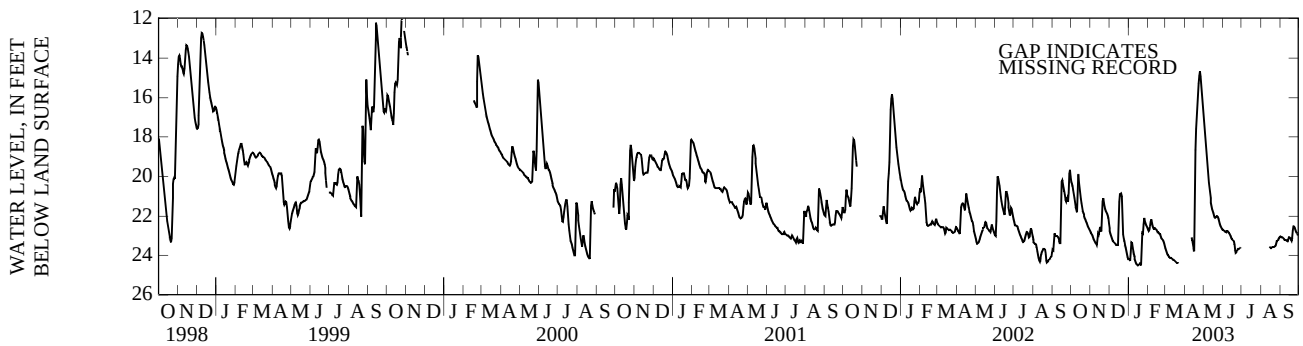
PERIOD OF RECORDS.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORDS.--Highest water level recorded, 1.53 ft (0.47 m), below land-surface datum, October 1, 1989; lowest water level recorded, 35.38 ft (10.8 m), below land-surface datum, July 21, 1982.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.15	22.77	22.57	24.24	22.63	23.58	---	16.96	22.71	23.59	---	23.06
2	20.38	22.83	22.68	24.14	22.73	23.68	---	17.42	22.69	---	---	23.06
3	20.36	22.91	22.80	24.24	22.80	23.78	---	17.88	22.75	---	---	23.11
4	20.60	22.94	22.94	24.31	22.56	23.87	---	18.32	22.79	---	---	23.08
5	20.81	23.04	23.04	23.43	22.52	23.97	---	18.74	22.79	---	---	23.08
6	21.02	23.14	23.14	23.25	22.10	24.01	---	19.15	22.80	---	---	23.12
7	21.21	23.21	23.23	23.52	22.27	24.06	---	19.53	22.82	---	---	23.18
8	21.47	23.28	23.30	23.70	22.41	24.10	---	19.83	22.72	---	---	23.21
9	21.63	23.34	23.30	23.87	22.55	24.12	---	20.17	22.76	---	---	23.21
10	21.74	23.38	23.36	24.01	22.64	24.13	---	20.46	22.82	---	---	23.24
11	21.90	23.43	23.40	24.11	22.65	24.13	---	20.73	22.87	---	---	23.24
12	19.69	23.48	23.44	24.24	22.65	24.15	23.00	20.98	22.92	---	---	23.25
13	20.14	22.85	23.48	24.34	22.63	24.19	23.17	21.25	22.98	---	---	23.25
14	20.44	22.95	23.47	24.42	22.66	24.21	23.33	21.43	23.08	---	---	23.28
15	20.75	22.93	23.47	24.44	22.74	24.23	23.54	21.58	23.15	---	23.57	23.10
16	21.01	22.56	23.46	24.49	22.78	24.27	23.72	21.70	23.19	---	23.59	23.09
17	21.24	22.58	21.75	24.52	22.83	24.30	23.89	21.80	23.23	---	23.62	23.10
18	21.47	22.80	20.83	24.51	22.84	24.34	19.52	21.92	23.25	---	23.64	23.14
19	21.66	22.78	20.97	24.41	22.92	24.37	17.85	22.03	23.29	---	23.62	23.22
20	21.84	21.55	20.83	24.41	22.92	24.37	17.34	22.12	23.59	---	23.59	23.28
21	21.85	20.97	20.95	24.47	22.93	24.37	16.66	22.11	23.88	---	23.56	22.94
22	21.99	21.22	21.07	24.53	23.00	24.41	16.33	22.06	23.89	---	23.57	22.58
23	22.06	21.44	22.84	22.86	23.08	24.44	15.31	21.99	23.83	---	23.57	22.49
24	22.13	21.60	23.08	22.86	23.18	---	15.26	22.00	23.77	---	23.56	22.54
25	22.24	21.71	23.20	22.90	23.20	---	14.58	22.08	23.73	---	23.53	22.62
26	22.28	21.80	23.36	21.99	23.24	---	14.75	22.21	23.69	---	23.31	22.74
27	22.39	21.83	23.55	22.21	23.32	---	15.15	22.36	23.66	---	23.26	22.83
28	22.48	21.93	23.68	22.31	23.45	---	15.55	22.47	23.67	---	23.26	22.87
29	22.57	22.00	23.83	22.42	---	---	16.01	22.55	23.65	---	23.25	22.93
30	22.63	22.21	24.02	22.50	---	---	16.48	22.58	23.63	---	23.07	23.05
31	22.68	---	24.15	22.55	---	---	---	22.65	---	---	23.08	---
MEAN	21.45	22.52	22.88	23.68	22.79	---	---	20.94	23.22	---	---	23.03

WTR YR 2003 MEAN 22.47 HIGHEST 14.57 APR 25, 2003 LOWEST 24.53 JAN 17, 18, 2003



ST. THOMAS, U.S. VIRGIN ISLANDS—Continued

182038064580000. Local number, 8.

LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.5 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: US Virgin Islands Water and Power Authority, Name: Kirwan Terrace , VIEO-6 Well.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.1 m), cased 0-56 ft (0-17.1 m), screened 56-76 ft (17.1-23.2 m). Depth 76 ft (23.2 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 35 ft (10.7 m), above mean sea level, from topographic map. Measuring point: To p of shelter floor, 3 ft (0.91 m), above land-surface datum.

REMARKS.--Recording observation well. Drilled on July 1, 1991. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on October 29, 1999.

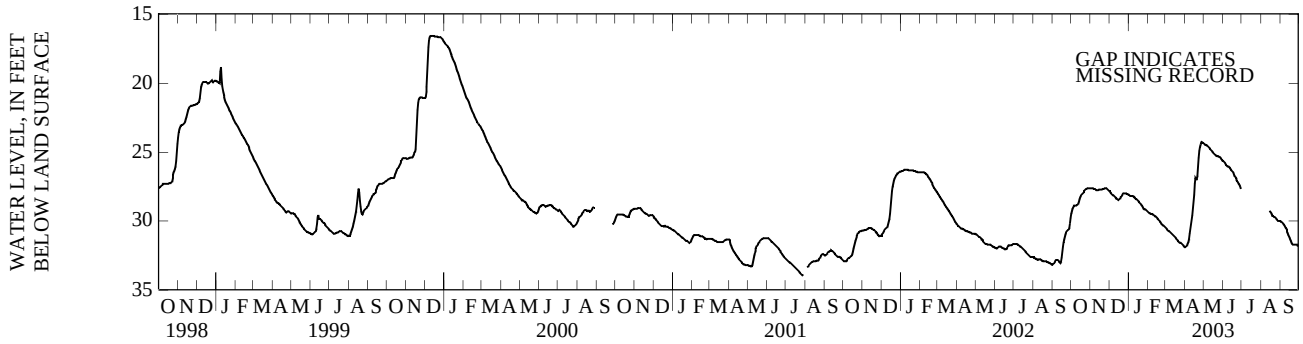
PERIOD OF RECORD.--October 2, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.3 ft (4.37 m), below land-surface datum, December 6, 7, 1996; lowest water level recorded, 33.97 ft (10.35 m), below land-surface datum, July 29, 30, 2001.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.60	27.61	27.80	28.07	29.30	30.38	31.89	24.35	25.63	27.71	---	30.00
2	29.36	27.61	27.83	28.09	29.37	30.47	31.89	24.40	25.66	---	---	30.01
3	29.17	27.63	27.88	28.14	29.42	30.54	31.88	24.45	25.70	---	---	30.05
4	29.04	27.62	27.94	28.16	29.44	30.57	31.88	24.47	25.75	---	---	30.10
5	28.96	27.63	28.00	28.18	29.45	30.64	31.81	24.48	25.82	---	---	30.15
6	28.89	27.64	28.04	28.18	29.47	30.71	31.68	24.52	25.89	---	---	30.20
7	28.86	27.66	28.08	28.19	29.48	30.75	31.56	24.55	26.00	---	---	30.27
8	28.88	27.67	28.13	28.19	29.50	30.73	31.42	24.60	26.02	---	---	30.32
9	28.88	27.69	28.16	28.21	29.51	30.79	31.12	24.65	26.02	---	---	30.44
10	28.87	27.72	28.20	28.24	29.56	30.83	30.73	24.68	26.03	---	---	30.52
11	28.87	27.75	28.24	28.31	29.60	30.87	30.40	24.76	26.06	---	---	30.58
12	28.79	27.79	28.32	28.34	29.65	30.91	30.08	24.80	26.14	---	---	30.68
13	28.64	27.76	28.36	28.37	29.67	30.97	29.79	24.83	26.21	---	---	30.82
14	28.51	27.77	28.38	28.40	29.68	31.02	29.42	24.86	26.27	---	---	30.94
15	28.33	27.73	28.44	28.43	29.73	31.08	28.89	24.92	26.33	---	29.23	31.03
16	28.21	27.72	28.49	28.46	29.78	31.12	28.38	24.98	26.37	---	29.28	31.12
17	28.16	27.73	28.50	28.51	29.86	31.17	27.86	25.03	26.43	---	29.34	31.24
18	28.09	27.72	28.43	28.59	29.91	31.22	26.77	25.11	26.53	---	29.38	31.37
19	28.06	27.69	28.36	28.68	29.95	31.30	26.94	25.14	26.71	---	29.57	31.50
20	28.02	27.74	28.28	28.71	30.01	31.35	27.01	25.20	26.75	---	29.61	31.58
21	27.95	27.69	28.21	28.75	30.05	31.41	26.91	25.22	26.81	---	29.63	31.67
22	27.89	27.68	28.13	28.81	30.10	31.49	26.58	25.25	26.89	---	29.66	31.69
23	27.83	27.66	28.05	28.89	30.18	31.53	25.70	25.28	26.98	---	29.70	31.68
24	27.77	27.65	28.00	28.97	30.24	31.56	25.14	25.29	27.05	---	29.72	31.68
25	27.74	27.61	27.98	29.08	30.28	31.55	24.76	25.31	27.12	---	29.77	31.68
26	27.69	27.62	27.97	29.13	30.30	31.56	24.52	25.32	27.19	---	29.86	31.68
27	27.67	27.65	27.97	29.14	30.34	31.61	24.40	25.34	27.28	---	29.89	31.68
28	27.64	27.69	27.99	29.15	30.37	31.67	24.30	25.38	27.36	---	29.95	31.67
29	27.63	27.74	28.02	29.17	---	31.73	24.28	25.45	27.44	---	29.98	31.75
30	27.62	27.78	28.03	29.22	---	31.79	24.33	25.51	27.61	---	29.99	31.91
31	27.61	---	28.05	29.26	---	31.86	---	25.59	---	---	30.00	---
MEAN	28.36	27.69	28.14	28.58	29.79	31.13	28.41	24.96	26.47	---	---	31.00

WTR YR 2003MEAN29.80 HIGHEST 24.27 APR 29, 2003 LOWEST 31.92 SEPT 30, 2003



ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.

LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: US Virgin Islands Government, Name: Guinea Gut Well.

AQUIFER.--Louisenhoj Formation (Donnelly, 1959).

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.9 m).

INSTRUMENTATION.--Electronic water level logger--60-minutes punch.

DATUM.--Elevation of land-surface datum is about 280 ft (85.36 m), above mean sea level, from topographic map. Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.5 ft (0.46 m), above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.8 ft (0.55 m), above land-surface datum.

REMARKS.--Recording observation well. Automated Digital Recorder (ADR), replaced by an Electronic Data Logger (EDL), installed on February 17, 2000.

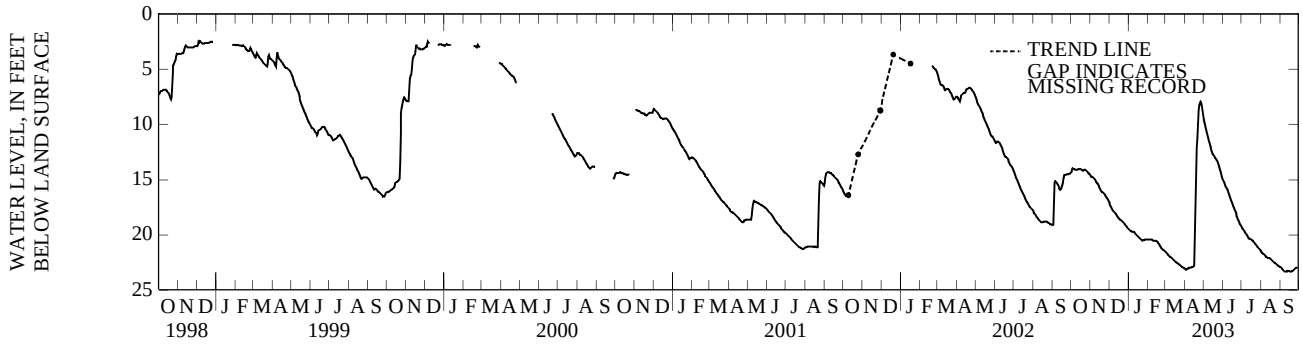
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.34 ft (0.71 m), below land-surface datum, December 7, 1998; lowest water level recorded, 34.18 ft (10.4 m), below land-surface datum, September 6, 1995.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY OBSERVATION AT 1200 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.46	14.58	17.04	19.47	20.41	21.50	23.05	9.37	14.98	19.20	21.47	22.90
2	14.27	14.68	17.16	19.51	20.41	21.55	23.08	9.67	15.06	19.29	21.56	22.94
3	13.99	14.76	17.29	19.56	20.41	21.62	23.11	9.94	15.19	19.41	21.61	22.99
4	13.99	14.73	17.41	19.62	20.40	21.67	23.11	10.19	15.36	19.50	21.64	23.07
5	14.02	14.76	17.52	19.66	20.40	21.74	23.10	10.46	15.54	19.59	21.67	23.13
6	14.02	14.80	17.62	19.68	20.40	21.81	23.07	10.69	15.66	19.65	21.71	23.20
7	14.04	14.84	17.73	19.70	20.41	21.87	23.02	10.92	15.71	19.75	21.77	23.29
8	14.10	14.93	17.84	19.71	20.45	21.92	23.00	11.15	15.81	19.85	21.83	23.29
9	14.12	15.03	17.90	19.72	20.49	21.96	22.98	11.35	15.96	19.92	21.90	23.28
10	14.09	15.12	17.96	19.73	20.52	22.02	22.98	11.57	16.16	20.03	22.00	23.28
11	14.11	15.24	18.02	19.77	20.53	22.08	22.97	11.76	16.30	20.13	21.98	23.28
12	14.11	15.32	18.09	19.82	20.53	22.13	22.95	11.97	16.47	20.23	22.07	23.27
13	14.06	15.32	18.18	19.89	20.52	22.17	22.93	12.13	16.66	20.30	22.06	23.26
14	14.01	15.47	18.24	19.96	20.53	22.23	22.89	12.26	16.86	20.34	22.05	23.26
15	14.01	15.62	18.35	20.02	20.55	22.29	22.88	12.47	17.02	20.35	22.07	23.27
16	14.03	15.77	18.45	20.10	20.60	22.34	22.86	12.63	17.12	20.38	22.12	23.27
17	14.06	15.89	18.55	20.16	20.68	22.40	22.83	12.73	17.28	20.41	22.19	23.29
18	14.10	16.00	18.58	20.21	20.77	22.45	18.79	12.80	17.45	20.46	22.25	23.28
19	14.15	16.07	18.59	20.28	20.88	22.49	14.85	12.87	17.62	20.51	22.29	23.28
20	14.18	16.11	18.63	20.34	20.95	22.54	12.70	12.98	17.75	20.60	22.35	23.30
21	14.18	16.17	18.71	20.38	21.03	22.59	11.58	13.10	17.87	20.67	22.40	23.29
22	14.13	16.21	18.75	20.44	21.08	22.64	10.90	13.17	18.01	20.74	22.45	23.25
23	14.11	16.26	18.80	20.48	21.16	22.67	9.13	13.22	18.16	20.81	22.51	23.20
24	14.10	16.35	18.85	20.51	21.22	22.71	8.42	13.37	18.31	20.88	22.55	23.14
25	14.12	16.45	18.93	20.51	21.29	22.77	8.11	13.52	18.45	20.95	22.60	23.08
26	14.15	16.55	19.01	20.47	21.33	22.81	7.97	13.70	18.60	21.04	22.64	23.02
27	14.24	16.63	19.09	20.46	21.37	22.85	7.96	13.90	18.73	21.11	22.69	22.99
28	14.31	16.72	19.16	20.44	21.41	22.89	8.13	14.13	18.89	21.17	22.74	22.96
29	14.39	16.81	19.24	20.42	---	22.94	8.56	14.33	19.02	21.23	22.78	22.94
30	14.45	16.91	19.32	20.41	---	22.97	9.02	14.55	19.11	21.30	22.82	22.91
31	14.47	---	19.39	20.41	---	23.01	---	14.78	---	21.39	22.85	---
MEAN	14.15	15.67	18.34	20.06	20.74	22.31	17.56	12.31	17.04	20.36	22.18	23.16

WTR YR 2003MEAN18.64 HIGHEST 7.91 APR 27, 2003 LOWEST 23.31 SEPT 20, 2003



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